



Environment, Health and Safety Division

Integrated Functional Appraisal
of the
Computing Sciences Directorate

FY 2001

Final Report
September 6, 2001

Executive Summary

The Environment, Health and Safety (EH&S) Division conducted the Computing Sciences Directorate CS Integrated Functional Appraisal (IFA) during June and August 2001. The appraisal consisted of initial scope discussions, records review and inspection of spaces to identify uncontrolled hazards. Field inspections were conducted concurrently with CS senior management self-assessment walk-through inspections to minimize work interruption. Participants in the IFA included EH&S Division Liaison, Computing Sciences Safety Coordinator and Department of Energy Berkeley Site Office representatives as observers.

The IFA validated that EH&S hazards are effectively identified and controlled within the CS Directorate. Safety within CS has commendable management support. This Directorate has built and maintains a proactive safety program that is both innovative and effective. Noteworthy practices and improvement opportunities are summarized below.

Noteworthy Practices/Initiatives

- The Information Systems and Services Department Worker Observing Worker (WOW) team efforts, under Carl Eben's leadership, has successfully implemented and tested a pilot Office Behavior-based Accident Prevention (OBAP) program. Results indicate that the pilot program has increased employee ergonomic safety awareness, established consistent reinforcement of safe work practices, brought about more timely identification and correction of workstation ergonomic deficiencies, and most importantly, seeded a downward trend in office ergonomic illness cases.
- A three months extensive outreach of ergonomic safety awareness and ergonomic review of workstations was conducted. Outreach was accomplished through CS electronic weekly news "InTheLoop", Division Safety Coordinator's e-mails and on-site ergonomic workstations review by EH&S division Safety Engineering Group.
- "Safety Messages" relevant to the Directorate's safety issues are published regularly in the Computing Sciences weekly newsletter "In the Loop."

Opportunities for continuous Improvement:

- There has been a slight uptick in the frequency of DOE recordable employee injuries and illnesses in the Information Technologies and Services Division (ITSD). A total of nine DOE recordable cases were recorded and five out of nine were related to ergonomic injury or illness. This could be minimized or prevented through OBAP Program.
- Housekeeping was generally good in the areas inspected. A few office spaces need line management attention.
- Seismic safety findings included bookshelves and filing cabinets without seismic anchoring and shelves without lips or restraints. These can be corrected through the Work Request Center.

1.0 Introduction

The IFA is a key component of the Laboratory's Integrated Safety Management (ISM) program. It serves as one of the three tiers of the Laboratory's self-assessment program. The EH&S Division has been conducting IFAs of all laboratory organizations on a triennial basis since 1996. The last Computing Sciences IFA was conducted in 1998.

2.0 IFA Process

2.1 Scope Development

The EH&S Division Liaison (Kam Tung) met with Martin Dooly, the CS Safety Coordinator in early May 2001 to determine the scope of IFA. As part of this determination, the following documents were reviewed: IFA guidance, Division Self-Assessment Report, previous IFA report and Supervisor Accident Analysis Reports. The guidance of the IFA is directed toward work conducted under or in association with Formal Work Authorizations and/or Facility Authorization (e.g., Activity Hazard Documents, Radiological Work Authorizations, discharge permits, etc.). The primary hazards encountered in the Computing Sciences Directorate revolve around ergonomics. Therefore, the scope of the IFA focused on office ergonomics and general office/work space inspections. These inspections were conducted concurrently with CS senior management self-assessment walk-through inspections to minimize the work interruption. A second important aspect of the appraisal was an in depth review of the impact and progress of the Office Behavior-based Accident Prevention (OBAP) program piloted by the Information Systems and Services (ISS) Department and a new special CS Directorate-wide Safety Awareness and Workstation Ergonomic Review Outreach Project.

2.2 Appraisal Team

Kam Tung, the Computing Sciences EH&S Division Liaison and Martin Dooly, the Computing Sciences Safety Coordinator formed the core IFA team. Department of Energy representatives, Richard Haddock and Ann Raible were invited and participated as observers.

The IFA was conducted concurrently with CS senior management self-assessment walk-through inspections. Dr. Simon Horst, National Energy Research Scientific Computing (NERSC) Division Director inspected all NERSC office spaces, Mr. James Leighton, Information Technologies and Services Division (ITSD) Deputy Director and Ms Linda Smith, Head of Networking and Telecommunication Department inspected all ITSD office spaces and as well as William Iles, Assistant Building Manager for Building 50 complex.

