



The Nuclear Criticality Safety Program is ready for the NRC to inspect.

1. The criticality safety program procedures are approved, published, and ready for review.
2. Criticality Safety Analyses are completed for plant systems that process enriched material.
3. Receipt inspections of components for safe-by-design attributes are performed as components are received.
4. Field verifications of safe-by-design attributes are being performed as system components are installed in the facility.
5. Out-of-tolerance measurements discovered in field verifications are evaluated or re-analyzed to determine an appropriate resolution.

List any exceptions to your program below.

1. Verification of for Safe-by-Design Attributes for certain system components and miscellaneous components are not yet complete, pending receipt and/or final installation of these items. This effort is scheduled to complete with the final verification of the Cascade Evacuation Rig on 3 March 2010.
2. The Criticality Accident Alarm System will be ready for operations (construction complete) on 15 January 2010.

Steven Troyer / JTC 31 Dec. 2009
Program Owner/Date

Jim Knowles 12/31/09 For Allen Sorrell
Program Owner's Director/Date

JTC for Jerome Reed Dec 31, 2009
Vice President of Operations/Date



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LES QA AUDIT PLAN

QA Audit Number: 2009-A-05-038

Subject: Nuclear Criticality Safety Program QA Audit Date(s): June 22 – July 10, 2009

QA Audited

Organization: Nuclear Criticality Safety Program Contact Person: Karl Becker

PURPOSE AND SCOPE:

To determine the operational readiness of processes and procedures of the Nuclear Criticality Safety Program as it relates to the NRC inspection procedures IP88015, -16, -17.

This is a follow-up audit of a similar operational readiness assessment performed in 2008, assessment number 2008-010.

QA ELEMENTS:

The audit will review the current status of the Nuclear Criticality Safety Program operational readiness.

ACTIVITIES – AREAS – DOCUMENTS – PERSONNEL TO BE ASSESSED:

- Audit by interview and document investigation using a checklist derived from NRC IP88015 – Nuclear Criticality Safety Program**
- IP88016 – Nuclear Criticality Safety Evaluations and Analyses**
- IP88017 – Criticality Alarm Systems**

Base document to be reviewed:

- CR-3-1000-01, rev 2, Implementation NCS Evaluations and Analyses**
- CR-3-1000-02, rev 1, Criticality Safety Limit Posting**
- CR-3-1000-03, rev 2, NCS Weekly Walkthroughs and Periodic Assessments**
- CR-3-1000-04, rev 1, Response to Nuclear Criticality Safety Anomalous Condition**

QA AUDIT TEAM:

- Bill Wood LES QA**
- Greg Amsden QA- Lead Auditor**
- Joseph Mallia QA- Lead Auditor**
- Richard Desko QA- Auditor**
- Larry Kayler Tech Specialist**
- Karl Becker ISA/NSC**
- Steve Su ISA/NSC**
- Richard Lehman ISA/NSC**
- Allen Sorrell Plant Support Ops**
- Charlotta Sanders HS/Criticality Engineer**

Joseph Mallia

 QA/IL/Lead QA Auditor – Joseph Mallia

J. Marchi

 QAD

07-28-09

 Date

7/3/09

 Date



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LES QA AUDIT REPORT

QA AUDIT NO. 2009-A-05-038

QA AUDITED ORGANIZATION: Internal Audit of LES' Nuclear Criticality Program.

QA AUDIT DATE(S): May 25 through June 12, 2009

APPROVAL: *Meg Anderson* 9/9/09
QATL Date

CONCURRENCE: *J. Moore* 9/8/09
Quality Assurance Director Date

QA AUDIT SUMMARY:

This audit was based on the NRC Inspection Manual, Inspection Procedures 88015, 88016 and 88017, Nuclear Criticality Safety (NCS) and Alarm Program. The checklist was created based on the statements and expectations in this NRC Manual section. Also, attention was made to enhance questioning in areas regarding issues found in the Self Assessment for Criticality Safety, ORR Criticality Safety Program and Evaluation/ Analysis, Final Report June 9, 2008, assessment number 2008-010.

Conclusions:

This audit concludes that the NCS and Alarm program requires additional attention before it can be fully implemented. It is understood that at the time this audit was conducted that the NCS program was not fully complete and at an interim state of developing procedures through engineering and operational review and validation.

This audits resulting finding, recommendations and inability to complete the audit indicate this interim condition. It was explained during the audit that procedural development was underway by NCS to focus on the remaining unaddressed sections.

The text and tables herein illustrate the NRC IP 88015, 016, 017 and indicate the approach taken during the audit. Each sections table indicates the number of assessment attributes investigated, whether the attribute applied to LES NEF directly, the audited status of the assessment attribute, the disposition and potentially pending conditional report to be generated. Due to the fact that procedures need to written and also the fact that these procedures need to implemented the program is roughly estimated to only be partially effective at this time.



Matters of Importance to Management:

This audit shall be considered to be an interim condition of the NCS program. The audit will need to be repeated when further process in procedural development has been completed.

FINDINGS, CONDITION REPORTS, AND RECOMMENDATIONS:

NRC Inspection Manual, Inspection Procedure 88015 Nuclear Criticality Safety (NCS) Program

A summary table illustrates the overall results of the 88015 audit:

Nuclear Criticality Program			NRC Inspection Procedure 88015										
88015 Statistics Item Attri # Total Total	Asset Attributes	Assign	Applies to LES NM		Attribute Status		Disposition				Act CR	Condition Reports	
			Yes	No	Open	Closed	N/A	Acc	Rec	Finding		Total	Assigned To
45	95		95	0	0	95	0	89	5	1			
—	100%		100%	0%	0%	100%	0%	100%	0%	0%		3	

Recommendations	Attribute	Recommendation	Findings	Attribute	Finding #
	01.01a	A		02.04b	1
	01.01f	A		03.04b	1
	01.02e	B			
	03.03a	A			

FINDINGS:

88015-02.04b, 88015-03.04b

Finding 01 (CR 2009-2797)

Implement inspection of new installation controls prior to start up. Procedure should include delineation between:

1. Walkthroughs of controls of active procedures.
2. Walkthroughs of controls of new procedures prior to startup.



RECOMMENDATIONS:

88015-01.01a and f, 88015-03.03a

Recommendation – A (CR 2009-2800)

License commitments for qualification are defined BUT personnel records are NOT in an easily reviewable format. Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.

88015-02.02e

Recommendations - B (CR 2009-2858)

88015-02.04c

Indicate any specific Pre-Fire Plan related to nuclear criticality safety, and ensure NCS Review and concurrence/approval on these plans.

NRC Inspection Manual, Inspection Procedure 88016, Nuclear Criticality Safety (NCS) Evaluations and Analyses

A summary table illustrates the overall results of the 88016 audit:

Nuclear Criticality Program				NRC Inspection Procedure 88016									
88016 Statistics Item Attri # Total Total	Asset Attributes	Assign	Applies to LES NM		Attribute Status		Disposition				Act CR	Condition Reports	
			Yes	No	Open	Closed	N/A	Acc	Rec	Finding		Total	Assigned To
92	128		118	10	0	128	10	115	3	0			
—	100%		92%	8%	0%	100%	8%	90%	2%	0%		1	

Recommendations	Attribute	Recommendation	Findings	Attribute	Finding #
	08.03A	A		None	None

CONDITION REPORTS: Pending response to this report.

FINDINGS: None.



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RECOMMENDATIONS: None

88016-03.03.3f

Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08,

NRC Inspection Manual, Inspection Procedure 88017, Criticality Alarm Systems

** Procedures for Critical Alarm Systems are still under development. This audit shall be completed when documentation, training and personnel are prepared, approved and ready for independent review.

A summary table on the next page illustrates the overall results of the 88017 audit:

Nuclear Criticality Program				NRC Inspection Procedure 88017									
88017 Statistics Item Attri # Total Total	Asset Attributes	Assign	Applies to LES NM		Attribute Status		Disposition				Act CR	Condition Reports	
			Yes	No	Open	Closed	N/A	Acc	Rec	Finding		Total	Assigned To
42	49		49	0	0	49	0	49	0	0			
—	100%		100%	0%	0%	100%	0%	100%	0%	0%		0	

Recommendations	Attribute	Recommendation	Findings	Attribute	Finding #
	General	None	None	None	None

CONDITION REPORTS: None

FINDINGS: None

RECOMMENDATIONS: None



QA AUDIT DETAILS:

A. Purpose:

Evaluate the Nuclear Criticality Safety Program based on the NRC protocols. This report will be inclusive of NRC IP88015, IP88016 and IP88017.

B. Scope:

Use the NRC Inspection Manual, Inspection Procedures IP88015, 16 and 17 defining the Nuclear Criticality Safety Program to develop the audit checklist. Also, attention was made to enhance questioning in areas regarding issues found in the Self Assessment for Criticality Safety, ORR Criticality Safety Program and Evaluation/Analysis, Final Report June 9, 2008, assessment number 2008-010.

IP88015 - Nuclear Criticality Safety Program

The objective of IP88015 is for LES to provide reasonable assurance that fissile material activities are conducted safely and with undue risk of inadvertent criticality.

Demonstration of a controlled program includes the entire plant approach to nuclear criticality safety. Specific areas evaluated were in NCS staff plant oversight, administrative and operating procedures, NCS training and qualification, and NCS inspections including audits and investigations.

IP88016 - Nuclear Criticality Safety Evaluations and Analysis

The objective of IP88016 is for LES to provide assurance that supporting calculations and models reflect procedural, license and regulatory requirements.

Demonstration of correct support is illustrated within calculation and models involving accident pathways, contingency plans, favorable geometry systems, pseudo control and safe geometry system models.

IP88017 – Criticality Alarm Systems

The objective of IP88017 is for LES to provide assurance that the criticality alarm system will reliably detect the minimum criticality accident of concern in the monitored area and promptly cause an evacuation signal resulting in a prompt and complete evacuation of the facility.

Demonstration of a proper alarm system involves adequate sensitivity, alarm response, signal audibility, reliability and an emergency plan.



C. Methodology:

A checklist format of questioning was used as well as interviews with NCS group, QA, Training, Fire and Operations to conduct the audit. All personnel participating in this audit are listed in section F indicated on the meeting attendance forms.

Documents were reviewed to confirm that written procedural incorporation of NRC expectations are recognized and captured within the NCS program. Interviews with NCS personnel explaining the program bolstered and confirmed the recognition of NRC expectations of programmatic requirements. Training materials were reviewed to confirm the influence, impact and information delivery to trainee groups within and outside the NCS group. The NCS program is appropriately reflected in the training modules intended for plant operations.

D. QA Audit Team Members:

Greg Amsden – Co-Audit Team Leader
Joseph Mallia - Co-Audit Team Leader
Richard Desko - Audit Team Member
Laird Kayler – Technical Specialist

E. Key Reference Documents:

1. Nuclear Criticality Safety, NCS, Program
2. NRC Inspection Manual, Inspection Procedure 88015, Nuclear Criticality Safety (NCS) Program
3. NRC Inspection Manual, Inspection Procedure 88016, Nuclear Criticality Safety Evaluation and Analyses
4. NRC Inspection Manual, Inspection Procedure 88017, Criticality Alarm Systems
5. Self Assessment for Criticality Safety, ORR Criticality Safety Program and Evaluation/Analysis, Final Report June 9, 2008, assessment number 2008-010

F. QA Audit Records:

1. *Completed QA Audit Checklist.*

Attached LES 88015, 88016, 88017 checklist



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2. *Supporting Documents.*

**Audit by interview and document investigation using a checklist derived from
NRC IP88015 – Nuclear Criticality Safety Program
IP88016 – Nuclear Criticality Safety Evaluations and Analyses
IP88017 – Criticality Alarm Systems**

Base documents to be reviewed:

**CR-3-1000-01, rev 2, Implementation NCS Evaluations and Analyses
CR-3-1000-02, rev 1, Criticality Safety Limit Posting
CR-3-1000-03, rev 2, NCS Weekly Walkthroughs and Periodic Assessments
CR-3-1000-04, rev 1, Response to Nuclear Criticality Safety Anomalous
Condition**

3. *QA Audit Entrance and Exit Attendance.*

Entrance and Exit Meetings are an attachment to this report.

4. *Roster of Personnel.*

The entrance, interview and exit meeting attendees, herein, indicate all personnel involved with this audit.



Meeting Attendees and Contacts

Name	Title	Company	Entrance	Interview	Exit
Greg Amsden	Lead Auditor	ACS / LES	x		x
Chris Bates	Training	LES		x	
Karl Becker	NON-Core	LES			x
Jenice Dahlin	EP Manager	LES	x		
Richard Desko	Auditor	ACS / LES	x		x
Earl Hemmila	Operations	LES		x	x
Laird Kayler	Technical Specialist	Aires/LES			x
Tim Knowles	Training	LES		x	
Rick Kohrt	Program Engineer	LES			x
Richard Lehman	NCS/ISA Engineer	LES			x
Joseph Mallia	Lead Auditor	ACS / LES	x		x
Beth McKenzie	CSO	LES		x	
Tad Nix	Document	LES		x	
Charlotta Sanders	CSO Consultant	Eupenean	x		x
Allen Sorrell	Plant Operations	LES		x	
Steve Su	NCS Engineer	LES	x	x	x
Steve Troyer	CSO	LES		x	
Bill Wood	Observer	LES	x		x

5. QA Audit Finding Reports/Condition Reports.

References

1. LES Quality Assurance Audit, QA-3-2000-01, Revision 1, dated 11/14/2008
2. NRC INSPECTION PROCEDURES 88015, 88016 & 88017



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Safety Review Committee
QA File
Records Management

INDEX OF INTERNAL AUDIT FILE PACKAGE

NAME OF SUPPLIER: LES -NEF
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PHONE NUMBER: (575) 394-5231 **FAX NUMBER:** (575) 394-4058
AUDIT NUMBER: 2009-A-05-038
DATE(S) PERFORMED: May 25 – June 12
AUDIT TEAM MEMBERS: GREG AMSDEN
RICHARD DESKO
JOSEPH MALLIA

- 1.0 **AUDIT PLAN & AGENDA**
- 2.0 **AUDIT REPORT**
- 3.0 **AUDIT CHECKLIST**
 - **NRC PROCEDURE 88015**
 - **NRC PROCEDURE 88016**
 - **NRC PROCEDURE 88017**
- 4.0 **MEETING ATTENDANCE FORMS**
- 5.0 **FINDINGS**
- 6.0 **AUDITOR CERTIFICATION**

DATE AUDIT REPORT COMPLETED: 08/17/09

REMARKS: ONE FINDING AND NUMEROUS RECOMMENDATIONS

FILE SEND TO LES:


Audit Team Leader

8/20/09
Date

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Internal Audit Title: Nuclear Criticality Safety Program
Internal Audit Number: 2009-A-005-038
Revision: 0
Lead Auditor: Joseph P Mallia, Richard Desko (Auditor)
Responsible FAM: Allen Sorrell, HS&E NCS Program Operations
Doug Nove, NCS/NC&A Engineering

Nuclear Criticality Safety Program
Based on NRC Inspection Procedure 88015

Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
88015	Nuclear Criticality Safety Program		
Program Applicability	Note that, as discussed in 10 CFR Part 70.1 (d),(e), and Part 70.60, references in this procedure to 10 CFR Part 70.61 through 70.76 items relied on for safety (IROFS) and integrated safety analyses (ISAs) do not apply to 10 CFR Part 76 licensees/certificates?		
88015-01	INSPECTION OBJECTIVES		
01.01	Nuclear Criticality Safety Program		
a	Does the regulatee obtain nuclear criticality safety (NCS) advice from NCS staff in an NCS program that is independent from production?	<p>Reviewed doc SAR r9.c, figure 2.1-1 Organization.</p> <p>Reviewed doc Qualification Guide for position NCS Criticality Engineer.</p> <p>Currently there are three (3) people meeting the NCS license commitments: Steve Su, Kevin Schwinkendorf and Charlotta Sanders.</p>	<p>Recommendation - A License commitments for qualification are defined BUT personnel records are NOT in an easily Reviewable format.</p> <p>Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.</p>

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Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
b	Do procedures adequately implement the NCS program?	<p>Reviewed eight (8) docs, procedures that involve NCS. They are:</p> <ol style="list-style-type: none"> 1) Policy CR-1-1000-01, Nuclear Criticality Safety 2) Directive CR-2-1000-01, Nuclear Criticality Safety Program Description 3) EG-3-3200-01, Nuclear Criticality Safety Evaluations 4) EG-3-3200-02, Nuclear Criticality Safety Analysis 5) Procedure CR-3-1000-01, Implementation of NCS Evaluations and Analysis 6) Procedure CR-3-1000-02, Criticality Safety Limit Postings 7) Procedure CR-3-1000-03, Criticality Safety Weekly Walkthrough 8) Procedure CR-3-1000-04, Response to Nuclear Criticality Safety anomalous Conditions 	<p align="center">Satisfactory</p> <p>The referenced procedures are in place, in revision and in practice. Since there has been limited material on site to date, these procedures have not been fully put into practice.</p> <p>The procedures contain the proper evaluations in place for criticality analysis.</p>
c	Does NCS staff evaluate proposed process changes to establish appropriate NCS limits for controlled parameters, IROFS, and NCS controls on process conditions?	<p>Reviewed doc Procedure CR-3-1000-01, Implementation of NCS Evaluations and Analysis</p> <p>NCS staff are on the procedure review committee and process the proposed changes with regard to NCS issues. The procedure contains an adequate evaluation process in place for criticality analysis.</p>	<p align="center">Satisfactory</p> <p>The referenced procedures are in place, in revision and in practice. Since there has been limited material on site to date, these procedures have not been fully put into practice.</p> <p>The procedures contain the proper evaluations in place for criticality analysis.</p>

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Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
d	<p>Are NCS limits, IROFS, and control systems identified in safety analyses consistent with processes and operations, and are adequate to assure that operations meet the performance requirements of 10 CFR Part 70.61?</p> <p>10 CFR Part 70.61 references 10CFR 19.11(a) requirements for "Posting of Notices to Workers";</p> <p>Do you conspicuously post copies for:</p> <ol style="list-style-type: none"> 1. The regulations in this part and part 20 2. The license 3. The operating procedures of licensed activities 4. Any notice of violation involving radiological working conditions 	<p>Reviewed doc Integrated Safety Analysis Summary r4.</p> <p>NCS Engineering (NCSE) performs evaluation and analysis for containing the controls of criticality. Operations personnel write procedures conforming to the controls.</p> <p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments</p> <p>Inspection criteria for Postings are present to identify and confirm correct postings applications are placed in appropriate area in the plant.</p>	<p align="center">Satisfactory</p>
e	<p>Does NCS considerations commensurate with the potential risk of the operation included in written administrative procedures which adequately implement the NCS program?</p>	<p>Reviewed doc CR-3-1000-01, Par. 4.2.1 and 3.</p> <p>Par. 4.2.1 states the FAM approves the NCS limits used within the facility.</p> <p>Par. 4.2.3 states that controls are incorporated into applicable work control documents BEFORE permitting operations.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NR C Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
f	Are NCS staff adequately qualified in accordance with license commitments?	<p>Reviewed doc Safety Analysis Reviewed r19c N.</p> <p>Reviewed doc Qualification Guide for position NCS Criticality Engineer.</p> <p>Currently there are three (3) people meeting the NCS license commitments: Steve Su, Kevin Schwinkendorf and Charlotta Sanders.</p>	<p>Recommendation A License commitments for qualification are defined BUT personnel records are NOT in an easily Reviewable format.</p> <p>Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.</p>
g	Do inspections and audits systematically look at specific NCS limits and controls (IROFS), including supporting bounding assumptions, on a time period required by the license or certificate?	<p>Reviewed doc CR-3-1000-03 r2</p> <p>A walkthrough(s) shall be conducted weekly of IROFS. This procedure is in place but not fully implemented at this time. It will become fully integrated into the NCS assignments when fissile material that could reach criticality arrives on site.</p>	<p>Satisfactory.</p> <p>The referenced procedure contains the proper requirements for criticality analysis and walk-through(s) are in place but not in practice fully with limited fuel on site.</p>

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Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
h	Do NCS infractions including procedural violations and equipment or system failures related to NCS are reported, Reviewed, resolutions tracked and trended, and negative trends are addressed?	There has not been any events to initiate an infraction due to the limited amount of fissile material on site.	<p>Satisfactory.</p> <p>The referenced procedure is in place, in revision and in not practice. Since there has been limited material on site to date, the procedure has not been fully put into practice.</p> <p>The procedure contains the proper evaluations in place for criticality analysis.</p>
88015-02	INSPECTION REQUIREMENTS		
02.01	Nuclear Criticality Safety Program		
a	<p>Administrative Procedures.</p> <p>By discussion and Reviewed of documents, are the authority and responsibilities of the NCS staff defined in administrative instructions?</p>	<p>Reviewed doc CR-3-1000-1, 2, 3, 4</p> <p>Each procedure has a defined section of responsibility.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NR C Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
b	<p>NCS Guidance.</p> <p>By discussion and Reviewed of documents, is NCS staff provided technical guidance on all changed or new fissile material operations and procedures, including design; and on inspection, audit, and investigation results?</p>	<p>Reviewed doc Integrated Safety Analysis Review.</p> <p>The NCS staff is part of the review committee involved with all changes and additions to fissile material operations and procedures.</p>	<p>Satisfactory.</p> <p>The referenced procedure is in place, in revision and is not in practice. Since there has been limited material on site to date, the procedure has not been fully put into practice.</p> <p>The procedure contains the proper evaluations in place for criticality analysis.</p>
c	<p>Independence.</p> <p>By discussions, is NCS staff provided technical guidance independent of operations?</p>	<p>Reviewed doc EG-1-3200-1 and -2, attachment forms for NCS</p> <p>NCS staff reviews and sign off is required for independent Reviewed of change or addition.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
02.02	Administrative and Operating Procedures		
a	<p>NCS Program Procedures.</p> <p>Reviewed a sample of changes selected based on risk and operational history to determine whether changes to NCS administrative procedures for the NCS program are adequate and effectively implemented?</p>	<p>Reviewed doc Integrated Safety Analysis Review, Rev. 4</p> <p>Risk assessment has been established and documented in the ISAS. No operational history exists on site however European experience has been shared and integrated.</p>	<p>Satisfactory.</p> <p>The referenced procedure is in place, in revision and not in practice. Since there has been limited material on site to date, the procedure has not been fully put into practice.</p> <p>The procedure contains the proper evaluations in place for criticality analysis.</p>
b	<p>Administrative Procedures for NCS Evaluations.</p> <p>By Reviewed of documents and discussions, determine whether administrative procedures adequately implement the NCS program described in plant documents, including the license or certificate?</p>	<p>Reviewed doc EG-3-3200-1, Nuclear Critical Safety Evaluation, Rev. 1, dated 12/12/08.</p> <p>An NCSE reviews and approves the Nuclear Criticality Safety Evaluation prepared with EG-3-3200-01-F-1, Rev. 1, 3/19/09.</p>	<p align="center">Satisfactory</p>
c.	<p>Operating Procedures.</p> <p>By Reviewed of documents and discussions, determine whether NCS considerations are included in written operating procedures?</p>	<p>Reviewed doc EG-3-3200-1, Nuclear Critical Safety Evaluation, Rev. 1, dated 12/12/08.</p> <p>A Nuclear Criticality Systems Engineer (NCSE) reviews and approves the Nuclear Criticality Safety Evaluation prepared with EG-3-3200-01-F-1, Rev. 1, 3/19/09.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
d.	<p>Nuclear Criticality Safety Limits and Controls.</p> <p>By observations, discussions, and documents Reviewed, are NCS limits on controlled parameters, IROFS, and NCS control systems identified in the ISA?</p> <p>Are NCS evaluations contained in written operating procedures?</p>	<p>Reviewed doc EG-3-3200-1, Nuclear Critical Safety Evaluation, Rev. 1, dated 12/12/08.</p> <p>An NCSE reviews and approves the Nuclear Criticality Safety Evaluation prepared with EG-3-3200-01-F-1, Rev. 1, 3/19/09.</p> <p>Reviewed doc CR-3-1000-1, Implementation of NCS Evaluation and Analysis</p> <p>This provides the NCS evaluation process control and signature review/approval for the procedures.</p>	<p align="center">Satisfactory</p>
e.	<p>Pre-Fire Plans.</p> <p>By Reviewed of documents and discussions, does the regulatee maintain an adequate Pre-Fire Plan?</p>	<p>Reviewed doc FP-3-1000-05 Pre-Fire Plan Manual Development and Control Procedure</p> <p>Reference to Safety analysis Report, Section 7.3.8 Criticality Concerns under 7.0 License Commitments and Requirements however FP-3-1000-05-F-1 Pre-Fire manual Approval Form has no review / approval signature line for NCS.</p> <p>There is no confirmation that NCS performs a review of the Pre-Fire Plan.</p>	<p><u>Recommendations B</u></p> <p>Indicate any specific Pre-Fire Plan that relates to Nuclear criticality issues that require NCS review and approval.</p>

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Attribute Number/NRC Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
02.03	Nuclear Criticality Safety Training and Qualification.		
a.	<p>Qualification of Staff.</p> <p>By discussion and where appropriate (Reviewed of documents), are the NCS staff including analysts and the senior Reviews qualified to do their respective safety functions?</p> <p>Determine by discussion and document review that only qualified staff perform safety functions for the establishment of new safety analyses and reviews of new operating procedures?</p>	<p>Reviewed doc Safety Analysis Reviewed r19c N and NCS training TQ-3-0710-01.</p> <p>Reviewed doc Qualification Guide for position NCS Criticality Engineer.</p> <p>Currently there are three (3) people meeting the NCS license commitments: Steve Su, Kevin Schwinkendorf and Charlotta Sanders.</p>	<p>Recommendations A</p> <p>License commitments for qualification are defined BUT personnel records are NOT in an easily Reviewable format.</p> <p>Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.</p>

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b.	<p>Oversight of Training.</p> <p>Are NCS staff involved in development and oversight of NCS training?</p>	<p>Reviewed doc from Training GET-2, general operations training on NCS objectives.</p> <p>NCS staff provides the experience and knowledge to compile data and create a training presentation. Training delivers the presentation with technical assistance from NCS. NCS is planning to provide training for fire brigade fire fighters training.</p> <p>Reviewed doc TQ-3-0100-08 Lesson Plan Development Phase</p> <p>Sec 4.0 Responsibilities, 4.2 Program Owner or Designee states that the responsible are have Reviewed and approval of training procedure effecting that particular area.</p> <p>Reviewed doc TQ-3-0710-01 Nuclear Criticality Safety Training</p> <p>Training module for Nuclear Safety Worker is Reviewed and approved by the NCSO.</p>	<p align="center">Satisfactory</p>

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c.	<p>Operator Training.</p> <p>Is the NCS training program addressing NCS aspects of facility hazards affecting fissile material operations?</p>	<p>Reviewed doc from Training GET-2, general operations training on NCS objectives.</p> <p>NCS staff provides the experience and knowledge to compile data and create a training presentation. Training delivers the presentation with technical assistance from NCS. NCS is planning to provide training for fire brigade fire fighters training.</p> <p>Reviewed doc TQ-3-0100-08 Lesson Plan Development Phase</p> <p>Sec 4.0 Responsibilities, 4.2 Program Owner or Designee states that the responsible are have Reviewed and approval of training procedure effecting that particular area.</p> <p>Reviewed doc TQ-3-0710-01 Nuclear Criticality Safety Training</p> <p>Training module for Nuclear Safety Worker is Reviewed and approved by the NCSO.</p>	<p align="center">Satisfactory</p>

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02.04	Nuclear Criticality Safety Inspections, Audits, and Investigations		
a.	<p>Reporting Infractions.</p> <p>Does the inspection program require that individuals having unescorted access to fissile material areas report suspected or known violations of NCS requirements and procedures?</p>	<p>Reviewed doc CR-3-1000-04 Response to Nuclear Criticality Safety Anomalous Conditions(s) 5.1.1 c.</p> <p>Operations procedure requires an immediate notification of Supervision and Shift Manager upon discovery of a NCS anomalous condition. The CAB report confirms the procedural process is in place and reporting of anomalies is appropriate.</p>	<p>Satisfactory</p>
b	<p>Inspection Program.</p> <p>Does the regulatee have a self-inspection program that causes management representatives and NCS staff to routinely inspect areas with fissile material to ascertain that procedures are being followed and that process conditions have not been altered to affect the NCS evaluation?</p> <p>Does NCS staff inspect new installations to ensure that NCS controls are in place prior to startup?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments and CAB/CTF&PMF area inspection report, 05/01/09.</p> <p>Weekly walkthroughs are conducted per the procedure. Confirmation of procedure activity by Reviewed of CAB report confirms the procedural process is in place and reporting of anomalies is appropriate. The Review is forwarded for signature to the NCS Engineer and HS&E manager.</p>	<p>Finding 01 Implement inspection of new installation controls prior to start up.</p> <p>Procedure should include delineation between:</p> <ol style="list-style-type: none"> 1) Walkthroughs of controls of active procedures 2) Walkthroughs of controls of new procedures prior to startup.

