

**ANNUAL OCCUPATIONAL SAFETY AND HEALTH REPORT
OF THE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

Reporting Period Fiscal Year: 2003

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ANNUAL REPORT ON OCCUPATIONAL SAFETY AND HEALTH

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Agency Name: National Aeronautics and Space Administration
Component Name: Headquarters
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Note: Paragraph numbers correspond to Appendix F of OSHA Publication 2014

1.a. For space-based accidents, one of the seven fatalities for the Space Shuttle Columbia resulted in an approved claim for survivor's benefits. The other six fatalities were not subject to claims under the Federal Workers' Compensation program. For ground-based accidents, NASA continues to benefit from one of the lowest injury/illness rates in the Federal sector. The trend for NASA Workers' Compensation cost has also been relatively stable within the Department of Labor's Office of Workers' Compensation Program (OWCP). For the past six years, the non Continuation of Pay (COP) costs* are as follows:

FY 1998 \$7.3M	FY 2001 \$7.2M
FY 1999 \$6.2M	FY 2002 \$6.7M
FY 2000 \$6.4M	FY 2003 \$6.7M

* COP cases and costs are displayed in graph format at the end of this report.

Significant case tracking and case management efforts continued into FY 2003. NASA continues to contract for the Veterans Administration Workers' Compensation Data Management System and uses the Department of Labor Agency Query System to provide real time OWCP claims status to NASA Center personnel involved with claims management. Additional case management emphasis is placed on Centers with high Workers' Compensation costs.

Several NASA field Centers reviewed long-term cases at regional OWCP offices to identify potential candidates for return to work, to help return employees to gainful employment and to reduce compensation costs to the government. This concentrated review process is continuing to pay off for both NASA and the employee. As a result, several individuals were removed from the long-term roles or returned to modified light duty work. The Total Case Rate for NASA was 0.75 and the Lost Time Rate was 0.22. This is an improvement over the 2002 data and is one of the lowest lost time rates in the government (http://www.osha.gov/oshprogs/fedprgms_stats03.html).

1.b. The number of COP cases equaled the lowest number of cases in recent history and the cost was the lowest for the Agency in several years. With a fairly constant workforce, the decline in number of cases and costs is a positive indicator that the severity of COP eligible cases is declining.

<u>FY</u>	<u>COP Cases*</u>	<u>COP Costs*</u>	<u>NASA workforce**</u>
1998	95	\$101,850	19,472,
1999	58	\$97,217	19,191
2000	74	\$116,245	18,601
2001	69	\$109,098	18,939
2002	48	\$88,026	18,874
2003	48	\$81,983	18,908

* COP cases and costs are displayed in graph format at the end of this report. ** earlier employment numbers not readily available

1.c. Unsafe acts continue to be the primary causes of reportable mishaps. The top six definitive groupings of causes for reportable injuries and illnesses at NASA are:

- Walking/working surfaces 29%
- Slips, trips, and falls 21%
- Lifting and moving operations 21%
- Ergonomic 13%
- Bumped into/struck by 11%
- Other miscellaneous 5%*

*Note this grouping includes diverse mishap activity such as employee squeezing a large black binder clip, felt right thumb “pop” out of joint with pain shooting up arm; and a case where an employee taking out a handi-wipe to pick up a bug, employee felt pain in left knee.

2. While returning from orbit on Feb. 1, 2003, Contact with the Space Shuttle Columbia was lost. That day, the nation was stunned by the loss of seven astronaut heroes and the Space Shuttle Columbia, as it disintegrated over north-central Texas.

The Columbia Accident Investigation Board (CAIB) uncovered some very specific conditions that led to the demise of the Columbia, along with some process and management structures that contributed to the accident.

The Return-to-Flight Task Group (RTF TG) is charged with assessing the implementation of both the specific and general CAIB recommendations. NASA has responded to all the recommendations the CAIB identified for accomplishment before the next shuttle flight. At NASA, all that we do is with a renewed focus to safety and risk awareness.

In the words of Sean O'Keefe, NASA's Administrator, "We (also) have the tremendous duty to honor the legacy of those fallen heroes by finding out what caused the loss of the Columbia and its crew, to correct what problems we find, and to make sure this never happens again."

In a November 18, 2003 news release, Sean O'Keefe announced the new NASA Aerospace Safety Advisory Panel (ASAP). The new ASAP provisions will help assure an independent, long-term oversight of the Agency's safety policies and programs. Some of the provisions include:

- The new ASAP will report quarterly instead of annually
- The term for new members is two years, extendable to a maximum of six years in order to stagger terms of service and ensure a fresh perspective at regular intervals
- The new ASAP focuses on NASA's safety and quality systems. ASAP will focus on industrial and systems safety, risk management, trend analysis and the management of these activities

NASA has taken extra steps to ensure the independence of this panel. None of the new members is a current or former Agency employee or contractor.

The new ASAP is expected to play an important role in the ongoing safety assessment and review of the Space Shuttle program after Return to Flight.

In the words of NASA Administrator Sean O'Keefe:

We intend for the ASAP to oversee our implementation of the Columbia Accident Investigation Board's recommendations long after the work of the Stafford-Covey Return to Flight Task Group is completed. Our intent is to institutionalize a renewed commitment to safety, and the panel will help us assure that we follow through on that objective.

On July 15, 2003, NASA announced the formation of a new Independent Engineering and Safety Center (NESC) at the Langley Research Center in Hampton Virginia. The Center is to provide a central location to coordinate and conduct robust engineering and safety assessment across the entire Agency.

NASA Administrator Sean O’Keefe announced that:

Among the things we've learned during the investigation of the Columbia tragedy is the need to independently verify our engineering and safety standards. The new NASA Engineering and Safety Center will have the capacity and authority to have direct operational influence on any Agency mission. When it comes to safety and engineering analysis, we need to improve our ability to share technical information, practices and talent, and independently ensure we are in the best position to achieve mission success.

The NESC draws on the talents of about 250 people throughout NASA. This approach will raise NASA’s commitment to health and safety to unprecedented levels.

Planned activities of the new organization include:

- Independent engineering assessment and testing to support critical NASA projects and programs;
- Engineering and safety review and evaluation through independent analysis, hazard and risk assessment, safety audit, and participation in mishap investigations;
- A central location for independent trend analysis utilizing state-of-the-art tools and techniques;
- A structure to support engineering collaboration for problem resolution;
- Central coordination of engineering and programmatic lessons learned, technical standards, and technical discipline expertise; and
- Independent inspection and validation of activities to ensure the constant maintenance of NASA safety standards.

A safety survey was conducted at selected NASA field Centers during FY 2003. The survey used the NASA-developed Performance Evaluation Profile (PEP) survey system to evaluate the Occupational Safety and Health programs, and system safety programs within the Agency. Both civil service and contractor personnel participated in the FY 2003 Occupational Safety and Health surveys, with 12,057 employee and 1,147 manager responses received. The system safety survey involved 217 employees and 36 managers.

Six NASA Centers and the White Sands Test Facility participated in the PEP Occupational Safety and Health Surveys. These organizations were surveyed against four core process elements: management leadership and employee participation, work site hazard analysis, hazard prevention and control, and safety and health training. This accomplishment demonstrates a significant history of continuous safety and health program improvement effort. All NASA

Centers are at or significantly above the level of a "Basic Safety Program" and have the scores necessary to pursue a VPP certification effort.

The fiscal year 2003 surveys were compared to actual mishap historical data for each Center to assure that the safety and health program level of implementation was being reflected by the mishap rates being recorded. This analysis showed close agreement between the survey results and mishap ratings for most Centers. This means that the increased level of safety and health knowledge is having the desired effect of improved mishap rates.

A major audit and self-evaluation process was continued in FY 2003. The course of action included reviews of 10 NASA Centers for Occupational Safety and Health, Operational Engineering Board reviews, Center VPP preparation reviews, and industry best practices. The Occupational Health reviews utilized guidelines such as the Joint Commission for Accreditation of Healthcare Organizations (JCAHO), the Accreditation Association of Ambulatory Health Care (AAAHC), and the National Committee for Quality Assurance (NCQA).

The FY 2003 campaign for world-class safety continued as the theme, "Mission Success Starts with Safety", and remains focused around the primary elements:

- Management commitment
- Safety and health policy
- Planning and performance expectations/measurements
- Safety and health training, education and awareness
- Program assessment methodology
- Process verifications
- External outreach
- System/equipment safety up-grades

To date, six NASA Installations have achieved OSHA VPP Star Certification and recertification status: Langley Research Center, Johnson Space Center, Ames Research Center, Sonny Carter Training Facility, White Sands Test Facility and Kennedy Space Center. All other Centers have aggressively pursued preliminary OSHA VPP Star certification activity and will continue to do so.

NASA developed a formal Automated External Defibrillator (AED) policy for the Agency, and has made a significant effort to distribute AEDs to replace older defibrillators at the Centers. In FY 2000, NASA had 49 AEDs and by FY 2002 that number more than doubled to 128 AEDs. In 2003, that number rose to 151 NASA has deployed AEDs at all NASA Centers and personnel have been trained to use them. Since deploying the AEDs, five lives have been saved.

The physicians and nurses at all NASA Centers have achieved the goal of Advanced Cardiac Life Support (ACLS) certification for doctors and nurses, with the exception of two nurses who are currently training for this certification. This advancement, coupled with the placement of AEDs Agency-wide, is important steps toward assuring top emergency medicine for NASA employees.

