ANNUAL OCCUPATIONAL SAFETY AND HEALTH REPORT

OF THE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Reporting Period Fiscal Year: 2004

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ANNUAL REPORT ON OCCUPATIONAL SAFETY AND HEALTH

Fiscal Year:	2004
Agency Name:	National Aeronautics and Space Administration
Component Name:	Headquarters
Address:	300 E Street SW, Washington, DC 20546
Number of employees:	18,909 full time permanent & part time permanent on duty
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Note: Paragraph numbers correspond to the "FY 2004 Guidelines for Agency Annual Occupational Safety and Health Report to the Secretary of Labor" documentation sent by DOL on December 28, 2004.

1. Statistics: 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.

1a. There were no fatalities for FY 2004. NASA continues to benefit from one of the lowest injury/illness rates in the Federal sector. Using Office of Workers' Compensation (OWCP) data, the Agency injury/illness data for the period 2000 to 2004 is provided. NASA shows steady progress over time in decreasing accidents.

	2000	2001	2002	2003	2004
Total Case Rate	1.03	0.76	0.81	0.75	0.61
Lost Time Case Rate	0.41	0.31	0.24	0.22	0.185
Fatalities	1	0	0	1	0
Rates for 2000 to 2003 from DOL website. Rates from 2004 based upon DOL chargeback data and NASA population of 18,908. Fatalities: 2000: employee on TDY killed in motorcycle accident in VA. 2003: Space Shuttle Columbia fatality in sky over Texas.					

1b. The trend for NASA Workers' Compensation cost has also been relatively stable with costs slightly more than $6.5M. Last year did see a half-million dollar increase from the previous year, a spike which occasionally occurs due to a series of settlements from older claims. This is not a trend. With rapidly increasing costs for medications and medical care, the relative consistency of costs indicates fewer new accidents and less costly accidents for the Agency. The Continuation of Pay (COP) costs are as follows and are also displayed in graph format at the end of this report (Appendix A):

FY 1998 $7.3M	FY 2002 $6.7M
FY 1999 $6.2M	FY 2003 $6.7M
FY 2000 $6.4M	FY2004 $7.2M
FY 2001 $7.2M	

Progress continues with decreasing the number of individuals on the long-term disability rolls by returning them to work or their electing to take retirement. NASA continues to use the Veterans Administration Workers' Compensation Data Management System and the Department of Labor Agency Query System to provide real time OWCP claims status to NASA Center personnel involved with claims management. Special case management focus 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 employees.

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 are positive indicators that the severity of COP eligible cases is declining. COP cases and costs are displayed in graph format at the end of this report (Appendix B).

FY	COP Cases	COP Costs	NASA workforce
2000	74	$116,245	18,601
2001	69	$109,098	18,939
2002	48	$88,026	18,874
2003	48	$81,983	18,908
2004	36	$55,653	18,909 (est).

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 21%
- Slips, trips, and falls 15%
- Lifting and moving operations 17%
- Ergonomic 17%
- Bumped into/struck by 16%
- Other miscellaneous 4% *

*Note this event was a researcher preparing incompatible compounds, resulting in an explosion and fire, in which he was injured.

2. Safety, Health, and Return-to Employment (SHARE) Initiative

2a. In all aspects of SHARE involving accident numbers and severity, NASA's numbers were better than the goals established. NASA had a substantial decrease in the numbers of both lost time injuries and total injuries during the first year of the President's SHARE initiative. The Agency Total Case Rate (TCR) goals of 137 cases and a 0.72 rate for 2004 were bettered, with a total of 116 cases and a 0.61 rate. The Lost Time Case Rates (LTCR) also exceeded our goals of 41 cases and a 0.21 rate with an actual performance of 35 cases and a 0.19 rate. The Lost Production Days (LPD) rate target of 9.8 was bettered by a NASA performance of 8.7.

The timeliness data was not available from the Department of Labor, except for submissions of CA-7s which did meet the FY 04 target. It is unknown if the CA1/2 submissions met the performance goal.

2b. SHARE rates are provided at least quarterly to NASA Centers. Strong, on-going programs will continue to emphasize safety in the design, production and implementation of all program safety and health elements that help increase safety awareness among the entire workforce. Many NASA field Centers have achieved or are in the process of Voluntary Protection Program (VPP) certification.

3. Motor Vehicle/Seat Belt Safety

3.a. NASA Centers reported 30 motor vehicle accidents involving Federal civil servants and another 35 involving contractors. NASA monitors this at the Center level, as part of Center mishap reporting.

3.b. NASA NPR 8715.3, NASA Safety Manual, provides policy for the use of seat belts, "Federal employees will use seat belts while on official business as required in Section 1 of Executive Order (EO) 13043 of April 16, 1997, "Increasing Seat Belt Use in the United States." There is no mechanism in place to track seat belt use consistently throughout the Agency. Centers reported that all employees involved in motor vehicle accidents were wearing seat belts.

3.c. Seat belt checks are made across the Agency at the various Centers. Since 9-11, every person coming into every installation is checked for seat belt use as an ancillary condition of the "hands-on" badge security check. The Agency does not maintain use records at all Centers. However, several Centers perform periodic checks of seat belt use during off-peak hours and during normal security vehicle patrols. Seat belt use and promotion is also addressed in holiday special campaigns, safety stand-down day presentations, banners, online topics, posters, and periodic articles and emails from Center Safety Managers and Directorate staffs.

4. Training.

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 course information to on-site personnel covering the broad range of topics required by OSHA (such as confined space entry, lock-out/tag-out, bloodborne pathogens, hearing protection, respiratory protection, etc.).

Each year NASA sends out a training needs assessment to identify safety and health course needs. Centers respond, and are scheduled for instructor-based presentation, or courses are developed or purchased to meet Agency safety and health requirements. Representative training courses are listed in the attached Appendix C. Centers also provide individualized courses to employees to meet specific Center-based needs. As a result of training, senior management involvement, and other programmatic aspects, mishap and injury/illness rates continue to decline, and are well below Federal averages.

The NASA Safety Training Center (NSTC) presented instructor-based in safety and health courses in FY 2004. Each year, NASA invests approximately $1,000,000 through the NSTC, located at Johnson Space Center, for course development and deployment to the other NASA Centers. For FY 2004, the NSTC provided 284 classes. Over 5,591 personnel have attended instructor based safety training presented by NSTC this past fiscal year. The NSTC has a course catalogue that identifies 106 safety and health instructor-based courses.

In FY 2004, the Site for On Line Learning (SOLAR) training provided 1,718 NASA employees and contractors completed web-based Safety and Mission Assurance training. NASA Safety and Mission Assurance (SMA) and the NASA Office of Chief Health and Medical Officer (OCHMO) will continue to provide web-based training for all Agency and support contractor managers, program directors, and employees.

In fiscal year 2004, NASA provided 49 individual Occupational Health courses and/or ViTS (see Appendix C) to various Centers.

NASA's Occupational Health Internet web site is an online training and informational source available to all NASA and contractor employees. The "hits" on the site have steadily increased over the last few years: (1) 3,423 page hits in FY 1998, (2) 63,867 page hits in FY 1999, (3) 134,236 page hits in FY 2000, (4) 221,622 page hits in 2001, (5) 278,000 page hits in 2002, and over (6) 704,800 page hits in FY 2003. FY 2004 saw a reduction in hits due to loss of the server during three major hurricanes in Central Florida. The total FY 2004 page hits was 602,061.

NASA's safety and health web sites will continue to make safety and health information easily available to all.

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.

5. Accomplishments:

5.a. Although there were no fatalities in FY 2004, and only a small number of reportable mishaps in FY 2004, NASA continues to work towards achieving world-class safety and health programs, and continues to concentrate its efforts in its areas of concern, such as the Columbia Accident Investigation Board and the Diaz Team (see Appendix D).

The NASA ERASMUS executive reporting system is a new program and project performance dashboard, which includes performance metrics of all NASA Centers, programs, projects, and safety and health activities. Within safety reporting, this includes both Contractor and Government resources. Injury/illness data, damage to government property, and close-call reports are included. Each NASA Center is represented by a green, red or yellow “mouse-over”, which indicates current mishap data for that week. All on-duty mishaps are required to be reported within 24 hours to the Administrator. Links are also provided for Agency safety data and safety and mission assurance policy. The Administrator proactively uses this system daily to integrate safety and health into the NASA culture.

The NASA Aerospace Safety Advisory Panel (ASAP) helps assure an independent, long-term oversight of the Agency's safety policies and programs (see Appendix E).

A new Independent Engineering and Safety Center (NESC) at the Langley Research Center in Hampton, Virginia provides a central location to coordinate and conduct robust engineering and safety assessments across the entire Agency (see Appendix F).

In an effort to improve the longitudinal understanding of the health status of the workforce, NASA Occupational Health (OH) has set out to implement an electronic health record system (EHRS). This system will replace the traditional paper medical record enabling the opportunity to 1) facilitate identification of critical health issues in real-time, 2) decrease the opportunity for medical errors and reporting, 3) assess the effectiveness of health improvement programs, and 4) advance collaboration among Centers to provide an overall Agency employee health status. Besides enhancing the day-to-day delivery of OH services, the EHRS will allow the measurement of health outcomes compared to career-long exposures and employee-focused health care.

It is only through understanding the causes of mishaps that they are prevented. Mishap investigation, reporting, and analysis are of paramount importance to

NASA, and we have taken broad and far-reaching steps toward prevention (see Appendix G).

The NASA Safety Directors and Occupational Health Managers Meeting held its annual joint meeting in Cocoa Beach, Florida in FY 2004. Annual meetings are held to present the status of Agency safety and occupational health programs and policies and address current topics and emphasis areas of health and safety. The meeting provides a forum to discuss areas for synergy between health and safety programs and presents solutions based on the best practices of the NASA Centers.

New Agency policy requirements were established for outdoor laser operations. The policy requires program and project managers to strictly adhere to FAA, NASA, and the DoD Laser Clearinghouse requirements for outdoor laser use. The policy is rooted in ANSI 136.1 and 136.6 consensus standards, both of which are made requirements by the policy. Implementation of this policy helps assure that aircraft and spacecraft are not inadvertently illuminated by NASA lasers.

An Agency initiative was completed, which called for review of all existing safety and health policy to assure all safety and health requirements were identified and clarified.

A safety and health survey was conducted at selected NASA Centers during FY 2004. 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 (see Appendix H).

A major audit and self-evaluation process was continued in FY 2004. The course of action included 12 Agency-level reviews of 10 NASA Centers for Occupational Safety and Health, Operational Engineering Panel reviews, Center VPP preparation reviews, and industry best practices.

The FY 2004 campaign for world-class safety continued with the theme, “Mission Success Starts with Safety,” and remains focused around the following primary elements:

- Management commitment
- Safety and health policy
- Planning and performance expectations/measurements
- Safety and health training, education and awareness
- Program assessment methodology
- Institutional Facilities and Operational (IFO) safety audits
- 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 are aggressively pursuing preliminary OSHA VPP Star certification.

NASA developed a formal Automated External Defibrillator (AED) policy for the Agency and has made a significant effort to distribute AEDs 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, then rose again in FY 2004 to 276 AEDs. 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.

All physicians and nurses at all NASA Centers have achieved the goal of Advanced Cardiac Life Support (ACLS) certification. These certifications, coupled with the placement of AEDs are important steps toward assuring top emergency medicine for NASA employees.

The annual NASA Occupational Health Conference was held in June 2004 in Williamsburg, Virginia. It included 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". It hosted discussions of various aspects of Center Occupational Health Programs. (See Appendix I)

NASA continued to provide medical evacuation services for its employees 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 (RBAM) 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.

NASA renewed its subscription to the ChemWatch Chemical Database and Management System for use by all NASA Civil Service and contractor personnel. The database contains detailed hazard information on 40,000 pure substances and more than 65,000 common chemical mixtures. Material Safety Data Sheets (MSDS) are provided in eighteen different languages.

Each NASA Center continued to have a Safety and Health Program Office responsible for supporting Center line management with their safety responsibilities. Those offices conducted independent reviews of Center operations to assure compliance with all elements of 29 CFR Part 1960. Each Center's process for inspection and abatement was reviewed during NASA Headquarters program reviews. This inspection process was aimed at identifying both unsafe conditions and unsafe acts.

Early involvement of the safety and health staff in design and procurement activities continued as a key risk management focus area at each NASA Center. This effort enabled identification of potential safety and health hazards at the earliest possible stage. Center safety and health professionals served 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.

6. Resources:

NASA funds a substantial amount of resources to help assure the safety and health of its employees and contractors and to assure mission success. NASA has a dynamic ongoing research program for assuring innovations for safety and health. Some of these projects include: the Electronic Nose, which senses a variety of hazardous vapors and identifies the level and type of hazardous vapor; the hydrazine detection system, which identifies hazardous vapors in less than 30 seconds; the innovative System Safety Hazard Management program, for tracking the level of hazards moving throughout an installation or facility; and the one-time funding of Chemical Propulsion Information Agency (CPIA) Document 394, which is a reference manual of various processes and can be used to abate hazards. The NASA Incident Reporting Information System (IRIS) EX3, represents one of the resource commitments to the Federal government for assuring a web-based injury, illness, and property damage mishap reporting and recordkeeping system.

7. Goals

The NASA goals for FY 2005 are listed below. Center-specific goals are detailed in the attached Appendix J.

The NASA SHARE goals for 2005 are to decrease injuries by 3% per year, increase timeliness of reporting by 5% each year, and decrease the Lost Production Days (LPD) by 1% per year from the 2003 baseline. The Agency is considering establishing SHARE targets for individual field Centers for 2005 to increase Center interest and ownership of this program.

NASA will embark on implementation of an Electronic Health Record System (EHRS) in FY 2005.

The occupational safety and health audit and self-evaluation process will continue in FY 2005.

The NASA Occupational Health Conference will be held in Lake Tahoe, Nevada in June of 2005 and will include professional development courses for occupational health physicians, occupational health nurses, and industrial hygienists on the subjects of “Toward a Healthier NASA: Successes and Innovation”. It will host discussions of various aspects of Center Occupational Health Programs.

NASA plans to renew its subscription to the ChemWatch Chemical Database and Management System for use by all NASA Civil Service and contractor personnel at all NASA Centers.

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 purchases of hazardous materials, hazardous equipment, personal protective equipment, and other key purchases, which are essential to controlling hazards.

Reporting of unsafe conditions, close call reporting, and use of injury and illness data will continue to figure prominently in NASA operations.

NASA will continue to conduct an extensive safety and health policy updating process to respond to lessons learned, changing occupational safety and health needs, and changing Federal policy.

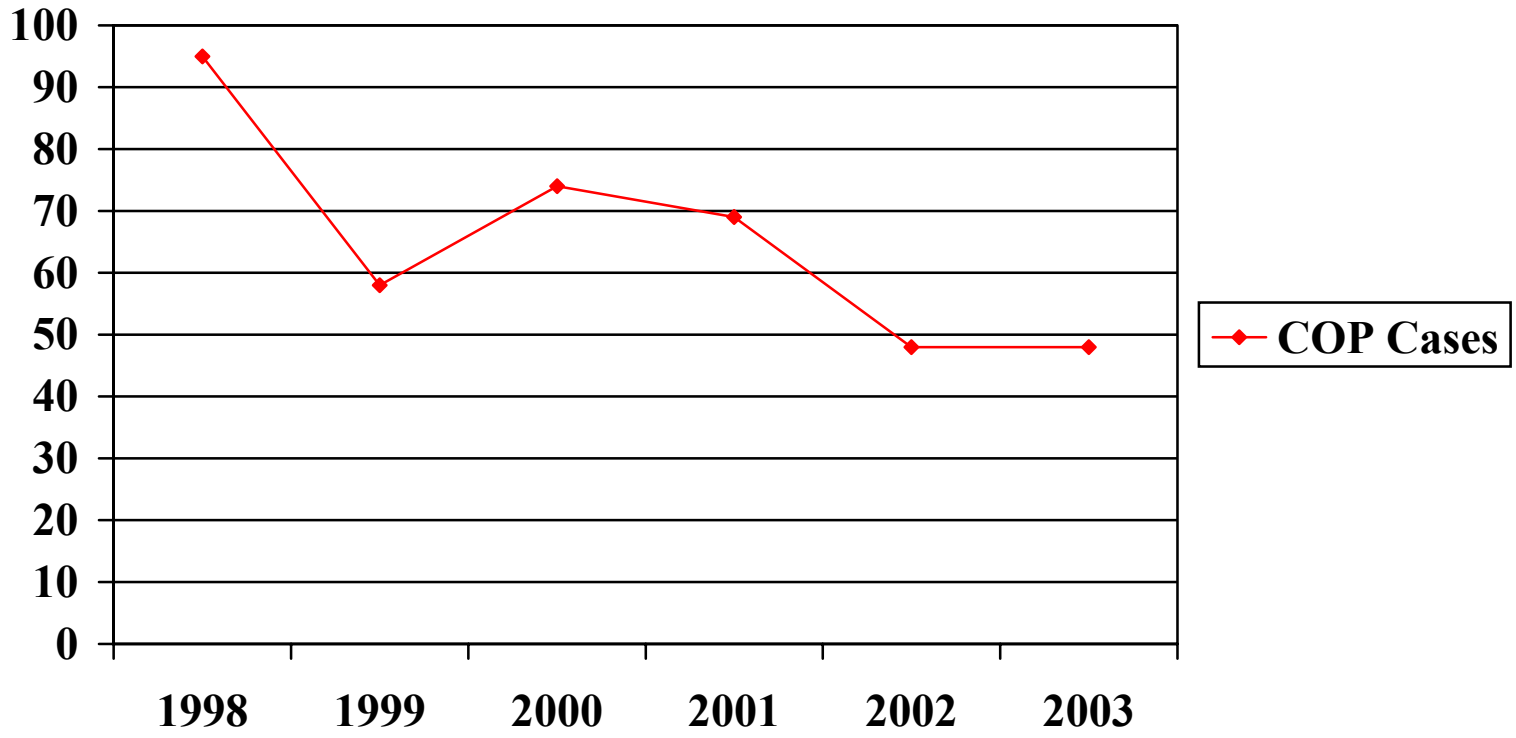
NASA reviews each Center on its performance in both safety and health training. These reviews include both an annual self-assessment and NASA Headquarters reviews of the Center safety and health training programs.

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

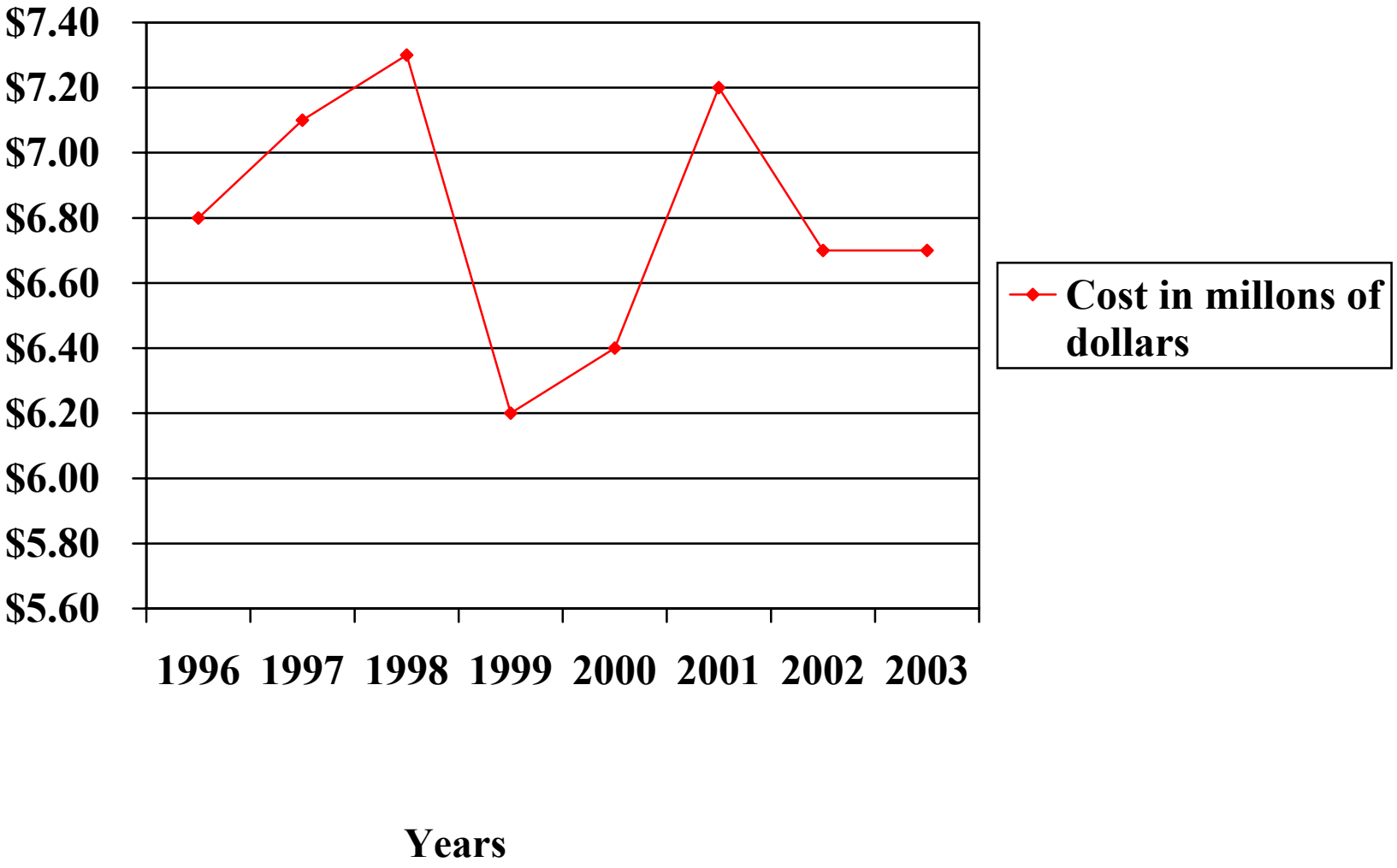
NASA continues to "mentor" other Federal agencies seeking to improve their safety and health programs. In this process, NASA has also learned "best practices" from those we are assisting in bettering their internal programs, through participation with the Federal Advisory Council on Occupational Safety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

Other goals include rolling out Incident Reporting Information System (IRIS) EX3 for full implementation of its capability; focusing mishap investigations on root cause to help assure mishap prevention at a more granular level; endorsing safety and health stand down days at NASA Centers to help assure improvement in health and safety culture; continuing to strive to achieve world class safety and health programs; and return to full flight operations in a safe manner.

Appendix A
COP Cases and Cost



Appendix B
NASA's Workers' Compensation Costs



Appendix C
NASA Occupational Health Program
Training Events

10/01/2003 Nursing Spectrum. King of Prussia, PA*Online/Web based Nursing Spectrum*

10/08/2003 Noise Exposure Assessment: Sampling Strategy and Data Acquisition. Kennedy Space Center, FL *Classroom Lee Hager*

10/09/2003 Breaking the Cycle of Stress Part I Session. Mountain View, CA Classroom *Clarity Seminars, David and Karen Gamow*

10/10/2003 October EH ViTS - Hearing Conservation Update. KSC, FL ViTS-*Environmental Health Dr. Richard Danielson/Beth Cooper*

10/15/2003 Breaking the Cycle of Stress Part I. Mountain View, CA Classroom *Clarity Seminars, David and Karen Gamow*

10/22/2003 Breaking the Cycle of Stress Part II. Mountain View, CA *Classroom Clarity Seminars, David and Karen Gamow*

10/23/2003 SARS: When a Global Outbreak Hits Home. Kennedy Space Center, FL *Satellite Broadcast Public Health Grand Rounds - Community Leaders to Toronto, Julie Gerberding, MD, CDC, and Anita Barry, Boston Public Health Commission*

11/13/2003 Noise Exposure Assessment: Sampling Strategy and Data Acquisition. Ames Research Center, FL *Classroom Lee Hager*

11/14/2003 November EH ViTS - PDA applications for H&S inspections. KSC, FL *ViTS-Environmental Health Dr. Jim Evenden*

11/17/2003 Critical Incident Stress Management. Kennedy Space Center, FL *Classroom Roger Solomon*

11/19/2003 Medical Monitoring of Response Personnel. Kennedy Space Center, FL *Satellite Broadcast Office of Domestic Preparedness from the Dept of Homeland Security; FEMA; National Terrorism Preparedness Institute*

12/01/2003 Laser Safety Officer (LSO) Course. JSC, TX *Classroom LIA*

12/03/2003 Quarterly HP ViTS - Randall Scott: Mars Exploration Rover / Kurt Geber: Plum Brook Reactor Update. KSC, FL *ViTS-Health Physics Randall Scott / Kurt Geber*

12/12/2003 Asthma and Allergies. KSC, FL *ViTS-Health Promotion multiple Centers*

12/19/2003 Influenza Update 2003. Atlanta, GA *Satellite Broadcast CDC PHTN*

12/19/2003 December EH ViTS - Exposure Assessments; JPL Presentation and Fundamentals of Exposure Assessments. KSC *ViTS-Environmental Health Jeff Behar (JPL)/John Haas (STAR)*

01/01/2004 Nursing Spectrum Online. King of Prussia, PA *Online/Web based, Nursing Spectrum*

01/06/2004 Issues in Occupational Health Auditing; for OCHMO and OH Support Contractor audit team. SC, FL *Classroom, Jim Lockridge*

01/16/2004 January EH ViTS - Asbestos Management; KSC, JSC, JPL and GRC presented on their respective asbestos management programs. KSC, FL *ViTS-Environmental Health, Caukin/Limardo/Palmer/*

01/20/2004 Influenza and Beyond: Responding to Vaccine-preventable Diseases. Kennedy Space Center, FL *Satellite Broadcast, Public Health Grand Rounds*

01/28/2004 Perimeter Security When Victims are Present. Kennedy Space Center, FL *Satellite Broadcast, Office of Domestic Preparedness from the Dept of Homeland Security; FEMA, and the National Terrorism Preparedness Institute*

02/17/2004 Critical Incident Stress Management. Stennis Space Center, MS C*lassroom Roger M. Solomon, PhD*

02/20/2004 February EH ViTS - NASA Center Ergonomic Program Best Practices; KSC - team approach and Langley using CHPPM for training. KSC, FL *ViTS-Environmental Health Marr Kirkland & Robin Kramer/Pat Cowin*

02/26/2004 Weight Matters: Cost, Controversies and Effective Strategies for Weight *Teleconference, Mayo Clinic Staff*

03/01/2004 Oral Health and Cold and Flu Campaign. KSC, FL *ViTS-Health Promotion, multiple Centers*