2.3 Site Visits

All office spaces occupied CS in the following buildings were inspected. Approximately 400 plus spaces were inspected. A complete breakdown is listed in appendix A

Building 46 – Technical and Electronic Information Department (TEID) operations

Building 50 complex – NERSC, ITSD and CS Directorate operations

Building 51 - ITSD operations

Building 69 – TEID operations

Building 937 – ITSD operations

Building 943 – NERSC operations

Each office space inspection consisted of walking through the space, briefing room occupants (if present) the purpose of the inspection, observed findings as well as their corresponding corrective actions.

4.0 IFA Results and Recommendations

Noteworthy practices and improvement opportunities are summarized below. A detailed list of the spaces inspected, IFA findings and actions are presented in Appendix A and B. In general, spaces were well maintained, indicating ongoing commitment of management and staff to a strong ES&H program, as well as confirming the effectiveness of the CS self-assessment inspections.

Noteworthy Practices/Initiatives

- In 1998 CS Directorate's management promulgated an internal policy requiring all of CS employees to complete Ergonomic Awareness Training (EHS 060). The training provided and elevated the safety awareness. This policy is above and beyond Lab's ergonomic training requirement (the laboratory just made EHS 060 as mandatory class recently)
- A pilot Office Behavior-based Accident Prevention (OBAP) program was implemented for Information Systems and Services Department in Building 937. Results to date indicate that a downward trend in recordable office ergonomic illness has been realized. Employee ergonomic safety awareness has also increased, consistent safe work practices have been reinforced, and workstation ergonomic deficiencies are identified and corrected in a more timely manner. The pilot program's success was mainly due to:
 - ISS Department Head, Carl Eben's leadership and support
 - Worker Observing Worker (WOW) Team effort. The WOW Team members are: Marjorie Allen, Carole Casaretto, Kenneth Crocker, David Edgar, Daisy Guerrero, George Kapus, Carolina Pezua, Margo Salon
 - Building 937 ISS staff's positive reception and active involvement in the process
 - Safety coordinator, Martin Dooly's early involvement and support

- Training provided by Jeffrey Chung of the EH&S Division
- OBAP process facilitation by Kam Tung and Jeffrey Chung

It is strongly recommended the other departments to launch OBAP program. It is cost effective injury prevention program, which has been demonstrated by ISS Department

- An extensive outreach totaling three months effort of ergonomic safety awareness and ergonomic review of workstations were conducted as part of the Computing Sciences Directorate's continuing injury and illness prevention program.

All CS staff was notified of the ergonomic safety outreach project via electronic weekly news "InTheLoop". Each week, CS Safety Coordinator, Martin Dooly, identified an area for an on-site ergonomic review and Martin notified each area occupants in advance of the review via e-mail. The ergonomic review was conducted by an EH&S Division Safety Engineering Group (Kam Tung, Matt Kotowski and Jeffrey Chung). The review consisted of interviewing computer user, observing user's work practices, making minor on-the-spot ergonomic adjustments, and assessing the need for a follow-up full ergonomic evaluation. Martin Dooly was responsible for implementing ergonomic review team's recommended corrective action items. Employees who were not at their workstation for the schedule review were visited again at another convenient time per their request.

The ergonomic safety outreach project produces positive results: The ergonomic safety awareness has been increased throughout the CS Directorate organization, good ergonomic safety practices and at risk behaviors were communicated to the computer users, and minor deficiency of computer workstation set-up was identified and corrected.

- Publication of "Safety Messages" in the Computing Sciences weekly newsletter "In the Loop" has been an effective addition to the CS safety program. During the past three years, approximately 90 articles pertaining to safety and/or ergonomics were published. A sample of recent articles is listed below.
 - "Preventive Ergonomic Ergo Reviews to Start the Week Of February 5" dated January 29, 2001
 - "Test Drive Ergonomic Chairs, Mice and More at Health Services" Dated May 7, 2001
 - "Feeling Discomfort at Your Workstation? Don't Delay in Getting Medical Attention" dated August 27, 2001
- A pro-active safety initiative was conducted in Charles Verboom's Building 51 operations. Martin Dooly and Kam Tung conducted a work analysis and safety review with Mr. Verboom's group. Active participation of Mr. Verboom and his staff provided safety value to the process. Safety awareness of the group has been enhanced.