In FY 2003, the Annual Occupational Health Conference on “Enhancing Performance Through Interdisciplinary Teamwork” was held in San Diego, California. The following topics were presented:

- Medicine of Extreme Environments, Desmond Lugg, MD, FAFOM; NASA Headquarters
- The Agency Electronic Health Record system, G. Wyckliffe Hoffler, MD; The Bionetics Corporation
- How to Create an Effective Working Team, Dan Clark; Clark Success Systems
- The NASA Strategic Plan for Health, Richard Williams, MD, MPH, FACS; NASA Headquarters
- Direction for Smallpox Vaccination, Joanne Cono, MD, ScM; Centers for Disease Control
- Severe Acute Respiratory Syndrome (SARS), and NIOSH Partnering/Team Efforts, John Howard, MD, MPH, JD, LLM; NIOSH/CDC
- National Advisory Committee on Occupational Safety and Health, Julia Faucett, RN, PhD, FAAN Professor; Department of Community Health Systems USF School of Nursing
- Teamwork, General Clara Adams-Enders (Retired Army), President and CEO; CAPE Associates, Inc.
- Best Practices in Hearing Loss Prevention, Lee D. Hagar; Sonomax Great Lakes
- Occupational Safety and Health Administration Partnering, Thomas Marple, Director of Office of Federal Agency Programs; OSHA, U.S. Department of Labor.
- The Decision Making Process in Public Health and Care, Arnauld Nicogossian, MD, FACPM, FACP, Distinguished Research Professor Director; Office of International Medical Policy, School of Public Policy, George Mason University
- Emergency Management – From Mitigation to Recovery, Steven W. Bryant, Practice Director of Accreditation and Regulatory Compliance Services; The Greeley Company
- Internet Resources for Occupational Health, Barbara Cohrsen, MS, MIS, CIH; Cohrsen Environmental, Inc.
- Employee Longitudinal Health Study: A Feasibility Analysis of Occupational Health Clinic Records as an Information Source, Duane A. Ratliff, MPH; The Bionetics Corporation

Professional development courses presented at the conference included the following:

- Making a Case for Ergonomics, David C. Alexander, PE, CPE, President; Auburn Engineers, Inc.
- Ergonomics and Medical Case Management – A View From the Trenches, Richard Donze, DO, MPH, Sr. Vice President for Medical Affairs and Medical Director; The Occupational Health Center, Chester County Hospital, West Chester, PA

- Critical Incident Stress Management – A Continuum of Interventions for the Aftermath of a Critical Incident, Roger Solomon, PhD, Director; Clinical Incident Recovery Resources Inc.

NASA continued contractor medical evacuation services for its employees who are stationed in remote locations and foreign countries. The purpose of the service is to quickly bring any NASA employees who are stationed at remote locations, and in urgent need of medical attention, to a location in the United States or Europe where quality medical care can be provided.

Another major policy enhancement continues through the NASA Contractor Safety Requirements with a Risk-Based Acquisition Management initiative to re-focus on risk as a core acquisition concern. This initiative is being continued through training of NASA and contractor personnel, consultation with NASA projects and programs, and updated policy and guidance through revisions of several NASA-internal processes and guidelines.

3. The occupational safety and health audit and self-evaluation process will continue in FY 2004. Twelve audits are planned for NASA Centers for compliance with OSHA and industry best practices and standards. Best practice standards include the Joint Commission for Accreditation of Healthcare Organizations (JCAHO), the Accreditation Association of Ambulatory Health Care (AAAHC), and the National Committee for Quality Assurance (NCQA) and Hazard Analysis Critical Control Point (HACCP) for food borne diseases at NASA facilities. The Occupational Health Program evaluation tools provide metrics on individual Centers and overall Agency compliance with occupational health and safety requirements. This information is used to identify safety and health trends, as well as to identify areas of need. In addition to the mentioned occupational safety and health activity, three NASA Center Safety and Mission Assurance Process Reviews, the Office of Safety and Mission Assurance plan VPP readiness assessments, and two Operational Engineering Panel reviews are planned for this year.

The NASA-wide Occupational Health Conference will be held in Williamsburg Virginia and will include professional development courses for occupational health physicians, occupational health nurses, and industrial hygienists on the subjects of “Embracing Change in Occupational Health – Moving Toward One NASA” The Conference is planned for June of 2004. It will host discussions of various aspects of Center Occupational Health Programs.

NASA will hold a joint Safety and Health Manager’s meeting March 1 – 5, 2004 in Cocoa Beach, Florida.

NASA renewed its subscription to the ChemWatch Chemical Database and Management System for use by all NASA Civil Service and all NASA contract personnel at all NASA Centers. The database contains detailed hazard information on 40,000 pure substances and more than 65,000 common chemical mixtures. The database played an important role in providing hazardous

chemical information during the Columbia recovery process. Material Safety Data Sheets (MSDS) are provided in eighteen different languages.

Each NASA Center will continue to have a Safety and Health Program Office responsible for supporting Center line management with their safety responsibilities. Those offices will conduct independent reviews of Center operations to assure compliance with all elements of 29 CFR Part 1960. Each Center's process for inspection and abatement will be reviewed during NASA Headquarters program reviews. This inspection process, aimed at identifying both unsafe conditions and unsafe acts, is the primary point of emphasis to address the first six types of injury groupings identified in paragraph 1c of this report.

Early involvement of the safety and health staff in design and procurement activities will continue as a key risk management focus area at each NASA Center. This effort enables identification of potential safety and health hazards at the earliest possible stage. Center safety and health professionals serve in a review and approval capacity for purchase of hazardous materials, hazardous equipment, personal protective equipment, and other key purchases, which are essential to controlling hazards.

Each NASA Center will continue to emphasize the need to report unsafe conditions and correct them. To augment those avenues of reporting for any employee wishing to remain anonymous, NASA continues to operate an independent and anonymous NASA Safety Reporting System (NSRS). This effort also includes a strong effort to ensure reporting of "close calls" to identify problems needing correction.

Close Call Reporting will continue to be emphasized. The Agency deems close call programs as critical for proper trend analysis and for assessing the work environment for the existence of mishap potential. The reporting of close calls by NASA civil service employees and contractor personnel is considered mandatory.

NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping continue to be employed to increase emphasis and analysis of root causes in all mishaps and close calls.

Analysis of the cause of mishaps (accidents) within NASA is accomplished via the mishap identification process. NASA has promulgated mishap investigation policies which require specific investigation ranging from the supervisors report of injury that lists specific recommendations to prevent re-occurrence, to full mishap investigation boards for the incidents with actual or potential for serious injury or property damage. Those investigation efforts, coupled with the inspection activities mentioned above, constitute the Agency's primary approach for addressing the causes of injuries and controlling recurrence.

While the safety performance of each NASA Center continues to represent one of the best in class within the Federal sector, the NASA Administrator has stated,

With these clear, recent incidents of the great care we exercise to the value and importance of safety, it is a good time to recommit ourselves to this continuous task. No activity is important enough to compromise your safety, or that of colleagues, or the public in anything we do. Continue to trust your instincts and experience. If something doesn't feel right, ask questions and never be reluctant to prompt a second look. The Agency Safety legacy is paramount. Keep up the good work, but always remember that mission success starts and ends with Safety for everything we do. (5 April 2002 Letter to all employees on subject safety)

Injury and illness data represent primary metrics used by NASA management to assess and manage performance. NASA continues to have as its goal, a zero lost time injury rate for its employees. The lost time injury and illness rates have and continue to, serve as one of the top management's evaluation metrics. NASA will use the standard metrics for evaluation of its field Centers including lost time injury and illness rates, frequency of major mishaps, Federal Workers' Compensation rates for each location, etc. An annual report of Center achievements is given to NASA senior management for their performance reports and to the Health and Safety Board as they review the Agency's activity.

Injury/illness rates have historically been very low due to management emphasis geared more to the maintenance of a safety and health program that meets the core requirements as defined by OSHA:

- Management commitment and employee involvement
- Work-site hazard analysis
- Hazard prevention and control
- Safety and health training

NASA has continually conducted an extensive safety and health policy updating process, to respond to lessons learned, changing occupational safety and health needs, and changing federal policy. NASA reviews each NASA Center on its performance in both safety and health training. These reviews include both an annual self-assessment and NASA Headquarters reviews of the Center safety and health training programs.

The NASA Safety Training Center (NSTC) presented instructor based training to students in safety and health courses in FY 2003. Each year, NASA invests over \$1,000,000 through the NSTC, located at Johnson Space Center, for course development and deployment to the other NASA Centers. Over 4,200 personnel have attended instructor based safety training presented by NSTC. The NSTC has a course catalogue that identifies 94 safety and health instructor-based courses that can be given Agency-wide. A recent course added to the curriculum is "Establishing, Maintaining, and Assessing OSHA Voluntary Protection Program (VPP) Compliant Safety and Health Programs." This course will provide knowledge and understanding of the OSHA VPP processes, including in-depth discussions of the 32 VPP program elements and how to implement them. In

addition, 25 courses added this year are modular and focus on construction safety and health.

NASA has continued with an aggressive safety and health training program utilizing a multi-media approach including, on-site Instructor Based Courses. With these onsite courses the local safety and health professionals at each Center present courses to on-site personnel covering the broad range of topics required by OSHA (such as confined space entry, lock-out/tag-out, blood borne pathogens, hearing protection, respiratory protection, etc.).

In FY 2003, over 62,000 NASA employees and contractors registered as having taken web-based training programs through the Site for On Line Learning (SOLAR). NASA employees were also engaged in taking other online computer-based safety and mission assurance courses. NASA recognized 231 course completions in 13 Safety and Mission Assurance on-line disciplines in FY 2003.

Each year NASA identifies specific courses needed throughout the Agency and uses internal experts or contracts with health and safety training professionals to satisfy the special training needs. For example, in fiscal year 2003, NASA provided 79 individual Occupational Health courses and/or ViTS (see enclosure) to various Centers.

NASA Safety and Mission Assurance (SMA) and the NASA Office of Health and Medical Systems will continue to provide web-based training for all Agency and support contractor managers, program directors, and employees.

