Department of Energy
Thomas Jefferson Site Office
12000 Jefferson Avenue, Suite 14
Newport News, Virginia 23606

December 19, 2008

Ms. Mary Logue
Associate Director for EHS&Q
Jefferson Science Associates, LLC
12000 Jefferson Avenue
Newport News, VA 23606

Dear Ms. Logue:

FALL PROTECTION SURVEILLANCE AT THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY

The attached Surveillance report covers the Site Office's review of the Laboratory's Fall Protection program, conducted October 21-22, 2008. We are committed to improving the quality of these reviews, and we encourage the Lab to provide feedback on ways to improve the efficiency and utility of these assessments.

For all P-2 Findings identified in the report, the Laboratory is expected to submit to the Site Office a corrective action plan by January 30, 2009. Corrective action plans are to minimally identify each P-2 Finding, a brief description of the actions taken or planned, and reference to the Laboratory's Corrective Action Tracking Systems (CATS) entry number. Please notify the Site Office upon closure of each P-2 Finding, or if deviation from the original corrective action commitments are anticipated (i.e., significant change in scope or time to closure, etc.).

Within the corrective action plan, please include the disposition or proposed course of action for each P-3 Finding (Observation) identified in the report. It is expected that the Laboratory enter P-3 Findings into an issues management system in a timely manner to satisfy tracking and trending requirements.

If there are questions pertaining to this Surveillance, please contact Steve Neilson of my staff at extension 7215.

Sincerely,

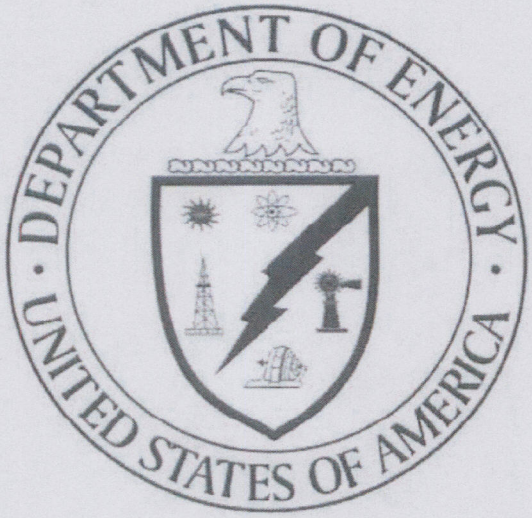
James A. Turi, Manager
Thomas Jefferson Site Office

Enclosure

cc w/encl:
H. Montgomery
M. Dallas
B. Lenzer

SJN:Fall Protection Surveillance Rpt Ltr:12/19/08:628

U.S. Department of Energy
Thomas Jefferson Site Office



Final Report
Fall Protection Surveillance
at the
Thomas Jefferson National Accelerator Facility

December 2008

Steve Neilson
TJSO Safety and Health Specialist

December 17, 2008
Date

James Craven
Oak Ridge Office, SE-32

December 17, 2008
Date

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ACRONYMS AND DEFINITIONS

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
ES&H	Environment, Safety, and Health
ESH&Q	Environment, Safety, Health and Quality (Division)
FIND	Finding
HVAC	heating, ventilation, and air conditioning
ORO	Oak Ridge Office
OSHA	Occupational Safety and Health Administration
P	Priority
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 (PRO)	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.
TJNAF, Laboratory, or JLab	Thomas Jefferson National Accelerator Facility
TJSO	Thomas Jefferson Site Office

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Fall Protection Surveillance
at the
Thomas Jefferson National Accelerator Facility

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) Thomas Jefferson Site Office (TJSO) and a staff member from the Oak Ridge Office (ORO) conducted a fall protection surveillance at the Thomas Jefferson National Accelerator Facility (TJNAF also referred to as Laboratory or JLab) on October 21-22, 2008. Team members conducting the review were Steve Neilson, TJSO Site Office, and James Craven, ORO.

This surveillance was conducted to evaluate the contractor's safety program performance within the area of fall prevention and protection at TJNAF. Eighteen findings (FIND) (eight Priority [P] 2 findings and ten P3 findings) and two proficiencies (PRO) were identified during this surveillance. The findings and proficiencies are listed in Section 3.0 of this report. A list of personnel interviewed during this surveillance is included in Appendix A; and a list of documents reviewed is provided in Appendix B.