03/15/2004 Quarterly HP ViTS - Francis Cucinotta: Space Radiation Protection Overview / Kurt Geber: Radioactive Material Disposal - Training Needs - OH Conference - Health Physics Society News. KSC, FL *ViTS-Health Physics, Geber, Cucinotta*

03/19/2004 March EH ViTS - AIHA Gov Affairs Update and AIHA Technical Committee and Local Section Involvement. KSC, FL *ViTS-Environmental Health, Aaron Trippler, Jeff Behar, Betty Hodgson, & Carter Ficklen*

04/14/2004 Homeland Security for Buildings. Kennedy Space Center, FL *Satellite Broadcast, Donald Henderson, M.D.*

04/16/2004 April EH ViTS - Managing Microbials; A Standard Update. KSC, FL *ViTS-Environmental Health, Dr. Rene Salazar*

04/28/2004 Microbial Investigation and Management. Stennis Space Center, MS *Classroom, Dr. Rene Salazar*

05/21/2004 May EH ViTS - An Update on Welding. MAF, LA *ViTS-Environmental Health, Mike Harris*

05/24/2004 Radio Frequency Safety Training. Greenbelt, MD *Classroom, John Leonowich (consultant) and Bob Johnson (NARDA)*

05/25/2004 Critical Incident Stress Management. Houston, TX *Classroom, Roger M. Solomon, PhD*

05/25/2004 Breaking the Cycle of Stress. Ames Research Center, CA *Classroom, Clarity Seminars/David and Karen Gamow*

06/07/2004 Quarterly HP ViTS - Health Physics and Medical Response to a Radiological WMD Incident. Participation by Robert Rick, Ph.D. (REAC/TS , Director) and KSC Radiation Protection. KSC, FL *ViTS-Health Physics, Geber*

06/08/2004 Laser Safety Officer Training. Kennedy Space Center, FL *Classroom Darrell Seeley (Laser Safety Associates)/Laser Institute of America*

06/18/2004 June EH ViTS - NASA Safety Training Center (NSTC) presentation. JSC, TX *ViTS-Environmental Health, Larry Gregg*

06/21/2004 2004 NASA Occupational Health Conference - Pulmonary Function Testing I the Occupational Setting. Williamsburg, VA *Professional Development Course/Conference, Brian A. Boehlecke, MD, MSPH and Emily Wallace, RN, BS, COHN-S*

06/21/2004 2004 NASA Occupational Health Conference. Williamsburg, VA *Professional Development Course/Conference, Richard Danielson, PhD, Beth A. Cooper, PE INCE.Bd.Cert., Dwight Peake, MD*

06/21/2004 2004 NASA Occupational Health Conference. Williamsburg, VA *Conference, Helen Shoemaker*

06/21/2004 2004 NASA Occupational Health Conference - Developing Environmental Health Performance Metrics. Williamsburg, VA *Professional Development Course/Conference Paul Esposito, CIH, CSP*

06/24/2004 Medical Review Officer (MRO) Training and Certification concurrent with the 2004 NASA Occupational Health Conference. Williamsburg, VA *Classroom, Theodore F. Shults, MS, JD*

07/12/2004 Special EH/Health Promotion ViTS. HQ, DC *ViTS, Pat Gallagher*

07/16/2004 July EH ViTS - RAE Instruments. IH Direct Reading Equipment *ViTS-Environmental Health, Chris Wrenn/RAE*

08/19/2004 Immunization Update 2004. All NASA Centers *Satellite Broadcast, CDC and the Public Health Training Network*

08/20/2004 August EH ViTS - Global Harmonized System (GHS) and Chemwatch Update. *ViTS -Environmental Health, David O'Conner (OSHA), Stacie Eakin (Lyondell), Paul Ruez (Chemwatch)*

09/08/2004 Breaking the Cycle of Stress Training. Ames Research Center, CA *Classroom, Clarity Seminars*

09/16/2004 September EH ViTS - IH Laboratory, What is New, What is Constant & KSC Lab Update. LRC & KSC *ViTS-Environmental Health, Steve Winecki (Galson), Dennis Raichart (KSC)*

09/21/2004 Laboratory Ventilation. Ames, CA *Classroom, Jeff Burton*

Appendix D

Columbia Accident Investigation Board (CAIB) and Diaz Team Accomplishments

The NASA Administrator Sean O'Keefe chartered an executive team, which came to be known as the Diaz Team, and gave it the assignment of identifying those CAIB Report elements with Agency applicability and developing measures to address each one. What follows is the Report of that team. It should be noted that while the Team focused on the organizational causes described in the CAIB Report which were related to NASA's culture, the Team did not do a broad, in-depth assessment of the cultural changes needed to address the organizational causes. The Team focused specifically on the CAIB Report and those Recommendations, Observations, and Findings (R-O-Fs) that had broad Agency application beyond the Human Space Flight Program.

In order to assure excellence throughout NASA, the NASA Administrator fully accepted all of the recommendations of the CAIB. NASA is now in the process of assuring implementation of these recommendations.

"If NASA is to avoid another day like February 1, 2003, we must meet our mission objectives safely and renew our commitment to excellence. In order to do this, we must identify corrective actions for each of the causes of the accident, and then implement them fully and effectively. The CAIB Report should serve as a catalyst for change in the way all of us perform our work. It should prompt a renewed understanding of our shared purpose. Each member of this Team has recognized these high stakes and has dedicated his or her efforts to that end. The signatures on this Report and the participation of each member of the NASA leadership team at NASA Headquarters as well as at each of the NASA field Centers are a reflection of our joint commitment NASA's future."

The CAIB stated that the, "Shuttle System industrial safety programs are in good health." Nonetheless, the Diaz report recommended that, "The state of health of all NASA industrial safety programs should be reviewed." Finding 40 of the Diaz report recommended, "Review current policies and regulations on industrial safety programs. a. After review of policies and regulations, conduct an audit of no less than three programs to determine compliance. b. Compile the results; develop a recommendation. c. If required, rewrite the policies to comply with regulations."

NASA Occupational Safety is focusing on validating Finding 40 of the Diaz Report, which requires that NASA assure that "Shuttle System industrial safety programs are in good health." Finding 40 is a special interest item in each safety review.

In February 2003, the CAIB concluded that NASA's safety climate and culture contributed as much to the Space Shuttle Columbia accident as any mechanical failure. To address the shortcomings, NASA enlisted Behavioral Science Technology Inc. (BST) to lead Agency culture change. BST of Ojai, California, is

the private company operating under government contract to facilitate NASA's culture change initiative over three years.

BST's initial Safety Climate and Culture Survey in February 2004 showed that NASA was ahead of many organizations in its commitment to safety. NASA is making solid, measurable progress in transforming its organizational safety climate and culture, according to the results of a new survey conducted by BST.

The BST program is designed to help NASA improve its communications and decision making as they relate to mission safety. It involves employees in the training, evaluation and process improvements. Primary activities include identifying the leadership behaviors that are critical to successful outcomes, increasing leadership behaviors that support the desired culture, and eliminating unacceptable leadership behaviors. The NASA culture change initiative is critical to the Agency's future, as it prepares for the Space Shuttle program's return to flight, which is currently scheduled for FY 2005. So far, the program has been introduced at the headquarters level and has focused on three NASA Centers: Glenn Research Center, Cleveland, Stennis Space Center, Mississippi, Engineering and Mission Operations Directorates of Johnson Space Center, Houston.

The program will be implemented at the other six NASA Centers throughout 2005. In addition, BST has already conducted a limited amount of training for the Safety and Mission Assurance Directorates at Kennedy Space Center, Brevard County, Florida and Goddard Space Flight Center, Greenbelt, Maryland.

Appendix E

Aerospace Safety Advisory Panel (ASAP)

The Aerospace Safety Advisory Panel was chartered by Congress in 1967, after the tragic Apollo 1 fire, to act as an independent body advising NASA on the safety of operations, facilities, and personnel. The Panel consists of nine members appointed to two year terms, reaffirmed annually, by the NASA Administrator. The Executive Director serves both as Executive Secretary and Technical Assistant to the Panel. The NASA Associate Administrator for Safety and Mission Assurance participates as an ex-officio member in Panel activities

The Panel reports to the NASA Administrator and to Congress. Designated as NASA organization Q-1, the Panel's staff and support are provided by the NASA Office of Safety and Mission Assurance (OSMA).

The Panel reviews, evaluates, and advises on elements of NASA's safety and quality systems, including industrial and systems safety, risk management and trend analysis, and the management of these activities. Priority is given to those programs that involve the safety of human flight. The Panel functions in an advisory capacity to the Administrator, and through the Administrator, to those organizational elements responsible for the management of the NASA safety and quality activities.

Some of the provisions include:

- Quarterly reporting
- Two-year term of service, extendable to a maximum of six years in order to stagger terms of service and ensure a fresh perspective at regular intervals
- Focus on NASA's safety and quality, industrial, and systems safety, risk management, trend analysis and the management of these activities

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

In the words of former 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.*

Appendix F

NASA Engineering Safety Center (NESC)

The NESC is an independent organization, which was chartered in the wake of the Space Shuttle Columbia accident to serve as an Agency technical resource focused on engineering excellence. The objective of the NESC is to improve safety by performing in-depth independent engineering assessments, testing, and analysis to uncover technical vulnerabilities; and to determine appropriate preventative and corrective actions for problems, trends or issues within NASA's programs, projects and institutions. The NESC draws upon the best engineering expertise from across the Agency and includes partnerships with other government agencies, national laboratories, universities, and industry. By engaging all NASA Centers and Headquarters in the mutual goal of increasing safety through engineering excellence, the NESC operates as a true "One NASA" organization.

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 approach will raise NASA's commitment to health and safety to unprecedented levels.

Appendix G
Mishap Investigation, Reporting, and Analysis

NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping was recently updated. This NPR provides requirements that specify how to respond to any mishap or close call from discovery through corrective action and closure. It contains requirements for classifying mishaps, establishing investigation authorities, and performing investigations. It formalizes notification, analysis, and reporting obligations; describes roles and responsibilities; provides instruction on release of information to the public; and specifies the relationship and interaction with the Occupational Safety and Health Administration (OSHA), the National Transportation Safety Board (NTSB), and other government agencies.

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.

NASA implemented the first web-based Incident Reporting Information System (IRIS) EX3 systems, for the reporting and recordkeeping of all NASA and contractor mishaps. At this time, this system has over 700 users and implements the recordkeeping requirements of NPR 8621.1, for NASA and contractor operations. Special focus is on reporting of all incidents, including close calls, which are investigated to include root cause analysis for mishap prevention.

Each NASA Center continued 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).

Close Call Reporting continues 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 mandatory.

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.

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

Appendix H

Performance Evaluation Profile

NASA AGENCY
PEP OCCUPATIONAL SAFETY AND HEALTH SURVEY
FY 2004 ANNUAL RESULTS

A safety and health survey was conducted at selected NASA field Centers during FY 2004. 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 (see Appendix). Both civil service and contractor personnel participated in the FY 2004 Occupational Safety and Health surveys, with 11,748 responses received.

Three 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 2004 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. In FY 2004 the incident rate exhibited a favorable decrease in the number of lost time incidence per year since FY 2003. In FY 2004, the severity rate exhibited a *favorable decrease* of in the number of lost-time-incident days per year since FY 2003. 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.

NASA mentored the Yosemite National Park Service (NPS) with the NASA Performance Evaluation Profile (PEP) survey, so that the NPS could identify strengths and weaknesses in their safety and health program; allowing them to work towards achieving OSHA VPP status.

BACKGROUND

I. Introduction

During fiscal year 2004, NASA conducted the Performance Evaluation Profile (PEP) survey of its Occupational Safety and Health program. Included in this report are the civil service data for the NASA Centers that participated in the 2004 survey.

PEP Survey Participants	**Number of Participants**
Civil service managers	464
Civil service employees	4,073
Contractor personnel	7,211
Total	11,748

This report presents the overall results of this FY-04 survey effort for civil service employees and civil service managers only. Not included in this report is the evaluation of anonymous civil service personnel comments. The comments are referenced in each NASA Center-level PEP data results report.

II. Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP) and NASA Agency Safety Initiative (ASI)

"OSHA established the Voluntary Protection Programs (VPP) to recognize and promote effective worksite-based safety and health management systems. In the VPP, management, labor, and OSHA establish cooperative relationships at workplaces that have implemented comprehensive safety and health management systems. Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have created exemplary worksite safety and health management systems." [OSHA TED 8.4, "Voluntary Protection Programs (VPP): Policies and Procedures Manual"]

NASA established the ASI program to become the nation's leader in safety and occupational health and in the safety of the products and services it provides. To achieve the program's goal, NASA categorized four Core Process Requirements (CPR's):

- Management commitment and employee involvement
- System and worksite hazard analysis
- Hazard prevention and control
- Safety and health training

III. PEP Survey VPP Element Descriptions

The PEP survey consists of various OSHA safety and health categories that are termed "elements." The VPP elements addressed in the survey are listed below, using the descriptions present in the survey form.

Management: Visible management leadership provides the motivating force for an effective safety and health program.

Employee participation: Employee participation provides the means through which workers identify hazards, recommend and monitor hazard abatement, and otherwise participate in their own safety and health programs.

Implementation: Management provides implementation tools that include budget, information, personnel, assigned responsibility, adequate expertise and authority, means to hold responsible persons accountable (line accountability), program review procedures, directives, and methods-criteria analysis.

Survey and hazard analysis: An effective safety and health program will seek to identify and analyze all hazards. In large or complex workplaces, components of such an analysis are the comprehensive survey and analyses of job hazards and changes in condition.

Inspection: An effective safety and health program will include regular site inspections to identify new or previously missed hazards and failures in hazard controls.

Reporting: A reliable hazard reporting system enables employees, without fear of reprisal, to notify management of condition(s) that appear hazardous and to receive timely and appropriate response.

Mishap investigation: An effective safety program will provide for investigation of mishaps and close calls incidents, so that their causes, and their means of prevention, are identified.

Data analysis: An effective program will analyze injury and illness records for indications of sources and locations of hazards, and will identify jobs that experience higher number of injuries. By analyzing injury and illness trends over time, patterns with common causes can be identified and prevented.

Hazard control: Workforce exposure to all current and potential hazards should be prevented or controlled by using engineering controls, work practices, administrative controls, and personal protective equipment (PPE).

Maintenance: An effective safety and health program will provide for facility and equipment maintenance, so that hazardous breakdown is prevented.

Medical: An effective safety and health program will include a suitable medical program appropriate for the size and nature of the workplace and its hazards.

Emergency preparedness: Appropriate planning, training/drills, and equipment should be provided for response to emergencies.

First aid: First aid/emergency care should be readily available for any injury or illness.

Training: Safety and training should cover the safety and health responsibilities of all personnel who work at the site or affect its operation.

IV. PEP Survey Rating System Explanation (figure 1)

The PEP rating system uses a 1-5 numeric score for each VPP element, category, and overall safety program, with 5 being the highest rate possible. The definition of each rate is described in figure 1.

V. PEP Scores vs. Program Effectiveness (figure 2)

The safety program effectiveness level, as a function of the PEP rate, is shown in figure 2. Using a numerical 1-5 rating system, (established internally by NASA), PEP survey results are analyzed to establish their compliance with OSHA VPP certification requirements. These numerical values are based upon personnel's perception of the existing safety and health programs as given by their survey responses. The PEP survey ratings scale is designed to reflect likely OSHA certification awards based upon past awards received. The following thresholds are based on the data shown in figure 2.

- The minimum PEP survey rate that is acceptable is 3.0.
- A PEP survey rate between 3-3.5 is a NASA-classified "basic program."
  -The basic program represents the minimal acceptable compliance level for applying for VPP certification.
- A PEP rate between 3.5-4.3 is a NASA-classified "superior program," which may qualify for the OSHA VPP Merit Program.

-The Merit Program recognizes worksites that have good safety and health management systems and that show the willingness, commitment, and ability to achieve site-specific goals that will qualify them for Star participation.

- A PEP rate between 4.3-5.0 is a NASA-classified "outstanding program," which may qualify for the OSHA VPP Star Program.

-The Star Program recognizes the safety and health excellence of worksites where workers are successfully protected from fatality, injury, and illness by the implementation of comprehensive and effective workplace safety and health management systems. These worksites are self-sufficient in identifying and controlling workplace hazards.

PEP SURVEY RESULTS AND ASSOCIATED GRAPHS

VI. NASA Agency Civil Service Employee and Manager PEP Survey Rates For VPP Elements, Benchmark Comparative Analysis (figures 3, 4)

The PEP Survey was fully implemented Agency initially in 1999. This report compares the survey results from 2000 through 2004 for a 5-year comparison. Benchmark Comparative Analyses of the Employee and Manager survey results are shown in figure 3 and figure 4. Figures 3 and 4 show the combined Center rate averages for the elements since 2000. The survey results are illustrated for each of the survey VPP elements independently.

- In FY-04, Employee rates exhibited a *favorable increase* in all of the survey elements since 2003.
- The Employee perception of the survey elements has *favorably increased* since 2003 by a 2.3–13.5 percent margin.
- The Employee perception of survey elements has been above the 3.0 minimum acceptable level since 2001.

- In FY-04, Manager rates exhibited a *favorable increase* in all of the survey elements since 2003.
- The Manager perception of the survey elements has *favorably increased* since 2003 by a 4.5–7.9 percent margin.
- The Manager perception of the VPP elements has been above the 3.0 minimum acceptable level since 2000.

VII. FY-04 NASA Agency Civil Service Employee and Manager PEP Survey Rates for VPP Elements, Comparison (figure 5)

The Employee and Manager PEP rates independently measure the perception of the employees and managers of the Safety and Health program(s), as shown in figure 5. A difference of 1.0 or greater may indicate a difference in perception between Managers and Employees.

- For the survey elements, the employee and manager average ratings differed by a 0-0.5 margin in 2004.
- No survey element differed by a value greater than 0.5, indicating consistent perceptions of NASA's safety and health program.

VIII. Civil Service Employee and Manager PEP Survey Rates for Each Reporting NASA Center, 5-years (figures 6, 7)

The total average PEP survey ratings for Employees and Managers at the NASA Centers that participated in the PEP survey are shown in figures 6 and 7 from 2000 to 2004, respectively.

- In FY-04, only one Center showed an *unfavorable decrease* in Employee rating by 0.1 from the 2003 survey.
- The Employee rates have *favorably increased* or remained consistent for two Centers that participated consistently since 2000.
- In FY-04, two Centers showed an *unfavorable decrease* in Manager rating by 0.1 and 0.2 from the last recorded survey in 2003.
- The Manager rates have remained consistent for one Center that participated consistently since 2000.

IX. FY-04 Civil Service Employee and Manager PEP Survey Rates for Each Reporting NASA Center (figure 8)

The Employee and Manager PEP rates independently measure the perception of the employees and managers of the Safety and Health program(s), as shown in figure 6 for 2004. A difference of 1.0 or greater may indicate a difference in perception between Managers and Employees. WSTF Civil Service Managers did not participate in the FY-04 survey; therefore, the Manager total average score includes only three Centers.

- All Employee ratings at all four Centers are above the 3.0 minimum acceptable level.
- All Manager ratings for the participating three Centers are above the 3.0 minimum acceptable level.

- Employee ratings at the four Centers ranged from 4.1-4.4.
- Manager ratings at the three Centers ranged from 4.0-4.5.
- The Employee and Manager ratings at each Center differed by less than 0.1, indicating close agreement in Employee and Manager perception.

X. NASA Agency Civil Service Incident and Severity Rates, 5-years (figure 9)

Mishap Statistical Analysis

The true measure of the effectiveness of any Occupational Safety and Health Program is to analyze the program's impact in terms of the reduction in number of incidents that occur in the workplace and the severity of these incidents. The PEP survey system has the capability of performing this analysis. For the NASA Agency-level analysis, the number of incidents and the severity of these incidents (as measured by the number of lost workdays per incident) were obtained from the Incident Reporting Information System (IRIS2).

The analysis of the incident data required that it be converted into rates consistent with the OSHA standardized method of reporting such information. Each rate was computed using the following equations: (This method yields a rate that is standardized per 100 employees.)

$$\text{Incident Rate (Ri)} = \frac{\text{(No. of lost-time-incidents) X (200,000)}}{\text{Total Hours}}$$

$$\text{Severity Rate (Rs)} = \frac{\text{(No. of lost-time-incident days) X (200,000)}}{\text{Total Hours}}$$

The results of this conversion of data are shown in figure 9.

- In FY-04, the incident rate exhibited a *favorable decrease* of 1.9 percent in the number of lost-time-incidents per year since 2003.
- In FY-04, the severity rate exhibited a *favorable decrease* of 75.9 percent in the number of lost-time-incident days per year since 2003.

XI. NASA Agency Civil Service PEP Equivalent Rates for Incident, Severity, and Sum Mishap Rates (figure 10)

The incident and severity data shown in figure 9 were converted into a rating system equivalent to the PEP survey ratings to perform a comparative analysis. The PEP rating system uses a 1-5 numeric score with 5 being the highest rate possible. The conversion is based on the goal that a 10 percent reduction in the mishap rates should be realized each year. (This percentage is a variable with the default value of 10 percent, which is consistent with the ASI initiative and higher than the "Federal Worker 2000" initiative requirement of 3 percent.)

Figure 10 illustrates the results of the conversions. The "PEP Sum Mishap Rating" is the average of the "PEP Incident Rating" and the "PEP Severity

Rating." A high Sum Mishap rating indicates a reduction in the number of mishaps and their effects in the workplace.

- In FY-04, the PEP incident rating *unfavorably decreased* since 2003.
- In FY-04, the PEP severity rating *favorably increased* since 2003 by a 79.3 percent margin.
- In FY-04, the PEP Sum Mishap Rating *favorably increased* since 2003 by a 30.9 percent margin.

XII. NASA Agency Civil Service Employee and Manager PEP Survey Rates and PEP Equivalent Sum Mishap Rates Comparison (figure 11)

Average Rating for Civil Servant Employees and Managers

NASA has conducted the PEP Occupational Safety and Health Survey between 2000 through 2004 for each of the NASA Centers. The total average for all combined NASA Centers is listed in the following table using a 1-5 scale:

Year	Employee	Manager
FY 2000	3.6	3.7
FY 2001	3.9	4.0
FY 2002	4.2	4.3
FY 2003	4.1	4.1
FY 2004	4.3	4.4

- In FY-04, the Agency Employee average rates *favorably increased* since 2003.
- In FY-04, the Agency Manager average rates *favorably increased* since 2003.

A comparison of the total average of the Employee and Manager PEP Survey ratings against the PEP Sum Mishap ratings from 2000 to 2004 is shown in Figure 11.

- A *favorable increase* in Employee rating by 4.9 percent between 2003 and 2004 occurred.
- In FY-04, the Sum Mishap rate *favorably increased* since 2003 by a 30.9 percent margin.

XIII. NASA Agency Property Damage, 5-years (figure 12)

The property damage cost at NASA Centers from 2000 to 2004 is illustrated in Figure 12.

- In 2004, a *favorable decrease* in property damage cost by $1,074,513,875.00 since 2003 was observed.
- In 2003, the cause of the spike was attributed to the following:

Item	Cost
STS 107 Space Shuttle	$ 1,076,332,029.00

XIV. NASA Agency PEP Survey Report Recommendations

The PEP survey results for all NASA Centers were analyzed to ascertain the safety issues common to the Centers. The survey analysis also offers recommendations for areas that may benefit from additional emphasis across the entire Agency. The following recommendations are based on ASI and OSHA guidelines reported by the PEP Analyzer Get Well Plan:

A. Management Leadership and Employee Participation

1. Worksite analysis and inspection should include an examination and analysis of safety and health hazards associated with individual jobs. The results of these analyses and inspections should be included in employee training and hazard control programs.
2. Managers should establish and communicate clear goals for the safety and health program and the objectives for meeting these goals.
3. Employees should assist in developing training requirements in their work areas.

B. Workplace Analysis

1. A job hazard analysis should be conducted on every job to ensure that all hazards are identified and that any necessary controls are in place.

C. Mishap Record Analysis

1. An accident/incident investigation system should be provided that includes written procedures or guidance, with written reports of findings and hazard elimination or control tracking to completion. Investigations should seek out root causes of mishaps and close calls.

2. Employee representatives should be a part of all inspections and investigations.

D. Hazard Prevention and Control

1. The identification of health hazards and employee exposure levels should be accomplished through an industrial hygiene sampling rationale and strategy.

2. Employers should prepare for emergencies and conduct training and drills as needed so that the response of all employees to emergencies will be "second nature."

E. Emergency Response

1. Periodic re-evaluation of workplace emergency preparedness requirements should be carried out at least annually and after each significant incident.
2. All potential emergencies should be identified, and emergency plans should adequately cover every situation.
3. Employers should establish a medical program, which includes the availability of first aid on site and of physician and emergency medical

care nearby, so that harm will be minimized in any illness or injury that does occur.

Figure 1.

