



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

December 19, 2008

Dr. Hugh E. Montgomery
President and Laboratory Director
Jefferson Science Associates, LLC
Thomas Jefferson National Accelerator Facility
12000 Jefferson Avenue
Newport News, VA 23606

Dear Dr. Montgomery:

FY 2008 ANNUAL INTEGRATED SAFETY MANAGEMENT DECLARATION AND EFFECTIVENESS REVIEW

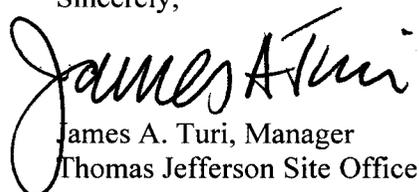
Enclosed for your information is TJSO's FY 2008 Annual Integrated Safety Management (ISM) assessment of Jefferson Science Associates, LLC (JSA). The enclosed report has been reviewed by your staff, comments addressed, and copies of the final report previously provided. In summary, we have concluded that ISM is being effectively implemented at the Thomas Jefferson National Accelerator Facility.

Certain areas need improvement, most notably material handling, event investigation and reporting, assessment program, issues management, and training and qualification records management. TJSO will be conducting focused oversight in all areas of JSA performance identified as needing improvement.

Looking ahead to next year, JSA's FY 2009 ISM effectiveness review needs to be a critical self-assessment. TJSO does acknowledge that the JSA assessment program is undergoing a major overhaul in response to an associated DOE-HSS Finding. For FY 2009, TJSO is looking forward to a more structured JSA ISM effectiveness review in terms of depth, breath, and rigor of analysis. We recommend TJSO and JLab meet in the April 2009 time frame to discuss expectations and approaches in more detail to ensure we are on the same page.

If there are any questions, please contact either David Luke of my staff at extension 7139 or me at extension 5094.

Sincerely,


James A. Turi, Manager
Thomas Jefferson Site Office

Enclosure

cc:
M. Dallas
M. Logue
S. Mallette
D. Luke

FY 2008 Annual Integrated Safety Management Declaration And Effectiveness Review Summary Report

1.0 Executive Summary

In accordance with DOE M 450.4-1, *Integrated Safety Management System (ISMS) Manual*, the Thomas Jefferson Site Office (TJSO) conducted an Integrated Safety Management (ISM) annual effectiveness review of Jefferson Science Associates, LLC (JSA) for the Thomas Jefferson National Accelerator Facility (TJNAF). The objective of the review was to provide a “snapshot” evaluation of the overall effectiveness of ISMS implementation.

In summary, the review indicates that the Jefferson Science Associates are executing an effective ISM Program. Areas of high importance and significant change during FY 2008 include:

- Contract Management: Transition from work smart standards to DOE directives;
- Extensive preparations for a HS-64 health and safety inspection of TJSO and JSA, followed by the HS-64 ISM inspection; and
- A major revision to the Accelerator’s Safety Assessment Document and Accelerator Safety Envelope (SAD-ASE).

Areas for improvement remain in each organization; however, there were no implementation gaps or breakdowns that indicate the ISMS programs are not satisfactory.

2.0 Introduction/Background

The effectiveness reviews were conducted using assessment reports of JSA, including self-assessments and external assessments related to ISMS. As such, it represents a “look-back” of all events, assessments, operational awareness activities, and trends. Attachment 1 contains TJSO’s ISM effectiveness review of JSA as well as JSA’s ISM effectiveness review.

The FY 07 JSA ISM declaration and effectiveness review was submitted to TJSO on March 3, 2008, and the FY 08 declaration and effectiveness review was submitted on August 12, 2008 (enclosed). The next JSA declaration is to be submitted no later than August 15, 2009. However, this date may be adjusted to reflect SC’s FY09 schedule. The next JSA ISM Program Description, if an update is warranted, is due to TJSO by December 31, 2008. TJSO’s expectations regarding annual ISM deliverables have been conveyed to JSA via a J. Turi to C. Leemann letter, subj: “Annual Annual Integrated Safety Management (ISM) Expectations and Approval of Jefferson Laboratory ISM Program Description (PD),” dated March 27, 2008.

3.0 Integrated Safety Management Declaration

TJSO concludes that ISM is being effectively implemented by JSA at Thomas Jefferson National Accelerator Facility (TJNAF), but areas needing improvement have been identified and are being addressed. The areas needing improvement are summarized at a high level in the following "Conclusions" section and discussed in greater detail in Attachment 1.

