



Goddard Procedural Requirements (GPR)

DIRECTIVE NO.	GPR 8710.8	APPROVED BY Signature:	<i>Original signed by</i> <u>Arthur F. Obenschain for</u>
EFFECTIVE DATE:	<u>August 24, 2010</u>	NAME:	<u>Robert Strain</u>
EXPIRATION DATE:	<u>August 24, 2015</u>	TITLE:	<u>Director</u>

COMPLIANCE IS MANDATORY

Responsible Office: 300/Safety & Mission Assurance Directorate

Title: GSFC Safety Program Management

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PREFACE

P.1 PURPOSE

The Goddard Space Flight Center (GSFC) Safety Program was established to provide a safe work environment for GSFC personnel and to safeguard GSFC property and the public. Program implementation is consistent with the GSFC Safety Policy as stated in GPD 8715.1, *Goddard Space Flight Center Safety Policy*. The purpose of this document is to describe the implementation of the Safety Program at the GSFC, and to describe the responsibilities of the functional safety organizations that provide that implementation at each of Goddard's five main sites: the Greenbelt facility in Maryland, the Wallops Flight Facility (WFF) in Virginia, the NASA Independent Verification & Validation (IV&V) Facility in West Virginia, the Goddard Institute for Space Studies (GISS) in New York, and the White Sands Complex (WSC) in New Mexico. In addition to these five main sites, GSFC operates numerous smaller, remote sites around the world. Each of these sites operates in compliance with the GSFC safety policy and receives service/support from the GSFC functional safety organizations on an as requested and/or as needed basis.

This document focuses on the responsibilities of the GSFC functional safety organizations, i.e., those organizations whose primary responsibilities include implementing the Center's Safety Program. This document does not address the normal safety responsibilities of supervisors/line management which are identified in GPD 8715.1, *Goddard Space Flight Center Safety Policy*, and GPR 1700.1, *Occupational Safety Program at Goddard Space Flight Center*. Supervisors/line management remain responsible for the safety of their employees and the safe conduct of all activities in their organization at all GSFC sites.

P.2 APPLICABILITY

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This directive applies to all GSFC organizations at all GSFC sites. It applies to all GSFC civil servants, contractors, students, visiting scientists, and others doing business at GSFC. It is expected that safety will be implemented at all GSFC sites in a manner compliant with GSFC policy. For those remote sites that are contractor-managed it is expected that safety will be implemented in accordance with the GSFC approved safety plan as required in their contracts.

P.3 AUTHORITY

NPD 8700.1, NASA Policy for Safety and Mission Success

P.4 APPLICABLE DOCUMENTS

NPR 1800.1 NASA Occupational Health program Procedures
NPR 8621.1 NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
NPR 8715.1 NASA Occupational Safety and Health Programs
NPR 8715.2 NASA Emergency Preparedness Procedural Requirements
NPR 8715.3 NASA General Safety Program Requirements
NPR 8715.5 Range Safety Program
NPR 8715.7 Expendable Launch Vehicle Payload Safety Program
NPR 8735.1 Procedures for Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program and NASA Advisories
GPD 8715.1 Goddard Space Flight Center Safety Policy
GPR 1700.1 Occupational Safety Program at Goddard Space Flight Center
GPR 1700.2 Chemical Hygiene Program
GPR 1840.2 Industrial Hygiene Program
GPR 5340.3 Preparation and Handling of Alerts, Safe Alerts, and Advisories
GPR 7320.1 Facilities System Safety
GPR 8710.3 Certification and Recertification of Ground-Based Pressure Vessels and Pressurized Systems
GPR 8710.7 Cryogenic Safety
GPR 8715.3 Wallops Flight Facility Executive Safety and Health Council
GPR 8715.6 Wallops Flight Facility Safety, Occupational Health, and Emergency Preparedness Programs
GPR 8719.1 Certification and Recertification of Lifting Devices and Equipment and Its Operators
GPR 8730.7 Laboratory Management Program
NSTS 18798 ISS Payload Safety Requirements
RSM-2002 Range Safety Manual for GSFC/WFF
GSFC Form 23-5 Initiator's Acquisition Checklist

P.5 CANCELLATION

GPR 8710.1C, Goddard Space Flight Center Safety Council

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P.6 SAFETY

Details are in the individual safety implementation sections.

P.7 TRAINING

NONE

P.8 RECORDS

Record Title	Record Custodian	Retention
Completed GSFC Safety Council (GSC) Action Lists	GSC Executive Secretary	* <u>NRRS 1/14-B1(a)</u> PERMANENT. Retire to Federal Records Center when 2 years old. Transfer to National Archives and Records Administration (NARA) when 20 years old.
GSC Presentations to Executive Council	GSC Executive Secretary	* <u>NRRS 1/14-B1(a)</u>
Annual Safety Program Status Presentation	GSC Executive Secretary	* <u>NRRS 1/14-B1(a)</u>
Charters of Center Standing Safety Committees	Committee Chair	* <u>NRRS 1/14-B1(a)</u>
Meeting minutes or activity logs of Center Standing Safety Committees and Directorate Safety Committees	Committee Chair	* <u>NRRS 1/14-B1(a)</u>

*NRRS – NASA Records Retention Schedules ([NPR 1441.1](#))

P.9 MEASUREMENT/VERIFICATION

The Chair of the GSFC Safety Council (GSC) shall present a Safety Program Status Briefing to the Center Director and to the Safety Board of Directors on an annual basis, which identifies safety trends and issues.

PROCEDURES

In this document, a requirement is identified by “shall,” a good practice by “should,” permission by “may” or “can,” expectation by “will,” and descriptive material by “is.”

The GSFC Safety Program was established to implement the GSFC Safety Policy as stated in GPD 8715.1, *Goddard Space Flight Center Safety Policy*. This document is intended to clarify the roles and responsibilities of the management elements of the GSFC Safety Program and the execution of the Program at the five main GSFC sites: Greenbelt, WFF, IV&V, GISS, and WSC. It focuses on the

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responsibilities of the GSFC functional safety organizations. It does not address the normal safety responsibilities of supervisors/line management (see Section 1.9, Line Management).

Section 1 provides a narrative description of the roles and responsibilities of the key individuals, organizations, and groups which comprise the management elements of the GSFC Safety Program.

Section 2 provides an overview of how functional safety areas are implemented at GSFC.

Sections 3 through 7 provide the details of how safety is implemented at each of the five main GSFC sites.

1. GSFC SAFETY PROGRAM ROLES AND RESPONSIBILITIES

This Section provides a narrative description of the roles and responsibilities of the key individuals, organizations, and groups which comprise the management elements of the GSFC Safety Program.

1.1 Center Director

The Center Director has overall responsibility for safety at GSFC. The Center Director:

- a. Appoints the chair of the GSFC Safety Board of Directors (BOD)
- b. Appoints the chair of the GSFC Safety Council (GSC)

1.2 Deputy Center Director

The Deputy Center Director chairs the GCSF.

1.3 GSFC Safety Board of Directors (BOD)

The GSFC Safety BOD monitors overall implementation of the GSFC Safety Program across all Center organizations, providing a Center-wide perspective to issues crossing organizational boundaries.

Members of the BOD include Directors of or their designees and the Center Director appointed chair.

Meetings shall be conducted at least annually, with ad hoc meetings scheduled as needed at the request of any member. The BOD:

- a. Approves the charter of the GSFC Safety Council (GSC) and the charters for each of the GSFC component facility's safety councils (i.e., WFF, IV&V, GISS, WSC);
- b. Approves the charter of the GSFC Contractor Safety Forum (GCSF); and
- c. Reviews and approves Center Standing Safety Committee charters and activities including but not limited to Radiation Safety Committee, Chemical Safety Committee, and Laser Safety Committee.

1.4 Director of the Wallops Flight Facility (WFF)

The Director of WFF shall be responsible for implementation of safety requirements at WFF in compliance with GPD 8715.1, *Goddard Space Flight Center Safety Policy* and GPR 8715.6, *WFF Safety, Occupational Health, and Emergency Preparedness Programs*.

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1.5 Functional Safety Organizations

Codes 200, 300, 500 and 800 have functional safety responsibility at GSFC, in compliance with the GSFC Safety Policy. Their respective roles and responsibilities at each site are identified in subsequent sections of this GPR. In general,

- a. Code 240, Security Division, has responsibility for providing policy and overall oversight, advice, and assistance to Center personnel, organizations, and contractors regarding motor vehicle safety and emergency preparedness, response, recovery, and mitigation.
- b. Code 250, Medical and Environmental Management Division, has responsibility for planning, organizing, and managing medical health activities including but not limited to Health Unit services, the Employee Assistance Program (EAP), and the Automated External Defibrillator (AED) program. Code 250 is also responsible for the Fitness Center at Greenbelt.
- c. Code 270, Information and Logistics Management Division, has responsibility for ensuring products are packaged, marked and preserved to ensure conformance to product and customer requirements, including environmental control during shipping, handling, and storage, and compliance with applicable hazardous materials requirements.
- d. Code 321, Systems Safety Branch, has responsibility for policy and oversight for flight project safety at Greenbelt.
- e. Code 350, Occupational Safety and Health (OS&H) Division, has responsibility for Occupational Safety and Health policy for GSFC, is responsible for oversight of implementation of OS&H Programs at Greenbelt and provides OS&H support to other GSFC sites as requested.
- f. Code 540/RECERT has responsibility for applicable compliance for lifting devices and equipment (LD&E) and pressure vessels/systems (PV/S).
- g. Code 803, Safety Office (WFF), has responsibility for policy and oversight for project safety, range safety, and oversight of GSFC occupational safety requirements at WFF. Code 803 also provides Explosives Safety Officer (ESO) and Authority Having Jurisdiction (AHJ) oversight and authority.
- h. Code 830, Aircraft Office (WFF), has responsibility for safety as it specifically relates to GSFC aircraft operations, including manned and unmanned aviation safety.

NOTE: Codes 180, 452 and 611 are responsible for ensuring appropriate safety program implementation and compliance with the GSFC Safety Policy at IV&V, WSC and GISS, respectively.

1.6 GSFC Safety Council (GSC)

The GSC is a council of civil servants that includes representatives from each Directorate, the functional safety organizations, the Center standing safety committees, and other Center organizations as appropriate. The chair of the GSC is appointed by the Center Director. Each civil servant labor union is

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invited to provide a representative at their discretion and may participate in whatever manner they deem appropriate.

