

**U.S. Department of Energy  
Thomas Jefferson Site Office**



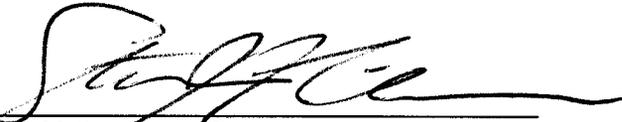
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**Final Report for  
Quality Assurance Program Review  
of the Thomas Jefferson National  
Accelerator Facility**

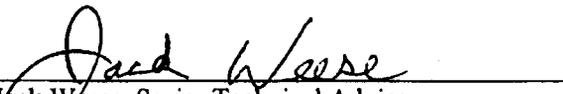
**April 2009**

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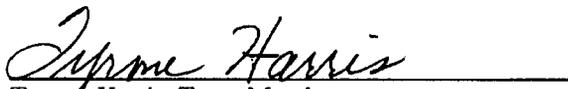
Report Approval

  
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Steve Neilson, Team Lead  
Thomas Jefferson Site Office

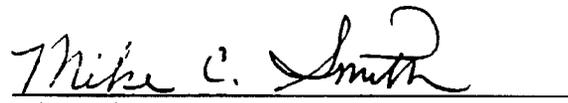
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**Table of Contents**

Acronyms and Definitions .....ii

Executive Summary .....iv

**1.0 INTRODUCTION ..... 1**

**2.0 SCOPE ..... 1**

**3.0 OVERALL APPROACH ..... 1**

    3.1 Development of Review Plan and Lines of Inquiry..... 1

    3.2 Selection of Team .....2

    3.3 Preliminary Activities .....3

    3.4 Fieldwork Activities .....3

**4.0 SUMMARY ..... 3**

Appendix A – Summary of Findings and Proficiencies.....A-1

Appendix B – Review Forms .....B-1

### Acronyms and Definitions

CAP	Corrective Action Plan
CATS	Corrective Action Tracking System
CRAD	Criteria and Review Approach Document
DES	Design
DOC	Documents and Records
DOE	U.S. Department of Energy
ES&H	Environment, Safety, and Health
ESH&Q	Environment, Safety, Health, and Quality
FEL	Free Electron Laser
FIMS	Facility Information Management system
FIND	Finding
HSS	Health, Safety, and Security
IA	Independent Assessment
INSP	Inspection and Acceptance Testing
JSA	Jefferson Science Associates
MGT	Management
OIO	Office of Independent Oversight
ORO	Oak Ridge Office
P	Priority
POM	Procurement Operations Manual
PROC	Procurement
PROG	Program
QA	Quality Assurance
QA/CI	Quality Assurance/Continuous Improvement

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QAP	Quality Assurance Plan
QIP	Quality Improvement Plan
QUAL	Quality Improvement
S/CI	Suspect/Counterfeit Item
SRL	Skills Requirement List
TJNAF	Thomas Jefferson National Accelerator Facility or Jefferson Lab (also referred to as Lab)
TJSO	Thomas Jefferson Site Office
TRNG	Training
P1 Finding	Findings of major significance. (Examples include imminent threats to worker protection, public safety, or environmental quality or the presence of a major risk or vulnerability). Such findings can be a systematic breakdown in, or a failure to implement, a major work control element necessary for safety, quality, or the environment or a significant noncompliance with requirements.
P2 Finding	Findings that represent nonconformances, deviations, and/or deficiencies in the implementation of requirements, procedures, standards, and/or regulatory requirements.
P3 Finding	Observations that the assessor deems to be an isolated, minor, quick fix or nonadherence to best practices/internal procedures/accepted standards.
Proficiency	A performance item that exhibits a level of performance deemed worthy of communicating to other organizations because it is innovative or may be indicative of the highest level of excellence. Formerly-used terms that meant essentially the same thing were Noteworthy Practice and Strength.
WP	Work Processes

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## Executive Summary

In accordance with U.S. Department of Energy (DOE) Order 226.1A, *Implementation of Department of Energy Oversight Policy*, the Thomas Jefferson Site Office performs oversight of the Thomas Jefferson National Accelerator Facility (TJNAF) operations. This review was conducted to evaluate how well Jefferson Science Associates' (JSA) personnel implement the Quality Assurance Program for work activities at TJNAF.

The following criteria/requirements were reviewed to assess JSA's implementation status:

- Program
- Personnel Training and Qualifications (TRNG)
- Quality Improvement (QUAL)
- Documents and Records (DOC)
- Work Processes
- Design (DES)
- Procurement
- Inspection and Acceptance Testing
- Management Assessment
- Independent Assessment
- Suspect/Counterfeit Item (S/CI) Prevention Process

The review concluded that eight of the ten criteria evaluated were met and two criteria were partially met. The one S/CI requirement evaluated was also identified as being met. Four Priority (P) 2 findings (FIND) were identified, one finding in each of the areas of Personnel Training and Qualifications, Quality Improvement, Documents and Records, and Design. These findings are listed below, with detail provided in Appendices A and B.

### P2 Findings

- |                         |   |
|-------------------------|---|
| <b>FIND-TRNG-P2-001</b> | The JSA Training Program is not compliant, in some areas, with the requirements of the TJNAF Quality Assurance Program.   |
| <b>FIND-QUAL-P2-002</b> | Corrective actions for DOE external assessment findings are not being adequately tracked and closed.  |
| <b>FIND-DOC-P2-003</b>  | Documents and Records management is not compliant, in some areas, with the requirements of the TJNAF Quality Assurance Program for some JSA organizations.  |
| <b>FIND-DES-P2-004</b>  | Pressure systems records management is not compliant with Environment, Safety, and Health Manual Chapter 6151 and does not satisfactorily ensure the control between design specifications, pressure testing, and final installation. |

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**Final Report  
Quality Assurance Program Review  
of the Thomas Jefferson National Accelerator Facility**

**1.0 INTRODUCTION**

In accordance with U.S. Department of Energy (DOE) Order 226.1A, *Implementation of Department of Energy Oversight Policy*, the Thomas Jefferson Site Office (TJSO) performs oversight of the Thomas Jefferson National Accelerator Facility (TJNAF) operations. The objective of this review was to evaluate how well Jefferson Science Associates (JSA) personnel implement the Quality Assurance Program for work activities at the Thomas Jefferson National Accelerator Facility, in accordance with DOE Order 414.1C, *Quality Assurance*.

**2.0 SCOPE**

The following criteria/requirements were reviewed to assess JSA's implementation status:

- Program
- Personnel Training and Qualifications
- Quality Improvement
- Document Records
- Work Processes
- Design
- Procurement
- Inspection and Acceptance Testing
- Management Assessment
- Independent Assessment
- Suspect/Counterfeit Item (S/CI) Prevention Process

**3.0 OVERALL APPROACH**

This assessment was principally a review of TJNAF's implementation of DOE Order 414.1C in its Quality Assurance Program for work activities at the Thomas Jefferson National Accelerator Facility. The assessment included document reviews, personnel interviews, and field observations.

**3.1 Development of Review Plan and Lines of Inquiry**

In addition to the Office of Science Management System assessment tool, *Criteria and Review Approach Document (CRAD) and Lines of Inquiry for Evaluating the Effectiveness of Quality Assurance Program Implementation*, a checklist was developed for use by the assessors as part of the assessment process.

The Review Plan and lines of inquiry were approved by the Team Lead prior to commencement of the fieldwork portion of the assessment, and a copy of the Review Plan was provided to team members prior to beginning the review.

Team members documented their evaluation of the criterion/requirement areas using a review form. These completed forms contain the basis for the conclusions reached concerning each criterion/requirement which was evaluated as being met, partially met, or not met. Appendix A is a summary of findings and proficiencies identified during the review.

There are three levels of negative performance observations, based on the respective priority (P). Definitions of P1, P2, and P3 findings (FIND) are provided in the acronyms and definitions section of this report. All findings identified during the review are clearly identified on the review forms included in Appendix B.

Closure of all findings will be tracked and documented evidence of resolution maintained in accordance with JSA's procedures.

**3.2 Selection of Team**

Subsequent to selection and appointment of the Team Leader by the TJSO Manager, the Team Leader identified the necessary functional areas and expertise needed for the assessment. Personnel from the DOE Oak Ridge Office (ORO) were requested to provide support to the TJSO to staff the team.

The review schedule, scope, and the expected level of effort required of the team members were developed by the team. Interaction among the team members was necessary to ensure an adequate understanding of the expectations and the plan and strategy for the assessment.

The assessment was conducted from April 13-16, 2009. An opening meeting was held in which the objectives and scope of the assessment, as well as assessment logistics, were discussed. Daily briefings were held as needed to advise management of team findings from the day's activities and identify areas requiring follow-up.