4.0 Conclusions

ISM is being effectively implemented by JSA at TJNAF. Areas warranting improvement include the following areas:

- Material handling program.
- Event investigation and reporting program.
- Assessment program.
- Issues management program.
- Transparency of follow-up to off-normal events.
- Accelerator Safety Assessment Document and Accelerator Safety Envelope (SAD-ASE).
- Fire Protection in the experimental halls.
- Training and qualification records management.

Immediate actions taken regarding the above issues included:

- Material Handling
 - Forklifts: actions included, but were not limited to, administratively controlling all forklift attachments pending a full review of capacities and forklift compatibility determinations, and successful completion of supplemental training by forklift operators that use approved attachments.
 - In-house fabricated lifting fixtures: Rigging articles were controlled until engineering assessment and processes were in place to demonstrate safe use.
- ASE-SAD
 - JSA and DOE performed separate reviews in Spring 2007 and determined that, other than developing a USI process and revising the SAD, no other interim measures were needed.
 - Primary author of the SAD-ASE revision must concur on all USI determinations.

- Fire Protection, Experimental Halls
 - Train experimental hall staff and accelerator operations machine operators in the use of wheeled halon fire extinguishers.
 - Conduct regular drills for fire response in halls (ten/year).
 - Conduct regular (four/year) on-site interactions with the local fire department to ensure optimal response.
 - Revise the hot work permit process to require fire protection engineer signature.

DRAFT – 11/12/08

Attachment 1

TJSO's Evaluation of JSA Performance and ISM System Effectiveness

The Lab's performance in safety, as measured through the lagging indicators of Total Recordable Case Rate (TRC), and Days-Away Restricted Duty (DART), was considered exceptionally good, based on comparison to both DOE goals and general industry performance. The PEMP goals for the TRC rate and DART rate were 0.65 and 0.25, respectively. There were three workplace injury events during FY 08, and all were DART cases (and therefore also TRC cases). In addition, HS-64 conducted a health and safety inspection. Enclosed is the JSA ISM Declaration letter, C. W. Leemann to J. A. Turi, "RE: Annual Integrated Safety Management (ISM) Expectations and Declaration," dated August 12, 2008.

Evaluation of the Contractor Work Planning and Control process

The HS-64 health and safety inspection provided an in-depth analysis of work control at TJNAF. The work control focus areas were the Free Electron Laser, Test Lab, and the Facilities Management and Logistics Division. As the accelerator was operating during the review, evaluation of accelerator operations and work in experimental halls was precluded. As discussed in the HSS inspection report, JSA adequately implemented the work planning and control components of ISM. With few exceptions, work was adequately defined, hazards were adequately analyzed, and work was performed in accordance with established controls.

Positive attributes were identified by HS-64, particularly in certain aspects of hazard controls (each is discussed further in the HSS report):

- Laser hazards for FEL work activities were well characterized and controlled.
- The Test Lab had a comprehensive and proactive safety program in place for its use of acids.
- Hazards associated with nanomaterial research at the FEL were effectively mitigated through application of appropriate engineering controls, along with development and implementation of conservative administrative controls and personal protective equipment (PPE) consistent with the NSRC Approach document.
- Facility Management and Logistics (FM&L) Subcontracting Officer's Technical Representatives (SOTRs) were very experienced, knowledgeable, and effectively engaged in reviewing subcontractor performance and ensuring that TJNAF requirements are met during maintenance activities.

One Work Control related finding was issued by HS-64, as follows:

- HSS Finding C-1: "Site forklift operations and training do not meet several Worker Safety and Health Program Rule (10 CFR851) and ES&H Manual requirements." The HS-64 report detailed numerous issues with the JSA forklift program, stating "The number and severity of deficiencies observed in the forklift program indicate that increased management attention is needed to ensure safe forklift operations at the site." This

particular HS-64 Finding shared commonalities with a Finding issued by the Site Office in a Jan 08 Material Handling and Rigging Surveillance report.

HS-64 identified the following Work Control opportunities for improvement (OFI's), which TJSO and JSA will analyze in FY 09 for possible adoption (the analysis of OFI's is a lower priority in order to maintain focus on addressing the HSS report's findings):

- Review and revise the ES&H Manual as necessary to ensure that workers can easily recognize and understand the distinction between minimum safety requirements and guidance. Ensure the following additional enhancements are addressed (see HSS report).
- Expedite the move to a single TJNAF work planning hazard identification and analysis process with appropriate program description documents, training, assessments, and feedback mechanisms to ensure consistent understanding and use (suggested enhancements to the work control process were provided in the HSS report).
- Enhance site forklift operator training to ensure complete worker understanding of the hazards. Consider incorporating the following into the training program (see HSS report).
- Establish expected routine and expected methods for retrieval and use of subcontractor lessons learned documented by SOTRs during daily pre-job briefings.
- Clarify and communicate expectations for full compliance with PPE requirements and proper posting of areas where PPE is required.