The GSC facilitates the integration of activities undertaken by the Center's safety organizations and provides a Center-wide forum where issues arising from these activities can be discussed and resolved. The GSC serves as an advocate for safety initiatives to senior Center management. Additional information (i.e., charter, schedule, minutes, etc.) is available on the GSC website which may be accessed from the SafetyFirst webpage (<http://safety1st.gsfc.nasa.gov/>)

1.7 Center Standing and Ad Hoc Safety Committees

GSFC Standing Safety Committees, including the Lifting Devices and Equipment, Cryogenics, Radiation, and Hazardous Materials Committees, among others, are established to address critical safety activities that have long-term applicability and impact. These committees address the safety implications of activities that occur on a regular, repetitive basis. GSFC Center Ad Hoc Safety Committees address safety activities that have shorter-term applicability, such as those that address the resolution of a specific safety issue or concern. Each Center safety committee shall:

- a. Be comprised of individuals with responsibility for policy generation and/or implementation of procedures related to the area of safety covered by the committee;
- b. Develop a charter for review by the GSC;
- c. Develop and promulgate procedures and processes related to safety in their areas of concern as required;
- d. Develop/review the implementation of such procedures and processes at the Center and report the results to the GSC as required;
- e. Maintain meeting minutes or a log of activities as a record;
- f. Assist organizations in implementing relevant policies and procedures;
- g. Facilitate and coordinate communication between Center organizations and the GSC; and
- h. Invite each civil servant labor union to provide a representative at their discretion, to participate in whatever manner they deem appropriate.

1.8 Directorate Safety Committees

Each Directorate shall establish a Directorate Safety Committee. The committee may include contractors and civil servants. One civil servant shall be the Directorate representative to the GSC. Directorate level safety committee charters are approved by the Director of. The Directorate Safety Committees shall:

- a. Meet at least quarterly to promote safety awareness among Directorate employees;
- b. Develop and implement procedures and processes that foster safe work conditions in Directorate-operated and -controlled facilities;
- c. Maintain meeting minutes or a log of activities as a record;
- d. Report as required to their Director of and the GSC regarding their activities;
- e. Facilitate and coordinate the communication of best practices among the Directorate organizations and when appropriate across the Center; and
- f. Invite each civil servant labor union that represents employees in the Directorate to provide a representative at their discretion, to participate in whatever manner they deem appropriate.

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The Wallops Executive Safety and Health Council shall serve as the Directorate Safety Committee for all WFF safety activities. Organizations at WFF will support their Directorate level safety committees in addition to the Wallops Executive Safety and Health Council and lower level safety committees. See GPR 8715.6, *Wallops Flight Facility Safety, Occupational Health, and Emergency Preparedness Programs*.

1.9 Line Management

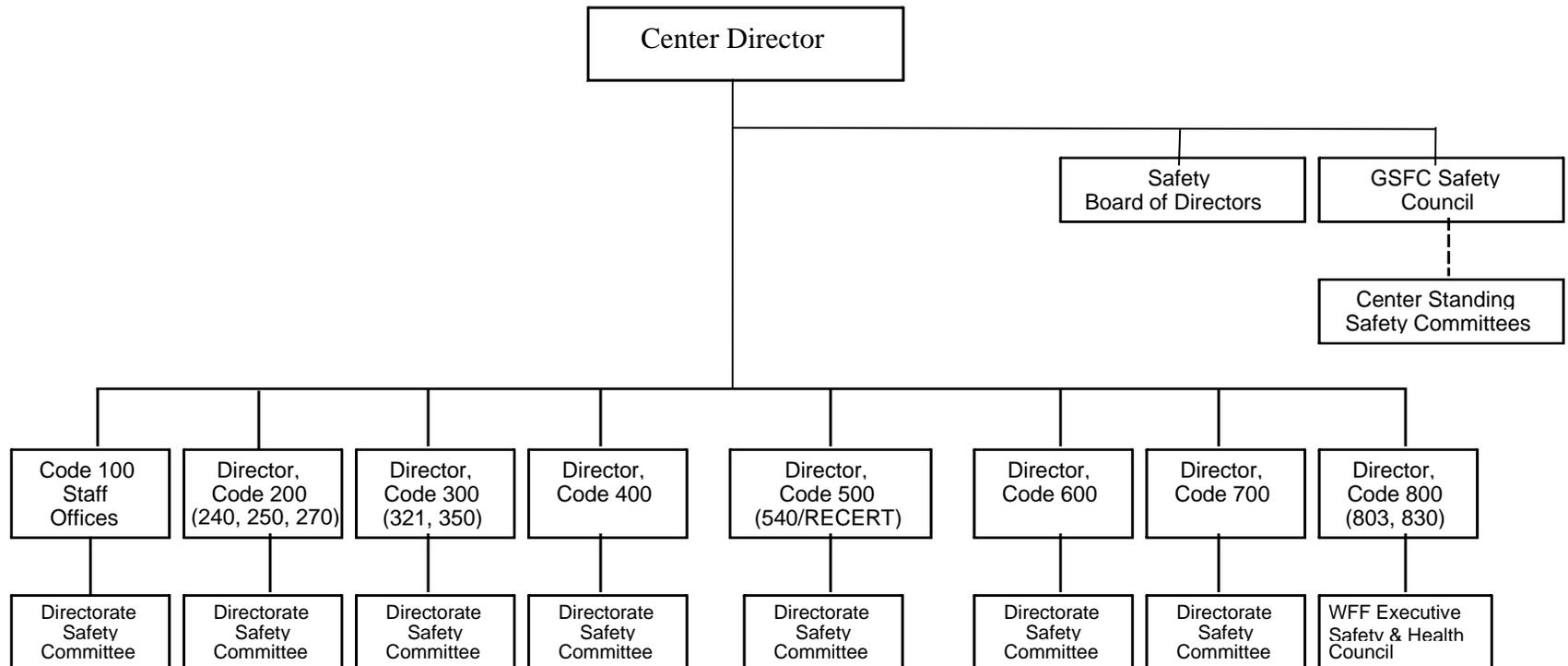
The normal safety responsibilities of supervisors/line management are defined in GPD 8715.1, *Goddard Space Flight Center Safety Policy* and GPR 1700.1, *Occupational Safety Program at Goddard Space Flight Center*. Supervisors/line management remain responsible for the safety of their employees and the safe conduct of all activities in their organization.

1.10 Safety Reporting

Safety issues and concerns should be reported through normal channels, starting with first line supervisors. However, employees have numerous independent routes to use if they believe a safety concern is not being addressed. They may go to their Directorate management, the GSFC Safety and Mission Assurance (SMA) Director, or the Center Director. They may also go to the Chief, SMA at NASA Headquarters (HQ) or report an issue through the NASA Safety Reporting Systems (NSRS).

1.11 Organization Chart

Figure 1 shows the distribution of safety functions at GSFC and highlights the lines of communication from the Center Director through the Directors of to the Directorate safety committees.



Notes: Solid lines signify lines of authority.
 Dotted lines signify lines of communication.
 Functional safety organization codes are identified in parentheses in the directorate in which they reside.

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2. IMPLEMENTATION OF SAFETY AT THE GODDARD SPACE FLIGHT CENTER

This section describes the implementation of safety at the GSFC. The GSFC encompasses facilities at multiple sites around the country and the world. The main facility for GSFC is located in Greenbelt, MD. The Greenbelt facility is responsible for developing the overall safety strategy and policies for the Center. Each of the remote sites, while operating independently, must comply with the overall GSFC safety policy. The other sites are assigned oversight by a specific Directorate, but the GSFC Center Director remains responsible for safety at all GSFC sites.

The implementation of safety at the Greenbelt facility and the four largest remote facilities is described in the next five sections.

Table 1 identifies the major functional safety areas covered by the GSFC safety policy, along with the NASA Procedural Requirements (NPR) source for the safety area. It also identifies the organization responsible for implementing the specific safety area at Greenbelt, WFF, IV&V, GISS, and WSC. Sites not listed in the table should refer questions about safety implementation to the appropriate functional safety organization.

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TABLE 1: FUNCTIONAL SAFETY AREAS, SOURCE, AND ORGANIZATIONAL IMPLEMENTATION

	Functional Safety Area	NPR Source	Greenbelt	WFF	IV&V	GISS	WSC
1	Audits & Inspections	Various	Codes 321/350/540	Codes 540/803	Codes 180/540	Code 611	Codes 350/452/540
2	Aviation Safety	NPR 8715.3, Ch 4	Codes 803/830	Codes 803/830	N/A	N/A	N/A
3	Chemical Safety	NPR 8715.1	Code 350	Code 803	N/A	N/A	Code 452
4	Commercial Launch and Entry Operations	NPR 8715.3, Ch 3	Code 803	Code 803	N/A	N/A	N/A
5	Confined Spaces	NPR 8715.3, Ch 3	Code 350	Code 803	Code 180	N/A	Code 452/WSTF
6	Construction Safety	NPR 8715.3, Ch 8	Code 350	Code 803	Code 180	N/A	Code 452
7	Contractor Safety	NPR 8715.3, Ch 8	Code 350	Code 803	Code 180	Code 611	
8	Cryogenic Safety	NPR 8715.1	Codes 321/ 350	Codes 350/803	N/A	N/A	N/A
9	Design Reviews	NPR 8715.1	Codes 321/350/540	Codes 540/803	Codes 180/540	N/A	Codes 452/540
10	Education & Awareness	NPR 8715.3, Ch 7	Code 350	Code 803	Code 180	Code 611	Code 452
11	Electrical Safety	NPR 8715.3, Ch 3	Code 350	Code 803	Code 180	N/A	Code 452
12	Emergency Preparedness and Response	NPR 8715.2	Code 240	Code 803	Codes 180/240	Codes 240/611	Code 452/WSTF
13	Explosives Safety	NPR 8715.3, Ch 3	Codes 350/803	Code 803	N/A	N/A	N/A
14	Facility Systems Safety	NPR 8715.1	Code 350	Code 803	Code 180	N/A	Code 452
15	Fire Safety	NPR 8715.3, Ch 5	Code 350	Code 803	Code 350	Columbia University	Code 452/WSTF
16	Flight Project Safety	NPR 8715.3, Ch 3 NPR 8715.7	Code 321	Code 803	N/A	N/A	N/A
17	Government-Industry Data Exchange Program (GIDEP) Safe Alerts	NPR 8715.1	All Directorates Code 300	All Directorates Codes 300/ 803	Code 180	Code 611	Code 452
18	Hazardous Material Transportation, Storage and Use	NPR 8715.3, Ch 3	Codes 270/350	Codes 270/ 803	N/A	N/A	Code 452
19	Hazardous Operations	NPR 8715.3, Ch 3	Codes 321/350	Code 803	Code 180	N/A	Code 452
20	Industrial Hygiene	NPR 8715.1	Code 350	Code 803	Code 180	Code 611	Codes 350/452/WSTF
21	Laboratory Hazards	NPR 8715.3, Ch 3	Code 350	Code 803	N/A	N/A	N/A
22	Lifting Devices and Equipment	NPR 8715.3, Ch 3	Codes 321/350/540	Codes 540/803	Codes 180/540	N/A	Codes 452/540/WSTF
23	Lockout/Tagout (LO/TO) Program	NPR 8715.3, Ch 3	Code 350	Code 803	Code 180	NA	Code 452

