



Langley Research Center

LPR 1740.6
Effective Date: November 17, 2005
Expiration Date: November 17, 2009

PERSONNEL SAFETY CERTIFICATION

National Aeronautics and Space Administration

Responsible Office: Safety and Mission Assurance Office

PREFACE

P.1 PURPOSE

This Langley Procedural Requirements (LPR) sets forth qualification and training requirements for certification of personnel to handle engineering models, ground support equipment, space flight test and research articles, test and qualifications articles, facility equipment hardware, chemicals, radiation, laser, and pyrotechnic devices.

These standards are established (1) so that personnel handling program hardware shall be trained to perform their work to meet established technical standards and (2) to ensure operations are conducted safely. This shall assure that personnel assigned to handle program hardware have the highest level of reliability, thereby enhancing the successful accomplishment of Langley Research Center's (LaRC) missions. It specifies the certification processes to be followed to obtain the worker certification and recertification.

P.2 APPLICABILITY

These requirements apply to all persons performing work at LaRC, including civil servants, contractors, research associates, and others. Non-compliance with this LPR shall result in appropriate disciplinary action that may include termination for a civil servant employee or exclusion from the Center for a contractor employee, research associate or others.

P.3 AUTHORITY

- a. NPR 1800.1, "NASA Occupational Health Program Procedures."
- b. NPR 8715.3, "NASA Safety Manual."
- c. 29 CFR Part 1910, "Occupational Safety and Health Standards."
- d. 29 CFR Part 1926, "Occupational Health Regulations for Construction"
- e. American National Standard Institute (ANSI)

P.4 REFERENCES

- a. LPR 1710.4, "Personnel Protection - Clothing and Equipment."
- b. LRP 1710.5, "Ionizing Radiation."
- c. LPR 1710.7, "Use and Handling of Explosive and Pyrotechnics."
- d. LPR 1710.8, "Nonionizing Radiation."
- e. LPR 1710.10, "Safety Clearance Procedures for the Control of Hazardous Energy (Lockout/Tagout)."

- f. LPR 1710.12, "Potentially Hazardous Materials."
- g. LPR 1740.2, "Facility Safety Requirements."
- h. NASA Langley Form 29, "Safety Permit Request."
- i. NASA Langley Form 38, "Safety Permit Request - Radioactive Material."
- j. NASA Langley Form 48, "Safety Permit Request - Radiation Machine."
- k. NASA Langley Form 49, "Safety Permit Request - Laser/Microwave."
- l. NASA Langley Form 56, "Radioactive Material Transfer."
- m. NASA Langley Form 60, "Confined Space Entry Permit."
- n. NASA Langley Form 61, "Lifting Certification Card."
- o. NASA Langley Form 62, "Chemical Worker's Certification Card."
- p. NASA Langley Form 65, "Worker Certification Card."
- q. NASA Langley Form 66, "Worker Appointment and Certification Form."
- r. NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations."
- s. NASA Langley Form 241, "Non-personal Service (NPS) Contractor Employee Shop Machine Lockout Appointment Form."
- t. NASA Langley Form 402, "Civil Service Employee Shop Machine Lockout Appointment Form."
- u. NASA Langley Form 451, "Non-Personal Service (NPS) Contract Employee Safety Operator Appointment Form."
- v. NASA Langley Form 452, "Civil Service Employee Safety Operator Appointment Form."
- w. NASA Langley Form 453, "NASA Langley Safety Operators Permit."
- x. NASA Langley Form 492, "Radiation Worker's Certification Card."
- y. NASA Langley Form 519, "Civil Service Employee Safety Operator Field Verifier Form."
- z. NASA Langley Form 520, "Non-personal Services Contract Employee Safety Operator Field Verifier Form."
- aa. NASA-STD-8719.9, "Standard for Lifting Devices and Equipment."
- ab. NSS-1740.12, "Explosives Safety."

P.5 CANCELLATION

LPR 1740.6 dated July 22, 2004.

Original signed on file

Lesa B. Roe
Director

DISTRIBUTION:

SDL 040, SDL 410, SDL 411 and SDL 412.
305/Safety and Facility Assurance Branch (200 copies)

TABLE OF CONTENTS

Chapter	Page
1. INTRODUCTION	1-1
1.1 PURPOSE	1-1
1.2 SCOPE	1-1
1.3 GENERAL	1-2
1.4 RESPONSIBILITY	1-2
1.5 APPLICABILITY	1-2
1.6 CERTIFICATION DOCUMENTATION	1-2
1.7 MEDICAL SURVEILLANCE REQUIREMENTS	1-2
1.8 RECORDS	1-6
2. SAFETY OPERATORS/FIELD VERIFIERS	2-1
2.1 CERTIFICATION	2-1
3. IONIZING RADIATION WORKER	3-1
3.1 CERTIFICATION	3-1
3.2 RESPONSIBILITY	3-1
3.3 QUALIFICATIONS	3-1
3.4 DOCUMENTATION	3-1
3.4.1 Worker Appointment and Certification Forms	3-2
3.4.1.1 Civil Service Workers	3-2
3.4.1.2 Contractors	3-2
3.4.2 Radiation Worker's Certification Card	3-2
3.4.2.1 Revalidation of Certification	3-2
3.4.2.2 Termination of Certification	3-2
3.5 MEDICAL SURVEILLANCE	3-2
3.5.1 Pre-Certification Examination	3-3
3.5.2 Annual Examinations	3-3
3.5.3 Termination Examinations	3-3
4. NONIONIZING RADIATION (LASER) WORKER	4-1
4.1 CERTIFICATION	4-1
4.2 RESPONSIBILITY	4-1
4.3 QUALIFICATIONS	4-1
4.4 DOCUMENTATION	4-1
4.4.1 Worker Appointment and Certification Forms	4-1
4.4.1.1 Civil Service Workers	4-2
4.4.1.2 Contractors	4-2
4.4.2 Radiation Worker's Certification Card	4-2
4.4.2.1 Revalidation of Certification	4-2
4.4.2.2 Termination of Certification	4-2
4.5 MEDICAL SURVEILLANCE	4-2
4.5.1 Pre-certification Examination	4-2
4.5.2 Termination Examinations	4-3

5. CHEMICAL WORKER	5-1
5.1 CERTIFICATION	5-1
5.2 RESPONSIBILITY	5-1
5.3 QUALIFICATIONS	5-1
5.4 DOCUMENTATION	5-1
5.4.1 Worker Appointment and Certification Forms	5-2
5.4.1.1 Civil Service Workers	5-2
5.4.1.2 Contractors	5-2
5.4.2 Chemical Worker's Certification Card	5-2
5.4.2.1 Revalidation of Certification	5-2
5.4.2.2 Termination of Certification	5-2
5.5 MEDICAL SURVEILLANCE	5-2
5.5.1 Pre-certification Examination	5-3
5.5.2 Annual Examinations	5-3
5.5.3 Exposure Examinations	5-3
6. PYROTECHNIC WORKER	6-1
6.1 CERTIFICATION	6-1
6.2 RESPONSIBILITY	6-1
6.3 QUALIFICATIONS	6-1
6.4 DOCUMENTATION	6-1
6.4.1 Safety Permit Request	6-1
6.4.2 Safety Permit	6-2
6.4.3 Pyrotechnic Worker Certification	6-2
6.5 MEDICAL SURVEILLANCE	6-2
7. HIGH WORKER	7-1
7.1 CERTIFICATION	7-1
7.2 RESPONSIBILITY	7-1
7.3 QUALIFICATIONS	7-1
7.4 DOCUMENTATION	7-1
7.5 MEDICAL SURVEILLANCE	7-2
7.5.1 Pre-Certification Medical Examination	7-2
7.5.2 Annual Medical Examinations	7-2
8. HARDWARE HANDLER	8-1
8.1 CERTIFICATION	8-1
8.2 RESPONSIBILITY	8-1
8.3 QUALIFICATIONS	8-1
8.3.1 Class I - General: Rigger and Equipment Operator Qualifications	8-1
8.3.1.1 Testing Requirements	8-1
8.3.1.2 Proficiency Examination Requirements (Riggers)	8-2
8.3.1.3 Proficiency Examination Requirements (Lifting and Special Equipment Operators)	8-2
8.3.1.4 Experience requirements	8-3
8.3.2 Class II - Restricted: Technical Employees Qualifications	8-3
8.3.2.1 Testing Requirements	8-3