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c	<p>Audit Program.</p> <p>Does the regulatee have an audit program to assess the adequacy of the NCS program as required by the license or certificate?</p> <p>Are audit reports forwarded to plant management and appropriate staff?</p> <p>Are corrective actions findings assigned to individuals and scheduled for completion?</p> <p>Does plant management accept or reject audit recommendations?</p>	<p>Reviewed doc QA-3-2000-01 QA Audit, Rev. 1, dated 11/14/08, paragraphs 5.1.2 b and 5.1.2 c</p> <p>Audit schedule indicates QA audits are to be performed at least <u>annually</u> or at least <u>once</u> during life of activity, whichever is shorter during life of activity, whichever is shorter during the operational phase.</p> <p>There is no mention of an NCS audit in the preoperational phase.</p> <p>Section 5.1.2 c describes an NCS audit on a quarterly basis as well as at least every two year basis. This suggests the audit be broken up into components of NCS prescribed sections.</p> <p>Section 5.4 QA Audit Reporting indicates the Audit team leader with QAD concurrence determines to whom the audit report is forwarded</p> <p>Reviewed doc CA-3-1000-01 Performance Improvement Program (Corrective Action) section 5.5 describes the corrective action findings assignment to individuals and completion schedules. NCS Review is NOT names directly but the FAM is assigned.</p> <p>EG-3-2100-01 Configuration Change Plant management reviews and signs off reports.</p>	<p>Comment:</p> <p>Consider adding a bullet to recognize NCS to be reviewed during the preoperational phase, section 5.1.2 a.</p> <p>Requires clarification: Section 5.1.2 c describes an NCS audit for quarterly and two year; add further description of audit content and possible sections.</p>

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d	<p>Corrective Actions for NCS Events.</p> <p>Does the regulatee develop, assign, and carry out corrective actions to prevent recurrence of IROFS failure or other NCS limit or control violations?</p> <p>Does the regulatee have a program to analyze and trend reportable events and to develop lessons-learned from the analyses?</p>	<p>Reviewed doc CA-3-1000-01 Performance Improvement Program (Corrective Action) and requirements are in place.</p> <p>There has been eighteen (18) Conditions Reports issued against IROFS since May 01, 2008 until the January 28, 2009.</p> <p>There has been twenty-six (26) Conditions Reports issued against Criticality Program scope since 08/17/07 until 6/08/09.</p> <p>Personnel are assigned responsibilities to track and disposition the Corrective Actions. The Corrective Action program is working and is in place and trends are being implored.</p>	<p align="center">Satisfactory</p>
02.05	Plant Activities		
a	<p>Plant Tour.</p> <p>Do operators at their work stations, develop and maintain familiarity with the facility, equipment, operations, and procedures?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments, Rev. 2, dated 11/12/08.</p> <p>Par. 5.2 describes weekly walkthrough practices addressing process conditions, safety practices, procedure compliance and criticality safety practice.</p>	<p align="center">Satisfactory</p>

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b	<p>Adequacy of Controls.</p> <p>Do NCS limits, IROFS, and control systems identified in NCS analyses in place, consistent with processes and operations, and adequate to maintain operations within the safety margin?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments, Rev. 2, dated 11/12/08.</p> <p>This provides the NCS evaluation process control and signature review/approval for the procedures, including IROFS and other controls.</p>	<p align="center">Satisfactory</p>
c	<p>Operations.</p> <p>Are conditions assumed in the ISA and NCS evaluation valid during plant walk downs?</p> <p>Are IROFS and controls identified in the ISA and NCS evaluation in place and adequate?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments, Rev. 2, dated 11/12/08.</p> <p>This provides the NCS evaluation process control and signature review/approval for the procedures.</p>	<p align="center">Satisfactory</p>
8015-03	8015-03 INSPECTION GUIDANCE		
03.01	Nuclear Criticality Safety Program		
a	<p>Administrative Procedures.</p> <p>Are the authority and responsibilities of the NCS program defined in administrative instructions?</p> <p>Does the NCS technical program include development and implementation of procedures governing activities under its control?</p>	<p>Reviewed doc pertaining to NCS in EG and CR procedures</p> <p>NCS responsibilities are defined clearly in the procedures in the Responsibility section. The authority is defined within the body of the procedures.</p>	<p align="center">Satisfactory</p>

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b.	<p>NCS Guidance.</p> <p>Do NCS staff provide guidance on new and changed fissile material operations including:</p> <p>design of equipment and processes,</p> <p>development of operating procedures,</p> <p>and review, correction, and tracking of upset conditions?</p>	<p>Reviewed NCSE EG-3-2100-01, Rev 6, 1/6/09 The staff provides guidance when evaluating the impact of changes as provided on a chart on page 32, "Configuration Change Screening Material".</p> <p>Reviewed NCSE EG-3-2100-01, Rev6, 1/6/09. The staff is required to consider the impact to the process, evaluate changes prior to implementation, that may impact any item within the IROF boundary, page 32.</p> <p>Reviewed NCSE EG-3-2100-01, Rev6,1/6/09 Staff considers procedural impacts to IROFS, ISA ,and Management Measures, page 32</p> <p>Reviewed NCSE EG-3-2100-01, Rev6,1/6/09 Management considers the changes to the Corrective Action Program that impact IROFS that are degrading or other issues are addressed.</p>	<p align="center">Satisfactory</p>

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c.	<p>Independence.</p> <p>Do NCS staff provide technical guidance while remaining organizationally independent of operations?</p>	<p>Reviewed doc NEF Safety Analysis Report Figure 2.1-2 LES NEF Operating Organization</p> <p>Organizational chart shows independence of NCSE and NCS Operations chains of command.</p> <p>In addition, Critical Safety Officer can stop work at any time.</p>	<p align="center">Satisfactory</p>

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03.02	Administrative and Operating Procedures		
a.	<p>NCS Program Procedures.</p> <p>Are NCS technical programs in documented system with the authority and responsibilities of the NCS staff described in administrative and technical procedures?</p> <p>Do responsibilities include: providing advice in process design;</p> <p>contributing to development and review of operating and maintenance procedures;</p> <p>evaluating proposed process changes;</p> <p>and establishing NCS limits, IROFS, and control systems in the ISA and NCS evaluations?</p>	<p>Reviewed doc EG-3-3200-01, "Nuclear Criticality Safety Evaluations", Rev. 1, dated 12/12/08, EG-3-3200-02, "Nuclear Criticality Safety Analysis, Rev; 1, 12/12/08 and CR procedures CR-3-1000-01, "Implementation of NCE Evaluations and Analysis", rev. 2, dated 12/15/08, CR-3-1000-02, "Criticality Safety Limit Postings" rev. 1, dated 10/03/08, CR-3-1000-03, "NCS Weekly Walkthrough and Periodic Assessments", rev. 2, dated 11/12/08 and CR-3-1000-04, Response to Nuclear Criticality Safety Anomalous Condition(s)", rev. 1, dated 9/09/08.</p> <p>EG procedures set the controls for the NCS and the CR procedures develop the operating and maintenance procedures</p> <p>NCSE conducts reviews and indicates approval by signature on the operating and maintenance procedures.</p>	<p align="center">Satisfactory</p>

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b.	<p>Administrative Procedures for NCS Evaluations.</p> <p>Do Administrative procedures for performing NCS evaluations:</p> <p>(1) require formal and comprehensive safety evaluations;</p> <p>(2) provide guidance to control safety evaluation format and content;</p> <p>(3) require safety evaluations for all process changes and new processes;</p> <p>(4) require evaluation and reporting to plant management of non-routine events; and</p> <p>(5) require periodic revalidating and updating, as necessary, safety analyses and related documentation to ensure consistency with the current processes?</p>	<p>Reviewed doc EG-3-3200-01 "Nuclear Criticality Safety Evaluation", Rev. 1, dated 12/12/08</p> <p>(1) Procedure describes the NCSE responsibilities for formal and comprehensive criticality evaluations. NCSE approval required for initial parameter controls and any changes.</p> <p>(2) Procedure describes guidance provided by NCSE.</p> <p>(3) NCSE approval required for initial parameter controls and any changes.</p> <p>Reviewed doc CR-3-1000-04 / CR-3-1000-03</p> <p>(4) Par. 5.1.1 and 5.3.2 requires immediate notification of the Supervisor and Shift Manager of any non-routine (anomalous) NCS condition is discovered.</p> <p>(5) Par. 5.3 and 5.4 requires tracking and trending corrective actions system. Weekly walkthroughs and periodic assessments by NCSE revalidate and update existing control processes.</p>	<p align="center">Satisfactory</p>
c.	<p>Operating Procedures.</p> <p>Are NCS considerations included in written procedures through the participation in accordance with risk significance of NCS staff in their preparation, Reviewed, and approval?</p>	<p>Reviewed doc CR-3-1000-01, "Implementation of NCE Evaluations and Analysis", rev. 2, dated 12/15/08, paragraph 5.1.2 & 5.1.6. The procedure meets the requirements.</p>	<p align="center">Satisfactory</p>

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d.	<p>Nuclear Criticality Safety Limits and Controls. Are observations, discussions, and document reviews established such that NCS limits on controlled parameters, IROFS, and NCS control systems identified in the ISA and NCS evaluation selected are contained in written operating procedures?</p> <p>Are NCS controls adequate to meet the performance requirements of 10 CFR Part 70.61.</p> <p>10 CFR Part 70.61 references 10CFR 19.11(a) requirements for "Posting of Notices to Workers"; Do you conspicuously post copies for:</p> <ol style="list-style-type: none"> 1. The regulations in this part and part 20. 2. The license 3. The operating procedures of licensed activities <p>Any notice of violation involving radiological working conditions.</p>	<p>Reviewed doc Material Control Procedure MC-3-2000-02</p> <p>Reviewed doc ISA Summary, table 3.7-1 Accident Sequence and Risk Index, page 2 of 9</p> <p>Table based on parameters based on 10CFR Part 70.61.</p> <p>Reviewed doc CR-3-1000-03, " NCS Weekly Walkthroughs and Periodic Assessments", rev. 2, dated 11/12/08</p> <p>Inspection criteria for Postings are present to identify and confirm correct postings applications are placed in appropriate area in the plant.</p>	<p align="center">Satisfactory</p>

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e.	<p>Pre-Fire Plans.</p> <p>Adequate requirements should be established for moderation control within an Emergency Plan or a Pre-Fire Plan?</p>	<p>Reviewed doc FP-3-1000-05 Pre-Fire Plan Manual Development and Control Procedure</p> <p>Reference to Safety analysis Report, Section 7.3.8 Criticality Concerns under 7.0 License Commitments and Requirements however FP-3-1000-05-F-1 Pre-Fire manual Approval Form has no Reviewed / approval signature line for NCS.</p> <p>It was found that that NCS performs a review of the Pre-Fire Plan.</p>	<p align="center">Satisfactory</p>

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03.03	Nuclear Criticality Safety, Training, and Qualification		
a	<p>Qualification of Staff.</p> <p>Are NCS staff managing, performing, or reviewing criticality safety evaluations expected to have appropriate educational background?</p> <p>Are individuals performing independent reviews of evaluations experience in doing NCS evaluations at the regulatee's facility?</p> <p>Are NCS staff maintaining familiarity with current safety standards guides and codes, and maintain familiarity with the ISA and all plant operations?</p> <p>Is NCS staff maintaining familiarity with developments in NCS through attendance at NCS technical meetings and continuing education programs?</p>	<p>Review doc Qualification Guide for position NCS Criticality Engineer.</p> <p>Currently there are three (3) people meeting the NCS license commitments: Steve Su, Kevin Schwinkendorf and Charlotta Sanders.</p> <p>Maintaining familiarity is confirmed with annual performance reviews using "LES Scorecard template, ISA Team includes an integrated NCS member.</p> <p>NCSE must maintain familiarity with Plant Ops to perform evacuations adequately, "Qualification Guide Guideline".</p>	<p>Recommendation A</p> <p>License commitments for qualification are defined BUT personnel records are NOT in an easily Reviewable format.</p> <p>Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.</p>
b	<p>Oversight of Training.</p> <p>Are NCS staff actively involved in development, review, presentation, and oversight of NCS training for staff and operators?</p>	<p>Reviewed doc involving GET- 2 training.</p> <p>NCSE assisted in the development, Reviewed and oversight of training presentations for staff and operators. Training delivered the presentation with technical assistance from the NCSE.</p>	<p align="center">Satisfactory</p>

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c	<p>Operator Training.</p> <p>The NCS training program should be sufficient to address NCS aspects of facility hazards affecting fissile material operations?</p> <p>Does the training program ensure that NCS controls based on employee training are adequately implemented?</p> <p>Are NCS training programs performance based, with training proportional to the level of access to fissile material and the extent of responsibility for the operation</p>	<p>All new employees receive site safety training, GET1, General Plant Safety and GET2, NCS General Safety conducts as core operator training.</p>	<p align="center">Satisfactory</p>

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03.04	Nuclear Criticality Safety Inspections, Audits, and Investigations.		
a.	<p>Reporting Infractions.</p> <p>Does the regulatee require staff to report nonconformance's with NCS requirements without penalty?</p> <p>Are suspected or known violations of criticality safety requirements promptly identified and evaluated with corrective actions assigned and entered into the corrective action program?</p>	<p>Reviewed doc Policy – "Safety Conscious Work Environment"</p> <p>Corrective Action Program Provides a reporting path for concerns without recourse.</p>	<p align="center">Satisfactory</p>

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b.	<p>Inspection Program.</p> <p>Does the regulatee have a program to assure areas with fissile material are routinely inspected to ascertain that procedures are being followed and that process conditions have not been altered to affect the NCS evaluation?</p> <p>Are inspections performed by trained and qualified staff that are familiar with the criticality safety analytical basis for the facility?</p> <p>Are NCS staff required to inspect new installations to ensure that controls required by the NCS evaluation are in place prior to startup?</p> <p>Are these inspections conducted in consultation with operating personnel, by individuals who are knowledgeable in NCS and who, to the extent practicable, are not immediately responsible for the operation?</p> <p>Does inspection include overall criticality safety practices and compliance with procedures?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments and CAB/CTF&PMF area inspection report, 05/01/09.</p> <p>Weekly walkthroughs are conducted per the procedure. Confirmation of procedure activity by Reviewed of CAB report confirms the procedural process is in place and reporting of anomalies is appropriate. The review is forwarded for signature to the NCS Engineer and HS&E manager.</p> <p>CR-3-3000-03, page 8, item 5, main body and CR-3-1000-01, rev. 2, 12/15/08, part 5 requires preparer to perform and complete the necessary activities within the procedure.</p> <p>CR-3-1000-3, Rev. 2, 11/12/08, para 2.4 requiresd the walkthrough to be done by Engineering and CSO.</p> <p>CR-3-1000-03, Rev. 2, 11/12/08, para. 2.3. This procedure describes the NCS Surveillance Program that will detect NCS deficiencies by means o operational working walkthroughs and periodic assessments.</p>	<p>Finding: 01</p> <p>Implement inspection of new installation controls prior to start up.</p> <p>Procedure should include delineation between:</p> <p>1. Walkthroughs of controls of active procedures</p> <p>2. Walkthroughs of controls of new procedures prior to startup.</p> <p align="center">Satisfactory</p> <p align="center">Satisfactory</p> <p align="center">Satisfactory</p>

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c.	<p>Audit Program.</p> <p>Does regulatee have an audit program to assess the adequacy of the NCS program?</p> <p>Are audits performed by trained and qualified staff who are familiar with the criticality safety analytical basis for the facility?</p> <p>Do audits for compliance with the NCS analytical basis cover the entire facility in accordance with license commitments?</p> <p>Are external audits of the NCS program performed regularly in accordance with the license or certificate?</p> <p>Are audit reports forwarded to plant management and to appropriate plant staff?</p> <p>Does the Plant management accept or reject audit recommendations?</p>	<p>LES has an internal/external audits covered by QA-3-2000-01 QA Audit. They maintain an internal and external audit schedule separately A new schedule format relative to internal audit was developed which adds the date the previous was performed to ensure that no dates for a new audit will be missed.</p> <p>Audit are performed by certified Lead Auditor/ Auditor who do not have direct responsibility in the areas being audited. The auditors were required to read the following procedures prior to the audit.</p> <ul style="list-style-type: none"> • CR-3-1000-01, Implementation of NCS Evaluation Analysis, rev. 2, 12/15/08 • CR-3-1000-02, Criticality Safety Limit Posting, Rev.1, 10/03/08 • CR-3-1000-03, NCS Weekly Walkthrough and Periodic Assessment, Rev. 2, 10/12/08 • CR-3-1000-04, Response to Nuclear Criticality Safety Anomalous Conditions, Rev 1, 9/19/08 <p>There has not been any audits of the NCS, therefore the last three paragraphs are N/A at this time.</p>	<p>An assessment of Nuclear Criticality Safety Program was performed last year in June 2008. There was however, a lack of dates of previous audits noted on the audit schedule. As noted a new schedule format has been developed to address previous audit performance date which is used to determine the schedule for the coming year.</p> <p>Criticality audits are to start after start-up and plant operations.</p>

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d	<p align="center">Corrective Action for NCS Events</p> <p>Are corrective actions for risk significant findings assigned to individuals and scheduled for completion?</p> <p>Are corrective actions developed upon discovery of nonconformances to reduce the probability of reoccurrence of the problem?</p> <p>Are NCS staff and appropriate management Reviewing proposed corrective actions?</p> <p>Are corrective actions completed on schedule?</p> <p>Are corrective actions to a specific employee and tracked to the extent that management knows the status?</p> <p>Does the regulatee confirm the adequacy of corrective actions prior to completion?</p>	<p>Reviewed doc CA-3-1000-01 Performance Improvement Program (Corrective Action) and requirements are in place.</p> <p>There has been eighteen (18) Conditions Reports issued against IROFS since May 01, 2008 until the January 28, 2009.</p> <p>There has been twenty-six (26) Conditions Reports issued against Criticality Program scope since 08/17/07 until 6/08/09.</p> <p>Personnel are assigned responsibilities to track and disposition the Corrective Actions. The Corrective Action program is working and is in place and trends are being implored.</p> <p>The Corrective Action Coordinator confirms the adequacy of the corrective actions prior to completion.</p> <p>There is a quarterly Trend Report published. The latest was published on 5/13/09. This report is approximately 30 pages and has an executive summary to which discusses improvements and needs for improvements and has a conclusion paragraph at the end of the executive summary.</p>	<p align="center">Satisfactory</p>

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03.05	Plant Activities		
a	<p>Plant Tour.</p> <p>Are walk downs of the facility performed to establish and maintain familiarity with the facility, processes, equipment, procedures, and status of operations?</p> <p>Are walk downs confirmed by the NCS with practices observed to be satisfactory?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments and CAB/CTF&PMF area inspection report, 05/01/09.</p> <p>Weekly walkthroughs are conducted per the procedure. Confirmation of procedure activity by review of CAB report confirms the procedural process is in place and reporting of anomalies is appropriate. The review is forwarded for signature to the NCS Engineer and HS&E manager.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NR C Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
b	<p>Adequacy of Controls.</p> <p>Are field Reviews of new requirements and assumptions in NCS evaluations and analysis the focus of this inspection effort?</p> <p>Do operating procedures contain NCS limits on controlled parameters and operating instructions for NCS control systems?</p> <p>Does examination of process equipment reveal the conditions assumed in the safety evaluation and the presence of controls identified in the evaluation?</p> <p>Do observations and discussions with operators indicate whether operators follow procedures and understand process conditions, NCS limits on controlled parameters, and operation of NCS control systems?</p>	<p>Reviewed doc CR-3-1000-03, "NCS Weekly Walkthroughs and Periodic Assessments" rev. 2, dated 11/12/08 and CAB/CTF&PMF area inspection report, 05/01/09.</p> <p>Weekly walkthroughs are conducted per the procedure. Confirmation of procedure activity by Reviewed of CAB report confirms the procedural process is in place and reporting of anomalies is appropriate.</p> <p>Independent NCSE preparation of controls and NCSO preparation of procedures based on those controls is in place with a procedure Reviewed and sign off by the NCSE closing the Reviewed loop.</p> <p>Operator reviews and discussions indicate awareness of IROFS and control limits and other required controls per written procedure.</p> <p>The Reviewed is forwarded for signature to the NCS Engineer and HS&E manager.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NR C Inspection Area	Audit (Assessment) Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Internal Audit (Assessment) Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
c	<p>Operations.</p> <p>Have identified NCS evaluations been completed since the last NCS inspection, assumptions, NCS limits, IROFS, and NCS control systems?</p> <p>Are reviews of new requirements in ISAs and NCS evaluations the focus of this inspection effort?</p> <p>Do operating procedures contain NCS limits on controlled parameters and operating instructions for IROFS and NCS control systems?</p> <p>Does examination of process equipment verify the conditions assumed in the ISA and NCS evaluation and the presence and adequacy of controls identified in the evaluation?</p>	<p>Reviewed doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments and CAB/CTF&PMF area inspection report, 05/01/09.</p> <p>Weekly walkthroughs are conducted per the procedure. Confirmation of procedure activity by Reviewed of CAB report confirms the procedural process is in place and reporting of anomalies is appropriate.</p> <p>Independent NCSE preparation of controls and NCSO preparation of procedures based on those controls is in place with a procedure Reviewed and sign off by the NCSE closing the Reviewed loop.</p> <p>Operator reviews and discussions indicate awareness of IROFS and control limits and other required controls per written procedure.</p> <p>The review is forwarded for signature to the appropriate NCS Engineer and HS&E manager.</p>	<p align="center">Satisfactory</p>

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Self Assessment Title: Nuclear Criticality Safety Evaluations and Analysis

Internal Audit Number: 2009-A-005-038

Revision: 0

Lead Auditor: Joseph P Mallia, Richard Desko Audit Team Member

Responsible FAM: Steve Su

Nuclear Criticality Safety Evaluations and Analysis
Based on NRC Inspection Procedure 88016

Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
88016-01	INSPECTION OBJECTIVES		
a	Does the regulatee's nuclear criticality safety evaluations (CSEs) or analyses and related supporting calculations and models meet procedural, license, and regulatory requirements?	<p>Reviewed NCSE EG-3-3200-01-F-1, Rev 1, 12-12/08</p> <p>Part 1.2.1 Subject matter experts consider the all potential uranic processes. Part 1.5 The CSE's determine the effect on NCS limits and limits on NCS controlled parameters.</p>	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
b	Do the regulatee's CSEs make appropriate assumptions, identify appropriate criticality scenarios, establish nuclear criticality safety (NCS) limits for controlled parameters and establish IROFS and NCS control systems to assure that fissile material operations meet the performance requirements of 10 CFR Part 70.61?	Reviewed NCSE EG-3-3200-01-F-1 Rev 1, 12/12/08 Part 1.5.1 describes the effect of bounding processes, NCS safety limits, NCs operating limits and limits on NCS controlled parameters.	Satisfactory
c	Are NCS evaluations adequate for the equipment and processes covered and are based on validated methods?	Reviewed NCSE EG-3-3200-01 Attachment 1 Rev1, 12/12/08 The NCS parameters are listed, mass, geometry, density, enrichment, reflection, moderation, concentration, interaction, neutron absorption and volume.	Satisfactory
d	Definitions. The following definitions apply to terms used in this procedure.		
1	Accident pathway - a unique set of events, sequential or parallel in nature, which could lead to a nuclear criticality event.	Reviewed NCSE EG-3-3200-01 Rev 1, 12/12/08, Part 3.1 This part indicated the same definition as noted.	Satisfactory