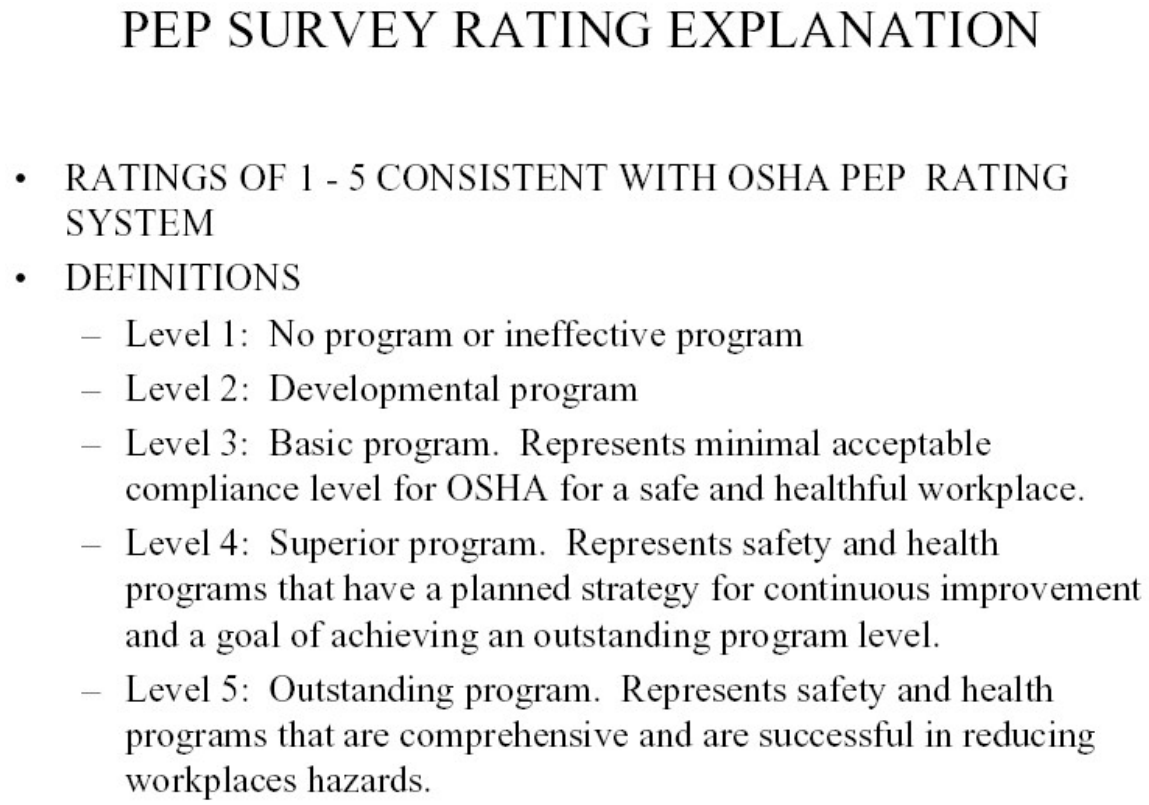


Figure 2. PEP Scores vs. Program Effectiveness

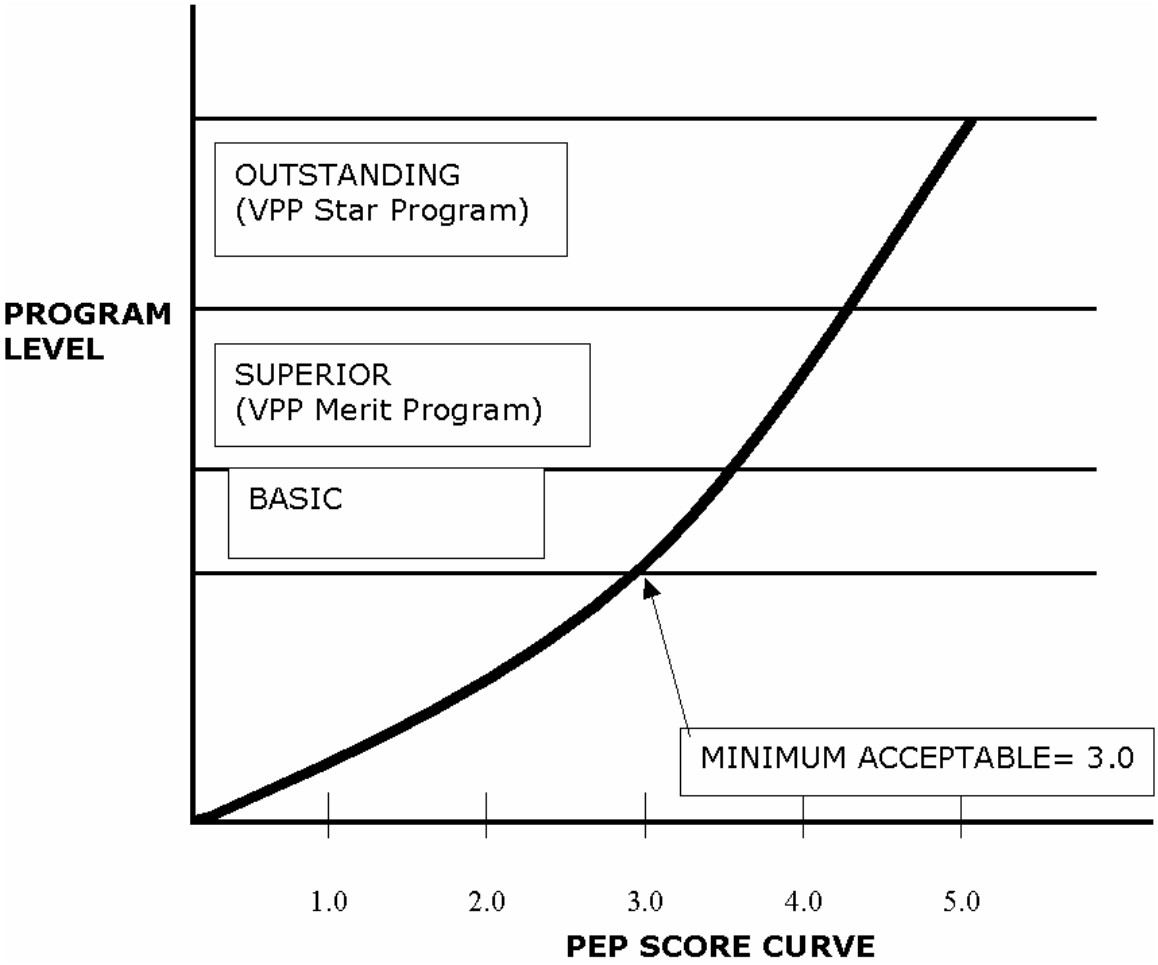
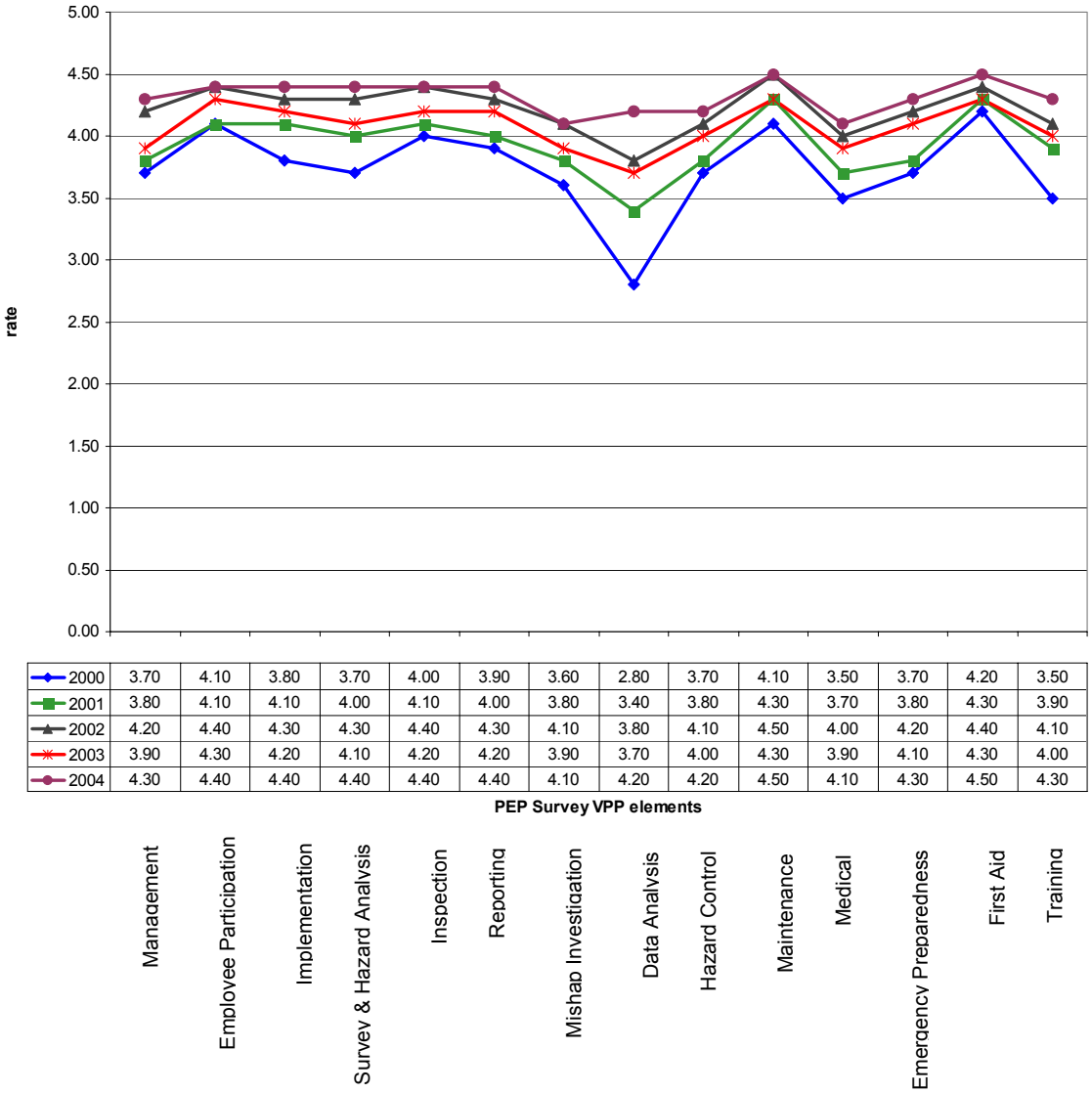


Figure 3. NASA Agency Civil Service Employee PEP Survey Rates for VPP Elements, Benchmark Comparative Analysis

(Average score of the combined Centers for the elements since 2000)

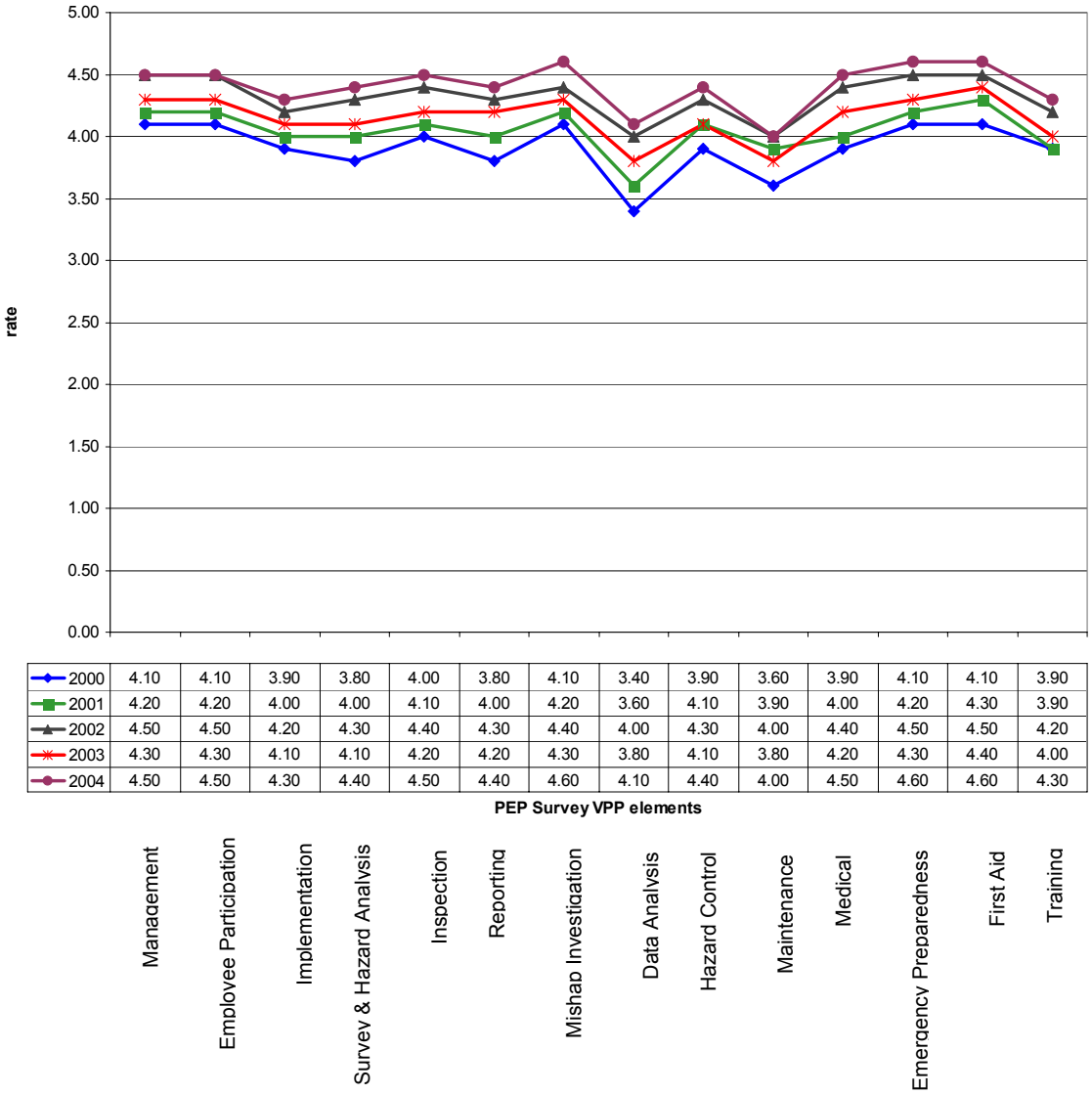


	Management	Employee Participation	Implementation	Survey & Hazard Analysis	Inspection	Reporting	Mishap Investigation	Data Analysis	Hazard Control	Maintenance	Medical	Emergency Preparedness	First Aid	Training
2000	3.70	4.10	3.80	3.70	4.00	3.90	3.60	2.80	3.70	4.10	3.50	3.70	4.20	3.50
2001	3.80	4.10	4.10	4.00	4.10	4.00	3.80	3.40	3.80	4.30	3.70	3.80	4.30	3.90
2002	4.20	4.40	4.30	4.30	4.40	4.30	4.10	3.80	4.10	4.50	4.00	4.20	4.40	4.10
2003	3.90	4.30	4.20	4.10	4.20	4.20	3.90	3.70	4.00	4.30	3.90	4.10	4.30	4.00
2004	4.30	4.40	4.40	4.40	4.40	4.40	4.10	4.20	4.20	4.50	4.10	4.30	4.50	4.30

PEP Survey VPP elements

Figure 4. NASA Agency Civil Service Manager PEP Survey Rates for VPP Elements, Benchmark Comparative Analysis

(Combined Center rate averages for the elements since 2000)



	Management	Employee Participation	Implementation	Survey & Hazard Analysis	Inspection	Reporting	Mishap Investigation	Data Analysis	Hazard Control	Maintenance	Medical	Emergency Preparedness	First Aid	Training
2000	4.10	4.10	3.90	3.80	4.00	3.80	4.10	3.40	3.90	3.60	3.90	4.10	4.10	3.90
2001	4.20	4.20	4.00	4.00	4.10	4.00	4.20	3.60	4.10	3.90	4.00	4.20	4.30	3.90
2002	4.50	4.50	4.20	4.30	4.40	4.30	4.40	4.00	4.30	4.00	4.40	4.50	4.50	4.20
2003	4.30	4.30	4.10	4.10	4.20	4.20	4.30	3.80	4.10	3.80	4.20	4.30	4.40	4.00
2004	4.50	4.50	4.30	4.40	4.50	4.40	4.60	4.10	4.40	4.00	4.50	4.60	4.60	4.30

Figure 5. FY-04 NASA Agency Civil Service Employee and Manager PEP Survey Rates for VPP Elements, Comparison

(Combined Center rate averages for the elements)

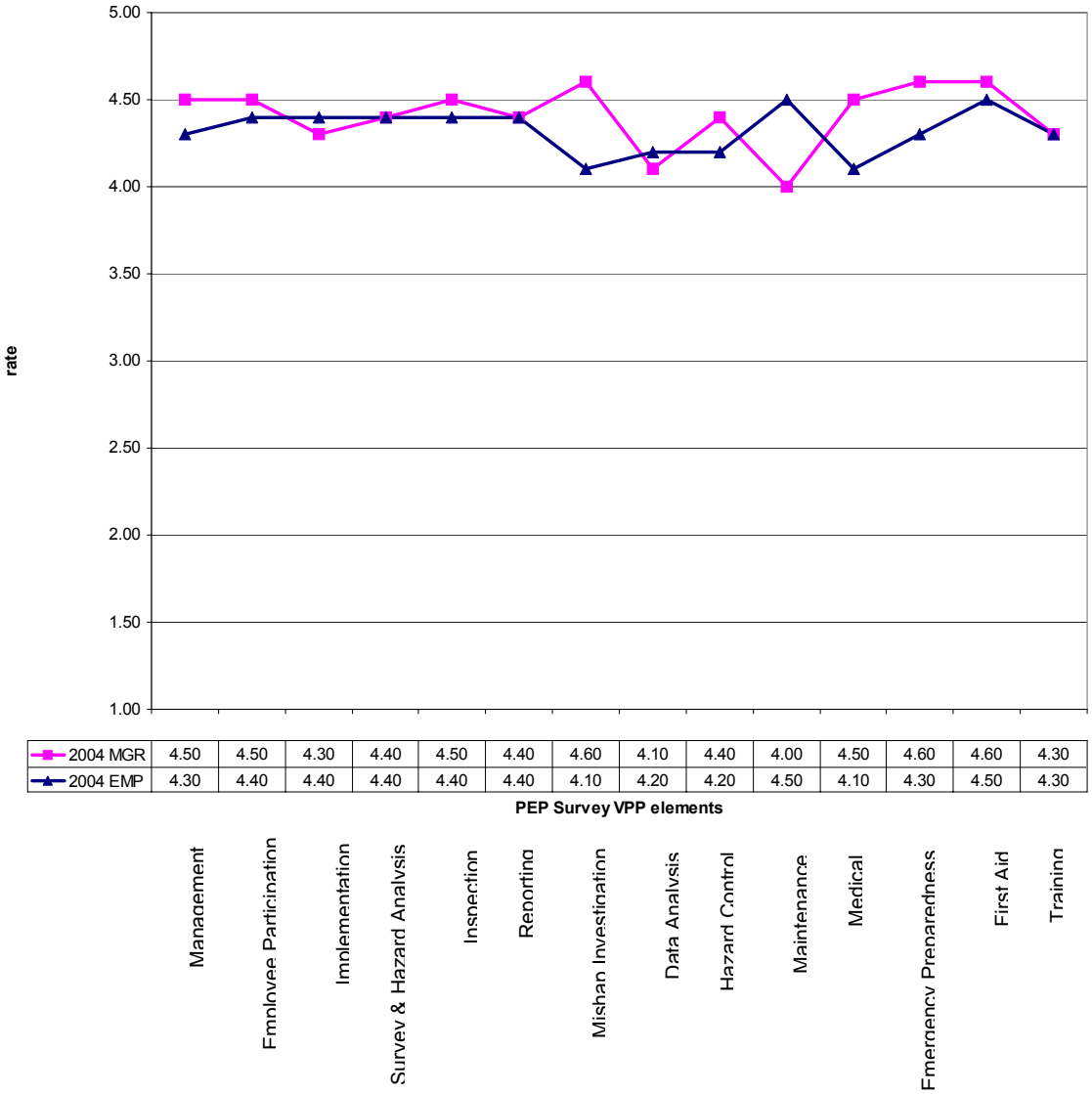
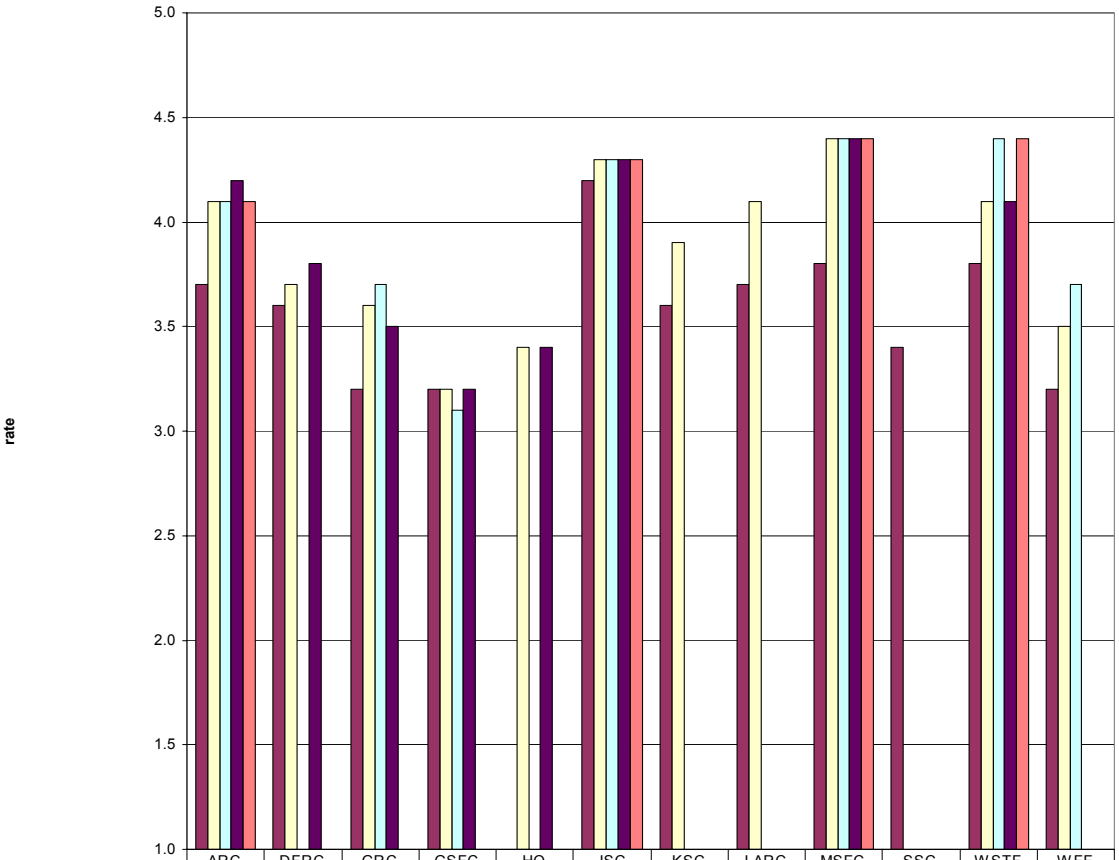


Figure 6. Civil Service Employee PEP Survey Rates for Each Reporting NASA Center, 5-years

(Center rate averages since 2000)

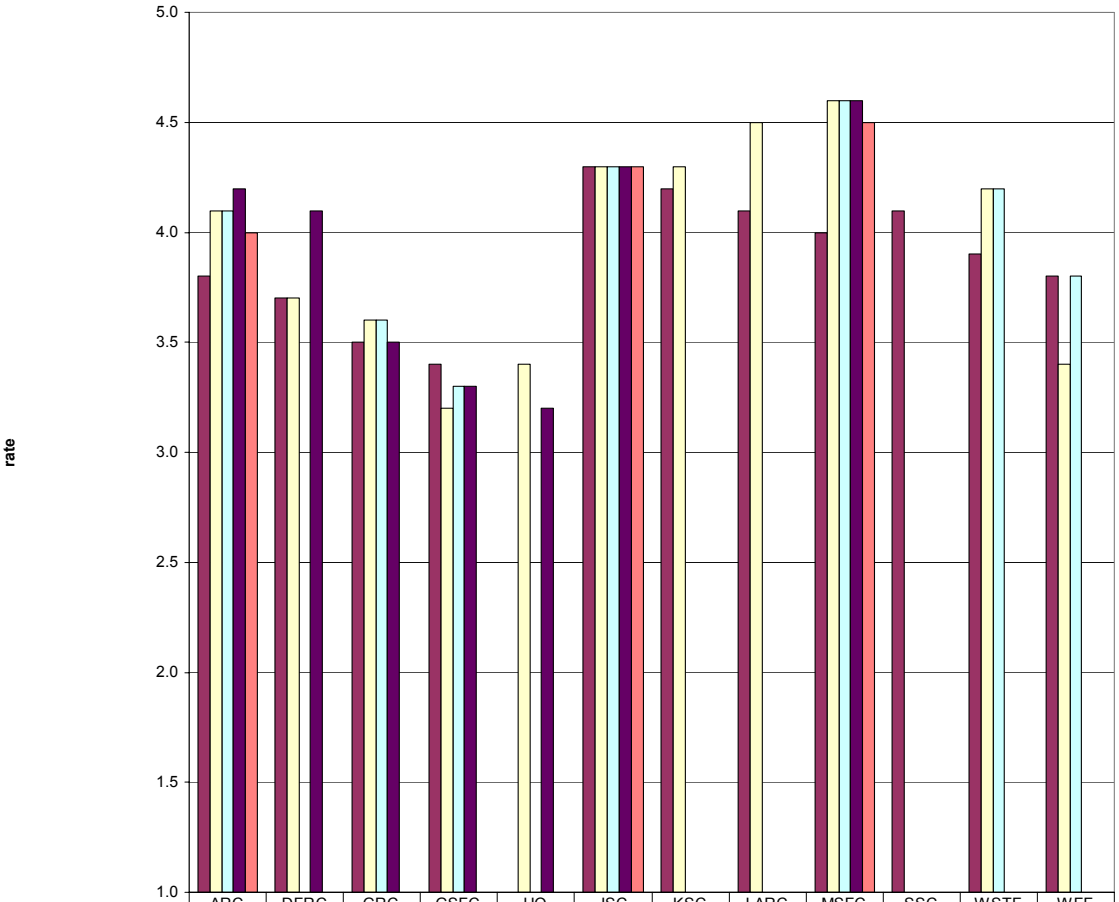


	ARC	DFRC	GRC	GSFC	HQ	JSC	KSC	LARC	MSFC	SSC	WSTF	WFF
2000 EMP RATING	3.7	3.6	3.2	3.2		4.2	3.6	3.7	3.8	3.4	3.8	3.2
2001 EMP RATING	4.1	3.7	3.6	3.2	3.4	4.3	3.9	4.1	4.4		4.1	3.5
2002 EMP RATING	4.1		3.7	3.1		4.3			4.4		4.4	3.7
2003 EMP Rating	4.2	3.8	3.5	3.2	3.4	4.3			4.4		4.1	
2004 EMP RATING	4.1					4.3			4.4		4.4	

NASA Center

Figure 7. Civil Service Manager PEP Survey Rates for Each Reporting NASA Center, 5-years

(Center rate averages since 2000)



	ARC	DFRC	GRC	GSFC	HQ	JSC	KSC	LARC	MSFC	SSC	WSTF	WFF
2000 MGR RATING	3.8	3.7	3.5	3.4		4.3	4.2	4.1	4.0	4.1	3.9	3.8
2001 MGR RATING	4.1	3.7	3.6	3.2	3.4	4.3	4.3	4.5	4.6		4.2	3.4
2002 MGR RATING	4.1		3.6	3.3		4.3			4.6		4.2	3.8
2003 MGR RATING	4.2	4.1	3.5	3.3	3.2	4.3			4.6			
2004 MGR RATING	4.0					4.3			4.5			

NASA Center

Figure 8. FY-04 Civil Service Employee and Manager PEP Survey Rates for Each Reporting NASA Center