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	Functional Safety Area	NPR Source	Greenbelt	WFF	IV&V	GISS	WSC
24	Mishap/Close Call Investigation	NPR 8621.1	Codes 321/350	Codes 350/803	Code 180	Code 611	Codes 350/400/452
25	Motor Vehicle Safety	NPR 8715.3, Ch 3	Code 240	Code 240	Local authorities	Local authorities	Local authorities
26	NASA Safety Reporting System	NPR 8715.3	Code 300	Code 803	Code 180	Code 611	Codes 452/350
27	Occupational Medicine	NPR 8715.1	Code 250	Code 250	Code 250	Code 250	Code 452
28	Occupational Safety	NPR 8715.1	Code 350	Code 803	Code 180	Code 611	Code 452
29	Orbital Debris Safety	NPR 8715.3, Ch 3	Code 592	Code 592	N/A	N/A	N/A
30	Personal Protective Equipment (PPE)	NPR 8715.3, Ch 3	Code 350	Code 803	Code 180	N/A	Code 452
31	Pressure Vessels & Pressurized Systems (Ground-Based)	NPR 8715.3, Ch 3	Code 540	Codes 540/803	Codes 180/540	N/A	Codes 452/540/WSTF
32	Procurement Reviews	NPR 8715.3, Ch 8	Codes 350/540	Codes 540/803	Codes 180/540	N/A	Codes 452/540
33	Project Safety Training	NPR 8715.3, Ch 7	Codes 321/350/540	Codes 540/803	N/A	N/A	Codes 452/540
34	Radiation Safety (Ionizing and Non-Ionizing)	NPR 8715.3, Ch 3	Codes 321/350	Codes 350/803	Code 180	N/A	Codes 350/452
35	Range Safety	NPR 8715.3, Ch 3	Code 803	Code 803	N/A	N/A	N/A
36	Technical Facilities	NPR 8715.3, Ch 3	Facility Owner/Operator	Facility Owner/Operator, Code 803	Code 180	N/A	N/A
37	Workers Compensation	NPR 8715.1	Code 110	Code 110	Code 110	Code 110	Code 110

3. IMPLEMENTATION OF SAFETY AT GREENBELT

The main campus for GSFC is located in Greenbelt, MD. Because of the large, distributed workforce and wide range of hazards encountered, GSFC has several organizations that provide safety support. The Safety and Mission Assurance (SMA) Directorate, Code 300, is the principal organization that implements the safety program at Greenbelt. Additionally, Code 200 provides support for medical services (personnel health and fitness), environmental oversight and emergency preparedness; and Code 540 provides support for the oversight of activities involving pressure vessels/systems, and lifting devices and equipment.

The Director of Code 300 is responsible for Occupational Safety and Health and Flight Project Safety at Greenbelt and reports directly to the Center Director.

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The overall staffing of the functional safety organizations is small compared to the size of the Center and the complexity of the work performed. Therefore, each Directorate has a designated Safety Officer who reports directly to the Director of and interfaces on a continual basis with the other functional safety organizations directly supporting the Center's Safety Program.

The GSC is a Center-wide council that facilitates the integration of activities undertaken by all of the Center's functional safety organizations. It focuses on safety activities at Greenbelt, but serves as a forum for discussion of safety initiatives affecting all GSFC sites. The GSFC Contractor Safety Forum (GCSF) is a standing committee at Greenbelt, comprised of key government management officials and representatives from contractor organizations that support missions managed at Greenbelt. The GCSF provides a forum to facilitate, promote and improve safety performance through the sharing of safety information and best practices.

Codes 200, 300, 500 and 800 have specific functional safety responsibility at Greenbelt, in compliance with the GSFC Safety Policy. Their respective roles and responsibilities are identified in subsequent subsections. In general,

- a. Code 240, Security Division, has responsibility for providing policy and overall oversight, advice, and assistance to Center personnel, organizations, and contractors regarding motor vehicle safety and emergency preparedness, response, recovery, and mitigation.
- b. Code 250, Medical and Environmental Management Division, has responsibility for planning, organizing, and managing medical health activities including but not limited to Health Unit services, the Employee Assistance Program, and the Automated External Defibrillator (AED) program. Code 250 is also responsible for the Fitness Center at Greenbelt.
- c. Code 270, Information and Logistics Management Division, has responsibility for ensuring products are packaged, marked and preserved to ensure conformance to product and customer requirements, including environmental control during shipping, handling, and storage, and compliance with applicable hazardous materials requirements.
- d. Code 321, Systems Safety Branch, has responsibility for policy and oversight for flight project safety at Greenbelt.
- e. Code 350, Occupational Safety and Health (OS&H) Division, has responsibility for Occupational Safety and Health policy for all of GSFC, is responsible for oversight of implementation of OS&H Programs at Greenbelt, and provides OS&H support to other GSFC sites as requested.
- f. Code 540/RECERT – The RECERT program has responsibility for applicable compliance for lifting devices and equipment (LDE) and pressure vessels/systems (PV/S).

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- g. Code 803, Safety Office (WFF), has responsibility for policy and oversight for project safety, range safety, and oversight of GSFC occupational safety requirements at WFF, and provides ESO and AHJ oversight and authority.
- h. Code 830, Aircraft Office (WFF), has responsibility for safety as it specifically relates to GSFC aircraft operations, including manned and unmanned aviation safety.

The paragraphs in this section list the functional safety areas noted in Table 1 and identify the principal organization(s) responsible for implementation of the functional safety area at Greenbelt along with a summary of key support provided. The organization responsible for developing Center-wide policy in the functional area is also noted. When appropriate, key GPRs are identified.

3.1 Audits & Inspections

Responsibility for development and maintenance of Center policy is defined in individual GPRs. Contact the organizations below for specific areas of interest.

Code 321:

Audits spacecraft and instrument contractors building GSFC flight equipment managed by Greenbelt (generally before integration and test activities) for compliance with Agency safety requirements;

Codes 350:

Audits/inspects facilities and operations annually for compliance with national, Agency, and local safety and health standards. Examples are audits by the Laboratory Safety Assessment Team and the Industrial Safety Assessment Team;

Code 540/RECERT:

- a. Performs compliance checks of Pressure Vessels and Pressurized Systems (PV/S) to ensure that the requirements of GPR 8710.3, *Certification and Recertification of Ground-Based Pressure Vessels and Pressurized Systems*, are being followed; and
- b. Performs compliance checks of lifting equipment operators and Lifting Devices and Equipment (LDE) to ensure that the requirements of GPR 8719.1, *Certification and Recertification of Lifting Devices and Equipment and Its Operators*, are being followed.

3.2 Aviation Safety

Code 830 has Center policy responsibility.

Code 803:

- a. Performs analyses of proposed flight systems and publishes hazard analyses and safety plans which specify controls and mitigations in support of the operations;
- b. Supports the Code 830 airworthiness review process; and,
- c. Provides day-of-flight support in roles as necessary for a particular mission. Examples are the Range Safety Officer, Flight Safety Officer, Ground Safety Officer, Sky Screen, Surveillance Officer, etc.

Code 830:

- a. Responsible for the safety of missions using manned and unmanned aircraft. This includes approval of hardware and procedures for flight, as well as supporting ground operations;

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- b. The Aviation Safety Officer (ASO) reviews and approves procedures, maintenance records, project plans, and other documentation that can affect the safety of pilots and crew;
- c. The ASO conducts physical inspections of training records, medical records, and flight hardware, and provides an assessment of aviation safety to the Aircraft Office Chief; and,
- d. The ASO is a required standing member of the GSFC Airworthiness Review Board.

3.3 Chemical Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Verifies compliance with applicable regulatory, Agency and national standards;
- b. Verifies safe use of chemicals;
- c. Supports procurement actions in accordance with NPR 8715.3, *NASA General Safety Program Requirements*;
- d. Assists users in process hazard analyses (see GPR 1700.2, *Chemical Hygiene Program*) of operations using chemicals;
- e. Provides support to the Center Chemical Safety Committee.

3.4 Commercial Launch and Entry Operations

This section is for launches at WFF or remote sites for which WFF has responsibility for safety (see Section 4.4).

3.5 Confined Spaces

Code 350 has Center policy responsibility.

Code 350:

- a. Maintains an inventory of confined spaces on the facility;
- b. Oversees the proper labeling of confined spaces; and
- c. Provides technical assistance for confined space program implementation.

3.6 Construction Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Verifies compliance with Agency, National, and Occupational Safety and Health Administration (OSHA) construction standards;
- b. Supports pre-construction meetings;
- c. Reviews safety plans submitted by construction contractors; and
- d. Performs construction site inspections and follow-ups throughout the work performance period.

3.7 Contractor Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Reviews the Initiator's Acquisition Checklist, (GSFC Form 23-5) for in-process procurements to verify appropriate clauses and safety hazards are addressed;

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- b. Assesses contractor safety plans in support of source evaluation boards against Agency and national requirements;
- c. Reviews contractors' safety performance through the assessment of contractor health and safety reports, incident and accident reports, mishap reports, training, hazard prevention and control, etc.; and
- d. Assists Program/Project Managers or other responsible officials in implementing contractor safety surveillance and evaluation programs through periodic contractor safety audits.

3.8 Cryogenic Safety

Code 350 has Center policy responsibility.

Code 321:

- a. Ensures safe use of cryogenic sources during flight project integration and test activities, as well as launch site activities, and that uses are coordinated with Code 350. All such activities occurring at GSFC shall meet the requirements of GPR 8710.7, *Cryogenic Safety*;
- b. Identifies cryogenic hazards and necessary controls during hazard analyses;
- c. Reviews and approves hazardous procedures and work order authorizations;
- d. Witnesses hazardous operations to ensure required hazard controls are implemented properly; and
- e. Provides support to the Cryogenic Safety Committee.

Code 350:

- a. Conducts periodic inspections of cryogenic or Oxygen Deficiency Hazard (ODH) areas for compliance with Goddard and industry standards for cryogenic safety;
- b. Performs ODH assessments of areas;
- c. Identifies cryogenics safety training for employees; and
- d. Provides support to the Cryogenic Safety Committee.

3.9 Design Reviews

Responsibility for development and maintenance of Center policy is defined in individual GPRs.

Contact the organizations below for specific areas of interest.

Code 321:

Provides technical support and system safety presentations at flight project design reviews.

Code 350:

- a. Provides support for and performs design reviews for facilities and institutional projects that affect life, safety, and fire protection at the Center in accordance with applicable Agency, Federal, state and local requirements; and
- b. Provides guidance and advice to organizations on safety requirements during the initial and subsequent phases of project planning.

Code 540/RECERT:

Conducts safety compliance reviews for LDE and PV/S.