Improvement Opportunities

- There has been a slight uptick in the frequency of recordable employee injury and illness in the ITSD. Five out of nine DOE recordable cases were related to ergonomic injuries and illnesses. Early reporting of perceived job-related injury and illness needs to be emphasized and monitored more closely through active first line supervisor involvement. Recordable injury or illness rates can be reduced through greater supervisory involvement and implementation of OBAP program. ISS Department has proven that proactive OBAP program does reduce the injury and illness rate and improve the quality of work life.
- Housekeeping was generally good in the areas inspected. 23 out of 400 plus spaces visited have poor housekeeping and these areas are cluttered. These problems can be prevented through regular housekeeping efforts.
- Seismic Safety: Bookshelves and filing cabinets in some areas were not anchored to prevent movement during a seismic event. Also, some shelves lacked lips or restraints. These can be corrected through the CS Facility Manager's office.

Appendix A
Spaces Inspected

1. **Building 46**
First Floor, rooms: 137, 139, 140,141, and 147.
Second Floor, rooms: 230, 234A, 234B, 234M, 234N, 270 A, B, C, D, E, G, H, I, J and K.

2. **Building 50A**
First Floor, rooms: 1116, 1116 A,B,C,D,E, and F, 1117, 1119, 1121, 1127, 1127A, 1129, 1129A, 1135, 1136, 1137, 1140A,B,C,and D, 1143, 1144, 1145, 1148, 1149, 1156, 1175 and 1185
Second Floor: 2109A and B, 2113
Third Floor, rooms: 3101, 3103, 3104, 3105, 3106, 3107 A, B, C and D, 3111, 3111A, 3113, 3114, 3115, 3116, 3117, 3121, 3123, 3125, 3127, 3131, 3133, 3135, 3136A,B,C, and D, 3139, 3139A, 3140, 3141, 3142, 3145 and 3145A.

3. **Building 50B**
Second Floor, rooms: 2215G and H, 2222,2231, 2231 A and B.2232, 2232A,B,C,D,E,F, G, and H, 2239, 2239 A and B, 2245, 2258, 2258 A, B, C, D, E, F, G, H and J, 2270, 2270 A and B, and 2276
Third Floor, rooms: 3209 A, B, C, D, E, G and H, 3211, 3211A, 3215, 3215A, 3216, 3218, 3224, 3228, 3233, 3233A and B,3238, 3238A,B,C,D,E, 3239, 3239A, 3243, 3243A, 3245, 3245A
Four Floor, rooms: 4206, 4206 A, C, D, E, F, G, H, J, K, and I., 4218C, 4224, and 4231

4. **Building 50C**
3303, 3305, 3306, 3307, 3308, 3310, 3312, 3313, 3314, 3315, 3315, 3316, 3317, 3318, 3319, 3322, 3324, 3328, 3328A,B,C,and D, , 3336, 3338, 3341, 3343, 3345, 3346, 3347, 3348, 3349

5. **Building 50D**
3401, 3403, 3405, 3406, 3407, 3408, 3409, 3411, 3412, 3415, 3417, 3419, 3421, , 3423, 3427, 3429, 3431, 3433, 3435, 3437, 3439, 3441.

6. **Building 50E**
First Floor, rooms: 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1531, 1535, 1537, 1539, 1541, 1543, 1545, 1547, 1549, 1550, 1551, 1552, 1553, 1555, 1560, 1561, 1564, 1565, 1567, 1570, 1571, 1573, 1577, 1579, 1580, 1582.

7. Building 50 F
First Floor, rooms: 1602, 1603, 1604, 16105,1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, , 1625, 1626, 1627, 1628, 1629,1631, 1632, 1633, 1634, 1635, 1636, 1643, 1644, 1645.and 1646.
8. Building 51
First Floor, rooms: 14, 14A,B, C, D, E, and F, 24, 24A,B, C, D, E, F, G, H, J, K, L, M, N, P, Q, and 26C
Second Floor, rooms: 205, 208, 208 A, B, C, D, E, F, G, H J and K,
9. Building 69
First Floor, rooms: 118, 119 A, B, C and D, and 120
10. Building 90
1050, 1050A, B and C
11. Building 937
_Third Floor, rooms: 310, 311, 312, 314, 316, 318, 319, 320, 322, 323, 324, 325, 326, 327, 328, 329, 330, and 332.
Sixth Floor, rooms: 601, 602, 603, 604, 605, 606, 607.and 608
Seventh Floor, rooms: 701, 702, 703, 704, 706, 708, 710, 714, 716, 717, 718, 722, 723, 724, 725, 726, 727, 728, 729, 730, 732, 736, 737, 738, 740, 742, 743, 744, 745 and 746.
12. Building 943
First Floor, rooms: 101, 106, 107 and 131
Second Floor, rooms: 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 232, 233, 235, 236, 237, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 272 and 273.

