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Integrated Functional Appraisal

Computing Sciences Directorate

FY 2004

IFA Team Members

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Executive Summary

An Integrated Functional Appraisal (IFA) was to be performed for the Computing Sciences Directorate (CS) at Berkeley Lab. No high-hazard, formal, or facility authorizations are held by CS. Nonetheless, the Oakland Scientific Facility (OSF), which has procedures for confined spaces, was inspected. The inspection team found that the proper procedures are in place, and that the OSF has taken sufficient measures to ensure that the procedures are followed. CS is rated very highly for its proactive stance on safety issues.

1. Introduction

1.1. IFA Purpose

An IFA is performed at least once every three years for each division at the Laboratory, and is intended to review and assess any high-hazard processes or operations that are normally carried out by a given division.

A process briefing was held by the Environment, Health and Safety (EH&S) IFA Coordinator, Ross Fisher, for the affected U.S. Department of Energy (DOE) representatives, EH&S division liaisons, and division safety coordinators, on February 18, 2004, to kick off the IFA. It was noted that, this year, all divisions at Berkeley Lab had recently undergone a thorough Occupational Safety and Health Administration (OSHA) workspace inspection. Subsequently, Dr. Fisher provided a template for this report for guidance to the various division liaisons.

1.2 Scope

This IFA report addresses the Computing Sciences Directorate (CS). It was noted at the original process briefing that CS had almost been excluded from the IFA as the directorate does not have processes involving high hazards or that require a facility or formal work authorization. In addition, CS has had outstanding ratings on their annual self-assessment for the past three years, which, according to IFA documentation, should have precluded the need for an IFA. However, in the interest of consistency and completeness, and because there are certain operations at the Oakland Scientific Facility (OSF) that require written procedures, it was decided to include CS in the exercise.

2. Appraisal Process

2.1 Team

Based on attendance at the kick-off meeting, the team originally consisted of the Division Safety Coordinator (DSC), Martin Dooly, and the newly appointed EH&S Division Liaison, Ginny Lackner. Later, the assigned Industrial Hygienist (IH), Carole Fried; the OSF Building Manager, William Iles; the assigned safety engineer, Matt Kotowski; and the DOE site office representative for CS, Kim Abbott, were also consulted for guidance and input.

Traditionally, the Division Liaison assembles and writes the report, and then the other team members have an opportunity to review and comment on it before it is submitted.

2.2 Defining Appraisal Areas

The DSC, Martin Dooly, has been in his position for several years and is very knowledgeable of CS operations. Based on discussions between him and Ross Fisher, the general coordinator of this IFA, it was agreed that only certain procedures pertaining to areas at the OSF identified as non-permitted confined spaces would need to be considered for this report. Accordingly, the OSF Building Manager was contacted, and copies of the relevant documents were procured.

2.3 Space Reviews

After review of the documents that had been provided by the OSF, Ginny Lackner, the EH&S Division Liaison, and Carole Fried, the assigned IH, toured the OSF on March 19, 2004, with William Iles, the OSF Building Manager. Subsequently, other team members were asked to provide input on any other issues they felt should be included in the discussion.

3. Findings

Three procedures were considered in this review:

- The OSF Procedure for Entering the Storage Tek Tape Silos
- The OSF Procedure for Entering the OSF Computer Room Sub floor Area
- The OSF Refrigerant Safety Plan for Chillers

Additionally, there is a procedure ancillary to entering the computer room sub floor area, i.e., a procedure for lifting the computer-room floor panels, but this in and of itself is not hazardous and does not require any authorization.

The walkthrough on March 19th, in conjunction with the procedures themselves, satisfied the inspection team that the potential hazards of entering the silos or sub floor area have been thoughtfully and prudently addressed, and have been provided sufficient protection for any personnel engaged in such actions. Engineering controls are also sufficient to ensure that one has to observe the administrative procedures in order to gain entrance.

The team also inspected the basement of the facility, which contains the chillers used to provide air conditioning to cool the computer equipment. The team assessed that the Refrigerant Safety Plan is adequate and addresses the operation of the chillers in a clear and useful manner. It was noted that a safety improvement had recently been made: the chiller-room emergency exhaust fan controls, along with the key necessary to activate them, have been relocated to outside the chiller room; this means that personnel will no longer be required to enter the chiller room during a refrigerant leak to turn on the emergency exhaust fans, thereby eliminating a potential asphyxia hazard.

4. Recommendations

In relation to the emergency procedures of this Refrigerant Safety Plan, it was noted that due to the relocation discussed above, the use of self-contained breathing apparatus (SCBA) gear, which are stored in the hallway, is no longer necessary. The SCBA was to be used in the event of a leak, during which maintenance personnel would don the apparatus and enter the chiller room to turn on the emergency exhaust fans. Since this is no longer necessary, this IFA recommends that the building eliminate SCBA gear and the attendant requirements (user list, user training, cylinder testing, inspections, refresher courses, etc.). Given the present equipment configuration, it is safer for the Laboratory and its contractor maintenance employees to activate the fans from outside the chiller room and to wait for the arrival of trained firefighters to respond to any emergency releases of refrigerant. Removal of the SCBA gear should save both money and potential liability. The Refrigerant Safety Plan would then have to be modified accordingly.

5. Noteworthy Practices

CS is fortunate in that the nature of its work does not generally involve high-hazard operations. Still, even within the limited scope of this inspection at OSF, it was clear that the operations have been assessed with an eye for personnel safety. Care is taken to provide good procedures, which are available and up to date. Safety is a high priority. Responsible personnel are knowledgeable and responsive. The storage areas in the basement are well kept and orderly.

A procedure for disabling the Halon system in 50B-1275 and 50A-1156 was also provided to the team for informational purposes. This also indicated that CS has considered its operations and taken the appropriate measures to ensure the safety of personnel and the prevention of untoward incidents in the performance of its work.

6. Conclusion

CS falls only marginally within the purview of an IFA. However, certain areas and operations at the OSF relating to confined spaces were reviewed. The inspection showed that the OSF has observed high standards of safety, planning, and preparedness. It is perhaps unfair to compare CS to divisions that have high-hazard operations, but based on what was observed by the IFA inspection team, CS would rate highly (10 out of 10). The only recommendation is to remove superfluous SCBA gear at the OSF, since other safety measures taken have made them unnecessary.