ES&H Safety Self Assessment

Information Technology Division

October 2009

_____ Date: 10/29/09

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_____ Date: 11/11/09

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Information Technology Division
FY09 Safety Self-Assessment

10/1/2008-9/30/2009

Attached you will find the Information Technology (IT) Division's response to this year's EH&S Self Assessment performance for each of the 15 lab-wide measures, and two that reflect IT's specific safety concerns. IT continued to maintain a culture of safety by implementing an Integrated Safety Management (ISM) plan aligned with that of the Lab at large. Our division's main concerns are focused on ergonomic safety, which we continue to promote actively through our strong, ongoing ties with the Lab's ergonomic staff.

Reviewing the areas from the FY08 self assessment, IT met the following goals:
- Updating the ISM plan to address LOTO, HMS review, Memos of Understanding for matrixed staff, walkaround process and goal
- Reviewed telecommunication closets
- Reviewed and implemented the SJHAWA effectively
- Set and met the goal of at least 90% of staff being reviewed at least once during the four walkarounds conducted during the year
- Brought space ownership data in Maximo current
- Reviewed LOTO practices and incorporated them into appropriate JHA work groups

Areas that were tabled this year or need further discussion in the coming year include:
- SJHAWA for existing contracts prior to 10/1/2008
- Publication of safety concerns to the Division at large
- Follow-up on those unable to take EHS027 due to course being reworked by EH&S

Other items to keep in mind when reviewing this year's assessment include the restructuring of Safety Management within the division. This included the addition of Rosemary Lowden as Division Safety Manager, appointed by Division Director Rosio Alvarez, to focus specifically on the priorities of Safety in the division. Division Safety Coordinator Ann Tomaselli was on leave from April 20, 2009 to the end of this performance period. In her absence the Computing Science Safety Coordinator, Betsy MacGowan helped maintain a safe organization. These changes did affect the consistency of recording data. We plan to address any shortfalls in this performance year during FY10.

ISM CORE FUNCTION 1: DEFINE WORK

1. *Division revises division ISM plan to reflect a) ES&H policy changes, and b) updates to the Institutional ISM plan. Line management communicates updates to the plan to division personnel and assesses effectiveness of that communication.*

In September 2009, IT updated its divisional ISM to reflect the changes made to the Institutional ISM plan and PUB-3000. Changes were made as follows:

2009 Changes:

Item changed	Changes made
Several sections from the last version were relocated within the current document	*Document control moved from Section 2 and Appendix-B to the Title Page and Appendix C*
	Description of IT Division moved from Section 3 to Section 2
	Responsibility and Accountability moved from Section 4 to Section 3
	IT Division Safety Committee moved from Section 5 to Section 4
	Work Group Descriptions moved from Section 7 to 5.1
	Qualification and Training from Section 8 to 5
Title Page	*Deputy Division Director and Safety Committee Chair changed to Rosemary Lowden and title changed to "Safety Manager".*
Table of Cont.	*Added*
Section 2	*Description of IT Division services was expanded.*
Section 3	*Expanded descriptions of ES&H Roles, Responsibilities and Accountabilities within the Division. Added descriptions for Division Safety Manager, Area Safety Leader, Division Safety Coordinator and EH&S Division Liaison.*
Section 4	*IT Division Safety Committee: Added a description of committee activities.*
Section 5	*Added "Work Authorization and Training" section.*
Section 5.1	*Modified Work Group Descriptions (previously listed in Section 7).*
Section 5.2	*Expanded information on "Job Hazard Analysis (JHA)" (info was previously in Section 8).*
Section 5.3	*Added "Subcontractor Job Hazard Analysis and Work Authorization (SJHAWA)" section.*
Section 5.4	*Added "Hazard Management System (HMS)" section.*
Section 5.5	*Added "Specific Authorization/Permits" section. New information below this section includes "Confined Space", "LockOut/TagOut (LOTO) and Energized Electrical Work Permit" and "Activity Hazard Document (AHD)"*
Section 5.6	*Added "Training" section.*
Section 6	*Added "Offsite Work" section.*
Section 6.1	*Added "Working at UC Berkeley Campus" section.*
Section 6.2	*Added "Telecommuting" section.*

