

DATE: August 30, 2016
TO: Center Directives Manager
Langley Research Center



FROM: Grant M. Watson
Director, SMAO

SUBJECT: Memo Authorizing Continued Use of Expired Langley Directive
LPR 1740.6 Personnel Safety Certification
Expiration date: January 1, 2016

REF A: [NASA Requirement Waiver for NPR 1400.1 \(3.5.2.6\), NRW 1400-37](#)

In accordance with reference A, I authorize the continued use of the expired subject directive.

LPR 1740.6, Personnel Safety Certification

The subject directive has been reviewed prior to the expiration date and a summary of the required changes is:

The document is currently being updated to comply with NASA requirements which require major revisions.

The directive was also assessed for the risk of continued use after expiration versus the risk of not having the directive available after expiration. The results of that risk assessment are:

This LPR is part of the Langley Management system and it sets forth qualification and training requirements for certification of personnel who perform or control hazardous operations or use or transport hazardous material. There would be a high risk to the efficient and effective implementation of the LaRC Safety Program if this requirements document is not available in the LMS.

Justification for the delay is:

Due to the excessive amount of time spent on revising other LMS documents, these revisions are taking longer to complete than initially expected. There would be a high risk to the efficient and effective implementation of the LaRC Safety Program if this requirements document is not available in the LMS.

The updated directive will be submitted for Center wide review on or before February 28, 2017.

Please refer any questions or concerns regarding the continued use of this directive to Grant M. Watson, Director


Grant M. Watson, Director, SMAO


(Date)

cc:
218/K. C. Suddreth

304/LJNorthern:ljn 08/30/16 (44569)



Langley Research Center

LPR 1740.6F-1

Effective Date: February 18, 2011

Revised: January 7, 2014

Expiration Date: January 31, 2016

PERSONNEL SAFETY CERTIFICATION

National Aeronautics and Space Administration

Responsible Office: Safety and Mission Assurance Office

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PREFACE

P.1 PURPOSE

- a. This Langley Procedural Requirement (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, lasers, explosives and other hazardous materials. It specifies the certification processes to be followed to obtain the worker certification and recertification.
- b. Personnel who perform or control hazardous operations or use or transport hazardous material must be trained and certified as having the necessary knowledge, skill, judgment, and physical ability (if specified in the job classification) to do the job safely as per NASA Procedural Requirement (NPR) 8715.3B and NPR 1800.1.

P.2 APPLICABILITY

- a. These requirements apply to all permanently badged persons performing work at LaRC, including civil servants, on-site contractors, research associates, and others.
- b. Temporary badged contractors are required to meet all appropriate state and OSHA requirements.
- c. Noncompliance with the requirements of this LPR may result in appropriate disciplinary action against civil service employees or sanctions against contractors in accordance with the terms of their contracts.

P.3 AUTHORITY

- a. 10 CFR Part 20, "Occupational Radiation Protection."
- b. 29 CFR Part 1910, "Occupational Safety and Health Standards."
- c. 29 CFR Part 1926, "Occupational Health Regulations for Construction."
- d. 49 CFR 171, "General Information, Regulations, and Definitions"
- d. 49 CFR 172, "Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training."
- e. NPR 1800.1, "NASA Occupational Health Program Procedures."
- f. NPR 8715.3, "NASA Safety Manual."

P.4 APPLICABLE DOCUMENTS

- a. LPR 1710.4, "Personnel Protective Clothing and Equipment."
- b. LRP 1710.5, "Ionizing Radiation."
- c. LPR 1710.7, "Use and Handling of Explosive and Explosives."

- d. LPR 1710.8, "Non-ionizing Radiation."
- e. LPR 1710.10, "Energy Control Program (LOTO)."
- f. LPR 1710.12, "Potentially Hazardous Materials."
- g. LPR 1710.17, "Respiratory Protection Program."
- h. LPR 1710.50 "Certification and Recertification of Lifting Devices and Equipment, and Operators."
- i. LPR 1740.2, "Facility Safety Requirements."
- j. NASA Langley Form 29, "Safety Permit Request."
- k. NASA Langley Form 34 "Welders Concurrency Log Entry".
- l. NASA Langley Form 38, "Safety Permit Request - Radioactive Material."
- m. NASA Langley Form 48, "Safety Permit Request - Radiation Machine."
- n. NASA Langley Form 49, "Safety Permit Request - Laser/Microwave."
- o. NASA Langley Form 56, "Radioactive Material Transfer."
- p. NASA Langley Form 60, "Confined Space Entry Permit."
- q. NASA Langley Form 61, "Lifting Certification Card."
- r. NASA Langley Form 62, "Chemical Worker's Certification Card."
- s. NASA Langley Form 65, "Worker Certification Card."
- t. NASA Langley Form 66, "Worker Appointment and Certification Form."
- u. NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations."
- v. NASA Langley Form 318, "Explosives Safety Permit Request."
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- x. NASA Langley Form 347, "Scaffolding Authorization Card."
- y. NASA Langley Form 402, "Civil Service Employee Shop Machine Lockout Appointment Form."
- z. NASA Langley Form 403, "Craft Specific (CS) Authorization Card (Blue)."
- aa. NASA Langley Form 425, "Shop Machine (SM) Authorization Card (yellow)."
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- cc. NASA Langley Form 452, "Civil Service Employee Safety Operator Appointment Form."
- dd. NASA Langley Form 453, "NASA Langley Safety Operators Permit."
- ee. NASA Langley Form 471, "Welding Procedure Specification" (WPS) (restricted)
- ff. NASA Langley Form 472, "Welder Performance Qualification" (WPQ) (restricted)
- gg. NASA Langley Form 473, "Procedure Qualification Record" (PQR) (restricted)
- hh. NASA Langley Form 492, "Radiation Worker's Certification Card."
- ii. NASA Langley Form 498, "Safety Permit."
- jj. NASA Langley Form 519, "Safety Operator Field Verifier Appointment Form."
- kk. NASA Langley Form 520, "Non-personal Services Contract Employee Safety Operator Field Verifier Form."
- ll. NASA-STD-8719.9, "Standard for Lifting Devices and Equipment."
- mm. NSS-1740.12, "Explosives Safety."
- nn. ASME Boiler and Pressure Vessel Code Section IX