The assessment team members, their affiliations, and the specific criterion/requirement areas of responsibility are shown in the following table:

<b>Name</b>	<b>Organization</b>	<b>Criterion/Requirement Areas Responsibility</b>
Steven Neilson, Team Lead	DOE, TJSO	<ul style="list-style-type: none"> <li>• Work Processes</li> <li>• Design</li> </ul>
Jack Weese, Senior Technical Advisor	DOE, ORO, SE-32	<ul style="list-style-type: none"> <li>• Quality Improvement</li> <li>• Management Assessment</li> <li>• Independent Assessment</li> </ul>
Tyrone Harris, Team Member	DOE, ORO, SE-32	<ul style="list-style-type: none"> <li>• Program</li> <li>• Document Records</li> <li>• Inspection and Acceptance Testing</li> </ul>
Mike Smith, Team Member	DOE, ORO, SE-32	<ul style="list-style-type: none"> <li>• Personnel Training and Qualifications</li> <li>• Procurement</li> <li>• Suspect/Counterfeit Item Prevention Process</li> </ul>

The exit brief was conducted on April 16, 2009. A copy of the draft report was provided to TJNAF for factual accuracy following the exit brief.

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### 3.3 Preliminary Activities

A large number of documents were requested and provided to the team by TJNAF in advance of the assessment. These documents included organization charts, standard operating procedures, integrated assessment schedules, and other relevant documents.

### 3.4 Fieldwork Activities

Fieldwork activities began on April 13, 2009, and lasted approximately four days. The team interviewed selected TJNAF personnel and reviewed over 130 documents. During the period of on-site work, the team held daily meetings to review and discuss findings from the day's activities and identify areas requiring follow-up. Where there were program or performance weaknesses identified, the team noted these as findings.

## 4.0 SUMMARY

Eight of the ten criteria evaluated were identified as being met, and two of the criteria evaluated were identified as being partially met. The one S/CI requirement evaluated was identified as being met. Four P2 findings were identified, and these findings are listed in Appendix A.

The Chief Operating Officer requested that the team identify areas that would improve the performance of the Laboratory. This information was shared with the Chief Operating Officer and others attending the close-out briefing conducted on April 16, 2009. The following were the top areas identified by the review team:

- Management must enhance the understanding of the benefits of quality assurance implementation.
- Continue on the path of implementing a comprehensive and effective
  - corrective action process,
  - document control program, and
  - rigorous assessment program that identifies areas for improvement.

## **Appendix A – Summary of Findings and Proficiencies**

Summary of Findings  
and Proficiencies

Status	Identifier	Description
<b>Program – Criterion 1</b>		
This criterion was met.	No findings identified.	
<b>Personnel Training and Qualifications – Criterion 2</b>		
This criterion was met.	FIND-TRNG-P2-001	The JSA Training Program is not compliant, in some areas, with the requirements of the TJNAF Quality Assurance Program.
<b>Quality Improvement – Criterion 3</b>		
This criterion was met.	FIND-QUAL-P2-002	Corrective actions for DOE external assessment findings are not being adequately tracked and closed.
<b>Document Records – Criterion 4</b>		
This criterion was partially met.	FIND-DOC-P2-003	Documents and Records management is not compliant, in some areas, with the requirements of the TJNAF Quality Assurance Program for some JSA organizations.
<b>Work Processes – Criterion 5</b>		
This criterion was met.	No findings identified.	

<b>Design – Criterion 6</b>		
<b>This criterion was partially met.</b>	<b>FIND-DES-P2-004</b>	Pressure systems records management is not compliant with Environment, Safety, and Health Manual Chapter 6151 and does not satisfactorily ensure the control between design specifications, pressure testing, and final installation.
<b>Procurement – Criterion 7</b>		
<b>This criterion was met.</b>	No findings identified.	
<b>Inspection and Acceptance Testing – Criterion 8</b>		
<b>This criterion was met.</b>	No findings identified.	
<b>Management Assessment – Criterion 9</b>		
<b>This criterion was met.</b>	No findings identified.	
<b>Independent Assessment – Criterion 10</b>		
<b>This criterion was met.</b>	No findings identified.	
<b>Suspect/Counterfeit Item Prevention Process – Requirement 1</b>		
<b>This criterion was met.</b>	No findings identified.	

## **Appendix B – Review Forms**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

Criterion/Requirement Area:	Objective ID: PROG
Criterion 1 / Quality Assurance (QA) Program	Date: April 13, 2009

**Objective – QA Program** - The Contractor's QA Program Description documentation describes programs and processes that comprise the total scope of their QA management system. The organization and reporting chain are established and utilized to ensure clear lines of authority.

**Lines of Inquiry**

- PROG-001 Does JSA establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing work?
- PROG-002 Does JSA establish management processes, including planning, scheduling, and providing resources for work?

**Discussion of Results**

*This criterion was met.*

An assessment of the implementation of the Quality Assurance Program was conducted using interviews, document reviews, and observations. The *JSA Quality Assurance Plan (QAP)*, JLAB-QAP-O1, Rev 1.1, dated May 2008, is the key management document which describes how JSA implements the requirements of DOE Order 414.1C and ISO 9001. The QAP addresses JSA policy concerning the expectation for implementing QA, as well as integration of safety management. The QAP adequately addresses program elements such as organizational structures, authorities, and reporting relationships necessary to implement the QA program. The Laboratory Director has primary responsibility for assuring implementation of the program as documented in the QAP. JSA senior management, including the Chief Scientist, Chief Operating Officer, and Associate Directors are responsible for implementing the QAP. The Laboratory Director is supported by the Associate Director, Environment, Safety, Health, and Quality (ESH&Q), to assure that ESH&Q is implemented across the Laboratory as required. The Quality Assurance/Continuous Improvement Manager reports to the ESH&Q Associate Director and is responsible for overseeing the implementation of the JSA QAP. Based on the documentation reviewed and interviews conducted with selected JSA personnel, the QAP roles and responsibilities of JSA personnel are adequately documented and understood.

JSA developed a Quality Improvement Plan (QIP) to address quality-related deficiencies identified in the DOE FY 2006 Performance Evaluation Report. The QIP, dated September 29, 2006, when fully implemented by JSA, would enhance the overall QA Program. JSA has provided a periodic status report to DOE as planned tasks are completed. The assessment team reviewed JSA's most recent submittal, dated January 9, 2009, and JSA has made good progress in completing the tasks identified in the QIP; however, one task identified in the QIP which needs management attention is the Document and Records area. More details on the concerns identified with documents and records are discussed in the Document and Records criterion.

The assessment team's review of the current QAP identified several document issues such as:

- 1) References were made to documents that do not exist or it is unclear what constitutes the document identified (i.e., the training plan).
- 2) QA document contained a reference to "training coordinator" position title which does not exist.

The QAP is currently scheduled to be revised and submitted for DOE approval.

### **Findings**

None identified.

### **Proficiencies**

None identified.

### **Interviews Conducted**

- Laboratory Director
- Associate Director, ESH&Q
- Deputy Associate Director, ESH&Q
- Quality Assurance and Continuous Improvement Manager
- Facilities and Logistics Manager
- Training and Performance Manager
- Deputy Division Safety Officer, Physics
- RadCon Lead
- RadCon Technician
- Document Control Specialist

### **Activity Observations**

- Accelerator Plan-of-the-Day Meeting

### **Records Reviewed**

- *Thomas Jefferson National Accelerator Facility Contractor Assurance System Program Description, Rev 0.1, 4/10/2008*
- *Facility Information Management System (FIMS) Supplemental Quality Assurance Plan, 5/24/2007*
- *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility, 8/2008*
- *Content Guide Policy, Rev 1, 5/7/2008*
- *Control of Nonconforming Material or Product Procedure, Rev 0, 5/7/2008*
- *Document Control Policy, Rev 0, 5/7/2008*
- *Graded Approach Procedure, Rev 0, 5/13/2008*
- *High Performance Work Team Procedure, Rev 0, 5/28/2008*
- *Issues Management Procedure, Rev 2, 2/4/2008*
- *Management of Contract Requirements, Rev 0, 6/23/2008*
- *Material Identification and Traceability Procedure, Rev 0, 8/22/2008*
- *Measurement and Test Equipment Control and Calibration Procedure, Rev 0, 5/7/2008*
- *Pressure Systems Quality Procedure, Rev 0, 5/7/2008*