NASA's Occupational Health Internet web site is an online training and informational resource that is available to all Agency and contractor employees. The "hits" on the site have steadily increased over the last few years, and have gone from 3,423 in FY 1998, to 63,867 hits in FY 1999, to 134,236 hits in FY 2000, to 221,622 page hits in 2001, to an estimated 278,000 page hits in 2002, and over 704,800 page hits in FY 2003.

NASA's safety and health web sites will continue to make safety and health information easily available to all. NASA employees now have even easier access to regulatory requirements, NASA policy documents covering safety and health programs, and training materials.

For the past several years, NASA has sponsored a "Safety Awareness Day" at all NASA Centers. The day (or week in some cases) has been set-aside for supervisors and employees to focus on safety training or other safety and health topics concerning the workplace, operations, and flight. Senior leaders in safety and health, space exploration and government are keynote speakers at these events. This highly effective program will continue.

NASA will continue Federal interagency agreements for support of NASA programs including the Veterans Administration Workers' Compensation tracking system.

NASA continues to “mentor” other federal agencies seeking to improve their safety and health programs. In this process, NASA has also learned “best practices” from those we are assisting in bettering their internal programs, through participation with the Federal Advisory Council on Occupational Safety and Health, the Federal Round Table, and through assistance provided by the Office of Federal Agency Programs.

Individual Center Accomplishments and Programs

Office of Headquarters Operations

The Office of Headquarters Operations (OHO), a support function to NASA Agency, continues to publish monthly safety topics relating to home and work. HQ Safety initiated the “New Attitude for Safety Awareness” campaign. Each month a different safety and/or health topic is highlighted. Posters are placed throughout the building with safety information that can be used both at work and at home. These posters are provided to the Collateral Duty Safety Representatives (CDSRs) to post throughout their Codes.

OHO has completed installation of a high frequency radio, which allows communication with other Centers in case of an emergency when the telephone system is inoperable.

OHO has taken several proactive efforts to ensure compliance with all Federal requirements for emergency preparedness. Some of our compliance initiatives include:

- Conducting emergency evacuation drills on a quarterly basis
- Updating and distributing to all civil service and contract employees, the current version of OHO Occupant Emergency Plan, which provides specific directions for evacuation in case of an emergency.
- Maintaining a close relationship with the District of Columbia emergency response personnel and other Federal agencies regarding emergency preparedness and evacuation.
- Involvement with the Interagency Working Group on Emergency Preparedness, to assist in gathering information from other agencies on their efforts.

The OHO continues to publish monthly safety topics relating to home and work. These posters are provided to the CDSR to post throughout their Code. Larger posters are also displayed on each floor. CDSRs are provided training when they accept their position, and annually thereafter.

Emergency Preparedness personnel receive additional training whenever significant changes have been made to the Headquarters Occupant Emergency Plan. The Safety Office and the Occupational Health Office have worked together to ensure first aid kits are installed throughout the building.

Safety inspections are conducted annually by the HQ Safety Office. The CDSRs conduct monthly inspections.

The Performance Evaluation Profile (PEP) survey was conducted and will be used to identify needed improvement area.

1. Initiated review of long-term disability cases, with the goal of returning the injured employees to productive work. As a result of the review, disability compensation payments for three cases were terminated.

2. Prepared and distributed an HQ Employee's Guide to Workers' Compensation.
3. Purchased first aid stations and additional AEDs to supplement the Health Unit services as part of the disaster planning/emergency preparedness activities.

Glenn Research Center

The accomplishments of the Safety Program at Glenn Research Center (GRC) for the calendar year 2003 are programmatic and operational in nature.

GRC completed the development of an improved Hazard Analysis program for the Center. This improved process allows Center management to make decisions related to facilities and operations based on a comprehensive risk management methodology. The new process includes provisions for a new job hazard analysis methodology to be used for general tasks and specific job assignments. Risk assessment codes (RAC) are standardized for use over a variety of hazard analysis projects and programs.

Several new programs such as the Office Safety and Excavation Permit Process have been developed at GRC to ensure that areas of health and safety concern are addressed effectively. The Office Safety program addresses safety concerns within administrative sectors of the Center. Their needs are different than research and Center operations, and this program provides guidelines on housekeeping of office, electrical safety, slips, trips and falls, life safety concerns and reference to established programs like Building Evacuations and Ergonomics. The Excavation Permit process formalizes existing individual processes that existed within the Safety, Environmental and Construction Management organizations. This process allows better coordination among organizations and the project teams. The main focus is trying to reduce the number of excavation mishaps that occur. In addition, GRC has established a fall protection program to address these types of hazards for both construction and Center operations processes.

GRC established an AED program and policy in response to the Agency's requirement. This program covers the deployment, use, training and maintenance of AEDs throughout the Center. Currently there are 13 AEDs available at GRC and Plum Brook Station (a satellite of the Center).

GRC is in the process of completing its application for the Voluntary Protection Program (VPP). The application is due to OSHA's Region 5 office this spring with hopes to coordinate the audit process this summer or fall. GRC will be working with other NASA Centers and the Voluntary Protection Program Participants Association to achieve this important goal.

GRC has made improvements to the lifting devices program and safety training. The lifting devices program now includes powered industrial trucks. GRC has made the requirements for these units the same as those for cranes and other lifting devices. In the area of safety training, a joint team of safety, environmental, occupational health and human resource professionals is

improving the process of identifying and providing guidance, to supervisors to ensure that employees are current on their training and certification requirements.

The former Executive Safety Board is now a combined Safety, Health and Environmental Board (SHEB). This senior leadership body, chaired by the Center Director, sets policy on all safety, health and environmental programs for the Center. This change will assist the Center in the pursuing VPP status.

The GRC lost time rate (.5) for last fiscal year was higher than in previous years. This was due primarily to an increase on the number of slips, trips, and falls at the Center and while employees were on official travel. Currently the GRC Safety Office is developing an awareness campaign to address this issue and to reduce the number of lost time events.

Langley Research Center

Training is provided to all employees through regularly scheduled safety meetings, at Langley provided/sponsored safety training.

Prior to receiving permanent badges, employees are required to attend a New Employee Orientation. During this orientation, a Langley New Employee Video is shown, and the rules and regulations identified in the Langley Safety Pocket Guide are discussed.

The Safety and Facility Assurance Office (SFAO) sponsored the following training during FY 2003:

- Facility Coordinator/Facility Safety Head Training
- Manager/Supervisor Training
- Lockout/Tagout Safety
- Confined Space Entry
- Ionizing and Nonionizing Radiation Safety
- Electrical Safety
- High Pressure Systems Safety
- Management Oversight Risk Tree (MORT)-Based Mishap Investigation
- Human Factors in Mishap Investigation
- Overhead Cranes and Material Handling
- Personal Protective Equipment
- Ergonomics
- Material Safety Data Sheets
- Heat Stress
- Cryogenics
- Chemical Safety
- Forklift Safety
- Aerial Lift Safety
- General Office Safety
- Hand Tool Safety
- Back Safety
- Lockout/Tagout Safety

Additional safety awareness and training was provided to all Center employees on June 4, 2003, LaRC's Safety Stand Down Day, consisting of a presentation by the Center Director addressing mishaps, close calls, and preventive measures, safety meetings and facility housekeeping activities. Dr. E. Scott Geller, Professors and Director of the Center for Applied Behavior Systems at Virginia Tech addressed Center employees.

All Center supervisors and managers receive annual training related to the safety and health program to ensure they understand their safety responsibilities. The Center provides them with the authority and resources to carry out their safety related responsibilities and holds them accountable for the effectiveness of their efforts through the safety performance of their organization. Evaluation of their success is reviewed by upper management during their annual performance appraisal.

The effectiveness of LaRC's safety and occupational health programs is measured through trend analysis, in order to identify adverse trends requiring implementation of corrective action. Examples of metrics that are analyzed include:

- Lost time accident frequency and severity rates
- Injury, OSHA recordable injury and illness rates
- Number of civil service first aid cases
- Audit findings
- Property and equipment damage
- Fire department response times.

The NASA Incident Reporting Information System (IRIS) can automatically perform some trend analysis on accident data. Other trend analysis is conducted through the use of computer spreadsheets and, in some cases, manually.

The results of these analyses are reviewed by the Office of Safety, Security, Environmental, and Mission Assurance (OSSEMA) management at monthly business reviews. During these reviews, the data is compared to the goals contained in the Annual Operating Agreement and corrective action is assigned if the trend indicates that the goal may not be met. This data is also presented and discussed at the quarterly Executive Safety Board meetings. The metrics are updated monthly and are available for employee viewing on the SFAO website.

Langley employees use a variety of means available to them to report identified hazards, safety concerns, and close calls, as follows: notify their immediate supervisor who investigates and initiates corrective action, notify the SFAO, either verbally or through the use of NASA Langley Form 164, "Report of LaRC Safety and Health Concern," and the NASA Safety Reporting System, which is a method of confidentially reporting safety concerns to NASA Headquarters.

The SFAO received 50 NASA Langley Form 164's, during this evaluation period, with all of the concerns reviewed and corrective actions implemented.

Requirements for handling reports of hazards are contained in Langley Management System-Center Procedure-4760, "Reporting Injuries, Illnesses, Compensation Claims and Unsafe Working Conditions," and NASA Procedure Guide 8621.1 "NASA Procedures and Guidelines for Mishap Reporting, Investigating and Recordkeeping."

Working safely is a condition of employment at the Center. Managers and supervisors are held accountable for maintaining a safe workplace through the annual performance appraisal system. All managers and supervisors have safety and health as a job element in their performance appraisals. Low ratings in this area will negatively affect end of the year bonuses given to supervisors and managers. Repeated negative ratings in safety may result in reassignment to a lower level position. The safety rating is qualitative and is based on mishap experience, compliance with safety requirements, support of safety-related activities, and cooperation with safety and health personnel. The OSSEMA is asked to provide input on senior manager's performance in the area of safety and health on an annual basis.