FY 2008 off-normal events: Eighteen off-normal events, most of which were minor and non-DOE reportable, occurred at TJNAF during FY 08. The following were deemed worthy to mention in this report, as they required ORPS reporting, or were otherwise significant or indicated programmatic weaknesses:

- Potential personnel HF acid splash (Oct 07). Corrective actions were verified by TJSO to be instituted and rigorous. The outcome of that event prompted the use of new chemical splash hoods.
- Radiological HEPA vacuum used for Experimental Hall C contamination job without a HEPA filter (Feb 08). No internal dose received by workers. Investigation revealed programmatic weaknesses concerning management of radiological HEPAs and that the weaknesses had been previously identified. The event was not relayed within the Laboratory's chain in a timely manner, such that 4 days transpired between the event and notification to JSA senior management and TJSO. A follow-up Finding was issued by TJSO because the results of the investigation were not entered into JLab CATs for action and tracking.
- Experimental Hall B rigging mishap, dropped 3600 lb detector (June 08). While there were no injuries associated with this event, the investigation rightfully concluded that there was inadequate means of qualifying in-house fabricated lifting fixtures. The rigging

article was controlled until engineering assessment and processes were in place to demonstrate safe use.

- An employee in the Test Lab removed a potentially venomous snake without authorization (Aug 08). An ORPS near-miss report was submitted and a site-wide notification was sent to staff identifying the dangers of handling wildlife, and the proper actions to be taken when confronted with this type of situation.
- Experimental Hall C employee sustained finger tip amputation and broken bone on adjacent finger (Sep 08). Worker was acting as a crane operator and placed hands on a block during a block swing. Worker's failed to report accident to supervisor until 2-3 days after event. While Lab management initially reported this event to the Site Office in a timely manner, the ensuing investigation by the Lab was conducted without JLab ES&H participation or TJSO invitation, despite TJSO attempts to engage. Communications between the Lab and Site Office reiterated Site Office expectations on access to investigations and timely notification.
- The Lab conducted an investigation in response to a DOE HQ Safeguards and Security review finding, in which Accelerator Site access by a foreign national (User) was confirmed despite expiration of the individuals access training requirements and VISA credentials (August 2008). The Lab's initial investigation was not relayed to the Site Office for participation until the Lab had already conducted an internal meeting and debrief with investigation participants. Timely notification to DOE was reiterated.

Evaluation of JSA's Contractor Assurance System

A TJSO-ORO CAS review was performed in early FY 2008, and the HS-64 health and safety inspection provided an in depth analysis of CAS at TJNAF. Both reviews concluded that JSA has established and implemented all the elements of a contractor assurance system; however, programmatic weaknesses existed which resulted in a "Needs Improvement" rating by HS-64. The following HSS findings were issued:

- HSS Finding D-4: "TJNAF has not established sufficient processes nor implemented a fully effective event investigation and reporting program that rigorously identifies, investigates, reports, and prevents the recurrence of ES&H-related events and injuries..." The following is a summary of the weaknesses constituting this finding:
 - Under-reporting of events in the DOE Occurrence Reporting and Processing System (ORPS).
 - Lack of critique/collective fact-finding meetings/process.
 - Notification to DOE not timely.
 - Trending not performed quarterly as required, and no analysis of the significance of trending data, plus lack of identifying if any corrective or preventive actions are required.

- Event investigations and corrective actions have not addressed the work control aspects of events.
- Some JSA departments do not have their CAS-related procedures/efforts integrated with the rest of the Lab.
- Lack of consistently entering issues into JLab CATS after investigations.
- Procedural and implementation deficiencies in the TJNAF occurrence reporting program.
- HSS Finding D-2: “The TJNAF assessment program is not fully effective to provide sufficient frequency, scope, and rigor and assurance of the adequacy of safety programs...” The following is a summary of the weaknesses constituting this finding:
 - Independent assessments and management self-assessments (MSA’s) were seldom performance based.
 - Many recent MSA’s and independent assessments were not sufficiently rigorous or self-critical.
 - In a number of assessments, findings were only identified as observations or opportunities for improvement.
 - Many assessment reports did not appropriately support their conclusions or identify issues accurately (and some contradicted their conclusions).
 - Assessments performed in the last few years did not reflect a planned, comprehensive review of processes, management systems, and activities but consisted primarily of assessments mandated by regulations and ISM reviews.
 - Lack of engagement of TJNAF line and line support management.
- HSS Finding D-3: “The TJNAF issues management program is not fully effective in ensuring that ES&H-related events, injuries, conditions, and program and performance deficiencies are rigorously categorized, analyzed, and corrected, and recurrence controls are established...” The following is a summary of the weaknesses constituting this finding:
 - Insufficient and inconsistent determination of causes, performance of extent of condition reviews, and validation of corrective action effectiveness.
 - Significance levels assigned to actions rather than issues.
 - The significance categorization process is not applied in a conservative or consistent manner.