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3.10 Education & Awareness

Responsibility for development and maintenance of Center policy is defined in individual GPRs.

Code 350:

- a. Assists supervisors with determining required training for their employees;
- b. Coordinates with the Office of Human Capital Management (OHCM) and the NASA Safety Training Center (NSTC) to ensure appropriate safety training is provided;
- c. Develops and publishes safety bulletins, guides, handbooks, Web sites, and other multimedia materials;
- d. Identifies and develops safety course content and supporting materials for those subjects that are not available “off-the-shelf”; and
- e. Provides consultation and guidance on safety compliance requirements to project managers and supervisors.

3.11 Electrical Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Provides assistance to organizations and periodically assesses compliance with the GPR and electrical codes; and
- b. Provides technical guidance.

3.12 Emergency Preparedness and Response

Code 240 has Center policy responsibility.

Code 240:

- a. Provides advice and assistance to Center personnel, organizations, and contractors regarding emergency preparedness, response, recovery, and mitigation;
- b. Analyzes the emergency capabilities needed by the Center and identifies the training necessary to provide those capabilities;
- c. Serves as a liaison between the Center and local emergency management organizations, and promotes mutual aid;
- d. Facilitates preparation, implementation and maintenance of emergency operations plans, training and exercise plans, and supporting plans for organizing and equipping the Center with trained personnel and emergency supplies, equipment, and facilities such as the Emergency Operations Center (EOC); and
- e. Receives and disseminates alert and warning information to senior management, public affairs, and employees.

3.13 Explosives Safety

Code 803 has Center policy responsibility.

Code 350:

- a. Ensures that all Greenbelt organizations that store, maintain, and handle arms, ammunition, explosives, electro-explosive devices, pyrotechnic devices, and propellants in the performance of their duties, comply with Agency requirements; and

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- b. Maintains an inventory of the types of explosives and locations where stored, and a list of all personnel who are authorized to use or transport them.

Code 803:

Provides ESO oversight and authority.

3.14 Facility Systems Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Ensures existence of facility system safety documentation. Examples are the preliminary hazard list, or the facility hazard analysis (GPR 7320.1, *Facilities System Safety*);
- b. Tracks risks associated with facilities; and
- c. Identifies deficiencies in systems or design, modification, testing, and operational sequences by verifying the integration of safety within the facility acquisition process.

3.15 Fire Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Serves as the technical experts for fire safety compliance issues and requirements;
- b. Functions as the AHJ for fire safety code interpretations and approvals at Greenbelt;
- c. Reviews facility modification plans, design plans, and construction plans for fire systems; and
- d. Monitors the fire safety program, assessing fire prevention efforts and requested changes that affect fire safety in buildings.

NOTE: Prince Georges County provides emergency fire protection response.

3.16 Flight Project Safety

Code 321 has policy responsibility for Greenbelt-managed flight projects.

Code 321:

- a. Safeguards people and resources (including flight hardware and facilities) from hazards associated with the design, development, integration and test, prelaunch processing, and launch of Greenbelt-managed payloads and payload-related Ground Support Equipment (GSE). Code 321 is not responsible for hazards associated with facilities that flight hardware may be located in (see Section 3.14);
- b. Acts as liaison between Greenbelt-managed flight projects, Air Force Range Safety, Kennedy Space Center Safety, or other launch site range safety offices to ensure pre-launch payload range safety requirements are well understood and implemented properly;
- c. Performs hazard analyses on GSFC-developed spacecraft projects, and documents the results in safety data packages to ensure that all hazards are identified and appropriate controls are recommended, implemented, and verified as adequate to reduce risks to an acceptable level;
- d. Reviews and recommends approval for hazard analyses and safety data packages for GSFC-managed missions that are not developed by GSFC;
- e. Provides GSFC-approved payload safety data packages to the launch range for approval in accordance with NPR 8715.7, *Expendable Launch Vehicle Payload Safety Program*, for Expendable Launch Vehicle payloads and NSTS 18798 for STS payloads;

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- f. Generates a safety certification letter that attests to the payload's compliance with safety requirements, and provides Code 300's recommendation to allow shipment to the launch site; and
- g. Reviews and approves all Integration & Test (I&T) and launch site hazardous procedures, ensures identified hazards are adequately controlled, and provides safety oversight of associated hazardous operations.

3.17 Government-Industry Data Exchange Program (GIDEP) Safe Alerts

Code 300 has Center policy responsibility.

Code 300:

Responsible for administration and coordination of the GIDEP in accordance with NPR 8735.1, *Procedures for Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program and NASA Advisories.*

All Directorates:

Support the Center's GIDEP Alert Coordinator in the receipt and disposition of GIDEP Safe Alerts and other safety-related documents issued by the Coordinator, in accordance with GPR 5340.3, *Preparation and Handling of Alerts, Safe Alerts, and Advisories.*

3.18 Hazardous Material Transportation, Storage and Use

Responsibility for development and maintenance of Center policy resides with Code 270 for transportation and with Code 350 for storage and use.

Code 270:

Responsible for the operations of Greenbelt logistics services for products involving handling, storage, packaging, marking, preservation, and transportation.

Code 350:

- a. Performs the necessary testing and documentation for received packages containing radioactive materials in accordance with Department of Transportation (DOT)/Nuclear Regulatory Commission (NRC) requirements;
- b. Assists organizations in acquiring necessary training regarding the storage and use of hazardous materials; and
- c. Conducts periodic work area inspections to verify conformance with standards.

3.19 Hazardous Operations

Responsibility for development and maintenance of Center policy is defined in individual GPRs. Contact the organizations below for specific areas of interest.

Code 321:

Reviews and approves hazardous procedures involving flight projects.

Code 350:

Provides assistance and direction for hazard analysis and risk management involving personnel and institutional activities and operations.

3.20 Industrial Hygiene

Code 350 has Center policy responsibility.

Code 350:

- a. Directs the Industrial Hygiene Program at their respective sites, in accordance with GPR 1840.2, *Industrial Hygiene Program*, which provides for the anticipation, recognition, evaluation, and control of workplace hazards caused by chemical, physical, and biological agents;
- b. Provides comprehensive workplace assessments, laboratory safety assessments, and request-based surveys; and
- c. Directs the asbestos, chemical safety, ergonomics, food service sanitation, hearing conservation, indoor air quality, lead, local exhaust ventilation, PPE, and respiratory protection safety program areas.

3.21 Laboratory Hazards

Responsibilities for policy and implementation depend on the type of hazard (i.e., see Section 3.3 for chemical hazards and Section 3.11 for electrical hazards, etc).

NOTE: Laboratory used in this context is an area or space utilized for research; the fabrication, processing, integration, and/or testing of flight and non-flight hardware, software, and materials; environmental testing or research; space or areas exclusively dedicated to the maintenance of the laboratory, e.g., a mechanical shop supporting a thermal-vacuum testing laboratory. Laboratory space is not limited to areas contained in a building. Machine and welding shops are not included as laboratory spaces.

3.22 Lifting Devices and Equipment

Code 540 has Center policy responsibility.

Code 321:

- a. Coordinates resolution of LDE concerns or controls on GSFC-managed flight projects with the Code 540 RECERT Manager; and
- b. Ensures appropriate tagging and certifications are in place before use on flight projects.

Code 350:

Inspects lifting devices used for institutional operations but does not test and/or certify lifting devices and equipment.

Code 540/RECERT:

Certifies cranes and hoists, slings, powered industrial trucks, mobile aerial platforms, and associated lifting equipment and provides crane training, per GSFC requirements.

3.23 Lockout/Tagout (LO/TO) Program

Code 350 has Center policy responsibility.

Code 350:

Provides technical assistance to organizations regarding LO/TO requirements.

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3.24 Mishap/Close Call Investigation

Code 350 has Center policy responsibility.

Code 321:

- a. Supports the development of mishap preplanning for flight projects;
- b. Coordinates identification, reporting and investigation of flight project mishaps and close calls; and
- c. Ensures flight project-related mishap and close call information is recorded in the NASA Incident Reporting Information System (IRIS), tracked, and reported to Management.

Code 350:

- a. Manages the Center's Mishap and Close Call Program;
- b. Serves as the GSFC administrator for the IRIS;
- c. Assists the appropriate appointing official with initiating mishap investigations, formation of boards/teams, and tracking of findings and recommendations of all GSFC mishap investigations in compliance with Agency and OSHA requirements;
- d. Supports the development of mishap preplanning for non-flight projects;
- e. Coordinates mishap investigations and corrective actions; and
- f. Verifies that non-flight project mishap and close call information is recorded in IRIS, tracked, and reported to management.

3.25 Motor Vehicle Safety

Code 240 has Center policy responsibility.

Code 240:

Enforces Federal, state, and local motor vehicle safety regulations, as well as policies set forth in GPR 1700.1, *Occupational Safety Program at Goddard Space Flight Center*.

3.26 NASA Safety Reporting System

Code 100 has Center policy responsibility.

Code 300:

Coordinates NSRS investigations and submission of final report to HQ.

3.27 Occupational Medicine

Code 250 has Center policy responsibility.

Code 250:

- a. Plans, organizes and manages medical health activities and services;
- b. Coordinates the occupational medicine services and daily operation of the Health Unit, Greenbelt Fitness Center, and EAP;
- c. Serves as the AED Program Manager; and
- d. Distributes wellness information to the Center through health bulletins and wellness seminars.

3.28 Occupational Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Coordinates resolution of occupational safety program concerns;
- b. Provides consultation on occupational safety issues; and

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- c. Verifies Occupational Safety Program implementation in areas such as labs, offices, machine shops, etc.

3.29 Orbital Debris Safety

Responsibility for development and maintenance of Agency policy rests with the Office of Safety and Mission Assurance (OSMA) at NASA Headquarters (HQ).

Code 592:

- a. Performs orbital debris analysis for flight programs (pre Phase A through disposal);
- b. Prepares Orbital Debris Assessment Reports (ODAR) and End of Mission Plans (EOMP) to ensure safe operation and disposal of spacecraft at the end of their operational life; and,
- c. Participates with project design teams to develop hardware and design solutions to meet Agency debris limitation requirements, and to protect the mission against orbital debris threats.

3.30 Personal Protective Equipment (PPE)

Code 350 has Center policy responsibility.

Code 350:

Provides technical assistance to organizations regarding PPE.

3.31 Pressure Vessels & Pressurized Systems (Ground-Based)

Code 540 has Center policy responsibility.

Code 350:

Spot checks certification tagging of PV/S during regular OS&H inspections.

Code 540/RECERT:

Certifies ground-based, non- DOT pressure vessels and pressurized systems/equipment per GSFC requirements.

3.32 Procurement Reviews

Responsibility for development and maintenance of Center policy is defined in individual GPRs.

Contact the organizations below for specific area of interest.

Code 350:

Provides safety support to the procurement process as outlined in NPR 8715.3, *NASA General Safety Program Requirements*.