(Center rate averages)

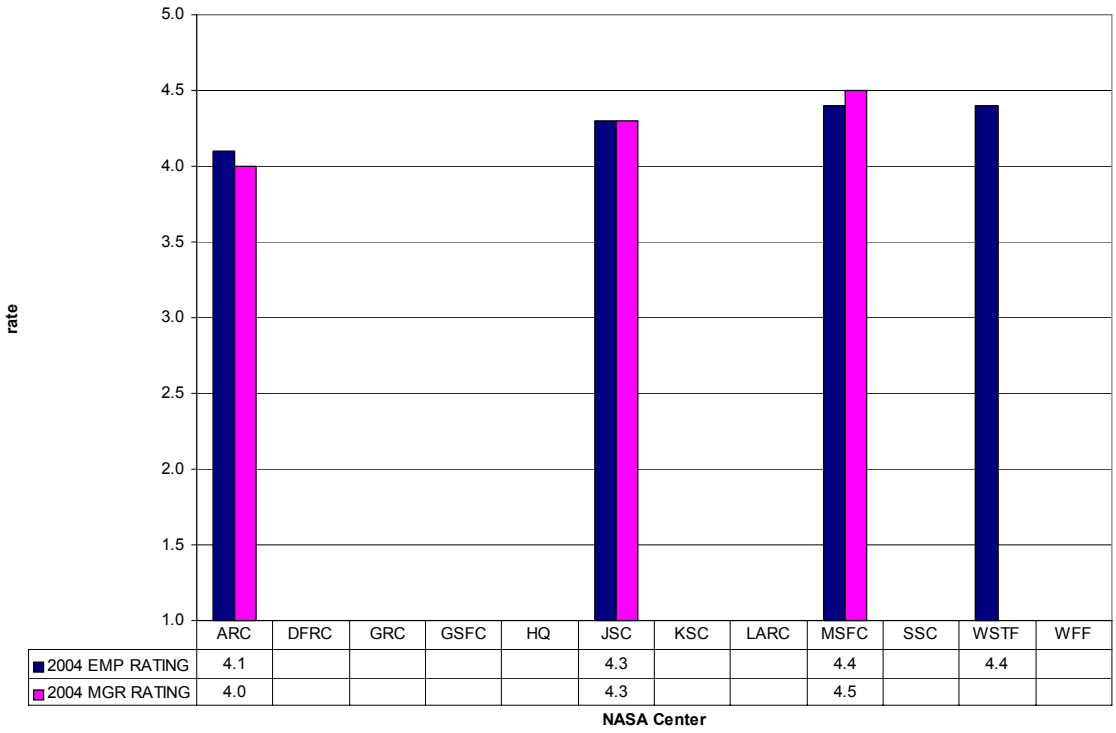
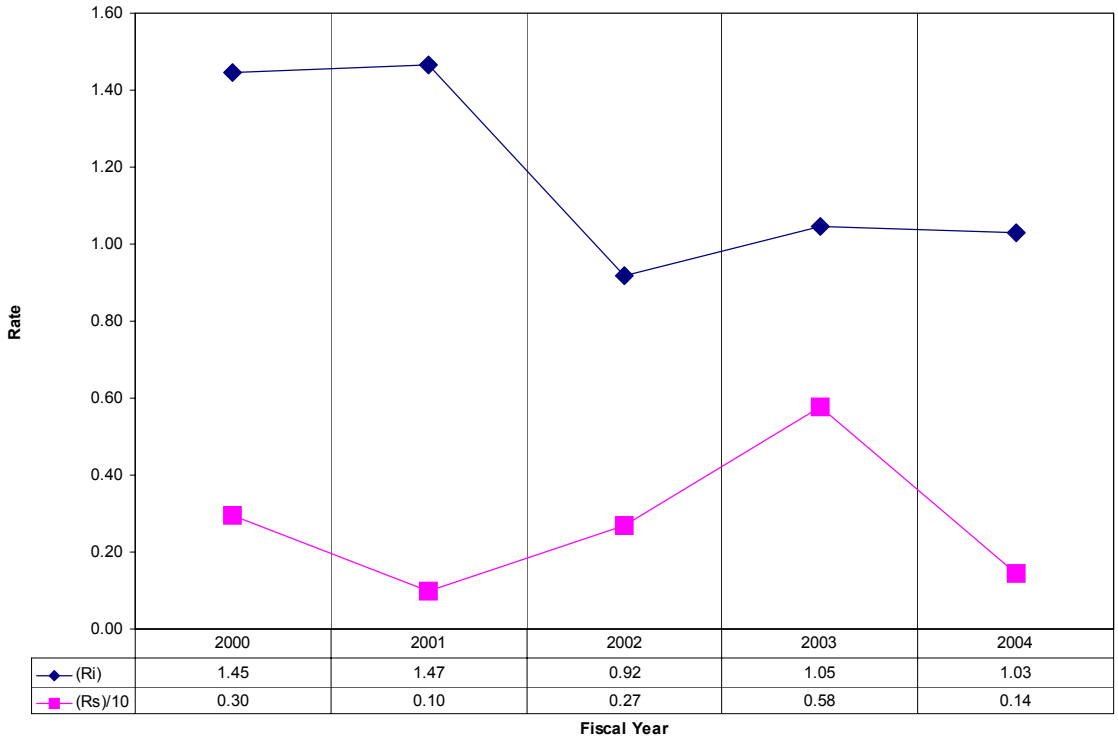
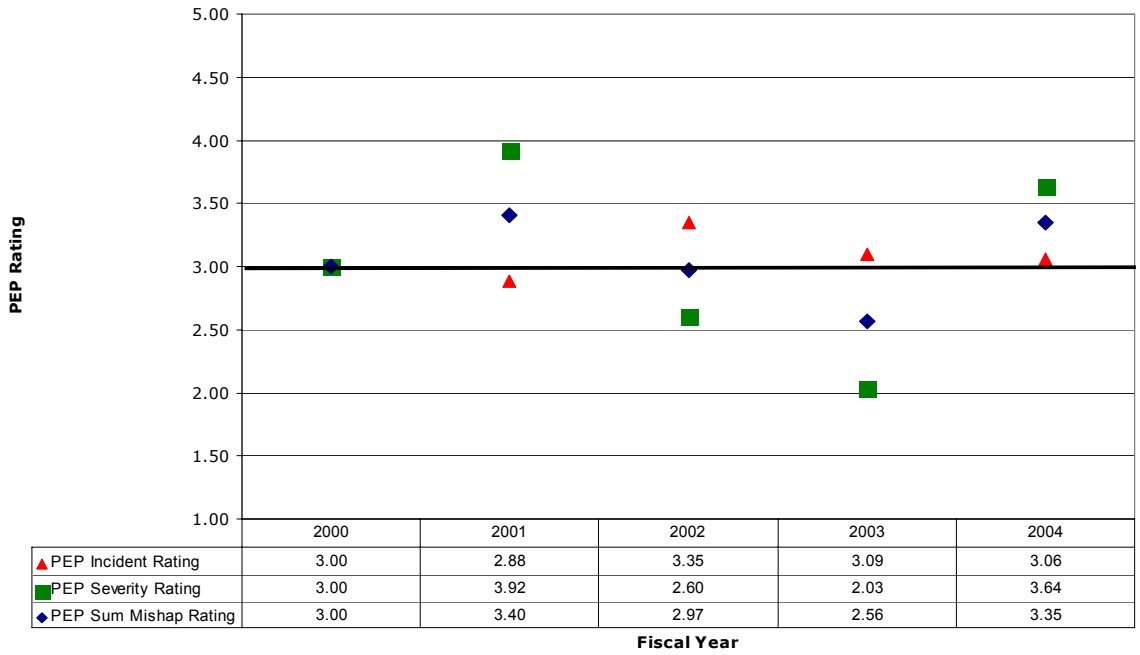


Figure 9. NASA Agency Civil Service Incident and Severity Rates, 5-Year Comparison



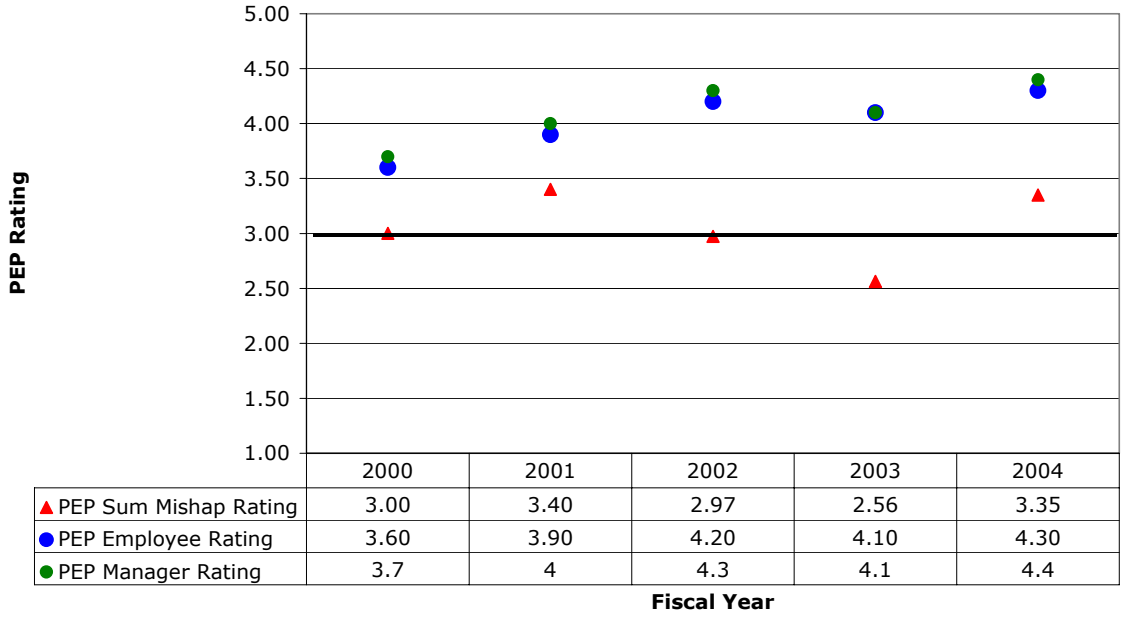
	2000	2001	2002	2003	2004
(Ri)	1.45	1.47	0.92	1.05	1.03
(Rs)/10	0.30	0.10	0.27	0.58	0.14

Figure 10. NASA Agency Civil Service PEP Equivalent Rates for Incident and Severity



	2000	2001	2002	2003	2004
PEP Incident Rating	3.00	2.88	3.35	3.09	3.06
PEP Severity Rating	3.00	3.92	2.60	2.03	3.64
PEP Sum Mishap Rating	3.00	3.40	2.97	2.56	3.35

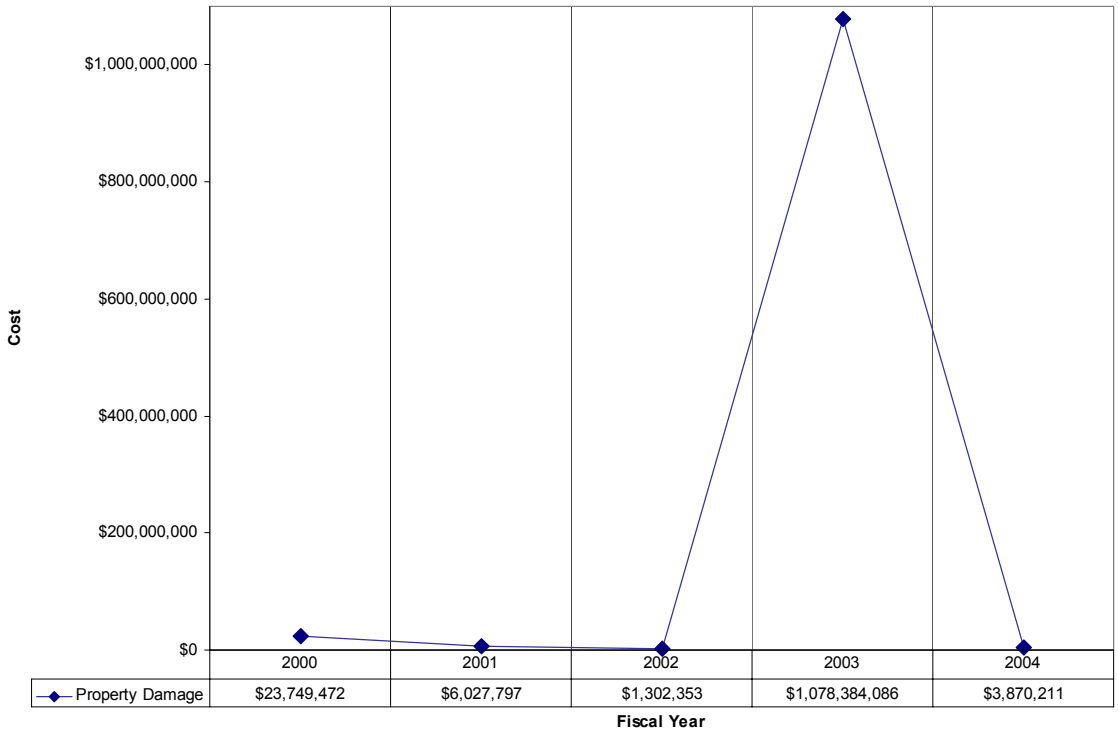
Figure 11. NASA Agency Civil Service Employee and Manager PEP Survey Rates and PEP Equivalent Sum Mishap Rates Comparison



	2000	2001	2002	2003	2004
▲ PEP Sum Mishap Rating	3.00	3.40	2.97	2.56	3.35
● PEP Employee Rating	3.60	3.90	4.20	4.10	4.30
● PEP Manager Rating	3.7	4	4.3	4.1	4.4

Fiscal Year

Figure 12. NASA Agency Property Damage, 5-years



- In 2003, the cause of the spike was attributed to the following:

Item	Cost
STS 107 Space Shuttle	$ 1,076,332,029.00

Appendix I

Annual Occupational Health Conference

The Annual Occupational Health Conference on "Embracing Change in Occupational Health" was held in Williamsburg, Virginia. The following topics were presented:

- Professional Management Overview – Richard Williams, MD, FACS, NASA Chief Health and Medical Officer
- One NASA – Sean O'Keefe, NASA Administrator
- One Team One Journey One NASA – Johnny Stephenson
- NASA Safety Return to Flight Plan – James D. Lloyd, Deputy Associate Administrator, Safety and Mission Assurance, NASA Headquarters
- NASA Engineering and Safety Center (NESC) – Roy D. Bridges Jr., Center Director, Langley Research Center
- Application of Change Management – Winning Against All Odds – Dr. Gary Bradt, Bradt Leadership Inc.
- NASA Task Force on Electronic Health Record System – W. Hoffler, MD and D. Ratliff, MPH
- Multilateral Medical Policy Board – HQ Organizational Changes, Richard Williams, MD, FACS, Chief Health and Medical Officer.
- Occupational Health Strategic Plan – Catherine Angotti, RD, LD, Director, Office of the Chief Health and Medical Officer
- Synergy Between Space and Occupational Medicine – Arnold Nicogossian, MD, Research Professor, George Mason University
- Evolution of Space Medicine in Russia – Oleg Navinkov, MD, PhD. Dynamac Corporation
- Alignment of Federal Health Activities – Scott Young, MD, AHRQ
- Occupational Health and Environmental Health Hot Topics – Lawrence Stilwell Betts, MD, PhD, CIH, FACOEM
- Healthy People 2010 – Daniel Singer, MD, MPH, Department of Health and Human Services
- Astronaut Health – Story Musgrave, MD, Astronaut/Physician
- Smoking Cessation – Lowell C. Dale, MD, Mayo Clinic
- OSHA Change Management – Emil Golias, Sr. Industrial Hygienist, Occupational Safety and Health Administration

Professional development courses presented at the conference included the following:

- Medical Review Officer Training and Certification – American Association of Review Officers
- Pulmonary Function Testing – Brian Boehelch, MD, MPH, UNC School of Medicine; Emily Wallace, RN, BS, COHN-S, EI Inc.
- The Professional Supervisor of the Audiometric Monitoring Component of Hearing Conservation Programs – Beth Cooper, Glenn Research Center;

Richard Danielson, Johnson Space Center; Dwight Peake, MD, Johnson Space Center

- Environmental Health Performance Metrics – Paul Esposito, CIH, CIP, Star Consultants Inc.

The next annual NASA Occupational Health Conference will be held in Lake Tahoe, Nevada in June of 2005 and will include professional development courses for occupational health physicians, occupational health nurses, and industrial hygienists on the subjects of “Toward a Healthier NASA: Successes and Innovation”. It will host discussions of various aspects of Center Occupational Health Programs.

Appendix J

Future Programs, Goals, and Accomplishments

NASA is currently developing an Electronic Health Record System (EHRS). The goal of the EHRS is to utilize health information technology to improve the recognition and documentation of workplace health hazards and adverse health outcomes associated with occupational exposure and non-occupational lifestyles. Through better information management, NASA OH will improve the continuum of care offered to its workforce from proactive intervention and education prior to an event, to effective rehabilitation and return to normal productive activity after an unforeseen injury or illness. NASA will begin to implement this system in FY 2005

The NASA-wide Occupational Health Conference will be held in Lake Tahoe, Nevada in June of 2005 and will include professional development courses for occupational health physicians, occupational health nurses, and industrial hygienists on the subjects of "Toward a Healthier NASA: Successes and Innovation". It will host discussions of various aspects of Center Occupational Health Programs.

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).

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.

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 will continue to be 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

February was National Heart Month. As part of this effort, NASA supported and promoted the American Heart Association (AHA) campaign "Go Red for Women" that focused on educating women about their risk for cardiovascular disease.

It is NASA's policy to offer a comprehensive health services program for international travelers to safeguard the health and productivity of NASA employees on international travel and duty assignments. A new policy was implemented in FY 2004, which requires all NASA international business travelers to be medically screened for fitness for duty travel. This process helps assure that health of NASA international travelers is not compromised by their business travel requirements. The NASA Occupational Health clinics prepare NASA employees, from a health perspective, by providing health evaluations, immunizations, and information on diseases, food and water, and personal safety in foreign countries. NASA Occupational Health clinics follow the guidelines set by the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO). Medical clearance by a NASA Health Clinic unit clinician is a pre-requisite for clearance to travel on NASA official business.

The mission of the National Aeronautics and Space Administration (NASA), Occupational Health (OH) function is to ensure the physical and mental health and well-being of its employees in all environments, to ensure compliance with all applicable regulatory requirements, and to implement all health related program components to the maximal degree. OH at NASA encompasses health services for employees working on NASA Centers and while on international travel assignment; it takes into account physical fitness, nutrition, workers' compensation, employee assistance, health education and wellness, industrial hygiene, and radiation protection. The focus of NASA OH is oriented toward medical surveillance and prevention of occupational injury and illness.

In an effort to maximize a healthy and safe work environment, by reducing preventable injury and illness through improved OH awareness, NASA is currently developing an Electronic Health Record System (EHRS). The goal of the EHRS is to utilize health information technology to improve the recognition and documentation of workplace health hazards and adverse health outcomes associated with occupational exposure and non-occupational lifestyles. Through better information management, NASA OH will improve the continuum of care offered to its workforce from proactive intervention and education prior to an event, to effective rehabilitation and return to normal productive activity after an unforeseen injury or illness.

Appendix K

Audits

Ten 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 Safety and Occupational Health Program audit tools provide feedback 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, five NASA Safety and Mission Assurance Institutional Facility Operational (IFO) safety audits, two Office of Safety and Mission Assurance plan VPP readiness assessments and two Operational Engineering Panel reviews are planned for this year. This does not include the "programmatic" reviews, such as Space Shuttle, International Space Station, and Expendable Launch Vehicles, which also include assessment of flight, payload, ground, and experiment hazards.

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 is aimed at identifying both unsafe conditions and unsafe acts.

Appendix L

Individual Center Accomplishments and Programs

Office of Headquarters Operations (OHO)

The Office of Headquarters Operations (OHO), a support function to NASA, continues to publish monthly safety topics relating to home and work. HQ Safety continued 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 departments.

OHO continues efforts to ensure compliance with all Federal requirements for emergency preparedness. This includes execution of a major Federal emergency preparedness operation called "Forward Challenge 04", which was the continuity of operations exercise for the National Capital Region.

Some of our compliance initiatives include:

- Conducting quarterly emergency evacuation drills
- 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.

OHO participated in emergency preparedness drills and table top exercises, most of which involved medical and environmental hazard scenarios. OHO also participated in Interagency Working Group Federal Workplace Emergencies. This is a forum for sharing and exchanging information and best practices used by agencies in addressing emergency preparedness issues.

Emergency Preparedness personnel continue to 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. First aid stations and Automatic External Defibrillators (AED) were installed in the building, and other medical equipment and supplies were procured to handle building-wide incidents.

The OHO continues to publish monthly safety topics relating to home and work. These posters are provided to CDSR to post throughout their areas. Larger

posters are also displayed on each floor. CDSRs are provided training when they accept their position and annually thereafter.

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

A SOLAR training course on Safety and Emergency Preparedness is used to train employees on safety and emergency procedures.

A Workplace Safety and Health Booklet for Supervisors and Employees was developed to enhance safety awareness in the workplace.

Several Environmental Health and awareness programs were conducted. These included: conducting indoor air quality investigations and ergonomic assessments; performing lead-in-drinking water testing in response to the problems identified by the DC Water and Sewer Authority and EPA (results were within EPA's limits); revising the HQ process for providing medical clearance, and health information to international travelers; conducting the annual Health Fair; and establishing a website for fitness and wellness programs.

Glenn Research Center (GRC)

Glenn Research Center (GRC) completed a health hazard evaluation, with the assistance of NIOSH, for Building 500. Building 500 was identified by the Glenn Lewis Engineers and Scientists Association (LESA) Union as a location where employee residents had serious concerns about contracting cancer. The Environmental Management Office (EMO) records and data for environmental and biological exposure hazards were reviewed by NIOSH. NIOSH has determined that risk factors, incidents and types of cancer were not unique when compared to national health trends for the disease. The formal health hazard evaluation written report has been distributed and posted for employees as appropriate. The EMO will provide additional employee information sessions if necessary and will be use the Internal Communications process to ensure that all employees are informed.

The Occupational Medicine function, Employee Assistance Program, Fitness Center, Federal Workers Compensation Program, and Food Safety were added to the Environmental Management Office. These additional functions are critical elements of occupational health and have helped to establish a more effective and integrated occupational health service for Glenn employees.

Cafeteria supervisors have been trained in all aspects of Hazard Analysis Critical Control Point (HACCP). New hire food service workers are required to complete HACCP training before they are allowed to prepare or serve food. The Federal Workers Compensation Officer has completed training for Department of Labor regulations and policies for processing claims. The environmental specialists who make up this team have completed 90% of EMO program back-up support training. The additional training will expand individual team members' areas of expertise.

FY04 was a very successful year for the Glenn Safety Program. A major effort was taken to ready the Center for OSHA's Voluntary Protection Program (VPP) Registration. The Center became a member of the Voluntary Protection Program Participants Association (VPPPA) and participated in the regional and national conferences. The Center submitted its Application for Registration to the Region 5 VPP Manager. A VPP Pre-Audit was held in preparation for OSHA's VPP Registration Audit. The Pre-Audit team was comprised of members from NASA VPP Sites, VPPPA members and NASA HQ personnel. During this audit areas of concern were identified and improvements are being made. Improvements were made to several programs including Hazard Analysis (Job Hazard Analysis), Accident Investigation, Lifting Devices Safety, Construction Safety, and Mishap Reporting.

A new Biological Safety Committee was formed to address research concerns related to Bio Safety. New committee personnel are being appointed and will begin operations soon.

Goddard Space Flight Center (GSFC)

The Safety and Environmental Division continues to concentrate on developing and improving standardized tools and processes to support the Safety Management System (SMA) for the Center. Programs are continually improved to meet our employee's needs by focusing on skill mixes within the team to support their unique requirements. GSFC is completing all updates of their Safety and Health Program standards, and to provide tools and resources to the Center for implementation of the Safety Management System.

All Center Directorates partnered for initiation of the Safety Management System. This system strives to assist in implementing the 32 VPP elements to help develop goals and objectives.

The Occupational Safety Program worked to improve the Center's tools and programs provided to help ensure and enhance the safety of Goddard employees. The Center is progressing 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 (STAR Consultants) was retained to support the Center's SMS implementation effort. The consultant also developed and provided tools for GSFC to utilize in auditing the Center against the SMS elements.