The overall state of the Laboratory's Fall Protection Program is considered to be effective. The Laboratory's local instructions on fall protection activities are likewise considered to reflect the requirements of the contract. With the exceptions noted in this report, activities were found to be largely compliant with the contract requirements.

Program areas that warrant the Laboratory's attention include:

- Guarding of elevated work surfaces with adequate guardrails or gates, in particular the appropriate use of chains for protection of guardrail openings must be evaluated.
- Formally evaluating and documenting modifications of mobile ladder stands and other portable ladders to ensure that the modified ladders conform to the manufacturer's specification strength.
- Implementing a formal fixed ladder inspection program based on frequency of use, potential risk, and exposure.
- Implementing a procurement and approval process that ensures all purchased scaffolding meets the design and construction criteria established by a recognized standard.
- Implementing a process to ensure all fall-arrest anchor points meet minimum Occupational Safety, and Health Administration (OSHA) requirements for a fall-arrest system.

2.0 SUMMARY OF RESULTS

2.1 Walking and Working Surfaces

A sample of TJNAF facilities were inspected during this surveillance. Overall walking and working surfaces were free of slip and trip hazards; stairway, ladder-way, and floor openings were properly guarded; standard railings meeting minimum requirements were installed on open-sided platforms; and proper stair railings were installed. In shop and warehouse areas, walkways were identified and kept clear for egress. In Experimental Halls B and C, general floor areas were free of slip and trip hazards, even though a significant amount of work was in progress to prepare the halls for operation.

JLab has recently implemented a more formal program to perform a trend analysis of all notable events and first-aid cases, work observations, and facilities' safety-related work requests. As a result of such trend analyses, the Laboratory identified that one of the most common work requests (as well as incidents/injury cases) involved slip/trip/fall incidents, specifically slips and falls, at the same elevation. Corrective actions being implemented to address this vulnerability have included a site-wide evaluation of all facility entries and exits and identification of building access points where non-skid materials should be applied. **(PRO-001)**

Installation of chains for protection of openings in standard guardrail systems, including ladderways, needs to be evaluated. OSHA 29 Code of Federal Regulation (CFR) 1910.23(a)(2) requires that ladderway openings be protected by a swinging gate or be offset to prevent a person from walking into the opening. An OSHA interpretation does allow the use of chains for top and intermediate rails of a ladderway opening, provided they afford employees protection "at least as effective as" the swinging gate. The chain used for the protection of a ladderway on the mezzanine level of the Test Lab (Figure 1) does not meet these requirements. The installed chain is lightweight material and is installed with significant slack which would not provide support to an individual falling against the chain, and there is no intermediate level protection. **(FIND P2-001)** In addition, the upper grab installed in the floor as part of the original fixed ladder presents a significant trip hazard to personnel accessing the ladder from the mezzanine level.

Chain was also used as part of a guardrail system to allow access to piping (Figure 2) on the 2nd level walkway of the Test Lab. This chain does not meet the requirements for standard guardrails or of alternative acceptable arrangements as defined by 29 CFR 1910.23(e). The chain was draped loosely across the opening, and the hook attaching the chain to the guardrail did not have a closing mechanism. Besides not providing stable support, it is likely that this chain would release if an individual fell against it. **(FIND P2-002)**

Figure 1. Test Lab (Building 58) Ladderway Opening

Figure 2. Test Lab Guardrail Opening

2.2 Fixed Industrial Stairs

All fixed industrial stairs observed during walkthrough of site facilities met 29 CFR 1910.24. There were numerous cases identified where mobile ladder stands were used to access storage or work locations throughout the facility; however, with one exception, these ladder stands were being used in locations where access was not routine, or in locations such as the experimental halls where they had to be removed during operations rather than as a substitute for fixed industrial stairs. (See Section 2.3 for additional discussion of mobile ladder stands.)