- *Receiving Inspection and Acceptance Testing Procedure, Rev 0, 8/22/2008*
- *Records Management for Individuals-Procedure, Rev 0, 7/2/2008*
- *Records Management for Records Coordinators-Procedure, Rev 0, 7/2/2008*
- *Records Management Policy, Rev 0, 7/2/2008*
- *Required Reading Procedure, Rev 0, 12/6/2007*
- *Training and Qualification Policy, Rev 0, 6/23/2008*
- *Variance Policy, Rev 0, 9/5/2008*
- *Visual Examination Procedure for Examiners, Rev 0, 7/8/2008*
- *Visual Examiners Quality control Training and Certification Procedure for Weld, Braze, and Component Fit-Up Verification, Rev 0, 5/7/2008*
- *Thomas Jefferson National Accelerator Facility Quality Improvement Plan, 9/29/2006*
- *Quality Improvement Plan Schedule, Rev 9, 1/9/2009*
- *JSA Quality Assurance Plan, Rev 1.1, 5/2008*
- *Presentation, Bruce Lenzer, QA/CI Manager, JSA-JLab Quality Assurance (QA) Program , Presented 4/13/2009*
- *Environment, Safety, and Health (ES&H) Manual, 1300, Content Review Policy, printed 4/14/2009*
- *ES&H Manual, 3210, Hazard Identification and Characterization, 12/20/2009*
- *ES&H Manual, 6151, Pressure Systems, printed 4/14/2009*
- *ES&H Manual, 6122, Welding, Cutting, Brazing, and Grinding, printed 4/14/2009*
- *MSA-07-0010, Physics Division, Calibration, 6/15/2007*
- *Acquisition Policy Manual, Rev 3, 12/14/2006*
- *JLab Procurement Self-Assessment, 5/29/2008*
- *Thomas Jefferson National Accelerator Facility Integrated Safety Management System Program Description, Rev 11 , 3/2008*
- *Procurement Operations Manual, Rev 4, 5/7/2007*
- *ESH&Q Communications Benchmark Study, Final Report, 2/18/2009*

**Submitted by: Tyrone Harris, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

<b>Criterion/Requirement Area:</b>  <b>Criterion 2 - Personnel Training and Qualifications</b>	<b>Objective ID:</b> TRNG  <b>Date:</b> April 13, 2009
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**Objective – Personnel Training and Qualification:** The training and qualification program is defined and implemented to ensure that personnel are capable of performing their assigned work.

**Lines of Inquiry**

TRNG-001 Does JSA have trained and qualified personnel capable of performing assigned work?

TRNG-002 Does JSA provide continuing training to personnel to maintain job proficiency?

**Discussion of Results**

*This criterion was met.*

Based upon the interviews conducted and documents reviewed, it appears that JSA has established processes in place to assure personnel competence, awareness, and training for personnel performing various job duties. Although the training department consists of only one professional, this individual is capable of handling the large number of employee training records. This is due, in part, to a series of computer-based elements that efficiently handle numerous tasks. These programs allow the identification of each employee who is then assigned a “Skills Requirement List” (SRL). Each employee has a set of core training requirements, and there is also a set of job-related skills identified by supervisors based upon the individual’s specific job assignment. The system is intended to match an employee’s knowledge, skills, and abilities in a manner commensurate with their job responsibilities.

The assessor selected a number of individual employee training records and reviewed the records to determine if an SRL was assigned, if the employee had received the training required by the position held, and if the training was up to date. All of the records selected met these three requirements. Programs for continuing training is also provided to employees to maintain job skills and proficiencies.

The JSA Training Program is not compliant in some areas with the requirements of the TJNAF Quality Assurance Program. **(FIND-TRNG-P2-001)** Based upon documents reviewed and interviews conducted, the following concerns were identified with JSA’s personnel training and qualifications:

1. A training plan that is required by the QAP has not been prepared.
2. The Training Manager does not perform management self-assessments, as required, nor does the Training Manager’s Skills Requirement List contain QA requirements.
3. Receipt inspectors’ qualifications are not documented in the training database.
4. The current training policy does not address the requirement that each employee have an SRL.

**Findings**

**FIND-TRNG-P2-001**

The JSA Training Program is not compliant in some areas with the requirements of the TJNAF Quality Assurance Program.

**Proficiencies**

None identified.

**Interviews Conducted**

- Training and Performance Manager

**Activity Observations**

- None observed.

**Records Reviewed**

- Multiple Electronic Training Records

**Submitted by: Mike Smith, Team Member  
Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

<b>Criterion/Requirement Area:</b>  Criterion 3 – Quality Improvement	<b>Objective ID:</b> QUAL  <b>Date:</b> April 13, 2009
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**Objective – Quality Improvement:** Management establishes a culture for improving quality of products, processes, and services by establishing priorities, promulgating policy, promoting cultural aspects, allocating resources, communicating lessons learned, and resolving significant management issues and problems that can hinder the organization from achieving its quality objectives.

**Lines of Inquiry**

- QUAL-001 Does JSA establish and implement processes to detect and prevent quality problems?
- QUAL-002 Does JSA identify, control and correct items, services, and processes that do not meet established requirements?
- QUAL-003 Does JSA identify the causes of problems, and include prevention of recurrence as a part of corrective action planning?
- QUAL-004 Does JSA review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement?

**Discussion of Results**

*This criterion was met.*

The review of this criterion was limited to JSA’s corrective action process. The review consisted of examining approximately twenty-five JSA corrective actions generated by management self-assessments, independent assessments, peer reviews, and external assessments. Of the corrective actions reviewed, approximately 25 percent contained closure discrepancies.

For example, corrective action MOA-2007-38-01 was a corrective action identified by JSA for an external DOE assessment. The significance level of this corrective action was downgraded from a Level 2 to a Level 1 action, without DOE notification or concurrence. The Laboratory ultimately closed the original corrective action and another corrective action was opened, again without DOE notification. Since the findings were generated by the Site Office, and the Laboratory’s original corrective actions were transmitted to the Site Office under letter, these commitments are not subject to change without consent. (FIND-QUAL-P2-002)

In response to concerns of this nature, the DOE Thomas Jefferson Site Office recently transmitted expectations via letter to JSA, stating that corrective actions in response to DOE identified P1 or P2 findings are subject to DOE concurrence before closure of those actions in JLab’s Corrective Action Tracking System (CATS) is achieved.

Another discrepancy example was identified with Independent Assessment (IA)-2009-03. This assessment was completed and approved by Lab Management on March 11, 2009, and identified one finding; however, at the time of this review, no corrective action for the finding had yet been documented in JSA's Corrective Action Tracking System.

It was also determined in the review that verification of corrective action closures with significant Levels 0, 1, or 2 cannot necessarily be performed since documentation for closure of these specific items is not required and/or maintained by JLab for these levels.

### **Findings**

**FIND-QUAL-P2-002**                      Corrective actions for DOE external assessment findings are not being adequately tracked and closed.

### **Proficiencies**

None identified.

### **Interviews Conducted**

- ESH&Q Associate Director
- ESH&Q Deputy Associate Director
- Quality Assurance/Continuous Improvement Manager
- ES&H Reporting Manager
- Corrective Action Tracking System Administrator

### **Activity Observations**

- Accelerator Plan-of-the-Day Meeting

### **Records Reviewed** (list document number, title, issue date)

- *FY 2008 Integrated Assessment Schedule*, Revised Fourth Quarter, 10/29/2008
- *FY 2009 Integrated Assessment Schedule*, 3/12/2009
- CRAD/LOI Document HS 64-20 Management Self-Assessment (MSA) with Corrective Action Plan (CAP), Draft A, 3/6/2008
- MSA-2008-02, Accelerator Division, *Installation and Text Management Self-Assessment*, 5/9/2008
- MSA-2008-03, Engineering Division, *Installation and Test MSA*, 4/18/2008
- MSA-2008-05, Free Electron Laser (FEL) Division, *Installation and Test Management Self-Assessment*, 5/23/2008
- MSA-08-010, ESH&Q Division, *ISMS Implementation/Oversight Using HS 64-20 CRAD/LOI*, 4/4/2008
- MSA-08-11, ESH&Q Division, *Implementation of 29 CFR 1904 and DOE Order 231.1A*, 5/29/2008
- MSA-08-13, ESH&Q Division, *MSA: 2007 EMS Management Review Documentation*, 9/5/2008
- IA-2008-08, *Independent Assessment Report, OSHA Lockout/Tagout Annual Inspection Report*, 12/20/2007
- IA-2008-09, *Independent Assessment Plan, Integrated Safeguards and Security Management Assessment*, 6/11/2008