Other accomplishments:

- Updated and trained organizations on the Task Safety Analysis and Process Safety Analysis tools
- Fielded SAFETRAIN, an automated tool to assist supervisors with identifying training for employees

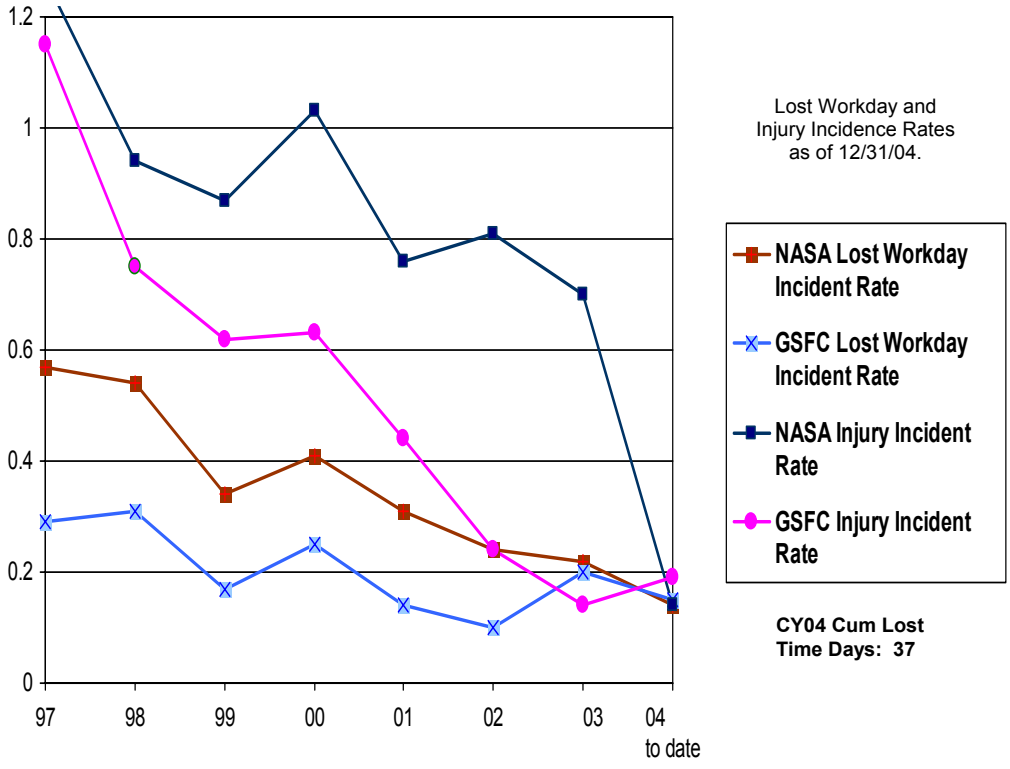
- Provided numerous training sessions, including but not limited to, OSHA 10 & 30 hour Construction, Confined Space Training, and Laboratory Safety Requirements training (>250 Lab Managers and Technicians)
- Provided SMS Overview of the 32 elements and completed all Quantitative Risk Assessment audits of the Center's Directorates, HAZCOM, and MORT
- Developed new materials for new employee orientation program to be implemented in FY'05
- Trained new supervisors on safety, health and environmental responsibilities during new supervisor orientation
- Provided safety awareness briefings to various audiences
- Completed 68 annual and follow-up building assessments identifying over 1004 non-compliance findings
- Completed new Lock-out/Tag-out and Confined Space Policies
- Completed and updated Emergency Action Plans for all buildings with 10 or more occupants
- Completed Health Risk Assessment of the buildings 7/10/15/29 complex to address employee health concerns with NIOSH and the Public Health Services
- Provided the Applied Engineering and Technology Directorate (AETD) with a TSA software tool for supervisors to utilize
- Re-designed the Facility Inspection Tracking Database with STAR Consultants
- Completed Comprehensive Baseline Survey for AETD. Presented observations and recommendations to their management
- Completed Comprehensive Baseline Survey for Wallops Flight Facility (WFF) and the remaining portions of GSFC
- Conducted 207 local exhaust ventilation surveys
- Performed 91 indoor air quality investigations, 30 ergonomics evaluations, and 74 sample analyses (e.g., asbestos, lead, mold, drinking water, zinc, anthrax, and PCB)
- Reviewed 27 Asbestos Abatement Plans
- Initiated the process of separating the Environmental Health and Industrial Hygiene Programs
- Food Service Sanitation quarterly inspections were completed for Greenbelt and WFF
- Established the Occupational Health Working Group
- Finalized Chemical Hygiene Plan GPG 1700.2
- Assisted numerous chemical laboratories on Center to complete Process Hazard Analyses
- Upgraded the MSDSpro System to version 3.2 for all Center users
- Provided Administrator training to 20 MSDSpro users
- Completed training of all radioactive material users before they began working with radioactive material
- Completed 100% of all radiation surveys and audits on schedule
- 100% of all employee exposures are below regulatory requirements and are maintained As Low As Reasonably Achievable (ALARA)

- Implemented Center-wide guidance on use of laser radiation sources in GPG 1860.2
- Provided Radio Frequency Radiation safety training to 25 employees on Center
- Transitioned the Emergency Management Program to the Goddard Security Division, Code 240
- Began issuing new Goddard Policy Guidelines for Facility System Safety
- Continued to participate in the planning phase for construction of new Space Science building
- Performed on-going reviews of drawings as submitted from Code 220
- Developed and distributed four Center-wide Safety Bulletins on various safety issues
- 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 medias such as Goddard news articles and supervisory emails
- Initiated three mishap boards or teams
- Reduced Injury Incidence Rate (IIR) to 0.05 compared to 0.19 in CY03 (IIR is the # of "recordable incidents" related to a common exposure base of 100 full-time workers)
- Lost Workday Incidence Rate (LWDIR) decreased to 0.20 from 0.24 in FY03. (Number of "lost workday" cases related to a common exposure base of 100 full-time workers)
- Investigated 31 Close-Call/Hazard Reports
- Provided clinical services, workplace consultations, and auxiliary occupational health services
- Facilitated wellness seminars and education on subjects that included current theory on physical exams and health screening, nutrition, acupressure therapy, skin and breast cancer awareness, managing sick days with diabetes, bone density and hypertension screenings
- Collaborated with EAP and the Fitness Center to promote a successful Health and Wellness Fair
- Participated in the GSFC Quality of Worklife Expo
- Held 6 blood drives with a total of 643 donors
- Provided numerous training sessions including but not limited to: Drug Free Workplace for supervisors, EAP Supervisory Briefing, EAP Employee Orientation
- Facilitated and participated in various workshops/seminars focusing on promoting services of EAP, including but not limited to, Stress Management, Holiday Stress, and Beating the Holiday Blues
- Participated in planning committees for other outreach activities such as, the Annual Health Fair and the Quality of Worklife Expo
- Participated in the GSFC Women's Advisory Committee (WAC), GSFC's Committee for Ending Domestic and Family Violence, and the GSFC Crisis Management Team, and facilitated Critical Incident Stress Management Debriefings as needed
- Published an article in the Goddard News, highlighting EAP services offered

- The EAP offered significantly more workplace consultations with supervisors and managers in the CY 2004 (116 contacts = 77 hours) as compared to CY 2003 (93 contacts = 59 hours)
- Completed Emergency Action Plans for all facilities
- Transferred Emergency Action Plan programs to Emergency Preparedness Coordinator
- Began issuing new Goddard Policy Guidelines for Fire Protection
- Exercised all 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

GSFC is again consistent with the NASA Lost Workday Incident Rate, and the Injury Rate continues to show a steady decrease in personnel injuries.

Mishap Prevention Program
CY 04 Center Metrics

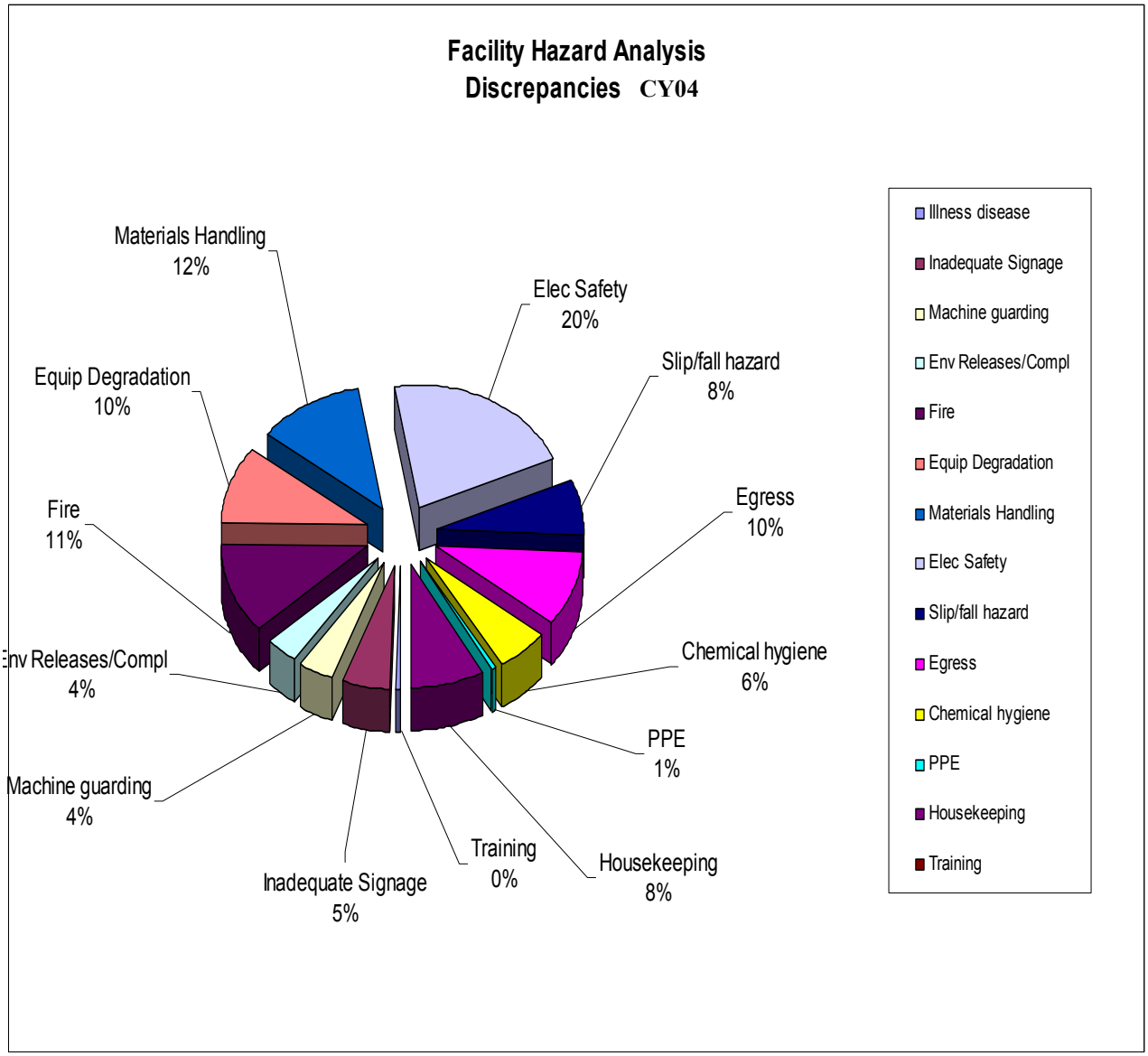


GSFC Safety Report
CY04 Safety Metrics

	Personal Injury accidents	*Lost time injuries*	*Lost time days*	*Mission related asset mishaps*	*Non-mission related asset mishaps*	*Estimated cost*
Jan	0	0	6	0	2	<75K
Feb	0	1	0	0	1	<5K
Mar	0	0	2	0	0	0
Apr	0	0	0	0	0	0
May	1	0	0	0	0	0
Jun	0	0	0	0	0	0
Jul	0	1	13	0	2	<275K
Aug	1	1	2	0	0	0
Sept	2	0	0	0	0	0
Oct	0	0	0	0	0	0
Nov	0	1	3	0	0	0
Dec	1	1	11	0	0	0
Total	5	4	37	0	2	<355k

Executive Summary

- December: Code 100, Employee fell. Facial injuries. No lost time. Code 200, Employee fell. Broken leg. 11 days lost time
- November: Code 400, Employee fell. Contusions, Bruises, and strains. 3 days lost time
- October: None
- September: Employee fell going down steps; employee pulled shoulder muscle lifting computer monitor.
- August: Employee missed the step at the end of the stairs, possible fracture (no lost time). Code 500, employee slipped on wet floor, sprained ankle (2 days lost time).
- July: Employee crushed finger (13 days lost time); flooding damage to several buildings, $25K. WFF, Poker Flats Fire, $250K.
- May: Employee struck by a car. (High Visibility Close Call: Code 600, Chemical Exposure/Vent Hood Failure Incident)
- March: Employee with fractured wrist in 02/04 needed surgery (2 days lost time).
- February: Bl 202 basement flooded, <$5K property damage; Bl 33 trailer, employee fractured wrist when trying to open door.
- January: Bl 29, HVAC pre-heat coil steam tap froze causing the chilled water coil to rupture, $55K property damage; Bl 5, frozen sprinkler head burst, <$20K; Code 130, 6 days lost time (eye abrasion).



CY 04 QRA Summary Scores for all Directorates

Element	GSFC Average	Std. Dev*.
Management Commitment	50%	+/- 20%
Employee Involvement	35%	+/- 20%
Hazard Analysis	52%	+/- 20%
Hazard Prevention and Control	68%	+/- 18%
Training	44%	+/- 20%

Wallops Flight Facility (WFF)

The 2004 total injury/illness case rate for WFF was 0%. In analyzing the progress of meeting the four goals of the President's SHARE Initiative, it was found that analysis was not feasible because of the lack of reportable incidents in FY04.

WFF goals and objectives work to improve the safety programs which support the President's SHARE initiative. The safety goal at WFF is "no accidents today". This goal is achieved by learning from prior accidents and analyzing operations in order to keep injury and illness case rates low. The primary objective of obtaining the goal at WFF is to implement the VPP Elements including full implementation of 29 CFR 1960 requirements. In implementing parts of the VPP Elements the effectiveness of the occupational safety and health program has been improved by creating a Work Center Safety Guide

Motor vehicle accidents experienced by WFF Federal employees while on official government business were 0% for FY 2004. It is WFF's policy that all personnel on the facility or on official government business wear seat belts at all times. A 100% compliance policy is in effect. Personnel entering the gate are checked, and random spot checks are also performed throughout the day by security. Roving patrols have authority to stop and ticket individuals without seat belts. No seat belt tickets were issued in 2004 and no government employees were involved in motor vehicle accidents while on the facility or while on government business. A mechanism is not in place to track the percentage of seat belt usage by employees at this time.

The WFF Safety Office conducts safety training needs assessments and provides the man-power in coordinating, scheduling, and disseminating safety training information throughout the facility. Information about upcoming courses is distributed throughout the facility. Information is also provided to all personnel through a web based course listing. WFF typically sponsors 12 to 15 NSTC safety training courses each year with average attendance of 15 to 20 Federal and contractor personnel. All courses are free. Many of the NSTC courses provide college equivalency credits. Courses offered at WFF in 2004 included:

Hand and Power Tool Safety
Lockout/Tagout
Basic First Aid
Adult CPR
Electrical Safety
Fire Protection Theory & Practice
Confined Space Training
Forklift Safety Refresher
Scaffold Safety
Fall Protection
Materials Handling
High Pressure System Safety
Flex Hose Safety

The WFF Safety Office also provides training to various groups as needed. In 2004, the Safety Office conducted training in Office Ergonomics, Hazard Awareness, Hazard Communication, and Hazard and Close Call Reporting.

The WFF Safety Office maintains a video library with safety presentations that incorporate Power Point presentations, videos, testing materials, and course evaluation materials. Safety materials and videos are available for use by both civil servant and contractor organizations. A listing of library materials is available on the WFF Safety Office website.

As part of NASA and the Goddard Space Flight Center, WFF receives its over-all Safety and Health policy from these organizations. Within that policy and direction WFF bases its safety program on the following four primary principles:

1.) Management commitment and employee involvement
2.) Systems and worksite hazards analysis
3.) Hazard prevention and control
4.) Safety and health training

Safe operations in all activities are a condition of any individual's opportunity to work on and for the Wallops Flight Facility. No activity is so important that it cannot be performed in a safe manner. Employees advise management about inherently unsafe work without fear of retaliation or intimidation. Management works with employees to ensure they have the proper training and equipment to perform work in a safe manner.

To assure safety and mission success, every project, program, or operation, regardless of size, employs a risk management process. All projects or similar activities implement a Risk Management Plan to address all potential risks to people, property, the environment and mission assurance, in addition to budget and schedule risks. Projects may only proceed after approval of the Risk Management Plan.

In January 2004, a VPP Baseline Survey was completed at WFF by a third party. During the process the consultants reviewed records and conducted interviews with supervisors and employees. The intent of the survey was to identify strengths and weaknesses within the Safety Program. Data from the survey was used to prioritize efforts to improve the WFF Safety Program.
The findings from the assessment were used to spearhead several initiatives, such as articulation of the safety goals and objectives, Wallops Employee Safety Committee (EmSC) charter revision, and the implementation of a database for tracking and trending hazards.

In 2004 a new Safety Award was created by WFF which provides annual recognition for one individual and one group for outstanding safety achievement. The new award is in addition to the time-off award and Quality and Safety Achievement Recognition (QASAR) award. Time-Off Awards are awards of paid time-off without charge to leave and is primarily intended to recognize employee(s) contributions of a one-time, non recurring nature. Time-Off Awards can be used alone or in conjunction with monetary awards (Job Performance or Special Act). The QASAR Award recognizes NASA or other Government, and prime/subcontractor individuals for significant quality improvements to products

or services for NASA, as well as safety initiatives within products, programs, processes, and management activities.

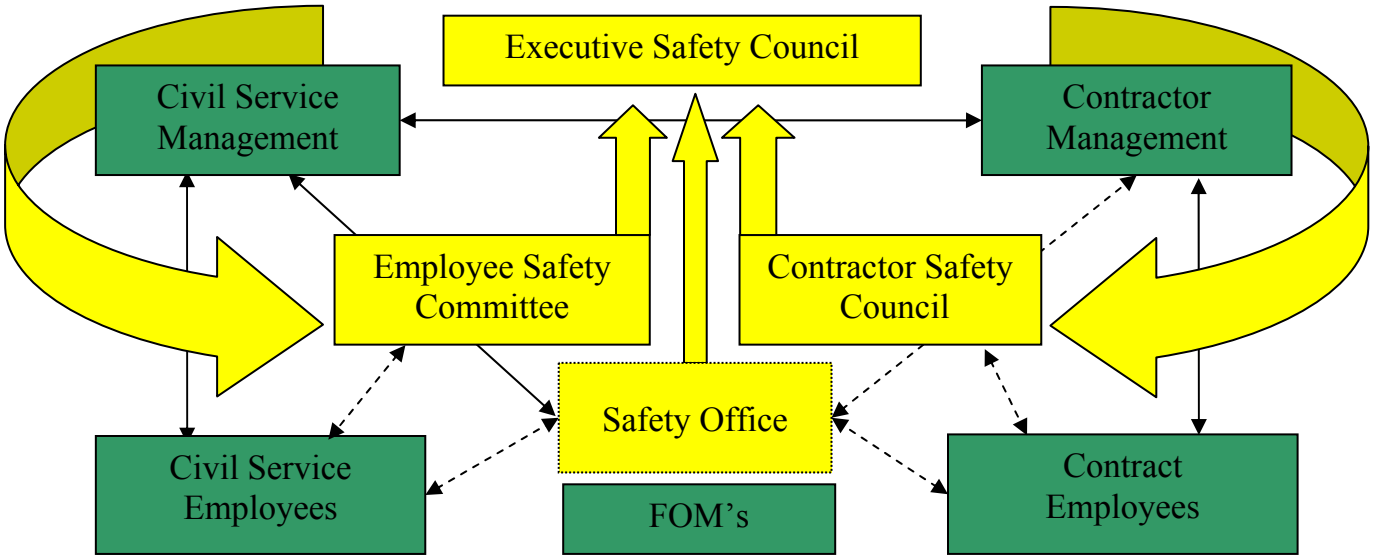
The Wallops EmSC revised its charter to provide for member accountability, empowerment, and to ensure adequate representation of civil servant workforce. The focus of the committee is to increase employee involvement in safety and provide employees with the opportunity to actively participate in the safety program. The committee has worked several issues to improve safety and safety awareness at WFF. The committee also provides a mechanism for improving communication between employees and management. A member of the EmSC attends the Executive Safety Council meetings and provides a standing report of activities and concerns posed by the employee representatives.

The Executive Safety Council (ExSC) consists of senior management members along with representatives from various organizational groups such as the Employee Safety Committee, Contractor Safety Council, and the Safety Office. The ExSC has taken an active leadership roll in implementing safety initiatives and responding to the needs of workers. The ExSC developed and published the GSFC and WFF Safety Goals and Objectives which are now incorporated in WFF's Work Center Safety Guide.

The WFF Contractors Safety Council (WCSC) revised its charter to provide more structure for conducting council meetings. WCSC is active in identifying issues that will impact multiple contractors and provides a forum for sharing information and raising issues for joint resolution or elevation to the ExSC level.

The WFF safety structure is designed to support their goal. The Executive Safety Council, which is chaired by the WFF Chief Administrator and supported by WFF civil servant and contractor senior managers, meets monthly to address safety and health matters at the senior management level and to direct resources as necessary to maintain a safe and healthful workplace. Meeting minutes are electronically posted and available for employee review. The Executive Safety Council works in concert with the Employee Safety Committee and the Contractor Safety Council to ensure that all safety concerns are given high priority consideration. See the flow diagram on the next page for specific interaction of the groups.

WFF Safety Structure



The Employee Safety Committee represents all civil servants and Wallops Employee Morale Association and Visitor Center employees. The Committee meets monthly to monitor employee safety and health issues, analyze safety data, foster safety awareness, and report improvements or needs to the Executive Safety Council. Minutes of the Committee are electronically posted.

The Contractor Safety Council members are the safety points of contact for all Wallops contract employees. They meet monthly to discuss safety and health matters of mutual interest and exchange ideas for improving the contractor safety programs. Progress, concerns, and issues are reported to the Executive Safety Council. Minutes of the Council are electronically posted.

The WFF Safety Office helps to identify hazards associated with WFF projects and produces safety plans to eliminate or control those hazards. The Safety Office conducts an annual assessment of WFF workplaces to identify safety and health deficiencies and areas for improvement. The Fire Department conducts fire-safety inspections of our buildings, and the Safety Office encourages and supports workplace inspections by supervisors and facility operations managers (FOM). Finally, the Safety Office provides training in safety and health, and works with supervisors to assist them in fulfilling their safety obligations. Everyone at WFF is expected to work safely and to report unsafe conditions and actions to their supervisor, and to assist in the correction of those situations. Supervisors and FOM initiate actions to correct safety problems. The Safety Office, Employee Safety Committee representative, and the members of the Contractor Safety Council and Executive Safety Council are ready and willing to assist with any safety issue that cannot be resolved at the work Center-level.

To measure how well WFF is meeting its safety objectives, we use criteria of the Department of Labor's Voluntary Protection Program. Progress in meeting

objectives are assessed periodically, and the results reported to individuals through training, employee safety representatives, and/or through staff or all-hands meetings.

WFF believes that no mission is so important that we can risk harming our people or the public. In the spirit of the Goddard Space Flight Center's Safety Policy, WFF's commitment to the employee is to create a safe and healthful working environment.

The Occupational Safety Office has set objectives and goals for 2005. The primary objective encompasses implementation of the VPP elements which includes full implementation of 29 CFR 1960 requirements. Other objectives that fall under the VPP umbrella include increasing worker participation in safety, creating a safer work environment through formalized job hazard analysis, hazard identification, evaluation, hazard control or elimination, and increasing employee awareness of safety and safe work practices.

The objectives set forth for 2005 will assist WFF in obtaining the goals for this coming year. The objectives for 2005 are as follows:

- Involve employees, supervisors, and safety committees in the preparation or revision of Job Hazard Analyses for worker activities
- Roll out the Work Center Safety Guide to Managers and Supervisors and provide training on use and benefits.
- Continue to track to closure identified hazards and identify potential trends.
- Train supervisors or designated representatives on the use of the new Incident Reporting Information System (IRIS) and input initial data and corrective actions into the system for reporting, tracking and trending of incident data.
- Conduct 2005 Safety and Health Performance Evaluation Profile for the annual self evaluation process.

Langley Research Center (LaRC)

No fatalities or lost time injuries or illnesses occurred during FY 2004 at LaRC.

The effectiveness of LaRC's safety and occupational health programs is tracked through trend analysis, to identify adverse trends requiring implementation of corrective action. The results of these analyses are reviewed by the Safety and Mission Assurance Office (SMAO) management at monthly business reviews. During these reviews, the data is compared to the goals contained in the SMAO 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 Council meetings. The metrics are updated monthly and are available to all Center employees on the Safety and Facility Assurance website.

LaRC experienced no vehicle accidents during FY 2004.

There is no data for FY 2004 on seat belt usage at LaRC. The Security Management and Safeguards Team began performing monthly seat belt surveys in January 2005 and provide the Safety and Facility Assurance Branch (SFAB) with the monthly surveys. The LaRC developed LAPD 1700.7, "Traffic Management," which addresses motor vehicle safety and seat belt usage.

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.

Training is provided to all employees through regularly scheduled safety meetings, and attendance at Langley provided or sponsored safety training. The Safety and Facility Assurance Branch sponsored the following training during FY 2004:

- Confined Space Awareness
- Personal Protective Equipment
- Ergonomics
- Material Safety Data Sheets
- Office Safety
- Hand Tool Safety
- Back Safety
- Lockout/Tagout
- Ladder Safety
- Ergonomic Evaluator Training
- High Pressure System Safety Course
- Hazardous Waste Operations and Emergency Response Training
- Facility System Safety

Additional safety awareness and training was provided to all Center employees on June 23, 2004, LaRC's Safety Stand Down Day. Training consisted of a presentation by the Center Director addressing mishaps, close calls, and preventive measures, safety meetings and facility housekeeping activities. Mr. James Weatherbee, former NASA astronaut, addressed Center employees on the topic of cultural changes.

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.

Examples of metrics that are analyzed include:

- Lost time accident frequency and severity rates
- OSHA recordable injury and illness rates
- Number of civil service first aid cases
- Audit findings
- Property and equipment damage

- Fire department response times.

Langley utilizes the NASA Incident Reporting Information System, which has the capability to automatically perform some trend analysis on accident data. Other trend analysis is done through the use of computer spreadsheets and, in some cases, manually.

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 SFAB, 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 SFAB received 125 NASA Langley Form 164’s, during this evaluation period, with all of the concerns reviewed and corrective action implemented.

Requirements for handling employee 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 considered 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 SMAO 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 for working safely and reporting 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 actually work in their assigned facilities on a daily basis, are very familiar with all aspects of the facility and its operation, and are responsible for continual identification and abatement of hazards in their facility. As a safety incentive, quarterly and annual awards are given to Facility Safety Head and an annual award is given to a Facility Coordinator. These awards are given to individuals nominated by their facilities and selected by the SFAB 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. The following are LaRC's annual Occupational Safety and Health (OSH) plans, goals and objectives, and significant OSH initiatives planned and programmed for the coming year(s):

Goals:

- Zero mishaps in the workplace
- Safety and Health will become an indispensable partner with all Langley organizations in providing a safe and healthful work environment
- Assure the safety, environmental compatibility, reliability, maintainability and quality assurance for all facilities, operations, functions, and products of LaRC

Objectives - 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

Stennis Space Center (SSC)

SSC enhances seat belt awareness with frequent informational bulletins. To assess these efforts, seat belt surveys are conducted. (See below for results of last survey.) SSC conducts a site wide deer awareness campaign, an effort that focuses on reducing the number of deer-vehicle crashes that are experienced during the months of November through March at Stennis Space Center. Site wide awareness bulletins and special deer decoys are used to heighten awareness of increased deer movement near roadways.

Additionally, an annual vehicle safety awareness campaign is held to heighten awareness of traffic/motor vehicle safety. This campaign focuses on school bus safety and general transportation safety.

Monthly safety and health training schedules have been developed and posted on the SSC Safety and Mission Assurance (S&MA) web page two months in advance. All special skills/process training and certification data has been expeditiously entered into the SSC Training & Certification Record System II (TCRS II). In FY04, 237 training sessions were conducted.