8.3.2.2 Proficiency Examinations.....	8-3
8.3.3 Forklift Operators.....	8-4
8.3.3.1 Testing Requirements	8-4
8.3.3.2 Proficiency Examination Requirements.....	8-4
8.3.3.3 Experience Requirements	8-4
8.4 DOCUMENTATION.....	8-5
8.4.1 Class I Lifting Operator Documents	8-5
8.4.2 Class II Lifting Operator Documents	8-5
8.4.3 Forklift Operator Documents	8-6
8.5 MEDICAL SURVEILLANCE	8-6
8.5.1 Pre-Certification Medical Examination.....	8-7
8.5.2 Medical Examinations.....	8-7
9. AERIAL MANLIFT OPERATOR.....	9-1
9.1 CERTIFICATION.....	9-1
9.2 RESPONSIBILITY.....	9-1
9.3 QUALIFICATIONS	9-1
9.3.1 Testing Requirements.....	9-1
9.3.2 Proficiency Examination Requirements.....	9-2
9.3.3 Experience Requirements	9-2
9.4 DOCUMENTATION.....	9-3
9.5 MEDICAL SURVEILLANCE	9-3
9.5.1 Pre-Certification Medical Examination.....	9-3
9.5.2 Medical Examinations.....	9-3
10. CONFINED SPACE WORKER.....	1
10.1 CERTIFICATION.....	1
10.2 RESPONSIBILITY.....	1
10.3 QUALIFICATIONS	1
10.4 DOCUMENTATION.....	1
10.5 MEDICAL SURVEILLANCE	2
11. RESPIRATOR USER	11-1
11.1 CERTIFICATION.....	11-1
11.2 RESPONSIBILITY.....	11-1
11.3 QUALIFICATIONS	11-1
11.4 DOCUMENTATION.....	11-1
11.4.1 Worker Appointment and Certification Forms.....	11-2
11.4.1.1 Civil Service Workers	11-2
11.4.1.2 Contractors.....	11-2
11.5 MEDICAL SURVEILLANCE	11-2

LIST OF TABLES

	Page
TABLE 1-1, PERSONNEL SAFETY CERTIFICATION DOCUMENTATION.....	1-3
TABLE 1-2, LARC PERSONNEL SAFETY CERTIFICATION, MEDICAL EXAMINATION REQUIREMENTS	1-4

CHAPTER 1**1. INTRODUCTION****1.1 PURPOSE**

This document specifies the certification requirements for personnel who perform selected functions on LaRC that require unique occupational safety qualifications. Specifically, it addresses responsibilities, qualifications, training standards, credentials, and medical surveillance issues surrounding those specific functions. In addition, it specifies the certification processes to be followed to obtain the worker certifications and recertifications. These functions are performed by civil servants, contractors, research associates or others on LaRC. The functions are:

- Safety Operator,
 - Craft Specific Lockout/Tagout Safety Operators,
 - Shop Machine Lockout/Tagout Safety Operators,
 - Safety Operator Field Verifier,
- Ionizing Radiation Worker,
- Nonionizing Radiation (Laser) Worker,
- Chemical Worker,
- Pyrotechnic Worker,
- High Worker,
- Hardware Handler,
 - Lifting Operator,
 - Forklift Operator,
- Aerial Manlift Operator,
- Confined Space Worker,
- Respirator Users.

1.2 SCOPE

This document defines the specific requirements of civil service and contract employees, as well as research associates and others who are certified to perform the functions specified in paragraph 1.1 above. The scope of this document addresses the:

- Training requirements for certification,
- Position responsibilities and qualifications,
- Documentation required to authorize certification,
- Certification card requirements,
- Medical examination and surveillance requirements, and
- The location of other sources for more detailed information.

1.3 GENERAL

LaRC has established personnel safety certification standards to ensure that individuals performing specified functions are trained to:

- Perform their work in accordance with applicable safety and health standards,
- Ensure that required high-risk operations are conducted in a safe and healthful environment, and
- Ensure that the highest standards of safety and performance are maintained while accomplishing the Center's mission.

1.4 RESPONSIBILITY

The responsibility for the implementation and maintenance of LaRC safety policies and standards is delegated to the appropriate management level. Depending upon the task, the personnel safety certification process shall be managed by either the head of the organization, the Facility Safety Head (FSH)/Organizational Facility Safety Head (OFSH), Contract/Program Manager or the first-line supervisor where the function is being performed. These personnel shall ensure that normal and emergency operating procedures are established and that personnel performing the functions are properly trained and certified.

1.5 APPLICABILITY

These personnel safety certification guidelines and procedures shall apply to the functions specified in paragraph 1.1. Additionally, civil servants, contractors, research associates, and others (hereafter referred to as contractors in this document) who perform these functions shall be governed by these procedural requirements. Furthermore, these procedural requirements also apply to other government agency employees who perform the tasks or functions outlined in paragraph 1.1.

1.6 CERTIFICATION DOCUMENTATION

The official documents to be used in processing individuals for safety certification are outlined on Table 1.1, Personnel Safety Certification Documentation. These indicated forms are designed for use by civil servant employees who are applying for personnel safety certification. All contracts/agreements awarded by LaRC shall require that contractor employees also comply with the safety certification processes identified in this LPR. The contracting company shall establish their safety certification process using forms, which are equivalent to the forms identified in Table 1.1.

1.7 MEDICAL SURVEILLANCE REQUIREMENTS

Some of the functions governed by the LaRC personnel safety certification process require medical surveillance. To expedite the process, the Center has established a series of LaRC Occupational Medicine Examination Protocols (OMEP's) for the positions, which require such surveillance. The schedule of medical examinations required for certification is outlined in Table 1.2.