Near the Test Cave area of the Test Lab, a mobile ladder stand was permanently installed in lieu of a fixed industrial stair (Figures 3 and 4). This installation required modification of the ladder stand handrail, as well as resulting in a configuration that prevented the ladder stand from functioning as designed. The ladder mechanism is designed to lower the front legs for stability, and the lowering mechanism also levels the bottom step. As installed, the leveling mechanism could not be actuated, resulting in the bottom step being sloped from front to back resulting in a trip hazard for anyone using the ladder. Use of a mobile ladder stand as a fixed industrial stair does not meet the requirements of 29 CFR 1910.24 for fixed industrial stairs. **(FIND P2-003)**

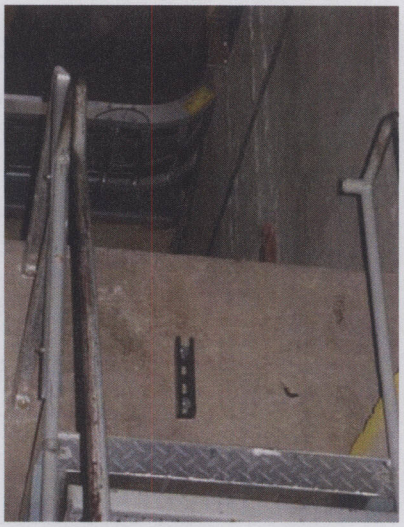

Figure 3. Test Lab - Top Landing of Mobile Ladder Stand

Figure 4. Test Lab - Base of Mobile Ladder Stand

2.3 Portable Ladders

The portable ladders inspected during facility walkdowns were being maintained in good condition, proper labeling was present and legible, and an adequate selection of various ladder types was available for use. Ladders determined to be defective, as evidenced in Experimental Hall B (Figure 5) were properly segregated and tagged with an administrative lockout/tagout tag.

Figure 5. Hall B - Administrative Control on Defective Ladders

Figure 6. Test Lab – Modified Step Ladder

One stepladder was identified in the Test Laboratory that had been modified by the addition of a spreader bar (Figure 6). Ladders should not be modified without approval of the manufacturer or without a documented evaluation by a professional engineer to determine that the structure of the ladder has not been compromised. (Reference: Environment, Safety & Health (ES&H) Manual Section 6132, paragraph 3.1) **(FIND P2-004)**

Numerous mobile ladder stands were observed in several facilities that had been modified by removal of sections of handrail (Figures 7 and 8). A mobile ladder stand was also observed in experimental Hall C where the handrail had been repaired by the addition of a metal sleeve over the existing handrail section (Figure 9). Mobile ladder stands should not be modified without specific written authorization from the manufacturer or a written evaluation by a professional engineer, as modification of ladder stands may result in equipment that may no longer conform to standard specifications of strength to safely support the design working load. (29 CFR 1910.29(a)(2)(iii)) **(FIND P2-004)**

Figure 7. Hall C - Hand Rail Removed from Mobile Ladder Stand

Figure 8. Hall C - Top Rail Removed from Mobile Ladder Stand

Figure 9. Hall C - Hand Rail Mount Modified on Mobile Ladder Stand

A mobile ladder stand that had significant rust and deformation of the support caster was also available for use (i.e., not tagged out of service) in the outside storage yard south of the Experimental Equipment Lab (Building 90) machine shop (Figures 10 and 11). This concern was immediately brought to the attention of a machine shop representative. This ladder should be removed from service as required by ES&H Manual Section 6132, paragraph 3.1,

"Withdraw ladders from service that have developed defects. Destroy any defective ladder or tag it "Dangerous, Do Not Use," and send it to Facilities Management for repair..." **(FIND P2-005)**

Figure 10. EEL Machine Shop - Damaged Mobile Ladder Stand

Figure 11. EEL Machine Shop - Damaged Mobile Ladder Stand

2.4 Fixed Ladders

In 2006, a TJNAF employee fell from a fixed ladder and suffered a significant injury. Following this incident, all fixed ladders on site were evaluated to determine condition, as well as frequency and type of use. JLab instituted a corrective action program that included the replacement of several vertical fixed ladders requiring frequent or routine access with inclined ladders that provide safer access for employees. Installation of improved ladder systems was evidenced at several locations. **(PRO-002)**

While the evaluation of fixed ladders following the 2006 accident and the continuing action to replace those requiring frequent access was positive, no definitive program has been established to implement a continuing program to ensure all fixed ladders are inspected regularly, with the intervals between inspections determined by use and exposure as required by 29 CFR 1910.27(f). **(FIND P2-006)**

To determine if personnel are carrying equipment and tools in their hands while ascending and descending ladders, a mechanical subcontractor was specifically asked about the methods used to convey tools and equipment to and from elevated work locations. The worker indicated that he and his crew will carry smaller tools and items in their tool-belt pouches and in their pockets, so their hands are free to grab the ladder rungs while climbing.