Due to the success of previous Employee Safety Participation (ESP) classes that were held in 2002 and 2003, the SSC Facility Operating Contractor developed ESP III training in FY04. Many of the previous ESP Facilitators and 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 their coworkers, incorporate safety in their 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 encourages their transfer back to the workplace. The ESP Facilitators completed the course preparations and training of all employees during FY04.

During FY04, SSC continued the transition from the Training & Certification Record System (TCRS) to TCRS II - the modified NASA Ames Research Center training and certification database. This involved attending weekly meetings, establishing training/certification questionnaires to be used in the new database to establish training requirements, cleaning up existing course lists, and identifying other needs for the new database. Guidelines were developed to direct the training and certification processes required for employees involved in performing both process skill and hazardous operations. In July 2004, a tremendous amount of effort was expended on transitioning to the newly-introduced TCRS II system and validating all certification data.

Improvements have been made in SSC's overall scaffolding program. Extensive two-day training was provided for competent persons. Scaffold users were trained and certified in specific requirements. Issues with multiple-users on scaffolds built at SSC are being addressed with the NASA Safety Office.

OSHA 30-hour Outreach Training Program on Construction Standards was provided for NASA/SSC personnel during FY04.

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

SSC continues its site program to assure that the "Federal City", comprised by approximately 30 resident tenant agencies is adequately protected. The Resident Agency Safety Program Audit Program is a 29 CFR 1960-based staff assistance audit program, and has been in existence since 1990.

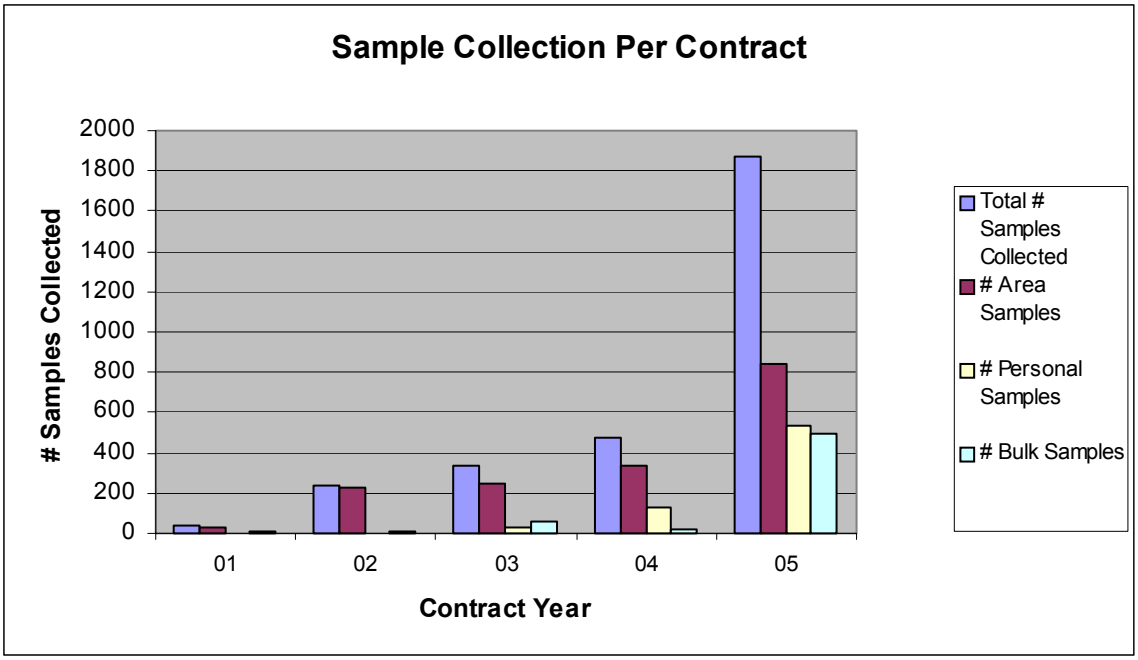
SSC employees from various areas of our workforce served on the SSC Employee Safety Council (STARS). This council provides a forum for employee-based involvement in the continual improvement of safety and health issues at SSC.

A teaming arrangement between SSC Office of Safety Assurance and SSC Office of Procurement is in place to assess the state of contractor surveillance. SSC support contracts are evaluated to insure that technical monitors are cognizant of contract requirements, deliverables, and performance related data.

A top-management Safety Program Review Committee (SPRC) continued to meet in FY04 review critical safety and health concerns and issues. This committee reviews trends and serves as a safety advocate at the top-management line function of the organization. This Committee provides for visible management leadership to promote a safer and healthier workplace for all our employees. This committee is also responsible for effectively allocating resources to address safety and health considerations. This committee meets weekly and demonstrates commitment by management involvement and participation in all aspects of the safety and health program.

SSC Industrial Hygiene began modifying the hearing conservation program to improve the overall program. The efforts to improve the hearing conservation program include eliminating employees from the training and audiometric testing program that should not be in the program, ensuring that employees exposed to hazardous noise are included in the hearing conservation program, conducting additional sound level surveys of areas indicated as generating hazardous noise, and conducting additional personal noise dosimetry on employees.

The chart below shows the number of various samples industrial hygiene samples collected during the contract year for each year since the beginning of the contract. In the chart, the data has been divided into four categories. The first category, identified as area samples, includes all samples collected for the Routine Asbestos Monitoring Program (RAMP), the asbestos perimeter monitoring for asbestos work, and various other area samples collected. The second category identified in the chart as personal samples includes all samples collected to ascertain employee exposures to various chemicals and physical agents while performing various projects. These samples are used to determine appropriate personal protective equipment and work practices. The third category identified as bulk samples includes all samples collected from material to determine if it contains asbestos, lead, fungi, etc. The fourth and final category, entitled total samples, is a sum of the three previous categories. The chart shows continuous improvement throughout the contract, and exponential improvement for FY04

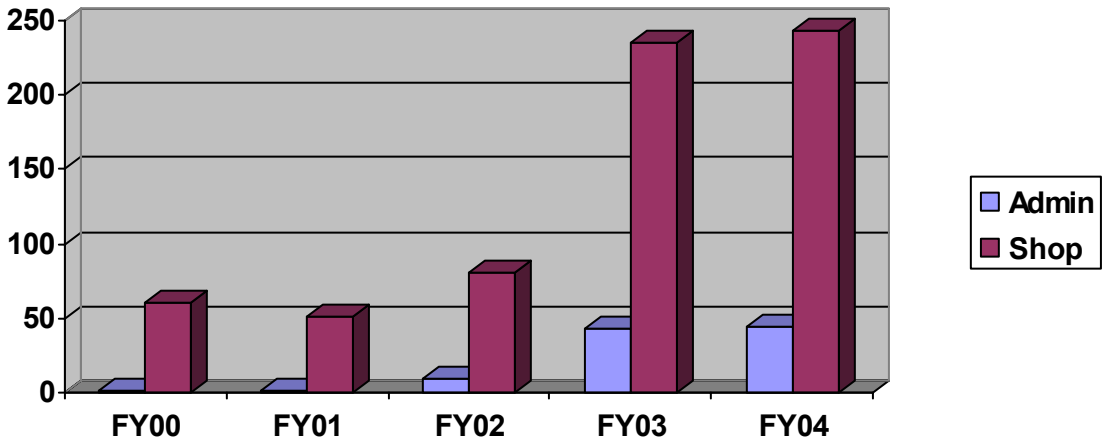


Annual facilities safety inspections were completed for FY04 (with 100% facility coverage). MaxSafe, a sub-database system that was developed through spell out (MAXIMO) dedicated to the documentation, tracking and correction of all safety inspection report discrepancies, was used. MAXIMO is currently being utilized to input information regarding Work Order Numbers, Minor Maintenance Orders, or Stennis Work Requests.

Benefits have been seen during this year from the ability to link each discrepancy to the hazard abatement Work Order. A variety of users can then check to see if the required work has been completed, when it was completed, how long it took to complete, and the costs associated with discrepancy correction. Abatement plans were tracked for items not corrected within the required timeframe using the assignment of Minor Maintenance Order (MMO)/Minor Service Order (MSO) numbers for all discrepancies. Improvements on the inspection reports have included using a facility safety checklist and documenting hazards with pictures. Extensive work has been done during FY04 to transition hazard identification to the SSC Facility Managers web page.

During FY04, the SSC construction site safety inspection program showed marked improvement with inspections being performed in an expeditious, high quality manner. Information received at scheduled weekly interchange meetings has proved valuable in establishing a weekly construction site safety inspection schedule. A daily log sheet of construction site visits which documents all visit information, hazards, discrepancy type, Risk Assessment Codes (RAC) and associated pictures of hazards for various contractors' construction activities have been developed. Also, a weekly status report of visits conducted, by contractor name and location, is being generated. During FY03, 1,391 construction site inspections were conducted. During FY04, 1,680 construction site inspections were conducted. 828 construction sites inspections are required each contract year.

A continual improvement has been experienced in the number of internal audits and inspections being performed since contract inception. The Facility Operating Support Contractor (FOS) Safety & Industrial Hygiene Services continued to have formal assignments of Safety Engineers and Industrial Hygienists to each shop/field and administrative area. Each Safety Engineer/IH is responsible for conducting safety awareness activities, inspections, investigations and Job Hazard Analyses (JHA) in their respective shops. This has enhanced safety integration in day-to-day shop activities. These joint inspections have already shown benefits and will continue to ensure that all regulatory areas of expertise are covered. Frequency of formal shop/area inspections were increased from quarterly to monthly. Weekly walk-through inspections are now being conducted in each shop/field area. Semi-annual inspections of the shop and administrative areas are being conducted. These initiatives have fostered improved employee attitudes towards safety and have increased employee involvement in the overall safety and health program. Any hazards identified are discussed with employees and supervision. In addition, improvements in formal inspection reports have been made. Report formats include a complete description (with pictures) of hazards identified. All discrepancies are assigned a Risk Assessment Code (RAC). Facility hazards have been documented in the MAXIMO safety inspection database, where a work order number is assigned to abate the hazard, according to RAC code priority. Occupant hazards have been documented in the Occupant Hazard Database which has been developed to identify and track safety/health hazards that are to be mitigated/corrected by building occupants. This initiative is providing information on improvement being made in our hazard mitigation program. Extensive work has been done during FY04 to transition hazard identification to the SSC Facility Managers web page. New input screens have been developed to enter facility safety discrepancies for consolidation in each facility discrepancy status report. This initiative is providing information on improvement being made in our hazard mitigation program.



In FY04, the formal Job Hazard Assessment (JHA) program continued. A procedure has been established for the uniform assessment of jobs to identify the serious hazards associated with jobs, related tasks, and/or sub-tasks and the

identification of proper controls (such as PPE, etc.) to safely conduct jobs, tasks, and sub-tasks. JHA development will be an ongoing process into FY05.

In FY04, SSC began a process of refining the personal protective equipment program. This improvement of the personal protective equipment program is a two-phase effort. The first focus of the program has been to implement hazard analysis during the design-planning step of projects. The second focus for the personal protective equipment program has been on the in-shop job hazard analysis program. This program has been designed to identify hazardous steps in process, and provide controls to either mitigate or eliminate the hazard. The initial implementation of this refined shop job hazard assessment program is currently 95% complete. The goal of this program is to provide continuous review of the hazards and become refined to the point that all hazardous tasks have had job hazard analysis with controls identified on all work orders.

In FY04, Facility Operating Support (FOS) contractor S&MA continued the SOAP, "Shop/Office Achievement & Performance" safety recognition award program, designed to recognize outstanding safety achievement & performance per the following criteria: involvement in resolving safety-related issues, such as employee safety concerns; monthly safety meetings; monthly/quarterly/semi-annual shop/office area inspections showing improvement and correction of occupant issues; good housekeeping; current training/certification records; safety/health advocates; and initiation and follow-up of corrective actions to abate hazards/problems identified on NASA Mishap Reports. The shop or office selected received a specially designed display board for their area, a pizza party for their crew, and traveling trophy that remained in their area for the quarter period following receipt.

The ninth annual SSC Safety Day was held on 08 October 2003. All normal work activity was suspended during the four-hour stand-down, designed to focus our workforce's attention on the importance of safety. The attractions included a safety and health fair, many vendors, exhibits, awards, and other prizes.

To prepare for the future plans to initiate a Voluntary Protection Program (VPP) at Stennis Space Center, NASA/SSC FOS continued membership in the Voluntary Protection Programs Participants' Association. Many of our first steps to achieving a higher level of excellence in the overall SSC occupational safety and health program to ultimately obtain STAR Program status identified in our last OSHA Annual Report have been completed. The following initiatives are planned during FY05:

- Develop an initiative that mirrors VPP guidelines and submit VPP STAR status application process to Region IV OSHA Office.
- Develop a fourth-phase behavior-based (Employee Safety Participation or ESP) safety/health training program.
- Saturate employees, supervisors and managers with VPP information, including questions an on-site review team may ask, and ensure understanding of this program at all levels of the organization.

- Establish formal “ZAP” employee safety recognition program to replace all existing programs.

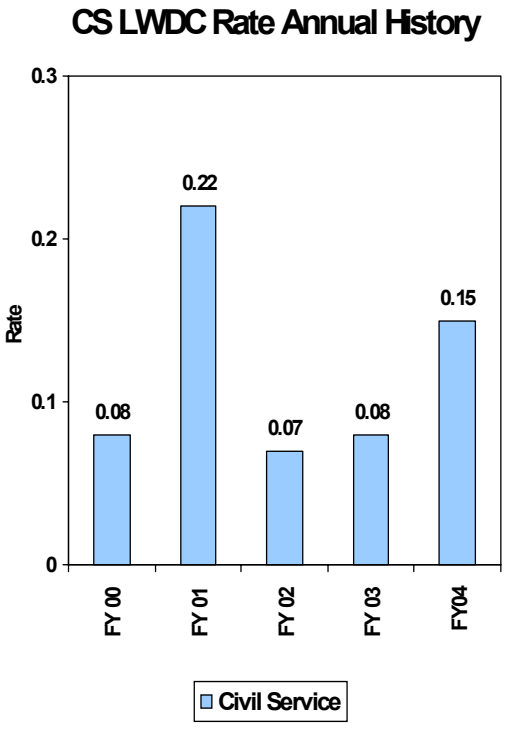
An initiative is planned for FY05 to enhance administrative inspection reporting process through the use of PDA’s, docking stations and other sources of technology.

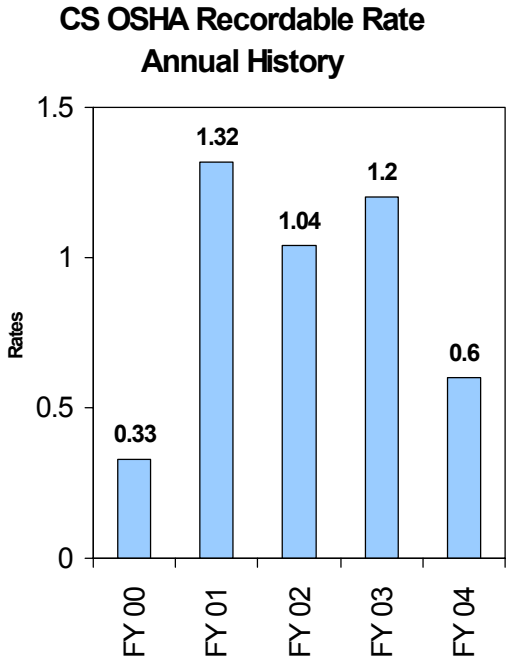
An initiative is planned for FY05 to enhance site-wide inventory of all confined spaces at SSC.

Johnson Space Center (JSC)

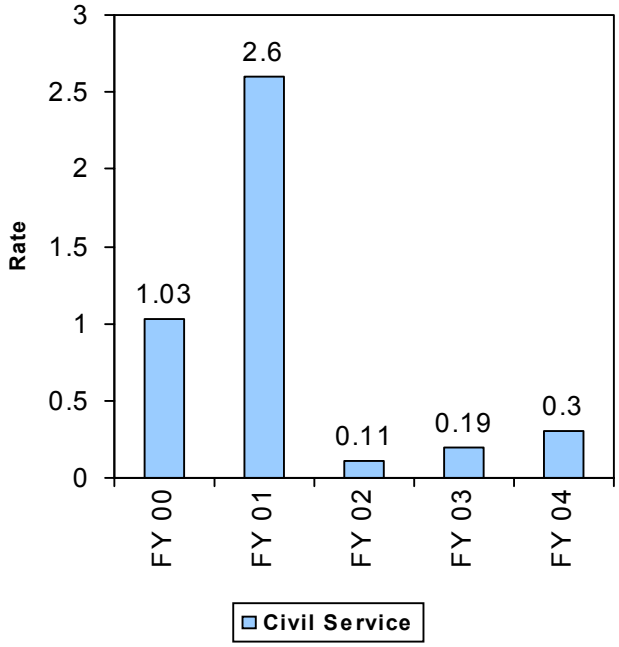
In FY 2004, the JSC Team (Civil Servants and Contractor employees) continued to be in full commitment to the OSHA VPP Star Program. At the beginning of each FY, the FY proposed goal of JSC’ injury/illness rate reduction is discussed in the Executive Safety Committee meeting. The yearly proposed injury/illness rates are a 10% reduction of the previous FY actual rates.

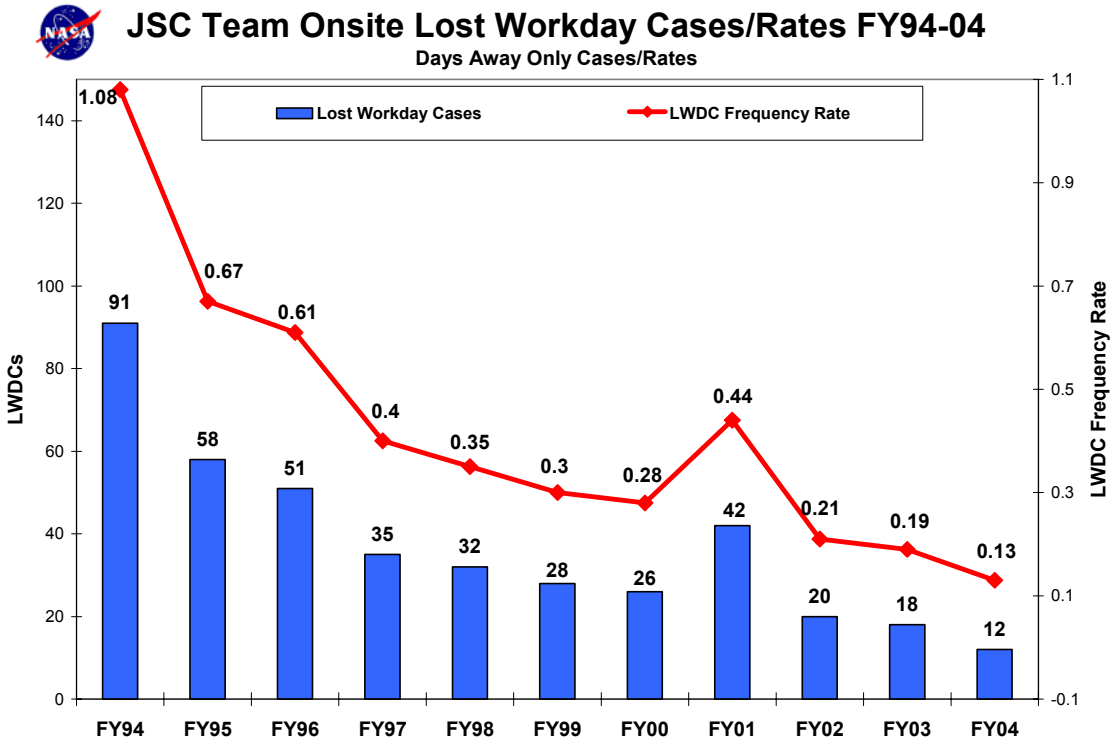
Contained in the charts below is a detailed description at how JSC is meeting the President’s SHARE Initiative. While the Civil Service rates for Lost Time, OSHA Recordable and Severity are currently not showing positive trends in all categories, the overall JSC Team (Civil Service and Contractor) has shown positive trends (decreasing) for the last 10 years.

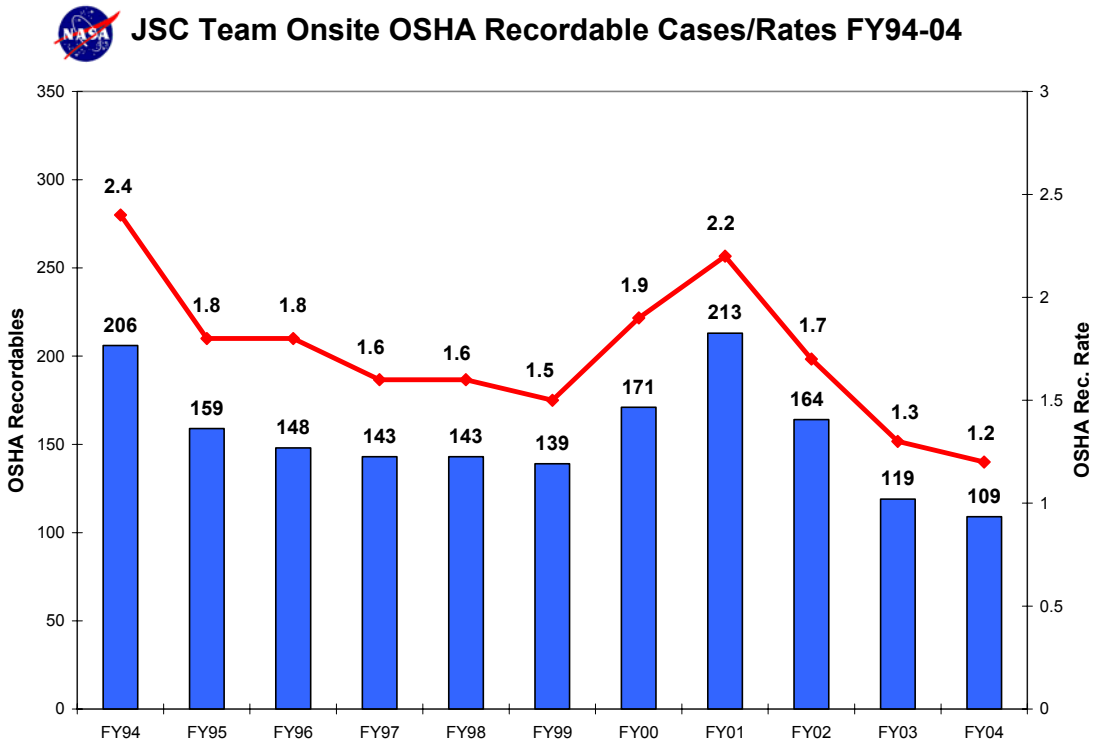


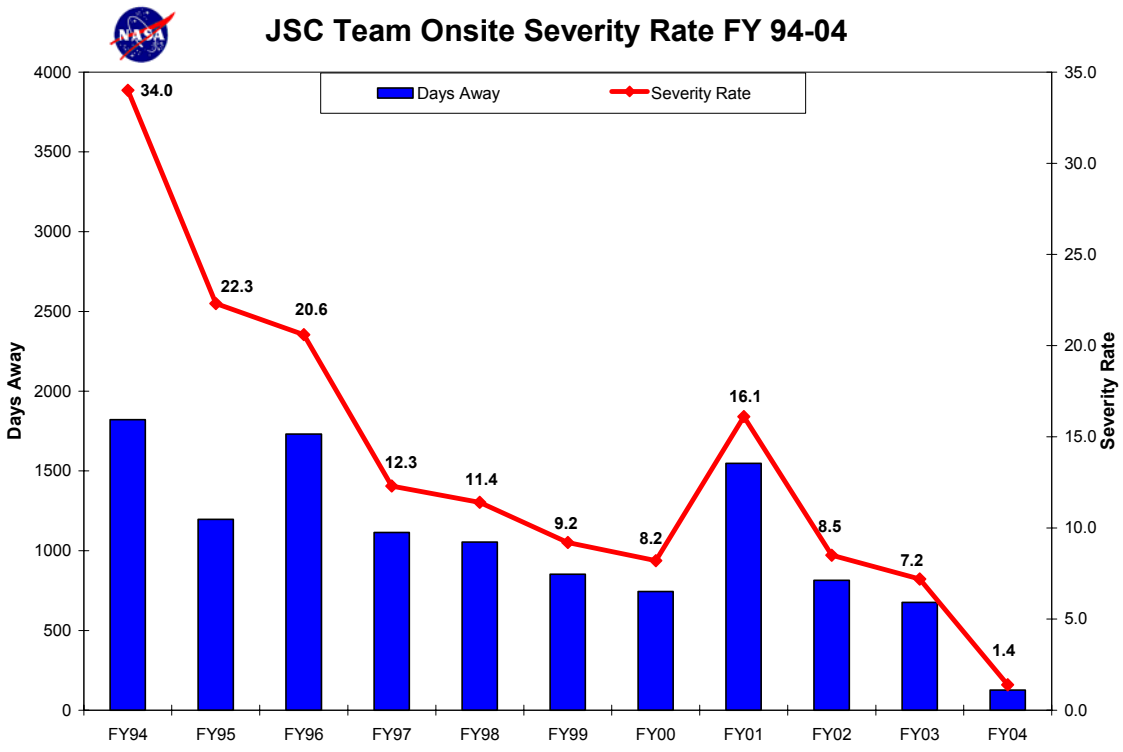


CS Severity Rate Annual History









A key advocate program/initiative at JSC that has contributed to the overall reduction in the injury/illness rate is the “Clinic First” JSC Occupational Injury/Illness Case Management Program. The JSC “Clinic First” policy requires all employees who experience an occupational injury or illness report to the

"clinic first" for prompt medical attention. The trip to the clinic initiates the entire mishap and Case Management process to ensure appropriate medical attention, proper follow-up and successful return to work for any injured or ill JSC employee. Timely filing of notices of injury/illnesses is ensured by JSC's Clinic First Program and compliance with mishap reporting requirements.