Table 1.1, Personnel Safety Certification Documentation

POSITION TITLE	DOCUMENT REQUIRED TO PROCESS	CERTIFICATION ISSUED	CERTIFICATION PERIOD
SAFETY OPERATOR	NASA Langley Form 452 - C/S NASA Langley Form 451 - Contractors	NASA Langley Form 453 - Safety Operator's Permit	4 years
CRAFT SPECIFIC LOCKOUT/TAGOUT SAFETY OPERATORS	NASA Langley Form 452 - C/S NASA Langley Form 451 - Contractors	Craft Specific Lockout/Tagout Identification Card	4 years
SHOP MACHINE LOCKOUT/TAGOUT OPERATORS	NASA Langley Form 402 - C/S NASA Langley Form 241 - Contractors	Shop Machine Lockout Identification Card	4 years
SAFETY OPERATOR FIELD VERIFIER	NASA Langley Form 519 - C/S NASA Langley Form 520 - Contractors	NONE	N/A
IONIZING RADIATION WORKER	NASA Langley Form 66	NASA Langley Form 492 - Radiation Worker's Certification Card	2 year
NON-IONIZING RADIATION WORKER	NASA Langley Form 66	NASA Langley Form 492 - Radiation Worker's Certification Card	1 year
CHEMICAL WORKER	NASA Langley Form 66	NASA Langley Form 62 - Worker's Certification Card	1 year
PYROTECHNIC WORKER	NASA Langley Form 29 - Safety Permit Request	NASA Langley Form 498 - Approved Safety Permit	1 year
HIGH WORKER	NASA Langley Form 66	NONE	N/A

HARDWARE HANDLERS:			
a. CLASS I and CLASS II LIFTING OPERATORS	NASA Langley Form 66 and NASA Langley Form 185	NASA Langley Forms 61 - Lifting Operator's Certification Card	4 years
b. FORKLIFT OPERATOR	NASA Langley Form 66	NASA Langley Form 65 - Workers Certification Card	3 Years
AERIAL MANLIFT OPERATOR	NASA Langley Form 66	NASA Langley Form 65 - Workers Certification Card	4 years
CONFINED SPACE WORKER	NASA Langley Form 60 - Confined Space Entry Permit	NONE	N/A
RESPIRATOR USER	NASA Langley Form 66	NASA Langley Form 65 - Workers Certification Card	1 year

Table 1.2, LaRC Personnel Safety Certification Medical Examination Requirements

WORKER CLASSIFICATION	PRE CERTIFICATION	ANNUAL	TERMINATION	OCCUPATIONAL MEDICINE PROTOCOL No.
SAFETY OPERATOR *	None	None	None	N/A
CRAFT SPECIFIC LOCKOUT/TAGOUT OPERATOR*	None	None	None	N/A
SHOP MACHINE LOCKOUT OPERATOR	None	None	None	N/A
SAFETY OPERATOR FIELD OPERATOR	None	None	None	N/A
IONIZING RADIATION WORKER **	Required	Required	Required	005
NONIONIZING RADIATION WORKER **	Required	None	Required	004
CHEMICAL WORKER **	Required	Required	None	012
PYROTECHNIC WORKER	None	None	None	N/A
HIGH WORKER **	Required	Required	None	001
HARDWARE HANDLERS **	Required	Required	None	016B
AERIAL MANLIFT OPERATOR **	Required	Required	None	016B
CONFINED SPACE MONITOR	None	None	None	N/A
RESPIRATOR USER	Required	Required	None	003

* Subject to Random Drug Testing

** Medical Examinations Provided in Accordance With LaRC Occupation Medicine Examination Protocols (OMEPS).

1.8 RECORDS

The following forms were completed when implementing requirements:

- NASA Langley Form 452, "Civil Service Employee Safety Operator Appointment Form."
- NASA Langley Form 451, "Non-Personal Service (NPS) Contract Employee Safety Operator Appointment Form."
- NASA Langley Form 453, "NASA Langley Safety Operators Permit."
- NASA Langley Form 66, "Worker Appointment and Certification Form."
- NASA Langley Form 29, "Safety Permit Request."
- NASA Langley Form 492, "Radiation Worker's Certification Card."
- NASA Langley Form 65, "Worker Certification Card."
- NASA Langley Form 61, "Lifting Certification Card."
- NASA Langley Form 60, "Confined Space Entry Permit."
- NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations."
- NASA Langley Form 48, "Safety Permit Request - Radiation Machine."
- NASA Langley Form 38, "Safety Permit Request - Radioactive Material."
- NASA Langley Form 56, "Radioactive Material Transfer."
- NASA Langley Form 49, "Safety Permit Request - Laser/Microwave."
- NASA Langley Form 62, "Chemical Worker's Certification Card."
- NASA Langley Form 241, "Non-personal Service (NPS) Contractor Employee Shop Machine Lockout Appointment Form."
- NASA Langley Form 519, "Civil Service Employee Safety Operator Field Verifier"
- NASA Langley Form 520, "Non-personal Services Contract Employee Safety Operator Field Verifier Form."

Chapter 2

2. SAFETY OPERATORS/FIELD VERIFIERS

2.1 CERTIFICATION

The certification of safety operators, craft specific lockout/tagout safety operators, shop machine lockout operators, and safety operator field verifiers shall be performed in accordance with the requirements identified in the latest version of LPR 1710.10, "Safety Clearance Procedures for the Control of Hazardous Energy (Lockout/Tagout)."

Chapter 3

3. IONIZING RADIATION WORKER

3.1 CERTIFICATION

All personnel who operate, manipulate, or who have any other type of physical control over the use of ionizing radiation-producing equipment or material shall be required to be trained and safety certified as Ionizing Radiation Workers. Most hazardous operations at LaRC are covered by a NASA Langley Form 498, "Safety Permit." A NASA Langley Form 498 shall be initiated by the submission of either a NASA Langley Form 38, "Safety Permit Request - Radioactive Material" or NASA Langley Form 48, "Safety Permit Request - Radiation Machine." Ionizing radiation-producing equipment or material shall be specifically authorized by NASA Langley Form 498. Additionally, personnel who are likely to receive a radiation dose in excess of 10 percent of the limits specified in LPR 1710.5, "Ionizing Radiation," Chapter 5, as a result of exposure to radiation-producing equipment on LaRC, shall also be trained and certified as Ionizing Radiation Workers. Questions concerning this certification requirement shall be directed to the Radiation Safety Officer (RSO).

3.2 RESPONSIBILITY

It is the responsibility of each FSH/OFSH to ensure that personnel within their facility, who fall under the parameters outlined in paragraph 2.1, shall be trained and certified under the safety certification requirements of an Ionizing Radiation Worker.

3.3 QUALIFICATIONS

As a minimum, and prior to working with ionizing radiation, candidate personnel shall be required to specify the radiation experience and training they have received in the following areas:

- General description of radiation and radiation hazards (provided by RSO or contracting company),
- Basic principles of radiation safety (provided by RSO or contracting company),
- Appropriate Federal regulations and LPR 1710.5,
- Emergency procedures (provided by FSH), and
- Radiation safety procedures relevant to duties associated with employment (provided by each FSH).

3.4 DOCUMENTATION

Ionizing Radiation Workers on LaRC include both civil service and contract employees. There are specific documents that these workers shall complete and, in some cases, possess that identify them as certified Ionizing Radiation Workers. These documents are discussed in the following paragraphs.

3.4.1 Worker Appointment and Certification Forms

Applicants shall complete and submit the appropriate Appointment and Certification Form. That form shall stipulate that the training and safety certification requirements of an Ionizing Radiation Worker have been fulfilled.

3.4.1.1 Civil Service Workers

Civil servants shall complete and submit NASA Langley Form 66, "Worker Appointment and Certification Form."

3.4.1.2 Contractors

Contract personnel shall complete and submit an appropriate comparable form provided by their company to the RSO. The contractor's form shall provide for equivalent information as required by NASA Langley Form 66 and it shall contain an approval process.