Code 540/RECERT:

Reviews procurements for major LDE and ground-based PV/S.

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3.33 Project Safety Training

Responsibility for development and maintenance of Center policy is defined in individual GPRs. Contact the organizations below for specific areas of interest.

Code 321:

Provides flight project specific training as necessary.

Code 350:

- a. Coordinates with the Office of Human Capital Management (OHCM) and the NSTC to ensure appropriate project safety and system safety training courses are provided via OHCM; and
- b. Provides safety orientation training on hazards and required controls during flight project I & T activities and launch site activities.

Code 540/RECERT:

- a. Provides LDE operator training and Critical Lift Coordinator training; and
- b. Oversees LDE operator training performed by others.

3.34 Radiation Safety (Ionizing and Non-Ionizing)

Code 350 has Center policy responsibility.

Code 321:

- a. Ensures safe use of radiation sources during flight project integration and test activities, as well as launch site activities, and that uses are coordinated with Code 350;
- b. Identifies radiation hazards and necessary controls during hazard analyses;
- c. Reviews and approves hazardous procedures and work order authorizations;
- d. Witnesses hazardous operations to ensure required hazard controls are implemented properly; and
- e. Provides support to the Radiation Safety Committee.

Code 350:

- a. Verifies that all Federal, Agency, and state regulations specific to the use of ionizing and non-ionizing radiation are met;
- b. Manages the Nuclear Regulatory Commission (NRC) licenses issued to GSFC;
- c. Designates the Chair of the Radiation Safety Committee and appoints the Radiation Safety Officer; and
- d. Provides advice and guidance on health physics principles and safety standards to the Center's senior management and to senior scientific staff to maintain compliance for two NRC radiological licenses.

3.35 Range Safety

Responsibility for Agency Range Safety Policy resides with the OSMA at NASA HQ. Responsibility for development and maintenance of WFF policy resides with Code 803.

Code 803:

- a. Performs analyses of proposed flight systems including trajectory, propellants, payloads, prelaunch, and launch operations;
- b. Identifies hazards; provides risk assessments; and publishes Flight and Ground Safety Plans that include hazard controls and mitigations in project safety documents; and
- c. Provides launch support for rockets in roles necessary for particular missions. Roles include Range Safety Officer, Flight Safety Officer, System Safety Officer, Wind Weighting, Surveillance Officer, etc.

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3.36 Technical Facilities

NOTE: The term “technical facilities” is synonymous with the definition for laboratory given in GPR 8730.7, *Laboratory Management Program*.

Facility Owner/Operator: A technical facility owner/operator is the branch or other similar organization which has been designated as the primary entity responsible for the facility and the operations undertaken within it. Such designation can be determined through Center facilities designation or through other agreements and delegation as may exist.

- a. In cases of use of the technical facility by a mix of personnel, equipment, hardware, and materials from different codes, organizations, or for different purposes, ensures that agreements have been established and documented among the participating organizations that define the split of safety responsibilities; and
- b. Lacking such a documented agreement the facility owner/operator is responsible for the safety of all operations and conditions within the technical facility.

3.37 Workers Compensation

Code 110 has Center policy responsibility.

Code 110:

- a. Receives and reviews all notices of injuries/illnesses; and
- b. Advises employees and managers on proper filing of the paperwork to establish a claim.

4. IMPLEMENTATION OF SAFETY AT THE WALLOPS FLIGHT FACILITY

The Safety Office, Code 803 at WFF, is the principal organization that implements safety at WFF. Codes 200 and 500 provide support at WFF and Code 300 supports from Greenbelt.

The WFF Director, who is also the Director of Suborbital and Special Orbital Projects (Code 800), reports directly to the GSFC Center Director. Consistent with the other large U.S. ranges such as the Eastern and Western Ranges, the WFF Director is the equivalent of the Range Commander and is responsible for overall safety at WFF. As such, the WFF Director has direct supervisory authority over the safety organization, with the Safety Office Chief as a direct report. The WFF Director directs the resolution of safety issues, thereby facilitating successful, safe execution of programs and projects, including aviation and range safety. Responsibilities include ensuring the overall safety of the WFF and public (people and property), and safety for launch (Certificate of Flight Readiness (CoFR) and Authority to Proceed) taking into account vehicle readiness, range readiness and safety readiness.

Functional areas within the Safety Office include Range Safety Operations, Range (Ground and Flight) Safety, and Occupational Safety and Health. These functional areas are unique within the Agency and require a specialized skill set and knowledge of Federal regulatory and NASA requirements, as well as knowledge of the standards that are commonly used at other U.S. launch ranges.

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The Safety Office also manages two fire stations, two ambulances, and provides oversight of hazardous facilities and operations including launch vehicle processing and launch operations. Other unique functions include placement of toxic monitoring equipment and field support related to public safety, storage and movement of high explosives, operation of the Emergency Operations Center (EOC) on a regular basis to support range operations, and coordination with local authorities in surrounding counties, states, and countries as a result of range operations and major non-range related events.

Occupational Safety and Health at WFF is overseen by the Executive Safety and Health Council. The Council provides a forum for civil servants and contractors to accomplish safety goals and objectives and to ensure objectivity and accountability in safety decisions. Council membership and responsibilities are defined in GPR 8715.3, *Wallops Flight Facility Executive Safety and Health Council*. WFF also has a facility-wide Employee Safety Committee and a Contractor Safety Council that report directly to the Executive Safety and Health Council.

Codes 200, 300, 500 and 800 have functional safety responsibility at the WFF, in compliance with the GSFC Safety Policy. Their respective roles and responsibilities are identified in subsequent subsections. In general,

- a. Code 240, Security Division, has responsibility for providing policy and overall oversight, advice, and assistance to Center personnel, organizations, and contractors regarding motor vehicle safety and assists Code 803 in emergency preparedness, response, recovery, and mitigation.
- b. Code 250, Medical and Environmental Management Division, has responsibility for planning, organizing, and managing medical health activities including but not limited to Health Unit Services, the Employee Assistance Program, and the Automated External Defibrillator (AED) Program.
- c. Code 270, Information and Logistics Management Division, has responsibility for ensuring products are packaged, marked and preserved to ensure conformance to product and customer requirements, including environmental control during shipping, handling, and storage and compliance with applicable hazardous materials requirements.
- d. Code 350, Occupational Safety and Health (OS&H) Division, has responsibility for Occupational Safety and Health policy for all of GSFC, is responsible for oversight of implementation of OS&H Programs and provides OS&H support to the WFF as requested.
- e. Code 540/RECERT – The RECERT program has responsibility for applicable compliance for lifting devices and equipment (LDE) and pressure vessels/systems (PV/S). The Deputy RECERT Manager/WFF serves as the RECERT Manager’s alternate and represents the RECERT Manager at WFF for day-to-day operations.

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- f. Code 803, Safety Office (WFF), has responsibility for policy and oversight for project safety, range safety, and oversight of GSFC occupational safety requirements at WFF. Provides ESO and AHJ oversight and authority.
- g. Code 830, Aircraft Office (WFF), has responsibility for safety as it specifically relates to GSFC aircraft operations, including manned and unmanned aviation safety.

The paragraphs in this section list the functional safety areas noted in Table 1 and identify the principal organization(s) responsible for implementation of the functional safety areas at the WFF along with a summary of key support provided. The organization responsible for developing Center-wide policy in the functional area is also noted. When appropriate, key GPRs are identified.

4.1 Audits & Inspections

Responsibility for development and maintenance of Center policy is defined in individual GPRs. Contact the organizations below for specific areas of interest.

Code 540 RECERT:

- a. Performs compliance checks of PV/S to ensure that the requirements of GPR 8710.3, *Certification and Recertification of Ground-Based Pressure Vessels and Pressurized Systems*, are being followed; and
- b. Performs compliance checks of lifting equipment operators, and LDE, to ensure that the requirements of GPR 8719.1, *Certification and Recertification of Lifting Devices and Equipment and Its Operators*, are being followed.

Codes 803:

Audits /inspects WFF facilities and operations annually for compliance with national, Agency, and local safety and health standards.

4.2 Aviation Safety

Code 830 has Center policy responsibility.

Code 803:

- a. Performs analyses of proposed flight systems and publishes hazard analysis and safety plans which specify controls and mitigations in support of the operations;
- b. Supports the Code 830 airworthiness review process; and,
- c. Provides day-of-flight support in roles as necessary for a particular mission. Examples are the Range Safety Officer, Flight Safety Officer, Ground Safety Officer, Sky Screen, Surveillance Officer, etc.

Code 830:

- a. Responsible for the safety of missions using manned and unmanned aircraft. This includes approval of hardware and procedures for flight, as well as supporting ground operations;
- b. The Aviation Safety Officer (ASO) reviews and approves procedures, maintenance records, project plans, and other documentation that can affect the safety of pilots and crew;
- c. The ASO conducts physical inspections of training records, medical records, and flight hardware, and provides an assessment of aviation safety to the Aircraft Office Chief; and,
- d. The ASO is a required standing member of the GSFC Airworthiness Review Board.

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4.3 Chemical Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Verifies compliance with applicable regulatory, Agency and national standards;
- b. Supports procurement actions in accordance with NPR 8715.3, *NASA General Safety Program Requirements*;
- c. Assists users in Process Hazard Analyses (GPR 1700.2, *Chemical Hygiene Program*) of operations using chemicals, as required;
- d. Provides support to the Center Chemical Safety Committee;
- e. Verifies safe use of chemicals during flight project integration and test activities, as well as during launch site activities, and ensures that all chemical usage, storage and disposal is coordinated with the appropriate site safety and environmental personnel;
- f. Identifies hazards and necessary controls during hazard analyses and reviews;
- g. Approves hazardous procedures and work order authorizations; and
- h. Witnesses hazardous operations to ensure required hazard controls are implemented properly.

4.4 Commercial Launch and Entry Operations

This section is for launches at WFF or remote sites for which WFF has responsibility for safety.

Code 803:

- a. Implements Flight and Ground Safety in coordination with the FAA;
- b. Supervises the activities of each contractor providing a launch or entry service by approval of requirements and ongoing insight into the contractor's operations. This includes both vehicle and non-NASA payload processing activities; and
- c. Ensures that a government organization directly oversees and performs the range safety function during the activity.

4.5 Confined Spaces

Code 350 has Center policy responsibility.

Code 803:

- a. Maintains an inventory of confined spaces on the facility;
- b. Oversees the proper labeling of confined spaces;
- c. Provides supervisor and entry worker confined space safety training;
- d. Reviews and approves confined space permit applications and plans; and
- e. Provides technical assistance for confined space program implementation.

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4.6 Construction Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Verifies compliance with Agency, National, and OSHA construction standards;
- b. Supports pre-construction meetings;
- c. Reviews safety plans submitted by construction contractors; and
- d. Performs construction site inspections and follow-ups throughout the work performance period.