JSC Injury/Illness Case Manager:

- Assess employee needs and assist in obtaining appropriate health care services.
- Notify supervisor and safety representatives of incident. Provide return-to-work information and status. Discuss any other needs such as workstation ergonomics, IH, evaluations.
- Assess need and request workstation/area evaluations for ergonomic, environmental, or indoor air quality issues.
- Notify, collaborate, and follow-up with appropriate departments such as Occupational Health Services (IH, Ergonomic), Safety, JSC and Contractor HR departments.
- Accompany the evaluators during worksite evaluations as needed. Review all evaluations; provide employee feedback and assistance in accessing health care services as needed.
- Contact employees within 2-3 days after clinic visit to assess status. Ensure employees return to clinic for follow-up as directed by JSC physician
- Communicate and provide assistance to Contractor HR/WC administrators for outside physician/specialist referrals. Provide injury information to W/C to facilitate case. Offer assistance in obtaining physician appointments, reserve parking, etc. Communicate with employee and W/C administrator during process so they are informed. Act as a medical POC for any concerns/questions.
- Provide mentoring of Worker's Compensation process to smaller Contractor/Subcontractors and assist with the coordination of services for employee.
- Ensure specialist referrals are made in timely manner if contractor W/C administrator schedules appointment. Follow-up with employee for status.
- Collaborate with larger Contractor's Case Manager or W/C administrator to quickly coordinate services and return to work.
- Collaborate and coordinate care and provide updates to JSC Occupational Medicine Clinic's W/C Specialist on all Civil Servant cases. Assist Civil Servant employee with scheduling physician appointments or other health care services, i.e. physical therapy. Communicate with physician's offices, employee, and supervisor's to facilitate any return to work issues.
- Assist Flight Medicine Clinic with astronaut injury/illness cases as needed.
- Review all emergency transport records. Make contact with employee as soon as possible for follow-up status and to offer assistance/guidance as appropriate.

Other factors that where identified to enhance educating the employees more in hazard identification and safe working habits (if it's not safe, STOP work)

included following the VPP requirements; for example, more constant communication that Safety is a priority (awareness), recognizing employees for working safely, more monitoring and asking for details, and having employee and supervisors involvement in safety activities. CM assisting supervisors in filing and filling out required forms, and giving them more time to visit with the employee for any additional (work related) assistance was also noted.

During FY 2004 the JSC Team experienced 40 motor vehicle accidents while on official government business. No reports on personnel not wearing their seat belt at the point of accident.

To date JSC does not have an established mechanism to track the percentage of seat belt usage by the JSC Team. But JSC security officers check every vehicle at all on-site points of entry. The security officers hand check the badges of all the vehicle occupants and at the same time check for seat belt usage. When an employee is not using the seat belt the security officers remind the employees of the JSC Vehicle Code and instruct them to wear their seat belt. Also, in FY 2004 during normal patrolling of the JSC site streets officers issued 15 seat belt violations. In an indirect way, during the JSC Safety and Total Health Day security officers, as a token of safety awareness, handed Life Saver candy to all employees who at point of entry were wearing their seat belt. A total of 10,000 candies were distributed. There was no report of any JSC Team member not wearing their seat belt.

Supervisors and managers are required to understand the hazards that affect their employees and to ensure that they are provided with adequate safety and health training to conduct their job. They observe processes, conduct job hazard analysis, develop training plans, discuss individual development plan (IDP) and work with the employee to ensure a safe and healthy work environment. JSC believes that appropriate safety training for all employees, including supervision, is necessary to provide the knowledge and skills to work safely.

JSC provides supervisors and managers with training classes that discuss their responsibilities for safety and health, including understanding the potential hazards in their work area, understanding the potential effects of these hazards on employees, and ensuring employees follow specific safety procedures. All civil service managers and supervisors are required to attend the DuPont Safety for Managers Course; in this current year a total of 81 participants attended this training course. As with employees, all on-site management (both civil servants and contractors), are required to take the Hazard Communication and Awareness Level Emergency Response class or computer base training (CBT) annually. Supervisors and managers participate in a fire evacuation drill once a year and competent personnel train those that must use personal protective equipment (PPE) in required areas. At JSC, the facility manager acts as a supervisor for all outside work activities (maintenance/renovation) that are conducted in their building. The facility manager works with supervisors for in-house processes. Facility Managers receive Facility Manager's course with Fire Certification training. In this year, a total of 28 facility managers were trained.

There are additional training classes available to all employees, managers and supervisors on specific safety and health subjects.

In addition to the classroom training, managers and supervisors, just like employees (civil servants and contractors), receive a wealth of safety and health information from their organizations, at meetings, through campaigns, conferences, during Safety and Total Health Day and the Personal Safety Fairs at both JSC and the Sonny Carter Training Facility (SCTF).

Based on our evaluation, we feel managers and supervisors adequately understand the hazards and risks of their areas. There are many safety and health training classes available to them including all OSHA, NASA, and JSC required classes. The classes provided are reviewed and updated when necessary.

Employees at JSC have many training opportunities. Onsite, we have the JSC Safety Learning Center (SLC), which holds classes of its own as well as NASA Safety Training Center (NSTC) classes, and we also have classes offered by the Occupational Health Office. Some of the classes offered are Computer and Occupational Ergonomics and Back Safety, Bloodborne Pathogens, Personal Protective Equipment, Hazard Communication and Awareness Level Emergency Response, Confined Space, Lead Awareness, Hearing Conservation, American Heart CPR certification, System Safety, Lockout Tagout, and Asbestos Class III operations and maintenance. The Hazard Communication and Awareness Level Emergency Response class is required for all on-site employees annually. Employees who have experienced a reportable threshold shift in their audiograms are given one-on-one training updates. The table below summarizes these classes.

Course Name	Employees Trained in Computer Base Training (CBT)	Employees Trained in Classroom Training
DuPont Safety for Managers Course		81
Facility Manager's course with Fire Certification training		28
Computer and Occupational Ergonomics and Back Safety	897	666
Bloodborne Pathogens	774	210
Personal Protective Equipment		353
Hazard Communication and	4,408	576

Course Name	Employees Trained in Computer Base Training (CBT)	Employees Trained in Classroom Training
Awareness Level Emergency Response		
Confined Space		405
Lead Awareness		11
Hearing Conservation		484
CPR		435
AED		409
Asbestos Class III operations and maintenance		381
Asbestos Class IV custodial workers		57

In 2004 specifically, the SLC has offered 279 classes for 3,082 employees and the NSTC has offered 301 classes for 68,685 employees. The SLC scheduled and delivered 25 additional classes during the year. The NSTC adopted/adapted seven courses (HAZWOPR, Incident Commander Refresher, Electrostatic Discharge, Lift Manager, Cleanroom Protocol, Particle Counting, Engineering Ethics, and Hazardous Locations), and delivered three video teleconferencing system courses (Electrostatic Discharge for 152 employees, Cleanroom Protocol for 58 employees, and Particle Counting for 53 employees). As a result of a mishap investigation, two boards at JSC received the NSTC Mishap Investigation Orientation and Root Cause Analysis Overview training, and assisted a GSFC and the Genesis Mishap Investigation Board (MIB).

In addition to the formalized training offered at JSC, employees receive training through their organizations, at meetings, on the job, from outside organizations, through campaigns, and during Safety & Total Health Day (STHD) as well as the Personal Safety Fair. The training topics range from general site safety and health information to job specific training to home safety and health information. All contract employers must ensure that each contract employee is trained in the work practices necessary to safely perform their job. All training materials specific to JSC are provided by JSC.

The training offered to JSC employees is excellent. JSC believes that safety and health training is an integral part of the total work environment. All OSHA, NASA, and JSC job-specific required safety and health training is available. Training requirements are updated as needed to reflect changing regulations or process improvements. JSC continues to develop and provide new classes, as well as update existing ones when needed.

When visitors check in at our badging office, they are given a pamphlet and badge card that contains safety, security, and emergency procedure information.

They are also instructed to watch a short orientation video that explains what to do in an emergency. Visitors to the Center are escorted at all times by a JSC employee. Therefore, their escorts can instruct them on building or area specific requirements. In addition all construction workers attend a separate safety orientation meeting prior to being badged to enter the Center. The orientations are held daily.

Several facilities at JSC, Ellington Field (EF) and the SCTF have special badging requirements for employees. Employees that do not have adequate training must be escorted at all times by an appropriately badged escort. Visiting employees that require unescorted access must complete a separate safety orientation.

Employees are trained to report all emergencies to the Fire and Security Dispatch center by dialing the designated emergency number (33333 at the main site and the Sonny Carter Training Facility; 44444 for NASA facilities at Ellington Field; 911 for home emergencies). Exercises reinforcing emergency training were conducted in four emergency drills this year. The first was a security exercise between Buildings 45 and 46. First and functional emergency responders participated energetically and reinforced training skills. A confined space exercise verified a field expedient procedure for test pit extraction as well as updated response checklists. The third exercise was in support of Space Center Houston (SCH) and simulated an accident involving a pedestrian and a SCH tram. A medical rescue exercise conducted in an astronaut crew training facility confirmed internal response procedures were more than adequate but identified additional opportunities for improvement for the training team. The final field exercise this year simulated a suspected bioterrorist incident in the Mail Sorting Facility (MSF) in November. A review of the emergency exercise conducted immediately following termination of the field exercise identified opportunities to synchronize MSF internal response protocols with emergency response procedures. Additional training and communications improvements were also identified during the exercise.

Fire Protection Specialists coordinate with Facility Managers to conduct annual fire drills in each facility to ensure that employees, fire wardens and supervisors know and understand procedures to evacuate the facility safely and quickly, notify emergency responders, and account for all employees. Management maintains records of employee participation in fire drills. Supervisors provide supplemental fire drill training for employees who were absent.

Members of JSC's Emergency Response Team (ERT) are required to be certified at the HAZWOPER Incident Command (Level 5) of training. In addition, JSC conducts emergency exercises throughout the year. First responders and members of the ERT participated in five exercises this past year (a confined space rescue, a medical emergency exercise with Space Center Houston, a crew evacuation for medical emergency and two Weapons of Mass Destruction [WMD] security exercises).

JSC does an excellent job of training all employees in fire evacuation procedures and training members of its Emergency Response Team through exercises, drills, and classroom training. The team is prepared to handle any emergency at JSC and has contingency plans for requesting assistance from neighboring communities in the event of a catastrophic incident. Employees are trained for emergencies through our Hazard Communications class, fire drills, and organizational activities. Visitors receive safety and security information at the badging office, and receive specific safety and health procedures from their hosts, if necessary. Therefore, this element should be considered effective.

JSC always strives to eliminate hazards with engineering controls and other methods of hazard abatement. However, when these methods are not sufficient, the JSC PPE programs are available for employee protection. All employees who are required to wear PPE are initially trained in its use, care, inspection, and replacement, and then refreshed, if necessary. The Occupational Health Office offers three courses: PPE, Hearing Conservation, and Respirator Use. The training addresses the selection, care, storage, and use of these types of PPE. JSC maintains written PPE, Hearing Conservation, and Respiratory Protection Programs. Areas requiring PPE use are clearly marked. The need for PPE is addressed in Job Hazard Analyses (JHAs). The Occupational Health Office is available for consultation as to the need or proper selection of PPE. In order to aid in the analysis of PPE requirements, noise, ventilation, and exposure assessments are conducted by the Occupational Health Office. Respiratory physicals and annual fit testing and training are provided on-site for civil service and contractor respirator users. Employees falling into the Hearing Conservation Program receive annual training and audiograms. The JSC on-site audiologist provides one-on-one follow-up training with any employee who demonstrates a significant threshold shift during his/her annual audiogram.

The PPE program at JSC continues to be well maintained and as such, is highly effective. During 2004 the Hearing Conservation Program training was upgraded to require more individualized training of employees. A resident certified audiologist was added to the Occupational Health staff. This audiologist provides one-on-one training to any employee experiencing a significant threshold shift in his/her annual audiogram. One-on-one training continues to be provided to employees experiencing a non-reportable threshold shift by the Occupational Health training department. New audiology equipment has been added and existing sound booths improved.

During 2004 the Project Management Office began teaching a 30-minute *"Orientation to Safety and Health at Johnson Space Center"* course to all construction contractor employees. The employees were required to take this course prior to their receiving a JSC site access badge. The badge was then color coded with red stripes for easy recognition of employees who had completed the course. The course was designed to provide the employees an overview of the JSC policy on basic occupational safety and health and ensure their awareness of the broad JSC safety and health program.

Training Attribute Group (TAG) developed the minimum training requirements for the occupational safety and health training of construction contractor employees. The training requirements are in the new SpecsIntact Submaster Section 01410, *Contractor Safety and Health Program*, and they ensure construction workers will have an awareness of safety and occupational health issues not previously found in employees working construction projects at JSC. The TAG had representatives from project engineers, construction superintendents, construction safety, and occupational health. The required training includes:

- JSC 0.5-hour *Orientation to Safety and Health at Johnson Space Center* for all construction employees prior to issuance of site access badge. Taught by the JSC Project Management Office.

- 4.5-hour General *Safety, Health, and Hazard Recognition - "Basic Orientation Plus"* for all construction employees prior to issuance of site access badge. Taught at the Houston Area Safety Council (HASC). This general safety course is also required training for any construction worker who will be working at petrochemical production plants on the Houston Ship Channel and elsewhere in the local area.

- 1.5 hours *JSC Site Specific Safety and Health Awareness* for all construction employees prior to issuance of site access badge. Taught at the HASC. This 1.5-hour module will add to the HASC “Basic Orientation Plus” to provide a more thorough orientation to JSC safety and health programs.

- OSHA 10-hour 29 CFR 1926 Construction Industry Safety Training (craft specific) for all first line supervisors (i.e. foremen, crew chiefs) and employees designated as a "competent person."

- OSHA 30-hour 29 CFR 1926 Construction Industry Safety Training for all project managers, superintendents, supervisors and the contractor’s Safety and Health System Specialist (SHSS).

- JSC *Confined Space Training* for employees prior to entering a Confined Space and first line supervisor, project managers, superintendents, competent person, and the contractor’s SHSS.

- JSC *LO/TO Training* for exposed employees, first line supervisor, project managers, superintendents, competent person, and the contractor’s SHSS.

- JSC 6 hour *Asbestos Class III Operations and Maintenance (Restricted)* course if a construction employee will perform OSHA Class III asbestos work on JSC.

- OSHA Asbestos training as required by the *JSC Safety and Health Manual*, JPG 1700.1, Part 12, *Asbestos Control Requirements*, if

employees perform any OSHA Class I, Class II, or Class III asbestos work.

The Johnson Space Center (JSC) is in the process of arranging for the Houston Area Safety Council (HASC) to provide JSC site-specific occupational safety and health training for construction contractor employees. The arrangement is being sought to ensure that construction workers are fully trained and knowledgeable about safety and health issues in general, and some specific JSC policies and procedures in particular prior to coming onsite. Obtaining training at the HASC will eliminate delays caused by construction workers waiting for a JSC specific training to be taught and will eliminate special arrangements for last minute, unscheduled classes being taught by JSC Occupational Health and the Safety Learning Center personnel. The JSC Project Management, Occupational Health, and Occupational Safety functions provided input to the HASC on JSC policies and procedures for them to develop the following courses:

- A 1.5-hour *JSC Site Specific Safety and Health Awareness* training module as an addition to the 4.5-hour HASC "Basic Orientation Plus." This module will provide a thorough orientation to JSC safety and health programs and policies found in the *JSC Safety and Health Manual*, JPG 1700.1.

- A JSC site specific confined space training module to be taken by a construction worker who has previous documentation of confined space training. This module will provide information on OSHA-permit and JSC-permit confined spaces at JSC as well as information on JSC requirements for obtaining approved procedures and using a JSC-specific entry permit form.

- A JSC site specific Class III Operations and Maintenance (Restricted) training module to be taken by a construction worker who will be performing OSHA Class III asbestos wok on JSC. This training will be taken by a worker who already has documentation showing they have either 16-hour Asbestos Operations and Maintenance training, 32-hour Asbestos worker training, or 40-hour Asbestos Supervisor training. This module will provide information on JSC specific requirements and procedures found in the *JSC Safety and Health Manual*, JPG 1700.1, Part 12, *Asbestos Control Requirements*.

The Clean Up Safety Specifications (CUSS) group wrote a new SpecsIntact Submaster Section 01410, *Contractor Safety and Health Program*, for construction activities. The new specification revises and updates previous safety and health wording scattered throughout several specification sections and placed all requirements into one section. The new specification makes it easier for construction contractors to meet JSC safety and health requirements and clearly outlines safety and health plan criteria, training requirements, and other aspects of construction work. The CUSS group had representatives from project engineers, construction superintendents, construction safety, and occupational health.

The old JSC Asbestos Control Manual was revised and updated to reflect latest OSHA requirements. The revised document was published as Part 12, *Asbestos Control Requirements*, to the JSC Safety and Health Handbook, JPG 1700.1. Publishing this revision as part of the JPG 1700.1 will make it easier to revise in the future.

During calendar year 2004, over 420 ergonomic evaluations were performed in 59 buildings on all three JSC facilities (JSC, Ellington Field, and Sonny Carter Training Facility). Occupational Health Services performed these evaluations. There were additional evaluations performed by contractor-led ergonomic evaluation teams. Over 900 ergonomic self-assessments have been conducted online. Over 450 employees attended instructor-led ergonomic classes and more than 900 employees participated in computer-based ergonomic (CBT) training. In addition, information on back safety was distributed at the JSC Safety and Total Health Day and at the Sonny Carter Training Facility Summer Safety and Health Fair. As a result of these operations OSHA reportable cases for ergonomic issues have dropped from the 3rd highest category in 2003 to the 8th category in 2004.

For the 9th annual Safety & Total Health Day, JSC management changed the format to a full day, starting with an all-employee Town Hall meeting hosted by the Center Director. Numerous employees and supervisors applauded the full day format since it gave enough time for organizations to do both the "nuts and bolts" of safety and some interpersonal relationship building that motivates employees to be safer. The theme for the day was: Balance is the Key to Success. Employees liked the Center Director's acknowledgement of the increased pace of work and his emphasis on managing stress and workload but above all being safe.

In 2004, 9 of JSC's contractor workforce community earned the VPP Star. This brings the total number of active VPP Stars at JSC to 26 including JSC itself. The nine included our base operations contractor and two of their subcontractors; our Bioastronautics contractor both on and off site; our Health contactor and their major subcontractor and two of our Safety contractors. JSC continues to encourage all aspects of our workforce to investigate and pursue VPP.

Johnson Space Center (JSC) successfully conducted the first Lockout/Tagout (LOTO) Refresher training on the new requirements at JSC. This LOTO program was rolled out at JSC in 2003 and by the summer of 04 the DynCorp employees were already due for refresher training. The JSC Safety Learning Center trained 450 JSC employees and Contractors and DynCorp trained and retrained a total of 150 employees. This is a total of 600 employees trained or retrained in LOTO at JSC in 2004.

The LifeSaver" is an award to a NASA Johnson Space Center government or contractor employee in recognition of their significant lifesaving action or lifesaving attempt. Examples of eligible activities include layperson's use of an Automated External Defibrillator (AED), Cardiopulmonary Resuscitation,

drowning rescue, exceptional bravery, etc. While this award was intended primarily for lifesaving activities at JSC or off-site using JSC training or skills, all lifesaving actions have been considered. Nominations were accepted from fellow employees, supervisors or other interested parties. Medical response personnel whose primary duties involve lifesaving are not normally considered for this award. The JSC Safety Action Team (JSAT) sponsored this award.

The JSC Heat Alert Notification System consist of colored flags and poster boards for notifying outdoor workers and the JSC community of heat risk. JSC's Spaceflight Meteorology Group posts the heat index from May 1st through September 30th annually. The heat index is reported when the temperature is 80˚F or greater and is updated automatically every two minutes. The information is posted in the JSC internal web page under "Safety and Total Health" (What is Today's Heat Index?). The heat index uses the National Weather Service standard heat index color scheme. The process for updating the information on the poster boards and for posting the colored flags has been documented in the "JSC Heat Alert Notification System Process". When the heat index gets over 105˚F for two consecutive days, the National Weather Service issues a Heat Advisory. This advisory is broadcast via the JSC Emergency Notification System (JENS) and posted on the JSC internal web page.

JSC finalized the weather safety policy in the JSC Safety and Health Handbook, JPG 1700. A lightning safety policy and a group event policy were added. To implement these policies and processes, JSC has undergone a rigorous communication awareness campaign program as a way of providing weather data to employees for safe decision making.

JSC's group-events safety plan has been implemented due to several severe weather incidents that postponed or cancelled on-site events. The plan 1) requires the presence of responsible individuals, 2) provides weather-monitoring capability, 3) provides hazard communication plans and 4) identifies event termination plans.

During this reporting period the Johnson Space Center has instituted a computerized integrated continuous risk management system. The Integrated Risk Management Database Application (IRMA) system supports the risk management for the International Space Station, Space Shuttle and Institutional Programs. The system is used to document, track, manage and mitigate risks, watch items and concerns associated with all JSC programs. On a monthly basis top program/institutional risks are reviewed, accepted and/or acted upon by Center management.

Redefinition of the SCTF Performance Evaluation Profile (PEP) breakdown by applicable organizations resulted in excellent insight into the SCTF safety and health program. SCTF was able to get a true reflection of employee perception of the facility rather than to be included in the main JSC site, which is a totally different facility with a very similar safety and health program.

The JSC Office of Emergency Management (OEM) participated in the planning meeting and provided an employee personal preparedness briefing at Ellington Field. One member of the OEM staff also supported the tire pressure check sponsored by Center Operations at Building 417.

The OEM was invited to participate in the 4th annual safety day at the SCTF. The OEM booth provided brochures on thunderstorms, tornadoes and lightning safety. A separate brochure developed in 2003 to increase employee awareness of the Department of Homeland Security (DHS) and FEMA guidance to all citizens on how to be prepared for community emergencies was distributed to support the DHS designation of September as National Preparedness Month. The brochure encourages citizens to know the natural and man-made hazards that can happen, to develop a personal emergency plan for themselves and their loved ones and to build a personal emergency supply kit.

The OEM conducted a post incident review of the emergency response to a natural gas incident on February 24, 2004. An employee noticed a prominent odor while driving west on Avenue B and reported his concerns to Security Post 4 (Building 305). Fire Protection Specialists (FPS) responded and determined the odor was emanating from the natural gas metering station west of Building 322. Erosion at ground level of the incoming six-inch natural gas pipe caused the pipe to fail. The FPS established Incident Command and advised security to block traffic from the area in all directions. The Houston Fire Department (HFD) responded and DynCorp ordered all natural gas to the site shut off as a precaution. Industrial hygienists monitored air quality. There were no injuries in this incident and the Incident Commander did not recommend evacuations or shelter-in-place for employees. The security perimeter remained in place until the emergency was terminated after normal duty hours as a safety precaution. HFD contacted CenterPoint/Entex and requested a technician report to the scene. After a considerable delay due to poor communications between HFD and CenterPoint/Entex gas technicians arrived and repaired the pipe with a temporary seal. CenterPoint/Entex completed permanent repairs on the morning of February 25 and DynCorp initiated restoration of natural gas service to JSC facilities. Facility managers and employees were notified of the potential for natural gas odors caused by restoring natural gas flow to the Center and were reminded to call the JSC emergency number to report such odors.

The OEM conducted a review of the adequacy of emergency response to a cardiac incident at the Gilruth Recreation Center on Thursday, June 17, 2004. The consensus from the review participants was that the emergency response to the incident was consistent with procedures and expectations. The participants lauded the employee rescuer for his efforts to get help for his fallen teammate and friend. The OEM conducted a post incident review of the adequacy of response to a diesel spill involving a privately owned vehicle in the SCTF parking lot. Several improvement opportunities identified in the review were implemented immediately by affected first responders. As a direct result of this incident, the Occupational Safety Office issued JSC Safety Alert #04-011, “Unauthorized Hazardous Materials Onsite”, on August 27, 2004.

The OEM conducted a post-incident review of the emergency response to a report of smoke in Building 8 in September. Shortly before noon, a Building 8 employee called the JSC emergency number (33333) to report a strong smell of smoke in the building. Employees evacuated the building and first responders were dispatched to the facility. Responders were initially challenged by the considerable smoke coming from an elevator mechanical room on the second floor (2LE1). There were no flames but the second floor hallway was hazy with smoke. The JSC Emergency Response Team was notified by dispatch to respond to the Incident Command Post at the east loading dock of Building 8. FPS de-energized the elevator and opened a roof hatch in the ceiling of Room 2LE1 to ventilate the smoke. DynCorp and Kone Elevator Company technicians reported to the incident and tagged and locked out the elevator for repair. The cause of the heavy smoke was determined to be a burned electrical relay, which caused a transformer to burn up. Industrial Hygienists (IH) conducted air sampling throughout the building with no significant findings. Employees remained evacuated from the building until air sampling indicated normal conditions had been restored at approximately 13:30 PM.

The OEM was invited to participate in the annual US Coast Guard (USCG) hurricane exercise to review procedures and plans with industrial facilities located along the Houston Ship Channel. During the exercise, the USCG and City of Houston OEM representatives agreed to consider renewing the community partner memorandum of agreement.

When four hurricanes made landfall in Florida this year, JSC operational and emergency managers quickly identified JSC resources and skills that could be deployed to the Kennedy Space Center (KSC) when needed. JSC also shared information on JSC's employee Emergency Information Line procedure, which is a toll-free number hosted at Marshall Space Flight Center, in time for KSC to establish a similar system and response procedures of their own to provide timely and critical information to employees when that Center remained closed for eleven days for recovery operations.

The OEM supported the JSC Security Office in conducting an emergency response tabletop exercise simulating an explosives laden truck on the main JSC campus that is detonated between Buildings 45 and 46 causing mass casualties and severe damage to utilities in the tunnel between the two buildings. In addition to the many simulated fatalities, were numerous simulated injuries, considerable chaos and loss of utility services to most mall area buildings (electrical, water, e-mail and I/T support, etc.). The magnitude of the simulated disaster exceeded the Center's response capability and community fire, rescue and law enforcement assistance was requested. The report is currently in draft but the exercise identified several opportunities for improvement before being reenacted in a functional field exercise, possibly with community participation.

The OEM planned, coordinated and conducted an emergency exercise of the JSC Strategic National Stockpile (SNS) Receiving, Storing and Staging (RSS) Support Plan for Community Emergency in August 2004. The scenario postulated a health epidemic in the greater Houston/Galveston area as regional hospitals report an increase in emergency room visits but no large number in any

one hospital. As increasing numbers of citizens displaying similar symptoms are identified, the Texas Department of Health (TDH) Region VI recommends the Governor request the Strategic National Stockpile to be delivered within 8-12 hours. The JSC RSS Manager is notified of the need to activate the JSC RSS Security Plan for a possible delivery of the SNS within twelve hours. Improvement opportunities identified in the review will be documented in a forthcoming report. The Harris County Public Health and Environmental Services attended and participated in the exercise.