P.5 MEASUREMENT/VERIFICATION

None

P.6 CANCELLATION

LPR 1740.6 dated November 17, 2005.

Original signed on file

Stephen G. Jurczyk
Deputy Director

DISTRIBUTION:

Approved for public release via the Langley Management System; distribution is unlimited.

1. INTRODUCTION

1.1 PURPOSE

1.1.1 This document specifies the certification requirements for personnel who perform selected functions on LaRC, not defined under other procedural requirements, that require unique occupational safety qualifications.

1.1.2 Specifically, it addresses responsibilities, qualifications, training standards, credentials, and medical surveillance issues surrounding those specific functions.

1.1.3 In addition, it specifies the certification processes to be followed to obtain the worker certifications and re-certifications.

1.1.4 These functions are performed by civil servants, contractors, research associates or others on LaRC.

1.2 SCOPE

1.2.1 This document defines the specific requirements of civil service and contract employees, as well as research associates and others who require certification. This document addresses the following:

- a. Training requirements for certification,
- b. Responsibilities and qualifications,
- c. Documentation required to authorize certification,
- d. Certification card requirements, and
- e. Medical examination and surveillance requirements.

1.3 GENERAL

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

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

1.4 RESPONSIBILITY

1.4.1 The responsibility for the implementation and maintenance of LaRC safety policies and standards is delegated to the appropriate management level.

1.4.1.1 Depending upon the task, the personnel safety certification process shall be managed by either, the head of the organization, the Facility Safety Head (FSH), the Organizational Facility Safety Head (OFSH), the Contract/Program Manager, or the first-line supervisor where the function is being performed.

1.4.1.2 The head of the organization, the Facility Safety Head (FSH), the Organizational Facility Safety Head (OFSH), the Contract/Program Manager, or the first-line supervisor shall ensure:

- a. That personnel performing the functions are properly trained and certified.
- b. That any task requiring a safety certification is defined by a Job Hazard Analysis (JHA) or other written procedures (such as a safety permit).

1.5 APPLICABILITY

1.5.1 These personnel safety certification guidelines and procedures shall apply to civil servants, contractors, research associates, and others (hereafter, contractors, research associates, and others will be referred to as contractors in this document) who perform these functions.

1.6 WAIVERS

1.6.1 Request for waivers to any of the requirements in this LPR shall be submitted to SFAB in writing and processed in accordance with LMS-CP-7151, "Obtaining Waivers for Langley Management System (LMS) Requirements."

1.7 CERTIFICATION DOCUMENTATION

1.7.1 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.

1.7.1.1 All contracts/agreements awarded by LaRC shall require that contractor employees also comply with the safety certification processes identified in this LPR.

1.7.1.2 The contracting company shall establish their safety certification process using forms that are equivalent to the forms identified in Table 1.1.