Section 7.0	*Added "Performance Monitoring and Feedback" section.*
Section 7.1	*Self-assessment process: Added in the requirement to review all division safety process and procedures annually.*
Section 7.2	*Added "Division Walk Around Inspection Process & Schedule" section.*
Section 7.3	*Added "Injury, Illness and Mishap Investigation and Reporting" section.*
Section 7.4	*Added "CATS Tracking of Deficiencies" section.*
Section 7.5	*Added "Near Hits and Lessons Learned" sections.*
Section 8	*Added "Emergency Preparedness" section.*
Section 9	*Added "Reporting Employee Concerns" section.*
	Removed "Balanced Resources" Section to match Division ISM Implement Plan Review Checklist.
Appendix-B	*Added "IT Division ES&H Self-Assessment Measures".*
Appendix-C	*Added IT ES&H Self-Assessment Measures to ISM Plan.*

The IT Division reviewed the work location hazards in HMS. There are only 2 hazard listings for IT: the 50A 1156 ICS Switching/Computer Room and the 50B 1275C secure server room which both have halon fire suppression systems controlled by IT. The main data center (50B1275) is also in the HMS database, but is owned by Computing Sciences and managed by IT.

The ISM has been updated to reflect the requirement for an annual review of the HMS database. In last year's Self Assessment, IT was advised to contact Facilities as they could produce a list of IT space. This brought to our attention that the IT division is considered responsible for all telephone closets on the hill. In FY09, IT worked to incorporate the identification and review of all telecommunication closets on site into its walk around plans. Telecommunication closets do not contain any hazards and are therefore not listed in HMS. Additionally, it was noted that there were a number of erroneous spaces that were listed as belonging to IT. In FY09, IT worked with Facilities to clean up incorrect data in the Facilities Maximo database.

2. *Division ensures workers have a current (reviewed/reauthorized within the previous 12 months) Individual Baseline Job Hazards Analysis (JHA) that accurately reflects the work performed and hazards present.*

   IT follows the Lab's JHA and SJHAWA and reflects these processes in our ISM.

   As of September 30, 2009, 100% of staff have current JHAs.

Overall JHA Compliance Rate for all employees and guests is 96%

3. *Division ensures that before non-construction work is performed by Subcontractors, Vendors, or Guests at LBNL facilities, a Subcontractor Job Hazards Analysis and Work Authorization (SJHAWA) form is prepared and pre-job meeting is held to review and sign the SJHAWA form. Oversight of the work is performed and recorded using a risk-based graded approach.*

The Safety Coordinator met with EH&S Safety Program manager in charge of non-construction assurance, who manages the SJHAWA requirements for the Lab, in order to fully understand the requirements. These were then communicated to the IT Business Manager who explained them to all of the Department Heads at a staff meeting, asking them to make sure the Group Leaders understood the requirement. The topic was also discussed at the divisional Safety Committee meeting, and the members in turn communicated to their respective groups as appropriate.

To further ensure the process was followed, the Program Manager and Safety Coordinator also met with the administrative staff so they would know how to flag requisitions requiring SJHAWA.

Any contractors coming onsite to do "hands-on" work are required to take a SJHAWA. Besides taking the SJHAWA, prior to starting work, line management meets to go over safety expectations with contractors. Contractors doing low hazard work are periodically reviewed to ensure they are performing all work safely and correctly. Any issues are addressed on the spot.

High hazard work is addressed with daily work reviews. Currently subcontractor work done in IT is low hazard. Any work that falls into high hazard is contracted through the Facilities Division.

SJHAWA forms are currently kept on file in the Division Safety Coordinator's office.

ISM CORE FUNCTION 2: IDENTIFY HAZARDS

4. *Division reviews work activities to identify, analyze, and categorize hazards and environmental impacts for the associated work. Examples of hazard inventory include: Hazard Management System (HMS) database (or equivalent), project safety review, workspace safety review, Job Hazard Analyses (JHA), environmental review (NEPA/CEQA, permits, regulations), and chemical inventory.*

   As part of the annual review of work groups as outlined in the divisional ISM, the Division Safety Coordinator met with each work group owner to review current work groups which identify, analyze, and categorize work hazards. Upon review, work group owners set up two new work groups that better reflected differences in work scope. The Communications and Data Center Support was divided into a Communications work group and a separate Data Center work group reflecting different hazards encountered for those types of work. Similarly, the Library, Archives and Records Support was divided into an Archives and Records group and a Library and Reports Coordination group.

