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

March 19, 2008

Mr. Robert May
Acting Associate Director for EHS&Q
Thomas Jefferson National Accelerator Facility
12000 Jefferson Avenue
Newport News, VA 23606

Dear Mr. May:

The attached Surveillance report covers the Site Office's review of the Laboratory's Rigging and Material Handling program, conducted January 29-30, 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 April 18, 2008. 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.

Within the corrective action plan, please include the disposition or proposed course of action for each P-3 Finding (Observation) identified in the report.

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:
C. Leemann
M. Dallas
B. Lenzer

SJN:Surveillance Rpt Ltr:3/18/08:630

U.S. Department of Energy
Thomas Jefferson Site Office

Final Report
Rigging and Material Handling Surveillance
at the
Thomas Jefferson National Accelerator Facility
January 2008

Steve Neilson
TJSO Safety and Occupational Health Manager

17 March 08
Date

Dean Magee
ORO SE-31

17 March 08
Date

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ACRONYMS

AHA	Activity Hazard Analysis
ASME	American Society of Mechanical Engineers
BOA	Blanket Order Agreement
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
ES&H	Environment, Safety, and Health
FIND	Finding
HKS	High-resolution Kaon Spectrometer
ISMS	Integrated Safety Management System
MH	Material Handling
MHER	Material Handling Equipment Representative
ORO	Oak Ridge Office
OSHA	Occupational Safety and Health Administration
PRO	Proficiency
R&MH	Rigging and Material Handling
SOP	Standard Operating Procedure
SOTR	Subcontracting Officer's Technical Representative
TJNAF, Laboratory, or JLab	Thomas Jefferson National Accelerator Facility
TJSO	Thomas Jefferson Site Office
TOSP	Temporary Operating Safety Procedure

DEFINITIONS

P-1 Finding (FIND P1)	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.
P-2 Finding (FIND P2)	Findings that represent nonconformances, deviations, and/or deficiencies in the implementation of requirements, procedures, standards, and/or regulatory requirements.
P-3 Finding (FIND P3)	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.

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Rigging and Material Handling 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 rigging and material handling (R&MH) surveillance at the Thomas Jefferson National Accelerator Facility (TJNAF also referred to as Laboratory or JLab) on January 29-30, 2008. Team members conducting the review included Steve Neilson, TJSO Site Office, and Dean Magee, ORO.

This surveillance was conducted to evaluate how well the contractor staff was performing R&MH activities at TJNAF. Fifteen findings (FIND) (four P2 findings and eleven P3 findings) and four 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.

2.0 SUMMARY OF RESULTS

The overall state of the Laboratory's R&MH Program is considered to be effective. The Laboratory's local instruction on material handling activities is likewise considered to reflect the requirements of the contract. With the exceptions noted in this report, work activities were found to be largely compliant with the contract requirements.

The following suggestions are furnished as a result of information gathered during the rigging and material handling program, and warrant the Laboratory's general consideration and attention:

- The Laboratory should reissue and train the staff on a Non-Conforming Materials Procedure. The initial Non-Conforming Materials Procedure was issued last year but was subsequently retracted. Repealing a procedure of this nature without interim instructions places the workforce at greater risk of injury due to the lack of control of substandard equipment and associated product failure. Such a procedure will help disposition equipment that is identified as needing service or repairs from inspection activities.

- The contract language associated with R&MH related subcontractor work should be reviewed to ensure that existing contract requirements are being met. It is furthermore suggested that contract language with material handling and rigging service subcontractors include adequate direction that these subcontractors will furnish evidence of pre-use inspections on material handling equipment following delivery of their equipment.

- The Laboratory is encouraged to review the awareness of crane operators, riggers, and Supervisors on the ES&H Manual requirements, including expectations on lift planning associated with critical lifts. The absence of critical lift documentation on file for the past several years is suspect.

2.1 Subcontracted Services

A review was performed on the contract agreement between the Laboratory and the crane inspection subcontractor (Foley). The Blanket Order Agreement (BOA) #07-05A017 in effect

with the crane inspection subcontractor specifically requires that overhead crane inspections are to be conducted in accordance with American Society of Mechanical Engineers (ASME) B30.2. The BOA furthermore requires that inspection of the Lab's under hung, floor-mounted monorail, and mobile cranes are to be conducted in accordance with ASME B30.16, B30.21, Occupational Safety and Health Administration (OSHA) 1910.180, and American National Standards Institute, Inc., B30.5, respectively. The crane inspection records being provided by the subcontractor are consistent with the elements of the standard.