Employees continue to be accountable to their supervisors to work safely and to report any accident or hazard immediately. Both employees and supervisors are held accountable through the discipline system, which includes penalties for safety violations and failure to report mishaps and hazardous situations.

Each facility has a collateral duty Facility Safety Head and Facility Coordinator. These individuals work in their assigned facilities daily, are very familiar with all aspects of the facility and its operation, and are responsible for continual identification and abatement of hazards. As a safety incentive, quarterly and annual awards are given to Facility Safety Heads and an annual award is given to a Facility Coordinator. These awards are given to individuals nominated by their facilities and selected by the SFAO for excelling in the promotion and effectiveness of the LaRC safety program.

Employees continue to be involved in safety issues through regularly scheduled safety meetings conducted within each facility by the Facility Safety Head, participation in Safety Analysis Reports (SAR) and risk evaluations, participation in procedure demonstrations and as members of accident investigation boards.

LaRC recently implemented the "Aviation Safety Working Group," chartered to find and communicate safety issues pertaining to aviation safety at the Center.

LaRC also implemented an Ergonomics Committee comprised of Center civil servants and contractors tasked to oversee the implementation of an effective ergonomics program at the Center.

LaRC's objectives for the future are to improve the Center's safety program through:

- Management, leadership and employee involvement.
- System and worksite hazard analysis.
- Hazard prevention and control.
- Safety and health training.

Goddard Space Flight Center

The Safety Office has again concentrated heavily on developing and implementing standardized tools and processes to support the Safety

Management System for the Center. Goddard Space Flight Center (GSFC) has continued to enhance their Occupational Health and Safety programs to meet their customer's needs by focusing on skill mixes within the team to support their unique requirements. GSFC has also named a new Assistant Center Director of Safety and Security and is refocusing and re-defining the role of the Goddard Safety Council (formerly the Safety Management Council).

The Occupational Health and Safety program has worked to provide the Center with tools for improving the safety of Goddard employees. The Center has progressed in using tools such as the Task Safety Analysis and Process Hazards Analysis to identify the hazards associated with different operations in the workplace. An independent consultant has been retained to support the Center's Safety Management Systems implementation project in a pilot effort in the Management Operations and Applied Engineering & Technology directorates. The consultant has been retained to develop and provide a tool for GSFC to be able to pre-audit the Center for the VPP elements.

A consultant was obtained to provide an independent assessment of all food services on Center. This evaluation included temperature control, cleanliness, personal hygiene, and equipment maintenance. Below are some of the accomplishments of the GSFC Safety Office and related programs:

- Provided the Task Safety Analysis and Process Safety Analysis tools for the Center.
- Completed development of SAFETRAN, an automated tool to assist supervisors with identifying training for employees.
- Provided 5 training sessions, including, OSHA 10-hr Construction, Confined Space Training, Laboratory Safety, and a VPP Overview of 28 elements.
- Trained all new supervisors on safety, health and environmental responsibilities during new supervisor orientation.
- Completed 70 annual and follow-up building assessments.
- Developed an Emergency Action Plan template to provide consistency across the Center.

Mishap Prevention

- Administered a Winter Safety Campaign targeted towards eliminating slips/trips/falls.
- Continued outreach towards promoting safety awareness by focusing on current safety and health topics and current events and targeting areas of mishap prevention. This includes using various media such as Goddard News articles, supervisory emails and others.

Occupational Health Program

The Occupational Health services are provided to GSFC employees to improve occupational safety and health. The Fitness Center has continued to focus on improving the health and fitness of Center employees through increased awareness and outreach. The Employee Assistance Program (EAP) has continued to promote program services to increase the utilization and the visibility

of the EAP throughout NASA both as a value added benefit for employees as well as a cost benefit for the Center.

The following are the specific accomplishments, metrics and efficiencies within FY03 for the Occupational Health Program:

- Presentation of wellness seminars and education on subjects that included current theory on physical exams and health screening, nutrition, acupuncture therapy, relaxation techniques, skin and breast cancer awareness, male health issues, dealing with asthma and allergies, and computer fitness.
- Collaboration with EAP and Fitness Center to promote successful Health and Wellness Fair.

Employee Assistance Program

- Sponsored Mars and Venus in the Workplace in conjunction with the Women's Advisory Committee (WAC).
- Participated on the Tele-work Subcommittee of the WAC, taking a lead role in identifying supervisors to be interviewed, creating the interview assessment tool, and writing the report to be presented to the Center Director as well as the Quality of Work Office
- Continued as the Co-chair of GSFC's Committee for Ending Domestic and Family Violence including the continual distribution of brochures
- Participated as member of the Crisis Management Team and facilitated Critical Incident Stress Management Debriefings as needed.
- Provided supervisory briefing to all of the supervisors in a Directorate to educate them on making referrals to the EAP as well as information on how to access EAP services.

Physical Fitness & Health Program

- Instrumental in the success of the spring Fun Run. They spearheaded the registration for the event and posted results and photos in the Fitness Center.
- Co-sponsored the annual Health Fair with the participation of 23 local and national organizations focusing on issues specific to wellness, fitness, and health education/promotion. Secured vendors, advertised, and conducted a survey for the event.
- Along with EAP, supervised the Health and Safety table at the Quality of Worklife Expo. Took blood pressures, utilized the biofeedback machines, distributed promotional items, and offered wellness literature.
- Continued promoting health and wellness programs using various forms of media. Bulletin boards, articles, pamphlets, promotional items, etc. are generally dedicated to these topics, along with current health and fitness related issues.
- Published a newsletter every two months: heart-healthy exercise, diets, exercise success tips, nutrition, cancer control, fitting in fitness, finding the right exercise, running tips, injuries, and healthy recipes.

Fire Protection Program

- Developed guidelines for Emergency Action Plans.
- Developed Emergency Action Plans for 85% of facilities.
- Exercised Emergency Action Plans via annual drills.
- Reviewed design plans and procedures with regard to Life Safety and fire protection issues.
- Supported site inspections and mishap investigations as needed.

Stennis Space Center

The Safety Management Council continues to convene as the Center's prime decision-making body for Safety Policy. Chaired by the NASA Center Director, and with standing members from NASA/NASA Contractor Senior Management, the Council is open to Center personnel. Its main body of work is in evaluating all site mishaps and conspicuous close calls. The Council is seen as the prime tool for promotion of safety culture at SSC.

Employee Safety Committees have been developed for individual NASA contractors, as well as other Stennis residents.

Due to the success of the Employee Safety Participation (ESP) class that was held in 2002, ESP II training was developed for FY03. Many of the previous ESP Facilitators, along with SSC Safety, met weekly to brainstorm suggestions and comments for the new class. The ESP Facilitators (employee/volunteer) Group established a goal to create a two hour safety training class designed to help employees learn how to interact with coworkers, incorporate safety in everyday activities, develop safety and health awareness and self-auditing skills, and make safety second nature. The training session emphasized the personal responsibility each employee has to recognize and correct unsafe behavior and conditions and employed realistic examples, pictures, discussions, feedback and planning activities that build skills and encourage safe behavior transfer back to the workplace.

Monthly safety and health training schedules have been developed and posted on the NASA Safety and Mission Assurance (S&MA) web page. All special skills/process training and certification data have been put into the NASA Training & Certification Record System (TCRS), and 231 training sessions were completed.

In FY03, SSC developed and implemented block training for all required OSHA training. The block training allowed for training blocks that maximize the efficiency of the training. Training classes were also revised to provide for more hands-on and workplace-oriented training.

In FY03, SSC inaugurated the Center Director's Safety Walkthrough policy. The direct benefits of the exercise are twofold. The inspection allows for the Center Director, the Center Operations Director, the Safety and Mission Assurance Director, and a designated rotating representative from senior management, a weekly opportunity to assess the safety of the workplace. It also provides the

chance to meet usually inaccessible workers and demonstrate willingness to help in all matters of safety and health.

The SSC Close Calls Program has developed into a proactive tool for safety trending. NASA and contractor employees are made aware of the need for reporting all occurrences of close calls. Employees who submitted the best close call with respect to severity and probability of preventing a mishap are awarded the "SASY" ("Spotlight About Safety and You") on a quarterly basis.

The SSC Lifting Device and Equipment Program continues to experience growth and improvement. The NASA Chief, S&MA, was tasked the committee with development of the NASA/SSC Lifting Device Equipment Training & Certification Plan. The proposed plan was submitted to NASA Headquarters for final approval.

During FY03, the construction site safety inspection program showed improvement with inspections being performed in an expeditious, high quality manner. Safety attends a weekly meeting with the Construction Engineering staff to identify all construction activities being performed on SSC property. Information received at these meetings has proved valuable in establishing a weekly construction site safety inspection schedule. The Construction Safety team uses a daily log sheet of construction site visits which documents all visit information, hazards, discrepancy type, RAC Code and associated pictures of hazards. Safety also developed a Construction Hazard Tracking System database to identify hazards/discrepancies found on construction sites and track to closure.

A Beryllium Exposure Monitoring Program is currently being developed to ensure that employees are protected from exposures to beryllium and that potentially affected personnel are trained and included in a medical surveillance program. Partial implementation of this program has been initiated (training), but the testing portion of the program has been delayed due to funding approval.

Great strides have been made in addressing ergonomics issues at SSC during the FY03 – a period during which OSHA placed unprecedented emphasis on ergonomics. The Industrial Hygiene department met the challenge by providing effective ergonomics evaluations and extensive training for the SSC population. To accomplish this goal, a monthly ergonomic awareness-training course was developed. Requests continue to be accepted for specialized classes and ergonomics evaluations and the Industrial Hygiene department continues to conduct weekly ergonomics assessments.