3.4.2 Radiation Worker's Certification Card

Upon receipt and approval of a NASA Langley Form 66, "Worker Appointment and Certification Form," the RSO shall issue the civil service requester a NASA Langley Form 492, "Radiation Worker's Certification Card." Contractor employees shall be issued an equivalent certification card by their contracting company, upon receipt and approval of the contracting company's comparable form. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

3.4.2.1 Revalidation of Certification

NASA Langley Form 492's or contractor equivalent's are valid for two years from the date of issuance. It is the responsibility of each radiation worker to have the NASA Langley Form 492 or contractor equivalent revalidated by the RSO or contracting company prior to the card expiration date.

3.4.2.2 Termination of Certification

Upon termination of employment, or when the worker no longer needs to be certified to perform ionizing radiation work, the worker shall immediately surrender the NASA Langley Form 492 to the RSO or contractor equivalent to the contracting company.

3.5 MEDICAL SURVEILLANCE

Due to the potential dangers involved in radiation, all Ionizing Radiation Workers shall undergo and pass medical examinations. These examinations shall be required (1) before they are certified to begin work, (2) annually while they are functioning in the position, and (3) upon termination. Civil servants shall receive medical examinations at the LaRC Occupational Medical Center (OMC) in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC shall require the same level of medical surveillance for contract employees. Medical surveillance requirements for contract employees, however, shall be the responsibility of the contracting company.

3.5.1 Pre-Certification Examination

Civil servants shall receive these medical examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the RSO. Contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

3.5.2 Annual Examinations

Ionizing Radiation Workers shall be required to undergo and pass an annual medical examination to maintain their certification. These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations. The medical records of these personnel shall be specifically identified so that the examining physician is alerted to examine the employee for symptoms relating to radiation exposure.

3.5.3 Termination Examinations

Upon termination of employment, or when an individual no longer requires safety certification as an Ionizing Radiation Worker, the individual shall undergo a termination medical examination. Termination medical examinations shall be scheduled and conducted under the same guidelines as the annual medical examinations. Line supervisors shall be responsible for notifying the RSO when civil servants or contractor employees are being decertified as Ionizing Radiation Workers. This notification is required two weeks prior to the termination so that the examination can be scheduled.

Chapter**4. NONIONIZING RADIATION (LASER) WORKER****4.1 CERTIFICATION**

All personnel who operate, manipulate, or who have any other type of physical control over the use of nonionizing radiation-producing equipment or material shall be required to be trained and safety certified as Nonionizing Radiation Workers. In addition, all nonionizing radiation-producing equipment or material shall be specifically authorized by the issuance of a NASA Langley Form 498. Application for that NASA Langley Form 498 shall be initiated by submission of NASA Langley Form 49, "Safety Permit Request - Laser/Microwave." Questions concerning this certification requirement shall be directed to the RSO.

4.2 RESPONSIBILITY

It is the responsibility of each FSH/OFSH to ensure that personnel within their facility who fall under the parameters outlined in paragraph 2.1 are trained and certified under the safety certification requirements for a Nonionizing Radiation Worker.

4.3 QUALIFICATIONS

As a minimum, and prior to working with nonionizing radiation, candidate personnel shall be required to specify the radiation experience and training they have received in the following areas:

- General description of nonionizing radiation and its hazards (provided by RSO or contracting company),
- Basic principles of nonionizing radiation safety (provided by RSO or contracting company),
- Federal regulations and LPR 1710.4, "Personnel Protection – Clothing and Equipment,"
- Emergency procedures (provided by FSH), and
- Radiation safety procedures relevant to duties associated with employment (provided by each FSH).

4.4 DOCUMENTATION

Nonionizing Radiation Workers on LaRC include both civil service and contract employees. There are specific documents that these workers shall complete and, in some cases, possess that identify them as Nonionizing Radiation Workers. These documents are discussed in the following paragraphs.

4.4.1 Worker Appointment and Certification Forms

Applicants shall complete and submit the appropriate Appointment and Certification Form. That form shall stipulate that the training and safety certification requirements of a Nonionizing Radiation Worker have been fulfilled.

4.4.1.1 Civil Service Workers

Civil servants shall complete and submit NASA Langley Form 66.

4.4.1.2 Contractors

Contract personnel shall complete and submit an appropriate comparable form provided by their company. The contractor's form shall provide for equivalent information as required by the NASA Langley Form 66 and it shall contain an approval process.

4.4.2 Radiation Worker's Certification Card

Upon receipt and approval of a NASA Langley Form 66, "Worker Appointment and Certification Form," the RSO shall issue the civil service requester a NASA Langley Form 492, "Radiation Worker's Certification Card." Contractor employees shall be issued an equivalent certification card by their contracting company, upon receipt and approval of the contracting company's comparable form. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

4.4.2.1 Revalidation of Certification

NASA Langley Form 492's or contractor equivalent's are valid for one year from the date of issuance. It is the responsibility of each radiation worker to have the NASA Langley Form 492 or contractor equivalent revalidated by the RSO prior to the card's expiration date.

4.4.2.2 Termination of Certification

Upon termination of employment, or when the worker no longer needs to be certified to perform nonionizing radiation work, the worker shall immediately surrender the NASA Langley Form 492 to the RSO or contractor equivalent to the contracting company.

4.5 MEDICAL SURVEILLANCE

Due to the potential dangers to workers' eyes involving nonionizing radiation (lasers), all Nonionizing Radiation Workers shall be required to undergo and pass an eye examination by an ophthalmologist. These examinations shall be required (1) before workers are certified, and (2) upon termination. Civil servants shall receive eye examinations at the OMC in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC shall require the same level of eye examinations for contract employees. Eye examination requirements for contract employees, however, shall be the responsibility of the contracting company.

4.5.1 Pre-certification Examination

Civil servants shall receive these eye examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the RSO. Contractor personnel eye examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

4.5.2 Termination Examinations

Upon termination of employment, or when an individual no longer requires safety certification as a Nonionizing Radiation Worker, the individual shall undergo a termination eye examination. Termination eye examinations shall be scheduled and conducted under the same guidelines as the pre-certification medical examinations. Line supervisors shall be responsible for notifying the RSO when civil servants or contractor employees are being decertified as Nonionizing Radiation Workers. This notification shall be required two weeks prior to the termination so that the examination can be scheduled.

Chapter 5**5. CHEMICAL WORKER****5.1 CERTIFICATION**

LaRC civil service and contract employees who handle specified potentially hazardous materials (PHM) shall be classified as Chemical Workers. Specifically, Chemical Workers conduct operations or perform functions using materials listed on NASA Langley Form 498's. Personnel classified as Chemical Workers shall be required to have the specified training and certification specified herein.

5.2 RESPONSIBILITY

It is the responsibility of each OFSH to ensure that personnel who function within their facility as a Chemical Worker are trained and certified. The training and certification shall be in compliance with the parameters established herein.

5.3 QUALIFICATIONS

As a minimum, and prior to working with PHM, individuals shall be familiar with applicable NASA Langley Form 498's and shall complete training in the following topics, as applicable:

- Toxic Chemicals and Basic Hazard Communication.
- Toxic Chemical Monitoring*.
- Accident Investigation and Safety Planning.
- Flammable, Corrosive, and Reactive Chemicals.
- Compressed Gases*.
- Cryogenic Liquids*.
- Fire Safety.
- Storage.

* If needed for the operation planned, additional site training in personal protective equipment and ventilation control systems may be required.

Chemical Workers shall receive formal training in an approved chemical training course prior to appointment. The course shall address the topic areas in detail, providing a basis for the Chemical Workers to safely perform their specific functions.