Preventive maintenance elements are identified in the BOA with the crane inspection subcontractor, who also serves as the agent for crane repairs. These elements appear to follow a graded-approach for the types of duty/service conditions the Lab's cranes are subjected.

The BOA likewise requires that crane inspectors must satisfy requirements of ASME B30.17 as a qualified person; however, Sections 2.4.1 and 2.20.2 state that the subcontractor must provide a resume or list of training that clearly demonstrates each inspector satisfies the requirements of ASME B30.17 as a Qualified Person, and that they furnish such information within 30 days after award of the contract. The records on file with the Lab's procurement office do not include evidence of crane inspector qualifications. Reliance is placed on the Subcontracting Officer's Technical Representative (SOTR) to monitor the qualification requirements, but no records are being maintained. **(FIND-P3-001)**

The BOA in place with the crane inspection subcontractor includes an Activity Hazard Analysis (AHA) that is limited to fall hazards and the need for crane inspectors to wear personal protective equipment when appropriate; i.e., hardhats, safety glasses, and hearing protection. The AHA in place for subcontractor conducting crane inspection does not identify accidental electrical shock and electrical hazards. Electrocution has historically been a significant percentage of the fatality cases among crane inspectors. Other areas of this BOA are very detailed on the requirement from the subcontractor to comply with National Fire Protection Association 70E and Lab policy for work on energized electrical systems.

2.2 Field Assessments

In addition to visits to various campus locations, in-depth field assessments were conducted and included observations of two lift activities (Building 58 and Building 90) and a visit to an off-site storage facility.

2.2.1 Rigging and Material Handling Activity Observations

A mobile crane lift and associated material handling activities were observed at Building 90 (South Machine Shop) conducted by a subcontractor (Lockwood Brothers). The mobile crane was a Linkbelt Model 8665. The activity included off-loading a 21,000-pound milling machine from a flatbed semi-trailer, then moving the load inside the machine shop. The crane operator provided a copy of the mobile cranes inspection record (annual certification, April 19, 2007); however, he was unable to immediately provide evidence of his operator qualifications. Prior to the actual lift, a facsimile of the operator's qualification card was provided for this individual (Ronald Thompson, undated). The paperwork identified Mr. Thompson as qualified for the equipment he was operating, and included the following classes of cranes: Lattice Boom Crawler Cranes, Lattice Boom Truck Cranes, Large Telescopic Cranes, and Small Telescopic Cranes.

In conjunction with the milling machine lift at Building 90, the subcontractors transported to the site a company-owned forklift (Hyster 120). The forklift was used to push the milling machine into position in conjunction with industrial rollers. There was no evidence that a pre-shift (or post-delivery) inspection had been conducted by the subcontractor as required by 29 CFR 1910.178 (q) (7). The SOTR intervened to have the subcontractor install a more substantial fuel tank restraint, as a single bungee cord (orange-elastic strap) was initially being used as the propane tank restraint. The substitution of a substandard restraint (elastic strap versus factory metal strap) by the subcontractor is a violation of the OSHA standard for powered industrial trucks, 29 CFR 1910.178 (q) (6). **(FIND-P2-001)**

Figure 1. Lockwood Forklift

The Lab's SOTR for the milling machine lift activity had documents providing the weights of the load (21,000 pounds) and corresponding capacities of the anchors being used (1-1/8-in eyebolts, 12,000 pound capacity each). There were four points of attachment to the load, consisting of two eye-bolt anchors, and two pass-through points for rigging shackles. The rigging was very close to vertical with the use of the subcontractor's spreader bar. The crane operator indicated that the 4,000-pound counter weight and boom angle provided a capacity of 31,000 pounds, providing adequate residual capacity.

In the high-bay area of Building 58 (Test Lab), the review team observed a JLab crew offload a 38,000-pound High-resolution Kaon Spectrometer (HKS) magnet crate from a flatbed semi-trailer. This lift utilized a 25-ton electrical overhead traveling bridge crane. The load (crate) arrived with the rigging points clearly marked, factoring in an off-set center of gravity. New polyester loop slings were used, which provided adequate rated capacity for the load. The load was rigged consistently with the container markings and moved in a controlled manner from delivery trailer to the bay floor.