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2	Contingency - a change or failure of process equipment, measurement, or control systems; inadvertent human action; change in ambient conditions; or natural events which are considered unlikely.	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Part 3.3 This indicated the same definition as noted.	Satisfactory
3	Favorable geometry system - a system whose dimensions and shape are such that a nuclear criticality event can not occur for any credible combination of values of system parameters so long as selected subparameters (such as enrichment) are maintained within specified limits.	There is no definition listed, it should be added to the existing list of terms that are defined. NCS uses a different term.	Satisfactory
4	Pseudo control - for the purpose of this inspection procedure only, an NCS control intended and depended on to support defense-in-depth and which does not contribute substantively to the safety margin.	There is no definition listed, but the term should be listed and then noted that this process is not used at this facility. Here again NCS uses a different term but means the same,	Satisfactory

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5	Safe geometry system - a system whose dimensions and shape are such that a nuclear criticality event cannot occur for any combination of values of system parameters including but not limited to moderation; reflection; or nuclide mass, concentration, or enrichment.	There is no definition listed, it should be added to the existing list of terms that are defined. NCS uses a different term,	Satisfactory
88016-02	INSPECTION REQUIREMENTS		
02.01	Selection of Areas for Review		
a	What changes have occurred to the facility and operation since the most recent NCS inspection?	Nuclear Criticality Safety Evaluation (NCSE) NCS-CSE-007, Rev 01 denoted CAB inspection as the most recent inspection change.	Satisfactory
b	Identify risk-significant analyses for review.	Reviewed NCSE EG-3-3200-01-F-1, Rev1, 12/12/08 This identifies the risk significant analysis such as mass, enrichment, physiochemical, geometry, volume, moderation, concentration, etc. Lists the risk significant analysis.	Satisfactory
c	Determine the adequacy of non-credibility determinations.	Reviewed NCSE EG-3-3200-01-F-1, Rev1, 12/12/08, Part 1.4.1 This lists the factors for NCS evaluations	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
02.02	Nuclear Criticality Safety Limits and Controls.		
a	Are appropriate limits and controls clearly identified in NCS analysis?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1. Limits and controls are noted within the reference document.	Satisfactory
b	Do limits and controls make operational sense for ease and effectiveness of implementation?	Reviewed NCSE EG-3-3200-01, Attachment 1 Rev 1, 12/12/08 This denotes all parameters are outlined for limits and controls and operational sense for ease and effectiveness of implementation.	Satisfactory
c.	Is an adequate safety margin ensured for affected parameters?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Part 1.4.1 This item discusses an adequate safety margin.	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
02.03	Nuclear Criticality Safety Evaluations?		
a	Do the NCS evaluations exist for new or revised processes?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, and NCS-CSE-077 Rev 01 The NCS evaluation exists for both new and revised procedures.	Satisfactory
	Do evaluations accurately reflect the existing plant configuration?	The same plant parameters exists and have not changed, as with the original license	Satisfactory
	Do evaluations have sufficient detail and clarity to allow an independent assessment?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Part 4 The evaluation was detailed and independent.	Satisfactory
b	Does each process evaluation identify and incorporate realistic and conservative assumptions for the process description and conditions?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1 The section addressed Nuclear Criticality Safety Parameter Guidance each item was detailed.	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
c	Does the evaluation provide complete accident pathway analysis for contingencies that could lead to nuclear criticality?	Reviewed NCSE EG-3-3200-01-F-1 Rev 1 12/12/08 Part 1.6.4 The NCSE should confirm that each pathway has been evaluated.	Satisfactory
	Does the operations staff participate in the identification of contingencies?	Reviewed NCSE EG-3-3100-06,Rev3,12/11/08, Part 3.15 Each sub analysis is conducted on the basis of the facility process which is reasonable to analysis hazards as a discrete analysis unit.	Satisfactory
	Are the method(s) used to identify the contingencies specified in the evaluation?	Reviewed NCSE EG-3-3200-02,Rev1,12/12/08, Attachment 1, Part1 -10 Nuclear Criticality Safety Parameter Guidance is provided.	Satisfactory

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d	Do the specified NCS limits on controlled parameters and NCS control systems assure subcriticality by providing a defense-in-depth for each identified potential pathway for nuclear criticality?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Part 3.7 through 8 and Attachment 1 This section provides for NCS parameters, responsibilities, NCSE preparation, and NCSE approval.	Satisfactory
	Do analyses show that margins of safety on the NCS limits satisfy the plant and license or certificate requirements for subcritical margin?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Part 3.7 through 8 and Attachment 1 This provides for consideration for safety and limits for subcritical margin.	Satisfactory
	Is the reliance placed on passive or active engineered NCS controls, when practicable, or that administrative controls are adequately justified?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 5.3.1 It provides for passive, active engineered or administrative controls during the ISA Team evaluation.	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
e	<p>Do the IROFS or other NCS control systems ensure that at least two unlikely, independent, and concurrent changes in process conditions must occur before criticality is possible?</p> <p>Has each potential criticality accident pathway has been evaluated?</p>	<p>Reviewed NCSE EG-3-3200-02, Rev1, 12/12/08, Part 5.2 The NCSA preparer and ISA team establish the parameters to prevent criticality.</p> <p>Reviewed NCSE EG-3-3200-02-F-1, Rev 1, 12/12/08, Part 5.3 This part provides barriers to each accident pathway.</p>	<p>Satisfactory</p> <p>Satisfactory</p>
f	<p>Are the controlled parameters and their associated NCS limits identified?</p> <p>Are the NCS limits, IROFS and NCS control systems adequate to control the risk of nuclear criticality?</p>	<p>Reviewed NCSE EG-3-3200-01, Attachment 1, Rev 1, 12/12/08 Item 1-10 is satisfactory.</p> <p>Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Part 1.5.1 identified controls system listed for consideration.</p>	<p>Satisfactory</p> <p>Satisfactory.</p>
02.04	Independent Review of Nuclear Criticality Safety Evaluations.		

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02.05	Subcritical Margin		
	<p>Does the analyses show that margins of safety on the NCS limits satisfy procedural and license or certificate requirements and assure that fissile material operations meet the performance requirements of 10 CFR Part 70.61?</p>	<p>Review of NCSE EG-3-3200-01 parts 3.7 -8, Attachment 1, and NCSE EG-3-3200-01F-1 indicates the margins for safety on the NCS limits will satisfy the procedure.</p> <p>Review of NCSE EG-3-3200-01-F, Rev. 1, for NCS-CSE-009, Rev. 00, Title CADB Shell NCSE indicates that the margin of safety is acceptable,</p>	<p>Satisfactory</p>

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02.06	Validation.		
a	<p>Do the safety evaluations established (new or modified) since the last NRC headquarters inspection use only validated analytical methods?</p> <p>Are analytical methods identified in the license or certificate and used since the last inspection?</p> <p>For new analytical methods, are the methods validated in accordance with the license and validation report written and is it maintained?</p>	<p>Reviewed NCSE EG-3-3200-01-F, Rev. 1,12/12/08 for NCS-CSE-009, Rev. 00, Title CADB Shell NCSE indicates that the margin of safety is acceptable,</p> <p>The MONK8 Report, Rev 4,3/17/09 Nuclear Criticality Validation Report covers the analytical methods.</p> <p>Review of EG-3-3200-01-F-1, Rev 1,12/12/08 and NCS-CSE-009, Rev. 00, Title CADB Shell NCSE page 3 of the NCSE Peer Review and Instructions under conclusions indicates the analytical results are consistent with the applicable limits.</p>	<p style="text-align: center;">Accepted</p> <p style="text-align: center;">Accepted</p> <p style="text-align: center;">Accepted</p>

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
b	Do the evaluations show that calculations will fall within the area of applicability of the validation and that final results meet the subcritical criteria established by the validation?	Review of EG-3-3200-01-F, Rev. 1, for NCS-CSE-009, Rev. 00, Title CADB Shell NCSE page 3 of the NCSE Peer Review and Instructions under methods of analysis calculations were based on existing analysis.	Satisfactory
88016-03	INSPECTION GUIDANCE		
03.01	Selection of Areas for Review.		
a	Are new or changed evaluations the focus of the inspection effort?	This is the focus to ensure that new or changed evaluations meet the requirements. NCSE EG-3-3200-02 Part 1.2 does state that the focus of inspection effort is for changed or new evaluations.	Satisfactory
b	If there are not sufficient new evaluations to review, select several older evaluations from higher risk areas of the plant for review during the inspection?	NCSE EG-3-3200-02 Part1 & EG-3-3200-02-F-1 Part1 describes both as the scope of analysis.	Satisfactory

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c	<p>Does the review of CSEs and related equipment, operations and processes, with fissile material operations wherein the regulatee has designated criticality not credible determine whether the assumptions supporting the determination are adequate?</p>	<p>Reviewed NCS EG-3-3200-02-F-1, Rev1, 12/12/08, pages 15 to 20.</p> <p>The CSE, the CSE reviewer and the NCSA committee reviews for approval. They also review the assumptions and parameters to see if it is controlled or not controlled and also adhere to the double contingency principle.</p>	<p align="center">Satisfactory</p>

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
03.02	Nuclear Criticality Safety Limits and Controls.		
a	<p>Does the review of NCS analyses, plant and equipment drawings, operating procedures, confirmatory calculations, and staff interviews demonstrate that appropriate NCS limits have been identified, are fully supported by the analytical basis, and clearly establish and maintain an adequate margin of safety for process parameters involved.</p> <p>Are the assumptions correct by record reviews, plant walk downs, and interviews with technical staff?</p> <p>Are the bounding assumptions are actually bounding?</p>	<p>Reviewed NCSE EG-3-3200-02, Rev 1, 12/12/08, Attachment 1 The NCS Parameter Guidance lists factors of mass, geometry, density, enrichment, reflection, moderation, concentration, interaction, neutron absorbs ion, and volume.</p> <p>Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08 The Nuclear Criticality Safety Analysis provides a six page check sheet for the review of the criticality safety.</p> <p>Reviewed NCSE EG-3-3200-02-F-1, 12/12/08, parts 3.1, 3.3 and 3.4 These cover the assumptions, their adequacy, and ensure they are bounding.</p>	<p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p>

Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
b	<p>Does the review of NCS analysis, interviews with NCS staff, and interviews with operators demonstrate that NCS controls make sense for the parameters involved and equipment, process, or facility in which they are implemented?</p> <p>Are specific controls selected for inspection beginning with new or changed NCS analysis or controls that need to be repeatedly inspected?</p>	<p>Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Pat 3.6 and 3.7. The NCS parameters are discussed pro and con, as to their controlled parameters. Limits of the controlled parameters are discussed.</p> <p>Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08 Part 1.1-1.5. These are an outline of the scope of the analysis including material characteristics, equipment configurations, process operations, in conjunction with internal events.</p>	<p>Satisfactory</p> <p>Satisfactory</p>

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c	<p>Are controls relied on for double contingency robust and will actually support double contingency? (Be alert for weak or pseudo-controls in defense-in-depth arrangements that will not effectively support double contingency if one of the more robust controls fails)</p>	<p>Review of NCSE EG-3-3200-02-F-1 Part 5.0 indicates that controls are discussed in the outline.</p>	<p>Satisfactory</p>
	<p>Do NCS controls or sets of controls in any control scheme actually meet the criteria of unlikely?</p>	<p>Review of NCSE EG-3-3200-02-F-1 Part 3.7 -8 NCS indicates that reviews are guided by these paragraphs.</p>	<p>Satisfactory</p>
	<p>Are special controls specified for solution transfers from favorable to nonfavorable geometry vessels, preventing the accumulation of fissile material in process equipment, verifying the isotopic content of incoming cylinders, and backflow prevention?</p>	<p>Review of NCSE EG-3-3200-02-F-1 Attachment 1, Listed in sections 1-10.</p>	<p>Satisfactory.</p>

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c Cont'd	Are passive engineered controls preferred to active engineered controls and active engineered controls preferred to administrative controls?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 5. This section defines exactly the preference of engineering and administrative controls.	Satisfactory
	Are passive engineered controls effectively implemented as specified in the NCS analysis including dimensional tolerance, material composition and surveillance?	As per license, this does not apply at this time.	Not Applicable
03.03	Nuclear Criticality Safety Evaluations.		
a	Are process evaluations provided in documentation that contains descriptions of the process physical, chemical, and equipment conditions?	Reviewed NCSE EG-3-3200-01-F-1, Rev1, 12/12/08, Part 1.2 The description of the processes includes process, physical, chemical, and equipment conditions.	Satisfactory
	Is consideration given to normal and off-normal conditions (process contingencies)?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Part 3.6 The evaluation of any change involving uranium to determine the process will subcritical under both normal and credible abnormal conditions.	Satisfactory
	Is the analysis of criticality states for normal and abnormal conditions; and establishment of NCS limits, IROFS and control systems accounted for?	NCSE EG-3-3200-01-F-1, Rev1, 12/12/08, Part 1.4-1.6.3 The analysis of criticality states for normal and abnormal states, conferring with NCS limits, IROFS and control systems.	Satisfactory

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b	Does the description of process chemical, physical, and nuclear characteristics provide a basis for postulation of nuclear material states within the unit operation?	Reviewed NCSE EG-3-3200-01-F-1, Rev 1, 12/12/08, Part 1.2 and Part 1.5.1. These parts describe the all potential affected uranic processes and associated systems.	Satisfactory
	Do evaluations consider heterogeneous effects particularly in low-enriched uranium (LEU) systems?	Reviewed NCSE EG-3-3200-02, Rev1, 12/12/09, Attachment 1. The Nuclear Criticality Parameter Guidance would consider this event but it does not specifically state the exact words.	Satisfactory
	Are descriptions of material characteristics, equipment configurations, process operations, and potential internal and external events used to identify possible normal and abnormal states of the process?	Reviewed NCSE EG-3-3200-02-F-1 Part 1.5 & NCSE EG-3-3200-01 Part 1,4.1 adequately discusses in this section.	Satisfactory
	Are types of internal events including, fire, improper operation of equipment, and equipment failure considered?	Reviewed NCSE EG-3-32000-02-F-2, Rev1, 12/12/08. This is covered in this form F-2 of this document.	Satisfactory
	Are types of external events including earthquake, storms, and flooding considered?	Reviewed NCSE EG-3-32000-02-F-2, Rev1, 12/12/08. Covered as line item in form F-2 of this document.	Satisfactory

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c	Are events or contingencies occurring in an accident pathway identified from operational experience or using hazard evaluation techniques?	Reviewed NCSE EG-3-3200-01. Rev1, 12/12/08, Parts 1.6.3.c and 1.6.4 Pathways discussed within this section.	Satisfactory
	Are common mode failures considered in developing accident scenarios?	Reviewed NCSE EG-3-3200-01-F-2, Rev1, 12/12/08. Listed under "Conclusions" of this form F-2.	Satisfactory
	Are acceptable hazard evaluation techniques included such as the What If, Checklist, Hazard and Operability (HAZOP), Failure Modes and Effects (FMEA), and Fault/Event Tree analyses?	Reviewed NCSE EG-3-3100-06, Rev 3, 12/11/08, Part 5.4. ISA team oversees that the engineer has provided contingencies and methods have been analyzed to determine credibility and non-creditable conditions.	Satisfactory
	Besides the NCS staff, are operations supervisors and operators expected to contribute to the identification of contingencies?	Reviewed NCSE EG-3-3200-02 Between part 4.3 and 4.4 is a note that reflects this attribute.	Satisfactory
	Are contingencies for process conditions leading to potential criticality conditions documented in the NCS evaluation?	Reviewed NCSE EG-3-3200-02 Part 4.6 Contingencies are documented.	Satisfactory

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d	Do calculations that result in safety limits clearly identify the normal and credible abnormal conditions for each accident sequence considered?	Reviewed NCSE EG-3-3200-02, Rev1, 12/12/08, Part 4.1. Normal and abnormal conditions are discussed.	Satisfactory
	Do calculated results for the identified normal and upset cases meet license requirements for subcritical margin?	Reviewed Safety Analysis Report (SAR), Rev 19c, 5/5/09 Part 5.2.1.2. The validation process compares calculations to measure critical experiments and maintain sub criticality.	Satisfactory
xx	Evaluate acceptability of calculations resulting in safety limits using license and procedural requirements and the following general guidance:	-----	-----
1	Do calculations identify the basic geometry of the problem including dimensions?	Reviewed NCSE EG-3-3200-02-F-1, Rev 1, 12/12/08, Part 2.1.3 and NCSE EG-3-3200-02 Attachment 1 Part 2.1. This is an NCS parameter.	Satisfactory
2	Do calculations identify the material including atom densities?	Reviewed NCSE EG-3-3200-02, Rev 1, 12/12/08, Attachment 1 Part 3 and EG-3-3200-02-F-1, Rev1, 12/12/08, Part 2.1.4 indicated the density is discussed.	Satisfactory
3	Do calculations identify cross section sets used?	Reviewed NCSE EG-3-3200-02-F-1, Rev 1, 12/12/08, Part 2.1.7 indicates the cross section library is used.	Satisfactory
4	Do calculations describe arrays or repeated geometries or functions?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 2.1.5 indicated the calculations contain arrays or repeated geometries.	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
5	Do calculations clearly identify the final result and basis for convergence or acceptability?	Reviewed NCSE EG-3-3200-02-F-1, Rev 1, 12/12/08 and EG-3-3200-02-F-2, Rev1, 12/12/08, This indicates that parts under "Computations" includes the discussion of results.	Satisfactory
6	Do models in calculations clearly bound the equipment system or process under analysis by assuming credible optimum conditions (most reactive conditions physically possible)?	Reviewed NCSE EG-3-3200-02-F1, Rev1, 12/12/08, Part 3.2. The models demonstrate the bounding of the equipment during the most reactive conditions physically possible.	Satisfactory
7	Do the NCS controls resulting from calculations make sense (i.e., should not be either frivolous or overly conservative or impossible to effectively implement)?	Reviewed NCSE EG-3-3200-02-F-1, Rev 1, 12/12/08, Part 5-Results. Assumptions, controls and conditions ensure that nuclear criticality safety is maintained.	Satisfactory
xx	Evaluate acceptability of mass as a controlled parameter using the following guidance:	_____	_____
1	When a given mass of material has been determined, is a percentage factor used to determine the mass percentage of fissile material?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1 Part 1.1. When the mass of a material is determined, a percentage factor is used to determine the mass percentage of the fissile material.	Satisfactory
2	When fixed geometric devices are used to limit the mass of fissile material, is a conservative process density used?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1 Part 1.2. It states that the fixed geometric devices are used to limit the mass of the fissile material, a conservative process density is used.	Satisfactory

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3	When the mass is measured, is instrumentation used?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1 Part1.3 When the mass is measured, instrumentation is used.	Satisfactory
4	When using double-batching of fissile material as a single parameter limit control from experimental data, and double-batching of fissile material is possible, is the mass of fissile material limited to no more than 45 percent of the minimum critical mass, based on spherical geometry?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1, Part 1.4 When using double-batching of fissile material as a single parameter limit control from experimental data, and double batching of fissile material is possible, the mass of fissile material is limited to no more than 45% of the minimum critical mass, based on spherical Geometry.	Satisfactory
5	When using double-batching of fissile material as a single parameter limit control from experimental data and double-batching of fissile material is not possible, is the mass of fissile material limited to no more than 75 percent of the critical mass, based on spherical geometry?	Review NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1,Part 1.5 This part states when using double-batching of fissile material as a single parameter limit control from experimental data and double-batching of fissile material is not possible, is the mass of fissile material limited to no more than 75 percent of the critical mass, based on spherical geometry.	Satisfactory
xx	Evaluate acceptability of geometry as a controlled parameter using the following guidance:	-----	-----

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1	<p>Before beginning operations, are all dimensions and nuclear properties that use geometry control verified?</p> <p>Is the facility configuration management program used to maintain these dimensions and nuclear properties?</p>	<p>Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1, Part 2.1. This procedure said, before beginning operations, are all dimensions and nuclear properties that use geometry control are verified.</p> <p>Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1, Part 2.1 This part provides that the facility configuration management program used to maintain these dimensions and nuclear properties.</p>	<p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p>
2	<p>When using large single units as a single parameter control from experimental data, are the margins of safety 90 percent of the minimum critical cylinder diameter, 85 percent of the minimum critical slab thickness, and 75 percent of the minimum critical sphere volume?</p>	<p>Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 2.2 As this part states, when using large single units as a single parameter control from experimental data, the margins of safety 90 percent of the minimum critical cylinder diameter, 85 percent of the minimum critical slab thickness, and 75 percent of the minimum critical sphere volume.</p>	<p style="text-align: center;">Satisfactory</p>
xx	<p>Evaluate acceptability of density as a controlled parameter using license and procedural requirements and the following guidance:</p>	<p style="text-align: center;">-----</p>	<p style="text-align: center;">-----</p>
1	<p>When process variables can affect the density, are the process variables shown in the ISA Summary to be controlled by IROFS?</p>	<p>Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment1, Part 3.1. From the procedure, when process variables can affect the density, the process variables are shown in the ISA Summary to be controlled by IROFS.</p>	<p style="text-align: center;">Satisfactory</p>

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2	When the density is measured, is the measurement obtained by the use of instrumentation?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 3.2. When the density is measured, the measurement is obtained by the use of instrumentation	Satisfactory
xx	Evaluate acceptability of enrichment as a controlled parameter using the following guidance:	-----	-----
1	Is a method of segregating enrichments used to ensure differing enrichments will not be interchanged, or else the most limiting enrichment is applied to all material?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 4.1 A method of segregating enrichments used to ensure differing enrichments will not be interchanged, or else the most limiting enrichment is applied to all material	Satisfactory
2	When the enrichment needs to be measured, is the measurement obtained by using instrumentation?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 4.2. The procedure is identically stated as the requirement.	Satisfactory
xx	Evaluate acceptability of reflection as a controlled parameter using the following guidance:	-----	-----
1	When investigating an individual unit, is the wall thickness of the unit and all reflecting adjacent materials of the unit considered? Are the adjacent materials should be farther than 30.48 cm (12 inches) away from the unit?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 5.1. When investigating an individual unit, the wall thickness of the unit and all reflecting adjacent materials of the unit are considered. Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1 Part 5.1. The adjacent materials should be farther than 30.48 cm (12 inches) away from the unit.	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
2	After identifying potential reflectors, are the controls to prevent the presence of the potential reflectors identified as IROFS in the ISA Summary?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1 Part 5.2 After identifying potential reflectors, the controls to prevent the presence of the potential reflectors are identified IROFS in the ISA Summary.	Satisfactory
xx	Evaluate acceptability of moderation as a controlled parameter (e.g., moderator exclusion) using the following guidance:	-----	-----
1	When using moderation, does the applicant commit to American National Standards Institute/American Nuclear Society (ANSI/ANS) 8.22, "Nuclear Criticality Safety Based on Limiting and Controlling Moderators," dated 1997?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 6.1. The procedure states, when using moderation, the applicant commits to American National Standards Institute/American Nuclear Society (ANSI/ANS) 8.22, "Nuclear Criticality Safety Based on Limiting and Controlling Moderators," dated 1997.	Satisfactory
2	When process variables can affect the moderation, are the process variables shown in the ISA summary to be controlled by IROFS?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 6.2. Same requirement.	Satisfactory
3	When the moderation is measured, is the measurement obtained by using instrumentation?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 6.3. Same requirement.	Satisfactory
4	When designing physical structures, does the design preclude the ingress of moderation?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 6.4. Same requirement.	Satisfactory
5	When moderation is needed to be sampled, are dual independent sampling methods used?	Reviewed NCSE EG-3-3200-01, Rev 1, 12/12/08, Attachment 1, Part 6.5. Same requirement.	Satisfactory

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6	When developing firefighting procedures for use in a moderation-controlled area, are restrictions placed on the use of moderator material?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 6.6 Same requirement	Satisfactory
7	After evaluating all credible sources of moderation for the potential for intrusion into a moderation-controlled area, is the ingress of moderation precluded or controlled?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 6.7 Same requirement	Satisfactory
xx	Evaluate acceptability of concentration as a controlled parameter using the following guidance:	-----	-----
1	When process variables can affect the concentration, are the process variables shown in the ISA Summary to be controlled by IROFS?	Reviewed NCSE EG-3-3200-01,Rev1,12/12/08, Attachment 1, Part 7 Concentration control is not used at NEF.	Not Applicable
2	Are high concentrations of fissile material in a process precluded unless the process is analyzed to be safe at any credible concentration?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 7 Concentration control is not used at NEF	Not Applicable
3	When using a tank containing concentration-controlled solution, is the tank normally closed?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 7 Concentration control is not used at NEF	Not Applicable
4	When concentration needs to be sampled, are dual independent sampling methods used?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 7 Concentration control is not used at NEF	Not Applicable

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5	After identifying possible precipitating agents, are precautions taken to ensure that such agents will not be inadvertently introduced?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 7 Concentration control is not used at NEF	Not Applicable
xx	Evaluate acceptability of interaction as a controlled parameter using the following guidance:	-----	-----
1	When maintaining a physical separation between units, are engineered controls to ensure a minimum spacing or augmented administrative controls used? Is structural integrity of the spacers or racks sufficient for normal and credible abnormal conditions?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 8.1 Same requirement Reviewed NCSE EG-3-3200-01,Rev 1, 12/12/08, Attachment 1, Part 8.1 Same requirement	Satisfactory Satisfactory
2	When process variables can affect interaction, are the process variables shown in the ISA summary to be controlled by IROFS?	Review NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 8.2 Same requirement	Satisfactory
xx	Evaluate acceptability of neutron absorption as a controlled parameter using following guidance:	-----	-----
1	When using borosilicate-glass raschig rings, does the regulatee commit to ANSI/ANS-8.5, "Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material," dated 1996?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment1, Part 9 Neutron absorption is not used at NEF.	Not Applicable

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2	When using fixed neutron absorbers, Does the applicant commit to ANSI/ANS-8.21, "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors," dated 1995?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment1, Part 9. Neutron absorption is not used at NEF.	Not Applicable
3	When evaluating absorber effectiveness, are neutron spectra considered (e.g., cadmium is an effective absorber for thermal neutrons, but ineffective for fast neutrons)?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment1, Part 9. Neutron absorption is not used at NEF.	Not Applicable
4	When process variables can affect neutron absorption, are the process variables shown in the ISA Summary to be controlled by IROFS?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment1, Part 9. Neutron absorption is not used at NEF.	Not Applicable
xx	Evaluate acceptability of volume as a controlled parameter using the following guidance:	-----	-----
1	When using volume control, is fixed geometry used to restrict the volume of fissile material with engineered devices to limit the accumulation of fissile material?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 10.1 Same requirement	Satisfactory
2	When the volume is measured, Is there/what instrumentation is used?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08, Attachment 1, Part 10.1. Same requirement.	Satisfactory
3	When process variables can affect the volume, are the process variables shown in the ISA Summary to be controlled by IROFS?	Reviewed NCSE EG-3-3200-01,Rev1, 12/12/08 Attachment 1, Part 10.1. Same requirement.	Satisfactory

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
e	Is each potential criticality accident pathway evaluated and NCS limits, IROFS or NCS control systems established as barriers for potential accident pathways identified in the NCS evaluation?	Reviewed NCSE EG- 3-3200-01-F-1,Rev1, 12/12/08, Part1.6.4 .This evaluates accident pathways.	Satisfactory
	Are limits and controls reviewed by NCS staff to establish that two or more unlikely, concurrent, and independent changes in process conditions are required before criticality could occur?	Reviewed NCSE EG-3-3200-01-F-1 Rev1, 12/12/08, Part1.6.3 Double contingency is maintained.	Satisfactory
	Are control systems used as barriers for multiple pathways if they can be shown to be independent for each identified pathway?	Reviewed NCSE EG-3-3200-02-F-1,Rev1, 12/12/08, Part5 Criticality states are analyzed.	Satisfactory

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f	Are passive, active engineered or administrative controls used to determine whether conformance to the double contingency principle identified in a formal process?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 5.3.1 Controls to double contingency.	Satisfactory
	Are passive engineered controls preferred to active engineered controls and active engineered controls preferred to administrative controls?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 5.3.3 Preferred controls.	Satisfactory
	Is the use of only administrative controls in a control scheme justified?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 5.3.4 Administrative controls in control scheme.	Satisfactory
	Is preference given to diversity of controls to provide some measure of defense against common mode failure?	Reviewed NCSE EG-3-3200-02-F-1, Rev1, 12/12/08, Part 5.3.5 Diversity of controls.	Satisfactory
	Does review of regulatee controls, involving measurement consider reliability of instruments and methods?	Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1 Part 3.2. The density is obtained by the use of instruments. The reliability and method is not mentioned. Part 6.3. The moderation is measured and the measurement is obtained by using instrumentation. The reliability and method are not mentioned.	Comment The procedure should be restated to include reliability and method of measurement.