When asked about situations when the equipment is too large to be carried in this manner, the subcontractor responded that they will typically use a rope tied to a bucket and raise and lower the materials in the bucket at the roof's edge manually. Further inquiry indicated that these tasks can be performed without the benefit of edge guarding/fall protection. While these practices were not witnessed directly, the subcontractor identified himself as having worked at the Laboratory for a number of years; consequently, it is believed that this information may be indicative of a recurrent vulnerability in the Laboratory's Fall Protection Program.

The Laboratory should evaluate work practices associated with raising and lowering tools and equipment from elevated locations to ensure adequate fall protection exists. **(FIND P3-001)**

2.5 Scaffolding

From field observations, there were at least four different types of scaffolding either in use, or available for use, on site. Several Laboratory and subcontractor personnel that were identified as scaffold users were interviewed to obtain information on the scaffolds they have used on site and their general scaffold system familiarity. In every case, the workers were able to convey comprehension on safe scaffold use and an understanding of the hazards associated with scaffolding erection and disassembly; furthermore, all of the scaffold users interviewed reported that they had received training on the scaffolds they had used. However, upon inquiry with these users, the training they had received on any given scaffold system was highly variable. In some instances, the training received was dependent upon the equipment supplier's training content, as opposed to being dictated by a Laboratory approved curriculum. Discussion with the Lab's Training Coordinator indicated that the Lab's written instruction on training encourages the use of lesson plans but does not make this a requirement for training to be recognized as "official training." **(FIND P3-002)**

The Lab's Training Coordinator also indicated it is the responsibility of the supervisor that initiated or sponsored a training class to provide the Training Coordinator with the roster of trained staff, the date the training occurred, and a description of the training course subject. If the information received by the Training Coordinator is limited to "scaffold training," that is the way it is entered into the central training records system. Upon request, the Lab's Training Coordinator provided a roster of all qualified scaffold users. The printout provided from the central electronic training records system failed to identify some scaffold training completed in June 2008. The explanation provided was that these records had either not yet been entered into the system or the electronic records failed to migrate as expected from one database into the central training records system. **(FIND P3-003)**

The lack of information provided by supervisors on the specific type of scaffold training received has created a condition such that any scaffold training is indistinguishable from another; consequently, any staff member that has training on more than one scaffold system will have had historical scaffold training dates overwritten and no means to identify how many types of scaffold systems a given worker has been trained on. The training records system does not allow an employee or their supervisor to distinguish between the different types of scaffolding that they may have been trained on. **(FIND P3-004)**

Within the Cryogenics group, there were two styles of scaffolding identified in their possession. The Werner aluminum scaffolding system was found to be installed outdoors at the Central Helium Liquefier during this assessment. A signed inspection checklist was attached to the unit near the base and included a previously signed and dated inspection from a Laboratory recognized competent person. Per feedback with Laboratory staff, anyone who has received scaffold specific training satisfies the "competent person" criterion and is able to approve scaffold assembly and pre-shift inspection checklists. The assembled Werner scaffold unit appeared to have all of the appropriate railings, working surfaces, lateral struts, and matching outrigger assembly.

Figure 12. Cryo-Werner Section Aluminum Scaffold

Figure 13. Cryo-Perry Mobile Interior Scaffold (Storage)

The type of training received by the Cryogenics group for the Perry mobile scaffolding was characterized as generic scaffold training, while the training received for the Werner aluminum scaffold was characterized as system specific, including practical (hands-on) demonstration of assembly and disassembly. The Perry scaffolding was being stored in a transportation (Sea-Land) unit and protected against direct exposure to the element; however, some of the caster assemblies had evidence of surface oxidation, likely attributable to prolonged exposure to humidified air.