During the conduct of both the subcontractor executed lift of the milling machine and the JLab executed lift of the HKS magnet crate, access to the lifting zones were not initially controlled to alert or prevent pedestrian access, as specified by the Laboratory's ES&H Manual, Chapter 6140. **(FIND-P3-002)**

2.2.2 Warehouse Operations Material Handling Equipment Conditions

At the Blue Crab Warehouse, the forklift maintained at this location appeared to be in very good physical condition, and relatively new. There was no active material handling activities at this location at the time of this review. The aisle clearances,

lighting, and storage rack loading appeared to be adequate. The rigging hardware being used at this location was reportedly limited to horizontal material pulling. This rigging hardware includes some nylon slings, with abrasions consistent with dragging items across the floor, and is subject to shock loading, since loads moved horizontally are not freely suspended.

Rigging used for towing applications at the Blue Crab Warehouse are not uniquely identified/distinguished from other hardware, as to prevent future use for overhead lift applications. Rigging articles that are used for horizontal pulling (dragging material) are subjected to shock loading conditions which are a cause for disqualifying rigging equipment for use in overhead lifts (DOE-STD-1090-2007, 11.3.5.3 and 12.2.8). **(FIND-P3-003)**

Figure 2. Tow Straps and Slings Stored at Blue Crab Warehouse

Figure 3. Sling

The pre-use inspection checklist for forklifts used at Blue Crab and elsewhere at the Laboratory are not consistent or comprehensive relative to the make and model specific pre-use inspection criteria from the manufacturer; as such, some elements of the equipment operation may be overlooked during the pre-use review. The Laboratory's ES&H Manual, Appendix 6145-T-1, likewise includes the instruction to "… use the appropriate operator daily checklist." **(FIND-P3-004)**

Figure 4. JLab Forklift Inspection Generic Checklist

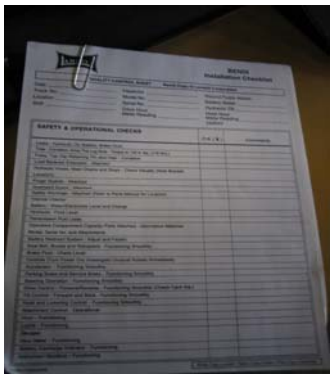

Figure 5. Manufacturer's Checklist

2.3 Procedures

A review was conducted on information contained within the Laboratory's ES&H Manual Chapter 6140 and associated appendices on crane and lift activities. There is a watermark currently placed on these chapters identifying that a revision is pending, but standing instruction remains in effect. This section of the Lab's ES&H Manual has been in a state of revision for several months. Section 6140-T4 of the ES&H Manual specifically addresses Special Lift and Crane Breakdown Procedures. Only two work control documents (PHY-06-004-TOSP [Temporary Operating Safety Procedures] and A-05-012-T) were returned upon entering "lift plan" or "critical lift plan" in the keyword search option within the Laboratory's online library of Temporary Operating Safety Procedures. Neither of these documents identify the corresponding activities as critical lifts. Only one of these two work control documents included a sketch of the rigging hardware orientation and corresponding sling loading. The dates on these documents also suggest that there have been either no high risk lifts or critical lifts within the past year and a half, or that such records are not being entered into the TOSP system. Based on the limited amount of information available, the Laboratory is encouraged to assess field level familiarity and implementation of the lift classification and lift plan instructions contained in the ES&H Manual.

In the course of interviewing crane operators and evaluating the conditions of select overhead cranes, three overhead crane operators (Building 90 and Building 58) were unaware of the location of the crane's main power disconnect switch. A written examination provided to students during crane operator training includes a test question that identifies the master power disconnect switch as a compulsory element in the crane pre-use inspection. The lack of crane operator field familiarity with the location of crane power isolation is not consistent with training. **(FIND-P3-005)**

To determine if the Laboratory is conducting crane inspections at the necessary frequency, the SOTR responsible for the crane inspection subcontractor was interviewed. From that discussion, it was determined that the Laboratory relies upon informal communication and program familiarity to monitor the duration of idle cranes in the experimental halls. Operational activity logs and historical schedules support the adequacy of the annual inspection frequency that is being applied to these cranes, relative to the requirements in 29 Code of Federal Regulations (CFR) 1910.1799 (j)(4)(ii).