5. *Division participates in pollution prevention, energy and resource conservation, recycling, and waste minimization programs, as appropriate for the environmental impact of their activities.*

   IT has continued to focus on ways to reduce energy consumption in the data center. Improvements this year include:

   - Retrofitting the institutional computing cluster with water-cooled rack doors, to increase the energy efficiency of our 50B-1275 data center. This included: converting false ceiling into a hot air return for the AC units, increasing the temperature set point on AC units, disabling energy wasting and unnecessary humidification and dehumidification functions or AC units. Further, AC maintenance is now required to be done regularly a much delayed cleaning of the treated water loop for Bldg. 50B which improved energy efficiency.

   - Installing curtains to improve air flow management in data center.   This portion was completed in Spring FY09, with additional curtains to be installed in FY10.   The purpose of this project is to better manage air flow in the data center - specifically to prevent the mixing and hot and cold air, and to eliminate 'hot spots'. Hot spots force data center operators to run the entire facility at a lower temperature than necessary.

- Starting an effort to standardize infrastructure equipment e.g. racks, power distribution equipment etc. Benefits include better heating/cooling architecture, better power distribution and monitoring, more rack interior room to safely install equipment, standard seismic anchoring solution.

IT also worked with CFO, Facilities, and EHS, to set up and maintain the LBL Sustainability website (http://www.lbl.gov/sustainlbl/) and initiated outreach on reducing use of paper in meetings and reducing the energy consumption of computers.

During FY10 IT will include more discussion in walk-arounds regarding recycling and waste minimization.

6. *Division, with assistance from EH&S, surveys all of its electrical equipment by September 30, 2009, as required by the LBNL Electrical Equipment Acceptance Program.*

The IT Division completed its electrical equipment inspections in a phased approach. Phase 1 included the computer rooms, telecommunication closets, and node sites, and was conducted using a team of IT surveyors familiar with these areas after completing the EHS-required training. This was completed on May 15. Phase 2 consisted of all other office, field and work areas. Phase 2 was performed by Betsy MacGowan and Katherine Johnson, visiting all IT spaces, and with a follow-up during the annual wall to wall walkaround. All inspections were completed on August 31, 2009.

A total of 1,270 pieces of equipment were surveyed and entered into the Electrical Equipment Inspection Program (EEIP) database. Of this number, 1,200 were identified in Phase 1, and 70 were added in Phase 2.

In the course of these inspections, IT initiated a meeting with the LBNL Authority Having Jurisdiction (AHJ) Keith Gershon to review questions on the EEIP program. IT was responsible for 10 of the 15 questions submitted to the EEIP database, requesting information on the NRTL Survey Program. This benefited not only IT surveyors but the entire group of EEIP NRTL surveyors.

ISM CORE FUNCTION 3: CONTROL HAZARDS

7. *Division is using appropriate and required engineering controls in performing work.*

The existing engineering controls are evaluated each year during the annual self assessment process. At that time work group owners are asked if new engineering controls are needed.

Current controls are as follows:

1. The computer Halon System needs to be turned to Manual mode before any work is done under the raised floor or in the ceiling. Group Leaders have a key for doing this and it's only issued to qualified and trained individuals.

2. Server lift is used in the computer room to lift servers into place. This is protected by a key and it is issued by the Group Leader only to qualified/trained individuals.

3. Floor tiles in the computer room are lifted up using a special long handled floor tile lifter. Employees that use this have received training on the proper way to lift tiles.

4. Telephone staff use Lockout/Tagout procedures for locking out the crane while doing work in the Hi-Bays.

5. A few employees are authorized to administer confined space permits when working in telephone manholes

During the year if a new piece of equipment comes into the department, or a problem is found with an existing piece of equipment, the supervisor who owns the equipment along with the Safety Coordinator will determine the best course of action. The safety committee might also be asked for solutions.

Most installations can be done "in house", but there are times a vendor might have to come in. During those times the SJHAWA process is followed.