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- IA-2008-11, *ESH&Q Division, Pressure Safety Assessment*, 8/25/2008
  - IA-2009-02, *Auditor/Assessor Qualification Procedure Compliance*, 11/20/2008
  - IA-2009-03, *Training & Qualification Policy Implementation Effectiveness Review*, 1/30/2009
  - IA-09-005, *Independent Assessment of 10 CFR 835 Subparts C, H, I, & L*, 2/20/2009
  - Contractor Assurance System Corrective Action Plan Actions Printout, No date
  - *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility*, 8/2008
  - *Corrective Action Plan for Independent Oversight Inspection of Environment, Safety, and Health Programs at Thomas Jefferson National Accelerator Facility*, 10/2008
  - *Auditor/Assessor Qualification Procedure*, Rev 0, 1/24/2008
  - *Graded Approach Procedure*, Rev 0, 5/13/2008
  - *Independent Assessment Procedure*, Rev 0, 11/16/2007
  - *Integrated Assessment Schedule Procedure*, Rev 0, 1/16/2008
  - *Issues Management Procedure*, Rev 2, 2/4/2008
  - *Management Self-Assessment Procedure*, Rev 4, 2/1/2008
  - *Trend Analysis Procedure*, Rev 0, 6/23/2008
  - *Thomas Jefferson National Accelerator Facility Quality Improvement Plan*, 9/29/2006
  - *Quality Assurance Plan*, Rev 1.1, 5/2008
  - *Presentation, Bruce Lenzer, QA/CI Manager, JSA-JLab Quality Assurance (QA) Program*, Presented 4/13/2009
  - *Jefferson Lab Trend Analysis*, 8/11/2008
  - *Jefferson Lab Trend Analysis*, 1/12/2009
  - *Jefferson Lab Trend Analysis*, 11/14/2008
  - MSA-2007-0011, FM&L Division, *Calibration*, 6/29/2007
  - On-line Assessor/Auditor Qualification Training, Printed 4/14/2009
  - *Corrective Action Plan for RadCon Peer Review from November 2008*, 3/25/2009
  - *Peer Review of the JLab RadCon Program*, 11/2008

**Submitted by: Jack Weese, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

<b>Criterion/Requirement Area:</b>  Criterion 4 – Documents and Records	<b>Objective ID:</b> DOC  <b>Date:</b> April 13, 2009
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**Objective – Documents & Records:** The contractor’s documents and records management system is effective in supplying documents for personnel to safely and correctly perform their assigned responsibilities, and records that provide evidence that work was correctly performed.

**Lines of Inquiry**

- DOC-001 Does JSA prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design?
- DOC-002 Does JSA specify, prepare, review, approve, and maintain records?

**Discussion of Results**

*This criterion has been partially met.*

The assessment team reviewed a number of documents and records and conducted interviews with both management and staff as to the implementation of document and records requirements with JSA. During the in-brief, the Quality Assurance/Continuous Improvement Manager made a presentation to the team on the status of implementation of the QAP. It was acknowledged in the presentation that several QA criteria were not fully implemented, and document and records was identified as one of these areas.

As mentioned in the discussion of the Program criterion, the QAP referenced several documents that do not exist, such as the training plan, and a position title of “training coordinator” was identified that does not exist. The implementing documents for the Document and Records criterion include *Content Guide Policy, Document Control Policy, Records Management Policy, Records Management for Records Coordinators-Procedure, and Records Management for Individuals- Procedure*. Based on a review of these documents, the assessment team identified several concerns. First of all, it is unclear how a “policy” document is to be implemented. There is no definition on what constitutes “policy.” Furthermore, not all types of documents are described in the “policy” document, such as manuals. Paragraph 4.2.1.B of the QAP requires that a procedure be established to identify how documents shall be controlled. This procedure does not meet the above requirement. In addition to these issues, Section 5.0 of the *Content Guide Policy* states, in the list of minimum requirements for Jefferson Lab controlled documents, that the “Approval Authority” be identified. This is not being documented on the procedures.

Records are being maintained by organizations; however, the procedures do not identify what records are to be maintained in implementing a procedure. Section 4.2.2.E of the QAP states that “records supporting the QAP shall be **specified**, prepared, and reviewed to ensure the records are complete, accurate...”

Interviews were conducted with personnel in several JSA organizations as to implementing the Document and Records criterion. From the interviews and documents reviewed, it is evident that this criterion is not

fully implemented. Since an overall concern by the team is that the document and records criterion has not been fully implemented, a P2 finding has been identified. Based on document and records reviewed and interviews conducted, this assessment confirmed that JSA management needs to give attention to improving the implementation of documents and records. (**FIND-DOC-P2-003**)

### **Findings**

**FIND-DOC-P2-003** Documents and Records management is not compliant, in some areas, with the requirements of the TJNAF Quality Assurance Program for some JSA organizations.

### **Proficiencies**

None identified.

### **Interviews Conducted**

- Associate Director, ESH&Q
- Deputy Associate Director, ESH&Q
- Quality Assurance/Continuous Improvement (QA/CI) Manager
- Facilities and Logistics Manager
- Training and Performance Manager
- Deputy Division Safety Officer, Physics
- RadCon Lead
- RadCon Technician
- Document Control Specialist

### **Activity Observations**

None observed.

### **Records Reviewed**

- *Thomas Jefferson National Accelerator Facility Contractor Assurance System Program Description, Rev 0.1, 4/10/2008*
- *Facility Information Management System (FIMS) Supplemental Quality Assurance Plan, 5/24/2007*
- *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility, 8/2008*
- *Content Guide Policy, Rev 1, 5/7/2008*
- *Control of Nonconforming Material or Product Procedure, Rev 0, 5/7/2008*
- *Document Control Policy, Rev 0, 5/7/2008*
- *Graded Approach Procedure, Rev 0, 5/13/2008*
- *High Performance Work Team Procedure, Rev 0, 5/28/2008*
- *Issues Management Procedure, Rev 2, 2/4/2008*
- *Management of Contract Requirements, Rev 0, 6/23/2008*
- *Material Identification and Traceability Procedure, Rev 0, 8/22/2008*
- *Measurement and Test Equipment Control and Calibration Procedure, Rev 0, 5/7/2008*
- *Pressure Systems Quality Procedure, Rev 0, 5/7/2008*

- *Receiving Inspection and Acceptance Testing Procedure, Rev 0, 8/22/2008*
- *Records Management for Individuals-Procedure, Rev 0, 7/2/2008*
- *Records Management for Records Coordinators-Procedure, Rev 0, 7/2/2008*
- *Records Management Policy, Rev 0, 7/2/2008*
- *Required Reading Procedure, Rev 0, 12/6/2007*
- *Training and Qualification Policy, Rev 0, 6/23/2008*
- *Variance Policy, Rev 0, 9/5/2008*
- *Visual Examination Procedure for Examiners, Rev 0, 7/8/2008*
- *Visual Examiners Quality control Training and Certification Procedure for Weld, Braze, and Component Fit-Up Verification, Rev 0, 5/7/2008*
- *Thomas Jefferson National Accelerator Facility Quality Improvement Plan, 9/29/2006*
- *Quality Improvement Plan Schedule, Rev 9, 1/9/2009*
- *JSA Quality Assurance Plan, Rev 1.1, 5/2008*
- *Presentation, Bruce Lenzer, QA/CI Manager, JSA-JLab Quality Assurance (QA) Program , Presented 4/13/2009*
- *ES&H Manual, 1300, Content Review Policy, printed 4/14/2009*
- *ES&H Manual, 3210, Hazard Identification and Characterization, 12/20/2009*
- *ES&H Manual, 6151, Pressure Systems, printed 4/14/2009*
- *ES&H Manual, 6122, Welding, Cutting, Brazing, and Grinding, printed 4/14/2009*
- *MSA-07-0010, Physics Division, Calibration, 6/15/2007*
- *Acquisition Policy Manual, Rev 3, 12/14/2006*
- *JLab Procurement Self-Assessment, 5/29/2008*
- *Thomas Jefferson National Accelerator Facility Integrated Safety Management System Program Description, Rev 11 , 3/2008*
- *Procurement Operations Manual, Rev 4, 5/7/2007*
- *ESH&Q Communications Benchmark Study, Final Report, 2/18/2009*

**Submitted by: Tyrone Harris, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

<b>Criterion/Requirement Area:</b>  Criterion 5 – Work Processes	<b>Objective ID:</b> WP  <b>Date:</b> April 13, 2009
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**Objective – Work Processes:** Work processes are carried out by qualified personnel using approved procedures, instructions, and equipment under administrative, technical, and ES&H controls to achieve a planned end result.

**Lines of Inquiry**

- WP-001 Does JSA perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc.?
- WP-002 Does JSA identify and control items to ensure proper use?
- WP-003 Does JSA maintain items to prevent damage, loss, or deterioration?
- WP-004 Does JSA calibrate and maintain equipment used for process monitoring or data collection?