From interviews conducted in the field, it was identified that other groups have had occasion to borrow scaffolding from the Cryogenics group. The system-specific training received by these other groups was not the same as the training initially received by the Cryogenics group and was administered by a member of the Lab's Environment, Safety, Health and Quality (ESH&Q) Division. The ESH&Q staff member is recognized by the Laboratory as an OSHA competent person through prior work experience, but has no scaffold training records within the Laboratory's central training records system. The rigor of scaffold training administered to scaffold users has been highly variable, potentially impacting a student's ability to use these systems safely. **(FIND P3-005)**

In the summer of 2008, Facilities Management acquired a portable scaffold system to support the replacement of burned-out ceiling lamps in the Lab's auditorium. The scaffold was acquired from an internet business, Badger Ladder and Scaffold, through a credit card purchase. An excerpt from the vendor's website makes the following statement: "BADGER QUALITY ASSURANCE: All our products meet and/or exceed the OSHA & ANSI requirements for steel scaffold." Upon review of the Badger scaffolding sections currently in storage, none of the system components were labeled in a manner that allows identification of the manufacturer, part number, or reference to a design or construction specification. The scaffold training received by the Lab's electrical subcontractor was presented by ESH&Q staff, as neither the supplier nor the manufacturer directly offer training programs on their product. The literature eventually obtained from the vendor was received, and it failed to identify the outrigger attachments that were acquired in conjunction with the system.

Figure 14. Building 13 – Unmarked Scaffolding Components

Figure 15. Building 13 – Unmarked Scaffolding Components

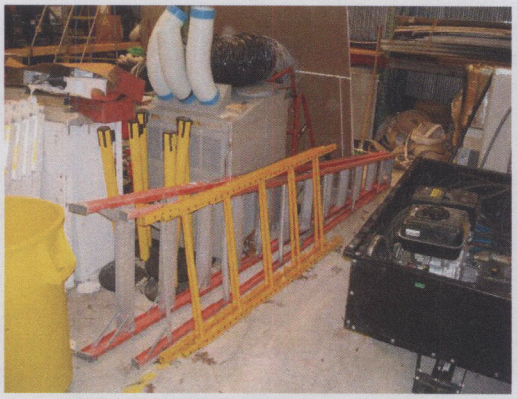

Figure 16. Building 13 – Unmarked Scaffolding Components

Figure 17. Building 13 – Unmarked Scaffolding Components

There is no identifiable means to verify that the scaffold system components acquired by Facilities Management are traceable to a given manufacturer or matched product line, or that it had been designed and constructed in accordance with a recognized standard. **(FIND P2-007)**

Some scaffold systems currently available for use at the Lab have been procured through credit card purchases and without coordination with ESH&Q or the Lab's Training Coordinator. The lack of scaffold procurement specification records, or recognition by the requesting parties on industry design and construction standards, opens up the potential for the Lab to receive substandard, and potentially unsafe, scaffolding equipment. The Laboratory's

current suite of quality assurance policies and procedures covers acquisition and receipt inspection for items that have a safety-related function or consequence. Adherence to the established procurement policies is warranted.

There is a lack of quality assurance consideration in the Lab's current procurement of scaffolding systems and attachments, as is warranted for these safety-dependant systems. **(FIND P3-006)**

The coordination of scaffolding purchases through a designated and central subject matter expert is recommended, as to attain quality assurance conformity. If each Laboratory group continues to be allowed to acquire scaffolding independently, it is anticipated that there will be additional confusion in managing scaffold-user training, and incompatible equipment may become comingled.

2.6 Manual, Self-Propelled, and Vehicle-Mounted Elevating Platforms

During the field walkdowns, no self-propelled elevating platforms were observed in use; however, several were inspected, and all were in good condition and had current inspection stickers. One elevated platform was identified that had a bent handrail with a snap hook connected (Figure 18). There was no evidence to suggest what had been connected to the handrail; however, employees must be aware that these devices are not designed to support a connected load. **(FIND P3-007)**

Figure 18. Storage Shelter - Manlift Railing with Snap Hook

2.7 Fall-Arrest Systems

Multiple fall-arrest harnesses were inspected during the field assessment, and all were in excellent condition, stored properly, and had current inspection tags attached. Review of the fall-arrest harness database indicated that all harnesses had received their current annual inspection. Lanyards were also in good condition.

A new fall protection computer based training program has been implemented at JLab. A review of the training program revealed that it meets minimum requirements for fall protection training, and personnel observed using fall-arrest harnesses had completed the required training.