1.8 MEDICAL SURVEILLANCE REQUIREMENTS

1.8.1 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 (OMEPS) 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 |
|--|--|---|-----------------------------|
| EXPLOSIVES WORKER (Ordnance Handler) | LF 66 - Worker Appointment and Certification Form, LF 318 Explosives Safety Permit Request | LF 319 Explosives Safety Permit | 1 year |
| RESPIRATOR USER | LF 66 - Worker Appointment and Certification Form | LF 65 - Workers Certification Card | 1 year |
| SELF-CONTAINED UNDERWATER BREATHING APPARATUS (SCUBA) USER (DIVER) | LF 66 - Worker Appointment and Certification Form | LF 65 - Workers Certification Card | 1 year |
| WELDER/BRAZER | LF 66 - Worker Appointment and Certification Form | LF 34 – Welders Concurrency Log Entry | 6 mos |
| NON-IONIZING RADIATION WORKER | LF 66 - Worker Appointment and Certification Form | LF 492 - Radiation Worker’s Certification Card | 1 year |
| AERIAL LIFT OPERATOR | LF 66 - Worker Appointment and Certification Form | LF 61 - Lifting Certification Card | 4 years |
| HARDWARE HANDLERS: a. CLASS I and CLASS II LIFTING OPERATORS b. FORKLIFT OPERATOR (Motive Equip. Operator) | LF 66 - Worker Appointment and Certification Form, LF 185 - Certification of Operators to Perform Lifting Operations | LF 61 - Lifting Certification Card LF 65 - Workers Certification Card | 4 years 3 Years |
| CONFINED SPACE WORKER | LF 60 - Confined Space Entry Permit | NONE | N/A |
| SAFETY OPERATOR- CRAFT SPECIFIC - SHOP MACHINE (LOCKOUT/TAGOUT) | LF 451 - Safety Operator Appointment Form | LF 453 – NASA Langley Safety Operator’s Permit, LF 403 – Craft Specific Authorization Card (blue), LF425 – Shop Machine Authorization Card (yellow) | 4 years |
| SAFETY OPERATOR FIELD VERIFIER (LOCKOUT/TAGOUT) | LF 519 - Safety Operator Field Verifier Appointment Form | NONE | N/A |
| HAZMAT HANDLER (DOT, Commercial driver license) | LF 66 - Worker Appointment and Certification Form (drivers only) | NONE | 2 years |
| IONIZING RADIATION WORKER | LF 66 - Worker Appointment and Certification Form | LF 492 - Radiation Worker’s Certification Card | 2 years |
| CHEMICAL WORKER | LF 66 - Worker Appointment and Certification Form | LF 62 – Chemical Worker’s Certification Card | 1 year |
| FALL PROTECTION AUTHORIZED USER (HIGH WORKER) | LF 66 - Worker Appointment and Certification Form | LF 65 - Workers Certification Card | 2 years |
| SCAFFOLD WORKERS | NONE | LF 347 - Scaffolding Authorization Card | 4 years |

LF – NASA Langley Form

Verify the correct version before use by checking the LMS website

Table 1.2, LaRC Personnel Safety Certification Medical Examination Requirements

| WORKER CLASSIFICATION | PRE CERTIFICATION | ANNUAL | TERMINATION |
|---|---------------------------------|--|--------------------|
| EXPLOSIVES WORKER* (Ordnance Handler) | Required | Required | None |
| RESPIRATOR USER | Required | Required | None |
| SCUBA USER (DIVER) | Required | Required | None |
| WELDER/BRAZER | Required | Required | None |
| NON-IONIZING RADIATION WORKER ** | Required | Exposure-Determined Exam (within 48 hours) | |
| SAFETY OPERATOR (LOCKOUT/TAGOUT)* | None | None | None |
| SAFETY OPERATOR FIELD VERIFIER | None | None | None |
| PERMIT REQUIRED CONFINED SPACE WORKER | Exposure-Determined Examination | | |
| HAZMAT HANDLER (DOT Commercial driver license) | Required | Required | None |
| IONIZING RADIATION WORKER ** | Exposure-Determined Examination | | |
| CHEMICAL WORKER ** | Required | Required | None |
| FALL PROTECTION AUTHORIZED USER (HIGH WORKER) ** | Required | Required | None |

* Subject to Random Drug Testing

** Medical Examinations Provided in Accordance With NPR 1800.1, Appendix C and LaRC Occupation Medicine Examination Protocols (OMEPS).

2. FLIGHT CREW MEMBER CERTIFICATION

2.1 NASA REQUIREMENT 32151

2.2 CERTIFICATION

The certification of flight crew members is defined in LPR 1710.16 “Aviation Operations and Safety Manual.”

2.3 RESPONSIBILITY

2.3.1 The Chief of Research Operations (CRO) and the Research Services Director shall ensure that all flight crew members are appropriately trained and certified to perform their assigned flight duties. Pilot designations and qualifications will be documented and signed by the CRO. Pilots will fly subject to the authority of the CRO. LaRC pilots may be qualified LaRC civil service employees; qualified contractor employees hired in accordance with a contract providing piloting services,

2.3.2 It is the responsibility of the Chief Pilot to ensure that research pilots have appropriate experience, training, and expertise to perform satisfactorily in their project pilot roles (for both flight and simulation experiments). The Chief Pilot, with concurrence of the Chief of Research Operations, may approve waivers to these requirements where appropriate and justified, for qualified military or civilian detailees from other government organizations.

3. FIREFIGHTER AND RESCUE PERSONNEL CERTIFICATION

3.1 NASA REQUIREMENT 32152 AND 32155

3.2 CERTIFICATION

The certification of firefighter and rescue personnel is defined in LPR 1710.11, "Fire Protection Program" (Note: Fire Fighters are City of Hampton Employees certified under state and local regulations)

3.3 RESPONSIBILITY

3.3.1 The LaRC Fire Chief shall have the overall management responsibility for the fire protection program.

3.3.2 Under the process in LAPD 1050.2, the Center and the Fire Chief will maintain or enter into agreements with Hampton, Virginia and Langley Air Force Base emergency services and fire departments.

3.3.3 Formal agreements between NASA and the City of Hampton and Langley Air Force Base are entered into at the center level.

3.3.4 The objective of these agreements is to provide fully staffed, trained and equipped fire response forces for fire suppression, aircraft emergencies, emergency medical services, pre-fire planning, inspection services, and specialized fire safety training.