**Discussion of Results**

*This criterion was met.*

Evaluation of the Laboratory's work processes for this review was tailored to acknowledge the review efforts on that front conducted by DOE's Office of Health, Safety, and Security (HSS) in June of 2008. At the time of the HSS review, the Laboratory had work planning tools in place for all of the Laboratory divisions. The degree of staff familiarity in using those electronic work planning tools was found to vary between the different Laboratory work groups. The Laboratory has continued to use those electronic work planning tools, and software improvement initiatives are evident which facilitate work planning efficiency and utility.

Some line organizations have instructions in place that adequately described their approach to work planning and how the concept of graded approach is to be applied, while other work groups have documented evidence which supports the existence of tailored quality processes but they do so without written instruction. The Engineering Division has identified that they are in the process of developing an Operations Directive for the entire group, borrowing some elements from the instruction already in place for the Electrical Engineering Group. The creation of an Engineering Division Operations Directive is driven in part by an internal commitment identified in the Corrective Action Plan from the Independent Assessment conducted on the Pressure Safety Program (IA-2008-11). Upon review of the commitments in that corrective action plan, some of the issues identified as having been closed have parallels, if not outright recurrence, identified in this review. The reader is directed to see the discussions on this matter in the Quality Improvement section of this report.

Meetings were attended to gauge the level of information exchanged and coordination between work groups and individuals. Ample evidence exists that shows a sufficient level of management engagement in field conditions, with direct interaction with staff.

Conditions observed at Building 89 included the use of Red, Yellow, or Green status tags on electronic equipment. Essentially all electronic instrumentation seen on the shelf were labeled with these visual aids to help maintenance personnel readily distinguish between broken units, repaired units awaiting calibration, and units that have been repaired and verified field-ready. These color-coded tags frequently included handwritten notes to afford the maintenance staff specific information on the particular item. A magnetically locked, caged area is used to segregate viable spares from other items awaiting repair. The use of bar codes is being considered to help track equipment repair histories, which may also be of use in establishing a preventive maintenance program. All of these self-directed initiatives impart a quality enhancement on efficiency and reliability, supporting the Laboratory's mission, and have the potential to positively impact personnel safety.

### **Findings**

None identified.

### **Proficiencies**

None identified.

### **Interviews Conducted**

- Lab Director
- Associate Director for ESH&Q
- Deputy Associate Director for ESH&Q
- Associate Director Facilities Management
- Associate Director Physics
- Associate Director Engineering
- Accelerator Division Electrical Engineer

### **Activity Observations**

- Quarterly Director's Safety Council Meeting
- Accelerator Plan-of-the-Day Meeting

### **Records Reviewed**

- Blank Form, Design Review Checklist – Intermediate and 100% Design Submittals, 12/2004
- Design Review Checklist, Project: Hall D Complex, TJNAF, 1/2007
- Phase II Request for Proposal for the Design/Build of General Purpose Building, No date
- Electrical Engineering Operations Directives, 11/2004
- Workers with Access to the Chemistry Area of the Test Lab—Acid Transfer Building (Building 31), EP Room, Production Chemistry Room, and R&D Chemistry Room, No date
- Photographs of Building 89 Electronic Equipment Status Tags

**Submitted by: Steve Neilson, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

Criterion/Requirement Area:  Criterion 6 – Design	Objective ID: DES  Date: April 13, 2009
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**Objective - Design:** The contractor's design management process provides for the control of design functions and interfaces that enables producing quality design output products that effectively support facility maintenance and operation functions.

**Lines of Inquiry**

- DES-001 Does JSA design items and processes using sound engineering/scientific principles and appropriate standards?
- DES-002 Does JSA incorporate applicable requirements and design bases in design work and design changes?
- DES-003 Does JSA identify and control design interfaces?
- DES-004 Does JSA verify/validate the adequacy of design products using individuals or groups other than those who performed the work?
- DES-005 Does JSA verify/validate work before approval and implementation of the design?

**Discussion of Results**

*This criterion was partially met.*

There is evidence that the Laboratory uses a graded approach to design considerations, such that the rigor of review and design specifications are commensurate with the significance and complexity of the intended products; however, examples were found that draw into question the integrity of the records management associated with design drawings, test records, and project approval documents. The extent of this condition has not been determined, given the time limitations of this review.

Upon discussion with an Engineer in the Accelerator Division's Cryogenics Group, a recent design example was extracted from DocuShare, which is the recognized repository for all required pressure system related records. The individual interviewed is identified as the Design Authority for the design project reviewed. This individual's training records were reviewed and confirmed to include the following as required training: Qualified Design Authority, Weld Examiner Level A, and Weld Examiner Level B. The records reviewed for this design project were contained within a common folder; and the file names within each record of this folder included the same project identification number, PS-CRY-08-008. The design calculation documentation and independent Design Authority approval records were signed and in place for the three drawings supported under this project. The design records included specific reference to American Society of Mechanical Engineers B31.3, *Process Piping*. The associated drawing numbers for this design project included 71400-0051, 71400-0052, and 71400-0057. Each of these drawings was signed and included reference to technical standards for the materials and welds to be used. A signed "traveler" checklist was also included in the project folder, which included confirmation of the materials and processes used during fabrication of the items. There were signed and dated pressure (leak) test records for each of the three fabricated items; however, one of these pressure test records identified for Project PS-CRY-08-008 contained reference to a different drawing number not

identified elsewhere in this design package (drawing #75900-0016). The pressure test for this 3-1/8 inch bayonet test can was performed at 385 PSIG, versus the 110 PSIG identified in the PS-CRY-08-008 design package.

Field verification of the fabricated items confirmed that two of the three items in design package PS-CRY-08-008 were labeled with the maximum pressure as specified in the design drawings. The third item (3-1/8" bayonet pressure test sleeve) appeared to be labeled inconsistent with the design specifications; however, upon further review, it appears the 3-1/8" bayonet test can located in the field was fabricated under a different design project (PS-CRY-08-012) and drawing (75900-0116). Upon reviewing the DocuShare records associated with design project PS-CRY-08-012, only three of the four drawings in this package had a corresponding pressure test record (missing was the pressure test record for drawing 75900-0116). Differences were also found in how the information was collected in the pressure test records, as one project used handwritten entries on the form for each drawing, while another appears to have been transcribed into a single page form. In design package PS-CRY-08-008, the Design Authority concurrence form included engineering calculations and design criteria content in the signed form. In contrast, the engineering calculations for design package PS-CRY-08-012 were maintained as a stand-alone Excel file, with no signature or means of configuration control. At the conclusion of the discussions with Laboratory staff on the aforementioned records and articles identified in the field, it was uncertain if the 3-1/8" pressure test can identified in drawing number 71400-0051 was ever fabricated. This draws into question the rigor in which the travel records are being scrutinized and the rigor or accuracy of the signed form entitled Design Authority Project Completion Statement for PS-CRY-08-008. **(FIND-DES-P2-004)**

It should be noted that evidence was furnished that shows forms, such as the traveler form, have been revised by the Design Authorities, through their own initiative, to improve the consistency, utility, and quality of the pressure system records being generated.

The Laboratory's ES&H Manual Chapter 6151, and associated appendices, on pressure systems places much responsibility for code compliance and program implementation on the Design Authorities; however, the manual also affords much latitude to the Design Authorities in how they implement this instruction. It is within reason that the discretionary approach used in the current ES&H Manual content on Pressure Systems is at odds with the discipline and rigor necessary to sustain configuration control on these records which have personnel safety implications and the potential for significant programmatic operability. As an example, within the ES&H Manual Chapter 6151, under *Responsibilities*, both the Division Head and Design Authority are given specific recordkeeping responsibilities, including compliance with Chapter 6151 Appendix T-1. In contrast, Appendix T1 of Chapter 6151 is entitled "*Pressure System Project Implementation and Documentation Guidance*." The nature of the title of Appendix T1 imparts an advisory or discretionary nature and is contrary to the mandatory recordkeeping language in the main body of the chapter; consequently, a wide range of content (detail) and formats were found in the pressure system document being maintained in DocuShare, and the project folder organization within DocuShare appeared to be individualistic to the Design Authority and/or group making the entries.

In some instances, the line-level organization had instructions in place that adequately described their approach to design quality processes and how the concept of graded approach is to be applied. Examples of this included the Accelerator Division's Electrical Engineering Operation Directives, which is maintained on-line for convenient access. In other instances, groups or divisions do not have documented operating guidance on design, but nevertheless have applied these principles to the final product.