The training program discusses the criteria for fall-arrest system anchor points; and in practice, employees use this information to select the anchor point they will use. There was a concern expressed by one employee that he was not comfortable identifying an anchor point he was using for a routine work assignment that involved a significant fall potential (Hall C heating,

ventilation and air conditioning [HVAC] unit). No engineering review had been conducted in this area to verify that the anchor point being used meets the minimum requirements as specified in 29 CFR 1926 502(d)(15). **(FIND P2-008)**

Employees interviewed in the experimental halls pointed out anchor points that they were using for routine work activities. While these were significant structural members and would in all probability meet the anchor point requirements, there is not a process in place to formally identify those anchor points being used for repetitive work tasks requiring the use of a fall arrest systems. It would be a best practice to identify, formally assess, then uniquely mark (paint, etc.) anchor points used for repetitive work assignments. **(FIND P3-008)**

In Building 72, multiple web-type retractable lanyards are attached to I-beams on the upper level for use as fall arrest when the standard handrails are removed from the platform (Figure 19). If the fall-arrest system was engaged as a result of an employee falling from the platform, the web would strike the edge of the I-beam with the full force of the suspended employees fall. In at least one instance, the beam edge was extremely sharp resulting in a high potential to cut the webbing. Softening should be added to the beam edges or the retractable lanyards should be replaced with wire-type lanyards **(FIND P3-009)**

All fall-arrest harnesses and lanyards must be approved and procured by the Material Handling Safety Representative; however, other components potentially used in a fall-arrest system such as cross-arm straps and retractable lanyards may be procured by the individual divisions. All equipment potentially used as a component of fall-arrest systems should be specified and procurement approved by a single subject matter expert to ensure that appropriate equipment is purchased and to establish consistency throughout the site. **(FIND P3-010)**

Figure 19. Building 72 - I-Beam Anchored Web-Type Retractable Lanyard

3.0 FINDINGS AND PROFICIENCIES

3.1 Findings

FIND P2-001 Chains being used in lieu of swinging gates or offset access for ladderway in the TJNAF Test Laboratory do not meet the requirements of 29 CFR 1910.23(a)(2) or the standard OSHA interpretation for the use of chains.

FIND P2-002 Chains being used in lieu of a standard guardrail in the TJNAF Test Laboratory do not meet the requirements for a guardrail as defined in 29 CFR 1910.23(a)(2) or (e).

FIND P2-003 Use of a mobile ladder stand as a fixed industrial stair does not meet the requirements of 29 CFR 1910.24 for fixed industrial stairs.

FIND P2-004 Modification of mobile ladder stands and other portable ladders results in ladders that may no longer conform to standard specifications of strength to safely support the design working load (29 CFR 1910.29(a)(2)(iii) and ES&H Manual 6132, paragraph 3.1).

FIND P2-005 Defective ladders shall be removed from service as required by ES&H Manual Section 6132, paragraph 3.1 "Withdraw ladders from service that have developed defects. Destroy any defective ladder or tag it "Dangerous, Do Not Use," and send it to Facilities Management for repair..."

FIND P2-006 There is no definitive program to implement a continuing fixed ladder maintenance program to ensure all ladders shall be inspected regularly, with the intervals between inspections being determined by use and exposure (29 CFR 1910.27(f)).

FIND P2-007 There is no identifiable means to verify that the scaffold system components acquired by Facilities Management are traceable to a given manufacturer or matched product line or that if they had been designed and constructed in accordance with a recognized standard.

FIND P2-008 An employee was concerned about the adequacy of an anchor point for the Hall C HVAC System, and no engineering review had been conducted in this area to verify that the anchor point being used meets the minimum requirements as specified in 29 CFR1926 502(d)(15).

FIND P3-001 The Laboratory should evaluate work practices associated with raising and lowering tools and equipment from elevated locations to ensure adequate fall protection exists.