4.7 Contractor Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Reviews the Initiator's Acquisition Checklist (GSFC Form 23-5) for in-process procurements to verify appropriate clauses and safety hazards are addressed;
- b. Assesses contractor safety plans in support of source evaluation boards against Agency and national requirements;
- c. Reviews contractors' safety performance through the assessment of contractor health and safety reports, incident and accident reports, mishap reports, training, hazard prevention and control, etc.; and
- d. Assists Program/Project Managers or other responsible officials in implementing contractor safety surveillance and evaluation programs through periodic contractor safety audits.

4.8 Cryogenic Safety

Code 350 has Center policy responsibility.

Code 350:

- a. Conducts periodic inspections of cryogenic or Oxygen Deficiency Hazard (ODH) areas for compliance with Goddard and industry standards for cryogenic safety;
- b. Performs ODH assessments of areas; and
- c. Identifies cryogenics safety training for employees.

Code 803:

- a. Ensure safe use of cryogenic materials during flight project integration and test activities, as well as launch site activities. All such activities occurring at GSFC shall meet the requirements of GPR 8710.7, *Cryogenic Safety*;
- b. Identifies cryogenic hazards and necessary controls during hazard analyses and reviews;
- c. Reviews and approves hazardous operating procedures and work order authorizations;
- d. Witnesses hazardous operations to ensure required hazard controls are implemented properly; and
- e. Provides support to the Cryogenic Safety Committee.

4.9 Design Reviews

Responsibility for development and maintenance of Center policy is defined in individual GPRs.

Contact the organizations below for specific areas of interest.

Code 540/RECERT:

Conducts safety compliance reviews for LDE and PV/S.

Code 803:

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- a. Provides support for and performs design reviews for facilities and institutional projects that affect life, safety and fire protection at the Center in accordance with applicable Agency, Federal, state and local requirements;
- b. Provides guidance and advice to organizations on safety requirements during the initial and subsequent phases of project planning;
- c. Provides technical support and system safety presentations at flight project design reviews; and
- d. Identifies safety issues and initiates requests for action to address safety issues needing further work for flight hardware designs.

4.10 Education & Awareness

Responsibility for development and maintenance of Center policy is defined in individual GPRs. Contact the organizations below for specific areas of interest.

Code 803:

- a. Assists supervisors with determining required training for their employees;
- b. Coordinates with the Office of Human Capital Management (OHCM) and the NASA Safety Training Center (NSTC) to ensure appropriate safety training is provided;
- c. Develops and publishes safety bulletins, guides, handbooks, Web sites, and other multimedia materials;
- d. Identifies and develops safety course content and supporting materials for those subjects that are not available “off-the-shelf;” and
- e. Provides consultation and guidance on safety compliance requirements to project managers and supervisors.

4.11 Electrical Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Provides assistance to organizations and periodically assesses compliance with the GPR and electrical codes; and,
- b. Provides technical guidance.

4.12 Emergency Preparedness and Response

Code 240 has Center policy responsibility.

Code 803:

- a. Provides advice and assistance to personnel, organizations, and contractors regarding emergency preparedness, response, recovery, and mitigation;
- b. Analyzes the emergency capabilities needed and identifies the training necessary to provide those capabilities;
- c. Serves as a liaison between WFF and local emergency management organizations, and promotes mutual aid;
- d. Facilitates preparation, implementation, and maintenance of emergency operations plans, training and exercise plans, and supporting plans for organizing and equipping WFF with trained personnel and emergency supplies, equipment, and facilities (such as EOC);

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- e. Receives and disseminates alert and warning information to senior management, public affairs, and employees;
- f. Provides emergency notifications to Code 240; and
- g. Manages the Fire and Emergency Medical Services.

4.13 Explosives Safety

Code 803 has Center policy responsibility.

Code 803:

- a. Ensures that all WFF organizations that store, maintain, and handle arms, ammunition, explosives, electro-explosive devices, pyrotechnic devices, and propellants, including rocket fuel and motors, in the performance of their duties, comply with Agency requirements;
- b. Maintains an inventory of the types of explosives and locations where stored, and a list of all personnel who are authorized to use or transport them; and
- c. Provides ESO oversight and authority for the Center.

4.14 Facility Systems Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Ensures existences of facility system safety documentation. Examples are the preliminary hazard list, or the facility hazard analysis (GPR 7320.1, *Facilities System Safety*);
- b. Tracks risks associated with facilities; and
- c. Identifies deficiencies in systems or design, modification, testing, and operational sequences by verifying the integration of safety within the facility acquisition process.

4.15 Fire Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Serves as the technical experts for fire protection compliance issues and requirements at WFF;
- b. Functions as the AHJ for fire safety code interpretations and approvals at WFF;
- c. Reviews facility modification plans, design plans, and construction plans and fire system acceptance; and
- d. Monitors the fire safety program, assessing fire prevention efforts and requested changes that affect fire safety in buildings.

NOTE: The WFF Fire Department provides fire protection response.

4.16 Flight Project Safety

Responsibility for the development and maintenance of Center policy for suborbital and non-NASA orbital WFF-managed range missions resides with Code 803.

Code 803:

- a. Safeguards people and resources (including facilities) from hazards associated with WFF range activities, which includes but is not limited to flight vehicles, payloads, and Ground Support Equipment (GSE);

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- b. Establishes processes and requirements for WFF-managed missions, including NPR 8715.7, *Expendable Launch Vehicle Payload Safety Program*, for NASA Expendable Launch Vehicle payloads, NPR 8715.5, *NASA Range Safety Program*, for flight operations, and RSM 2002, *Range Safety Manual for the GSFC/WFF*;
- c. Generates Risk Analysis Reports (RAR) which document the hazards associated with ground processing and flight operations, and capture mitigations required to safely conduct operations;
- d. Reviews and approves hazardous procedures, ensures identified hazards are adequately controlled and provides a certified Operational Safety Supervisor (OSS) for all hazardous operations;
- e. Reviews and approves ground and flight safety data packages provided by the range customer;
- f. Provides approved ground and flight safety data packages for WFF-managed suborbital and non-NASA orbital missions flown at other ranges;
- g. Produces, reviews and approves ground and flight safety plans used to implement hazard mitigation during pre-launch and launch activities;
- h. Provides on-console support of flight operations with a team led by a Missions Range Safety Officer, whose functions include verifying all safety criteria are met prior to launch (Go/No Go) and taking a flight termination action, if necessary, during flight;
- i. Trains and certifies hazardous process operators;
- j. Certifies safety critical systems used by the WFF range in support of ground and flight operations; and
- k. Reviews and recommends approval/disapproval of variances to requirements to the GSFC Center Director or designee (i.e., WFF Director).

4.17 Government-Industry Data Exchange Program (GIDEP) Safe Alerts

Code 300 has Center policy responsibility.

Code 300:

Responsible for administration and coordination of the GIDEP in accordance with NPR 8735.1, *Procedures for Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program and NASA Advisories*.

Code 803:

Provides the WFF GIDEP coordinator who works directly with the Center GIDEP coordinator at Greenbelt.

All Directorates:

Supports the Center's GIDEP Alert Coordinator in the receipt and disposition of GIDEP Safe Alerts and other safety-related documents issued by the Coordinator, in accordance with GPR 5340.3, *Preparation and Handling of Alerts, Safe Alerts, and Advisories*.

4.18 Hazardous Material Transportation, Storage and Use

Responsibility for development and maintenance of Center policy resides with Code 270 for transportation and with Code 350 for storage and use.

Code 270:

Responsible for the operations of WFF logistics services for products involving handling, storage, packaging, marking, preservation, and transportation.

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Code 803:

- a. Performs the necessary testing and paperwork for received packages containing radioactive materials in accordance with DOT/NRC requirements;
- b. Assists organizations in acquiring necessary training regarding the storage and use of hazardous materials and preparation of Job Hazard Analyses (JHA); and
- c. Conducts periodic work area inspections to verify conformance with standards.

4.19 Hazardous Operations

Responsibility for development and maintenance of Center policy is defined in individual GPRs.

Code 803:

- a. Reviews and approves hazardous procedures;
- b. Provides assistance and direction for hazard analysis and risk management involving personnel and institutional activities and operations; and
- c. Provides assistance and direction for hazard analysis and risk management involving projects.

4.20 Industrial Hygiene

Code 350 has Center policy responsibility.

Code 803:

- a. Directs the Industrial Hygiene Program in accordance with GPR 1840.2, *Industrial Hygiene Program*, which provides for the anticipation, recognition, evaluation, and control of workplace hazards caused by chemical, physical, and biological agents;
- b. Provides comprehensive workplace assessments, laboratory safety assessments, and request-based surveys; and
- c. Supports the asbestos, chemical safety, ergonomics, food service sanitation, hearing conservation, indoor air quality, lead, local exhaust ventilation, PPE, and respiratory protection safety program areas.

4.21 Laboratory Hazards

Responsibilities for policy and implementation depend on the type of hazard (i.e., see Section 4.3 for chemical hazards and Section 4.11 for electrical hazards, etc).

NOTE: Laboratory used in this context is an area or space utilized for research; the fabrication, processing, integration, and/or testing of flight and non-flight hardware, software, and materials; environmental testing or research; space or areas exclusively dedicated to the maintenance of the laboratory, e.g., a mechanical shop supporting a thermal-vacuum testing laboratory. Laboratory space is not limited to areas contained in a building. Machine and welding shops are not included as laboratory spaces.

4.22 Lifting Devices and Equipment

Code 540 has Center policy responsibility.

Code 540/RECERT:

Certifies cranes and hoists (mobile and overhead), slings, powered industrial trucks, mobile aerial platforms, and associated equipment and provides crane training per GSFC requirements.

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Code 803:

- a. Inspects lifting devices used for institutional operations, but does not test and/or certify lifting devices or equipment;
- b. Reviews project hazardous lifting procedures and ensures that those procedures are accomplished in a safe manner;
- c. Ensures lifting devices used on flight projects are included in hazard analyses;
- d. Coordinates resolution of LDE concerns or controls with the Code 540 RECERT Manager; and
- e. Ensures appropriate tagging and certifications are in place before use on projects.

4.23 Lockout/Tagout (LO/TO) Program

Code 350 has Center policy responsibility.

Code 803:

- a. Evaluates and approves written procedures and safety plans and performs periodic program evaluations; and
- b. Provides technical assistance to organizations regarding LO/TO requirements.

4.24 Mishap/Close Call Investigation

Code 350 has Center policy responsibility.

Code 350:

- a. Manages the Center's Mishap and Close Call Program;
- b. Serves as the GSFC administrator for the IRIS; and
- c. Assists the appropriate appointing official with initiating mishap investigations, formation of boards/teams, and tracking of findings and recommendations of all GSFC mishap investigations in compliance with Agency and OSHA requirements.