The OEM supported the Occupational Health Office in planning, coordinating and conducting a limited confined space emergency exercise in a test pit east of Building 356 on August 4, 2004. The exercise scenario was limited in scope but presented the challenge of an open pit where tripods weren't practical which forced the team to consider a field expedient solution. The primary objective of the exercise was to verify an improvised emergency rescue procedure from a confined space since the Houston Fire Department Technical Rescue Squad may not be able to respond in less than an hour due to distance from the Center. The alternate facility manager, Fire Protection Specialists and the exercise design team cooperated for a mutually beneficial purpose resulting in complete success. All participants demonstrated great concern for the safety of employees assigned to the simulated drill and first responders. The alternate facility manager was very supportive of and monitored the exercise.

The OEM and Space Center Houston (SCH) conducted a field emergency exercise simulating an accident involving a JSC pedestrian and the SCH tram on September 23, 2004, in the parking lot west of Building 220. The scenario was simulated as taking place on Second Street with the tram driving north approaching Building 17. The scenario postulated a pedestrian crossing the street (westbound) while talking on a cell phone, turning suddenly, reversing direction and stepping in front of the tram. The SCH tram driver slammed on the brakes, which caused passengers to be thrown about in the tram resulting in the simulation of several people falling from the cars, significant injuries and six people with cuts and bruises. The scenario is a worst-case simulation situation for SCH tram operators since they experience conflicts with moving vehicles and inattentive pedestrians almost daily. The exercise was terminated after roughly 45 minutes of exercise play when exercise controllers determined that the incident objectives were achieved. The objectives included determining whether SCH tour guides can recognize more than one emergency situation simultaneously, summon rescue assistance and provide immediate medical support and assistance to the extent possible until local communities and agencies respond. An objective common to both OEM and SCH was to verify that internal notifications were accomplished correctly and in a timely manner.

The OEM supported an emergency medical exercise with the Facility Manager and Facility Operational Training Teams (OTT) in the Integrated Training Facility (ITF), Building 5S on November 16. The exercise scenario simulated two Space Station Training Facility (SSTF) Maintenance Technicians working on a power panel behind the SSTF Simulators on the 2nd floor of Building 5 South. One of the technicians received a simulated electrical shock, lost consciousness, collapsed and was not breathing. The objectives of the exercise were to verify emergency

procedures for the FOTT and verify the on-site emergency medical response after normal working hours. All exercise objectives were completed successfully. The exercise was terminated when the Emergency Medical Team removed the unconscious victim from the ITF with no major anomalies identified.

Members of OEM attended the Regional National Weather Service (NWS) Hurricane Workshop in May. Emphasis of the workshop was forecasting techniques, inland evacuation, and personal preparedness. JSC OEM also supported the NWS display of the P-3 Hurricane Hunter Aircraft at Ellington Field. The aircraft was on display for area 6th grade classes and later for the general public. The NWS uses both of these events to publicize the need for preparing for hurricane season, which extends from June through November annually.

The OEM attended a regional evacuation meeting in League City hosted by the Department of Public Safety. Local, county and state representatives provided details of evacuation procedures intended to support massive movement of traffic inland. Regional planners explained why reversing the flow of traffic for southbound lanes would be counterproductive and could negatively impact the areas being evacuated as well as inland communities. The best solution for a successful evacuation of coastal areas throughout southeast Texas is for threatened residents to leave early when a severe storm threatens the Texas coast.

The OEM briefed Center employees on hurricane awareness and provided a hurricane awareness article to Public Affairs for publication in *The SpaceNews Roundup*. The OEM modified a readiness document in use at the SCTF for use by Center organizations as an Office Hurricane Preparation Checklist and distributed it to Emergency Planning Representatives (EPR). The document is consistent in form and function to the Center hurricane plan but can be easily customized by EPRs to meet specific needs of their organization.

The OEM participated in annual fire drills as frequently as possible to assist and to review facility emergency action plans (EAP) to verify they are current, complete and that they are understood by employees.

A volunteer from the OEM monitored community emergency response operations during Superbowl XXXVIII on February 1 in the Harris County Office of Emergency Management (HCOEM) at TranStar. The networking opportunity enabled the JSC OEM to become familiar with the HCOEM web-based incident response tracking system and enroll JSC users from the OEM.

The OEM attended the local community Public Officials Workshop in Texas City. The program is intended educate newly elected public officials about municipal, county and state emergency preparedness plans and programs. Galveston County OEM officials advised that they anticipate moving into the new OEM building adjacent to the antiquated Galveston County North County Building on Gill Road (FM 646) in December of this year. The new building will be shared by the National Weather Service Houston/Galveston Office. Construction codes applied to the building should enable the facility to withstand a Category 5 storm.

The OEM hosted a booth for emergency preparedness at the third annual Katy Independent School District *Be a Survivor* Safety Challenge at Cinco Ranch High School on Saturday, March 6, 2004. The Occupational Safety and Occupational Health offices provided safety and total health brochures and information to enable the JS7 representative to explain JSC's proactive efforts to promote employee safety and total health at work, home and at play.

JSC has provided adequate authority and resources for a successful safety and health program. Management has assigned appropriate authority to those with safety and health responsibilities. JSC provides adequate resources for training and supplies PPE equipment in all areas that need it. Appropriate experts, such as Certified Safety Professionals, Certified Industrial Hygienists, licensed health care professionals and other experts, are used as needed based on the risks at JSC. JSC also provides adequate funding for its safety and health programs.

This past year we have had some changes in our top management with respect to Safety and Health. We now have a new Deputy Center Director and a new Manager for the Occupational Health Office. The Deputy Center Director is a safety enthusiast from the Astronaut Office and currently serves as our Designated Agency Safety and Health Official. A new Occupational Health Physician joined Occupational Health in October 2004. She separated from the Air Force in September 2004, has several years of civilian experience in occupational medicine, and is board certified in occupation, aerospace and internal medicine.

JSC empowers all employees to stop work if it is not safe, and holds all employees accountable for safety and health. JSC is committed to the safety and health program. While most JSC organizations will experience some type of funding challenge in FY05, this is not likely to increase risk or have a significant impact on JSC safety and health.

JSC continues to have a high regard for safety and health related activities as related to total management planning and goals. The Executive Safety Committee continues to convey goal expectations for the JSC safety and health program. JSC continues to promote and reassure workplace safety and health in an effort to reduce workplace fatalities, injuries and illnesses. JSC continues to budget for safety and health education by allocating funds to maintain numerous AED, operators and training. JSC also incorporated several new computer based training programs such as ergonomic and AED computer based training programs. Regarding JSC facilities, Center Operations continue to manage resources to ensure safe and healthy work environments. There is always a budget priority to ensure sufficient funds are allocated to mitigate hazards, design of new safety requirements for routine maintenance, and new or modified facilities. JSC continues to call for supplementary budget in order to mitigate on-going safety and health hazards. The Executive Safety Committee continues to communicate annual goals with respect to Agency objectives. These goals and objectives are reviewed on a quarterly basis for trends, analysis and lessons learned. The Directorate Safety Committees proactively track safety goals and objectives, and request funds for safety and health items within their Directorate.

Ellington Field and SCTF, as part of JSC, are included within the JSC goals and objectives.

JSC Team Goals FY2005:

	FY01 Actual	FY02 Actual	FY03 Actual	FY04 Actual	FY05 Goals
LWDC	**42** (5 civil service)	**20** (1 civil service)	**18** (2 civil service)	**12** (4 civil service)	**Hurt No One**
RD Cases	**53**	**45**	**23**	**34**	**Hurt No One**
LWDC Rate Days Away	**0.44**	**0.21**	**0.19**	**0.13 Goal = 0.17**	**0.11**
LWDC Rate Days Away + Restricted Duty	**0.98**	**0.68**	**0.42**	**0.5 No Goal**	**0.45**
Days Away	**1547**	**815**	**675**	**126**	**Info Only**
Severity Rate (Including Previous FY Days)	**16.1**	**8.5**	**7.2**	**1.4 Goal = 6.5**	**5.1**
Medical Treatment Cases	**119**	**99**	**78**	**63**	**Hurt No One**
OSHA Recordable Rate	**2.2**	**1.7**	**1.3**	**1.2 Goal = 1.1**	**1.1**
Close Calls	**998**	**834**	**690**	**656**	**Info Only**
Hours	**19,262,296**	**19,123,354**	**18,733,879**	**18,366,245**	

CY05 Recommendations for Improvements for JSC/SCTF/EF

Action Number	Action Description	Est. Completion Date	Assignee	Closure Criteria
CY05-01	Develop a standardized methodology for establishing Center safety and health goals.	8/31/05	Safety and Test Operations Division (NS)	Plan presented to ESC and Coordination

CY05-02	Develop a strategy to hold Directorates and their contractors accountable for the "recommendations for improvement" identified in the VPP Safety and Health Reviews.	8/31/05	Safety and Test Operations Division	An ongoing system whereby Directorates/Offices are reporting to the Deputy Center Director the status of their recommendations.
CY05-03	Develop a plan to promote VPP participation among incumbent and new contractors.	9/30/05	Contractor Affairs Subcommittee and Procurement	Recommend and implement an ongoing promotional campaign through the Contractor Affairs Subcommittee. Publicize JSC as a VPP site in the pre-proposal conference for service contracts.
CY05-04	Reevaluate welding exposures with emphasis on manganese and hexavalent chromium.	12/31/05	Occupational Health Office	Report to ESC Coordination Sub-committee and affected organizations.
CY05-05	Conduct an evaluation of the JSC Close Call process and make recommendations for improvement.	6/1/05	ESC Coordination	Recommendations made to ESC and Coordination.

CY05-06	Debrief all Safety and other personnel involved in recent mishap investigation boards with the intent to capture lessons to improve the JSC 29406 and investigation process.	12/31/05	NS to lead with participation from others who served on boards	Update and release revised JSC 29406.
CY05-07	Reactivate the SCTF JSAT Ergonomics Team. Perform ergonomic evaluations and recommendations upon SCTF employee request	12/31/05	SCTF JSAT Chair	Process in place and employees being trained.
CY05-08	Implement a new employee safety CBT and electronic supervisor checklist tracking system. This and other training to be complete by the new employee within their first six month of employment	9/30/05	Human Resources Office	New employees utilizing the system.
CY05-09	Establish a working group and conduct a feasibility study in centralizing all JSC team training records and track in central location.	12/31/05	NS with Human Resources Office	Feasibility study results published.

CY04-01	Implement BITS improvements: Link the system to Center Operation's facility configuration database "Facility Center" to keep rooms and occupants updated; ensure automatic reminders; provide roll up reports by building, organization, and Center-wide.	9/30/05	Safety and Mission Assurance Directorate	All listed improvements implemented
CY04-06	Update SCTF Emergency Action Plan	2/28/05	SCTF	EAP updated and distributed to employees.
CY04-07	Occupational Health, along with support from other JSC stakeholders, will evaluate asbestos exposure on office building occupants.	3/15/05	Occupational Health Office	Report findings of studies and recommended actions to the coordination and the ESC.
CY04-10	Evaluate lead sources and exposures at the Center including settled dust, lead in water and soldering.	4/30/05	Occupational Health Office	Report findings of studies and recommended actions to Coordination and the ESC.
CY04-12	Develop a leading metrics and trending program that will provide management insight into the prevention of injuries and illnesses.	12/31/05	Safety and Test Operations Division	A plan with a technical approach, milestone, schedule, and authority to proceed from the ESC.

CY04-13	Baseline SCTF Emergency Preparedness Plan.	3/15/05	DX-Catherine Bole	Plan documented and distributed to all employees.

Dryden Flight Research Center (DFRC)

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.

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 2005 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, the Hazardous Materials Management System (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.

DFRC Summary Data

- SHARE Initiative Goal- OWCP, DFRC in the Green
- Vehicle Accidents, No Civil Servants.
- Seat Belt Usage, approaching 100% on entry to facility (two checks), Air Force Security Gate and DFRC gate. No incidents involving personnel not wearing seat belts.
- DFRC documented 2235 personnel on site trainings in occupational safety and health.
- DFRC utilizes close call systems, has initiated configuration management for fire and electrical systems and has had focused training in electrical safety training for at risk work groups.
- Significant Accomplishments - ChemSecure Pilot Project for use of RFID technology to manage high hazard chemicals.

Kennedy Space Center (KSC)

KSC completed the most successful year relative to lost time injuries in the recorded history of the Center. There were no lost time injuries experienced on-Center for FY 04. KSC did experience 2 lost time injuries off -site (1 fall with a knee injury at the NASA resident office of Boeing in Huntington Beach, California and 1 automobile accident In Titusville, Florida).

KSC experienced only one motor vehicle accident within its Federal civilian employees in FY 2004 while on official business.

While KSC does not currently track the percentage of seat belt usage, the Center mandates that seat belt be utilized at all times and the State of Florida requires the same. The KSC security force enforces the seat belt requirement by not allowing anyone access to the Center without seat belt being worn and the law enforcement staff enforces the requirement by ticketing those found not to be in compliance. The one civil service employee involved in a motor vehicle accident was wearing her seat belt at the time of the accident.

KSC also continues to exceed state and Federal vehicle safety standards by requiring the use of motorcycle helmets while riding on NASA property (this is not a Florida state law).

Kennedy Space Center has a comprehensive safety and health training program. The major components are as follows):

1. New employee training/safety orientation (120)
2. Summer student safety orientation (300)
3. New supervisor safety and health orientation (90)
4. Monthly scripted safety meeting topics (1500/month)
5. Facility safety training videos required before access is authorized
6. 4 Core safety courses (Office safety, Hazard Communication, Ergonomics, Ops safety)
7. An employee safety and health pocket guide orientation (1800)
8. 25-30 courses presented by the NASA safety training Center annually on OSHA topics (450)
9. On the job training provided by supervisors and utilizing job hazard analysis where applicable
10. Hazard and operation specific training via use of operations and maintenance instructions which call out the specific hazards and controls for each space shuttle and space station operation.

The overall impact of those training efforts is believed to be highly effective as judged by the very low incident and injury rates currently experienced, the recent successful OSHA VPP review, and the participation rates and student feedback received.

KSC has continued to maintain the OSHA Voluntary Protection Program Star rating for the FY04 period. In addition, KSC has successfully mentored other Federal contractors into the VPP program and has trained two members of its

safety staff to serve as Special Government Employees in the VPP program. Over 85% of the resident workforce at Kennedy Space Center is now Star qualified including NASA and the 3 major contractors (over 11,000 employees now covered by the OSHA VPP program)

KSC civil service operations completed over 3 million work-hours without a lost time injury and completed the most successful year on record in the lost time injury performance category. This is deemed to be a major achievement due to the potential hazards that can be encountered within space operations such as fueling spacecraft, extensive working at heights, high pressure/high temperature systems, cryogenic operations, handling of highly hazardous materials, process safety management applications, radiographic activities, high noise generating equipment, etc. Despite those hazards the only 2 civil service injuries stemmed from a trip on a side-walk in California and an automobile accident.

KSC successfully managed through a severe hurricane season in which three major hurricanes threatened the Center. While the Center suffered over 100 million dollars worth of property damage, no employee injuries were recorded from the extensive damage assessment and recovery efforts. In addition the Center has initiated a major construction safety program to manage the large volume of construction work required to restore the Center to its pre-hurricane condition over the next year.

KSC has implemented an aggressive heat stress management program in which supervisors are notified daily whenever ambient conditions reach the point at which heat stress prevention measures need to be implemented. Note: This is a daily concern in central Florida. The heat stress indicators are posted and updated on a web location and a page is sent out to supervisors at the appropriate times.

KSC has successfully implemented a new AED program in which automatic defibrillators have been deployed in various locations.

KSC deployed a new safety awards program in conjunction with its annual safety stand down day (called Super Safety and Health Day). This program recognizes the KSC contractors with superior performance in the safety and health arena.

KSC established a new and very unique program for “incentivizing” safe performance by the construction contractors working on site. This program allows for establishment of a bonus pool of up to $15,000 which the contractor obtains if their operations are found to be free of major safety and health hazards per an established schedule. The goal of this program is to add visibility to the Agency and Centers drive for safety and to reward the construction teams who manage their operations in compliance with OSHA.

KSC established a new forum called the Safety and Health Managers Co-operative Committee. The membership of that committee is all of the safety and health managers across all of the resident contractors on-site. The goal is to increase communication, identify opportunities for improvement and consistency

across the safety and health programs, benchmark best practices and collectively solve safety and health problems across the Center.

KSC totally re-structured its safety organization in May 2004. A consolidation occurred in which the six former safety and mission assurance organizations were merged back into one directorate. It is expected that the re-structuring will drive the level of independence needed and recommended by the Columbia Accident Investigation Board and lead to better communicated and teamed approaches to safety across the approximate 300 full time personnel working within it.

A significant boost to occupational safety and health resources occurred during the reporting period. Four new civil service positions were authorized along with an additional 2 FTE transferred from other organizations and 7 new contract support positions were funded. That increase of 13 staff represented a doubling of the size of the civil service occupational safety organization.

Marshall Space Flight Center (MSFC)

All medical staff members participated in various Continuing Education Units (CEU) and other informative resource training sessions. This included training in Bloodborne Pathogens, Lipid Management, Travel Medical Clearance, and Hearing Conservation.

Classes given by health staff included: Radiation Safety, Laser Safety, Confined Space Refresher or Comprehensive, Bloodborne Pathogens, Introduction to HazCom, HazCom Refresher, HazCom Train-the-Trainer, Hearing Conservation, Chemical Hygiene, Respirator, Ergonomics, and safety meetings.

A Nurse/Case Manager joined the MSFC staff on 12/01/2003. The dual role of this position provides support to the nursing staff and support in the management of occupational injury and illness cases. Presentations explaining the purpose of the position and services available from the Nurse/Case Manager were provided to MSFC Management and MSFC Direct Supervisors.

A variety of health and safety related brochures and hand-out materials were provided to patients upon request during the physical examination process and also were available for access in the reception waiting area.

The new electronic medical records storage/retrieval program entitled “Documentum” became an operable function during the year. This system replaces the previous methods for storing and retrieving medical records of MSFC civil service and contractor employees within the categories of retired, resigned, or terminated.

MSFC held the following programs:

- Annual Blood Pressure Monitoring Program – MSFC Population
- MSFC Annual Health & Fitness Expo – Counseling and BP Monitoring

- Great American Smokeout – Counseling and Informative Materials
- Safety Day Stand Down – Staff Participation and Attendance
- MSFC Water Recovery Program – Reviewed medical data for 145 applicants and provided updated physical examinations and treadmill tests as needed.
- SHE PEP Survey – Staff Accomplished
- CPR Training – Staff Completed

MSFC has the following goals for FY 2005:

- Continue to furnish in a highly professional manner service support as set forth within the contract to MSFC for the provision of occupational medicine and environmental health services.

- Continue to review and upgrade the medical monitoring program to remain in compliance with prescribed medical tests and examinations to better benefit MSFC employees who qualify for the program. Continue to simplify forms without sacrificing information pertinent to patients' medical data/documentation.

- Continue to keep abreast of all available information relating to infectious disease management and control.

- Continue to manage the filing, storage and disbursement of medical records in accord with regulatory and privacy standards.

- Continue to attend review sessions for the IRIS Program – EX-3 – NASA-wide Future Program. The aim is to develop and utilize dependable and user-friendly support features for managing patients current and historical medical information and for providing easily obtainable comprehensive as well as specialized data reports.

- Continue to offer support information (MSDS) and training courses to introduce employees to possible hazardous situations and conditions, whereby employees will be attuned to practicing safe and healthy work in all environments.

- Establish web-based training in Hazard Communication and explore options for expanding to other training resources.

- Stay abreast of information in the area of indoor air quality, particularly recognition/control/effects of mold infestation.

- Continue to conduct monthly safety meetings for the staff of the occupational medicine and environmental health services contract. Subjects deemed mandatory by MSFC will be utilized as well as other topics relating to safety and health issues. In addition, bulletins and newsletters regarding health and safety will be distributed to the staff.

Safety, Health, and Return-to Employment (SHARE) Initiative

a. Progress in meeting 4 goals:

- Total Case Rate – Reduced from .86 in FY03 to .77 in FY04. Reduction Rate = **10.5%**

- Total Lost Time Case Rate – Reduced from .23 in FY03 to .18 in FY04. Reduction Rate = **21.7%**

- Timeliness of Filing Notice of Injury and Illness – Metric not available. All mishaps are entered into IRIS within 1 work day of reporting to Industrial Safety.

- Lost production Day Rates – Reduced from 4.28 in FY03 to 3.79 in FY04. Reduction Rate = **11%**

b. Initiatives:

- MSFC established a goal to reduce our total case rate, lost time rate, and lost production day rate by 10% over the last three year average rates.

- MSFC initiated an awareness campaign on the importance of timely reporting of mishaps and close calls in conjunction with NASA Headquarters initiative to report mishaps to the Administrator within 24 hours.

Motor Vehicle/Seat Belt Safety

a. Number of motor vehicle accidents in FY04 – 6. There were no serious injures and no lost production days as a result of these accidents.

b. Seat belt usage surveys are conducted periodically on-site at MSFC. The last survey was conducted if 2003. The overall usage rate was 61%, down from 71% in 2002. Most violations involved service vehicles. A major awareness campaign was initiated due to this reduction. All employees involved in motor vehicle accidents in FY2004 were wearing seat belts.

c. During physical examinations, patients are reminded of the importance of wearing seat belts.

Training

General Safety Courses Offered	Number Workers	Number Trained FY04
SHE 101 (General Safety)	7500	~5500

Safety Culture Training	7500	~ 350

Accomplishments

- Revised the MSFC Safety Program to more clearly align with the OSHA Voluntary Protection Program Star Certification elements.
- Restructured the MSFC SHE Committee to include at least 50% non-management and 20% management representation.
- Established a new Supervisor Safety Visit training course. It is being conducted on a reoccurring basis (currently monthly).
- Developed and implemented a new contractor audit plan.
- Increased safety inspections of construction sites with special emphasis on lockout/tagout procedures.
- Conducted a “MSFC Safety Day” and return to flight activities with about 3500 employees participating.
- Conducted a special root cause analysis awareness and training campaign.
- Reduced all mishap metrics with no deaths or significant injuries or illnesses.

Resources

- Obtained dedicated funding for the MSFC SHE Committee.
- Hired a part time safety specialist to inspect construction sites.

Goals

- Reduce Civil Service and Contractor lost time and total case rates by 10% as averaged over the past 3 years.
- Reduce the number of slip, trip and fall mishaps by 10% from previous 3 year average.
- Reduce the number of laceration injuries by 10% from previous 3 year average.
- Managers, supervisors, and employees shall attend a minimum of 8 safety meetings per year.
- Each practitioner subcommittee shall increase their membership by 2 employees.
- Develop training matrix for 3 job tasks and provide to supervisors.
- Complete specific actions in the MSFC SHE Annual Plan that focus on the key fundamental elements of the OSHA “STAR” requirements.

Ames Research Center (ARC)

A. Injury/Illness Data

Ames Research Center DART Injury Case Rates Calendar Years 2001, 2002, 2003			
Calendar Year	Fatalities	DART Cases	DART Rate
2001	0	2	0.13
2002	0	1	0.06
2003	0	4	0.26
3-year average	0	2.33	0.15
2004	0	3	0.20

B. OWCP Chargeback and COP Costs

2001	2003	2003	2004
$923.243.99	$980,191.66	$1,266,023.01	$ 1,404,446.91

C. Trending

1. With only 3 DART Cases in 2004, no trending is indicated.

2. Safety, Health, and Return-to-Employment (SHARE) Initiative

   A. 3% reduction in total injury and illness case rate. Yes, actual was 0.92 (-26%)
   B. 3% reduction in lost time injury and illness case rate (actual reduction 25%)
   C. 5% improvement in filing of notices of injury and illness. Yes (according to HR)
   D. 1% reduction in lost production day rate due to injury and illness actual (-22%)

3. Motor Vehicle/Seat Belt Safety

   A. Number of Motor Vehicle accidents on official government business 0

   B. Seat belt usage not tracked at ARC.

Training is provided to all employees through a professional training staff of three FTEs. Employees obtain training in regularly scheduled safety meetings, on the job, self-paced on-line courses on the QH Training web page, at the NASA Site for Online Learning (SOLAR), and Ames-provided or sponsored safety courses and during Safety Week. NASA Safety Training Center presented Payload Safety and Requirements and System Safety Seminar at Ames in 2004. Basic System Safety Practice, Human Factors in Accident Investigation, MORT-Based Mishap Investigation, Reviewing and Perfecting System Safety Analysis, and Basic System Safety Practice are scheduled for 2005.

During this evaluation period, Ames recorded 4222 EH&S training events. This represents a nearly five percent increase over 2003. Total attendance of 12,111 for 2004 includes ASAP safety meetings.

Supervisors are responsible for ensuring all employees within their assigned work areas receive the required training to safely perform their assigned tasks. They must observe processes, conduct hazard analysis, develop training plans based on the employee's Training Needs Assessment, and work with the employee to ensure a safe and healthy work environment.

The Office of Safety, Health and Medical Services offers 49 environmental, health and safety classes on a regular basis. Training is performed at various intervals depending upon the rules and regulations (OSHA, Ames, etc.) applicable to the operations performed.

Safety and Health training courses are updated periodically. In 2004, 27 courses were formally updated with policy and program changes and to emphasize issues identified by mishaps, near misses, and trend analyses. Hazard Communication and Chemical Hygiene courses, for example, were updated to emphasize chemical monitoring and VPP expectations. VPP content in the New Hire Safety, Health and Environmental orientation video was expanded. Course materials are revised to reflect revisions of the applicable Federal, NASA, or Ames regulations and significant changes in operations and equipment.

Personal Protective Equipment training is provided to Ames employees who wear PPE includes an overview of PPE for the extremities and protective clothing.

The NASA Site for Online Learning and Resources (SOLAR) offers an extensive collection of Safety and Mission Assurance courses to all employees, and Ames has added to SOLAR Hazard Communication (for Office Workers and for Chemical Users) and Hazardous Waste and Spill Response as alternatives to classroom training. SOLAR already provides e-training in Bloodborne Pathogens and Hearing Protection, and may expand the catalog of courses. In 2004, Ames drafted new courses for SOLAR including Asbestos Awareness, Confined Space Entry, Lead Awareness, Lockout/Tagout and Ergonomics (Office, Industrial, and Laboratory).

A major effort was extended in the assessment of the Ames health and safety program as part of preparation for the recertification of VPP at ARC. Another significant effort was in identifying and resolving root causes associated with close call incidents.

Resources were allocated to new SOLAR program development in FY 2004. Additional resources were allocated to electrical safety and fall protection.

It is a challenge to continue to improve as the SHARE Initiative requires, when the program is already a really good one. Meeting the SHARE

requirements will be difficult. Additionally, in 1st Quarter FY '05, we will be dedicating all available resources to completing recertification of VPP at ARC.