- Inadequate descriptions of events, issues, and actions.
- Issues and uncompleted actions are not always put into the JSA's Corrective Action Tracking System (CATS) as required.
- Failure to include or reference/link formal causal analysis.
- Procedural Inconsistencies, insufficient detail, and omitted JLab CATS action steps.

Opportunities for improvement (OFI's): HS-64 identified the following CAS-related OFI's, which TJSO and JSA will analyze in FY 2009. All of the following OFIs are discussed in detail in the HS-64 report:

- Strengthen the TJNAF assessment programs to ensure that safety programs, topical areas, management systems, and work activities are rigorously assessed on an appropriate frequency and with a sufficient emphasis on performance.
- Significantly strengthen the issues management program to ensure safety problems are formally managed to resolution with effective analysis and identification of recurrence controls.
- Strengthen processes for incident/accident investigations, reporting, and documentation incidents and events, including injuries and illnesses.
- Ensure the initial rollout and application of the new operating experience program is managed and monitored to ensure effective implementation.
- Improve processes for reporting employee concerns.
- Significantly strengthen requirements flow-down and communication mechanisms.

Other ISM-related topics of significance

- Experimental Halls, fire protection:
 - In March 2008, during the conduct of a DOE Fire Protection assessment, it was discovered the laboratory had not implemented the alternative protection scheme required by a 1991 DOE-approved exemption from full sprinkler protection in the experimental halls. As discussed in the May 15, 2008 report, the current fire risk in the experimental halls is outside of the Department's agreed risk profile. The laboratory has taken some compensatory measures and will be submitting a new exemption request. The Contractor Assurance System needs improvement to prevent such occurrences.
 - The long term path forward includes submittal of a new fire exemption request to DOE that is anticipated to provide greater risk reduction versus the current exemption (even if it was fully complied with). The current exemption was issued prior to construction of the experimental halls, and in hindsight, aspects of the

exemption offer limited benefit. Also, execution of the implementation plan for DOE Order 420.1B, Facility Safety, will reduce fire risk.

- SAD-ASE: A major revision to the accelerator's Safety Assessment Document and Accelerator Safety Envelope (SAD-ASE) has been underway for most of FY 08, and is nearing completion. In 2007, DOE and contractor reviews documented SAD-ASE issues that needed addressing. As a result of extensive efforts, the updated SAD-ASE contains an unmitigated hazard analysis, which serves as the basis for many "new" credited controls (i.e., selected existing administrative and engineered controls will be elevated in importance). JSA and TJSO will jointly review implementation of the new SAD-ASE in FY 09.
- Unreviewed Safety Issue (USI) program: The USI program was non-existent prior to FY 08. In FY 08 a USI procedure was developed and USI's have been performed. An April 08 TJSO review of the USI procedure noted significant deficiencies. Short term compensatory measures were put in place until an adequate USI process could be developed and implemented. TJSO agreed to postpone the revision to the USI procedure until after the SAD-ASE revision was issued, since the USI program, even if properly administered, would be of limited value due to the inadequacies of the current SAD-ASE.
- Event investigations: JSA has been informed on a number of occasions during FY 08 that TJSO has not been consistently invited to off-normal event follow-up meetings. TJSO addressed this in a letter to JSA dated March 20, 2008 which stated, "...the Site Office expects to be promptly notified of events and be invited to all fact finding sessions..." This is a basic expectation that DOE has of its contractors, as TJSO is charged with ensuring events are thoroughly analyzed, the correct causes are identified, and appropriate corrective actions are assigned. By not making event investigations transparent (including early fact-finding meetings), TJSO cannot adequately perform its oversight function. Examples include: RadCon division's investigation into the above-mentioned HEPA event, improper guard response to experimental hall fire alarm, no Site Office notification of Hall A crane overload event, and insufficient notification of Hall C employee fingertip amputation investigation. While there have been delays in event reporting within the Lab, timely reporting between the Lab and the Site Office seems to have improved toward the end of the FY. Addition improvements in this area are expected, especially since the Lab acquired a new ES&H Reporting Manager in the 4th Quarter of FY 2008.