During FY03, NASA and the three primary contractors at SSC conducted a four-hour stand-down on October 23, 2002 in support of the eighth annual NASA Safety and Health Day. In an effort to give employees some interesting and informative options and to make good use of the four-hour time period, a number of mini-courses were offered. Local area experts presented brief safety awareness-increasing sessions for employees on a variety of topics, and SSC Safety Day employee participation cards were designed and distributed to help

guide employees through the various event and activities. To encourage full participation by employees, completed cards were used in a drawing for gift certificates.

In FY03, the SSC developed and distributed a series of flyers that focused on a different subject for each week of National Safety Month (June 2003). The weeks' highlights were Driving Safety Week, Home & Community Safety Week (fall prevention), Preparedness Week (planning for emergencies), and Workplace Safety Week.

In preparation for the Voluntary Protection Program (VPP) at Stennis Space Center, membership continued in the Voluntary Protection Programs Participants' Association. As first steps to achieving a higher level of excellence in the overall SSC occupational safety and health program to ultimately obtain STAR Program status, the following initiatives are planned for FY04.

- Develop initiatives that mirror VPP guidelines
- Develop third-phase behavior-based (Employee Safety Participation or ESP) safety/health training for employees
- Conduct employee attitude surveys
- Organize various employee involvement teams (i.e., incident investigation, JHA/audit, safety incentive programs.)
- Conduct refresher OSHA-required training
- Schedule motivational speakers to visit shop/field areas
- Initiate guidelines for Department Managers to conduct quarterly safety/health audits of their respective areas
- Finalize formal Safety and Industrial Hygiene Handbooks (desk references) to consolidate present desk guides and allow for easier cross training of professional Safety & Health staff members.
- Establish formal "Just Fix It" employee safety recognition program
- Establish formal "On-the-Spot" recognition of employees who are working safely.
- Formalize Worker's Bill of Rights

SSC will introduce the EMPACT or "EMPLOYEE ACTION" Safety Program (a VPP-like employee-based safety program) which is designed to enable all employees to have an active role in the safety program. This approach to safety emphasizes accident prevention. It will enable each employee to take positive actions to prevent mishaps, and gives employees a means of measuring how well they perform safety responsibilities. The goal is to control hazards that produce mishaps and give each employee a voice in the safety program.

Johnson Space Center

The Safety and Test Operations Division support contractor hired seven experienced construction inspectors to enhance the oversight of construction safety at JSC. These personnel include three Professional Engineers and one Certified Safety Professional.

As a direct result of a contractor's electrocution fatality experienced in 2002, JSC has upgraded its construction contract processes to pre-qualify contractors. This pre-qualification process includes reviews of their safety programs and past safety and health performance. All contractors who best meet our pre-screening requirements are signed on to bid on specific construction projects, which are awarded via delivery orders. In June 2003, JSC began daily pre-badge construction briefings on JSC unique safety requirements. All new construction personnel are provided this training prior to being issued a badge.

The uniform application of common tags (designed to eliminate confusion between configuration control and for Lockout/Tagout (LO/TO)) and locks (red) continues to be implemented in stages. JSC continues to work on the implementation of the new process including training courses and contractor direction. JSC's inspection processes have indicated that the LO/TO program is being implemented effectively.

JSC Occupational Health and Human Test Support (OHHTS) Office added several permanent and temporary personnel during the year. While these personnel support both institutional and flight/training projects, they have added capability to the OHHTS Program, improving JSC's capabilities in support of the Center's Space and Life Sciences endeavors. A radiation health physicist is now on staff, a University of Texas Medical Branch Occupational Medicine Resident, an additional physician with expertise in aerospace and telemedicine, and an audiologist.

In addition to program management and consultation, the JSC full-time PhD audiologist provides follow-up evaluations on all employees with occupationally related hearing threshold shifts. During these evaluations the audiologist also provides one-on-one training to the individual on the effects of noise induced hearing loss and actions to follow to prevent further loss. An additional fully outfitted audiometric booth has been put into service and is used for any follow-up or special testing as determined by the audiologist.

During FY03, over 750 ergonomic evaluations were performed in 47 JSC buildings across all three JSC facilities (JSC, Ellington Field, and Sonny Carter Training Facility). These evaluations were performed by the Occupational Health Services and contractor led ergonomic teams. Over 1,400 ergonomic self-assessments have been conducted online. Over 105 employees attended instructor-led ergonomics classes and 1,400 employees (including contractors) participated in computer-based ergonomic (CBT) training, which represents approximately 14% of the site population. As part of the Unified Safety and Health Awareness Campaign, an "Ergo Week" was conducted where high impact/high incident areas were targeted. During this campaign, teams composed of NASA employees and employees from over 9 contractor-groups conducted more than 140 ergonomic evaluations in one week. These evaluations covered 15 buildings at JSC, Sonny Carter, and Ellington Field. Employees in 13 directorates were visited. An Ergonomic Evaluation Database has been developed and installed to track ergonomic evaluations and follow-up activities. The database links Occupational Health Services ergonomists and the

Case Management Nurse. Feedback is solicited from evaluation recipients and this feedback is stored in the database to aid in tracking the status of the case.

The Employee Emergency Contact System was made available on the Human Resources homepage. In the case of a mishap, this system enables prompt contact of family or next-of-kin or other emergency contacts.

JSC's EAP program was tasked very heavily in the past year because of the Columbia STS-107 tragedy. The critical incident stress team plan was employed with great success to meet the counseling needs of the workforce who were deeply affected by the event. The program continues to work with specific high risk and high profile organizations and is doing an excellent job of meeting the needs of the JSC community.

Following NASA HQ Codes Z and QS guidance, JSC safety, health and emergency management officials provided awareness information to all employees on Emergency Preparedness in the Workplace in the event of a terrorist attack. Employees were advised that existing procedures for shelter in place for chemical as well as tornado threats could be adapted to Weapons of Mass Destruction events. The information sheet was posted on the JSC internal web page and all civil service and contractor employees were notified of the document via an article in the *JSC Today* electronic newsletter distributed to all employees. The information sheet also identified typical sources of emergency information such as facility emergency action plans and public websites. Employees were encouraged to develop personal emergency plans to protect their families away from the workplace.

JSC conducted a 2003 VPP Readiness Review (VRR) in December. This has become an annual event. Each organization reviewed their implementation of the safety and health program and reported a status at the VRR to Center management. The VRR is a useful tool involving all Center Directorates in preparing the OSHA VPP Annual Self Evaluation which will be submitted to OSHA in February 2004.

A new pop-up window messaging upgrade to the emergency notification system for JSC onsite employees, called JENS (JSC Emergency Notification System), was released in mid-March to employees with PC workstations that are multicast enabled. The JSC internal homepage and e-mail notifications, which are part of JENS and already in effect, have been providing alerts to employees for several years. The pop-up window alerting capability became a part of the standard load for Windows PC platforms in September 2003. JENS was developed and will be hosted by Information Resources Directorate in partnership with the Emergency Operations Office.

At the White Sands Test Facility (WSTF), NASA, the site support contractor, and environmental contractor were approved for continuation in the VPP STAR program or approved as a STAR site as applicable. Through the VPP process, improvements have been made in a number of programs based on employee involvement and their contributions to the review process.

Dryden Flight Research Center

In January 2003, DFRC presented a 3-day safety awareness and training activity (Make Dryden Safer). The Center Director stood down Center activities for portions of this period. The event was organized and presented by the employee safety committee, who coordinated scheduling and planning of presenters, root cause training, and safety certification training. In addition, a complete schedule of safety and health training is provided in house at quarterly intervals.

In June 2003, a second activity organized by the same employee committee involved a simulation exercise for a major emergency involving aircraft hazardous materials response and employee evacuation procedures.

The employee committee has sponsored the Center root cause analysis program for facility based incidents. Facilitator training was conducted, as were six root cause analyses.

Before encountering a single lost-time mishap in FY03, DFRC experienced 1,184 days of injury-free performance.

DFRC continued a multi year Cost of Facilities effort to upgrade fire alarm, reporting and suppression system.

In response to a California environmental auditor's request, DFRC provided a presentation on their chemical management system at their conference. A presentation on this system will also be made at the 2004 conference. DFRC in partnership with DoD and the software developer performed the beta test for the web based version of the current chemical management and information system software (HMMS). DFRC has gone "live" with this system.

DFRC has modified and deployed the Ames Research Center software for safety accountability for managers. The system went live in December 2003.

Kennedy Space Center

Kennedy Space Center (KSC) has continued to integrate safety and health planning into all phases of its operation. Safety and health remain Center core values and personnel at all levels are evaluated on their performance.

KSC selected the OSHA VPP criteria for its benchmark for safety and health program improvement. The Center successfully completed its readiness efforts for the VPP Star qualification and an on-site review was completed by Federal OSHA in July 2003. OSHA awarded KSC the Star level. That designation, coupled with the continued qualification of the two largest contractors at KSC results in over 75% of the KSC workforce being covered under the VPP Star program.

Implementation of a line manager's safety and health accountability program continues. In this program, all supervisors are required to conduct monthly safety meetings, complete monthly job site inspections and assure their subordinates have job hazard analysis training for key work involving risk.

KSC developed and deployed a Work Center Safety and Health Guide to assure compliance with the OSHA standards. That guide has resulted in a complete organizational mapping of where confined space entry, LO/TO operations, machine guarding and other hazardous operations are conducted. Additionally, a major upgrade to the facility inspection programs was completed. This system is accessible by all personnel on the Center. Deficiencies noted in those inspections which warrant significant expenditure of funds are now receiving increased scrutiny for assuring timely abatement (within 30 days and with interim abatement actions documented where appropriate).