4. EXPLOSIVES WORKER

4.1 NASA REQUIREMENT 32153 AND 32154

4.2 CERTIFICATION

The certification of explosives workers is defined in LPR 1710.7 “Handling and Use of Explosives.” Individuals authorized to work with explosives at LaRC will be:

- a. required to submit a completed an LF 66.
- b. listed on an LF 319.
- c. issued an LF 65, as an indication that they comply with the guidance contained in the above LPR.

4.3 RESPONSIBILITY

4.3.1 Each first-line supervisor shall ensure that personnel within their organization who operate, manipulate, or who have any other type of physical control over the use of explosive equipment or material are trained and certified for that purpose.

4.3.2 It is the responsibility of each FSH/OFSH to ensure that only personnel who possess a current LF 65, are operating, manipulating, or controlling explosive equipment within their facility.

5. RESPIRATOR USER

5.1 NASA REQUIREMENT 32156

5.2 CERTIFICATION

5.2.1 The City of Hampton firefighters are authorized to wear self-contained breathing apparatus in accordance with the support agreement between City of Hampton and LaRC.

5.2.1.1 The City of Hampton firefighters training and certification is in accordance with that agreement.

5.2.2 The certification of other respirator users shall be performed in accordance with the requirements identified in the latest version of LPR 1710.17, "Respiratory Protection Program" and shall be documented on an LF 65.

5.3 RESPONSIBILITY

5.3.1 Each first-line supervisor shall ensure that personnel within their organization who use respiratory protective equipment are trained and certified for that purpose.

5.3.2 It is the responsibility of each FSH/OFSH to ensure that only personnel who possess a current LF 65, are using respiratory protective equipment within their facility.

6. SELF-CONTAINED UNDERWATER BREATHING APPARATUS (SCUBA) USER (DIVER)

6.1 NASA REQUIREMENT 32157

6.2 CERTIFICATION

6.2.1 The applicant must demonstrate to the LaRC Dive Safety Officer (DSO) that he/she is sufficiently skilled and proficient to be certified.

6.2.1.1 The DSO shall be appointed by NASA LaRC Center Management or his/her designee, with the advice and counsel of the ESC.

6.2.1.2 The DSO shall be an active underwater instructor from a nationally recognized agency, i.e., NAUI, PADI.

6.2.2 Individuals authorized to dive and utilize SCUBA at LaRC will be issued an LF 65, signed by the DSO, as an indication that they comply with the guidance below.

6.2.2.1 This certification is valid only on Langley Research Center.

6.2.2.2 Dives in other locations must meet the standards of that location.

6.3 RESPONSIBILITY

6.3.1 Each first-line supervisor shall ensure that personnel within their organization who perform diving operations are trained and certified for that purpose.

6.3.2 The DSO shall be responsible for the safe conduct of all diving operations, shall track the training and certification of all LaRC divers, and shall ensure all diving operations are conducted in accordance with 29CFR1910.424.

6.3.2.1 The DSO may permit portions of this program to be carried out by a qualified delegate, although the DSO may not delegate responsibility for the safe conduct of the LaRC diving program.

6.3.2.2 The DSO shall suspend diving operations that he/she considers to be unsafe or unwise.

6.4 QUALIFICATIONS

6.4.1 All LaRC divers must complete theoretical aspects and practical training for a minimum cumulative time of 100 hours.

6.4.1.1 Certification as Advanced Open Water by a nationally recognized diver certification organization such as PADI or NAUI is acceptable as proof of that training.

6.4.2 LaRC divers are also required to be trained as rescue divers.

6.4.2.1 Certification as a rescue diver by a nationally recognized diver certification organization such as PADI or NAUI is acceptable as proof of that training.

6.4.3 Divers will demonstrate their knowledge and skills, to the DSO, through written and practical tests, as outlined below.

6.4.3.1 Written Examination

The prospective diver must pass a written examination that demonstrates knowledge of at least the following:

- a. Function, care, use, and maintenance of diving equipment.
- b. Physics and physiology of diving.
- c. Diving regulations and precautions.
- d. Emergency procedures, including buoyant ascent and ascent by air sharing.
- e. Currently accepted decompression procedures.
- f. Demonstrate the proper use of dive tables.
- g. Underwater communications.
- h. Aspects of freshwater diving.
- i. Hazards of breath-hold diving and ascents.
- j. Planning and supervision of diving operations.
- k. Diving hazards- cause, symptoms, treatment, and prevention of:
 - (1) near drowning,
 - (2) air embolism,
 - (3) carbon dioxide excess,
 - (4) squeezes,
 - (5) oxygen poisoning,
 - (6) nitrogen narcosis,
 - (7) exhaustion and panic,
 - (8) respiratory fatigue,

- (9) motion sickness,
- (10) decompression sickness,
- (11) hypothermia, and
- (12) hypoxia/anoxia.