Evaluation of the ISM performance by Contractor against the FY 2008 Performance Evaluation Management Plan (PEMP)

The balance of safety related performance tied to specific PEMP measures was likewise good, as reflected by the fact that there were no significant environmental releases, and radiological exposures were maintained ALARA. TJSO provided comments regarding experimental hall fire protection in the 3rd quarter PEMP review.

Evaluation of the Contractor ISMS Description

The JSA ISMS Description was under revision during the second quarter of FY 08, resulting in a substantially improved document. JSA has not indicated the need for any further changes other than administrative. TJSO has reviewed the JSA ISMS Description and no opportunities for improvement were noted.

Trending

TJSO trending analysis: To facilitate the conduct of an ES&H performance trend analysis, assessment activities and correspondence were reviewed to extract some of the most salient aspects. Upon review of the events noted, and reflection upon TJSO Walkthrough, Surveillance, and HSS Assessment Findings, the following conditions were considered to have recurrent tendencies:

- **Material handling and rigging program:** Several different types of events and compliance issues were identified that were related to inadequate rigging and material handling conditions. Suspect/Counterfeit shackles were found during a TJSO surveillance in January. In March, Hall A accidentally overloaded an overhead crane, fortunately without incident or damage. During the HSS inspection in June, forklift operations were observed with inappropriate capacity ratings between the forklift and the forklift attachment device. This condition existed despite a recent finding issued by TJSO on the need to include forklift attachments into a maintenance and inspection program. In June, a detector section was dropped in Hall B. This mishap was due to an inadequate rigging configuration associated with a locally designed and fabricated lifting fixture. As a result of these events, JSA was requested to conduct a critical evaluation of material handling activities. The compensatory actions taken by JSA in response to the HSS Finding have been appropriate, but appear to be narrowly focused. The corrective action plan developed to address the long-term aspects of the HSS Finding appropriately identified that the Finding represents a material handling program challenge.
- **Hand and finger injuries:** While the extent of the hand and finger injuries sustained by workers and subcontractors were rather diverse, the number of these events is disproportionately high relative to other types of injuries as evidenced by two of the three DART cases during FY 2008 were hand and finger related. The most debilitating injury occurred during a lift activity in which a worker's fingers were crushed between the load and a staged shielding block. In the other DART case, a subcontractor strained tendons in the hand when a door was opened by extending fingers through a hole in the door that was missing door handle hardware. Other example included an employee finger laceration from an "x-acto" knife cutting activity. Coincidentally, hand and finger injuries were identified by the Laboratory in a recent FY as a recurrent problem. Following the negative performance trend in that preceding FY, JSA provided a focused briefing on ways to reduce such injuries and heighten awareness on hand and finger injuries. The Lab continues efforts to address this persistent challenge.

- Slips and falls (at the same elevation): While there has only been one first aid event identified this FY involving a slip and fall, the Laboratory appropriately evaluated instances extending in the previous FY and determined that slips and falls have accounted for an excessively high number of injuries. This trend determination was reached by the Lab's QA group and shared with the Lab Leadership as well as with the Site Office. As a result of this negative performance trend, JSA instituted an extent of condition review specifically evaluating building entrances for slip potential that may be exacerbated by wet floor/wet shoe conditions. Some of the corrective actions from that facility condition assessment have already been implemented.
- Tropical Storm Hanna: Tropical Storm Hanna impacted TJNAF during September 2008. JSA was well prepared for the event and included TJSO in the preparations; the preparation and response to the storm was a successful example of ISM:
 - Hurricane readiness conditions according to Laboratory EHS Manual Chapters on Emergency Management were in effect. TJSO inspection of Laboratory grounds prior to the storm was very positive.
 - Conditions and response coordination were tested in a Hurricane Preparedness Exercise on July 29, 2008, with participation from throughout the Lab from the worker level and all levels of line management, including the Lab Director. The exercise was also attended by one of the regional emergency management coordinators from the Virginia Department of Emergency Management.
 - During the week approaching the storm, the Lab Director twice convened the Severe Weather Team and line managers for readiness planning and status updates. A post-Hanna critique was conducted which collected observations and lessons learned.
- Training and qualification records management: Findings generated from a series of unrelated assessments conducted by the Site Office and a DOE Security Review, indicate the Laboratory's access control system is not fully effective in tracking personnel qualification status. The 2008 Laser Safety Program Surveillance noted that medical qualification records, FEL specific laser training records, and general laser orientation training records are not consistently merged. In the absence of a consolidated electronic records system, supervisors are not always afforded timely, clear and consistent retrieval of employee training qualifications. A Security Survey found that duplicate electronic records existed for an off-site user, such that an individual was able to successfully access the site despite one of the entries being turned-off when their foreign work visa expired. Walkthrough assessments that included an evaluation of subcontractor work activities determined that some subcontractor qualifications are not tracked in the site-wide training and qualification records system, even when these subcontractors include those working full-time at the site for the past several years. The Laboratory has recently instituted a Qualification Card system in the training registry to help address this problem; however, it remains uncertain if this has addressed the underlying condition. It is expected that shortcomings in training and qualifications records/access control system will be addressed through the corrective actions associated with the lab's HSS inspection Corrective Action Plan.