Safety and health metrics used to assess program performance have been upgraded at KSC. Metrics are reported to senior management monthly with a focused presentation quarterly to the Safety and Health Council. Metrics presented include the lost time severity and frequency rates, close call generation, abatement of facility inspection findings, work-time deviations, cardiovascular disease risk factor reduction, etc.

KSC continues a Union/Management Safety and Health Committee to allow employees another opportunity to influence Center safety and health programs. The committee is staffed by an equal number of participants from management and employee represented by the union.

A newly formed Safety and Health Committee is staffed with representatives from all organizations at KSC including contractors. New committees now cover fall protection and construction safety programs across the Center. A new Health and Wellness Working Group has also been chartered with objectives including education programs, expansion of fitness and weight loss programs and is further integrating many of the health resources and programs that exist at KSC (including the clinics, the health and wellness program, the employee assistance program and the fitness centers).

An automated variance application review process has been implemented to assure that all requests for variances to KSC safety and health requirements are reviewed by the key personnel on Center. The results are archived for future purposes.

KSC has continued development of on-Center contract resources for management of Musculoskeletal Disorders (MSD's) by integrating the KSC medical clinic evaluations, industrial hygiene MSD hazard assessments, MSD rehabilitation, and MSD case management.

Columbia Debris Recovery/Accident Investigation- Safety specialists and industrial hygienists from KSC made a significant contribution to field debris recovery operations in Texas following the Columbia accident. NASA and contractor safety and health personnel worked with recovery teams and at the debris recovery center at Barksdale, Texas to assess hazards associated with debris to ensure the decontamination of materials contaminated with hypergolic propellants, and to implement the Center's safety and health program practices at the field locations. At KSC, industrial hygiene personnel monitored debris

shipments from Texas and ensured and safe handling of debris containing fibrous insulation materials or beryllium by accident investigation team members.

As a part of KSC's preparation for the OSHA VPP, a comprehensive hazard assessment of NASA-operated shops and laboratories was completed. Industrial hygiene personnel worked closely with managers and supervisors to inventory and assess use of hazardous materials to ensure the implementation of administrative and engineering hazard controls and compliance measures.

KSC plans to continue its OSHA VPP qualification, keep its lost time injury performance at a rate lower than the Agency average, and abate or provide interim resolution of all inspection findings within 30 days.

Marshall Space Flight Center

MSFC continued efforts to increase involvement in and the effectiveness of the new employee Safety Health and Environmental (SHE) Committee program. The sixteen existing sub-committees were maintained and two new sub-committees were added. A new Safety Concern Reporting System (SCRS) Ad Hoc Subcommittee was established to review and help assure timely resolution of employee concerns. Over 200 employees were directly involved in the SHE Committee program. MSFC also continued providing safety culture training to all new civil service and contractor employees. The training is a 4-hour program based on the Dupont safety philosophy. It includes safety awareness, hazard recognition, safety responsibilities, and much more.

A part time safety specialist was hired to increase MSFC emphasis on construction safety and safe LO/TO practices. Unannounced inspections of construction and maintenance activities were increased during normal and after-hour time periods.

MSFC continued use of its Supervisor Safety Web Page to document and track supervisor monthly safety meetings and safety visits to areas and to distribute timely SHE information and training. Both civil service and contractor supervisors averaged over 95% completion rate of the required meetings and visits.

The annual NASA Performance Evaluation Profile survey was continued. This questionnaire is administered to both civil service and contractor personnel. It provides individual safety program element evaluation with breakdowns for individual civil service and contractor organization. Over 96% of employees participated. Overall results for 2003 were 4.3 for employee and 4.5 for managers. The best possible score is 5. Any score above 4.0 is considered excellent. This was equal to the 2002 results, indicating continued maintenance of a strong safety and health program.

MSFC continued its annual "safety day" stand-down. This day is set aside for safety activities, included speakers, vendors, a picnic lunch, procedure reviews, safety meetings, manager safety visits, housekeeping improvements, employee

team safety question competition (safety Jeopardy) and other safety and health related activities. MSFC also conducted a Center wide survey and an awareness campaign on seat-belt usage.

A new program providing fire rescue “spots” in multistory buildings was initiated. Spots are locations near fire exits which are equipped with telephones for communication with emergency personnel. Physically disabled personnel who are unable to evacuate the building via stairs may remain at these identified locations to wait for rescue. Approximately 40% of MSFC locations have designated “spots”.

MSFC implemented a new intranet Safety Observation Survey for reporting and trending unsafe acts. The system provides a quick and easy way for any Center employee to anonymously report and document a witnessed unsafe act. A category selection list provides trending to help SHE managers identify problem areas. All Center employees were given training on how to approach another person with positive concern for their safety. Managers and professional safety personnel were encouraged to increase emphasis on looking for unsafe acts. To assure management awareness, the inspection findings and mishap cause metrics were broken down by number of unsafe act and unsafe condition.

MSFC benchmarked with KSC on their VPP Star Certification efforts. With the help of the information received, MSFC developed a plan for pursuing Star Certification. The plan includes detailed actions, budget, staffing, and timeline requirements.

A web-based system called SHEtrak was implemented as a supplement to the safety findings tracking system. SHEtrak permits direct coordination and input from SHE professionals, building managers, facilities representatives and other actionees on safety and health issues. It incorporates safety, environmental health, and environmental findings into one common database.

The contract verbiage that effectively penalized contractors for having a mishap was eliminated from their contracts, and new verbiage was added that penalizes contractors for not reporting mishaps.

MSFC developed a new Access database for tracking hours worked, mishaps, self-assessment scores, safety plan status, and other safety metric data for individual organizations and contractors. Information is being used by the responsible organization to give the SHE Committee and Management Team monthly health and safety metrics.

To improve timeliness of health and safety issue resolutions, MSFC added due dates and automatic late notifications to the SCRS, and added organization specific late action reports and concerns trending metrics to the monthly SHE Committee report. Training was provided to all Center personnel on how to submit health and safety concerns and how the system works.

MSFC has added a new position of Nurse/Case Manager to its Occupational Health staff. This dual role will provide support to nurse staff and manage occupational injury and illness cases. Additionally new medical laboratory tests were included as of July 1, 2003 for High Sensitivity C-Reactive Protein, LDL-LP Lipoprotein, and Thyroid Panel with TSH.

Various staff members worked closely with the SHE Wellness and Ergonomics Subcommittee in developing a system and presentation for the Supervisors Safety Web Page entitled "Let's Get Physical." The presentation featured detailed information regarding the opportunity extended annual physical exams to all MSFC civil service employees and certain contractor employees qualifying for the medical monitoring program.

State-of-the-art defibrillators, similar to the type used by NASA flight operations were provided to each NASA Occupational Health Clinic.

MSFC provided 2,773 immunizations as part of its Annual Influenza Prevention Program. Other health initiatives included the 5th Annual Health & Fitness Expo "Healthier Living in 2003", the resumption of the tetanus diphtheria booster program, and the provision of vaccinations for international travelers as needed. Advanced Cardiac Life Support training and testing was also conducted for the medical staff and on-site paramedics.

It is MSFC's plan to be a world-class leader in safety and health. The goal is to "Help Establish NASA as a World Class Leader in Safety." The objectives are: zero lost-time mishaps, no OSHA-recordable violations, and no safety-related property damage.

New initiatives include:

- Better alignment of the MSFC SHE Program with VPP Star Certification requirements
- Increasing employee involvement in the SHE Program
- Improvement of MSFC safety checklists to better fit responsible supervisors' needs
- Improvement in understanding of and increase in practice of pre-operation/use hazard assessments
- Improvement in the general safety training program for supervisors, employees, and visitors; implementation of guidelines for work hour limitations
- Establishment of a dedicated budget for the SHE Committees

MSFC plans to continue to keep abreast of all available information relating to infectious disease management and control; continue to investigate recognized information resources for appropriate guidelines regarding management and/or elimination of various ergonomic stressors associated with work activities; continue to attend informative programs and review updated material relating to bioterrorism and chemical warfare and participate in exercises directed toward appropriate response and management of potential incidents; and continuation of

the review and upgrade the medical monitoring program to remain compliance with prescribed medical tests.

Ames Research Center

Ames Research Center (ARC) held a Safety and Mission Success Week (SMS) in November 2003. The SMS Week encourages discussions across the Center focusing on the lessons learned from the Columbia Accident Investigation Board (CAIB) report, and how those lessons might be applied to our lives, our work unit, our Center, and the Agency.

All thirty-eight chapters of AHB 1700.1, Ames Health and Safety Manual were reworked and revised in 2003. Specific attention was given to implementation of new headquarters requirements. Several new chapters are being written (i.e. Indoor Air Quality, Carcinogens, and Employee Assistance Programs).

ARC Safety & Health worked the ergonomics issues once again in 2003. Last year ARC's effort was on training to better enable employees to recognize and correct ergonomic problems and at their work stations. In 2003 almost 100% of the employee worksites were evaluated to provide ergonomically correct information to workers to help them avoid repetitive stress injuries.

ARC has revised the entire Ames Explosive Safety Program. This revision assured compliance with the new NASA Explosive Safety Standard, 29 CRF 1910, and all other known regulatory requirements. The new program has an updated Site Safety Plan, an updated Chapter in the Health and Safety Manual, monthly inventories of materials, and all other required training and documentation. Facility Emergency Action Plans have been updated for those buildings where explosives of any quantity are being used or stored.

A major effort was implemented to help support contractors improve their safety programs and provide greater safety for their workers at Ames. The Center provided information to contractor management, safety staff, and other employees to enhance awareness of measures that promote improvements in health and safety requirements and techniques to comply with them.

An improved close call system is being implemented at Ames, which should heighten awareness of previously unrecognized hazards. This ties very closely to a strong awards system for outstanding safety recommendations from staff members.