5.4 DOCUMENTATION

Personnel performing work on LaRC as a Chemical Worker shall be required to complete specific documentation and request certification to perform their duties. Chemical Workers on LaRC may be either civil service employees or contract employees. There are specific authorizing documents that shall be required to be processed and issued for both of these classes of workers.

5.4.1 Worker Appointment and Certification Forms

Personnel requiring certification as Chemical Workers on LaRC shall apply for and document the applicable training they have received. Documentation shall be required to be made on the appropriate Appointment and Certification Form. Specifically, the form shall stipulate that the worker has fulfilled the requirements for certification as a LaRC Chemical Worker.

5.4.1.1 Civil Service Workers

Civil servants shall use NASA Langley Form 66 to certify that the requirements to work as a Chemical Worker have been satisfied.

5.4.1.2 Contractors

Contract personnel who are requesting certification as a Chemical Worker shall use a comparable form provided by their company. The contractor's form shall provide for equivalent information as NASA Langley Form 66 and shall contain an approval process.

5.4.2 Chemical Worker's Certification Card

Upon satisfactory completion and submission of the appropriate NASA Langley Form 66, SFAB shall issue a NASA Langley Form 62, "Chemical Worker's Certification Card." The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

5.4.2.1 Revalidation of Certification

The NASA Langley Form 62 is valid for one year from the date of issuance. It is the responsibility of each Chemical Worker to have the NASA Langley Form 62 revalidated by SFAB prior to the card's expiration date.

5.4.2.2 Termination of Certification

Upon termination of employment, or when the worker no longer needs to be certified to perform chemical work, the worker shall immediately surrender NASA Langley Form 62 to SFAB.

5.5 MEDICAL SURVEILLANCE

Due to the potential danger that chemical exposure presents to LaRC Chemical Workers, they shall be required to undergo scheduled medical examinations. These examinations shall be required (1) before workers are certified, (2) annually while they are functioning in the position, and (3) as directed by exposure. Civil servants shall receive medical examinations at the OMC in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC require the same level of medical surveillance for contract employees. Medical surveillance requirements for contract employees, however, shall be the responsibility of the contracting company.

5.5.1 Pre-certification Examination

Civil servants shall receive these medical examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the OFSH. Contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company. For the initial examination of Chemical Workers, OMEP's and contractor equivalents shall be reviewed and requirements tailored/modified by medical and functional officials as appropriate for each situation.

5.5.2 Annual Examinations

Chemical Workers shall be required to undergo and pass an annual medical examination to maintain their certification and to determine if they have symptoms that relate to chemical exposure. The medical records of Chemical Workers shall be specifically identified so that the examining physician can be alerted to symptoms relating to chemical exposure. These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations. Individuals operating under a permitted operation shall be required to participate in annual examinations.

5.5.3 Exposure Examinations

Upon exposure to certain chemicals a Chemical Worker, shall undergo a medical examination. These examinations shall be scheduled and conducted under the same guidelines as the pre-certification and annual medical examinations. Line supervisors shall be responsible for notifying the OFSH when civil servant Chemical Workers have sustained exposure to certain chemicals. (See LPR 1710.12, "Potentially Hazardous Materials.")

Chapter 6**6. PYROTECHNIC WORKER****6.1 CERTIFICATION**

All personnel who handle, transport, install, test, or have physical control over the use of pyrotechnic devices, systems, or material shall be required to be safety certified as Pyrotechnic Workers. Pyrotechnic Workers are restricted to performing work on pyrotechnics whose use has been specifically authorized by a NASA Langley Form 498. Pyrotechnic workers may be either civil service or contract employees. Also, these workers may be further classified as Restricted Pyrotechnic Workers. Restricted Pyrotechnic Workers shall be authorized to handle only a limited type or quantity of pyrotechnics for a specific application.

6.2 RESPONSIBILITY

It is the responsibility of each first-line supervisor to ensure that personnel within their organization who handle pyrotechnics are trained and certified for that purpose. The responsibility for the pyrotechnic safety training is also shared by the FSH who is responsible for the pyrotechnic activity.

6.3 QUALIFICATIONS

As a minimum, and prior to working as a certified Pyrotechnic Worker, individuals shall successfully complete the following:

- Receive instruction regarding the associated hardware with which the individual worker shall be required to work. The worker shall complete a four-hour lecture course on the hardware they will be using. This course shall be taught by the Pyrotechnic Support Engineer,
- Obtain a working knowledge of appropriate Federal regulations and LPR 1710.7, "Use and Handling of Explosives and Pyrotechnics," and
- Receive an on-the-job training program with a LaRC-Certified Pyrotechnic Technician. The training program shall consist of side-by-side training involving the certified technician and the Pyrotechnic Worker seeking certification.

6.4 DOCUMENTATION

In order to use pyrotechnics on LaRC, a NASA Langley Form 29, "Safety Permit Request," shall be submitted and forwarded through the approval process. Subsequent to the request, a NASA Langley Form 498 shall be issued for that purpose. Pyrotechnic Workers shall be identified on the NASA Langley Form 498.

6.4.1 Safety Permit Request

The prescribing document governing the issuance of a NASA Langley Form 498 authorizing a worker to use pyrotechnics on LaRC is LPR 1710.7. The worker shall

contact the Pyrotechnic Support Engineer for assistance in filling out the NASA Langley Form 29. The NASA Langley Form 29 shall be forwarded through the approval process to obtain the following signatures:

- Pyrotechnic Support Engineer,
- Project Engineer,
- Supervisor of individual requesting safety permit,
- LaRC Safety Manager, and
- OFSH.

6.4.2 Safety Permit

The holder of the NASA Langley Form 498 shall be an authorized Pyrotechnic Worker in accordance with the provisions of LPR 1710.7. The permit shall be reviewed at least annually by the Pyrotechnic Support Engineer and updated whenever an operational change is required. It shall always reflect existing operations and defined hazard control techniques, which result in acceptable risk levels.

6.4.3 Pyrotechnic Worker Certification

Pyrotechnic personnel shall be "Certified" when their names are listed on a valid NASA Langley Form 498. All NASA Langley Form 498's, which certify Pyrotechnic Workers, shall be reviewed annually.

6.5 MEDICAL SURVEILLANCE

No medical examinations shall be required for personal safety certification of Pyrotechnic Workers on LaRC.

Chapter 7**7. HIGH WORKER****7.1 CERTIFICATION**

Personnel whose normal or periodic duties or assignments require them to function at elevated heights are required to be trained and safety certified as High Workers. Elevated levels at this Center are defined as working spaces that are 25 feet or more above ground level, and which are not enclosed by normal structural walls and ceilings. This definition is consistent with the American National Standard Institute (ANSI) and the Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926 standards. It includes substations, gantries, and certain hazardous roofs. Not included in this category are internal balconies, flat roofs having appropriate loading capacity and OSHA-compatible rails, guards, parapets, and so forth. Heights of less than 25 feet shall, however, be categorized as elevated if management determines that personnel exposure to those conditions could result in injury or death.

7.2 RESPONSIBILITY

It is the responsibility of the line supervisor to comply with the requirements of LPR 1740.2, "Facility Safety Requirements." Supervisors shall refer all questions relative to working at elevated levels to the LaRC Safety Manager or the Occupational Health Officer (OHO) for advice and guidance. Supervisors shall ensure that all personnel under their supervision designated as High Workers are, and remain, certified in accordance with the requirements herein.