Lastly, a point of clarification concerning JSA's ISM Effectiveness Review (enclosed). The JSA ISM Effectiveness Review states, "The DOE-HSS reviewers announced that JLab's program was among the best they had observed." It should have reported that during the out brief that the DOE-HSS reviewers stated that JSA was the best the HS-64 team had seen, *for a site that had not previously been through a HSS ISM review.*



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FILE # 620

August 12, 2008

Mr. James A. Turi, Manager
Department of Energy
Thomas Jefferson Site Office
12000 Jefferson Avenue, MS 12F
Newport News, Virginia 23606

Dear Mr. Turi:

Re: Annual Integrated Safety Management (ISM) Expectations and Declaration

Section I.100 (e) of the contract between DOE and Jefferson Science Associates for the operations of Thomas Jefferson National Accelerator Facility (TJNAF) requires an annual effectiveness review of TJNAF's Integrated Safety Management System (ISMS). The review is attached for your information. The review was based upon the numerous assessments conducted throughout the past 12 months.

Based upon our past and continued success in meeting the safety and health measures established in the PEMP, the FY2007 ES&H score JSA received from you, and the results of this effectiveness review, we have concluded that the TJNAF ISM system is effective and no changes to the TJNAF ISM Program Description are needed at this time. It is expected that with the succession of a new Laboratory Director, and implementation of DOE O 450.1A, "Environmental Protection Program", the ISM Program Description will need to undergo revision during FY2009. The minor comments provided by your staff in your March 27, 2008 letter will be addressed at that time.

We continue to monitor and measure our ISM implementation through a variety of means including PEMP measures, issues management, and work observation tracking and trending. JLab remains committed to ISM implementation and in FY09 we expect to:

- Continue our implementation of the actions in response to the June 2008 DOE-HSS review;
- Continue reinforcement of ISM principles and core functions with our employees and management; and
- Improve our trending information from sources such as work observations, issues management, and lessons learned.

Sincerely,

Christoph W. Leemann,
President and Laboratory Director

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Enclosures: Integrated Safety Management System Effectiveness Review

cc w/ enclosure:

Michael Dallas
Anthony Thomas
Mary Logue

Integrated Safety Management System Effectiveness Review

July 31, 2008

Executive Summary:

Section I.100 (e) of the contract between DOE and Jefferson Science Associates for the operations of Thomas Jefferson National Accelerator Facility (TJNAF) requires an annual effectiveness review of TJNAF's Integrated Safety Management System (ISMS). The current review is based upon the numerous assessments conducted throughout the past 12 months. The conclusion of the review indicates that the ISM system is effective and no changes to the TJNAF ISM Program Description are needed at this time. It is expected that with the implementation of DOE O 450.1A, "Environmental Protection Program", the ISM Program Description will need to undergo revision during FY2009.

Effectiveness Review Strategy:

In the last twelve months, a number of ISM assessments were conducted at JLab, by both internal and external entities. These assessments and topics evaluated are listed in Table 1. In addition, a number of topical assessments were conducted as well. These are listed in Table 2. The results of these assessments were reviewed in order to identify any recurring themes.

Results:

A review of all the various assessments identified one such recurring theme. The ISMS assessments performed early in the review period identified a number of concerns with JLab's ISMS. The Laboratory accepted the challenge to improve by establishing High Performance Work Teams focusing on Integrated Safety Management (ISM), more specifically the five core functions. These teams reviewed, realigned, and re-established the JLab's ISM program. As a result, the assessments conducted later in the assessment period pointed to a very strong ISM program. The DOE-HSS reviewers announced that JLab's program was among the best that they had observed. Of the thirteen assessment topics, JLab received "Effective Performance" in eleven categories. Two categories were rated as "Needs Improvement". No categories were identified as having a "Significant Weakness". In addition, nano-safety was a specific topical assessment conducted by DOE-HSS. The results were also very positive.