Planned OSH goals and objectives for the coming year include working to correct problems associated with aging buildings. These buildings are old, and lack compliance to current health and safety standards, and are a major challenge. The main problems requiring action are Legionella and Fire Code changes. Both of these areas have been improved considerably but additional work has also been planned.

NASA Occupational Health Program

Training Events

- 10/01/2002 Radiation Safety Officer (RSO) - 40 hour. KSC, FL
Classroom sponsored by Paul Steinmeyer with RSA
- 10/01/2002 Nursing Spectrum. King of Prussia, PA
Online/Web based sponsored by Nursing Spectrum
- 10/08/2002 HS&E Leadership and Communication. KSC, FL
Classroom sponsored by Rick Fulwiler of Technology Leadership Associates
- 10/16/2002 HS&E Leadership and Communication. Ames, CA
Classroom sponsored by Rick Fulwiler of Technology Leadership Associates
- 10/16/2002 Microbial Recognition, Evaluation, & Control. Marshall, AL
Classroom sponsored by Dr. Rene Salazar/Salazar and Spaul Env. Consultants
- 10/20/2002 November 2003 EH ViTS - ESH Training/ANSI Z 490. KSC, FL
ViTS-Environmental Health sponsored by Ed Ryan/SGS Instructor
- 10/29/2002 HS&E Leadership and Communication. Goddard, MD
Classroom sponsored by Rick Fulwiler
- 11/04/2002 Radiation Safety Officer (RSO) - 40 hour. Huntsville, AL
Classroom sponsored by Paul Steinmeyer with RSA
- 11/06/2002 Advance Topics On Medical Defense Against Biological and Chemical Agents: A six-part live satellite broadcast. 1st broadcast: Smallpox-Satellite Broadcast sponsored by U.S. Army Medical Research and Material Command
- 11/13/2002 Microbial Recognition, Evaluation, & Control. Stennis, MS
Classroom sponsored by Dr. Rene Salazar/Salazar & Spaul Environmental Consultants
- 11/14/2002 Radio Frequency (RF) Safety Officer Course. Langley, VA
Classroom sponsored by RF Synergy with Narda/John Leonowich and Gary Spinelli
- 11/19/2002 Ergonomic Program Management. KSC, FL
Classroom sponsored by Auburn Engineers/Dave Alexander
- 11/20/2002 Microbial Recognition, Evaluation, & Control. Glenn, OH
Classroom sponsored by Salazar & Spaul/Dr. Rene Salazar
- 12/03/2002 Solar Safe. KSC, FL
ViTS-Health Promotion sponsored by multiple Centers
- 12/06/2002 APPLICATION OF SATELLITE SENSOR & GEOGRAPHIC INFORMATION SYSTEMS FOR DISEASES MONITORING NASA Public Health Application Programs: ViTS-Headquarters sponsored. *Satellite sensor and geographic information systems, Presented by Robert Venezia, Ph.D.; Remote Sensing and Geographic Information Systems Applications for Emerging Vector-borne Zoonotic Diseases, Presented by Durland Fish, Ph.D.*
- 12/10/2002 HS&E Leadership and Communication. Glenn Research Center, OH
Classroom sponsored by Rick Fulwiler
- 12/13/2002 December 2002 HP ViTS - HP Training/NPG 1800.1/KSC Non-Ionizing
ViTS-Health Physics sponsored by Bart Geyer/Rod Nickell
- 12/17/2002 Radio Frequency (RF) Safety Officer Course. JPL, CA

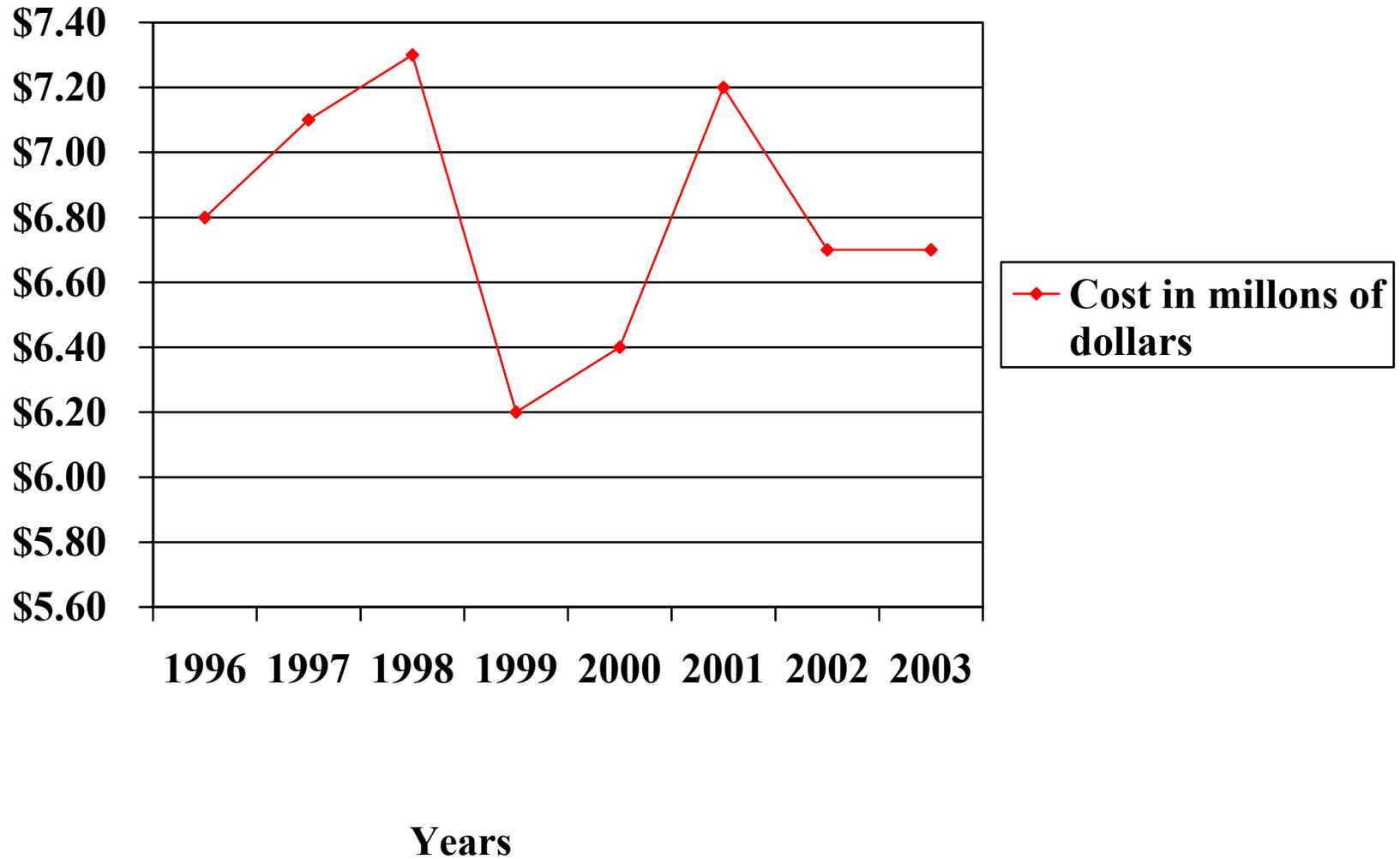
- Classroom sponsored by John Leonowich/RF Synergy and Bob Johnson/NARDA*
- 12/20/2002 December 2002 EH ViTS - ABIH Presentation. KSC, FL
- ViTS-Environmental Health sponsored by Tom Hethmon*
- 12/20/2002 Smallpox Preparedness: Considerations for Response Team Volunteers.
- Satellite Broadcast sponsored by Centers for Disease Control and Prevention, Public Health Training Network*
- 12/20/2002 APPLICATION OF SATELLITE SENSOR & GEOGRAPHIC INFORMATION SYSTEMS FOR DISEASES MONITORING NASA Application of Satellite Sensor and Geographic Information Systems for Monitoring Malaria. *ViTS-Headquarters sponsored. Presented by Lousia Beck, MLA.*
- 01/01/2003 Nursing Spectrum. King of Prussia, PA
- Online/Web based sponsored by Nursing Spectrum*
- 01/08/2003 Advanced Topics On Medical Defense Against Biological and Chemical Agents: A six-part live satellite broadcast. 2nd Broadcast: Nerve Agent and Sulfur Mustard Causalities. Gaithersburg, MD
Satellite Broadcast sponsored by U.S. Army Medical Research and Material Command
- 01/10/2003 APPLICATION OF SATELLITE SENSOR & GEOGRAPHIC INFORMATION SYSTEMS FOR DISEASES MONITORING NASA Application of Satellite Sensor and Geographic Information Systems for Monitoring West Nile Virus. *ViTS-Headquarters sponsored. Presented by David Rogers, Ph.D.*
- 01/21/2003 January 2003 EH ViTS - Sanitation/HACCP. KSC, FL
- ViTS-Environmental Health sponsored by Dr. Brown & Gerry Kueczynski*
- 01/29/2003 Smallpox and Vaccinia Laboratory Testing: A National Training Initiative.
- Satellite Broadcast sponsored by Centers for Disease Control and Prevention (CDC)*
- 02/04/2003 Clinical Management of Adverse Events Following Smallpox Vaccination: A National Training Initiative. Atlanta, GA
Satellite Broadcast sponsored by Centers for Disease Control and Prevention (CDC) Public Health Training Network (PHTN)
- 02/14/2003 February 2003 EH ViTS - AIHA Presentation. KSC, FL
- ViTS-Environmental Health sponsored by Aaron Trippler*
- 02/20/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar.
- Classroom sponsored by Berkeley Nucleonics*
- 02/21/2003 HQ ViTS - Overview of the Health Insurance Portability and Accountability Act with Focus on the HIPAA Privacy Rule. Washington, DC
ViTS-Headquarters sponsored by Carol C. Conrad
- 02/24/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar. KSC,
- Classroom sponsored by Berkeley Nucleonics*
- 03/04/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar. Glenn Research Center, OH
Classroom sponsored by Berkely Nucleonics
- 03/05/2003 Advanced Topics on Medical Defense Against Biological and Chemical Agents 3. Vaccines Against Biological Warfare Agents.. Gaithersberg, MD
Satellite Broadcast sponsored by US Army Medical Research and Medical Command
- 03/06/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar.
- Classroom sponsored by Berkeley Nucleonics*
- 03/14/2003 March 2003 EH ViTS - Ergonomic Software. KSC, FL
- ViTS-Environmental Health sponsored by multiple Centers and Scott Evans with Lockheed Martin*