6.4.3.2 Practical Training

The prospective diver must demonstrate to the DSO his/her ability to perform the following:

- a. Enter water with full equipment.
- b. Demonstrate air sharing, including both buddy breathing and the use of alternate air source, as both donor and recipient, with and without a facemask.
- c. Demonstrate ability to alternate between snorkel and scuba while kicking.
- d. Demonstrate understanding of underwater signs and signals.
- e. Demonstrate ability to remove and replace equipment while submerged.
- f. Surface dive to a depth of 10 feet in open water without scuba.
- g. Enter and leave open water or leave and board a diving vessel, while wearing scuba gear.
- h. Kick on the surface 400 yards while wearing scuba gear, but not breathing from the scuba unit.
- i. Complete a simulated emergency swimming ascent
- j. Demonstrate ability to achieve and maintain neutral buoyancy while submerged.
- k. Demonstrate techniques of self-rescue and buddy rescue.
- l. Navigate underwater.
- m. Plan and execute a dive
- n. Rescue and transport, as a diver, a passive simulated victim of an accident.
- o. Demonstrate simulated in-water mouth-to-mouth resuscitation.

6.5 DOCUMENTATION

6.5.1 During any 12-month period, each certified diver must log a minimum of 12 dives.

6.5.1.1 Failure to meet this requirement may be cause for revocation or restriction of certification by the DSO.

6.5.2 Once the initial certification requirements of Section 6.4 are met, divers whose certification has lapsed due to lack of activity may be re-qualified by procedures adopted by the DSO.

6.6 MEDICAL SURVEILLANCE

6.6.1 All certified divers shall pass a baseline and annual medical examination.

6.6.1.1 After each major illness or injury, a certified diver shall receive clearance to return to diving from a physician before resuming diving activities.

6.6.1.2 All NASA LaRC divers are required to pass a diving physical examination.

6.6.2 The LaRC Clinic physician or diver's physician approved by the LaRC Clinic physician, or whose determinations provide an adequate basis for review by the LaRC Clinic physician, may perform this examination. All NASA LaRC Civil Servant divers are required to utilize the LaRC Clinic for their examination.

6.6.3 Based on exam results the diver must be declared to be fit to engage in diving activities, which may be limited or restricted in the medical evaluation report.

6.6.3.1 The NASA LaRC clinic shall exam all results and shall provide a formal medical release, which the diver will provide to the DSO.

6.6.4 All contractors are required to pass a diving physical examination by their own physician approved by the LaRC Clinic physician, or whose determinations provide an adequate basis for review by the LaRC Clinic physician.

6.6.4.1 The licensed physician shall perform the exam to the same standards as the LaRC clinic.

6.6.4.2 Based on exam results the diver must be declared by the examining physician to be fit to engage in diving activities, which may be limited or restricted.

6.6.4.3 The medical evaluation report by the physician shall provide a release, fit for diving activities.

6.6.4.4 The diver will provide this release to the DSO.

6.6.5 The diver should be free of any chronic disabling disease and be free of any conditions contained in the list of conditions for which restrictions from diving are generally recommended.

7. HIGH-VOLTAGE ELECTRICIAN

7.1 NASA REQUIREMENT 32158

7.2 CERTIFICATION

The certification of high-voltage electricians is defined in LPR 1710.6 “Electrical Safety.”

8. ALTITUDE CHAMBER OPERATOR CERTIFICATION

8.1 NASA REQUIREMENT 32159 (reserved)

8.2 CERTIFICATION

There are currently no altitude chambers at LaRC. This chapter is being reserved for possible future use.

9. HIGH-PRESSURE SYSTEM OPERATOR

9.1 NASA REQUIREMENT 32160

9.1.1 A high pressure system is any system operated at or above 125 psi.

9.2 CERTIFICATION

The certification of high pressure operators is defined in LPR 1740.7 "Process System Certification." The certification shall be documented on an LF159 which shall identify the equipment involved and the area and certification level for each individual.

9.3 RESPONSIBILITY

9.3.1 Each first-line supervisor shall ensure that personnel within their organization who operate, manipulate, or who have any other type of physical control over the use of high pressure equipment are trained and certified for that purpose.

9.3.2 It is the responsibility of each FSH/OFSH to ensure that only personnel who are listed on a current LF 159, are operating, manipulating, or controlling high pressure equipment within their facility.

10. HYPERBARIC CHAMBER OPERATOR

10.1 NASA REQUIREMENT 32161 (reserved)

10.2 CERTIFICATION

There are currently no hyperbaric chambers at LaRC. This chapter is being reserved for possible future use.

11. TANK FARM WORKER

11.1 NASA REQUIREMENT 32162 (reserved)

11.2 CERTIFICATION

There are currently no tank farms at LaRC. This chapter is being reserved for possible future use.

12. WIND TUNNEL OPERATOR

12.1 NASA REQUIREMENT 32163

12.2 CERTIFICATION

The certification of wind tunnel operators is defined in LPR 1740.7 "Process System Certification Program." The certification shall be documented on an LF 159 which shall identify the equipment involved and the area and certification level for each individual.

12.3 RESPONSIBILITY

12.3.1 Each first-line supervisor shall ensure that personnel within their organization who operate, manipulate, or who have any other type of physical control over the use of wind tunnel equipment are trained and certified for that purpose.

12.3.2 It is the responsibility of each FSH/OFSH to ensure that only personnel who are listed on a current LF 159, are operating, manipulating, or controlling wind tunnel equipment within their facility.