7.3 QUALIFICATIONS

As a minimum, and prior to working as a High Worker, candidate personnel shall:

- Receive instruction regarding working at elevated levels specific to the tasks that are to be performed. Participate in discussion with the OFSH and Facility Coordinator regarding the work in that facility, and
- Possess a working knowledge of the appropriate Federal regulations and LPR 1740.2

7.4 DOCUMENTATION

High Workers on LaRC include both civil service and contract employees. There are specific documents that these workers shall complete that certify them to be High Workers. NASA Langley Form 66 shall be used for government personnel to determine and certify that the qualifications for worker training and safety certification have been satisfied. NASA Langley Form 66 shall be initiated by the line supervisor. Contractor personnel shall use a form, which supplies the equivalent information of NASA Langley Form 66.

7.5 MEDICAL SURVEILLANCE

Due to the potential dangers involved in working at heights, all High Workers shall undergo medical examinations. These examinations shall be required (1) before they are certified to begin work and (2) annually while they are functioning as a High Worker. Civil servants shall receive these medical examinations at the LaRC OMC in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC shall require the same level of medical examinations for contract employees. Medical surveillance requirements for contract employees, however, shall be the responsibility of the contracting company.

7.5.1 Pre-Certification Medical Examination

Civil servants shall receive these medical examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the OFSH. Contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

7.5.2 Annual Medical Examinations

High Workers shall be required to undergo and pass an annual medical examination to maintain their certification. These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations.

Chapter 8**8. HARDWARE HANDLER****8.1 CERTIFICATION**

Hardware Handlers at LaRC are classified as Lifting Operators or Forklift Operators. They are distinguished by the certification criteria required to perform distinctly different categories of functions. Lifting Operators are further divided into two sub-classifications:

- Class I - General: Rigger and Equipment Operator
- Class II - Restricted: Technical Employees (restricted to the specific equipment they are qualified to operate).

Personnel who operate, manipulate, or who have any other type of physical control over the use of handling/lifting equipment on LaRC shall be required to be trained and safety certified. Hardware Handlers are defined as individuals who operate overhead or mobile and/or permanently installed cranes, derricks, forklifts, portable or fixed hoisting assemblies, winches, and general equipment such as wire ropes, slings, hooks, bridles, riggings, and other fittings critical to handling/lifting operations. These examples are not all inclusive; and, additional equipment operators may require safety certification at the discretion of SFAB.

8.2 RESPONSIBILITY

It is the responsibility of the head of each organization to ensure that personnel who operate special handling equipment or perform critical lifting are trained and certified in compliance with this document.

8.3 QUALIFICATIONS

As a minimum, and prior to working as a Hardware Handler, personnel shall successfully complete the training to be safety certified for the position. The required qualifications are outlined in the following paragraphs.

8.3.1 Class I - General: Rigger and Equipment Operator Qualifications

Riggers and equipment operators who are classified as Class I: General Operators, shall meet the requirements in the following paragraphs to be safety certified:

8.3.1.1 Testing Requirements

Testing of Class I Lifting Operators shall include written examinations that contain questions addressing the work performed by Class I riggers and special equipment operators. The questions shall address, as a minimum, the following subject areas:

- Determination of center of gravity (CG),
- Determination of load weight,

- Calculation of lifting-line strength such as cable and rope and margin of safety,
- Calculation of sling tension loads,
- Use of common slings and hitches,
- Selection of sizes and use of chocks,
- Use of hydra-set,
- Use of proof-loading specifications,
- Use of hand signals,
- Use of and determining strength of knots,
- Use of and determining strength of shackles and hooks,
- Distortion of loads (blocking),
- Safety applications, and
- Knowledge of quality assurance requirements.

8.3.1.2 Proficiency Examination Requirements (Riggers)

Proficiency testing for Class I Lifting Operators (Riggers) shall include, as a minimum, performance of the work functions listed below:

- Conducting a series of difficult load attachments involving a determination of weight and CG,
- Selecting method of attachment,
- Selecting hooks, bridles, slings, and so forth,
- Hand signaling a typical lift, move, and relocation of load, crane boom, and pendant line assembly,
- Demonstrating knowledge of hand signals used with mobile and lifting equipment as defined in Lifting Program Hardware Class I Certification.

8.3.1.3 Proficiency Examination Requirements (Lifting and Special Equipment Operators)

Proficiency testing for Class I Lifting Operators (Lifting and Special Equipment Operators) shall include, as a minimum, performances listed below:

- Operating mobile cranes,
- Operating overhead or gravity cranes,
- Operating forklifts,
- Operating portable lifting cranes,
- Operating industrial truck cranes,
- Operating Hy-Ranger vehicles,
- Operating all types of bucket trucks, and
- Demonstrating operational proficiency in:
 - Equipment inspection procedure,
 - Positioning crane for lift,
 - Outrigger deployment,
 - Full-range boom and cab travel (empty),

- Hand-signal motions (empty),
- Lifting and braking with load,
- Hand-signal motions (loaded), and
- A series of load placements.

8.3.1.4 Experience requirements

Class I - General: Rigger and Equipment Operators shall possess at least a minimum of four years job related experience in the Building and Trades Union or have been employed for two years as a first class maintenance rigger.

8.3.2 Class II - Restricted: Technical Employees Qualifications

This classification of Lifting Operators shall be restricted to operating the specific equipment listed on their NASA Langley Form 61, "Lifting Certification Card." Certification of Class II Lifting Operators is based upon the following:

- Related experience,
- Appropriate testing requirements,
- Appropriate proficiency examinations,
- Approved training course, and
- Acceptable period of on-the-job training.

8.3.2.1 Testing Requirements

Testing of Class II Lifting Operators shall include written examinations that contain appropriate questions addressing the work to be performed. The questions shall address, as a minimum, the subject areas listed below:

- Determination of center of gravity (CG),
- Determination of load weight,
- Calculation of lifting-line strength such as cable and rope and margin of safety,
- Calculation of sling tension loads,
- Use of common slings and hitches,
- Selection of sizes and use of chocks,
- Use of proof-loading specification,
- Use of hand signals,
- Use of and determining strength of shackles and hooks,
- Distortion of loads (blocking),
- Safety applications, and
- Knowledge of quality assurance requirements.

8.3.2.2 Proficiency Examinations

Class II Lifting Operators shall be required to pass a proficiency examination before they are safety certified. The examinations shall include:

- Conducting a series of typical load attachments (i.e., location of CG, weight determination, and selecting lifting devices such as hooks, bridles, slings, and so forth),
- Hand signaling a lift operation, and
- Demonstrating operational proficiency in special pieces of lifting equipment (i.e., lifting, braking, load placement, etc.) with and without hand signals.

8.3.3 Forklift Operators

8.3.3.1 Testing Requirements

Testing requirements for Forklift Operators shall include written examinations that contain appropriate questions addressing the demands of the work to be performed. The questions shall address, but are not limited to, the subject areas listed below.

- Safety applications and safety inspections,
- Knowledge of equipment limitations, capabilities, and design considerations,
- Knowledge of equipment operations and control systems,
- Equipment care and damage reporting requirements,
- Use of required safety equipment,
- Ground slope restrictions,
- Emergency operation procedures,
- Lifting, moving, and setting-down load restrictions, and
- Weight restrictions.

Forklift Operators shall successfully pass the appropriate written test establishing that the worker has operational safety and knowledge of forklift use.