- 03/17/2003 Cold and Flu Campaign & Prostate Health. KSC, FL
ViTS-Health Promotion sponsored by multiple Centers
- 03/24/2003 Quarterly HP ViTS - Certified Laser Safety Officer Presentation. KSC, FL
ViTS-Health Physics sponsored by Rich Green with the Board of Laser Safety
- 03/28/2003 HIPAA Privacy Rule: Enhancing or Harming the Public's Health. Atlanta,
Satellite Broadcast sponsored by CDC/PHTN
- 04/01/2003 Nursing Spectrum. King of Prussia, PA
Online/Web based sponsored by Nursing Spectrum
- 04/04/2003 Preventing the Spread of Severe Acute Respiratory Syndrome (SARS).
Satellite Broadcast sponsored by Centers for Disease Control and Prevention, Public Health Training Network
- 04/04/2003 Preventing the Spread of Severe Acute Respiratory Syndrome (SARS). KSC,
Satellite Broadcast sponsored by CDC PHTN
- 04/08/2003 Laser Safety Officer (LSO). Glenn Research Center /Cleveland, OH
Conference sponsored by Laser Institute of America (LIA)
- 04/17/2003 Severe Acute Respiratory Syndrome (SARS). Tallahassee, FL
Satellite Broadcast sponsored by Florida Department of Health/Bureau of Epidemiology/Dr. Steven T. Wiersma, MD, MPH
- 04/18/2003 April EH ViTS - WSTF Hypervelocity presentation and Standards update.
ViTS-Environmental Health sponsored by Bart Geyer
- 04/18/2003 HQ ViTS 12th Series: "BioTerrorism" Session 1, 1) Session Introduction
2) "Economic and Political Impact of Terrorism," 3) "BioTerrorism: lessons learned and present/future directions from CDC perspectives."
ViTS-Headquarters sponsored by 1) Dr. Richard S. Williams, 2) Dr. Arnauld E. Nicogossian, 3) Dr. Stephen M. Ostroff
- 04/24/2003 Update on Rapid Testing for HIV. KSC, FL
Satellite Broadcast sponsored by CDC
- 05/02/2003 HQ ViTS 12th Series: "BioTerrorism" Session 2 1)
"Deployment/Dissemination of Biological Agents and Their Associated Risks and Defense" 2) "Sampling and Identification of Biological Agents in
ViTS-Headquarters sponsored by 1) Kenneth Alibek 2) John P. Lloyd
- 05/07/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar. Ames Research Center, CA
Classroom sponsored by Berkeley Nucleonics/Jim McQuaid
- 05/08/2003 Increasing Clinician Preparedness for Severe Acute Respiratory Syndrome
Satellite Broadcast sponsored by CDC/PHTN
- 05/08/2003 Severe Acute Respiratory Syndrome (SARS). KSC, FL
Satellite Broadcast sponsored by CDC
- 05/16/2003 Agents of Bioterrorism: their category, medical/pathogenic aspects & post-delivery stability/virulence in the environment;" 2)"Management Care of Mass Casualties of a Bioterrorism Event.. Washington, DC
ViTS-Headquarters sponsored by 1) CAPT Gregory J. Martin 2) Mohamed Mughal, Ph.D
- 05/16/2003 May EH ViTS - VPP, Langley NASA VPP Reinspection & KSC USA VPP
ViTS-Environmental Health sponsored by Bart Geyer
- 05/21/2003 Chemical Threat Agents: The Community Provider's Perspective. KSC, DE
Satellite Broadcast sponsored by US Army Medical Command and the Dept of Veterans Affairs

- 05/28/2003 Personal Protective Equipment-Know and Follow Self-Protective Measures for WMD Events. KSC, FL
Satellite Broadcast sponsored by The National Terrorism Preparedness Institute of St. Petersburg College, the Dept. of Justice-Office of Justice Programs, the Office for Domestic Preparedness, FEMA with addtl spt by the Army Nat. Guard and the US Army Satellite Edu
- 05/28/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar.
Classroom sponsored by Berkeley Nucleonics/Paul Hurley
- 05/30/2003 HQ ViTS 12th Series: "BioTerrorism" Session 4, 1) "Anthrax Vac. Guidelines: pre-exposure vac.& post-exposure chemoprophylaxis," 2) 2) "Smallpox Recog., Containment, Vac. Guidelines & Post-Vac. Monitoring. ViTS-Headquarters sponsored by 1) COL Dana Bradshaw, M.D., MPH, MC, 2) Joanne Cono, M.D., Sc.M.
- 06/10/2003 Laser Safety Officer Course (LSO). Goddard Space Flight Center, MD
Classroom sponsored by Darrell Sealy/Laser Institute of America
- 06/11/2003 SAM 935 Radiation Surveillance and Measurement Training Seminar.
Classroom sponsored by Berkeley Nucleonics/Jim McQuaid - Make up from 5/28 and 5/29
- 06/13/2003 HQ ViTS 12th Series: "BioTerrorism" Session 5, 1) "Method for Oral Delivery of Vaccines" 2) "Anthrax Inhibitor and Novel Treatment".
ViTS-Headquarters sponsored by 1) Tully J. Speaker Ph.D., 2) Michael Mourez, Ph.D
- 06/13/2003 June EH ViTS - Portable Lead Detection Equipment. KSC, FL
ViTS-Environmental Health sponsored by Lee Seaman
- 06/16/2003 ergonomics. KSC, FL
ViTS-Health Promotion sponsored by multiple Centers
- 06/23/2003 Quarterly HP ViTS - NASA Outdoor Laser Policy Review. KSC, FL
ViTS-Health Physics sponsored by Guy Camomilli
- 06/27/2003 HQ ViTS 12th Series: "BioTerrorism" Session 6 1) "Directions of Research and Development in Biodefense", 2) "Rapid Syndrome Validation System".
ViTS-Headquarters sponsored by 1) Brad Smith, Ph.D 2) Alan P. Zelicoff, M.D
- 07/01/2003 Nursing Spectrum. King of Prussia, PA
Online/Web based sponsored by Nursing Spectrum
- 07/11/2003 July EH ViTS - H&S Performance Metrics with Ames (ASAP) and Center for Biological Defense's presentation on Anthrax Detection. KSC, FL
ViTS-Environmental Health sponsored by Dave King (Ames) and Andrew Cannons (CBD)
- 07/18/2003 Critical Incident Stress Management (CISM). KSC, FL
Classroom sponsored by Scott Fairchild PhD
- 07/30/2003 Critical Incident Stress Management (CISM). KSC, FL
Classroom sponsored by Scott Fairchild PhD
- 08/04/2003 Ergonomic Program Management. San Diego, CA
Classroom sponsored by Dave Alexander and Dr. Richard Donze
- 08/05/2003 Annual 2003 Occupational Health Conference. San Diego, CA
Conference sponsored by Various
- 08/14/2003 August ViTS - Chemical Inventory Management Systems; presentations by DFRC and JPL. KSC, FL
ViTS-Environmental Health sponsored by Ralph Anton (DFRC) and Ruth LeBlanc (JPL)
- 08/22/2003 HQ ViTS 12th Series: "BioTerrorism" Session 7, 1) "I Think I Have Anthrax...": Responding to Bioterror in the National Capital Region.
ViTS-Headquarters sponsored by 1) Dan Hanfling, M.D.

- 09/05/2003 Quarterly HP ViTS - Health Physics Society (HPS) President and discussion online Laser and Radiation Worker training. KSC, FL
ViTS-Health Physics sponsored by Dr. Kenneth Kase and Patrick Muldoon
- 09/12/2003 September EH ViTS - Online Hazardous information Services; Chemwatch and Micromedix Tomes. KSC, FL
ViTS-Environmental Health sponsored by Chemwatch - Paul Ruez & TOMES - Tom Walsh
- 09/12/2003 HQ ViTS 12th Series: "BioTerrorism" Session 7, Part 2) "Federal Public Health Preparedness and Response". Washington, DC
ViTS-Headquarters sponsored by Richard Carmona, M.D
- 09/15/2003 Emerging trends in employee health promotion industry. KSC, FL
ViTS sponsored by Frank Rutkowski, MPH Mayo Clinic Health Management Resources
- 09/15/2003 President's Challenge. KSC, FL
ViTS-Health Promotion sponsored by multiple Centers
- 09/22/2003 Occupational Health and Safety Principles & Nursing Certification Review Course Manuals(set of 2) and CDs (set of 13 to accompany the manuals)..
Professional Development Course/Conference sponsored by Each Center received a complete set of each manual and the CD
- 09/22/2003 Emerging trends in the field of Occupational Health Nursing. A professional development/ prep for COHN. Pasadena, CA
ViTS sponsored by Annette Haag with DVD & Haag Associate
- 09/22/2003 Critical Incident Stress Management. White Sands Test Facility, NM
Classroom sponsored by Roger M. Solomon, PhD

NASA's Workers' Compensation Costs



COP Cases and Cost