This past year the server lift extension was found to be unstable. The users contacted the acting safety coordinator and they contacted the manufacturer to come up with a solution. The manufacturer was aware of this problem and provided a solution by adding more weight to the extension to keep it from tipping.

8. *Division is using appropriate and required administrative controls in performing work. Examples of administrative controls include: work authorizations (including but not limited to JHAs, AHDs, BUAs and RWAs), work permits (including but not limited to confined space, and energized electrical work), environmental regulations and permits (including recordkeeping), work procedures, and project safety reviews.*

IT work is managed via the JHA which is reviewed annually. IT created JHA work groups to reflect our work scope. These are listed in the IT ISM, along with the requirement that we review the JHA work groups annually. If work scope changed, supervisors are to address this via updating the work groups or by assigning the employee to different work groups and him or her to retake the JHA.

IT does not have any work requiring Radiation Protection Group (RPG) authorizations, Activity Hazard Documents (AHD) and Biological Use Authorizations (BUA), however the division does

have some confined space work and permits are aquired for all of this work. The division has developed a video to explain this process.

9   *Division controls ergonomic hazards (computer, laboratory, and material handling). Employees and line management are knowledgeable and engaged in this process, including the early reporting of ergonomic pain or discomfort (before an injury). Ergonomic issues/concerns/discomfort/pain are managed effectively.*

	FY09	FY08
Total Recordables	4	1
Ergonomic recordables	3	1
% of recordables ergo related	75%	100%
Total First Aid Cases	17	8
Ergonomic first aid cases	10	4
% of first Aid cases ergo related	59%	50%
Requests for evaluation	91	58
Evaluations related to moves	50	not tracked
% of evaluations move related	46%	n/a

Per our divisional ISM, IT supervisors have conducted 1:1 safety walkarounds with each of their employees three times approximately 3 months apart (see item 12 below). Each of these walkarounds has had a particular focus, but each supervisor checks with the employee whether they are experienceing any discomfort.   Additionally, the Division Director and the Safety Manager asked each employee present during the annual wall-to-wall walkaround whether they were experiencing any discomfort, and encouraged them to take appropriate action (see item 16 below).

IT has 3 ergo advocates who collectively did 52 preventative evaluations. Many of these were in response to the move from 937 to the hill. One of the ergo advocates was able to attend the update session. Currently the division safety coordinator is the only individual who on any regularity reviews Remedy Interactive. The ergo database is used effectively by all advocates.

IT continues to provide financial support to all internal groups who need ergonomic equipment.

IT as a division continued our ongoing focus on ergonomics in relation to the tools we supply to lab users**.** In FY09 the Business Systems Department began to develop a usability practice for improved software application design. Usability specifically includes improving application ergonomics. In FY09, some staff training on usability was conducted, and engaged third-party expert consultants to assist in the design and review of several applications, resulting in a number of targeted improvements. This addressed an observation found in the ergonomics portion of the FY08 Self Assessment.

ISM CORE FUNCTION 4: PERFORM WORK

10. *Division performs work safely within ES&H conditions and requirements specified by Lab policies and procedures. Performance criteria include work authorizations (including but not limited to JHAs, AHDs, BUAs, RWAs); work permits (including but not limited to confined space, energized electrical work); waste management criteria (SAAs, waste sampling, NCARs); and environmental permits and management criteria (resource conservation, pollution prevention, and waste minimization).*

> IT does not have any work requiring Radiation Work Authorization (RWA), Activity Hazard Documents (AHD) and Biological Use Authorizations (BUA). IT also doesn't have any need for Sattelite Accumulation Areas (SAA)

> IT employees who may work in HiBay areas are trained in LOTO in order to lockout cranes when working in those areas. When work needs to be done on the UPS systems and other electrical work then the help of LBNL Facilities is required. IT does not do any electrical work. We go through Facilities who then manages any electrical permitting issues.

11. *Staff (including employees, participating guests, students and visitors) is effectively trained to properly perform work. Required training is based on JHA and on-the-job training identified by the division.*

> IT follows the Lab's JHA and SJHAWA and reflects these processes in our ISM.

> As of September 30, 2009, 97% of staff has satisfied all required training. This is 1% point higher than last year.