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03.04	Independent Review of Nuclear Criticality Safety Evaluations.		

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	<p>Are independent reviews of each criticality evaluation required for NCS staff approval of the proposed process change?</p> <p>Is this requirement consistent with the double contingency principle in the sense that no single analytical error should allow unsafe conditions to occur?</p> <p>Is there a clear, unambiguous description of the assumptions, analytical method, and results in an NCS evaluation required basis for the review?</p> <p>Is the independent review performed and documented by a qualified NCS evaluator</p>	<p>EG-3-3200-02-F-2 Part 1 Reviewer verifies calculations</p> <p>EG-3-3200-02 Part 5.1.2 e Requirement is consistent.</p> <p>EG-3-3200-02-F-2 Part 1 NCS evaluation reviewed.</p> <p>EG-3-3200-02-F-2 Part 4 Qualifications of the reviewer.</p>	<p align="center">Satisfactory</p> <p align="center">Satisfactory</p> <p align="center">Satisfactory</p> <p align="center">Satisfactory</p>

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03.05	Subcritical Margin.		
	<p>Before start-up of any process, does an NCS evaluation require assurance that each unit and the entire process is adequately subcritical under both normal and abnormal operating conditions?</p> <p>Are critical limits derived from experimental data or from validated analytical methods?</p> <p>Does evaluation show that margins of safety that satisfy plant safety requirements are applied to just critical or slightly subcritical limits?</p> <p>Are the margin of safety identified in plant safety criteria and in the NRC license or certificate?</p> <p>Is the failure limit calculated to define the just-critical system as defined in the license, i.e., $k_{eff} + 2F = 1.0 - ADM$ (where ADM is the approved administrative margin)?</p>	<p>EG-3-3200-01 Part 3.6 Start up requires NCS evaluation.</p> <p>EG-3-3200-02 Part 2.1.2</p> <p>Reviewed NCSE Safety Analysis Report, Rev 19c, 5/5/09, Part 5.2.13 The SAR analysis provides values of k-effective to conservatively meet the upper safety limit. Both a reflection assumptions and a enrichment assumptions enter into the margin of safety.</p> <p>EG-3-3200-01-F-2 Listed under "Conclusions"</p> <p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.2 The margin of sub criticality is validated in MONK8A Validation and Verification, Rev 4, 4/17/09.</p>	<p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory.</p> <p style="text-align: center;">Satisfactory</p>

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Attribute Number/NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
	<p>Is there a safety limit determined to define the facility shutdown and investigation limit?</p> <p>Is an operating limit calculated to define the operating level for notifying plant management of non-routine operation?</p> <p>Is the routine operating limit set by Operations staff to protect the safety limit?</p> <p>Is the margin of safety for any process large enough (including uncertainty) that engineered control systems and/or operators can detect that a safety margin has been lost, thereby allowing corrective action to be taken before criticality occurs?</p> <p>Do operating limits consider changes in operating parameters to ensure that processes will remain subcritical?</p>	<p>EG-3-3200-01-F-1 Part under "Methods of Analysis"</p> <p>EG-3-3200-02 Part 4 Determination of operating limit is not discusses.</p> <p>EG-3-3200-022 Part 4 Operational limit VS safety limit are omitted.</p> <p>EG-3-3200-02-F-2 Part "Conclusions" These items are not apparent in this list.</p> <p>Eg-3-3200-02 Part 4.5 The factor of "operating parameters" are not apparent.</p>	<p>Satisfactory</p>

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03.06	Validation.		
	<p>Is the use of experimental data the preferred method for establishment of NCS limits for a given process system?</p> <p>Are validated calculational methods used without directly applicable experimental data?</p> <p>Is the validation means comparison of critical mass experimental results with mathematical predictions for the experimental systems to establish the bias and range of applicability?</p> <p>Has the bias and the uncertainty in the bias been investigated and quantified?</p> <p>Is the area of applicability of the calculational method extended beyond or between the range of experiments by trending the bias between experimental and calculational results?</p>	<p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Table 5.2-1, Uranium Experiments Used for Validation. The MONK8A program uses over ninety experiments for the basis of limits.</p> <p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.1 This section of SAR mentions only experimental data.</p> <p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.1 The methods validation section uses experimental results and mathematical predictions to establish the bias and range of applicability.</p> <p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.2 Limits on Control and Control Parameters The bias was determined by comparison of calculation to experiment.</p> <p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.2 It is for systems and components for the contingency dump system and not extended. For the contingency dump, extrapolate the cases from the lower contingency dump via trend analysis in MONK8A (NUREG 6698- Guide to Validation of Methodology of Calculation of Nuclear Criticality Safety).</p>	<p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p>

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	<p>Is the area of applicability of the validated method clearly defined?</p> <p>Is there a report describing the experimental conditions, the calculational method, model data (cross sections, extrapolation lengths, etc.), calculational results, the bias, bias uncertainty, and range of applicability?</p> <p>Are the installation and updating of computer codes controlled under a procedure that confirms mathematical operations and code predictions?</p>	<p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.1 The MONK8A code was validated the experiments which were provided in the International handbook of Evaluated Criticality Safety Benchmark Experiments and NUREG/CR-1071.</p> <p>Reviewed NCSE Safety Analysis Report (SAR), Rev 19c, 5/5/09, Part 5.2.1.2 These factors were within 5.2.1.2 Limits on Control and Controlled Parameters.</p> <p>Reviewed NCSE IT-3-2000-01, Rev 2, 4/1/08, Part 5.4.4 Software suppliers must provide adequate documentation to perform ASME NQA-1 audit and include software requirements, specifications limitations, test plan cases with benchmark data, use and maintenance instructions.</p>	<p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p> <p style="text-align: center;">Satisfactory</p>

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Internal Audit Title: Criticality Alarm Systems
Internal Audit Number: 2009-A-005-038
Revision: 0
Lead Auditor: Gregory R. Amsden, Auditor Laird Kayler
Responsible FAM: Karl Becker

Nuclear Criticality Safety Program
Based on NRC Inspection Procedure 88017
Criticality Alarm Systems

Attribute Number/ NRC Inspection Area	Assessment Attributes	Summary Evaluation Notes from procedure/program compliance evaluation	Self-Assessment Results (Include CR numbers for Findings and Action Item Numbers for Recommendations)
88017	Criticality Alarm Systems		
Program Applicability	Note that criticality accident alarm systems are addressed in 10 CFR 70.24 and 10 CFR 76.89 which contain slightly different requirements. The regulations and license should be consulted for requirements applicable to a specific regulatee.		
88017-01	INSPECTION OBJECTIVE Does the regulatee establish and maintain a criticality alarm system that will reliably detect the minimum criticality accident of concern in the monitored area and promptly cause an evacuation signal resulting in a prompt and complete evacuation of the facility?	YES - assuming detector placement is OK and the installation is correct	

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Criticality Alarm Systems**

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88017-02	INSPECTION REQUIREMENTS		
02.01	System Requirements.		
a	Do the procedures adequately implement the NCS program?	<p>All LES procedures are in Draft at this time</p> <p>The Vendor (PSC) will provide an outline functional test procedure as part of their product offering.</p> <p>LES will need an Alarm Response Procedure and a Maintenance / Test procedure</p>	
b	Does the regulatee's criticality accident alarm system comply with applicable NRC regulations and license commitments?	<p>10 CFR 70.24 Criticality Accident Requirements.</p> <p>States: Each licensee authorized to possess special nuclear material in a quantity exceeding 700 grams of contained uranium-235... shall maintain in each area in which such licensed special nuclear material is handled, used, or stored, a monitoring system meeting the requirements of either paragraph (a)(1) or (a)(2), as appropriate, and using gamma- or neutron-sensitive radiation detectors which will energize clearly audible alarm signals if accidental criticality occurs.</p> <p>10 CFR 76.89 Criticality accident requirements.</p> <p>(a) The Corporation must maintain and operate a criticality monitoring and audible alarm system meeting the requirements of</p>	<p>Reference : EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces</p> <p>2. Conclusion and Required Actions</p> <p>2.1 Research feasibility of or use of portable PA notification devices, fire alarms/lights, and CAAS alarm/lights and select appropriate devices for NEF</p>

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		<p>paragraph (b) of this section in all areas of the facility. The Corporation may describe for the approval of the Commission defined areas to be excluded from the monitoring requirement. This submittal must describe the measures that will be used to ensure against criticality, including kinds and quantities of material that will be permitted and measures that will be used to control those kinds and quantities of material.</p> <p>(b) The system must detect and annunciate a criticality that produces an absorbed dose in soft tissue of 20 rads of combined neutron and gamma radiation at an unshielded distance of 2 meters from the reacting material within 1 minute. Coverage of all monitored areas must be provided by two detectors.</p> <p>The licensee has designed and is currently in the process of installing a system to achieve compliance with this requirement with the exception of "clearly audible alarm signals" Reference EG-DCR-2008-101.</p>	
02.02	<p>Sensitivity</p> <p>Does the criticality alarm system adequately detect the minimum accident of concern in the most conservative location?</p>	<p>YES – Based on appropriate location and number of detectors</p> <p>Reference: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>The referenced document provides a basis</p>	<p>Action:</p> <p>LES NCSE is preparing an analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods - by</p>

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		<p>for detector placement rationale.</p> <p>The Minimum Accident of Concern or MAC is defined for UO₂F₂-H₂O at 6% enrichment - see above.</p> <p>Also: ANSI/ANS-8.3-1997 states in appendix B</p> <p>B.3 Methods Determining the adequacy of detector coverage is inherently a complicated process. Several options are available to the evaluator, including but not limited to: <i>in situ</i> source testing; simple hand calculations; one-dimensional deterministic or Monte Carlo transport computations; and two- or three-dimensional deterministic or Monte Carlo transport computations.</p> <p>B.3.2 Simple Hand Calculations. For cases in which little or no shielding exists, it may be possible to apply a simple hand calculation to estimate the range of a detector. Use of this type of calculation is best illustrated by example.</p>	<p>employing MCNP Code. The intent of the analysis is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal.</p> <p>NCSE Analysis to be completed by July 17, 2009.</p>
02.03	Response		
a	Is evacuation signaled promptly upon detection of an accident?	YES - only if Action Required by the Referenced: EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces is completed and is acceptable	NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997

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b	Can alarm set points be inadvertently altered?	NO – Set points are fixed and not adjustable	
02.04	Audibility Is the alarm signal annunciated in the facility loud enough to cause an evacuation by employees in the affected area but not so loud as to cause hearing damage to employees close to the annunciator?	YES - only if Action Required by the Referenced: EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces is completed and is acceptable NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997	Reference : EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces 2. Conclusion and Required Actions 2.1 Research feasibility of or use of portable PA notification devices, fire alarms/lights, and CAAS alarm/lights and select appropriate devices for NEF
02.05	Reliability		
a	Is the detector/monitor system adequately reliable?	YES – Limited only to detector/monitor system performance requirements for response time and sensitivity.	Reference WPA -08-003-s-1-0001-1
b	Determine whether the alarm annunciators are adequately reliable.	YES - only if Action Required by the Referenced: EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces is completed and is acceptable NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor for all criteria as a permanently installed system per ANSI/ANS-8.3-1997	Reference : EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces 2. Conclusion and Required Actions 2.1 Research feasibility of or use of portable PA notification devices, fire alarms/lights, and CAAS alarm/lights and select appropriate devices for NEF

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02.06	<p>Emergency Plan</p> <p>Does the regulatee have documented emergency plan for criticality alarm evacuations?</p>	NO – Emergency response plan is in Draft form at this time	
88017-03	INSPECTION GUIDANCE		
03.01	System Requirements		
a	<p>Does the regulatee maintain sufficient documentation to demonstrate that the criticality alarm system is capable, available and reliable to monitor fissile material operations, detect the minimum accident of concern, and generate an adequate evacuation signal?</p> <p>Do criticality alarm systems have adequate detector coverage to detect the minimum criticality accident of concern as demonstrated by sufficiently bounding and conservative assumptions and calculations?</p>	<p>YES – Based on completion of referenced actions</p> <p>Reference: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>The referenced document provides a basis for detector placement rationale.</p> <p>The Minimum Accident of Concern or MAC is defined for UO2F2-H2O at 6% enrichment - see above.</p> <p>Also: ANSI/ANS-8.3-1997 states in appendix B</p> <p>B.3 Methods Determining the adequacy of detector coverage is inherently a complicated process. Several options are available to the evaluator, including but not limited to: <i>in situ</i> source testing; simple hand calculations; one-dimensional deterministic or Monte</p>	<p>Action:</p> <p>LES NCSE is preparing an analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods - by employing MCNP Code. The intent of the analysis is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal.</p> <p>NCSE Analysis to be completed by July 17, 2009.</p>

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		<p>Carlo transport computations; and two- or three-dimensional deterministic or Monte Carlo transport computations.</p> <p>B.3.2 Simple Hand Calculations. For cases in which little or no shielding exists, it may be possible to apply a simple hand calculation to estimate the range of a detector. Use of this type of calculation is best illustrated by example.</p>	
<p>b</p>	<p>Do the criticality alarm system design features should include adequate detector coverage of areas, adequate electronic logic before sounding the alarm, audio alarms and, as necessary due to noise levels, visual alarms.</p> <p>Is system surveillance provided to warn of detector failure and secondary emergency power should be provided?</p> <p>Is coverage based on 10 CFR 70 and 76, American National Standards Institute/American Nuclear Society (ANSI/ANS) 8.3, "Criticality Accident Alarm System," or NRC Regulatory Guide 8.12, "Criticality Accident Alarm Systems"?</p>	<p>YES based on compliance to WPA -08-003-s-1-0001-1</p> <p>System Surveillance for Maintenance documentation provided by vendor for development of LES procedures.</p> <p>Detector failure detection is provided see referenced WPA. System secondary power is provided by an integral Uninterruptible Power Source in the control panel.</p> <p>Coverage based on the following: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>And</p> <p>NCSE analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods</p>	<p>Reference WPA -08-003-s-1-0001-1</p> <p>Reference: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>The referenced document provides a basis for detector placement rationale.</p> <p>The Minimum Accident of Concern or MAC is defined for UO₂F₂-H₂O at 6% enrichment - see above.</p> <p>LES NCSE is preparing an analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997</p>

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			<p>appendix B.3 Methods - by employing MCNP Code. The intent of the analysis is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal.</p> <p>NCSE Analysis to be completed by July 17, 2009.</p>
03.02	<p>Sensitivity</p> <p>Do the alarm set points cause an alarm when radiation levels exceed regulatory limits?</p>	<p>YES – Alarm Set Points are preset by manufacturer and are not adjustable. System installation, calibration and test per manufacturers procedures shall verify this requirement after installation</p>	
a	<p>Is the trip point set low enough to detect the minimum accident of concern?</p>	<p>YES – Alarm Set Points are preset by manufacturer and are not adjustable.</p>	
b	<p>Is the alarm trip point set high enough to minimize the probability of an alarm from sources other than criticality?</p>	<p>YES – Alarm Set Points are preset by manufacturer and are not adjustable.</p>	
c	<p>Is the trip point set to minimize false alarms?</p>	<p>YES – Alarm Set Points are preset by manufacturer and are not adjustable.</p>	
d	<p>Does the alarm trip point account for normal or operational background at the monitoring point?</p>	<p>YES – Alarm Set Points are preset by manufacturer and are not adjustable.</p>	

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e	Are minimal transients considered in the selection of radiation detectors?	YES	Reference WPA -08-003-s-1-0001-1
03.03	Response		
a	Does evaluation demonstrate that the minimum accident of concern in the most conservative location will result in a radiation field at the detector sufficient to exceed the detector threshold?	<p>YES based on the following: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>And</p> <p>NCSE analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods</p>	<p>Reference: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>The referenced document provides a basis for detector placement rationale.</p> <p>The Minimum Accident of Concern or MAC is defined for UO₂F₂-H₂O at 6% enrichment - see above.</p> <p>LES NCSE is preparing an analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods - by employing MCNP Code. The intent of the analysis is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the</p>

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			<p>NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal.</p> <p>NCSE Analysis to be completed by July 17, 2009.</p>
1	Does the detector response to a radiation field above the established threshold occur quickly enough to cause evacuation before significant radiation exposure occurs?	YES	
2	Is the system designed to produce the criticality alarm signal within one-half second of activation by the minimum accident of concern?	YES – 60ms response time see section 7.3 Radiation Detectors, in the referenced WPA	Reference WPA -08-003-s-1-0001-1 section 7.3 Radiation Detectors, in the referenced WPA
b	Is access to the alarm set points controlled by written procedures to prevent inadvertent modification of the set points?	NO - Alarm Set Points are preset by manufacturer and are not adjustable.	
d	<p>Corrective Actions for NCS Events.</p> <p>Does the regulatee develop, assign, and carry out corrective actions to prevent recurrence of IROFS failure or other NCS limit or control violations?</p> <p>Does the regulatee have a program to analyze and trend reportable events and to develop lessons-learned from the analyses?</p>	YES	<p>Reference: <i>Response to Nuclear Criticality Safety Anomalous Conditions</i>, CR-3-1000-04</p> <p>Note: needs review and revision</p>

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<p>03.04</p>	<p>Audibility</p> <p>Is the alarm system for immediate evacuation purposes only and of sufficient volume and coverage to be heard in areas that are to be evacuated?</p>	<p>YES - only if Action Required by the Referenced: EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces is completed and is acceptable</p> <p>NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997</p>	<p>Reference : EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces</p> <p>2. Conclusion and Required Actions</p> <p>2.1 Research feasibility of or use of portable PA notification devices, fire alarms/lights, and CAAS alarm/lights and select appropriate devices for NEF</p>
<p>a</p>	<p>Are there a sufficient number of audio generators installed to provide complete facility coverage with an appropriate evacuation signal?</p>	<p>YES - only if Action Required by the Referenced: EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces is completed and is acceptable</p> <p>NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997</p>	<p>Reference : EG-DCR-2008-101 Change of Cascade Halls to Unoccupied Spaces</p> <p>2. Conclusion and Required Actions</p> <p>2.1 Research feasibility of or use of portable PA notification devices, fire alarms/lights, and CAAS alarm/lights and select appropriate devices for NEF</p>
<p>b</p>	<p>Do the audio generators produce an overall sound pressure level of at least 75dB, but not less than 10dB above the maximum ambient noise level typical of each area for which audio coverage is to be provided?</p>	<p>YES - Where permanent audio generators are installed, the manufacturer will perform initial adjustment to achieve 10dB greater than background and less than 115dB</p> <p>NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997</p>	

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<p>c</p>	<p>Excessive noise levels can be injurious to personnel.</p> <p>Do the audio generators produce an overall sound pressure level in excess of 115dB at the ear of an individual? (if current dB is found to be > 115dB, MUST BE MODIFIED)</p>	<p>YES - Where permanent audio generators are installed, the manufacturer will perform initial adjustment to achieve 10dB greater than background and less than 115dB</p>	
<p>d</p>	<p>Are the audio generating system(s) automatically actuated by initiating an event without requiring human action, although a means for manual actuation of the criticality alarm signal may be provided?</p>	<p>YES - Where permanent audio generators are installed</p> <p>NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997</p>	
<p>e</p>	<p>After actuation, do the audio generators continue to function as required by emergency procedures, even if the radiation falls below the alarm point?</p> <p>Are there manual resets with limited access provided to outside areas that require evacuation (i.e., emergency operations center)?</p>	<p>YES - Where permanent audio generators are installed</p> <p>YES - Manual resets are accomplished via interface with the Logic Control Panel (outside the monitored areas) when activity is less than 1 micro Gy/hr in all areas where detectors are located.</p> <p>NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997</p>	<p>Reference WPA -08-003-s-1-0001-1 section 7.3 Radiation Detectors</p>

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f	Are there areas with very high audio background which require that the alarm be supplemented with visual signals?	YES - Where permanent audio generators are installed, supplemental visual beacons are employed for high noise areas NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997	Reference WPA -08-003-s-1-0001-1 section 7.4 Building Evacuation System
03.05	Reliability		
a	Will the criticality alarm system remain available and reliable?	YES	Reference WPA -08-003-s-1-0001-1
1	Is the system designed for high reliability and does it utilize components that do not require frequent servicing, such as lubrication or cleaning?	YES	Reference WPA -08-003-s-1-0001-1
2	Is the design of the system as simple as it is consistent with the objectives of ensuring reliable actuation of the criticality alarm signal and avoidance of false alarms?	YES	Reference WPA -08-003-s-1-0001-1
3	Is the design and installation of the system such that it can withstand earthquake damage?	YES	Reference: CC-EG-2008-0445 Reference: URS Calculation No. 29275-CIV-005, 10/23/08 Robert Strunk NM PE #18555
4	Are components of the system located or protected to minimize damage in case of fire, explosion, corrosive atmosphere, or other extreme conditions?	YES	Reference WPA -08-003-s-1-0001-1
5	Does the location and spacing of detectors avoid the effect of shielding by massive	YES – Based on completion of referenced actions	Action:

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	<p>equipment or materials?</p> <p>Is there shielding from low density materials or construction, such as wood framing, thin interior walls, hollow brick tiles, etc.?</p>	<p>Reference: <i>A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility</i> – Peter L. Angelo, Ph.D. December 2007</p> <p>The referenced document provides a basis for detector placement rationale.</p>	<p>LES NCSE is preparing an analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods - by employing MCNP Code. The intent of the analysis is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal.</p> <p>NCSE Analysis to be completed by July 17, 2009.</p>
6	Is the spacing of detectors consistent with the selected alarm trip point and detection criterion?	See Above # 5	
7	Is consideration given to the avoidance of false alarms?	YES	Reference WPA -08-003-s-1-0001-1
8	<p>Does the system produce an evacuation signal due to component failure?</p> <p>Is a visible or audible signal provided at some normally occupied location to indicate system malfunction or loss of primary power?</p>	<p>YES</p> <p>YES - Where permanent audio generators are installed, supplemental visual beacons are employed for high noise areas</p>	Reference WPA -08-003-s-1-0001-1 section 7.4 Building Evacuation System

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		NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997	
9	Is the system designed to minimize the effects of non-use, deterioration, power surges, and other adverse conditions?	YES	Reference WPA -08-003-s-1-0001-1
10	Are there process areas in which activities will continue during power outages?	YES	
	Do they have emergency power supplies for alarm systems, or such activities monitored continuously with portable instruments?	YES	Reference WPA -08-003-s-1-0001-1
b	Failure of audio generators should be detectable. Is there an audio generator redundancy that an annunciator relied on to back up another annunciator can be activated by the same event?	YES YES - Where permanent audio generators are installed, supplemental visual beacons are employed for high noise areas NOTE: use of portable PA notification devices, fire alarms/lights and CAAS alarm/lights must meet the same level of rigor as a permanently installed system per ANSI/ANS-8.3-1997	

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03.06	<p>Emergency Plan</p> <p>Does the facility maintain emergency procedures for each area in which fissile material is handled, used, or stored to ensure that personnel withdraw to an area of safety upon the sounding of the alarm?</p>	<p>Emergency planning and procedures for alarm response are in draft form at present</p>	<p>Action to complete procedures and practice evacuations should be performed prior to ORR and the introduction of nuclear materials to the facilities.</p> <p>Training will include Alarm Response and Evacuation protocol as part of Nuclear Worker Training Plans</p>
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Personnel Interviewed:

Name	Title/Company
Shiaw-Der (Steve) Su	LES NCSE SME
David Horvath	LES Engineering
Karl Becker	LES PMO
Chris Grotbeck	HY-Tech
Jerry Newman	Pro2Serve – System Engineering
Bryan Swinson	Pajarito Scientific – System Manufacturer
David Heath	Pajarito Scientific – System Manufacturer
Jan DeWilde	LES/Urenco – Operations
Kevin Stovall	ETC/ARES – Systems Engineering
David Hartmangruber	LES NCSE – MCNP Analysis for Spacing
Kevin Schwinkendorf	LES NCSE – Criticality Engineer
Steven Troyer	LES CSO
Rick Kohrt	LES Site Engineering
Doug Neve	LES Site Engineering Manager
Mike Meissner	LES IT – Lead on Portable Annunciation
Dave Wallenburg	LES IT

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Documents Reviewed

NEF ISA Summary – section 3.1 General Integrated Safety Analysis (ISA) Information, Subsection 3.1.5 Criticality Monitoring and Alarms	LES Document	Revision 9b – 5a
Criticality Accident Alarm System (CAAS)	Lockwood Green Framatome-ANP Inc.	L4-45-02-NAR 38-5033990-01
A Rationale for a Process-based Criticality Accident Alarm System Evaluation at the National Enrichment Facility – Dec 07	Peter L. Angelo, Ph.D. Senior Nuclear Criticality Accident and Alarm Systems Specialist	LES-PLA-001
CAAS System Layout UF6 Area and Cascade Halls 1 & 2 Floor Plan		WPA-08-003d-INST-1-2
CAAS System Layout Cylinder Receipt and Dispatch Building First Floor Plan - South		WPA-08-003d-INST-1-2
CAAS System Layout Cylinder Receipt and Dispatch Building First Floor Plan – North		WPA-08-003d-INST-5-2
National Enrichment Facility Criticality Accident Alarm System	HY Tech - Technical Specification Professional Project Services Inc	WPA-08-003-S-1-0001-1
Response to Nuclear Criticality Safety Anomalous Conditions	LES Procedure	CR-3-1000-04 (formerly CR-105)
Fire Response	LES Procedure	
Change of SBM Cascade Halls to Unoccupied Spaces	LES Design Change Request	OP-3-2000-02 Rev 2

Documents Reviewed

Change of SBM Cascade Halls to Unoccupied Spaces	LES Design Change Request	EG-DCR-2008-101
CAAS Equipment Mounting Brackets	LES Configuration Change	CC-EG-2008-0445
SBM Bldg 1001 – CAAS Equipment Supports	URS Engineering Calculation – Demonstrate Seismic II/I adequacy of the structural supports for the Criticality Alarm System	Calc# 29275-CIV-005 Robert Strunk, PE, State of New Mexico 18555
10 CFR 70.24 & 10 CFR 76.89	Title 10 United State Code, Energy	Nuclear Criticality Safety
American National Standards Institute	Criticality Accident Alarm System	ANSI/ANS-8.3
Numerous e-mails from & to various participants in the Criticality Alarm System program/project	On file.	18

MEETING ATTENDANCE FORM

88015 -

**Entrance/Exit Meeting
ASME Commercial Nuclear Program**

Audit Date(s): 5-26-09 to 5-26-09	Supplier's Name: LES - NEF, NM
Audit No: 2009-A-05-038	Address:

Name	Title	Company	Work Phone	Ent	Exit
Joseph Mallia	Lead Auditor	ACS	585-490-3664	✓	✓
RICHARD DESKO	AUDITOR	ACS	585-229-2625	✓	✓
Steve Su	NCS Engineer	LES	575-394-6109	✓	✓
C. W. (BILL) WOOD	OBSERVER	LES	515-394-5231	x	
Steve Troyer	CSU	LES		✓	✓
JENNIE DAWCIN	EP MANAGER	LES	575-394-6501	✓	-
Charlotte Sanders	Acting CSO Consultant	Empire	609-781-4681	✓	PHONE
RICK KOHET	PROGRAM ENG. SUPV	LES	575-394-5579		
Richard Lehman	NCS IISA Engineer	LES	575-394-6113	-	✓
Steven Troyer	Criticality Safety Officer	LES	575-394-6366	-	✓
Eero Hemmila	operations	LES	575-394-5899	-	✓
Tim KNOWLES	TRAINING	LES	575-394-6212	-	INTER
CHRIS BATES	TRAINING	LES	575-394-6653 505-975-9846 cell	-	INTER
TAD NIX	DOCUMENT	LES		-	INTER

MEETING ATTENDANCE FORM

**Louisiana Energy Services QA Internal Audit
Interim Meeting - 06/09/09**

Audit Date(s) 05/25-6/12/09	Supplier's Name: LES - NEF Address: 275 Andrews Highway Eunice, NM 88231
Audit No: 2009-A-05-038	

Name	Title	Company	Work Phone
Aug Arnsdow	Lead Auditor	LES/ACS	(315)597-5533
DICK DESKO	AUDITOR	LES/ACS	585-229 2625
C. W. (BILL) WOOD	QA-SPECIALIST III	LES	394-5231
Earl Kemmilla	ORR Project Manager	LES	394-5899
Richard Lehman	NCS/ISA Engineer	LES	394-6413
Steve SU	NCS/ISA Engineer	LES	575-394-6109

MEETING ATTENDANCE FORM

**Louisiana Energy Services QA Internal Audit
Interim Exit Meeting - 06/11/09**

Audit Date(s) 05/25-6/12/09	Supplier's Name: LES - NEF Address: 275 Andrews Highway Eunice, NM 88231
Audit No: 2009-A-05-038	

Name	Title	Company	Work Phone
<i>Greg Amodeo</i>	<i>Audit Team Leader</i>	<i>ACS/LES</i>	<i>315-597-5533</i>
<i>RICHARD DESKO</i>	<i>AUDITOR</i>	<i>ACS/LES</i>	<i>585-229-2625</i>
<i>KARL BECKER</i>	<i>NON-CORE</i>	<i>LES</i>	<i>575-394-6131</i>
<i>Steve Su</i>	<i>ISA/NLS Engineer</i>	<i>LES</i>	<i>575-394-6109</i>
<i>Richard Lehman</i>	<i>ISA/NLS Engineer</i>	<i>LES</i>	<i>575-394-6113</i>
<i>Beth McKenzie</i>	<i>CRITICALITY SAFETY LEAD</i>	<i>ACES</i>	<i>575-394-5167</i>
<i>Allen Sorrell</i>	<i>PLANT SUPPLY DIRECTOR</i>	<i>LES</i>	<i>5552</i>
<i>Charlotta Sanders</i>	<i>HS/Criticality Eng.</i>	<i>Emperyan</i>	<i>394-6010</i>
<i>Steven Troyer</i>	<i>HS/Criticality Safety Officer</i>	<i>LES</i>	<i>394-6366</i>
<i>Earl Hemmi Jr</i>	<i>ORR Program Manager</i>	<i>LES</i>	<i>5899</i>
<i>C.W. (Bill) Wood</i>	<i>QA (QA) / QA / QA-SPECIALIST</i>	<i>LES</i>	<i>5231</i>

MEETING ATTENDANCE FORM

**Louisiana Energy Services QA Internal Audit
Exit Meeting - 07/09/09**

Audit Date(s) 05/25-6/12/09	Supplier's Name: LES - NEF
Audit No: 2009-A-05-038	Address: 275 Andrews Highway Eunice, NM 88231

Name	Title	Company	Work Phone
Greg Amsch	Lead Auditor	AKS - LES	315-597-8533
Richard Lehman	NCS Engineer	LES	575-394-6113
Steve Su	NCS Engineer	LES	575-394-6109
Laird Kayler	Auditor	ARES	307-818-1187
Steven Troyer	Criticality Safety Officer	LES	575-394-6366
Allen Sorrell	PLANT SUPPORT DIR	LES	575-394-5552
Rick Kohler	CRIT SAFETY SUPERVISOR	LES	575-394-5579



P O Box 1789
Eunice, NM 88231
Tel: 575.394.4646
Fax: 575.394.4747

LES QA AUDIT FINDING REPORT

Page 1 of 2

QA Audit No. 2009-A-05-038

AFR No. 2009-A-05-038-01

Issue Date: 07/09/09

THIS SECTION COMPLETED BY QA AUDITOR

ORGANIZATION AUDITED: NUCLEAR CRITICALITY SAFETY PROGRAM RESPONSE DUE: 8/14/09

REQUIREMENT:

NQA-1 Basic Requirement states that "activities affecting quality shall be prescribed and performed in accordance with documented instructions, procedures, or drawings of a type appropriated to the circumstances. These documents shall include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactory accomplished." NRC Inspection Document 88015 Questions 02.04b and 03-04b.

FINDING:

Review of doc CR-3-1000-03 NCS Weekly Walkthroughs and Periodic Assessments and CAB/CTF&PMF area inspection report, 05/01/09. It was found that the procedure did not include delineation between: a) Walkthroughs of controls of active procedures and b) Walkthroughs of controls of new procedures prior to startup.

CLASSIFICATION: Condition Adverse to Quality Significant Condition Adverse to Quality

QA Auditor/QATL

Date

Urenco



P.O. Box 1789
Eunice, NM 88231

Tel: 575.394.4646
Fax: 575.394.4747

LES QA AUDIT FINDING REPORT

Page 2 of 2

QA Audit No. 2009-A-05-038

AFR No. 2009-A-05-038-01 Issue Date: 07/09/09

THIS SECTION COMPLETED BY QA AUDITEE

CORRECTIVE ACTION:

(Including action to prevent recurrence for significant condition adverse to quality.)

STATUS: Action Taken Action Planned Action Proposed

ROOT CAUSE ANALYSIS:

(Significant Condition Adverse to Quality.)

10CFR21 REPORTABLE Yes No

QA Audited Organization Representative

Date

THIS SECTION COMPLETED BY QA AUDITOR

CORRECTIVE ACTION:

Acceptable Unacceptable
Reason

ROOT CAUSE ANALYSIS:

Acceptable Unacceptable
Reason

QATL

Date

QAD

Date



STATUS OF CRITICALITY AUDIT
 Reported by Greg Amsden – Lead Auditor
 08/20/09

TO: Bill Wood

Find	Rec.	Inspection Report Attribute & Problem	Condition Report		Condition Report #
			Yes	No	
1		<p style="text-align: center;">NRC INSPECTION MODULE: 88015</p> <p><u>88015-02.04b, 88015-03.04b</u> Finding 01 Implement inspection of new installation controls prior to start up. Procedure should include delineation between:</p> <ol style="list-style-type: none"> 1. Walkthroughs of controls of active procedures. 2. Walkthroughs of controls of new procedures prior to startup. 	X		
	A	<p style="text-align: center;">NRC INSPECTION MODULE: 88015</p> <p><u>88015-01.01a and f, 88015-03.03a</u> Recommendation – A</p> <p>License commitments for qualification are defined BUT personnel records are NOT in an easily reviewable format. Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.</p>		X	
	B	<p style="text-align: center;">NRC INSPECTION MODULE: 88015</p> <p><u>88015-02.02e</u> Recommendations - B</p> <p>Indicate any specific Pre-Fire Plan that relates to Nuclear criticality issues that require NCS review and approval.</p> <p><u>88015-02.04c</u></p> <p>Consider adding a bullet to recognize NCS to be reviewed during the preoperational phase, section 5.1.2 a. Requires clarification: Section 5.1.2 c describes a NCS audit for quarterly and two year; add further description of audit content and possible sections.</p>		X	

STATUS OF CRITICALITY AUDIT
Reported by Greg Amsden – Lead Auditor
08/20/09

Find	Rec.	Inspection Report Attribute & Problem	Condition Report		Condition Report #
			Yes	No	
	C	<p style="text-align: center;">NRC INSPECTION MODULE: 88016</p> <p><u>88016-03.03.3f</u></p> <p>Recommendation C</p> <p>Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08: Attachment1 Part 3.2. The density is obtained by the use of instruments. The reliability and method is not mentioned. Part 6.3. The moderation is measured and the measurement is obtained by using instrumentation. The reliability and method are not mentioned. The procedure should be restated to include reliability and method of measurement.</p>	X		
	D	<p style="text-align: center;">NRC INSPECTION MODULE: 88017</p> <p>Need to complete the research report on feasibility of or use portable PA notifications devices, fire alarms/lights and CAAS alarm/lights and select appropriated devices for the NEF. Also recommend that the report be reviewed by the LES QA Audit Team immediately after release.</p>	X		
	E	<p style="text-align: center;">NRC INSPECTION MODULE: 88017</p> <p>Need to complete the following. LES NCSE has agreed to prepare an analysis of detector response location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B-3 Methods- by applying MCNP Code. The intent is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal. The NCSE Analysis was to be conducted by July 17, 2009. Also recommend that the analysis be reviewed by LES QA Audit team immediately after release.</p>	X		

STATUS OF CRITICALITY AUDIT
 Reported by Greg Amsden – Lead Auditor
 08/20/09

Find	Rec.	Inspection Report Attribute & Problem	Condition Report		Condition Report #
			Yes	No	
	F	<p style="text-align: center;">NRC INSPECTION MODULE: 88017</p> Need to complete/revise all applicable policy and procedural particularly following: <ul style="list-style-type: none"> • Response to Nuclear Criticality Anomalous Conditions, CR-3-1000-04 • CASS System Maintenance and calibration 	X		
	G	<p style="text-align: center;">NRC INSPECTION MODULE: 88017</p> Need to complete training plans such as Practice Alarm Response and Evacuations should be performed prior to ORR and the introduction of nuclear materials to the facilities. Recommend that Training include Alarm Response and Evacuation protocol as part of Nuclear Worker Training Plans.	X		

Note: Finding 1 and recommendation A,B and C were identified by Joe Maillia, Dick Desko and Greg Amsden. Recommendations D-G were identified by Larry Kayler, Technical Specialist.

Amsden's Consulting Services
190 State Route 21
Palmyra, NY 14522

September 2, 2008

SUBJECT: Lead Auditor Recertification for Greg Amsden

TO: Amsden's Consulting Services Records File

During the preceding 12 months, Greg Amsden acted as an audit team leader and/or lead auditor for the following quality assurance audits:

Audit #	Audit Dates	Location	Subject
2007-03 Hohman	9/4-6/07	Hohman Plating & Mfg 814 Hillrose Avenue Dayton, OH 45404 Amy Whalen – NQA 1 QA Mgr (937) 228-2191 X 264	ASME NQA-1, 1994 Edition, Elements 4, 7, 10 & 13. Audit Team Leader (Team was one (1) auditor.)
2007-05 Hohman	9/7/07	Oxford Instruments 945 Busse Rd Elk Grove Village, IL 60007 Sean Richards – Comp. Eng (847) 439-4404-231	NQA-1-ISO/IEC 17025 External Audit for Hohman Plating. Audit Team Leader. All applicable elements except 3 and 11. (Team was one (1) auditor.)
2007-001 UniStar	9/18-20/07	UniStar Nuclear 750 Pratt Street, 14 th Floor Baltimore, MD 21202-3106 John Traynor Director of Quality Assurance (410) 470-5541	NQA-1, 1994 Edition, 10CFR50 Appendix B, and 10CFR Part 21. Audit Team Leader. (Audit Team consisted of two (2) auditors.)
2007-08 Hohman	11/28/07	MX Industrial Distributors 35 Steamwhistle Drive Ivyland, PA 18974 Brett Kendall – QA Manager (215) 322-8900	NQA-1, 1994 Edition for calibration. All elements except 3, 11, and 14. Audit Team Leader. (Team was one (1) auditor.)
2007-Final STC	12/04-06/07	Superior Tube Company 3900 Germantown Pike Collegeville, PA 19426 Debra Kamertz Quality Systems Manager (610) 489-5356	NQA-1. Audit Team Leader. Also ISO/IEC 17025-2005 and 10CFR Part 21. Criteria II, IV, V, VIII, IX, X, XI, XII, XIII, & XIV. (Audit Team consisted of two (2) auditors.)

Greg Amsden
Lead Auditor Recertification
Date: 9/2/08

Audit #	Audit Dates	Location	Subject
29122 PNNL	12/11-13/07	PNNL - 902 Battelle Blvd Richland, WA 99352 Kirsten Meier Sr. Quality Engineer (509) 371-7807	NQA-1, Internal Audit – All Elements Waste Treatment Project. Audit Team Leader. All applicable elements Including 10CFR Part 21. (Audit team consisted of three (3) auditors.)
2008-01 Hohman	1/15-16/08	Hohman Plating & Mfg 814 Hillrose Avenue Dayton, OH 45404 Amy Whalen – NQA 1 QA Mgr (937) 228-2191 X 264	ASME NQA-1, 1994 Edition, Elements 14, 15, 16, & 17. Audit Team Leader (Team was one (1) auditor.)
2008-03 Hohman	3/10-11/08	Hohman Plating & Mfg 814 Hillrose Avenue Dayton, OH 45404 Amy Whalen – NQA 1 QA Mgr (937) 228-2191 X 264	ASME NQA-1, 1994 Edition, Elements 1, 2, 5, & 6. Audit Team Leader (Team was one (1) auditor.)
2008-04 Hohman	3/12/08	Loy Instruments, Inc 8455 East 30 th Street Indianapolis, IN 46219 Denis Grafe -,QA Manager (317) 890-0474	ASME NQA-1, 1994 Edition. Elements 3, 9, 10, & 11 not applicable. Audit Team Leader (Team was one (1) auditor.)
CGI 2008-01 NEF	3/28-29/08	Butler Manufacturing 3101 North IH 35 N San Marcos, TX 78666 Joel Williams – Plant Manager (512) 665-3848	Commercial Grade Survey, International Accreditation Services (IAS) meeting Fabrication Inspection Program FA-409. Survey Team Leader (Survey Team consisted of three (3) surveyors.)
2008-007 PNNL	4/28-5/2/08	PNNL - 902 Battelle Blvd Richland, WA 99352 Steve Bales Lead Quality Engineer (509) 372-6172	ASME NQA-1, 1994, 10CFR50 Appendix B, NRC Reg Guide 1.28, Rev. 3, Position CQ, C2 and C3 and 10CFR Part 21. Audit Team Leader. (Audit Team consisted of four (4) auditors including team leader.)
2008-001 UniStar AREVA	6/16-20/08	AREVA NP Inc. 3315 Old Forest Road Lynchburg, VA 24501 Tara Warner – Manager Q&AP	NQA-1, 1994 Edition. COLA design and site characterization activities conducted for UniStar Nuclear Energy. AL Pitts was the Audit Team Leader. Phone number is (585) 315-0517. (The audit team consisted of four (4) auditor and four (4) technical Specialist.

Greg Amsden
Lead Auditor Recertification
Date: 9/2/08

Audit #	Audit Dates	Location	Subject
2008-07 STC	6/24-26/08	Superior Tube Company 3900 Germantown Pike Collegeville, PA 19426 Debra Kamertz Quality Systems Manager (610) 489-5356	NQA-1 1994 Edition and ISO/IEC 17025-2005 and 10CFR Part 21. Audit scope was NDT, Heat Treat and Welding. Audit Team Leader. (Audit Team consisted of two (2) auditors.)
2008-05 Hohman	6/30-7/1/08	Hohman Plating & Mfg 814 Hillrose Avenue Dayton, OH 45404 Amy Whalen – NQA 1 QA Mgr (937) 228-2191 X 264	ASME NQA-1, 1994 Edition, Elements 8, 9 & 12. Audit Team Leader (Team was one (1) auditor.)
2008-001 UniStar	7/21-25/08	Bechtel Power Corporation 5275 Westview Drive Frederick, MD 21703 Richard Gallagher - Manager	ASME NQA-1 1994 Edition. COLA design and site characterization activities for Calvert Cliffs. Team Member. Audit Team Leader was Warren Dorman. Phone (910) 221-9567. (Audit Team consisted of four (4) auditors and two (2) technical specialist.)
2008-08 STC	7-28-31/08	Superior Tube Company 3900 Germantown Pike Collegeville, PA 19426 John Deming Vice President QA (610) 489-5356	Audit of the AERO Space activities to determine if all customer requirements and specifications requirements have been transferred on to Process Work Orders. Audit Team Leader. (Audit team was one (1) Lead Auditor.)
2008-09 STC	8/4-7/08	Superior Tube Company 3900 Germantown Pike Collegeville, PA 19426 Debra Kamertz Quality Systems Manager (610) 489-5356	NQA-1 1994 Edition and ISO/IEC 17025-2005 and 10CFR Part 21. Audit scope was Nuclear, Aerospace, Durable Goods and Medical Products. Audit Team Leader (Audit Team consisted of three (3) auditors including audit team leader.)

Greg Amsden
Lead Auditor Recertification
Date: 9/2/08

In addition to the audits listed above, Mr. Amsden has performed five (5) surveillances of laboratories including the University of Texas within the last year.

Also included in the activities performed by Mr. Amsden is the review of revised and/or new quality assurance manuals and procedures.

Mr. Amsden has audited companies having compliance to the following:

1. Nuclear Standards (10 CFR 50, Appendix B; ANSI N45.2; & ASME NQA-1),
2. Medical Standards,
3. Aero-Space Standards,
4. ISO Standards & IZSO/IEC 17025-200,
5. Military Standards,
6. ASME Code, and
7. ASNT-TC-1A (Non-Destructive Examination Training).

Mr. Amsden has taught and/or co-taught over ten (10) auditor and/or Lead Auditor classes to candidates desiring qualification/certification to 10CFR50 Appendix B, ANSI N45.2.23, and/or ASME NQA-1 2S-3.

Therefore, there are no limitations imposed, further training required or additional experience required for recertification as a Lead Auditor.

The experience noted indicates that Mr. Gregory R. Amsden meets the recertification requirements for 10CFR50 Appendix B, ANSI N45.2.23, and ASME NQA-1 2S-3 standards.

Based on his effective performance in the above audits and training noted, the Lead Auditor certification for Greg Amsden to conduct and lead audits is hereby extended to September 2, 2009.

Signature on File

Susan A. Collie
Designated Signature
Office Manager, ACS

xc: Greg Amsden's File
ACS Files

RECORD OF LEAD AUDITOR QUALIFICATIONS

NAME: Greg Amsden		EMPLOYER: Amsden's Consulting Service	DATE: 9/1/04
QUALIFICATION POINT REQUIREMENTS			CREDITS
EDUCATION - University/Degree/Date - 4 Credits Max.			
1. Associate Degree (0 to 2 pts.) AS – Weber State College, Ogden, UT - 1980 2. Bachelor Degree (2 or 3 pts.) BS – University of the State of New York - 1986 3. Graduate Level (1 pt.)			2
EXPERIENCE - Company/Dates - 9 Credits Max. (See attached Resume)			
Technical (0-5 pts.) and Nuclear Industry (1 pt.), or Quality Assurance (2 pts.), or Nuclear Quality Assurance (3 pts.), or Nuclear Quality Assurance Auditing (4 pts.)			5
			4
PROFESSIONAL ACCOMPLISHMENT – Certificate /Date - 2 Credits Max.			
1. P.E. 2. Society – RAB – Quality Systems Lead Auditor (#Q02665) 02/94			2
MANAGEMENT - Justification/Evaluator/Date - 2 Credits Max.			
Explain: Greg has demonstrated excellent judgment, maturity, initiative and assessment abilities Evaluated by: <u>G. F Snajder, Lead Auditor (SOF)</u> <u>09/06/04</u> (Name & Title) Date:			2
			2
Total Credits			15
AUDIT COMMUNICATION SKILLS: Greg has demonstrated excellent communication skills both on internal and external audits. Evaluated by: (Name and Title) <u>G.F. Snajder, Lead Auditor (SOF)</u> Date: <u>09/06/04</u>			
AUDIT TRAINING COURSES Course Title or Topic			Date
1. <u>Quality Auditing Course (ISO-9000)</u>			<u>7/12-16/93</u>
2. <u>Stat-A-Matric – Nuclear Lead Auditor Course</u>			<u>5/79</u>
AUDIT PARTICIPATION	Location of Audit		Dates:
1. <u>Duratek Commercial Services</u>	Columbia, SC		<u>4/7-10/03</u>
2. <u>Duratek Commercial Processing</u>	Oak Ridge, TN		<u>4/28-5/1/03</u>
3. <u>Quality Inspection Services</u>	Buffalo, NY		<u>6/5-6/03</u>
4. <u>Westinghouse Electric Corp</u>	Columbia, SC		<u>7/28-8/3/03</u>
5. <u>Carpenter Advance Ceramics</u>	Auburn, CA		<u>3/8-10/04</u>
EXAMINATION: Written <input checked="" type="checkbox"/> Oral <input type="checkbox"/> Passed 83% RG&E			Date: 08/90
AUDITOR QUALIFIED/CERTIFIED BY Girard F. Snajder (Signature on File)			Date: 09/06/04

RE-QUALIFICATION

Training	Date	Exam/Score	Date	Audit Participation	Date

MAINTENANCE OF QUALIFICATION/CERTIFICATION

Annual Evaluation Initial/Date	CJK 9-1-05 <i>Signature on File</i>	CJK 9-1-06 <i>Signature on File</i>	SAC 9-2-07 <i>Signature on File</i>	SAC 9/2/08 <i>Signature on File</i>

Amsden's Consulting Services
190 State Route 21
Palmyra, NY 14522

March 1, 2009

SUBJECT: Lead Auditor Recertification for Joseph P. Mallia

TO: Amsden's Consulting Services Records File

During the preceding 12 months, Joseph P. Mallia acted as an audit team leader and/or lead auditor for the following quality assurance audits/surveys:

Audit/Survey	Dates	Company	Subject
2008-3348-EXT-SURV LES - NEF	11/12-14/08	W-Industries 20101 Hoover Street Detroit, MI 48295 John Klausmeier-Director of Quality (313) 372-4131	ISO-9000-2000 QA Program. This was a commercial grade survey. Joe evaluated sections A, B-1, B2, B3, B4, B13, B14, B19, C1, C2, and C3. Mr. Mallia also served as the Technical Specialist.
Audit 2009-02	01/23 & 24/09	Hohman Plating & Mfg 814 Hillrose Avenue Dayton, OH 45404 Amy Whalen - NQA 1 QA Mgr (937) 228-2191 X 264	Audit Team Leader. Element 18, of NQA-1, 1994-1995 Addendum. Two auditors involved reviewing compliance to Hohman's Procedure IP-1801 and IP-1802.
2009-CGD-01-001 LES-NEF	01/27-29/09	ASC Process Systems 14062 Balboa Blvd Sylmar, CA Jeff Cowan-Eng. Manager (818) 833-0088	ASME Section VIII, Commercial Grad Survey. Joe evaluated sections B1, B2, B3, B4, B5, B10, B11, B17, C1, C2, & C3. Mr. Mallia also served as the Technical Specialist.
Audit 41586	02/16-20/09	Battelle Northwest Laboratory RPP-WTP Richland, WA 99352 Kirsten Meier (509) 371-7808	This was an ASME NQA-1 Nuclear Safety-Related Audit. Joe performed half of the 199 page checklist. The was for the River Protection Project Waste Treatment Plant.