Multiple construction design records for both new construction and renovation projects were reviewed. All of these design related records included reference to industry recognized standards, building codes

and life safety codes. A software program is reportedly used to help generate procurement specification requirements on the types of structures and systems appropriate for the Laboratory. Software license renewal is reportedly made about every other year. Specification requirements were reviewed for a 30,000 gallon helium storage tank recently delivered to the Laboratory's Central Helium Liquefier Facility. The specification record included multiple concurrence reviews by independent engineering personnel and ESH&Q. The specification record also included a requirement that the vendor provide the buyer with Form U-1A, Manufacturer's Data Report for Pressure Vessels. This signed record was complete, transmitted as specified, and maintained on file. Other quality assurance related specifications and testing deliverables were found, including concrete sample yield analysis reports kept with the project file.

### **Findings**

**FIND-DES-P2-004** Pressure systems records management is not compliant with Environment, Safety, and Health Manual Chapter 6151 and does not satisfactorily ensure the control between design specifications, pressure testing, and final installation.

### **Proficiencies**

None identified.

### **Interviews Conducted**

- Quality Assurance Manager
- Procurement Office Lead
- Associate Director, Facilities Management
- Associate Director, Physics
- Associate Director, Engineering
- Cryogenics Group, Engineer
- Accelerator Division, Electrical Engineer

### **Activity Observations**

- None observed.

### **Records Reviewed**

- 71400-0051, CHL Distribution 3 1/8" Male Bay Pressure Test Can Assembly, 3/11/2008
- 71400-0057, CHL Distribution 1 1/2" Male Bay Pressure Test Can Assembly, 4/2/2008
- 71400-0052, CHL Distribution 2" Male Bay Pressure Test Can Assembly, 3/11/2008
- Training Record for Cryogenics Group Engineer, printed 4/14/2009
- Design Authorities List, 4/11/2008
- Specification for 30,000 Gallon Helium Gas Storage Tank for the CHL Operations at JLab, Specification Number: 70002-7002, 7/2007
- Blank Form, Design Parameter Form and Fabrication Traveler, No date
- Pressure (Leak) Test Worksheet for ENG-08-005-SOP, 8/29/2008
- Design Authority Project Completion Statement, Bayonet Pressure Test Sleeves PS-CRY-08-008, 9/12/2008
- Design Parameter Form/Fabrication Requirements, 2 and 3 inch Bayonet Test Sleeve, 5/1/2008

- Blank Form, Design Review Checklist – Intermediate and 100% Design Submittals, 12/2004
- Design Review Checklist, Project: Hall D Complex, TJNAF, 1/2007
- 75900-0116, Cryogenics 3 1/8 Male Bay Pressure Test Can Assembly, 7/8/2008
- Schnabel Engineering Concrete Test Report, 2/6/2009
- Phase II Request for Proposal for the Design/Build of General Purpose Building, No date
- Electrical Engineering Operations Directives, 11/2004
- DocuShare Website, PS-CRY-08-008 Bayonet Pressure Test Sleeves, printed 4/15/2009
- 80-K Bed U-Tube Modifications, PS-CRY-08-012, 4/15/2009
- Attachment 1 – Pressure (Leak) Test Worksheet for ENG-08-005-SOP, Project PS-CRY-08-012, 9/11/2008
- Form U-1A Manufacturer’s Data Report for Pressure Vessels, 5/23/2008

**Submitted by: Steve Neilson, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

Criterion/Requirement Area:  Criterion 7 – PROCUREMENT	Objective ID: PROC  Date: April 13, 2009
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**Objective - Procurement:** The procurement process ensures that items and/or services provided by suppliers meet the requirements and expectations of end users.

**Lines of Inquiry**

- PROC-001 Does JSA procure items and services that meet established requirements and perform as specified?
- PROC-002 Does JSA evaluate and select prospective suppliers on the basis of specified criteria?
- PROC-003 Does JSA establish and implement processes to ensure that approved suppliers continue to provide acceptable items and services?

**Discussion of Results**

*This criterion was met.*

The JSA procurement of items and services system has been established and is guided by the Procurement Operations Manual (POM) and the computer-based Maximo Requisition System. This document requires that all purchase requisitions received by Procurement be reviewed prior to assignment to a buyer or subcontracting officer. The POM requires that buyers/subcontracting officers only contract with responsible vendors and sets the conditions that a vendor must meet before a purchase order/subcontract is awarded. The POM also addresses simplified acquisitions and PCard purchase procedures, as well as more complex acquisitions. In addition, the POM provides the quality assurance requirements governing the inspection and acceptance of purchased goods and services. Lastly, the formation of selection committees and their responsibilities are set forth in the POM. JSA issues a customer survey following the completion of every procurement action. Vendor information (scores and comments) is captured and maintained electronically and are available online for the procurement group. Additionally, for every subcontract greater than \$100,000 the buyer/ Subcontracting Officer Technical Representative completes a close-out checklist form to document vendor performance. Prospective suppliers are evaluated by JSA as required; however, the supplier evaluation procedure is currently in draft. Based on the interviews conducted and documents reviewed, it appears that JSA's procurement process ensures that items and/or services provided by suppliers meet the requirements and expectations of the end users.

**Findings**

- None identified

**Proficiencies**

- None identified

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**Interviews Conducted**

- Procurement Manager
- Subcontract Manager
- Purchasing Manager/Small Business Manager

**Activity Observations**

- None

**Records Reviewed**

- Procurement Department Questionnaire, Purchase Order No. 09-P1023, Purchase Requisition No. 280405, 4/2/2009
- Procurement Department Questionnaire, Purchase Order No. 09-P0874, Purchase Requisition No. 279981, 4/6/2009
- Blank Form, Subcontracting Officer Technical Representative Responsibilities, PD 10, 4/2009
- Blank Form, Compliance Criteria Checklist-Subcontract Close-out, PD 7E, 1/2007
- Flowchart, Process for the Procurement of Goods and Services – Purchase Orders and Subcontracts, 5/2007
- *Subcontracting Plan, Type – Individual Plan, Rev 1, 10/17/2007*
- *Procurement Department FY 2008 Balanced Scorecard Report, 11/13/2008*
- *FY 2008 Procurement Balanced Scorecard Plan, 10/24/2007*
- JSA-08-R274048, *Instructions to Offerors & Evaluation Process*, Attachment 1, No date
- Statement of Work for the 12 GeV Upgrade Cavity Assemblies, 6/24/2008
- JSA-08-R273546, Requests for Proposals, Solicitation, Offer and Award, 7/31/2008
- 67125-SPEC-00100, *SHMS Q1 Superconducting Quadrupole Technical Specification*, 7/14/2008
- *Acquisition Policy Manual, Rev 3, 12/14/2006*
- Background-Prior FY Statistics, 8/4/2008
- Procurement Department Organization Chart, 4/2009
- JLab Procurement Self-Assessment, 5/29/2008
- PERT Team Assessment, Attachment A, No date
- Background-Prior FY Statistics, 8/4/2008
- Procurement Operations Manual, Rev 4, 5/7/2007

**Submitted by: Mike Smith, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

<b>Criterion/Requirement Area:</b>  Criterion 8 – Inspection and Acceptance Testing	<b>Objective ID:</b> INSP  <b>Date:</b> April 13, 2009
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**Objective – Inspection & Acceptance Testing:** The contractor's inspection and test program requirements are effective in verifying that physical and functional aspects of items, services, and processes meet requirements and are fit for acceptance and use.

**Lines of Inquiry**

INSP-001 Does JSA inspect and test specified items, services, and processes using established acceptance and performance criteria?

INSP-002 Does JSA calibrate and maintain equipment used for inspections and tests?

**Discussion of Results**

*This criterion was met.*

The Inspection and Acceptance Testing criterion is being implemented by JSA. The *Measurement and Test Equipment Control and Calibration Procedure* documents the process for maintaining equipment used for calibration and inspections. The JSA RadCon organization's personnel were interviewed concerning how calibrations are conducted and how equipment is tracked to ensure that requirements are met. From reviewing documents and walking through the RadCon areas, it is evident that the requirements for this criterion are being met. The calibration program is well documented and personnel in RadCon are adequately trained to implement the criterion.

**Findings**

None identified.

**Proficiencies**

None identified.