13. WELDER/BRAZER CERTIFICATION

13.1 NASA REQUIREMENT 32164

13.2 CERTIFICATION

13.2.1 All personnel who perform welding/brazing operations are required to meet the certification of ASME Boiler and Pressure Vessel Code Section IX.

13.2.2 Certification as to the type weldment the worker is authorized to make is documented in the LF 34.

13.3 RESPONSIBILITY

13.3.1 Each first-line supervisor shall ensure that personnel within their organization who perform welding operations are trained and certified for that purpose.

13.3.2 The LaRC welding Standard Practice Engineer (SPE) shall:

- a. Be responsible for welding quality and shall track the results of all welding tests conducted under their authority.
- b. Maintain the LF 34.

13.4 QUALIFICATIONS

13.4.1 As a minimum, and prior to working as a welder, welding operator or brazer, candidate personnel shall be required to:

- a. Pass a visual acuity test
- b. Successfully complete an intensive on the job training or apprentice program
- c. Successfully demonstrate the ability to complete a sound weldment in accordance to the invoked welding code
- d. Submit to periodic retests as deemed necessary by the Welding SPE.

13.5 DOCUMENTATION

13.5.1 Welder/Brazer Workers on LaRC include both civil service and contract employees.

13.5.2 Worker Appointment and Certification Forms

13.5.2.1 All work conducted is annotated in the LF 34 to document that welder/brazer has performed that operation within a 6 month period.

13.5.3 Civil Service Workers

13.5.3.1 Civil servants shall complete and submit an LF 66

13.5.4 Contractors

13.5.4.1 Contract personnel shall complete and submit an appropriate comparable form provided by their company.

13.5.4.2 The contractor's form shall provide for equivalent information as required by the LF 66.

13.5.4.3 The contractor's form shall contain an approval process.

13.6 **MEDICAL SURVEILLANCE**

13.6.1 Due to the potential dangers to workers' eyes, all welding/brazing workers shall be required to undergo and pass a baseline and annual eye examination.

13.6.1.1 These examinations shall be in accordance with NPR 1800.1C and are required (1) before workers are certified, (2) annually, and (3) based upon exposure.

13.6.1.2 Civil servants shall receive examinations at the occupational medicine clinic in accordance with LaRC OMEPs.

13.6.1.3 Additionally, contracts issued by LaRC shall require the same level of examinations for contract employees.

13.6.1.4 Examination requirements for contract employees, however, shall be the responsibility of the contracting company.

14. NON-IONIZING RADIATION (LASER) WORKER

14.1 NASA REQUIREMENT 32165

14.2 CERTIFICATION

14.2.1 All personnel who operate, manipulate, or who have any other type of physical control over the use of non-ionizing radiation-producing equipment or material shall be required to be trained and safety certified as Non-ionizing Radiation Workers and be issued an LF492.

14.2.2 In addition, all non-ionizing radiation-producing equipment or material shall be specifically authorized by the issuance of an LF 498.

14.2.2.1 Application for that LF 498 shall be initiated by submission of LF 49.

14.2.2.2 Questions concerning this certification requirement shall be directed to the Radiation Safety Officer (RSO).

14.3 RESPONSIBILITY

14.3.1 Each first-line supervisor shall ensure that personnel within their organization who operate, manipulate, or who have any other type of physical control over the use of non-ionizing radiation-producing equipment or material are trained and certified for that purpose.

14.3.2 It is the responsibility of each FSH/OFSH to ensure that only personnel who possess a current LF 492, are operating, manipulating, or controlling non-ionizing radiation-producing equipment within their facility.

14.4 QUALIFICATIONS

14.4.1 As a minimum, and prior to working with non-ionizing radiation, candidate personnel shall be required to:

- a. Attend non-ionizing safety training (provided by RSO or contracting company),
- b. Review LPR 1710.8, "Non-ionizing Radiation", LPR 1740.2, "Facility Safety Requirements", and LPR 1710.4, "Personnel Protection – Clothing and Equipment,"
- c. Review emergency procedures (provided by FSH), and
- d. Review radiation safety procedures relevant to duties associated with non-ionizing radiation work (provided by each FSH).

14.5 DOCUMENTATION

14.5.1 Non-ionizing Radiation Workers on LaRC include both civil service and contract employees. The specific documents that these workers shall complete and, in some cases, possess, that identifies them as Non-ionizing Radiation Workers are identified in this chapter.

14.5.1.1 Worker Appointment and Certification Forms

14.5.1.1.2 Applicants shall complete and submit the appropriate Appointment and Certification Forms (as detailed below) which stipulates that the training and safety certification requirements of a Non-ionizing Radiation Worker have been fulfilled.

14.5.1.2 Civil Service Workers

14.5.1.2.1 Civil servants shall complete and submit an LF 66.

14.5.1.3 Contractors

14.5.1.3.1 Contract personnel shall complete and submit an appropriate comparable form provided by their company.

14.5.1.3.2 The contractor's form shall provide for equivalent information as required by the LF 66

14.5.1.3.3 The contractor's form shall contain an approval process.

14.5.1.4 Radiation Worker's Certification Card

14.5.1.4.3 Upon receipt of an approved LF 66, the RSO shall issue the civil service requester an LF 492.

14.5.1.4.4 Contractor employees shall be issued a certification card equivalent to the LF 492 by their contracting company, upon receipt and approval of the contracting company's comparable form.