In addition to the audits/surveys listed above, Mr. Mallia attended the NRC Workshop, held on December 10-11, 2008 at the Bethesda Marriott, in Maryland. This seminar discussed:

- Building new Nuclear Power Plants
- 10CFR Part 21, &
- Commercial Grade Dedication.

**AMSDEN'S CONSULTING SERVICES
RECORD OF LEAD AUDITOR QUALIFICATIONS**

NAME: Joseph P. Mallia		EMPLOYER: Amsden's Consulting Services (Subcontractor)	DATE: 03/01/08
QUALIFICATION POINT REQUIREMENTS			CREDITS
EDUCATION - University/Degree/Date - 4 Credits Max.			
1. Associate Degree (0 to 2 pts.) 2. Bachelor Degree (2 or 3 pts.) (Bachelors Degree in Mechanical Engineering – RIT) 3. Graduate Level (1 pt.)			3
EXPERIENCE - Company/Dates - 9 Credits Max. (See attached Resume)			
Technical (0-5 pts.) and - Construction and Electric Generation 6 years			5
Nuclear Industry (1 pt.), or - Nuclear Electric Generation (RG&E) 8 years			1
Quality Assurance (2 pts.), or - Standards Engineering and Quality Assurance (RG&E) 2 years			2
Nuclear Quality Assurance (3 pts.), or			
Nuclear Quality Assurance Auditing (4 pts.)			
PROFESSIONAL ACCOMPLISHMENT – Certificate /Date - 2 Credits Max.			
1. P.E. – EIT Mechanical Engineer State of New York 2. Society – Member of ASME, NACE, ANS			2
MANAGEMENT - Justification/Evaluator/Date - 2 Credits Max			
Explain: I have witnessed Joe Mallia's action relating to auditing and surveillance activities and found him to have excellent judgment, maturity, initiative and assessment abilities.			
Evaluated by: <u>G. R. Amsden / Owner Manager (SOF)</u> <u>03/01/08</u> (Name & Title) Date:			2
Total Credits			15
AUDIT COMMUNICATION SKILL: Joe has demonstrated excellent communication skills on internal and external audits. Evaluated by: (Name and Title) <u>G.R. Amsden / Owner Manager (SOF)</u> Date: <u>03/01/08</u>			
AUDIT TRAINING COURSES			Date
Course Title or Topic			
1. <u>Amsden's Consulting Auditor/Lead Auditor Training Course (Completed 01/12/08)</u>			<u>01/9-12/08</u>
2. _____			_____
AUDIT PARTICIPATION		<u>Location of Audit</u>	<u>Dates:</u>
1. <u>Jana Laboratories</u>		<u>260 B Industrial Parkway S. Auara Ontario, Canada</u>	<u>03/24/06</u>
2. <u>Kerotest Manufacturing</u>		<u>7734 Highway 1, Mansura, LA</u>	<u>01/9-11/06</u>
3. <u>Rinker Polypipe</u>		<u>1050 Industrial Drive South, Erwin TX</u>	<u>05/9-10/05</u>
4. <u>Rinker Polypipe</u>		<u>995 Waco Mill Road, Sanderville, GA</u>	<u>05/10/05</u>
5. <u>Hohman Plating & Manufacturing</u>		<u>814 Hill Rose Avenue, Dayton, OH (Performed at ACS)(Nuclear)</u>	<u>01/26/08</u>
EXAMINATION: Written <input checked="" type="checkbox"/> Oral <input type="checkbox"/>		Grade 93.3%	Date 01/12/08
AUDITOR QUALIFIED/CERTIFIED BY Gregory R. Amsden (SOF)			Date 03/01/08

RE-QUALIFICATION

Training	Date	Exam/Score	Date	Audit Participation	Date

MAINTENANCE OF QUALIFICATION/CERTIFICATION

Annual Evaluation	GRA 3/1/09 Signature on File				
Initial/Date					

**AMSDEN'S CONSULTING SERVICES
RECORD OF AUDITOR QUALIFICATIONS**

NAME: Richard Desko (Subcontractor)		EMPLOYER: Amsden's Consulting Services	DATE: 05/16/09
QUALIFICATION POINT REQUIREMENTS			CREDITS
EDUCATION - University/Degree/Date - 4 Credits Max.			
1. Associate Degree (0 to 2 pts.) 2. Bachelor Degree (2 or 3 pts.) Bachelor of Technology – with Honors – Rochester Institute of Technology 3. Graduate Level (1 pt.)			3
EXPERIENCE - Company/Dates - 9 Credits Max. (See attached Resume)			
Technical (0-5 pts.) and Rochester Gas & Electric – 36 years Nuclear Industry (1 pt.), or Quality Assurance (2 pts.), or Nuclear Quality Assurance (3 pts.), or Nuclear Quality Assurance Auditing (4 pts.)			5
PROFESSIONAL ACCOMPLISHMENT – Certificate /Date - 2 Credits Max.			
1. P.E. – N/A 2. Society – N/A			
MANAGEMENT - Justification/Evaluator/Date - 2 Credits Max.			
Explain: I witnessed Richard Desko perform his first audit, nuclear, and found him to be extremely competent in the areas assigned to him during the audit.			2
Evaluated by: (Name & Title)Date		<i>Gregory Amsden – Signature on File</i>	05/16/09
			Total Credits
			10
AUDIT COMMUNICATION SKILLS Richard Desko was able to communicate with the supplier in an acceptable manner on his first audit, Evaluated by: <u>Gregory Amsden – Signature on file</u> <u>05/16/09</u> Name & Title Date			
AUDIT TRAINING COURSES Course Title or Topic			Date
1. <u>Lead Auditor Class, Kinetix Quality Services, taught at RG&E, Scottsville Rd, Rochester, NY</u>			<u>05/04-08/09</u>
2. _____			_____
AUDIT PARTICIPATION			Dates:
1. <u>Simpson Gumpertz & Heger (SGH)</u>	<u>41 Sevon St. Building 1, Suite 500, Waltham, MA</u>		<u>4/27-28/09</u>
2. _____	_____		_____
3. _____	_____		_____
4. _____	_____		_____
5. _____	_____		_____
EXAMINATION: Written <input checked="" type="checkbox"/> Oral <input type="checkbox"/> 95%			Date: 05/08/09
AUDITOR QUALIFIED/CERTIFIED BY: <i>Gregory Amsden – Signature on file.</i>			Date: 05/08/09

RE-QUALIFICATION

Training	Date	Exam/Score	Date	Audit Participation	Date

MAINTENANCE OF QUALIFICATION/CERTIFICATION

Annual Evaluation					
Initial/Date					

2009-2797-CR (Closed) Problem Identification

Issue Topic	
Section Status: Closed Issue Type: CR	
Description of Issue	
*Source QA - Quality Assurance	
*Title Review of procedure CR-3-1000-03 NCS Weekly Walkthroughs...	
Description of Condition:	
<p>This condition is adverse to quality and was discovered during LES QA Audit 2009-A-05-038</p> <p>CR-3-1000-03, NCS Weekly Walkthroughs and Periodic Assessments and CAB/CTF&PMF area inspection report, 5/1/09 was reviewed during the audit. It was found that the procedure does not include any delineation between:</p> <ul style="list-style-type: none"> a) Walkthroughs of controls of active procedures and b) Walkthroughs of controls of new procedures prior to startup <p>Reference NRC Inspection Document 88015 Questions 02.04b and 03-04b</p>	
Immediate Action Taken:	
none	
Procedure/Criteria Violated	
No procedures or criteria were specifically violated. However, the referenced IP 88015 sections indicate the requirement to audit / inspect active and new process and procedures.	
Suggested Corrective Actions	
Revise Procedures CR-3-1000-01, Implementation of NCS Evaluations and Analyses, and CR-3-1000-03, NCS Weekly Walkthroughs and Periodic Assessments to clearly delineate that inspections are performed for active procedures / equipment as well as prior to startup for new procedures / equipment.	
Supervisor Comments	
Comments	
Originated/Identified By	
Identified Date 08/26/2009	Origination Date 08/26/2009
Condition Report Identifier Marchi, James	Origination Department QA
	Origination Team QA: Operations Oversight
	Originated By Marchi, James
Building/System	
Property	Value
Building:	
System:	
*Management Measure Affected:	Procedures
*Items Relled on for Safety Affected:	N/A
*Adverse To Quality?:	Yes

***Stop Work Needed?:** No
***Interim Action?:** No
***NCR?:** No
***Equipment is considered::** N/A
***Promptly Reportable in accordance with LS-3-1000-057 (Contact Licensing for assistance):** No

Signature History				
Date	Time	Signature Type	Action	Details
08/26/2009	09:33:03	Submit Issue	Assigned	Assigned By: Marchi, James Group: QA Team: QA: Operations Oversight Individual: Marchi, James Comment:
08/26/2009	09:33:03	Supervisor Review	Assigned	Assigned By: Marchi, James Group: QA Team: QA: Operations Oversight Individual: Marchi, James Comment:
08/31/2009	08:46:39	Submit Issue	Signed	Group: QA Team: QA: Operations Oversight Individual: Marchi, James Comment:
08/31/2009	10:18:46	Submit Issue	Signature Reset Due to Reject	Group: QA Team: QA: Operations Oversight Individual: Marchi, James Comment:
08/31/2009	10:18:46	Supervisor Review	Rejected	Group: QA Team: QA: Management Individual: Whitford, Ryan Comment: typo correction
08/31/2009	10:19:26	Submit Issue	Signed	Group: QA Team: QA: Management Individual: Whitford, Ryan Comment:
08/31/2009	10:19:49	Supervisor Review	Signed	Group: QA Team: QA: Management Individual: Whitford, Ryan Comment:

2009-2797-CR (Closed) Screening

Issue Topic
Section Status: Closed
Issue Type: CR
***Significance Level** Level 3

Events		
Code	Tier	Event Codes
6	(1)	DM - Document Management
26	(2)	DM2 - General Procedures Related Issues (Specifics belong under functional areas)
1	(3)	N/A

Screening Comments
Comments
 Per CAPSC on 9/1/09, this was assigned to Safeguards, Level 3 Fix. MJ

Section Assignments

Activity	Requested	Due Date										
Evaluation	Yes	10/01/2009										
<table border="1"> <thead> <tr> <th>Signature Type</th> <th>Assigned To</th> </tr> </thead> <tbody> <tr> <td>Evaluation Complete</td> <td>Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven</td> </tr> <tr> <td>FAM Evaluation Approval</td> <td>Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen</td> </tr> <tr> <td>QAD Eval Approval</td> <td>Group: QA Team: QA: Management Individual: Whitford, Ryan</td> </tr> <tr> <td>Create and Assign Actions</td> <td>Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven</td> </tr> </tbody> </table>			Signature Type	Assigned To	Evaluation Complete	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven	FAM Evaluation Approval	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen	QAD Eval Approval	Group: QA Team: QA: Management Individual: Whitford, Ryan	Create and Assign Actions	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven
Signature Type	Assigned To											
Evaluation Complete	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven											
FAM Evaluation Approval	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen											
QAD Eval Approval	Group: QA Team: QA: Management Individual: Whitford, Ryan											
Create and Assign Actions	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven											
Closure												
Yes												
<table border="1"> <thead> <tr> <th>Signature Type</th> <th>Assigned To</th> </tr> </thead> <tbody> <tr> <td>FAM Closure Approval</td> <td>Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen</td> </tr> <tr> <td>QAD Closure Approval</td> <td>Group: QA Team: QA: Management Individual: Sergent, Gene</td> </tr> <tr> <td>PA Closure Approval</td> <td>Group: Performance Assessment Teams Team: PACO Individual: Taylor, Al (CTR)</td> </tr> </tbody> </table>			Signature Type	Assigned To	FAM Closure Approval	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen	QAD Closure Approval	Group: QA Team: QA: Management Individual: Sergent, Gene	PA Closure Approval	Group: Performance Assessment Teams Team: PACO Individual: Taylor, Al (CTR)		
Signature Type	Assigned To											
FAM Closure Approval	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen											
QAD Closure Approval	Group: QA Team: QA: Management Individual: Sergent, Gene											
PA Closure Approval	Group: Performance Assessment Teams Team: PACO Individual: Taylor, Al (CTR)											
Effectiveness Review / Records Action												
Yes												
<table border="1"> <thead> <tr> <th>Signature Type</th> <th>Assigned To</th> </tr> </thead> <tbody> <tr> <td>Record Storage Complete</td> <td>Group: Performance Assessment Team: DC Transmittal Individual: James, Mary (LES)</td> </tr> </tbody> </table>			Signature Type	Assigned To	Record Storage Complete	Group: Performance Assessment Team: DC Transmittal Individual: James, Mary (LES)						
Signature Type	Assigned To											
Record Storage Complete	Group: Performance Assessment Team: DC Transmittal Individual: James, Mary (LES)											

Property	Value
*Evaluation Method:	Fix
Management Measure Affected:	Procedures
Items Relied on for Safety Affected:	N/A
Adverse To Quality?:	Yes
Stop Work Needed?:	No
Interim Action?:	No
NCR?:	No
Equipment is considered::	N/A
Promptly Reportable in accordance with LS-3-1000-05? (Contact Licensing for assistance):	No
This CR does not require prompt reportability:	

Date	Time	Signature Type	Action	Details
08/26/2009	09:33:03	Performance Assessment Review	Assigned	Assigned By: Marchi, James Group: Performance Assessment Team: Individual: Comment:
08/26/2009	09:33:03	Supervisor Review	Assigned	Assigned By: Marchi, James Group: Administration Team: Individual: Comment:
08/26/2009	09:33:03	CAPSC Screening	Assigned	Assigned By: Marchi, James Group: Performance Assessment Teams Team: CAPSC Individual: Comment:

Date 08/31/2009	Time 12:26:17	Signature Type FAM Acceptance	Action Assigned	Details Assigned By: Ramstedt, Walter (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment: PAF screen to Criticality
Date 08/31/2009	Time 12:26:18	Signature Type Performance Assessment Review	Action Signed	Details Group: Performance Assessment & Feedback Team: PA & Feedback: Coordinators Individual: Ramstedt, Walter (LES) Comment: PAF screen to Criticality
Date 09/01/2009	Time 10:02:51	Signature Type CAPSC Screening	Action Signed	Details Group: Performance Assessment & Feedback Team: P A & Feedback Analyst Individual: James, Mary (LES) Comment:
Date 09/01/2009	Time 10:03:11	Signature Type FAM Acceptance	Action Signed	Details Group: Performance Assessment & Feedback Team: P A & Feedback Analyst Individual: James, Mary (LES) Comment:

2009-2797-CR (Closed) Evaluation

Issue Topic		Significance Level: Level 3
Section Status: Closed Issue Type: CR		
Events/Causes		
Event Codes	Cause Codes	Tier Event/Cause
6	(E1)	DM - Document Management
26	(E2)	DM2 - General Procedures Related Issues (Specifics belong under functional areas)
1	(E3)	N/A
		Primary Causing Group
		Causing Team
Screening Comments		
Comments		
Per CAPSC on 9/1/09, this was assigned to Safeguards, Level 3 Fix. MJ		
Results of Investigation and Evaluation		
*Results		
References:		
CR-3-1000-03, NCS Weekly Walkthroughs and Periodic Assessments, Revisions 2 and 3		
CR-3-1000-01, Implementation of NCS Evaluations and Analyses, Revision 2		
LES QA Audit 2009-A-05-038		
CR-3-1000-03, Revision 2 is intended to be used to identify the process for performing NCS Walkthroughs for changes to existing equipment and procedures, as well as for new equipment and systems that impact criticality safety. However, as noted in the audit report, this procedure did not specifically state this fact, or delineate between new equipment / procedures, or changes to existing equipment / procedures.		
Follow-up discussions with the auditors resulted in agreements for the proposed actions. For this finding, the proposed action was to update CR-3-1000-03, Revision 2, and CR-3-1000-01, Revision 2 (which contained similar wording). These proposed clarifications would add text to both procedures to clearly identify their use in the verification of criticality safety walkthroughs to evaluate and/or inspect both new equipment and procedures, and changes to existing equipment and procedures. The auditor the identified the finding agreed that this action would satisfactorily resolve the issue (see attached e-mail).		

CR-3-1000-01, Revision 3 was initiated prior to the issuance of this CR, and implements the changes agreed to with the auditor. No additional changes are required for this procedure. Revision 3 of this procedure is currently available in Intellidox (Documentum).

CR-3-1000-03, Revision 3 has also been updated to reflect these recommended changes, and has been approved (see attached approval / signature sheet). However, it's release for publication in Intellidox is pending the approval of the Criticality Response Procedure OP-3-2000-05.

Based on the reviews of the subject documents and the current status of the two affected procedures, the implemented changes will satisfactorily close the finding.

Recommended Actions:

Criticality Safety Officer: Track CR-3-1000-03, Revision 3, to ensure it is published for use on Intellidox.
Recommended Completion Date: October 30, 2009.

CA Number	Status	Signature Type	Next Signature Required By	Due Date
1 (1)	Closed	(4) Approve Action	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Signed 10/26/2009 21:16:43	11/13/2009

Section Attachments	
Title	Description
Auditor agreements with proposed actions	E-mail from auditor - agreement with proposed actions
CR-3-1000-03 Rev 3 Signature Sheet	CR-3-1000-03 Rev 3 Approval Sheet

Signature History				
Date	Time	Signature Type	Action	Details
08/26/2009	09:33:03	QAD Eval Approval	Assigned	Assigned By: Marchi, James Group: QA Team: QA: Management Individual: Whitford, Ryan Comment:
08/31/2009	12:26:17	Evaluation Complete	Assigned	Assigned By: Ramstedt, Walter (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment: PAF screen to Criticality
08/31/2009	12:26:17	FAM Evaluation Approval	Assigned	Assigned By: Ramstedt, Walter (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment: PAF screen to Criticality
09/01/2009	09:59:45	FAM Evaluation Approval	Re-assigned	Re-Assigned By: James, Mary (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment:
09/01/2009	09:59:45	Evaluation Complete	Re-assigned	Re-Assigned By: James, Mary (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment:
Date	Time	Signature Type	Action	Details

09/01/2009	09:59:45	Create and Assign Actions	Assigned	Assigned By: James, Mary (LES)
				Group: Safeguards
				Team: Safeguards
				Individual: Wilt, Barbara
				Comment:
Date	Time	Signature Type	Action	Details
09/14/2009	12:36:24	Create and Assign Actions	Re-assigned	Re-Assigned By: Wilt, Barbara
				Group: Health & Safety
				Team: Health & Safety: Criticality Safety
				Individual: Troyer, Steven
				Comment:
Date	Time	Signature Type	Action	Details
09/14/2009	12:36:24	Evaluation Complete	Re-assigned	Re-Assigned By: Wilt, Barbara
				Group: Health & Safety
				Team: Health & Safety: Criticality Safety
				Individual: Troyer, Steven
				Comment:
Date	Time	Signature Type	Action	Details
09/14/2009	12:36:24	FAM Evaluation Approval	Re-assigned	Re-Assigned By: Wilt, Barbara
				Group: Plant Support
				Team: Plant Support: Management
				Individual: Sorrell, Allen
				Comment:
Date	Time	Signature Type	Action	Details
09/15/2009	12:37:11	Evaluation Complete	Signed	Group: Health & Safety
				Team: Health & Safety: Criticality Safety
				Individual: Troyer, Steven
				Comment:
Date	Time	Signature Type	Action	Details
09/15/2009	21:21:24	FAM Evaluation Approval	Signed	Group: Plant Support
				Team: Plant Support: Management
				Individual: Sorrell, Allen
				Comment:
Date	Time	Signature Type	Action	Details
09/17/2009	11:27:21	FAM Evaluation Approval	Signature Reset Due to Reject	Group: Plant Support
				Team: Plant Support: Management
				Individual: Sorrell, Allen
				Comment:
Date	Time	Signature Type	Action	Details
09/17/2009	11:27:21	QAD Eval Approval	Rejected	Group: QA
				Team: QA: Management
				Individual: Whitford, Ryan
				Comment: Section 5.5.3 of CA-3-1000-01 requires the the QAD concur with due dates for actions. No due date is listed for the action suggested in the evaluation.
Date	Time	Signature Type	Action	Details
09/18/2009	06:39:01	FAM Evaluation Approval	Signed	Group: Plant Support
				Team: Plant Support: Management
				Individual: Sorrell, Allen
				Comment:
Date	Time	Signature Type	Action	Details
09/18/2009	08:31:07	FAM Evaluation Approval	Signature Reset Due to Reject	Group: Plant Support
				Team: Plant Support: Management
				Individual: Sorrell, Allen
				Comment:
Date	Time	Signature Type	Action	Details
09/18/2009	08:31:07	QAD Eval Approval	Rejected	Group: QA
				Team: QA: Management
				Individual: Whitford, Ryan
				Comment: see previous rejection...

Date	Time	Signature Type	Action	Details
09/21/2009	20:50:56	FAM Evaluation Approval	Signed	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment:
Date	Time	Signature Type	Action	Details
09/23/2009	08:35:45	FAM Evaluation Approval	Signature Reset Due to Reject	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment:
Date	Time	Signature Type	Action	Details
09/23/2009	08:35:45	QAD Eval Approval	Rejected	Group: QA Team: QA: Management Individual: Whitford, Ryan Comment: see previous two rejections...
Date	Time	Signature Type	Action	Details
09/24/2009	12:18:36	Evaluation Complete	Signature Reset Due to Reject	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
Date	Time	Signature Type	Action	Details
09/24/2009	12:18:36	FAM Evaluation Approval	Rejected	Group: Health & Safety Team: Health & Safety: Management Individual: Wormington, Carol Comment: See QA comments
Date	Time	Signature Type	Action	Details
09/24/2009	12:41:41	Evaluation Complete	Signed	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
Date	Time	Signature Type	Action	Details
09/29/2009	06:36:23	FAM Evaluation Approval	Signed	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment:
Date	Time	Signature Type	Action	Details
10/01/2009	09:04:53	QAD Eval Approval	Signed	Group: QA Team: QA: Management Individual: Whitford, Ryan Comment:
Date	Time	Signature Type	Action	Details
10/05/2009	08:53:36	Create and Assign Actions	Signed	Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment: Actions completed prior to due date, but the "Actions Identified" button was not pressed.

2009-2797-CR (Closed) Licensing

Issue Topic
*Section Status Closed Issue Type CR
Basis for Determination (this CR does not require prompt reportability, enter below comments for other reportability concerns)
*Reportability Comments

This CR is not Reportable.

This CR is not Loggable per Appendix G to Part 73--Reportable Safeguards Events.

Reportability Review Criteria per:

LS-3-1000-05, Notifications and Event Reporting, Revision 1

GENERAL

10 CFR 810 (Assistance to Foreign Atomic Energy Activities) – na

10 CFR 26.73 (Fitness for Duty Programs) - na

10 CFR 70.9 (Completeness and accuracy of information) – na

10 CFR 70 Appendix A - Reportable Safety Events and Concurrent Notifications per NUREG 1022 - na

10 CFR 70 Appendix A - Release of radioactively contaminated tools or equipment to public areas, – na

10 CFR 70 Appendix A - Unusual or abnormal releases of radioactive effluents – na

10 CFR 70 Appendix A - Onsite fatality – na

10 CFR 70.32(c)(1)(i) MC&A requirements - na

10 CFR 70.74 (Additional Reporting Requirements) – na

10 CFR 21.21 (Defects) – na

49 CFR 171 (Transportation including loading, unloading, and temporary storage) - na

RADIOLOGICAL EVENT

10 CFR 20.2201-2206 (Radiation release/exposure/excess concentration) – na

10 CFR 30.50 (Byproduct Radiation release/exposure) – na

10 CFR 40.60 (Source Material radiation release/exposure) – na

10 CFR 70.50 (Special Nuclear Material (SNM) radiation release/exposure) – na

SECURITY EVENT

10 CFR 73 (Physical Protection of SNM or spent fuel) – na

10 CFR 74 (MC&A of SNM) - na

10 CFR 95.57 (Classified information) – na

NRC Order EA-06-193 (Requirements for Protecting Certain Safeguards Information) – na

NRC Order EA-06-230 (Additional Security Measures) – na

NRC Order EA-06-264 (Requirements for Access to Safeguards Information) – na

NRC Order EA-07-086 (Requirements for Unescorted Access) – na

ENVIRONMENTAL EVENT

40 CFR 280.53(b) (Clean-up of a petroleum spill that is less than the reportable quantity that takes >24 hours.) - na

NEF NMED Ground Water Discharge Permit #1481 Condition – na

NEF Construction Phase Storm Water Pollution Prevention Plan #NMR150000 - na

WGI/RUST/NEF Spill Prevention, Containment and Countermeasure Plan - na

NEF NMED Public Drinking Water Permit - na

Signature History

Date	Time	Signature Type	Action	Details Assigned By: Group: Team: Individual: Comment:
08/26/2009	09:33:03	-Accept Licensing Review	Assigned	Marchi, James Licensing Licensing: Management McCasland, Pat
08/26/2009	09:33:03	Evaluation Completed by	Assigned	Marchi, James Licensing Licensing: Management McCasland, Pat
08/31/2009	16:59:55	-Accept Licensing Review	Signed	Licensing Licensing: Compliance Team McCasland, Pat
08/31/2009	17:00:11	Evaluation Completed by	Signed	Licensing Licensing: Compliance Team McCasland, Pat

**2009-2797-CR (Closed)
Action**

Issue Topic

Action Seq # 1
Section Status: Closed
Issue Type: CR

Significance Level: Level 3

Actions Impact Level CA
Regulatory Commitment No
Special Code FCOL - ORR

Corrective Action

Description of Corrective Action

Track CR-3-1000-03, Revision 3, to ensure it is published for use on Intellidox.