The SOTR responsible for the crane inspection subcontractor is also responsible for ensuring monthly OSHA inspections on crane hooks and wire rope are conducted and documented by JLab staff. The SOTR identified that the personnel in the field conducting those inspections have been trained, and are to follow the JLab Standard Operating Procedure (SOP) #A-06-009-SOP, Rev. 1, *Crane and Overhead Gantry Wire Rope Inspections.* The records being maintained for these monthly inspections do not document the status of the crane hook in accordance with 29 CFR 1910.180 (d)(6) for mobile cranes. **(FIND-P2-002).** Additionally, the Laboratory's practice to allow e-mail correspondence as a means to satisfy monthly wire rope inspection records for overhead cranes does not meet the requirements of an inspector's signed and dated record of the specific wire rope being certified 29 CFR 1910.179.(m)(1). **(FIND-P2-003)**

Upon reviewing the crane service and maintenance records generated by the Lab's subcontractor, a previous modification of an overhead crane (Building 58, 2nd floor annex,

Yale monorail crane) to accommodate a radio controller was not adequately tested (inspected) to ensure safety device functionality. This particular crane is missing an audible or visual warning signal per 29 CFR 1910.179 (k)(1)(i)(d) and 29 CFR 1910.179 (i). **(FIND-P2-004)**

Upon reviewing the most recent annual inspection records generated by the crane inspection subcontractor (August 2007), faulty conditions were not universally tracked by the Laboratory for repair or equipment control, in accordance with DOE-STD-1090-2007, 12.2.5.4. Despite the faulty conditions identified, inspection stickers were applied by the inspection subcontractor to the equipment, and the equipment remained in the field for use. The presence of an inspection sticker contributes to a presumption of equipment adequacy. Examples include missing hook latch identified August 8, 2007, Building 58, cryo-assembly area, 3,000-pound capacity Yale come-along; and missing warning signal on overhead crane identified August 7, 2007, Building 58, 2nd floor annex, 4,000-pound capacity Yale monorail crane. **(FIND-P3-006)**

The subcontractor responsible for conducting crane and lifting equipment inspections does not use the same inspection stickers across the Lab. In some cases the stickers indicate the due date for the next annual inspection, whereas other equipment was labeled with the date the inspection was performed. This condition can create confusion among the user groups if they do not pay very close attention to the wording on these small stickers. **(FIND-P3-007)**

Figure 6. Inspection Sticker Example

Annual crane and hoist inspection notes occasionally include highlighted conditions by the inspector for equipment conditions that warrant "monitoring." These conditions are not being shared with the cognizant building managers or crane operators. While such notes may be intended to alert subsequent crane inspectors, sharing this information with crane operators has the potential to improve safety, through the implementation of ISMS Core Function 5, Feedback and Continuous Improvement. **(FIND-P3-008)**

2.4 Acquisition, Storage, and Maintenance of Material Handling Equipment

During the interview with the Supervisor of the South Machine Shop in Building 90, several half-inch rigging shackles were identified in the tool crib and available for use. These shackles were without manufacturer marks (forge marking were limited to "China" and the Working Load Limit), preventing traceability to a recognized standard as required in Chapter 3410 of the Laboratory's ES&H Manual.

FIND-P3-009)

Figure 7. Half-Inch Rigging Shackles Located in Building 90

Two structures were built at the Lab within the past couple of years to help centralize the storage and maintenance of material handling equipment. Some of the space within one of these vehicle storage structures (adjacent to Building 72) is also being used for miscellaneous material storage. Space allocation should be carefully monitored to ensure adequate access is provided for the Lab's material handling equipment, to avoid the maintenance issues associated with prolonged outdoor storage.

During an interview with a crane operator/rigger in the field, a customized material handling unit was identified in Building 2, South LinAc Service Building. The local work group had internally recognized an ergonomic hazard existed when installing and removing ~90-pound power supplies from the elevated slots inside electronic racks. As a result, they acquired a Genie GL8 lift in the manufacturer's standard configuration. Upon the first attempted use of this equipment, however, the narrow width of the electronic racks prevented use of the material handling equipment, and modification of this equipment was deemed necessary. The modifications were developed in-house and approved by the manufacturer's representative with approval records on file. **(PRO-001)**