Code 803:

- a. Supports the development of mishap preplanning for projects;
- b. Coordinates mishap investigations and corrective actions; and
- c. Verifies that non-project mishap and close call information is recorded in IRIS, tracked, and reported to management.

4.25 Motor Vehicle Safety

Code 240 has Center policy responsibility.

Code 240:

Enforces Federal, state, and local motor vehicle safety regulations, as well as policies set forth in GPR 1700.1, *Occupational Safety Program at Goddard Space Flight Center*.

4.26 NASA Safety Reporting System

Code 100 has Center policy responsibility.

Code 803:

- a. Investigates NSRS reports; and
- b. Works with the Center's NSRS point-of-contact in Code 300 to coordinate approval and submission of final report, including investigation and summary recommendations.

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4.27 Occupational Medicine

Code 250 has Center policy responsibility.

Code 250:

- a. Plans, organizes and manages medical health activities and services;
- b. Coordinates the occupational medical services and daily operation of the Health Unit and EAP;
- c. Serves as the AED Program Manager; and
- d. Distributes wellness information to the Center through health bulletins and wellness seminars.

4.28 Occupational Safety

Code 350 has Center policy responsibility.

Code 803:

- a. Coordinates resolution of occupational safety program concerns;
- b. Provides consultation on occupational safety issues; and
- c. Verifies Occupational Safety Program implementation in areas such as labs, offices, machine shops etc.

4.29 Orbital Debris Safety

Responsibility for development and maintenance of Agency policy rests with the OSMA at NASA HQ.

Code 592:

- a. Performs orbital debris analysis for flight programs (pre Phase A through disposal);
- b. Prepares Orbital Debris Assessment Reports (ODAR) and End of Mission Plans (EOMP) to ensure safe operation and disposal of spacecraft at the end of their operational life; and
- c. Participates with project design teams to develop hardware and design solutions to meet Agency debris limitation requirements, and to protect the mission against orbital debris threats.

4.30 Personal Protective Equipment

Code 350 has Center policy responsibility.

Code 803:

- a. Upon request, provides technical assistance to organizations regarding PPE selection and use; and
- b. Ensures that the proper PPE is in use during hazardous operations.

4.31 Pressure Vessels & Pressurized Systems (Ground-Based)

Code 540 has Center policy responsibility.

Code 540/RECERT:

Certifies ground-based, non-DOT pressure vessels and pressurized systems/equipment per GSFC requirements.

Code 803:

- a. Includes PV/S in hazard analyses and identifies any concerns or controls in risk assessment reports and safety plans; and
- b. Performs inspection of PV/S usage during regular OS&H inspections and surveys.

4.32 Procurement Reviews

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Responsibility for development and maintenance of Center policy is defined in individual GPRs. Contact the organizations below for specific areas of interest.

Code 540/RECERT:

Reviews procurements for major LDE and ground-based PV/S.

Code 803:

Provides safety support to the procurement process as outlined in NPR 8715.3, *NASA General Safety Program Requirements*, for WFF-managed projects.

4.33 Project Safety Training

Responsibility for development and maintenance of Center policy is defined in individual GPRs.

Code 540/RECERT:

- a. Provides LDE operator training and critical lift coordinator training; and
- b. Oversees LDE operator training performed by others.

Code 803:

Provides training as appropriate for orientation onto WFF. Provides more specific training when required.

4.34 Radiation Safety (Ionizing and Non-Ionizing)

Code 350 has Center policy responsibility.

Code 350:

- a. Verifies that all Federal, Agency, and state regulations specific to the use of ionizing and non-ionizing radiation are met;
- b. Manages the NRC licenses issued to GSFC;
- c. Designates the Chair of the Radiation Safety Committee and appoints the Radiation Safety Officer; and
- d. Provides advice and guidance on health physics principles and safety standards to the Center's senior management and to senior scientific staff to maintain compliance for two NRC radiological licenses.

Code 803:

- a. Ensures compliance with DOT and NRC requirements for shipping, receiving, and storage of ionizing materials;
- b. Evaluates and documents application of non-ionizing radiation instruments producing laser or radio frequency (RF) radiation; and
- c. Ensures project-related plans and procedures, wherein a radiation hazard exists, are performed in a safe manner.

4.35 Range Safety

Responsibility for Agency Range Safety Policy resides with the OSMA at NASA HQ. Responsibility for development and maintenance of WFF policy resides with Code 803.

Code 803:

- a. Performs analyses of proposed flight systems including trajectory, propellants, payloads, prelaunch, and launch operations;
- b. Identifies hazards, provides risk assessments, and publishes Flight and Ground Safety Plans that include hazard controls and mitigations in project safety documents; and

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- c. Provides launch support for rockets in roles necessary for particular missions. Roles include Range Safety Officer, Flight Safety Officer, System Safety Officer, Wind Weighting, Surveillance, etc.

4.36 Technical Facilities

NOTE: The term “technical facilities” is synonymous with the definition for laboratory given in GPR 8730.7, *Laboratory Management Program*.

Facility Owner/Operator: A technical facility owner/operator is the branch or other similar organization which has been designated as the primary entity responsible for the facility and the operations undertaken within it. Such designation can be determined through Center facilities designation or through other agreements and delegation as may exist.

- a. In cases of use of the technical facility by a mix of personnel, equipment, hardware, and materials from different codes, organization, or for different purposes, ensures that agreements have been established and documented among the participating organizations that define the split of safety responsibilities; and
- b. Lacking such a documented agreement, the facility owner/operator is responsible for the safety of all operations and conditions within the technical facility.

Code 803:

- a. Ensures the proper operation and maintenance of the facility equipment and associated testing operations; and
- b. Reviews test articles and proposed test activities to ensure compliance with appropriate safety requirements, contacting safety organizations as needed for technical assistance.

4.37 Workers Compensation

Code 110 has Center policy responsibility.

Code 110:

- a. Receives and reviews all notices of injuries/illnesses; and
- b. Advises employees and managers on proper filing of the paperwork to establish a claim.

5. IMPLEMENTATION OF SAFETY AT THE NASA INDEPENDENT VERIFICATION AND VALIDATION FACILITY

This section discusses the implementation of safety at the NASA Independent Verification and Validation (IV&V) Facility. As a remote site, it has entered into agreements with local organizations to provide certain safety support and services; however, it still must maintain compliance with the overall GSFC Safety Policy. It also gets support from the GSFC functional safety organizations as discussed in Section 5.1.

The IV&V Facility is a component facility of GSFC and administratively falls under GSFC Code 180. It is located in Fairmont, West Virginia and resides in a building owned by the West Virginia University. The NASA IV&V Program is a NASA program and functions operationally under the guidance of the Chief of the OSMA while receiving administrative support from GSFC. The IV&V

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Facility Director serves as the NASA IV&V Program Manager, is responsible for the overall health and safety at the site, and reports directly to the Chief of the OSMA at NASA HQ. The NASA IV&V Program provides NASA-wide support, offering software services, including IV&V of critical software under development, systems engineering support, and software assurance research.

The IV&V has an active safety committee that is important to the overall safety management effort. The safety committee is a cross functional team comprised of employees from each functional department. Meetings are held on a monthly basis, and members are tasked with:

- a. Involving employees in safety management;
- b. Investigating and implementing corrective actions to reduce the rate and severity of accidents on and off the job;
- c. Communicating committee activities with their respective departments;
- d. Increasing employee participation in safety programs;
- e. Providing a path for resolution of contract-based safety concerns;
- f. Providing an open forum where health, safety and environmental issues and accomplishments are discussed;
- g. Providing feedback on HSE lessons learned; and
- h. Providing visibility and communication of all IV&V close calls and identified hazard issues.

The following paragraphs discuss the specific support provided by the GSFC functional safety organizations.

5.1 Functional Safety Organization Support at IV&V

- a. Code 110, Office of Human Capital Management, has policy responsibility for workers compensation:
 - 1) Receives and reviews all notices of injuries/illness; and
 - 2) Advises employees and managers on proper filing of the paperwork to establish a claim.
- b. Code 240, Security Division, provides policy and overall oversight, advice, and assistance regarding:
 - 1) Emergency preparedness, response, recovery, and mitigation;
 - 2) Personnel clearance and badging; and
 - 3) Physical security.
- c. Code 250, Medical and Environmental Management Division, provides policy and overall oversight, advice, and assistance regarding:
 - 1) Employee Assistance Program (EAP);
 - 2) Distribution of wellness information;
 - 3) Coordination of required employee medical services; and
 - 4) AED program manager support.
- d. Code 350, Occupational Safety and Health (OS&H) Division, provides safety and health support as requested for:
 - 1) Annual safety inspections; and

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- 2) Review of safety program.
- e. Code 540/RECERT provides support as needed and/or requested, and performs LDE and PV/S program audits as necessary.

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6. IMPLEMENTATION OF SAFETY AT THE GODDARD INSTITUTE FOR SPACE STUDIES

This section discusses the implementation of safety at the NASA Goddard Institute for Space Studies (GISS). As a remote site, it has entered into agreements with local organizations to provide certain safety support and services; however, it still must maintain compliance with the overall GSFC Safety Policy. It also gets support from the GSFC functional safety organizations as discussed in Section 6.1.

The GISS is located in New York City. NASA leases a portion of the Armstrong Hall building from Columbia University. GISS occupies five of the building's seven floors. GISS (Code 611) is a component laboratory of the Science and Exploration Directorate, Earth Sciences Division. A key objective of GISS research is the prediction of atmospheric and climate changes in the 21st century. GISS focuses on earth science related to atmospheric and climate issues and works cooperatively with area universities and research organizations, most especially with Columbia University.

This site is operated and managed by Code 611, which follows the guidance, rules, and regulations promulgated by NASA, GSFC, Code 600 and Code 610. This site provides office space and computer operations space. GISS is supported by safety functional organizations, both at Greenbelt and WFF. These organizations provide both recurring/predefined support and assistance/support as needed or requested. The following paragraphs discuss the specific support provided by the GSFC functional safety organizations.

6.1 Functional Safety Organization Support at GISS

- a. Code 240, Security Division, provides policy and overall oversight, advice, and assistance regarding:
 - 1) Emergency preparedness, response, recovery, and mitigation;
 - 2) Personnel clearance and badging; and
 - 3) Physical security.
- b. Code 250, Medical and Environmental Management Division, provides policy and overall oversight, advice and assistance regarding:
 - 1) Employee Assistance Program (EAP);
 - 2) Distribution of wellness information;
 - 3) Coordination of required employee medical services; and
 - 4) AED Program Manager Support
- c. Code 270, Information and Logistics Management Division, provides support as needed and/or requested.
- d. Code 321, Systems Safety Branch, provides support as needed and/or requested.
- e. Code 350, Occupational Safety and Health (OS&H) Division, provides safety and health support as requested for:

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- 1) Annual safety inspections; and
 - 2) Review of safety program.
- f. Code 540/RECERT provides support as needed and/or requested, and performs LDE and PV/S program audits as necessary.
- g. Code 803, Safety Office (WFF), provides support as needed and/or requested.
- h. Code 830, Aircraft Office (WFF), provides support as needed and/or requested.