FIND P3-002	The training program does not currently require a lesson plan to be submitted and approved in order to be considered official training.
FIND P3-003	The central training records system did not reflect the most current scaffold training dates, as intended for entry.
FIND P3-004	The training records system does not allow an employee, or their supervisor, to distinguish between the different types of scaffolding that they may have been trained.
FIND P3-005	The rigor of scaffold training administered to scaffold users has been highly variable, potentially impacting a student's ability to use these systems safely.
FIND P3-006	There is a lack of quality assurance consideration in the Lab's current procurement of scaffolding systems and attachments, as is warranted for these safety-dependant systems.
FIND P3-007	Employees must be made aware that the handrails of elevating work platforms are not designed for and cannot be used to support a connected load.
FIND P3-008	It would be a best-work practice to identify, formally assess, then identify (paint, etc.) those anchor points used for repetitive work assignments.
FIND P3-009	I-beams used for fall protection anchor points in Building 72 should have softening added to the beam edges or the retractable lanyards should be replaced with wire-type lanyards.
FIND P3-010	All equipment potentially used as a component in fall-arrest systems should be specified and its procurement approved by a single subject matter expert to ensure that appropriate equipment is purchased and to establish consistency throughout the site.

3.2 Proficiencies

PRO-001	A formal trend analysis process that addresses all notable events and first-aid cases, work observations, and facilities safety-related work requests has been implemented by JLab. Trending identified the most common work requests, as well as incidents, involved slip/trip/and fall incidents; and one corrective action to implement a site-wide evaluation of all facility entries and exits and to designate access points where non-skid materials would be applied.
PRO-002	JLab instituted a corrective action program that included the replacement of several vertical fixed ladders requiring frequent or routine access with inclined ladders that provide safer access for employees.

Appendix A

Personnel Interviewed

ESH&Q Division Associate Director
ESH&Q Division Deputy Associate Director
Training Manager
Plant Engineering Supervisor
Hall B Work Control Coordinator
Hall B Assistant Work Control Coordinator
Hall C Work Control Coordinator
Machine Shop Supervisor
Material Handling Safety Representative
Mechanical Resources, Inc., Supervisor
Quality and Safety Engineer
ESH&Q Industrial Safety Representative
Cryogenics Group Employee

Appendix B

Records Reviewed

- TJNAF ES&H Manual
- 3210, Hazard Identification and Characterization, 12/20/06
- Appendix 3210-T1, Introduction to Workplace Hazards, effective 12/20/06
- Appendix 3210-T2, Hazard Identification Worksheet, effective 12/20/06
- 3410, ES&H Aspects of Material Acquisitions, effective 3/10/06
- Appendix 3410-T1, Evaluation Checklist for Procured Materials, 3/10/06
- Appendix 3410-T2, General ESH&Q Specifications for Materials
- 6131, Trip and Fall Protection, effective 3/10/06
- 6131-T1, Fall Protection Systems, effective 3/10/06
- 6131-T2, Fall Arrest System, effective 3/10/06
- 6132, Ladders and Scaffolds, effective 6/1/01
- 6132-T1, Ladder Inspection Checklist, effective 6/1/01
- 6132-T2, Fixed Ladders, effective 6/1/01
- 6132-T3, Scaffold Guidelines, effective 6/1/01
- 6147, Aerial Work Platforms, effective 6/1/06
- 6147-T1, Use Practices for TJNAF Aerial Work Platforms, 6/1/06
- 6620 Personal Protective Equipment, effective 1/26/05
- Fall Arrest Harness Inspection Database, Printout of Data on 10/20/08
- Training Database Printout for SAF202 Fall Protection Course on 10/21/08
- Training Database Printouts for SAF303, Scaffold Course, 10/22/08
- Individual Training Record Printouts for Five JLab Employees
- Accelerator Task List: Deinstallation of Upstream Target Girder, Approved 8/18/08
- Accelerator Task List: Hall C Target Removal, Approved 6/20/08
- 5200-T1, Incident/Notable Event/Injury Investigation and Causal Analysis Worksheet, COO-08-0722-NEW, Slip During Hall B Tour, 08/30/07
- DBA SALA Exofit Full Body Harness Instruction Manual, copyright 2002
- Occurrence Report SC-TJSO-SURA-TJNAF-2006-001, Final, 2/22/06
- Badger Ladder and Scaffold Web Page
- Instructions for Assembly and Safe Use of Perry Scaffold and Scaffold Towers, 2/06
- TJNAF 10 CFR 851 Worker Safety and Health Protection Program, Rev 1, 5/07
- JLab Corrective Action Tracking System Database Record: Event NE-2008-07; COO-08-0722-New, Slip During Hall B Tour, last modified 9/10/08
- JLab Trend Analysis Report, QA/C1 Department, 8/11/08