14.5.1.4.5 The worker shall have the LF492 or the contractor equivalent on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

14.5.1.5 Revalidation of Certification

14.5.1.5.1 LF 492 or contractor equivalent are valid for three year from the date of issuance.

14.5.1.5.2 It is the responsibility of each radiation worker to have the LF 492 or contractor equivalent revalidated by the RSO prior to the card's expiration date.

14.5.1.6 Termination of Certification

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

14.6 MEDICAL SURVEILLANCE

14.6.1 Due to the potential dangers to workers' eyes involving non-ionizing radiation (lasers), all Non-ionizing Radiation Workers shall be required to undergo and pass an eye examination by an ophthalmologist.

14.6.1.1 These examinations shall be required:

- a. before workers are certified, and
- b. upon termination.

14.6.1.2 Civil servants shall receive eye examinations at the OMC in accordance with LaRC OMEP's.

14.6.1.3 Eye examination requirements for contract employees, shall be the responsibility of the contracting company, and shall meet the same requirements as for Civil Servants.

15. CENTRIFUGE OPERATOR

15.1 NASA REQUIREMENT 32166 (reserved)

15.2 CERTIFICATION

There are currently no human use centrifuges at LaRC. This chapter is being reserved for possible future use.

16. RANGE SAFETY OFFICER

16.1 NASA REQUIREMENT 32167

16.2 CERTIFICATION

16.2.1 The Range Safety Officer shall be a qualified NASA employee, such as an Aerospace Engineer for Uninhabited Aerial Systems (UAS) in the Research Services Directorate. The Range Safety Officer shall be certified and appointed in writing by the Center Director.

16.2.2 Typical duties of a Range Safety Officer.

16.2.2.1 For each range operation, the Range Safety Officer conducts simulation scenarios; develops and implements operational range safety requirements, plans, procedures, and checklists; and provides an independent safety assessment and ensures that all range safety flight commit criteria are satisfied prior to flight initiation.

16.2.2.2 For any vehicle that has a Flight Termination System (FTS), the Range Safety Officer:

- a. develops flight termination activation criteria
- b. performs real-time monitoring of the vehicle flight path/trajectory, vehicle systems, range safety systems, and the performance of the FTS; and
- c. makes a flight termination decision when performance of the vehicle violates preplanned termination criteria or presents an unplanned, unacceptable hazard to the public, personnel, or property

16.3 RESPONSIBILITY

16.3.1 It is the responsibility of the supervisor to ensure that personnel within their organization who fall under the parameters outlined in section 16.2.1 are trained and certified under the safety certification requirements for a Range Safety Officer.

16.4 QUALIFICATIONS

16.4.1 Qualifications for personnel who perform a range safety function (including RSOs and personnel responsible for range safety systems and range safety analysis) shall include:

- a. Successful completion of knowledge-based training (self-study and/or classroom) applicable to the range safety function.

- b. Successful completion of instructor-led, hands-on training on how to perform the range safety function followed by satisfactory on-the-job performance as a trainee, as applicable.
- c. Proficiency demonstrated to a qualified range safety professional during simulation scenarios that exercise hands-on operations of range safety systems and use of safety decision-making tools or processes, as applicable.
- d. Proficiency demonstrated to a qualified range safety professional during exercises of nominal and contingency actions, as applicable.

16.4.2 The training program for range safety personnel shall:

- a. Provide qualified personnel to support nominal and contingency range operations.
- b. Include a recurring training process to ensure personnel retain their qualifications.
- c. Include a requalification process for personnel who lose qualification status, such as, someone who exhibits substandard performance or has temporary health problems.
- d. Include a documentation process that captures the qualification, recurring training, and requalification status of all range safety personnel.

16.5 **DOCUMENTATION**

16.5.1 The LaRC Range Safety Officer shall be appointed in writing.

17. AERIAL LIFT OPERATOR

17.1 NASA REQUIREMENT 32168

17.2 CERTIFICATION

17.2.1 Aerial Manlift Operators shall be trained and safety certified to operate the manlift equipment that is authorized for use on the Center. This certification is documented on an LF 65, Worker Certification Card.

17.2.1.1 Workers will be separately certified to operate any equipment defined by OSHA 1926.453: Aerial Lifts.

17.2.2 Workers undergoing safety certification training shall be assisted by two additional safety certified operators, during the operation/use of any aerial manlift equipment

17.2.3 A separate safety certification shall be required to operate each individual type of equipment.

17.2.4 Workers who operate aerial manlift equipment shall possess an LF 61 or contractor equivalent, specifying the type of equipment they may operate.

17.3 RESPONSIBILITY

17.3.1 It is the responsibility of the supervisor 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.

17.3.2 It is the responsibility of each FSH/OFSH to ensure that only personnel who possess a current LF 65, are operating, manipulating, or controlling aerial lift equipment within their facility.

17.4 QUALIFICATIONS

17.4.1 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.