Appendix B
Findings and Actions

Seismic Safety Findings			
Building	Room	Findings	Action
46	139 and 234B	Top surface of overhead storage cabinets need seismic lip installed	Contact CS Facility Manager's office to install Plexiglas lip
	270B	Four file cabinets are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
	234, 270A, 270G and 270K	Bookcases are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
51	24	Top surface of overhead storage cabinets need seismic lip installed	Contact CS Facility Manager's office to install Plexiglas lip
	26, 208J, 24C	Bookcases are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
50A	3101,3105 and 3136	Top surface of file cabinets need seismic lip installed	Contact CS Facility Manager's office to install seismic restraints
	3135	Bookcases are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
	1140B	Bookcases and file cabinet are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
50B	2215	Bookcase shelves are not seismically restraint	Contact CS Facility Manager's office to install seismic restraints
	3205, 3217	File cabinets are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
	4206	Bookcase behind office chair top two rows need seismic restraints	Contact CS Facility Manager's office to install seismic restraints
	4215	Top surface of overhead storage cabinets need seismic lip installed	Contact CS Facility Manager's office to install seismic restraints
	4238	File cabinets are not seismically secured and the top surface of file cabinet need seismic lip installed	Contact CS Facility Manager's office to install seismic restraints
	4217	Refrigerator and water cooler are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
	2215J, 2215L, 2215M and 3209A	Bookcases are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
50 E	1502, 1503, 1505, 1506, 1509, 1511, 1512, 1513, 1514, 1515,1516, 1517, 1518, 1519, 1520, 1524, 1528, 1561,1577	Bookcases are not seismically secured	Contact CS Facility Manager's office to install seismic restraints
	1509, 1522, 1523, 1524, 1528, 1549, 1556, 1560, 1565and 1567	File cabinets are not seismically secure	Contact CS Facility Manager's office to install seismic restraints

	1567	Top surface of file cabinet need seismic lip installed	Contact CS Facility Manager's office to install seismic restraints
50 F	1602,1603,1605, 1608, 1618, 1629, and 1645	Bookcases are not seismically secured	Contact CS Facility Manager's office to install seismic restraints

Housekeeping Findings

Building	Room	Findings	Action
46	137	Poor housekeeping, area cluttered	Request occupant conduct regular housekeeping
	141	Adequate storage space is a challenge for many work areas, causing placement of materials under the work desk. This reduces potential for "duck and cover" protection	Request occupant to clear space under the work desk
51	24L, 24M, 24N, 26L, 208B	Poor housekeeping, area cluttered	Request occupant conduct regular housekeeping
50 A	3106, 3113, 3141, 1140D, 3136D	Poor housekeeping, area cluttered	Request occupant conduct regular housekeeping
50 B	3228, 2231A, 3209C, 4218A	Poor housekeeping, area cluttered	Request occupant conduct regular housekeeping
	3228 and 4235A	Adequate storage space is a challenge for many work areas, causing placement of materials under the work desk. This reduces potential for "duck and cover" protection	Request occupant to clear space under the work desk
	2215A	Excess monitor needs to be disposed of	Contact CS Facility Manager's office
50 E	1537	Poor housekeeping, area cluttered	Request occupant conduct regular housekeeping
50 F	1605	Poor housekeeping, area cluttered	Request occupant conduct regular housekeeping
	1645	Poor housekeeping, area cluttered and no space for "duck and cover"	Request occupant conduct regular housekeeping and clear space under the work desk
	1644	Excess monitor needs to be disposed of	Contact CS Facility Manager's office

Ergonomic Safety Findings

Building	Room	Findings	Action
50 A	1119, 1121, 1129, 1136, 1137, 1141, 1144, 1140B and C, 3110 and 3136,	Ergonomic set-up for computer workstations appear not adequate	Request EH&S division liaison (4048) to conduct an ergonomic review
50 B	3217	Need two one inch monitor stacks	Contact CS facility Manager
50 F	1615 and 1644/1615	Ergonomic set-up for computer workstations appear not adequate	Request EH&S division liaison (4048) to conduct an ergonomic review