Table 1 – Assessment of TJNAF’s Integrated Safety Management System during the Past 12 Months

Assessment Title	Assessment Date	Assessment Type	Topics Evaluated	Conclusion
Assessment of Lessons Learned from SLAC ISM Review	8/28/2007	Unscheduled Management Self Assessment	Evaluate JLab ISMS against findings identified during SLAC ISMS review.	Inconsistent implementation of DOE Order was observed. Recommendations were made in the areas of training, safety documentation, lessons learned, and work planning & control. These were rolled into the ISM High Performance Work Teams activities. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-16466/MSA-07-014.pdf
Historical Unreviewed Safety Issue Review	09/25/2007	Unscheduled Management Self Assessment	Review of past USI determinations against criteria established in 420.2B.	This assessment was conducted in response to an SSAC recommendation. No findings were identified. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-16646/MSA-07-017.pdf
Environmental Aspects	09/27/2007	Management Self Assessment	Verify completeness of Significant Aspects and evaluate the effectiveness of EMS during recent environmental events.	No findings were identified. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-16620/MSA-07-016.pdf
Assessment of TJNAF Contractor Assurance Program	10/12/07	Internal Management Self Assessment	Evaluate contractor Assurance, including Feedback & Improvement	The CAS was found to be well-executed and effective in the ES&H Area. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-16840/MSA-08-001.pdf
DOE Review of the TJNAF Contractor Assurance System	11/9/2007	DOE TJSO/ORO Surveillance	Verify CAS formally and effectively implemented	All review objectives were met. Six findings, 10 observations, and 2 noteworthy practices were identified. TJNAF CAS approved. http://www.jlab.org/div_dept/dir_off/oa/CAS_Final_Report.pdf
Experimental Nuclear Physics and Free Electron Laser ES&H Assessment	2/14/2008	Independent Assessment	Evaluate ES&H control and best practices within the work planning and control process	The Independent ISM Assessment Team identified a number of good practices in the way JLab implements ISM. The Team identified 1 Finding (closed prior to completion of assessment), 13 Opportunities for Improvement, and 11 Notable Practices. These were rolled into the ISM High

				Performance Work Teams activities. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-19392/IA-2008-13.pdf
ISMS Implementation/ Oversight Using HS 64- 20 CRAD/LOI	4/04/08	Internal Management Self Assessment	JLab implementation of the ISMS based on the HS 64-20 CRAD/LOIs.	The assessment was effective in providing JLab and ESH&Q management information about strengths and areas for improvement in the ISMS oversight process at the Lab. 32 corrective actions were identified. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-19149/MSA-08-010.pdf
DOE-HSS Review	06/04/2008	DOE Assessment	Evaluate JLAB's against the ISM core functions, including feedback & improvement	The draft report indicated a positive result. Of the 13 areas of evaluation, 11 were rated as "effective performance", and 2 were rated as "needs improvement". Nothing was rated as "ineffective performance". There were 4 findings.

Table 2 – Other Topical ESH&Q Assessment Performed on TJNAF over Past 12 Months

Assessment Title	Assessment Date	Assessment Type	Topics Evaluated	Conclusion
DOE Review of TJNAF's Rigging and Material Handling Program	01/2008	DOE Surveillance	Rigging and material handling	The overall state of the Laboratory's R&MH Program was considered to be effective. 4 P2, 11 P3, and 4 Proficiencies were identified. http://www.jlab.org/div_dept/dir_off/oa/FINAL_RMH_Report_TJSO_JAN_2008.pdf
DOE Review of TJNAF's Laser Safety Program	04/2008	DOE Surveillance	Laser Safety	The Laser Safety Program adequately identifies requirements, and program implementation was sufficient to support laser operations. 1 - P2 and 6 - P3 Findings and 1 Proficiency were identified. http://www.jlab.org/div_dept/dir_off/oa/Final_TJSO_Laser_Safety_Report.pdf
DOE Review of TJNAF's Fire Protection Program	05/2008	DOE Surveillance	Implementation of DOE Order 420.1B	The assessment found that the Fire Protection Program has not been implemented as required by Contract. 12 Findings were identified. http://www.jlab.org/div_dept/dir_off/oa/Final_TJSO_Fire_Protection_Report.pdf
Radiation Safety Peer Review	9/2007	Peer Review	Radiation Safety	5 Findings, 37 Observations, 3 Noteworthy practices https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-19175/IA-2007-020.pdf
Implementation of 29 CFR 1904 and DOE Order 231.1A	05/2008	Management Self Assessment	Reporting and recording occupational injuries	The Laboratory meets the required elements for implementation of 29 CFR 1904 and DOE Order 231.1A. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-19516/MSA-08-011.pdf
OSHA Lockout/Tagout Annual Inspection Report	12/2007	Independent Audit	Lockout/Tagout	Program was found to be compliant. https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-17599/IA-2008-08.pdf