8.3.3.2 Proficiency Examination Requirements

Proficiency testing for Forklift Operators shall be required before they can be safety certified. This hands-on examination shall include, as a minimum:

- Demonstrating proper use of forklift controls,
- Following proper procedures for unattended forklift,
- Demonstrating competency in basic maneuvering skills,
- Demonstrating competency in picking up a load,
- Demonstrating competency in driving with a load,
- Demonstrating competency in stacking a load, and
- Demonstrating competency in loading/unloading a trailer, rail car, or other vehicle.

8.3.3.3 Experience Requirements

Workers requiring safety certification as a Forklift Operator shall be required to complete the following:

- Attend a two-hour classroom training program addressing the following issues as they relate to forklift utilization:
 - Safety,
 - Emergency procedures,
 - General performance standard,
 - Requirements,
 - Pre-operational checks, and
 - Safety related defects and symptoms for forklifts.
- Complete a minimum of six hours of hands on training on a forklift, and
- Receive an informal annual review by their organization on equipment operation and safety procedures.

8.4 DOCUMENTATION

Forklift Operators and both Class I and Class II Lifting Operators shall be required to be safety certified through the approval process outlined in this document.

8.4.1 Class I Lifting Operator Documents

Civil servant employees who request safety certification on LaRC as a Class I Operator shall process their request on NASA Langley Form 66, and NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations." These forms shall be used to document and certify that the qualifications required in paragraph 5.3 have been satisfied. Contract personnel who require certification shall use an appropriate comparable form for certification. The contractor's form shall provide information equivalent to that on NASA Langley Form 66 and shall contain an approval process. NASA Langley Form 61, "Lifting Certification Card," shall be issued to certified civil service lifters who are qualified to perform lifts with specific equipment. Contractors shall issue a certification card equivalent to NASA Langley Form 61 to all of their certified lifters. The NASA Langley Form 61 shall list, on its reverse side, the specific equipment the individual is certified to operate. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. Recertification shall be required every four years and shall follow the same process as the original certification process.

8.4.2 Class II Lifting Operator Documents

NASA Langley Form 66 and NASA Langley Form 185 shall be used to initiate the recommendation for the certification of Class II Lifting Operators. These forms certify that all of the requirements contained in paragraph 5.3 have been satisfied. These forms shall require the signatures of the following authorizing individuals:

- Supervisor/Contract Manager,
- OUM Training Coordinator,
- Classroom Instructor,
- Applications Instructor,
- OUM/COTR,
- LaRC Safety Manager

NASA Langley Form 61 or the contractor equivalent certifies that the holder has successfully completed the course work and physical requirements in accordance with the minimum OSHA training requirements. The NASA Langley Form 61 shall document the specific equipment that the lifting operator is certified to operate. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. Recertification shall be required every four years and shall follow the same process as the original certification process.

8.4.3 Forklift Operator Documents

Forklift Operators shall be required to be safety certified through the approval process outlined in this document. Civil servant employees who require safety certification on LaRC as a Forklift Operator shall process their request on NASA Langley Form 66. This form shall be used to document and certify that worker qualifications required in paragraph 5.3.3 have been satisfied. Contract personnel who require certification shall use an appropriate comparable form provided by their company for certification. The contractor's form shall provide equivalent information as NASA Langley Form 66 and it shall contain an approval process. NASA Langley Form 65, "Worker Certification Card," shall be issued to certified civil service Forklift Operators. Contractors shall issue a certification card equivalent to NASA Langley Form 65 to all of their certified Forklift Operators. The reverse side of the NASA Langley Form 65 shall show the specific forklift equipment that the worker is certified to operate. Recertification of a Forklift Operator shall be required every three years. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. The recertification process shall follow the same procedures that were used during the original certification process.

8.5 MEDICAL SURVEILLANCE

Hardware Operators at LaRC can be either civil service or contractor employees. The work performed by these individuals requires strict adherence to LaRC OMEP's. Class I Lifting Operators shall be required to have (1) pre-certification and (2) annual medical examinations as specified in LaRC OMEP's. Class II Lifting Operators shall be required to have (1) pre-certification medical examinations and (2) medical examinations every four years at the time of recertification with a requirement to have a visual and hearing acuity test performed each year between recertification. Forklift Operators shall be required to have (1) pre-certification medical examinations and (2) medical examinations every three years at the time of recertification with a requirement to have a visual and hearing acuity test performed each year between recertification. Hardware Handler candidates and certified Hardware Handlers shall successfully pass these OMEP's to be certified/recertified. Civil service employees shall have their required medical examinations at the OMC. All contracts/agreements awarded on LaRC shall require that the contracting company provide medical surveillance of their personnel who will perform these duties.

8.5.1 Pre-Certification Medical Examination

Personnel requiring certification as Hardware Handlers shall undergo and pass a medical examination in compliance with LaRC OMEP's, prior to issuance of a NASA Langley Form 61 or NASA Langley Form 65 or contractor equivalent. This examination is accomplished through routine processing of NASA Langley Form 66 or the equivalent contractor's form. A medical disqualification shall result if a candidate does not satisfy the requirements of the OMEP's.

8.5.2 Medical Examinations

All LaRC Class I Lifting Operators shall annually undergo and pass a medical examination in accordance with LaRC OMEP's. All LaRC Class II Lifting Operators shall undergo and pass a medical examination every four years at the time of their recertification, with visual and hearing acuity tests required each year in between recertification, in accordance with LaRC OMEP's. All LaRC Forklift Operators shall undergo and pass a medication examination every three years at the time of their recertification, with visual and hearing acuity tests required each year in between recertification, in accordance with LaRC OMEP's.

Chapter 9**9. AERIAL MANLIFT OPERATOR****9.1 CERTIFICATION**

Aerial Manlift Operators shall be trained and safety certified to operate the manlift equipment that is authorized for use on the Center. There are three classes of equipment that workers shall be separately certified to operate through the safety certification process. The specific manlift equipment that requires separate safety certification are:

- Genie Boom Manlift,
- JLG Manlift, and
- High Lift Manlift.

All aerial manlift equipment shall be used under the direct control of at least two certified operators. Workers undergoing safety certification training shall be assisted by two other safety certified operators, during the operation/use of any aerial manlift equipment. Additionally, a separate safety certification shall be required to operate each individual type of equipment. Workers who operate aerial manlift equipment shall possess a NASA Langley Form 61 or contractor equivalent, specifying the type of equipment they may operate.

9.2 RESPONSIBILITY

It is the responsibility of the head of each organization that uses the aerial manlift equipment to ensure that personnel who operate the equipment are trained and certified in compliance with this document.

9.3 QUALIFICATIONS

As a minimum, and prior to working as an Aerial Manlift Operator, individuals shall successfully complete the appropriate training and safety certification authorizing them to operate the equipment. The qualifications are outlined in the following paragraphs.

9.3.1 Testing Requirements

Testing of Aerial Manlift Operators shall include written examinations that contain appropriate questions addressing the work to be performed. The questions shall address, as a minimum, the subject areas listed below.

- Safety applications,
- Knowledge of equipment limitations and capabilities,
- Knowledge of equipment operations and control systems,
- Equipment care and damage reporting requirements,
- High voltage and electrical operational restrictions,
- Use of required safety equipment,

- Wind restrictions,
- Ground conditions restrictions,
- Ground slope restrictions,
- Emergency operation procedures,
- Safety zone requirements,
- Lifting restrictions,
- Weight restrictions, and
- Successfully pass the appropriate written test that establishes the worker has safety and operational knowledge of the aerial manlift equipment they are certified to operate.