During a visit to the field, a forklift boom attachment was observed being stored outdoors adjacent to Building 8 (CHL). The combination of rust and previous paint application has obliterated the manufacturer's capacity markings and user instructions. This type of material handling equipment should be included within an inspection program. **(FIND-P3-010)**

Figure 8. Forklift Boom Attachment

Through the course of visiting several locations where rigging equipment was available for use, the storage practices of rigging hardware were considered exemplary in most instances. (**PRO-002)**

Figure 9. Rigging Hardware Storage

As a result of interviews with crane operators and riggers, these individuals were consistent in identifying the Lab's Material Handling Equipment Representative (MHER) as being the responsible party to approve/make rigging hardware acquisitions. These same operators/riggers were likewise quick to respond that they would immediately notify the MHER if a deficiency or suspect condition was encountered during the conduct of a material handling equipment pre-use inspection, in accordance with the Laboratory's local instruction. (**PRO-003)**

2.5 Training Records

In DOE's 2005 R&MH Assessment, an observation was made that multiple equipment qualifications were not being managed to ensure only qualified workers have access to material handling equipment (OBS-17). The Laboratory's corresponding entry in the Corrective Action Tracking System, ID #IA 2005-89, that closed this issue in 2006, included the statement "…positive key controls by electronic key boxes or assigned equipment custodians reduces risk of unqualified MH [material handling] operators gaining access to, and operating MH equipment." To test the integrity of the electronic key control box arrangement, we requested that a worker whose forklift training was known to have expired several months ago see if his pass code would still allow him access the to forklift keys. The worker was able to successfully access the keys contained inside the electronic lock-box. Without the key control boxes being interfaced with the operator training records, a "positive key control" system does not exist. **(FIND-P3-011)**

Student feedback forms were collected following completion of the most recent crane operator and rigging training program. The instructor's evaluation of students included specific comments on their performance, including some instances where recommendations were made to a worker's supervisor that additional mentoring is advised before independent crane operations are permitted. The evaluation forms completed by the students on the quality of the instruction were very positive on the quality of the training.

All of the operator training records on the master list that were reviewed in depth were found to have evidence of training attendance, such as a practical examination report. A random review of the inspection records for the cranes, forklifts, and manlifts was compared to the inventory, and all of the inspections were supported by hard copies on file.

All of the material handling operators interviewed expressed that they considered Laboratory management to be supportive in the acquisition of material handling equipment or training if work safety was at stake. This feedback is considered to be significant, and it was consistent with the general observation that material handling equipment and rigging hardware were observed to be in good physical condition. Furthermore, the increased emphasis on rigger certification and the use of industry recognized, external training programs for material handling equipment operators is considered to be a positive action. **(PRO-004)**

3.0 FINDINGS AND PROFICIENCIES

3.1 Findings

FIND-P2-001	The substitution of a substandard restraint (elastic strap versus factory metal strap) by the subcontractor is a violation of the OSHA standard for powered industrial trucks (29 CFR 1910.178 (q) (6)).
FIND-P2-002	Records being maintained for crane hook monthly inspections do not document the status of the crane hook in accordance with 29 CFR 1910.180 (d)(6) for mobile cranes.
FIND-P2-003	The e-mail process used by the Laboratory to satisfy monthly wire rope inspection records for overhead cranes does not meet the requirements of an inspector's signed and dated record of the specific wire rope being certified 29 CFR 1910.179.(m)(1).
FIND-P2-004	Modification of an overhead crane was not adequately tested (inspected) to ensure safety device functionality (missing audible or visual warning signal), per 29 CFR 1910.179 (k)(1)(i)(d), and 29 CFR 1910.179 (i).
FIND-P3-001	The records on file with the Lab's procurement office do not include evidence of crane inspector qualifications as specified in the subcontractor's Blanket Order Agreement.
FIND-P3-002	In the two observed lifts conducted by the Laboratory, access to the lifting zones were not initially controlled to alert or prevent pedestrian access, as specified by the Laboratory's ES&H Manual Chapter 6140.
FIND-P3-003	Slings and rigging equipment that are being used for horizontal towing applications are not prominently identified/distinguished from other hardware, as to prevent future use for overhead lift applications. (DOE-STD-1090-2007, 11.3.5.3 and 12.2.8)
FIND-P3-004	The Lab's generic pre-use inspection elements for forklifts are not consistent or comprehensive relative to the make and model specific pre-use inspection criteria from the manufacturer; as such, some elements of the equipment operation may be overlooked during the pre-use review.
FIND-P3-005	Three overhead crane operators at both Buildings 90 and 58 were unaware of the location of the crane's main power disconnect switch.
FIND-P3-006	Faulty conditions identified during the most recent annual inspection (August 2007) were not universally tracked by the Laboratory for repair or equipment control, in accordance with DOE-STD-1090-2007, 12.2.5.4.