**Interviews Conducted**

- Associate Director, ESH&Q
- Deputy Associate Director, ESH&Q
- QA/CI Manager
- Facilities and Logistics Manager
- Deputy Division Safety Officer, Physics
- RadCon Lead
- RadCon Technician

### Activity Observations

- Walkthrough, RadCon Complex

### Records Reviewed

- *Thomas Jefferson National Accelerator Facility Contractor Assurance System Program Description*, Rev 0.1, 4/10/2008
- *Facility Information Management System (FIMS) Supplemental Quality Assurance Plan*, 5/24/2007
- *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility*, 8/2008
- *Content Guide Policy*, Rev 1, 5/7/2008
- *Control of Nonconforming Material or Product Procedure*, Rev 0, 5/7/2008
- *Document Control Policy*, Rev 0, 5/7/2008
- *Graded Approach Procedure*, Rev 0, 5/13/2008
- *High Performance Work Team Procedure*, Rev 0, 5/28/2008
- *Issues Management Procedure*, Rev 2, 2/4/2008
- *Management of Contract Requirements*, Rev 0, 6/23/2008
- *Material Identification and Traceability Procedure*, Rev 0, 8/22/2008
- *Measurement and Test Equipment Control and Calibration Procedure*, Rev 0, 5/7/2008
- *Pressure Systems Quality Procedure*, Rev 0, 5/7/2008
- *Receiving Inspection and Acceptance Testing Procedure*, Rev 0, 8/22/2008
- *Records Management for Individuals-Procedure*, Rev 0, 7/2/2008
- *Records Management for Records Coordinators-Procedure*, Rev 0, 7/2/2008
- *Records Management Policy*, Rev 0, 7/2/2008
- *Required Reading Procedure*, Rev 0, 12/6/2007
- *Training and Qualification Policy*, Rev 0, 6/23/2008
- *Variance Policy*, Rev 0, 9/5/2008
- *Visual Examination Procedure for Examiners*, Rev 0, 7/8/2008
- *Visual Examiners Quality control Training and Certification Procedure for Weld, Braze, and Component Fit-Up Verification*, Rev 0, 5/7/2008
- *Thomas Jefferson National Accelerator Facility Quality Improvement Plan*, 9/29/2006
- *Quality Improvement Plan Schedule*, Rev 9, 1/9/2009
- *JSA Quality Assurance Plan*, Rev 1.1, 5/2008
- *Presentation, Bruce Lenzer, QA/CI Manager, JSA-JLab Quality Assurance (QA) Program*, Presented 4/13/2009
- *ES&H Manual, 1300, Content Review Policy*, printed 4/14/2009
- *ES&H Manual, 3210, Hazard Identification and Characterization*, 12/20/2009
- *ES&H Manual, 6151, Pressure Systems*, printed 4/14/2009
- *ES&H Manual, 6122, Welding, Cutting, Brazing, and Grinding*, printed 4/14/2009
- *MSA-07-0010, Physics Division, Calibration*, 6/15/2007
- *Acquisition Policy Manual*, Rev 3, 12/14/2006
- *JLab Procurement Self-Assessment*, 5/29/2008

- *Thomas Jefferson National Accelerator Facility Integrated Safety Management System Program Description, Rev 11 , 3/2008*
- *Procurement Operations Manual, Rev 4, 5/7/2007*
- *ESH&Q Communications Benchmark Study, Final Report, 2/18/2009*

**Submitted by: Tyrone Harris, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

Criterion/Requirement Area:  Criterion 9 – Management Assessment	Objective ID: MGT  Date: April 13, 2009
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**Objective – Management Assessments:** Managers periodically assess their functions to determine how well their organization is meeting both customer and management performance expectations and mission objectives, to identify strengths or opportunities for improving performance, and to correct identified problems.

**Lines of Inquiry**

MGT-001 Does JSA ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives?

**Discussion of Results**

*This criterion was met.*

In accordance with the *Thomas Jefferson National Accelerator Facility Quality Assurance Plan*, managers are required to conduct management self-assessments. These assessments are to be conducted in accordance with the *Management Self-Assessment Procedure*, dated February 1, 2008. The assessor noted that this procedure expired on February 1, 2009.

The assessor interviewed several managers in different organizations to determine if self-assessments had been conducted within the organization and whether management self-assessments training had been completed. Several training records and management self-assessments were reviewed. Approximately 50 percent of the managers interviewed had conducted management self-assessments and had received the management self-assessments training.

A finding (Finding D#2) was identified in the 2008 *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility*, relative to the TJNAF Assessment Program. The Office of Independent Oversight (OIO) determined that TJNAF management self-assessments lack sufficient scope and rigor and do not appropriately support conclusions or identify issues accurately or as required by the governing site procedures. They also noted that the topical scope and the number of TJNAF self-assessments were limited. Based on the documents reviewed and interviews conducted, the reviewer is in agreement with the conclusions reached during the OIO review. JSA has developed a corrective action plan and is working toward correcting deficiencies related to independent and management self-assessments; therefore, no additional findings are being identified for this particular area of the review.

**Findings**

No findings identified.

### Proficiencies

No proficiencies identified.

### Interviews Conducted

- Laboratory Director
- Associate Director, ESH&Q
- Deputy Associate Director, ESH&Q
- Quality Assurance/Continuous Improvement Manager
- 12 GeV Project Design Manager
- Associate Director Experimental Nuclear Physics
- Deputy Experimental Nuclear Physics and Division Safety Officer
- ES&H Reporting Manager
- Corrective Action Tracking System Administrator
- Associate Director Engineering

### Activity Observations

- Accelerator Plan-of-the-Day Meeting

### Records Reviewed

- *FY 2008 Integrated Assessment Schedule*, Revised Fourth Quarter, 10/29/2008
- *FY 2009 Integrated Assessment Schedule*, 3/12/2009
- CRAD/LOI Document HS 64-20 Management Self-Assessment (MSA) with Corrective Action Plan (CAP), Draft A, 3/6/2008
- MSA-2008-02, Accelerator Division, *Installation and Text Management Self-Assessment*, 5/9/2008
- MSA-2008-03, Engineering Division, *Installation and Test MSA*, 4/18/2008
- MSA-2008-05, FEL Division, *Installation and Test Management Self-Assessment*, 5/23/2008
- MSA-08-010, ESH&Q Division, *ISMS Implementation/Oversight Using HS 64-20 CRAD/LOI*, 4/4/2008
- MSA-08-11, ESH&Q Division, *Implementation of 29 CFR 1904 and DOE Order 231.1A*, 5/29/2008
- MSA-08-13, ESH&Q Division, *MSA: 2007 EMS Management Review Documentation*, 9/5/2008
- IA-2008-08, *Independent Assessment Report, OSHA Lockout/Tagout Annual Inspection Report*, 12/20/2007
- IA-2008-09, *Independent Assessment Plan, Integrated Safeguards and Security Management Assessment*, 6/11/2008
- IA-2008-11, *ESH&Q Division, Pressure Safety Assessment*, 8/25/2008
- IA-2009-02, *Auditor/Assessor Qualification Procedure Compliance*, 11/20/2008
- IA-2009-03, *Training & Qualification Policy Implementation Effectiveness Review*, 1/30/2009
- IA-09-005, *Independent Assessment of 10 CFR 835 Subparts C, H, I, & L*, 2/20/2009 Contractor Assurance System Corrective Action Plan Actions Printout, No date
- *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility*, 8/2008
- *Corrective Action Plan for Independent Oversight Inspection of Environment, Safety, and Health Programs at Thomas Jefferson National Accelerator Facility*, 10/2008

- *Auditor/Assessor Qualification Procedure, Rev 0, 1/24/2008*
- *Graded Approach Procedure, Rev 0, 5/13/2008*
- *Independent Assessment Procedure, Rev 0, 11/16/2007*
- *Integrated Assessment Schedule Procedure, Rev 0, 1/16/2008*
- *Issues Management Procedure, Rev 2, 2/4/2008*
- *Management Self-Assessment Procedure, Rev 4, 2/1/2008*
- *Trend Analysis Procedure, Rev 0, 6/23/2008*
- *Thomas Jefferson National Accelerator Facility Quality Improvement Plan, 9/29/2006*
- *Quality Assurance Plan, Rev 1.1, 5/2008*
- *Presentation, Bruce Lenzer, QA/CI Manager, JSA-JLab Quality Assurance (QA) Program , Presented 4/13/2009*
- *Jefferson Lab Trend Analysis, 8/11/2008*
- *Jefferson Lab Trend Analysis, 1/12/2009*
- *Jefferson Lab Trend Analysis, 11/14/2008*
- *MSA-2007-0011, FM&L Division, Calibration, 6/29/2007*
- *On-line Assessor/Auditor Qualification Training, Printed 4/14/2009*
- *Corrective Action Plan for RadCon Peer Review from November 2008, 3/25/2009*
- *Peer Review of the JLab RadCon Program, 11/2008*

**Submitted by: Jack Weese, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

Criterion/Requirement Area:  Criterion 10 –Independent Assessment	Objective ID: IA  Date: April 13, 2009
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**Objective – Independent Assessment:** Contractor senior management has established a process to obtain an independent assessment of the organization's programs, projects, contractors, and suppliers.