Action Taken

***Description of Action Taken**

Per discussions with Commissioning and Acceptance in the Program Leads Meetings, this action should have simply stated that the procedure be revised and approved to address the required updates. This action has been approved. There are no additional actions required to resolve this issue.

The procedure is currently not published on Intellidox, but is revised and approved. There are other related procedures that have delayed the release of the procedure to Intellidox for use.

The actions performed are sufficient to address the finding. A copy of the approval sheet and a copy of the approved, but not released procedure are attached.

Section Attachments

Title	Description
CR-3-1000-03 approval sheet	Approved procedure approval sheet

Request Due Date (Document Extensions Using CA-101 forms and attach) 11/13/2009

Requested By	Requested On	Change To	Change From	Decision
Lightfoot, (Robert) Bob	10/26/2009	11/13/2009	10/30/2009	Approved

Description

Extension requested and approved by the Plant Support Director.

Impact

None

Date	Time	Signature Type	Action	Details
10/01/2009	17:05:19	Submit to Assignee	Assigned	Assigned By: Troyer, Steven Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/01/2009	17:05:19	Approve Action	Assigned	Assigned By: Troyer, Steven Group: Performance Assessment Teams Team: Z* Supervisors* Individual: Comment:
10/01/2009	17:10:18	Approve Action	Re-assigned	Re-Assigned By: Troyer, Steven Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen

Date	Time	Signature Type	Action	Comment:
10/01/2009	17:10:18	Accept Action	Assigned	Details Assigned By: Troyer, Steven Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/01/2009	17:10:18	Submit Action	Assigned	Details Assigned By: Troyer, Steven Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/01/2009	17:10:54	Submit to Assignee	Signed	Details Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/01/2009	17:11:03	Accept Action	Signed	Details Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/20/2009	17:23:25	Submit Action	Signed	Details Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/22/2009	16:37:18	Submit Action	Signature Reset Due to Reject	Details Group: Health & Safety Team: Health & Safety: Criticality Safety Individual: Troyer, Steven Comment:
10/22/2009	16:37:18	Approve Action	Rejected	Details Group: Health & Safety Team: Health & Safety: Management Individual: Wormington, Carol Comment: Per Allen Sorrell's request
10/23/2009	06:52:08	Submit Action	Signed	Details Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment:
10/26/2009	10:55:59	Submit to Assignee	Due Date Changed	Details Group: Training Team: Training: Technical Training Individual: Lightfoot, (Robert) Bob Comment: Original Due Date: 10/30/2009 New Due Date: 11/13/2009
10/26/2009	21:16:43	Approve Action	Signed	Details Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment:

2009-2797-CR (Closed) Closure

Issue Topic	
*Section Status: Closed	Significance Level: Level 3
*Issue Type: CR	
Closure Comments	
Comments	

Section Attachments

Title	Description
QA Final Audit Report 2009-A-09-068	Quarter 3 Audit Report

Signature History

Date	Time	Signature Type	Action	Details
08/26/2009	09:33:03	QAD Closure Approval	Assigned	Assigned By: Marchi, James Group: QA Team: QA: Management Individual: Sergent, Gene Comment:
08/26/2009	09:33:03	PA Closure Approval	Assigned	Assigned By: Marchi, James Group: Performance Assessment Teams Team: PACO Individual: Comment:
08/31/2009	12:26:17	FAM Closure Approval	Assigned	Assigned By: Ramstedt, Walter (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment: PAF screen to Criticality
09/01/2009	10:00:04	FAM Closure Approval	Re-assigned	Re-Assigned By: James, Mary (LES) Group: Safeguards Team: Safeguards Individual: Wilt, Barbara Comment:
09/01/2009	10:00:04	PA Closure Approval	Re-assigned	Re-Assigned By: James, Mary (LES) Group: Performance Assessment Teams Team: PACO Individual: Taylor, AI (CTR) Comment:
11/03/2009	16:13:53	FAM Closure Approval	Re-assigned	Re-Assigned By: Wilt, Barbara Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment: Reassign to Allen Sorrell.
11/05/2009	06:29:29	FAM Closure Approval	Signed	Group: Plant Support Team: Plant Support: Management Individual: Sorrell, Allen Comment:
11/09/2009	16:25:44	QAD Closure Approval	Signed	Group: QA Team: QA: Management Individual: Rowe, Greg Comment:
11/11/2009	09:20:49	PA Closure Approval	Signed	Group: Performance Assessment & Feedback Team: PA & Feedback: Coordinators Individual: Taylor, AI (CTR) Comment:

**2009-2797-CR (Closed)
Effectiveness Review / Records Action**

Issue Topic

Section Status: Closed	Significance Level: Level 3
*Issue Type: CR	

Signature History					
Date	Time	Signature Type	Action	Details	
08/26/2009	09:33:03	Record Storage Complete	Assigned	Assigned By:	Marchi, James
				Group:	Performance Assessment
				Team:	DC Transmittal
				Individual:	James, Mary (LES)
				Comment:	
Date	Time	Signature Type	Action	Details	
11/13/2009	08:54:01	Record Storage Complete	Signed	Group:	Performance Assessment & Feedback
				Team:	P A & Feedback Analyst
				Individual:	James, Mary (LES)
				Comment:	

From: Joseph Mallia [jpmnuclear@gmail.com]
Sent: Sunday, August 30, 2009 4:38 PM
To: 'Steve Troyer'
Cc: James Marchi (CTR); C. W. Bill Wood (LES); Steven Troyer (LES);
amsdensconsulting@yahoo.com
Subject: RE: Crit. Safety Audit 2009-A-05-038

Steve, Thank you for sending your proposed responses regarding this audit finding and recommendations.

Finding 1 - The proposed anticipated actions to revise CR-3-1000-01 and CR-3-1000-03 will satisfy the finding. Including statements focused on inspections prior to startup of a new procedure or new equipment will address IP88015's intent of NCS oversight.

AIT addressing Recommendation A - The proposed anticipated actions to gather NCS personnel qualification to readily accessible location will satisfy the described recommendation. No procedures will be impacted with this adjustment.

AIT addressing Recommendation B - The proposed anticipated actions to require NCS review and signature of all Pre-Fire plans will satisfy the described recommendation. What specific procedure(s), operations form(s) or checklist(s) shall be revised to include the NCS signature?

AIT addressing Recommendation C - The proposed anticipated actions not to revise any procedures to mention measurement methods may leave an open question to become a finding/recommendation during the next audit. Suggest that a sentence in a procedure regarding "use of calibrated instruments to measure density" be inserted to take credit for the use of pending measurements".

Critical Alarm Systems, IP88017, recommendations D, E, F and G will be excluded from the final audit report since they were discovered after the exit meeting. However, they will require NCS to address them prior to the next audit of this area. Continued development of the Critical Alarm Systems procedures that include your anticipated actions statement would satisfy the recommendations.

Thank you and please every addresses please respond with any comments.

Thanks and regards, JOE

Joseph P Mallia ACS Amsdens Consulting Services 585-490-3664 e-mail:
JPMNuclear@gmail.com



P O Box 1789
Eunice, NM 88231
Tel: 575.394.4646
Fax: 575.394.4747

LES QA AUDIT REPORT

QA AUDIT NO. 2009-A-09-068

QA AUDITED ORGANIZATION: Internal Audit of LES Nuclear Criticality Program.

QA AUDIT DATE(S): September 28 through October 2, 2009

APPROVAL: J. Manchi for 11/2/09
QATL Date

CONCURRENCE: J. Manchi for 11/3/09
Quality Assurance Director Date

QA AUDIT SUMMARY:

This audit summarizes the 2009 3rd quarter progression of quarterly audits planned for the Nuclear Criticality Safety program (NCS). The audit was based on the NRC Inspection Manual, Inspection Procedures 88015, 88016 and 88017, NCS and Alarm Program. The checklist was created based on the statements and expectations in this NRC Manual section. Also, attention was made to enhance questioning in areas regarding issues found in the Self Assessment for Criticality Safety, ORR Criticality Safety Program and Evaluation/ Analysis, Final Report June 9, 2008, assessment number 2008-010.

Conclusions:

Progress of the NCS program is indicted by the revision of procedures based on recommendations in the previous NCS audit, 2009-A-05-038, June 22 through July 10, 2009. These revisions have satisfied findings and recommendations stated in the previous audit. Continued plant construction activities have satisfied some alarm condition requirements. Further design and construction activities need to be audited to ensure satisfactory compliance with NRC IP requirements.

This 3rd quarter 2009 audit concludes that the NCS and Alarm program requires additional progression before it can be fully implemented. At the time of this audit the NCS program was revising additional engineering and operational procedures.

This audits resulting finding, recommendations and inability to complete the audit indicate a state of interim condition. It was explained during the audit that procedural development was underway by NCS personnel to focus on the remaining unsatisfactory sections.



The text and tables herein illustrate the overall NRC IP 88015, 016, 017 and indicate the approach taken during the audit. Each sections table indicates the number of assessment attributes investigated, whether the attribute applied to LES NEF directly, the audited status of the assessment attribute, the disposition and potentially pending conditional report to be generated.

Matters of Importance to Management:

Excellent progress has been made in addressing previous audit findings/recommendations as reflected in revised procedures and plant NCS alarm components. However, there are still open items to be resolved prior to being operational ready.

Effectiveness:

The effectiveness of this audit revealed the progress of the NCS program as it approaches operational readiness. Revisions to the procedures now satisfy previous audit findings and tracking of unsatisfied requirements continue.

FINDINGS, CONDITION REPORTS, AND RECOMMENDATIONS:

NRC Inspection Manual, Inspection Procedure 88015 Nuclear Criticality Safety (NCS) Program

A summary table illustrates the overall results of the 88015 audit:

Nuclear Criticality Program				NRC Inspection Procedure 88015									
88015 Statistics Item Attri # Total Total	Asset Attributes	Assign	Applies to LES NM		Attribute Status		Disposition				Act CR	Condition Reports	
			Yes	No	Open	Closed	N/A	Acc	Rec	Finding		Total	Assigned To
45	95		95	0	0	95	0	95	0	0			
	100%		100%	0%	0%	100%	0%	100%	0%	0%		0	

Recommendations	Attribute	Recommendation	Findings	Attribute	Finding #
	01.01a	A		02.04b	±
	01.01f	A		03.04b	±
	01.02e	B			
	03.03a	A			

ABC – indicates that the finding or recommendation from the previous audit has been satisfied.

CONDITION REPORTS: Updated as a result of this report.



Finding 01: Inspections - 88015-02.04b, 88015-03.04b

Requirement: Inspection Program.

Does LES have a self-inspection program that causes management representatives and NCS staff to routinely inspect areas with fissile material to ascertain that procedures are being followed and that process conditions have not been altered to affect the NCS evaluation?

Does NCS staff inspect new installations to ensure that NCS controls are in place prior to startup?

Previous Condition: There was no evidence that operating procedures were being reviewed by walkthrough prior to startup.

Progress Status – Finding 01 Closed. Revisions to CR-3-1000-03, NCS Weekly Walkthroughs and Periodic Assessments, have been approved and currently in progress from revision 2 to 3. The NRC walkthrough requirements for active operating procedure inspections as well as new operating procedures prior to startup are now reflected in the revised CR-3-1000-03.

Final confirmation of closure to this finding will be updating Documentum with revision 3.

Confirm while conducting the 4th Quarterly 2009 NCS Program Audit.

Recommendations – A: Training Records - 88015-01.01a and f, 88015-03.03a

Requirement: NCS Staff Qualifications

Are NCS staff managing, performing, or reviewing criticality safety evaluations expected to have appropriate educational background?

Are individuals performing independent reviews of evaluations experience in doing NCS evaluations at the regulatee's facility?

Are NCS staff maintaining familiarity with current safety standards guides and codes, and maintain familiarity with the ISA and all plant operations?

Are NCS staff maintaining familiarity with developments in NCS through attendance at NCS technical meetings and continuing education programs?

Previous Condition: License commitments for qualification are defined BUT personnel records are NOT in an easily reviewable format. Recommend a readily available matrix or file to relate license commitments to staff NCS engineers.



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Progress Status – Recommendation A Closed. E-NCS-QG revision 1, Qualification Guide Guideline for Engineering Support Program for position of Nuclear Criticality Engineer defines the education and training requirements for an NCS engineer. Training group maintains personnel records per this procedure. Training, Chris Bates, provided NCS engineering personnel records of three (3) NCS engineers. Evidence of NCS engineer education and training were clearly confirmed within all three (3) of the record folders; including NCS matrix requirement check sheet, degree diplomas and certificates and job experience.

Recommendations– B: NCS Program Procedures - 88015-02.02e

Requirement: Pre-Fire Plans. By review of documents and discussions, does LES maintain an adequate Pre-Fire Plan?

Previous Condition: The Pre-Fire Plan, FP-3-1000-05, Pre-Incident Plan Development and Control, had no explicit review and approval regarding NCS engineering.

Progress Status – Recommendation – B Closed. FP-3-1000-05 is in progress from revision 1 to 2e to incorporate NRC required review of the pre-fire plan by NCS engineer. Revisions to FP-3-1000-05, Pre-Incident Plan Development and Control, have been approved and currently in progress from revision 1 to 2. NCS review and approval are detailed within the procedure as well as the controlling form, FP-3-1000-05-F-1, Pre-Incident Plan Approval Form. The NRC walkthrough requirements for active operating procedure inspections as well as new operating procedures prior to startup are now reflected in the revised CR-3-1000-03.

Final confirmation of closure to this recommendation will be updating Documentum with revision 2.

- Confirm while conducting the 4th Quarterly 2009 NCS Program Audit.



NRC Inspection Manual, Inspection Procedure 88016, Nuclear Criticality Safety (NCS) Evaluations and Analyses

A summary table illustrates the overall results of the 88016 audit:

Nuclear Criticality Program				NRC Inspection Procedure 88016									
88016 Statistics Item Attri # Total Total	Asset Attributes	Assign	Applies to LES NM		Attribute Status		Disposition			Act CR	Condition Reports		
			Yes	No	Open	Closed	N/A	Acc	Rec		Finding	Total	Assigned To
92	128		118	10	0	128	10	118	0	0			
	100%		92%	8%	0%	100%	8%	92%	0%	0%		1	

Recommendations	Attribute	Recommendation	Findings	Attribute	Finding #
	08.03A	C		None	None

ABC – indicates that the finding or recommendation from the previous audit has been satisfied.

CONDITION REPORTS: Pending and/or updated as a result of this report.

FINDINGS: None.

Recommendations– C: Nuclear Criticality Safety Evaluations 88016-03.03.3f

Requirement: Are passive, active engineered or administrative controls used to determine whether conformance to the double contingency principle identified in a formal process?

Are passive engineered controls are preferred to active engineered controls and active engineered controls are preferred to administrative controls?

Is the use of only administrative controls in a control scheme justified?

Is preference given to diversity of controls to provide some measure of defense against common mode failure?

Does review of regulatee controls, involving measurement consider reliability of instruments and methods?



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Previous Condition: The density is obtained by the use of instruments. The reliability and method is not mentioned.

The moderation is measured and the measurement is obtained by using instrumentation.

The reliability and method is not mentioned.

Reviewed NCSE EG-3-3200-01, Rev1, 12/12/08, Attachment 1 Part 3.2.

The density is obtained by the use of instruments. The reliability and method is not mentioned, Part 6.3. The moderation is measured and the measurement is obtained by using instrumentation. The reliability and method are not mentioned. The procedure should be restated to include reliability and method of measurement.

Progress Status – Recommendation – C Closed. is in progress from revision 1 to 2b to address calibrated instrumentation issues.

Revisions to EG-3-3200-01, Nuclear Criticality Safety Evaluations, have been approved and currently in progress from revision 1 to 2. All references to instrumentation and measurement include a requirement for calibration in revision 2.

Final confirmation of closure to this finding will be updating Documentum with revision 2.

Confirm while conducting the 4th Quarterly 2009 NCS Program Audit.



NRC Inspection Manual, Inspection Procedure 88017, Criticality Alarm Systems

** Procedures for Critical Alarm Systems are still under development. This audit shall be completed when documentation, training and personnel are prepared, approved and ready for independent review.

A summary table illustrates the overall results of the 88017 audit:

Nuclear Criticality Program					NRC Inspection Procedure 88017								
88016 Statistics Item Attri # Total Total	Asset Attributes	Assign	Applies to LES NM		Attribute Status		Disposition				Act CR	Condition Reports	
			Yes	No	Open	Closed	N/A	Acc	Rec	Finding		Total	Assigned To
42	49		49	0	0	49	0	44	5	0			
	100%		100%	0%	0%	100%	0%	90%	10%	0%		0	

Recommendations	Attribute	Recommendation	Findings	Attribute	Finding #
	General	D, E, F, G		None	None

CONDITION REPORTS: None

FINDINGS: None

Recommendations – D:

Need to complete the research report on feasibility of or use of portable PA notification devices, fire alarms/lights, and CAAS alarm/lights and select appropriate devices for NEF. This action was assigned to the IT department.

Also, recommend that the report be reviewed by LES QA Audit team immediately after release.

Progress Status – Recommendation – D Closed. Portable PA notification devices will not be employed.

Recommendations – E:

Need to complete. LES NCSE has agreed to prepare an analysis of detector response/location in accordance with the intent of the specified methodology outlined in ANSI/ANS-8.3-1997 appendix B.3 Methods - by employing MCNP Code. The intent of the analysis is to validate the engineered criteria on detector number and location including the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, Criticality Monitoring and alarms. This analysis will take into consideration the building materials potentially attenuating the gamma signal. The NCSE Analysis was to be completed by July 17, 2009.



Also, recommend that the analysis be reviewed by LES QA Audit team immediately after release.

02.02 – Sensitivity - Action completed since last audit = MCNP analysis of detector placement completed verifying that detector placement and number meets the requirements of the 40 meter radius of coverage stated in the NEF ISA Summary, Section 3.1.5, to include consideration of the building materials potentially attenuating the gamma signal.

Progress Status – Recommendation – E Closed. NCSE has prepared and published an analysis of detector response/location as recommended earlier see reference below:

Recommendations – F:

Need to complete/revise all applicable policy and procedures particularly: CAAS System Maintenance and Calibration

Progress Status – Open. CR-3-1000-04 *Response to Nuclear Criticality Safety Anomalous Conditions,*

Requirement: All applicable policy and procedures particularly: CAAS System Maintenance and Calibration

Previous Condition: OPEN. Need to develop Maintenance and Calibration procedure in cooperation with the vendor of the CAAS system.

Progress Status – Recommendation – F Open.

Recommendations – G:

Need to complete training plans. Practice Alarm Response and Evacuations should be performed prior to ORR and the introduction of nuclear materials to the facilities.

Recommend that Training include Alarm Response and Evacuation protocol as part of Nuclear Worker Training Plans

Recommendations F and G were re-assessed since last audit. Since these are addressed in the same documents and are somewhat related, the relevant observations are as follows:

Progress Status – Recommendation– G Open.

02.06 – Emergency Plan - Emergency response plan in Draft Form at last review - CR-3-1000-04 Revision 2, Level 3 “Information use only” does not have an effective date and is assumed to be pending release.

03.06 – Emergency Plan - Emergency response plan in Draft Form at last review - OP-3-2000-05 Revision 0, Level 3 “Reference use only” does not have an effective date and is assumed to be pending release.



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OP-3-2000-05 instruction 3.2 instructs Evacuees to "Notify the Control Room". Since the term "Evacuees" means all persons responding to a CAAS Alarm, this instruction would result in every person evacuating the building attempting to notify the Control Room. This should be clarified. OP-3-2000-05 instruction 3.3 instructs the Control Room to manually actuate the CAAS if the CAAS is not sounding. How this is achieved is uncertain based on current CAAS equipment design. This may need to be revisited based on pending revisions to the engineering criteria for the CAAS system design .

03.06 – Emergency Plan – the question from 88017, "Does the facility maintain emergency planning procedures for each area in which fissile material is handled, used or stored to ensure that personnel withdraw to an area of safety upon the sounding of the alarm" will be addressed by a training plan for General Employee Training (GET). This plan and its implementation is in development at this time and it is uncertain whether this plan will be specific to individual areas or not.

Progress Status – Recommendation – G Open. Need to complete the plan and review it after it is completed.

Recommendations – H:

Requirement: 03.04. 02.04 – Audibility Although the concept of headsets is no longer being considered, the challenge of achieving compliance with the requirement to "*produce an overall sound pressure level of at least 75dB, but not less than 10dB above the maximum ambient noise level typical of each area for which audio coverage is to be provided*" has not been fully addressed for all areas.

Recommendation: Develop a report/study documenting engineered solution to addressing audibility in areas of concern. Also, post installation testing should be performed to validate any assumptions in the report/study.

Progress Status – Recommendation – H Open. Need to complete the plan and review it after it is completed.



QA AUDIT DETAILS:

A. Purpose:

Evaluate the Nuclear Criticality Safety Program based on the NRCs protocols. This report will be inclusive of inspection methods described in NRC IP88015, IP88016 and IP88017.

B. Scope:

Use the NRC Inspection Manual, Inspection Procedures IP88015, 16 and 17 defining the Nuclear Criticality Safety Program to develop the audit checklist. Reflect the previous audit results to measure progress from the last quarter. Also, attention was made to enhance questioning in areas regarding issues found in the Self Assessment for Criticality Safety, ORR Criticality Safety Program and Evaluation/Analysis, Final Report June 9, 2008, assessment number 2008-010.

IP88015 - Nuclear Criticality Safety Program

The objective of IP88015 is for LES to provide reasonable assurance that fissile material activities are conducted safely and with undue risk of inadvertent criticality.

Demonstration of a controlled program includes the entire plant approach to nuclear criticality safety. Specific areas evaluated were in NCS staff plant oversight, administrative and operating procedures, NCS training and qualification, and NCS inspections including audits and investigations.

IP88016 - Nuclear Criticality Safety Evaluations and Analysis

The objective of IP88016 is for LES to provide assurance that supporting calculations and models reflect procedural, license and regulatory requirements.

Demonstration of correct support is illustrated within calculation and models involving accident pathways, contingency plans, favorable geometry systems, pseudo control and safe geometry system models.

IP88017 - Criticality Alarm Systems

The objective of IP88017 is for LES to provide assurance that the criticality alarm system will reliably detect the minimum criticality accident of concern in the monitored area and promptly cause an evacuation signal resulting in a prompt and complete evacuation of the facility.

Demonstration of a proper alarm system involves adequate sensitivity, alarm response, signal audibility, reliability and an emergency plan.



C. Methodology:

A method of progress comparison from the previous audit was used as well as interviews with NCS group, QA, Training, Fire and Operations to conduct the audit. All personnel participating in this audit are listed in section F indicated on the meeting attendance forms.

Documents were reviewed to confirm that written procedural incorporation of NRC expectations are recognized and captured within the NCS program. Interviews with NCS personnel explaining the program bolstered and confirmed the recognition of NRC expectations of programmatic requirements. Training materials were reviewed to confirm the influence, impact and information delivery to trainee groups within and outside the NCS group. The NCS program is appropriately reflected in the training modules intended for plant operations.

D. QA Audit Team Members:

Joseph Mallia - Co-Audit Team Leader
Laird Kayler – Technical Specialist

E. Key Reference Documents:

1. Nuclear Criticality Safety, NCS, Program
2. NRC Inspection Manual, Inspection Procedure 88015, Nuclear Criticality Safety (NCS) Program
3. NRC Inspection Manual, Inspection Procedure 88016, Nuclear Criticality Safety Evaluation and Analyses
4. NRC Inspection Manual, Inspection Procedure 88017, Criticality Alarm Systems
5. Self Assessment for Criticality Safety, ORR Criticality Safety Program and Evaluation/Analysis, Final Report June 9, 2008, assessment number 2008-010

F. QA Audit Records:

1. *Completed QA Audit Checklist.*

None used directly for this progressive comparative audit.



2. *Supporting Documents.*

**Audit by interview and document investigation using a checklist derived from NRC:
IP88015 – Nuclear Criticality Safety Program
IP88016 – Nuclear Criticality Safety Evaluations and Analyses
IP88017 – Criticality Alarm Systems**

Base documents reviewed:

CR-2-1000-01, rev 2 , Nuclear Criticality Safety Program Description

CR-3-1000-01, rev 3 (2), Implementation NCS Evaluations and Analyses

CR-3-1000-02, rev 2 (1), Criticality Safety Limit Posting

CR-3-1000-03, rev 3b (2), NCS Weekly Walkthroughs and Periodic Assessments

CR-3-1000-04, rev 2 (1), Response to Nuclear Criticality Safety Anomalous Condition

EG-3-3200-01, rev 2b (1), Nuclear Criticality Safety Evaluations

EG-3-3200-02, rev 1, Nuclear Criticality Safety Analysis

EG-3-3200-03, rev 1, Safe-By-Design Receipt Verification

Note: The rev (*) indicates the revision status from the previous audit and progress of NSC program to satisfy the NRC IP requirements.

3. *QA Audit Entrance and Exit Attendance.*

Entrance and Exit Meetings are an attachment to this report.

4. *Roster of Personnel.*

The entrance, interview and exit meeting attendees, herein, indicate all personnel involved with this audit.

Meeting Attendees and Contacts

Name	Title	Company	Entrance	Interview	Exit
Joseph Mallia	Lead Auditor	ACS / LES	x		x
Chris Bates	Training	LES		x	
Earl Hemmila	Operations	LES		x	
Laird Kayler	Technical Specialist	Aires/LES		x	
Richard Lehman	NCS/ISA Engineer	LES		x	x
Beth McKenzie	CSO	LES		x	x
Tad Nix	Document	LES		x	
Steve Su	NCS Engineer	LES	x	x	x
Steve Troyer	CSO	LES	x	x	x
Bill Wood	Observer	LES			



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5. *QA Audit Finding Reports/Condition Reports.*
(We will attach the Finding Forms!)