7. IMPLEMENTATION OF SAFETY AT THE WHITE SANDS COMPLEX

This section discusses the implementation of safety at the White Sands Complex (WSC). As a remote site, it has entered into agreements with local organizations to provide certain safety support and services; however, it still must maintain compliance with the overall GSFC Safety Policy. It also gets support from the GSFC functional safety organizations as discussed in Section 7.1.

The WSC is located in Las Cruces, New Mexico, and is managed by the GSFC's Space Network (Code 452), which is a project within the Exploration and Space Communications Division (Code 450), a division of the Flight Projects Directorate (Code 400). The WSC includes two functionally identical satellite ground terminals in New Mexico and a third satellite ground terminal on the island of Guam. These terminals are known as the White Sands Ground Terminal (WSGT), the Second TDRSS Ground Terminal (STGT), and the Guam Remote Ground Terminal (GRGT), respectively. The ground terminals contain the hardware and software necessary to ensure uninterrupted communications between the customer spacecraft and the NASA Integrated Services Network (NISN) interface to the customer control center. There are additional, smaller ground terminals associated with WSC operations that are not listed because they are not continuously occupied. It is understood that these smaller terminals and any future ground terminals will comply with NASA and GSFC safety requirements.

The WSC occupies approximately 50 acres of land located on Department of Defense (DoD) soil with Johnson Space Center (JSC) as the host through a host-tenant agreement between JSC and the DoD, and a subsequent host-tenant agreement between JSC and GSFC. A Memorandum of Agreement (MOA) is in place between the White Sands Test Facility (WSTF) and the WSC that establishes the general areas of responsibility for institutional support services for the WSC facilities on a reimbursable basis.

The WSC has an on-site Health Safety Environmental (HSE) representative provided by the prime contractor who carries out regulatory requirements and functions in coordination with Codes 250, 300, and 450 and activities described in Section 7.1c.

The WSC has an active safety committee that is important to the overall safety management effort. The safety committee is a cross functional team comprised of employees from each functional department. Meetings are held on a monthly basis, and members are tasked with:

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- a. Involving employees in safety management;
- b. Investigating and implementing corrective actions to reduce the rate and severity of accidents on and off the job;
- c. Communicating committee activities with their respective departments;
- d. Increasing employee participation in safety programs;
- e. Providing a path for resolution of contract-based safety concerns;
- f. Providing an open forum where health, safety and environmental issues and accomplishments are discussed;
- g. Providing feedback on HSE lessons learned; and
- h. Providing visibility and communication of all WSC close calls and identified hazard issues.

7.1 Functional Safety Organization Support at WSC

- a. Code 250, Environmental Division, provides support as needed and/or requested and has overall environmental policy authority.
- b. Code 321, Systems Safety Branch, provides support as needed and/or requested.
- c. Code 350, Occupational Safety and Health (OS&H) Division, provides safety and health support as requested for:
 - 1) Annual safety inspections; and
 - 2) Review of safety programs.
- d. Code 452, Space Network Project, provides contract support for the following:
 - 1) Coordinating overall WSC HSE efforts;
 - 2) Advising WSC management on HSE issues;
 - 3) Consulting with the WSC line organizations (GRGT, Operations, Maintenance, Sustaining Engineering and Site Support);
 - 4) Maintaining a recommended HSE topic for discussion on the WSC Intranet Safety Webpage; and
 - 5) Maintaining site metrics providing objective evidence of completed monthly department safety meeting for review by the Program Manager.
- e. Code 540/RECERT provides support as needed and/or requested and performs LDE and PV/S program audits as necessary.
- f. WSTF provides the following support via MOA and task orders:
 - 1) Emergency services;
 - 2) Fire protection and prevention;
 - 3) Hazardous materials spill response;
 - 4) WSC access roads and parking lots;
 - 5) Environmental compliance; and
 - 6) Hazardous waste characterization and shipment.

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Appendix A – Definitions

- A.1 Center Standing Safety Committee – A committee established to develop, implement, and oversee aspects of the Center’s Safety Program that require continual attention. Examples include the Chemical Safety Committee and Radiation Safety Committee.
- A.2 Directorate Safety Committee – A committee composed of representatives from the various organizations and employee groups within a Directorate. The committee’s purpose is to foster employee safety awareness and safe conditions in a Directorate’s work areas.
- A.3 End-of-Mission – The time of completion of all mission activities, experimental operations, and stand-by status, immediately preceding passivation and disposal of the spacecraft or launch vehicle stage.
- A.4 Facility Owner /Operator – A technical facility owner/operator is the branch or similar organization which has been designated as the primary entity responsible for the facility and the operations undertaken within it. Such designation can be determined through Center facilities designation or through other agreements and delegations as may exist.
- A.5 Functional Safety Organization – An organization whose primary responsibilities include implementing aspects of the Center’s Safety Program. See Section 1.5.
- A.6 GSFC Contractor Safety Forum (GCSF) – A standing committee comprised of key government management officials and representatives from contractor organizations that support Goddard’s missions.
- A.7 GSFC Safety Board of Directors (BOD) – An organization with responsibility for monitoring the overall implementation of the GSFC Safety Program across all Center organizations/locations from a broad, Center-wide perspective. It is comprised of Directors of or their designees.
- A.8 GSFC Safety Council (GSC) – A council appointed by the GSFC Center Director to facilitate the development and update of Center-wide safety policies and guidelines and monitor the communication of these policies and guidelines to all employees.
- A.9 Laboratory – An area or space utilized for research; the fabrication, processing, integration, and/or testing of flight and non-flight hardware, software, and materials; environmental testing or research; space or areas exclusively dedicated to the maintenance of the laboratory, e.g., a mechanical shop supporting a thermal-vacuum testing laboratory. Laboratory space is not limited to areas contained in a building. Machine and welding shops are not included as laboratory spaces.
- A.10 Occupational Health – Health as similarly defined in NPR 1800.1, *NASA Occupational Health Program Procedures*, includes those program elements necessary to provide a healthful work

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environment for employees, with a consideration to hazards whose results/impacts are produced over a period of time. These results/impacts may result from infection, repeated stress or strain, or repeated exposure to toxins, poisons, fumes, ionizing/non-ionizing radiation or other hazardous conditions of the work environment. At GSFC this includes industrial hygiene (health surveys, personal protective equipment, hearing conservation, air quality evaluations, ergonomics, etc.), food sanitation, radiation safety, and laser safety.

A.11 Occupational Safety – Safety as described in NPR 8715.1, *NASA Occupational Safety and Health Programs*. Includes those safety program elements necessary to provide a safe and healthful work environment for employees. While the terms institutional safety and industrial safety are commonly used interchangeably with occupational safety at GSFC, occupational safety is the term used to identify these programs implemented through this and other GSFC safety and health documents.

A.12 Orbital Debris – Any object placed in space by humans that remains in orbit and no longer serves any useful function. Objects range from spacecraft to spent launch vehicle stages to components, and also include materials, trash, refuse, fragments, and other objects which are overtly or inadvertently cast off or generated.

A.13 RECERT – An established GSFC program that provides expertise, management, and oversight for the certification and recertification of lifting devices and equipment (LDE), and ground-based pressure vessels and pressurized systems (PV/S), at all GSFC locations. The RECERT Manager is located in the Mechanical Systems Division, Code 540 at Greenbelt and has overall responsibility for RECERT processes and is considered the Pressure Systems Manager (PSM) and the Lifting Device and Equipment Manager (LDEM). The RECERT Manager is assisted by the Deputy RECERT Manager who is located in the Applied Engineering and Technology Directorate (AETD) Assistant Director's office, Code 500, at WFF. For the purpose of this directive, when RECERT is referenced it means RECERT processes at all GSFC sites. The processes of certification/recertification of LDE and operators are described in GPR 8719.1, *Certification and Recertification of Lifting Devices and Equipment and Its Operators*. Requirements for PV/S are described in GPR 8710.3, *Certification and Recertification of Ground-Based Pressure Vessels and Pressurized Systems*.

A.14 Technical Facilities – An area where laboratory-based scientific research or hardware/software development activities occur. Examples include the Detector Development Laboratory, Acoustics Laboratory, clean rooms, high bay areas, etc.

Appendix B – Acronyms

AED	Automated External Defibrillator
AETD	Applied Engineering and Technology Directorate
AHJ	Authority Having Jurisdiction
ASO	Aviation Safety Officer
BOD	Board of Directors
CoFR	Certificate of Flight Readiness
DOT	Department of Transportation
EAP	Employee Assistance Program
EOC	Emergency Operations Center
EOMP	End of Mission Plans
ESO	Explosives Safety Officer
FAA	Federal Aviation Administration
GCSF	GSFC Contractor Safety Forum
GIDEP	Government-Industry Data Exchange Program
GISS	Goddard Institute for Space Studies
GPR	Goddard Procedural Requirements
GRGT	Guam Remote Ground Terminal
GSC	GSFC Safety Council
GSE	Ground Support Equipment
GSFC	Goddard Space Flight Center
HQ	Headquarters
HSE	Health Safety Environment
IRIS	Incident Reporting Information System
I&T	Integration and Test
IV&V	Independent Verification & Validation
JHA	Job Hazard Analysis
JSC	Johnson Space Center
LDE	Lifting Devices and Equipment
LDEM	Lifting Devices and Equipment Manager
LO/TO	Lockout/Tagout
MOA	Memorandum of Agreement
NARA	National Archives and Records Administration
NISN	NASA Integrated Services Network
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NRC	Nuclear Regulatory Commission
NRRS	NASA Records Retention Schedules
NSRS	NASA Safety Reporting System
NSTC	NASA Safety Training Center
ODAR	Orbital Debris Assessment Reports
ODH	Oxygen Deficiency Hazard

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OHCM Office of Human Capital Management
OS&H Occupational Safety and Health
OSHA Occupational Safety and Health Administration
OSMA Office of Safety and Mission Assurance
OSS Operational Safety Supervisor
PPE Personal Protective Equipment
PSM Pressure Systems Manager
PV/S Pressure Vessels and Pressurized Systems
RAR Risk Analysis Reports
RECERT Recertification Program (Code 540). See definition in Appendix A – A.13
RF Radio Frequency
SMA Safety & Mission Assurance
STGT Second TDRSS Ground Terminal
US United States
WFF Wallops Flight Facility
WSGT White Sands Ground Terminal
WSTF White Sands Test Facility
WSC White Sands Complex

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CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	08/24/10	Initial Release

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