**Lines of Inquiry**

- IA-001 Does JSA plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement?
- IA-002 Does JSA establish sufficient authority and freedom from line management for independent assessment teams?
- IA-003 Does JSA ensure that persons conducting independent assessments are technically qualified and knowledgeable in the areas to be assessed?

**Discussion of Results**

*This criterion was met.*

The JSA/DOE Contract, which includes DOE Order 414.1C, *Quality Assurance*, and DOE Order 226.1A, *Implementation of DOE Oversight Policy*, requires that the contractor have an effective assessment program. Independent assessments should be conducted in accordance with the *Independent Assessment Procedure*, dated November 16, 2007. Jefferson Lab's *ISMS Program Description and Quality Assurance Plan* also require an effective assessment program.

The assessor interviewed several managers in different organizations to determine if independent assessments had been conducted for its organization and whether independent assessment training had been completed. Several training records and independent assessments were reviewed. According to training records reviewed, thirty-two individuals have been trained on performing independent assessments. It should be noted that corrective actions from independent assessments reviewed were not consistently documented (e.g., lack of timely CATS entry for the finding associated with IA 2009-03; IA 2008-09 identified one finding, and that finding was closed and not entered into CATS).

JSA has developed a corrective action plan for the OIO Review and is working toward correcting deficiencies related to its assessment program. While no additional findings have been identified for the independent assessment criterion of this review, the contractor needs to continue work on improving the TJNAF Assessment Program and on implementing the corrective actions from the 2008 *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility*, relative to the TJNAF Assessment Program.

### Findings

No findings identified.

### Proficiencies

No proficiencies identified.

### Interviews Conducted

- Laboratory Director
- ESH&Q Associate Director
- ESH&Q Deputy Associate Director
- Quality Assurance/Continuous Improvement Manager
- 12 GeV Project Design Manager
- Associate Director Experimental Nuclear Physics
- Deputy Experimental Nuclear Physics and Division Safety Officer
- ES&H Reporting Manager
- Corrective Action Tracking System Administrator
- Associate Director Engineering

### Activity Observations

- None observed.

### Records Reviewed

- *FY 2008 Integrated Assessment Schedule*, Revised Fourth Quarter, 10/29/2008
- *FY 2009 Integrated Assessment Schedule*, 3/12/2009
- CRAD/LOI Document HS 64-20 Management Self-Assessment (MSA) with Corrective Action Plan (CAP), Draft A, 3/6/2008
- MSA-2008-02, Accelerator Division, *Installation and Text Management Self-Assessment*, 5/9/2008
- MSA-2008-03, Engineering Division, *Installation and Test MSA*, 4/18/2008
- MSA-2008-05, FEL Division, *Installation and Test Management Self-Assessment*, 5/23/2008
- MSA-08-010, ESH&Q Division, *ISMS Implementation/Oversight Using HS 64-20 CRAD/LOI*, 4/4/2008
- MSA-08-11, ESH&Q Division, *Implementation of 29 CFR 1904 and DOE Order 231.1A*, 5/29/2008
- MSA-08-13, ESH&Q Division, *MSA: 2007 EMS Management Review Documentation*, 9/5/2008
- IA-2008-08, *Independent Assessment Report, OSHA Lockout/Tagout Annual Inspection Report*, 12/20/2007
- IA-2008-09, *Independent Assessment Plan, Integrated Safeguards and Security Management Assessment*, 6/11/2008
- IA-2008-11, *ESH&Q Division, Pressure Safety Assessment*, 8/25/2008
- IA-2009-02, *Auditor/Assessor Qualification Procedure Compliance*, 11/20/2008
- IA-2009-03, *Training & Qualification Policy Implementation Effectiveness Review*, 1/30/2009
- IA-09-005, *Independent Assessment of 10 CFR 835 Subparts C, H, I, & L*, 2/20/2009 Contractor Assurance System Corrective Action Plan Actions Printout, No date

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- *Independent Oversight Inspection of Environment, Safety, and Health Programs at the Thomas Jefferson National Accelerator Facility, 8/2008*
  - *Corrective Action Plan for Independent Oversight Inspection of Environment, Safety, and Health Programs at Thomas Jefferson National Accelerator Facility, 10/2008*
  - *Auditor/Assessor Qualification Procedure, Rev 0, 1/24/2008*
  - *Graded Approach Procedure, Rev 0, 5/13/2008*
  - *Independent Assessment Procedure, Rev 0, 11/16/2007*
  - *Integrated Assessment Schedule Procedure, Rev 0, 1/16/2008*
  - *Issues Management Procedure, Rev 2, 2/4/2008*
  - *Management Self-Assessment Procedure, Rev 4, 2/1/2008*
  - *Trend Analysis Procedure, Rev 0, 6/23/2008*
  - *Thomas Jefferson National Accelerator Facility Quality Improvement Plan, 9/29/2006*
  - *Quality Assurance Plan, Rev 1.1, 5/2008*
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  - *MSA-2007-0011, FM&L Division, Calibration, 6/29/2007*
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  - *Corrective Action Plan for RadCon Peer Review from November 2008, 3/25/2009*
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**Submitted by: Jack Weese, Team Member**

**Approved by: Steve Neilson, Team Leader**

QUALITY ASSURANCE PROGRAM  
REVIEW FORM  
April 13-16, 2009

<b>Criterion/Requirement Area:</b>  Requirement 1 – Suspect/Counterfeit Item Prevention Process	<b>Objective ID:</b> S/CI  <b>Date:</b> April 13, 2009
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**Objective – Suspect/Counterfeit Items Prevention:** The Laboratory should have a formal system under Quality Assurance with adequate controls defined and implemented to identify and preclude Suspect/Counterfeit Items (S/CI) from being introduced into safety systems and applications that create potential hazards.

**Lines of Inquiry**

- S/CI-001 Is the S/CI prevention process developed and implemented as a part of the contractor's Quality Assurance Plan (QAP) and is it commensurate with the facility/activity hazards and mission impact?
- S/CI-002 Does the QAP apply to identifying, analyzing, and removing S/CIs and preventing them from being supplied to DOE and its contractors?
- S/CI-003 Are work processes developed and implemented using available S/CI information?

**Discussion of Results**

*This requirement was met.*

Based on interviews conducted and documents reviewed, the S/CI prevention process at TJNAF appears to be well established and implemented with a series of procedures detailing the program description; identification; documentation and notification; and segregation and disposal. The elements of the program are included in the QAP and are consistent with the accepted quality assurance requirements of DOE Order 414.1C. Because of its size and unique mission, JSA has minimal opportunities for issues involving S/CI. JSA estimates that occurrences of S/CI-related issues average approximately five per year.

S/CI information is received both passively and actively, and a quality engineer in ESH&Q is tasked with the responsibility of gathering and distributing information to the potentially affected parties. Multiple sources are consulted via electronic means to determine if items received by JSA are questionable.

One incident that occurred in 2008 involved a counterfeit hoisting device. This item was promptly identified, analyzed, and removed from service. The offending device was tagged and is being used as part of ongoing hands-on training for JSA staff. JSA also filed an occurrence report on the incident, as required by DOE Order 231.1A, *Environment, Safety, and Health Reporting*.

JSA procedures and its implementation appear to be effective in identifying problems or potential problems as they occur. S/CI work processes are developed and implemented with input from staff members who are aware of S/CI available information. The quality engineer is well trained and motivated, and the information is distributed promptly to a wide distribution of JSA staff.

**Findings**

None identified.

**Proficiencies**

None identified.

**Interviews Conducted**

- Quality Engineer

**Activity Observations**

- None observed.

**Records Reviewed**

- *Suspect/Counterfeit Items (S/CI) Documentation and Notification Procedure, Rev 0, 5/7/2008*
- *Suspect/Counterfeit Items (S/CI) Identification Procedure, Rev 0, 5/7/2008*
- *Suspect/Counterfeit Items (S/CI) Program Description, Rev 0, 5/7/2008*
- *Suspect/Counterfeit Items (S/CI) Segregation and Disposal Procedure, Rev 0, 5/7/2008*
- *Occurrence Report SC-TJSO-JSA-TJNAF-2008-0001, Potential Suspect/Counterfeit (S/CI) Lifting Shackles Identified at Machine Shop, 3/31/2008*
- *Jefferson Lab Suspect Counterfeit Item Processing Webpage, <https://mis.jlab.org/mis/apps/sci/index.cfm>, printed 4/14/2009*

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