Overall Training Completion Rate for all employees and guests is 95%

(Overall JHA Completion Rate for all employees and guests is 96%)

ISM CORE FUNCTION 5: FEEDBACK AND IMPROVEMENT

12. *Division implements an effective safety walkaround program per the requirements of the Division ISM Plan. Division staff conducts safety walkarounds as assigned. Safety walkaround results are effectively integrated into division self-assessments as a component of the division's feedback and continuous improvement process.*

Walkarounds are outlined in the Division ISM. Walkaround forms are amended to be topical to issues at hand. This was a noteworthy practice that was reflected in the FY08 Self-Assessment. Topics this year included housekeeping, PPE, HSS prep, and earthquake preparedness.

IT performed walkarounds quarterly. These were tracked by the Division Safety Coordinator. Deficiencies not corrected on the spot were either put into CATs if they rose to an institutional level, or had a work request submitted where appropriate.

Walk around forms are tracked by the Division Safety Coordinator to ensure all staff are reviewed at least once a year. This was accomplished this year.

75% of IT Supervisors are currently compliant with taking EHS27. EH&S has temporarily suspended this class while it was being reworked. When it becomes available again, and the division is notified, we will advise those who are still outstanding to take it. IT is in the process of creating a work group for supervisors to reflect the EHS27 requirement in the JHA however due to the course being put on hold, the work group has been put on hold as well.

This year the Division Safety Liasion was involved with gathering helpful data points with regard to reviewing our work areas (see appendix A). This may be a tool worth reviewing in the coming performance year for measuring space safety compliance.

13. *Division performs a thorough review of all accidents, injuries, incidents, near misses and concerns according to Lab policy and the division's ISM plan. Corrective actions to prevent recurrence are identified and effectively implemented.*

The IT Division ensures all accidents, injuries and incidents will be reviewed with the participation of the Division Safety Coordinator, the ES&H Liaison, line management and the staff member involved for "OSHA recordable injuries and other significant accidents". This process was followed for all 21 SAARS in FY09.

All SAARs were completed and in 80% of the cases, they were released within the 7 day period.During the year IT reviewed all open SAARs and discovered that some older ones had not been released. IT worked with supervisors to complete them and will continue to monitor this more closely to improve the % complete within 7 days.

Ergonomic issues were tracked in the ergo database as mentioned in measure 9.

It is unclear at this time if the increase in ergonomic incidents this year is due to a higher awareness by staff to report discomfort. There was certainly a proactive and heightened awareness around the move that staff were made aware of ways to mitigate injury. This combined with the increase in ergo evaluations may have in fact limited the need to pursue corrective actions. The evidence is hard to quantify.

14. *Division shares lessons learned from accidents, injuries, incidents and near misses with Lab staff via the institutional Lessons Learned and Best Practices database, as appropriate. Division incorporates applicable lessons learned into work planning and performance processes.*

IT had a divisional Safety Stand down on Friday November 14, 2008 which all IT staff were required to attend. Staff were encouraged to share near misses with supervisors and the Division Safety Coordinator. Examples of incidents were discussed to encourage reporting and communication.

62% of IT injuries this year were related to ergonomics. IT has a very active ergonomic program and ongoing message related to ergonomics. An activity that we want to consider in 2010 is to create a Safety Newsletter with links to Lessons Learned. One challenge is clarifying who enters a lessons learned. There was one entered by another division that in fact happened to an IT staff member.

We have shared Lessons Learned in the past related to computer room and securing loads in pickups in prior performance years.

15. *ES&H deficiencies that cannot be resolved upon discovery are entered in the LBNL Corrective Action Tracking System in a timely manner and tracked to resolution. Deficiencies include those from workspace inspections, self-assessment activities, SAARs, Occurrence Reports, Non-compliance Tracking System Reports, environmental inspections, Division Self-Assessment, EH&S technical reviews, Management of ES&H (MESH) Reviews, and external appraisals and inspections.*

IT tries to limit using CATS for routine maintenance issues which are taken care of through Facilities work orders. Based on this there were only 14 CATS entries. 6 were ergonomic, 7 were seismic or emergency preparedness and one was related to ventilation in building 46. The only overdue and pending issue is related to reviewing emergency supplies for the division, which was due to the fact that the Division Safety Coordinator was on leave and the back-up was unable to meet the predetermined deadline. This in fact was reviewed but not closed out in CATs until discovered during the Self-Assessment. All other CATS were completed and closed out.