References

1. LES Quality Assurance Audit, QA-3-2000-01, Revision 1, dated 11/14/2008
2. NRC INSPECTION PROCEDURES 88015, 88016 & 88017

Distribution

Reinhard Hinterreither	President/Chief Executive Officer
Gregory Smith	LES Chief Nuclear Officer
Stephen Cowne	LES Licensing Director
Dave Sexton	LES Vice President - Engineering
Steve Miltenberger	LES Design Manager
Brian Robinson	LES Field Engineering Manager
John Wisniewski	LES Procurement Director
Gary Schultz	LES Core Design and Support Manager
Thomas Overton	LES Civil Engineering Supervisor

Safety Review Committee
QA File
Records Management



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MEETING ATTENDANCE

Meeting Entrance / Interview / Exit
Nuclear Criticality Safety
IP-88015, 16, 17

Quarterly Audit – 3rd Quarter 2009

Audit Date(s): 9/28/2009 – 10/03/2009	Name: LES Address: LES P. O. Box 1789 Eunice, NM 88231
Audit No: LES 2009-A-09-066 8 <i>JPM 10/01/09</i>	TRAILER CR 2-24

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LARRY KAYLER	ARES / Audit	503-818-1187		X	X	

Procedure Title: Requirements for Procedures

AD-3-1000-01-F-1
Procedure Approval Form

AD-3-1000-01
Rev. 4
Level 3 - Information Use
Page 1 of 1

Number: CR-3-1000-03 **Revision:** 3

Title: NCS Weekly Walkthroughs and Periodic Assessments

Preparer: Tina Conklin **7/21/09** **2-7 / 394-6584**
Print Date Location/Ext

Process Type: New Change Editorial Correction Cancellation

Procedures to be superseded: N/A
Use additional sheets as necessary

Revision Summary and Technical Basis: See Revision Summary
Use additional sheets as necessary

Change Management Actions: See AD-3-1000-10-F-1, Change Management Checklist
 Yes No
Use additional sheets as necessary

Peer Review:
Use additional sheets as necessary

Print Name	Date Completed
Steven Troyer	7/28/09

Cross-Disciplinary Reviews:
Use additional sheets as necessary

Area/Discipline	Date Completed
Operations	8/5/09

70.72(c) Review Required Yes No **Number:** 2009-0420

Administrative Hold Status: Released Reissued N/A **CR No.:** N/A

Approval: Steven Troyer / [Signature] **8/13/2009**
Print/Sign Date Effective Date

Revision Summary

Change	Reason for Change
Added new Step 2.7.	Process Improvements
Step 3.1, Change "A semi-annual review of Operation Groups" to "A semi-annual review of a selected Operation Group."	Process Improvements
Step 3.3, new Step 4.1.4, new Steps 5.2.5 through 5.2.9, new Steps 5.4.4 through 5.4.8.	Process Improvements AIT 2009-2660
Step 3.12, Added additional information.	Process Improvements
Steps 4.1.2, 4.6, 5.2.12, 5.4.11, 5.4.12, and CR-3-1000-03-F-1, changed "HS&E Manager" to "H&S Manager."	LBDCR-09-0012
Step 4.1.3, Added the word "operating" to step.	Process Improvements
Steps 4.1.3, 4.1.4 and 4.1.5, Added reference to (7.1).	Process Improvements
Added new Steps 5.1.3 and 5.1.4.	Process Improvements
Added new Step 8.7, OP-3-2000-05 to Reference Section.	Editorial
Attachment 2, Level 7 – changed "ant" to "any".	Editorial



NCS Weekly Walkthroughs and Periodic Assessments

CR-3-1000-03

Revision 3b

Level 3 - Information Use

Criticality Safety Officer (CSO)

Effective Date	
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Information Only - REVIEW

Revision Summary

Change	Reason for Change
Added new Step 2.7.	Process Improvements
Step 3.1, Change "A semi-annual review of Operation Groups" to "A semi-annual review of a selected Operation Group."	Process Improvements
Step 3.3, new Step 4.1.4, new Steps 5.2.5 through 5.2.9, new Steps 5.4.4 through 5.4.8.	Process Improvements AIT 2009-2660
Step 3.12, Added additional information.	Process Improvements
Steps 4.1.2, 4.6, 5.2.12, 5.4.11, 5.4.12, and CR-3-1000-03-F-1, changed "HS&E Manager" to "H&S Manager."	LBDCR-09-0012
Step 4.1.3, Added the word "operating" to step.	Process Improvements
Steps 4.1.3, 4.1.4 and 4.1.5, Added reference to (7.1).	Process Improvements
Added new Steps 5.1.3 and 5.1.4.	Process Improvements
Added new Step 8.7, OP-3-2000-05 to Reference Section.	Editorial
Attachment 2, Level 7 – changed "ant" to "any".	Editorial

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1. PURPOSE

- 1.1 Establish the National Enrichment Facility Nuclear Criticality Safety weekly walkthroughs and assessment programs to ensure nuclear safety controls and criticality IROFS are followed, maintained and effective. (7.1, 7.2)

2. SCOPE

- 2.1 Define requirements and responsibilities for the weekly walkthrough and periodic assessments. It applies to all persons who will perform weekly walkthroughs and periodic criticality assessments
- 2.2 This procedure satisfies the commitments in the National Enrichment Facility Safety Analysis Report (SAR), Section 5.1, to provide and maintain a Criticality Safety surveillance program.
- 2.3 This procedure describes the NCS surveillance program that will detect NCS deficiencies by means of operational weekly walkthroughs and periodic assessments.
- 2.4 This procedure describes weekly walkthroughs and assessments of Operation Groups by Nuclear Criticality Safety Engineers and the Criticality Safety Officer (CSO) that are used to evaluate the effectiveness of the Nuclear Criticality Safety Program. They are performed as a management measure to assure that facility activities are conducted in accordance with written procedures; that criticality safety requirements are met; that IROFS are reliable and are available to perform their intended safety functions as documented in the ISA and associated IROFS Boundary Definition; and, that the criticality safety controls reviewed are effective.
- 2.5 This procedure will establish the process and provide instructions for performing weekly walkthroughs and periodic assessments and their frequencies.
- 2.6 Annual audits of the NCS Program performed by the QA organization to meet the requirements of AD-3-1000-05, Safety Review Committee are not within the scope of this procedure.
- 2.7 Weekly walkthroughs are performed for active processes and areas that handle or process uranic material, including pre-start assessment walkthroughs.

3. TERMS, DEFINITIONS, ABBREVIATIONS, AND ACRONYMS

- 3.1 Criticality Safety Assessment – A semi-annual review of a selected Operation Group by the Criticality Safety Staff that focuses on effectiveness of activities and ensuring that IROFS and safe-by-design (SBD) features and other items affecting the reliability and availability of criticality related IROFS to perform their intended safety functions is maintained. Additionally, the assessment focuses on verifying compliance with criticality related regulatory requirements, procedural requirements, and licensing commitments and also determines if process conditions that could adversely affect criticality safety have occurred.
- 3.2 Criticality Safety Audit – A quarterly planned and documented activity performed by investigation, examination, and evaluation of objective evidence using a pre-approved checklist to determine the adequacy of and compliance with established procedures, instructions, drawings and other applicable documents performed by the QA department or designee such that all aspects of the Nuclear Criticality Safety program are audited at least every two years.
- 3.3 Nuclear Criticality Safety (NCS) Engineer- A qualified nuclear criticality safety engineer who is knowledgeable of specific facility operations, processes and equipment and who is assigned by management to provide nuclear criticality safety computations, evaluations, reviews or audits of designs and operations for a specified facility. The terms “Nuclear Criticality Safety Engineer” and “Criticality Safety Engineer” are interchangeable.
- 3.4 NCS Engineer in Training – An engineer in the process of training to become a qualified NCS Engineer. Duties and responsibilities include: the preparation of nuclear criticality safety evaluations and/or analyses, nuclear safety releases, NCS postings, and NCS walkthroughs and assessments under the guidance of a qualified NCS Engineer or CSO.
- 3.5 Criticality Safety Officer (CSO) - A qualified person who serves as the liaison among the criticality safety organization, the line organization responsible for fissionable material operations, and other organizations. This person is chartered with the responsibility to be cognizant of all the criticality safety requirements for facility fissionable material operations.
- 3.6 Double Contingency Principle - Process designs should incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible.
- 3.7 Nuclear Criticality Safety (NCS) Posting - An operator aid that serves as an enhancement to administrative controls specified in the Nuclear Criticality Safety Analysis (NCSA) or Nuclear Criticality Safety Evaluation (NCSE). It indicates the presence of fissionable material, summarizes key criticality safety requirements and limits, designates work and storage areas, and provides instructions to personnel.
- 3.8 Facility - An operational area (e.g., building, holding, storage, and disposal area) dedicated to activities or operations (handling, processing, storing, or transporting) that involve fissionable materials.

Information Only - REVIEW

- 3.9 **Nuclear Criticality Safety Analyses (NCSA)** – A calculational analyses of individual systems or components and their interactions with other systems or components containing enriched uranium to ensure that criticality criteria are met.
- 3.10 **Nuclear Criticality Safety Evaluations (NCSE)** - An evaluation of any change involving or affecting uranium on site to determine that the entire process will be sub-critical (with approved margin for safety) under both normal and credible abnormal conditions. The evaluation is non-calculational and determines whether existing Nuclear Criticality Safety Analyses bound the issue being evaluated or whether new or revised Nuclear Criticality Safety Analyses are required.
- 3.11 **Safety Review Committee (SRC)** - A multi-disciplined committee responsible for review of activities that have the potential to affect nuclear/chemical safety.
- 3.12 **Weekly Walkthrough** – A physical tour of an area to view operations and their adherence to criticality safety requirements, both physical and procedural. Walkthroughs may also be performed in conjunction with criticality safety assessments. The extent of physical inspections may be limited in some cases, due to a limited number of, or absence of measureable, defined inspection criteria.

4. RESPONSIBILITIES

4.1 Criticality Safety Officer

- 4.1.1 Establishes a method to monitor the nuclear criticality safety program.
- 4.1.2 Ensures assessments are performed of the nuclear criticality safety function, when determined and documented in the assessment schedule by the H&S Manager.
- 4.1.3 Ensures that weekly nuclear criticality safety walkthroughs of operating uranium handling areas are conducted and documented. ^(7.1)
- 4.1.4 Ensures that pre-operational walk throughs are performed to evaluate new processes and equipment that have the potential to affect nuclear safety. ^(7.1)
- 4.1.5 Ensures that nuclear criticality safety assessments are conducted at least semi-annually. ^(7.1)

NOTE:

The frequency of the assessments in the next step is based on the controls identified in the NCS analyses and NCS evaluations.

- 4.1.6 Ensures that Operation Groups are assessed periodically to determine the following:
 - a. nuclear criticality safety procedures are being followed;
 - b. process conditions have not been altered to adversely affect nuclear criticality safety;
 - c. process conditions have not been altered to adversely affect the nuclear criticality safety evaluation/analyses.
- 4.1.7 Ensures that nuclear criticality safety audits are conducted and documented quarterly such that all aspects of the Nuclear Criticality Safety Program will be audited at least every two years.
- 4.1.8 Participates periodically in auditing the overall effectiveness of the nuclear criticality safety program.
- 4.1.9 Conducts OR participates in reviews and inspections of the following:
 - a. nuclear criticality safety practices;
 - b. compliance with procedures
- 4.1.10 Conducts OR participates in weekly walkthroughs.
- 4.1.11 Conducts OR participates in criticality safety assessments.
- 4.1.12 Report results as directed by management.
- 4.2 NCS Engineer(s)
 - 4.2.1 Conducts OR participates in reviews and inspections of the following:
 - a. nuclear criticality safety practices;
 - b. compliance with procedures
 - 4.2.2 Conducts OR participates in weekly walkthroughs.
 - 4.2.3 Conducts OR participates in criticality safety assessments.
 - 4.2.4 Report results as directed by management.
- 4.3 Safety Review Committee
 - 4.3.1 Conducts at least one facility audit per year in the nuclear criticality safety control area.

4.4 Functional Area Manager (FAM)

4.4.1 Ensure work is stopped when notified of a criticality safety deficiency AND is not resumed until the deficiency is resolved.

4.5 Operations/Maintenance Personnel

4.5.1 Assist the Nuclear Criticality Safety Staff during weekly walkthrough.

NOTE:

The area supervisor is not obligated to participate in the weekly walkthrough.

4.6 Health & Safety Manager (H&S)

4.6.1 Approve weekly walkthroughs and Criticality Safety Assessments.

5. MAIN BODY

5.1 Develop and Maintain

5.1.1 Develop and maintain the Weekly Walkthrough and nuclear criticality safety assessment of operations schedule. Attachment 1, Facilities and Areas, provides a list of the Weekly Walkthrough and nuclear criticality safety plant areas [CSO]

5.1.2 Adjust the weekly schedule as needed, to evaluate corrective actions implemented to resolve criticality safety anomalous conditions and new processes and equipment.

5.1.3 Ensure that all facilities/areas identified in Attachment 1, Facilities and Areas, in which uranic material is being processed, handled or stored are inspected at least once every two years. The extent of physical inspections will be based on the presence of measureable, defined criteria and any safety concerns that may affect accessibility (i.e., remotely operated systems).

5.1.4 Prior to initial plant operations, walkthroughs may be performed at a lower frequency, typically monthly, due to the limited number of active operations.

5.2 Weekly Walkthrough

5.2.1 Review applicable NCSE or NCSA, IROFS, applicable Nuclear Safety Releases for NCS limits, open corrective actions and procedures prior to performing the weekly walkthrough.

5.2.2 Contact and invite area supervisor prior to performing the weekly walkthrough. [NCS Engineers or CSO]

5.2.3 Perform assigned weekly walkthroughs following the guidelines given in form CR-3-1000-03-F-1, Criticality Safety Weekly Walkthrough.

- 5.2.4 Improvements and/or suggestions that are not violations of criticality safety limits or criticality safety related items in procedures will be reported in the Weekly Walkthrough results.
- 5.2.5 Determine Severity Level utilizing Attachment 2, Severity Levels for Nuclear Criticality Safety Findings.
- 5.2.6 IF Severity Level 1 (unplanned criticality) is identified, THEN immediately notify Shift Manager to initiate OP-3-2000-05, Criticality Accident Response.
- 5.2.7 IF Severity Level 2 through 6 (critical safety limits) is identified, THEN immediately initiate CR-3-1000-04, Response to Nuclear Criticality Safety Anomalous Conditions, and report issue to the Shift Manager.
- 5.2.8 IF Severity Level 7 (NCS deficiencies) is identified, THEN immediately report this to the area Supervisor and FAM AND initiate immediate corrective actions, as appropriate.
- 5.2.9 Document deficiencies in accordance with CA-3-1000-01, Performance Improvement Program.
- 5.2.10 Initiate the required notifications and actions for existing or past conditions that cannot be shown to be acceptable from a nuclear criticality safety perspective.
- 5.2.11 Sign and date the completed Weekly Walkthrough report.
- 5.2.12 Document results and submit to H&S Manager for approval.
- 5.2.13 Submit approved Weekly Walkthrough report to CSO for documentation into NCS database and submittal to Records Management. [NCS Engineers or CSO]
- 5.3 Nuclear Criticality Safety Audits
- 5.3.1 Participate in Nuclear Criticality Safety Audits by the Quality Assurance Group as requested. [CSO]
- 5.4 Periodic Nuclear Criticality Safety Assessment of Operations
- 5.4.1 Contact and invite FAM prior to performing the Nuclear Criticality Assessment. [CSO]
- 5.4.2 Examine corrective action reports for criticality safety related procedural violations and other deficiencies for possible improvement of safety practices and procedural requirements.
- 5.4.3 Perform assigned Nuclear Criticality Safety Semi-Annual Assessments of Operation Groups following guidelines given in form CR-3-1000-03-F-2, Criticality Safety Assessment.
- 5.4.4 Determine Severity Level utilizing Attachment 2, Severity Levels for Nuclear Criticality Safety Findings.
- 5.4.5 IF Severity Level 1 (unplanned criticality) is identified, THEN immediately notify Shift Manager to initiate OP-3-2000-05, Criticality Accident Response.

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- 5.4.6 IF Severity Level 2 through 6 (critical safety limits) is identified, THEN immediately initiate CR-3-1000-04, Response to Nuclear Criticality Safety Anomalous Conditions, and report issue to the Shift Manager.
- 5.4.7 IF Severity Level 7 (NCS deficiencies) is identified, THEN immediately report this to the area Supervisor and FAM AND initiate immediate corrective actions, as appropriate.
- 5.4.8 Document deficiencies in accordance with CA-3-1000-01, Performance Improvement Program.
- 5.4.9 Initiate the required notifications and actions for existing or past conditions that cannot be shown to be acceptable from a nuclear criticality safety perspective.
- 5.4.10 Sign and date the completed Nuclear Criticality Safety Assessment report.
- 5.4.11 Document results and submit to H&S Manager for approval.
- 5.4.12 Submit approved Nuclear Criticality Safety Audit or Assessment to CSO for submittal to NCS database and Records Management. [H&S Manager]

6. DOCUMENTATION AND RECORDS

- 6.1 Weekly NCS walkthroughs of UF₆ process areas.
- 6.2 Nuclear Criticality Safety Semi-Annual Assessments of Operation Groups.
- 6.3 Other audits and assessments as directed by management.

7. LICENSE COMMITMENTS AND REQUIREMENTS

- 7.1 SAR, Safety Analysis Report, Sections 3.1.3, 5.1, 5.1.1, 11.5
- 7.2 ISA Summary, Section 3.1.8.3
- 7.3 ANSI/ANS Series 8 Standards.

8. REFERENCES

- 8.1 AD-3-1000-05, Safety Review Committee
- 8.2 AD-3-1000-06, Assessment Program
- 8.3 CA-3-1000-01, Performance Improvement Program
- 8.4 CR-2-1000-01, Nuclear Criticality Safety Program
- 8.5 CR-3-1000-04, Response to Nuclear Criticality Safety Anomalous Conditions
- 8.6 EG-3-2100-02, IROFS Boundary Definitions

- 8.7 OP-3-2000-05, Criticality Accident Response
- 8.8 QA-3-2000-04, Quality Assurance Internal Assessment Program
- 8.9 RM-3-2000-01, Records Management Program
- 8.10 NUREG-1827, Safety Evaluation Report

Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments

**Attachment 1
Facilities and Areas
(Pages 12 to 12)**

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Facilities & Their Areas	
Separations Building	
	Cascade Halls
	2nd Floor Chemical Traps
UF6 Handling	
	Feed
	Product Take-Off
	Tails Take-Off
Technical Services Building	
	Laundry
Cylinder Receipt & Dispatch Building (CRDB)	
	Loading and unloading of cylinders
	Inventory weighing
	Buffer storage of feed cylinders
	Preparation and storage of overpack protective packaging
	Semi-finished product storage
	Final product storage
	Solid Waste Collection
	Vacuum Pump Rebuild
	Decontamination Workshop
	Ventilated Room
	Liquid Effluent Collection/ Waste Treatment
	TSB GEVS Room
	Chemical Lab
	Sample Storage Room
	Cylinder Preparation room
	Mass Spec (Hydrolyzed UF ₆)
	Truck Bay/Shipping Receiving Area
	Prepared cylinder storage
Centrifuge Assembly Building	
	Centrifuge Assembly Area
	Centrifuge Test and Post Mortem Facilities.
Blending and Liquid Sampling	
Uranium Byproduct Cylinder (UBC) Storage Pad	
Mobile Fuel Bearing Equipment	

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Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments	
Attachment 2 Severity Levels for Nuclear Criticality Safety Findings (Pages 13 to 13)	CR-3-1000-03 Rev. 3b Level 3 - Information Use Page 13 of 18

Severity Levels for Nuclear Criticality Safety Findings	
Corrective Action #	Title:

Date of Discovery:	Time of Discovery:
Facility Area [Attachment 1]:	Discovering Organization:

Severity Level	Description
<input type="checkbox"/> Level 1-	An unplanned Criticality
<input type="checkbox"/> Level 2-	Nuclear Criticality Safety nonconformance such that no valid controls are available to prevent a criticality
<input type="checkbox"/> Level 3-	In an area where criticality accidents are documented to be prevented by adherence to the double contingency principle: Nuclear Criticality Safety nonconformance or, discovery of an unanalyzed criticality sequence, such that only one credible, unlikely, independent, and concurrent change in process conditions could result in criticality.
<input type="checkbox"/> Level 4-	In an area where criticality accidents are documented to be not credible: Nuclear Criticality Safety nonconformance or, discovery of an unanalyzed criticality sequence, such that a criticality has become credible.
<input type="checkbox"/> Level 5-	In an area where criticality accidents are documented to be prevented by adherence to the double contingency principle: Nuclear Criticality Safety nonconformance or, discovery of an unanalyzed criticality sequence, does not violate the double contingency principle.
<input type="checkbox"/> Level 6-	In an area where criticality accidents are documented to be not credible: Nuclear Criticality Safety nonconformance or, discovery of an unanalyzed criticality sequence, does not cause a criticality accident to become credible.
<input type="checkbox"/> Level 7-	Administrative errors (Nuclear Criticality Safety Postings, implementing procedures unless they cause a situation described in Levels 1-6, labeling, etc.), changes in facility conditions such as rainwater in-leakage, or other abnormal conditions that do not impact any criticality safety bases, but warrant review by Nuclear Criticality Safety.

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Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments	
CR-3-1000-03-F-1 Criticality Safety Weekly Walkthrough (Pages 14 to 16)	CR-3-1000-03 Rev. 3b Level 3 - Information Use Page 14 of 18

Area Inspected: _____ NCSE or NCSA #: _____ Date: _____

Inspection number: NCSI-0X-xxxx

Name of Area Supervisor: _____ Attended Yes No

Item Inspected:	Criteria:	Comments:
Postings:	▪ Posting #, Revision #- proper posting & revision.	
	▪ Are postings in operating areas that have uranium?	
	▪ Are all administrative controls listed?	
	▪ Are postings in the easily observable and work related location?	
Safe-By-Design	Sizes match requirement/List references-evaluation or analysis.	
Mass Controls	Are mass logs present?	
	Determine how mass numbers are generated and describe. based on analytical results? based on estimates?	
	Do procedures demonstrate how mass logs are filled out?	
Procedures:	List Procedures Reviewed:	
	Do procedures specify required administrative controls?	
	Do procedures address equipment malfunction?	
	Are procedures readily available?	
	Has retraining been accomplished?	

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Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments

CR-3-1000-03-F-1 Criticality Safety Weekly Walkthrough (Pages 14 to 16)	CR-3-1000-03 Rev. 3b Level 3 - Information Use Page 15 of 18
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Item Inspected:	Criteria:	Comments:
Interview Operator:	▪ Understands Criticality safety limits.	
	▪ Are postings understood? Ask what does the posting tell you to do?	
	▪ Are they using procedures and checklists correctly?	
Previous Corrective Actions	List and review status & determine if open or closed. If open, attempt to close.	
New corrective actions:	Follow CA-3-1000-01. List new corrective actions; give number; short description and severity level from Attachment 2.	
Additional Remarks:		

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Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments	
CR-3-1000-03-F-1 Criticality Safety Weekly Walkthrough (Pages 14 to 16)	CR-3-1000-03 Rev. 3b Level 3 - Information Use Page 16 of 18

IROFS Implementation				
IROFS #	IROFS Boundary Definition Document(s)	Acceptance Criteria	Functional Checks	Nuclear Criticality Safety Requirements
(Choose an IROFS for the inspection area from Table 3.7.1, ISA Summary (§3.7, Table Titled, Accident Sequence System Identifier" gives area identifiers used in Table 3.7.1))	(The boundary definition document will give the specified safety system and its boundary as implemented to satisfy it. Describe how the safety function is implemented)	(Describe acceptance criteria from the Operations Requirements Manual.)	(Describe functional checks, periodicity)	(List the Nuclear Criticality Safety requirements from the NCSE/or NCSA and how requirements are met)

NCS Engineer or CSO Date

H&S Manager Date

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Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments	
CR-3-1000-03-F-2 Criticality Safety Assessment (Pages 17 to 18)	CR-3-1000-03 Rev. 3b Level 3 - Information Use Page 17 of 18

Assessment number: NCSAS-0X-xxxx Date: _____

Name of Area Manager: _____ Attended Yes No

Area Assessed: _____

NCS Evaluations/Analyses Reviewed:
(Describe any differences between actual operations and assumptions made in the evaluations or analyses)

Previous Procedural Violation or Deficiencies	
Violation or Deficiency Description	Possible Improvement

IROFS Reviewed: [State #]
Reliability:
(Describe reliability of the IROFS)
Availability:
(Describe what makes the IROFS reliable)
Functional Testing:
(Describe the functional test)
Procedure Requirements
(List NCS requirements from procedures and determine how and if they are being satisfied)
Regulatory Requirements
(List Regulatory requirements and determine if they are being satisfied and how)
License Commitments
(List License Commitments and determine if they are being satisfied and how)

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Procedure Title: NCS Weekly Walkthroughs and Periodic Assessments	
CR-3-1000-03-F-2 Criticality Safety Assessment (Pages 17 to 18)	CR-3-1000-03 Rev. 3b Level 3 - Information Use Page 18 of 18

Changes since last assessment	
List any process equipment or changes and describe if they affect IROFS or any NCS requirements.	

New corrective actions:	
Follow CA-3-1000-01. List new corrective actions; give number; short description and severity level from Attachment 2.	

NCS Engineer or CSO

Date

H&S Manager Approval

Date

Procedure Title: Requirements for Procedures

**AD-3-1000-01-F-1
Procedure Approval Form**

**AD-3-1000-01
Rev. 4
Level 3 - Information Use
Page 1 of 1**

Number: CR-3-1000-03 **Revision:** 3

Title: NCS Weekly Walkthroughs and Periodic Assessments

Preparer: Tina Conklin 7/21/09 2-7 / 394-6584
Print Date Location/Ext

Process Type: New Change Editorial Correction Cancellation

Procedures to be superseded: N/A
Use additional sheets as necessary

Revision Summary and Technical Basis: See Revision Summary
Use additional sheets as necessary

Change Management Actions: See AD-3-1000-10-F-1, Change Management Checklist
 Yes No
Use additional sheets as necessary

Peer Review:
Use additional sheets as necessary

Print Name	Date Completed
Steven Troyer	7/28/09

Cross-Disciplinary Reviews:
Use additional sheets as necessary

Area/Discipline	Date Completed
Operations	8/5/09

70.72(c) Review Required Yes No **Number:** 2009-0420

Administrative Hold Status: Released Reissued N/A **CR No.:** N/A

Approval: Steven Troyer / [Signature] 8/13/2009
Print/Sign Date Effective Date