September 1, 2008 Addendum to the JSA FY 2008 ISM Effectiveness Review

The following is additional JSA ISM Effectiveness Review input that addresses the elements of the JSA ISM Program Description (See Section 6.2, JSA ISM Program Description Maintenance and Continuous Improvement).

Mission or operational changes – any changes to our mission, operations, or special research activities are evaluated with respect to impacts on the ISMS.

There was no mission or operational changes over the last year. There were a number of new DOE Orders placed into the contract this year. TJNAF has developed Implementation plans for those Orders in which compliance was not immediately apparent. These were developed with ISMS in mind. None of these orders impacted the ISMS system or its effectiveness.

Organizational changes – changes are evaluated with respect to ISM roles and responsibilities.

There were no organizational changes over the last year that impacted ISM roles and responsibilities. Line management continues to take their responsibilities for safety seriously, as evidenced by the results of the DOE-HSS assessment. A new Associate Director for ESH&Q joined the senior management team in June 2006. She came from a laboratory with a strong ISM program. Additionally, as mentioned in our cover letter, it is expected that the new Laboratory Director starting at TJNAF in September 2008 may decide upon organizational changes. He is coming from a laboratory with a strong ISM program. It is likely that there will need to be changes incorporated into our current ISM program to reflect his management style, as well as integrating of our environmental management systems with our health and safety management systems. However, those changes will only strengthen our ISM program.

ES&H trends – our performance with respect to protecting the public, workers and environment is analyzed and improvements are identified.

Injury rates continue to be low, certainly below DOE's expectations. There has been only one restricted work case in FY 2008. There were no significant environmental releases, and radiological exposures are maintained ALARA. All evidence of an effective ISMS.

Internal and external assessment results – JLab conduct numerous assessments, including hundreds of work observations throughout the year and uses these assessments to identify improvements on how we do work.

As evidenced by the results of the DOE-HSS review, the ISMS at TJNAF are effective to allow work to be performed safely. Indeed, the Assessment Team Leader pointed out that TJNAF was the best they had seen. The findings identified were dealing with improving the effectiveness of some of our "less mature" elements of our contractor assurance program. The corrective action plans being developed will address these issues. The HSS review also identified a need for improvement in fork lift operations, which is also being addressed in the CAP process. None of these findings were identified as significant weaknesses. The one assessment that identified issues that will require effort to address is the Fire Protection

assessment, with the report being received May 2008. The CAP is being developed in concert with the implementation plan for DOE O 420.1A.

Internal and External lessons learned – lessons learned and best practices collected internally through our various feedback mechanisms, as well as lessons learned and best practices collected from numerous sources outside the laboratory.

Although a relatively new process, TJNAF's lessons learned program was viewed positively by DOE-HSS. Lessons learned are now being developed for internal events that can be incorporated into the work planning process. None of the events over the past year demonstrated any significant weakness in our ISMS program.

Revisions to safety measures and goals – a detailed review of our performance against internal measures and goals and industry standards and best practices is conducted.

There are a number of ES&H performance measures in place at TJNAF, both internally and contained within the contract (injury rates, EMS report card, safety observations, notable events and their causes, issues management and underlying causes, to name a few). These are formally tracked by senior management on a monthly basis, and informally on a daily basis. All measures are being met, and there is nothing to indicate a less than effective ISMS program.

Best practices – we review other ISM programs descriptions to identify improvements to our and collect information at industry and DOE conferences.

The recently departed as well as the recently hired Associate Director for ESH&Q have reviewed a number of ISM program descriptions (Fermilab, Brookhaven National Laboratory, Argonne National Laboratory), and identified no need for changes to the TJNAF program description. Both have attended a number of conferences and communicate monthly with peers at other DOE-SC laboratories in order to identify improvements. Improvements identified can be summarized as minor program improvements, and not due to any significant ISMS program weaknesses.