FIND-P3-007	The subcontractor responsible for conducting crane and lifting equipment inspections did not use the same inspection stickers across the Lab.
FIND-P3-008	Annual crane and hoist inspection records contain notes highlighted by the inspector for equipment conditions that warrant "monitoring". These notes are not being shared with the cognizant building managers or crane operators.
FIND-P3-009	Several half-inch rigging shackles were available for use in the Building 90 machine shop tool crib without manufacturer's markings preventing traceability to a recognized standard, as required in Chapter 3410 of the Laboratory's ES&H Manual.
FIND-P3-010	The manufacturer's capacity markings were obliterated on a forklift boom attachment stored outdoors adjacent to Building 8, and equipment of this type should be included within an inspection program.
FIND-P3-011	A worker whose forklift training had expired several months ago was able to use his pass code to access the keys to a forklift that were contained inside an electronic lock-box.

3.2 Proficiencies

PRO-001	A local work group recognized an ergonomic hazard existed associated with installing and removing power supplies from the elevated slots inside electronic racks in the Accelerator Service Buildings. While material handling equipment modification was necessary, the group went through the proper process of obtaining approval to make the required modifications from the manufacturer.
PRO-002	The storage practices of rigging hardware were considered exemplary in most instances.
PRO-003	The material handling equipment operators interviewed consistently identified the Lab's MHER as being the responsible party to approve/make rigging hardware acquisitions and responded appropriately that if a deficiency or suspect condition was encountered that they would notify the MHER.
PRO-004	Increased emphasis on rigger certification and the use of industry recognized, external training programs for material handling equipment operators is considered to be a positive action.

Appendix A

Personnel Interviewed

- Machine Shop Manager
- Electrical Technologist
- Sr. Electronics Technologist Accelerator Technician
- Machinery Technologist
- Metal Fabricator
- Staff Engineer
- Motor Equipment and Vehicle Coordinator Senior Procurement Administrator
- State Employee, Warehouse Manager
- Detector Systems Coordinator
- Gun and Magnet Technologist Cryo/RF Test Technician
- Medical Services Administrative Assistant

Appendix B

Records Reviewed

- Crane Operator Training Status (qualified operator roster)
- Forklift Operator Training Roster, SAF502
- Manlift Operator Training Roster, SAF302
- Fall Protection Training Roster, SAF202
- Journeyman Rigger and Master Rigger Training Program Agreement, July 18, 2007
- Payment Records to Industrial Training International, Inc., December 11, 2007
- SOP A-06-009-SOP, Rev. 1, *Crane and Overhead Gantry Wire Rope Inspection*, April 6, 2006
- TOSP A-05-012-T, Lift Plan
- TOSP PHY-06-004, Lift Plan
- Overhead Crane Operator Program, Test Packet, Industrial Training International, Inc.
- Overhead Crane Operator Evaluation Forms (from operator's practical demonstrations), 2007
- Master Rigger Course Evaluation Forms (student completed), October 2007
- Crane and Hoist Data, Summary Sheet (inventory)
- Subcontractor's Operator Qualification Card, issued by National Commission for the Certification of Crane Operators (facsimile)
- Crane Inspection Reports, Foley Material Handling Company, Inc., August 2007
- Forklift Inventory, as of January 29, 2008
- Operational Maintenance Reports (annual forklift inspections and maintenance), Dougherty Equipment Company, 2006, 2007, and 2008
- Maintenance Inspection Reports (September 2007 annual manlift inspections), Colonial Powerlift, Inc.
- JLab Corrective Action Plan from August 2005 DOE Rigging and Material Handling Surveillance
- Operator's Daily Checklist, BENDI forklift
- Task Order Worksheets, Crane Service and Repairs, Foley Material Handling Company, Inc., 2007
- Correspondence between JLab and Genie Lift Representative on Modification of GL-8 Material Handling Unit
- BOA # 07-05A017 with Foley Material Handling
- Jefferson Lab ES&H Manual