9.3.2 Proficiency Examination Requirements

Proficiency testing for Aerial Manlift Operators shall include, as a minimum, demonstrated performance of work functions listed below:

- Aerial lift buckets operations,
 - Full-range of operation of the bucket from ground and bucket stations,
 - Knowledge of safety rules and regulations, and
 - Positioning of bucket.
- Equipment inspection procedures, and
- Outrigger deployment (if applicable).

High Reach Bucket Truck Operators shall be required to acquire a Commercial Drivers License - Class B with an air brake endorsement. Aerial Manlift Operators shall receive an informal annual review by their organization on equipment operation and safety procedures.

9.3.3 Experience Requirements

Workers requiring safety certification as an Aerial Manlift Operator shall complete the following:

- Certification as a High Worker,
- A two-hour classroom training program on the following:
 - Safety,
 - Emergency procedures,
 - General performance standard,
 - Requirements,
 - Pre-operational checks,
 - Safety related defects and symptoms for manlift devices, and
- A minimum of six hours of hands on training on each manlift device for which the worker requires certification.

9.4 DOCUMENTATION

Civil servant employees who require safety certification on LaRC as an Aerial Manlift Operator shall process their request on NASA Langley Form 66. This form shall be used to document and certify that the qualifications of the worker, required in paragraph 9.3, have been satisfied. Contract personnel who require certification shall use a comparable form provided by their company for certification. The contractor's form shall provide for equivalent information as NASA Langley Form 66 and shall contain an approval process. The NASA Langley Form 61 or contractor equivalent shall be issued to certified workers. The NASA Langley 61 or contractor equivalent shall list, on the reverse side of the card, the specific manlift equipment the worker is certified to use. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. Recertification shall be required once every four years and shall follow the same process as the original certification process.

9.5 MEDICAL SURVEILLANCE

The work performed by Aerial Manlift Operators shall require medical surveillance with strict adherence to the LaRC OMEP's. Specifically, these positions shall require (1) pre-certification medical examinations and (2) medical examinations every four years at the time of recertification with a requirement to have a visual and hearing acuity test performed each year between recertification, in accordance with specified LaRC OMEP's. Candidates shall undergo and pass these medical examinations to be certified/recertified. Civil service employees shall have their required medical examinations at the LaRC OMC. Additionally, all contracts/agreements awarded on LaRC shall require that the contracting company medically certify its workers who will perform these duties.

9.5.1 Pre-Certification Medical Examination

Personnel requiring certification as Aerial Manlift Operator shall first undergo and pass a medical examination in compliance with the LaRC OMEP's. This examination shall be accomplished through routine processing of NASA Langley Form 66 or the equivalent contractor's form. A medical disqualification shall result if a worker does not successfully complete the medical protocol.

9.5.2 Medical Examinations

All Aerial Manlift Operators at LaRC shall undergo and pass a medical examination every four years at the time of their recertification, with visual and hearing acuity tests required each year in between recertification, in accordance with LaRC OMEP's.

Chapter 10**10. CONFINED SPACE WORKER****10.1 CERTIFICATION**

All individuals who participate in the entry of confined spaces shall be properly trained and safety qualified as confined space workers. This includes all personnel that will be entrants, attendants and/or entry supervisors. The safety certification shall be completed in accordance with this document. A confined space is defined as a space that is not normally occupied by personnel and, by design, has limited or restricted openings for entry and exit, may lack adequate ventilation, may contain or produce "dangerous air contamination," and, therefore, may not be safe for entry. Confined spaces normally include, but are not limited to, boilers, furnaces, degreasers, storage tanks, test chambers, vessels, tunnels, compartments, pits, vats, sewers, underground utility vaults, manholes, certain locations within aircraft and spacecraft when not in flight, and any other location not specifically covered that is designated a confined space (see LPR 1740.2).

10.2 RESPONSIBILITY

It is the responsibility of each first-line supervisor and FSH to ensure that personnel within their organization who function as Confined Space Workers are trained and qualified.

10.3 QUALIFICATIONS

As a minimum, and prior to working as a confined space monitor, individuals shall receive training covering the following subjects:

- Hazard recognition,
- Proper respiratory protection for confined spaces,
- Use of atmospheric testing devices to include training on the manufacturers' specified field checks, normal use, and specific limitations of the equipment,
- Lockout and tagging procedures,
- Use of special equipment and tools,
- Emergency and rescue methods and procedures, and
- Emergency entry and exit procedures.

10.4 DOCUMENTATION

NASA Langley Form 60, "Confined Space Entry Permit," shall be used to document the certification of Confined Space Workers. NASA Langley Form 60 shall be used by both government and contract personnel to certify that the qualifications and training required to become safety certified have been satisfied. NASA Langley Form 60 shall require the signature of the qualifying supervisor to approve the certification of a worker as a Confined Space Worker.

10.5 MEDICAL SURVEILLANCE

Employees who perform work as Confined Space Workers shall not be required to undergo a medical examination prior to safety certification.

Chapter 11**11. RESPIRATOR USER****11.1 CERTIFICATION**

All personnel required to wear respiratory protection devices, in the performance of their job assignments, with the exception of voluntary use of disposable single use filtering face pieces, shall be required to be certified as Respirator Users.

11.2 RESPONSIBILITY

It shall be the responsibility of the FSH to ensure that personnel within their facility, who fall under the parameters outlined in paragraph 11.1, are trained and certified under the safety certification requirements of a Respirator User.

The SFAB designated Certified Industrial Hygienist shall serve as the LaRC Respiratory Protection Officer (RPO), responsible for the Center's respiratory protection program.

11.3 QUALIFICATIONS

As a minimum, and prior to working as a respirator user, individuals shall receive training covering the following subjects:

- When respiratory protection is required,
- Limitations of respiratory protection,
- Procedures for detecting failure of respiratory protection devices,
- Procedures for wearing respiratory protection devices,
- Procedures for cleaning respiratory protection devices,
- Procedures for inspection of respiratory protection devices,
- Employee responsibilities.
- Quantitative fit testing.

Respirators Users, who will be wearing tight fitting respirators, shall be quantitatively fit tested prior to using the respirator and annually thereafter.

11.4 DOCUMENTATION

Respirator Users on LaRC include both civil service and all contract employees. There are specific documents that these workers shall complete and in some cases, possess that identify them as certified Respirator Users. These documents are discussed in the following paragraphs.

11.4.1 Worker Appointment and Certification Forms

Applicants shall complete and submit the appropriate Appointment and Certification form. That form shall stipulate that the training and safety certification requirements of a Respirator User have been fulfilled. Civil servants shall be issued a NASA Langley Form 65, "Worker Certification Card," by the SFAB designated IH. Contractors shall be issued an equivalent certification card by their contracting company.

11.4.1.1 Civil Service Workers

Civil servants shall complete and submit NASA Langley Form 66, "Worker Appointment and Certification Form."

11.4.1.2 Contractors

Contractors shall complete and submit an appropriate comparable form provided by their company. The contractor's form shall provide for equivalent information as required by NASA Langley Form 66 and it shall contain an approval process.

11.5 MEDICAL SURVEILLANCE

Due to the potential dangers to workers all Respirator Users shall be required to undergo scheduled medical examinations. These examinations shall be required (1) before they are certified to begin work, and (2) annually while they are functioning in the position requiring the respiratory protection. Civil servants shall receive medical examinations at the LaRC OMC, in accordance with LaRC OMEPs. Additionally, contracts issued on LaRC shall require the same level of medical surveillance for contract employees. Medical surveillance requirements for contract employees, however, shall be the responsibility of the contracting company.