IT Division Specific Measures

16. *Focus on improvement of ergonomic safety by reviewing ergonomic self assessment data, ensuring follow-up and implementation of remedies for employees experiencing discomfort, and by encouraging workstation users to use RSI Guard and/or dual pointing devices where appropriate.*

IT strongly encouraged every employee to download and use RSIGuard, which is now available to all Lab employees from the Software Download web page. Employees were also encouraged to use more than one pointing device and/or switch from hand to hand periodically to minimize the ergonomic strain on their favored hand. A cubicle was set up for employees to review different pointing devices so that they could test them and determine what is most effective for them.

During the safety walkaround in August and September, each employee was asked if they experienced discomfort, and whether they had implemented the recommendations about pointing devices and the use of RSIGuard. Approximately 75% of the IT employees who were present during the walkaround have done so. Those employees who were not using RSIGuard were encouraged to do so unless the nature of their work required them to be frequently away from their workstation (e.g. computer support staff).

17. *Improve the ability to monitor environmental and/or energy consumption in the 50B1275 data center.*

IT upgraded the wireless sensor monitoring system in the data center in February, increasing the number of sensor points from about 500 to about 700.   This resulted in better visibility into environmental conditions, and particularly into 'hot spots' in the data center. There was no immediate impact on energy efficiency, but the upgrade enables us to gather more data, and have more confidence about the effect of future changes.

IT has also developed a plan to monitor 50B-1275 efficiency. Electrical and water flow sensors and upgraded software will be installed to permit real-time monitoring.   Sensors have been ordered and partially installed. Hardware and software enhancements are targeted to be completed in the first quarter of FY10.   Once this project is complete, data center operators will be able to measure the impact of efficiency projects in real time. In addition, we can temporarily 'roll back' improvements made over the last few years (including disabling humidity control, installing water cooling) in order to quantify the impact of such measures retroactively. This project is a collaboration among IT, EETD, and the wireless sensor vendor SynapSense.

Appendix A

During the wall-to-wall saffety walkaround, each cubicle, office or general work area was assessed for each of the items in the walkaround checksheet (see column headings in table below), and categorized assigned one of four ratings:

- Acceptable
- Marginal
- Not acceptable
- Not applicable

For each building IT occupies, the % of areas that were rated "Acceptable" was then calculated. The results are recorded in the table below. Only one building was rated lower than 90% overall. Appropriate action items were identified for all oberserved deficiencies.

IT will review these measurments and decide whether to use them as a baseline for comparison in future years.

IT DIVISION SELF-ASSESSMENT WALK-AROUND Weighted Average = 93%			Housekeeping orderly?	Slip/trip/fall hazards controlled?	Egress & evac route signs correct?	Emergency procedure flip charts avail?	Doors/halls/stairs free of obstructs?	Fire doors functioning properly?	18" clearances provided @ sprinklers?	Shelves/stacked items restrained?	Seismic anchoring provided?	Elect: 36" / 42" clearances @ 120V / 480V?	Elect: cords in good condition?	Elect: ext cords/strips used properly?	Elect: loads below 600W/5 amps each?
Bldg	Observ.	Avg score													
46	16	68%	50%	69%	50%	67%	100%	0%	100%	77%	67%	50%	100%	80%	80%
50	5	94%	100%	80%	N/A	N/A	N/A	N/A	100%	80%	N/A	N/A	100%	100%	100%
50A	7	93%	86%	100%	100%	75%	100%	100%	86%	86%	83%	N/A	100%	100%	100%
50B	11	93%	91%	100%	100%	N/A	N/A	N/A	100%	64%	91%	N/A	100%	91%	100%
50C	11	98%	100%	100%	100%	N/A	N/A	N/A	100%	90%	100%	N/A	100%	91%	100%
50E	51	94%	98%	94%	67%	N/A	N/A	N/A	100%	87%	97%	N/A	100%	100%	100%
69	51	97%	96%	98%	100%	100%	98%	100%	98%	96%	94%	100%	96%	98%	92%
71J	10	100%	100%	100%	100%	100%	100%	N/A	100%	100%	100%	N/A	100%	100%	100%