17.4.1.1 The qualifications are defined within this section 17.4.

17.4.2 Testing Requirements

17.4.2.1 Testing of Aerial Manlift Operators shall include written examinations that contain appropriate questions addressing the work to be performed.

17.4.2.1 The questions shall address, as a minimum, the subject areas listed below.

- a. Safety applications,
- b. Knowledge of equipment limitations and capabilities,
- c. Knowledge of equipment operations and control systems,
- d. Equipment care and damage reporting requirements,
- e. High voltage and electrical operational restrictions,
- f. Use of required safety equipment,
- g. Wind restrictions,
- h. Ground conditions restrictions,
- i. Ground slope restrictions,
- j. Emergency operation procedures,
- k. Safety zone requirements,
- l. Lifting restrictions,
- m. Weight restrictions, and
- n. 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.

17.4.3 Proficiency Examination Requirements

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

- a. Aerial lift buckets operations,
 - (1) Full-range of operation of the bucket from ground and bucket stations,
 - (2) Knowledge of safety rules and regulations, and
 - (3) Positioning of bucket.
- b. Equipment inspection procedures, and

c. Outrigger deployment (if applicable).

17.4.3.2 High Reach Bucket Truck Operators shall be required to acquire a Commercial Drivers License - Class B with an air brake endorsement.

17.4.3.3 Aerial Manlift Operators shall receive an informal annual review by their organization on equipment operation and safety procedures.

17.4.4 Experience Requirements

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

a. Certification as a High Worker,

b. A two-hour classroom training program on the following:

- (1) Safety,
- (2) Emergency procedures,
- (3) General performance standard,
- (4) Requirements,
- (5) Pre-operational checks,
- (6) Safety related defects and symptoms for manlift devices, and
- (7) A minimum of six hours of hands on training on each manlift device for which the worker requires certification.

17.5 DOCUMENTATION

17.5.1 Civil servant employees who require safety certification on LaRC as an Aerial Manlift Operator shall process their request on LF 66.

17.5.1.1 This form shall be used to document and certify that the qualifications of the worker, required in section 17.4 have been satisfied.

17.5.2 Contract personnel who require certification shall use a comparable form provided by their company for certification.

17.5.2.1 The contractor's form shall provide for equivalent information LF 66 and shall contain an approval process.

17.5.3 The LF 61 or contractor equivalent shall be issued to certified workers.

17.5.4 The LF 61 or contractor equivalent shall list, on the reverse side of the card, the specific manlift equipment the worker is certified to use.

17.5.5 The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

17.5.6 Recertification shall be required once every four years and shall follow the same process as the original certification process.

17.6 **MEDICAL SURVEILLANCE**

17.6.1 The work performed by Aerial Manlift Operators shall require medical surveillance with strict adherence to the LaRC OMEP's.

17.6.1.1 These positions shall require:

- a. pre-certification medical examinations and
- b. 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.

17.6.1.2 Candidates shall undergo and pass these medical examinations to be certified/recertified.

17.6.1.3 Civil service employees shall have their required medical examinations at the LaRC OMC.

17.6.1.4 All contracts/agreements awarded on LaRC shall require that the contracting company medically certify its workers who will perform these duties.

17.6.2 Pre-Certification Medical Examination

17.6.2.1 Personnel requiring certification as Aerial Manlift Operator shall first undergo and pass a medical examination in compliance with the LaRC OMEP's.

17.6.2.2 This examination shall be accomplished through routine processing of LF 66 or the equivalent contractor's form.

17.6.2.3 A medical disqualification shall result if a worker does not successfully complete the medical protocol.

17.6.3 Medical Examinations

17.6.3.1 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.

18. CRANE OPERATOR/ RIGGERS FOR HOISTING OPERATIONS (HARDWARE HANDLER)

18.1 NASA REQUIREMENT 32169

18.2 CERTIFICATION

18.2.1 Hardware Handlers at LaRC are classified as Lifting Operators or Forklift Operators.

18.2.1.1 They are distinguished by the certification criteria required to perform distinctly different categories of functions. This certification is documented on an LF 65.

18.2.1.2 Lifting Operators are further divided into two sub-classifications:

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

18.2.1.3 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.

18.2.1.4 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.

18.2.1.4.1 These examples are not all inclusive; and, additional equipment operators may require safety certification at the discretion of SFAB.

18.2.1.5 The re-certification process shall follow the same procedures that were used during the original certification process.

18.3 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.

18.4 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 this section 18.4.

18.4.1 Class I - General: Rigger and Equipment Operator Qualifications

Riggers and equipment operators who are classified as Class I: General Operators, shall meet the requirements defined in this section 18.4.1 to be safety certified:

18.4.1.1 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.

18.4.1.1.1 The questions shall address, as a minimum, the following subject areas:

- a. Determination of center of gravity (CG)
- b. Determination of load weight
- c. Calculation of lifting-line strength such as cable and rope and margin of safety
- d. Calculation of sling tension loads
- e. Use of common slings and hitches
- f. Selection of sizes and use of chocks
- g. Use of hydra-set
- h. Use of proof-loading specifications
- i. Use of hand signals
- j. Use of and determining strength of knots
- k. Distortion of loads (blocking)
- l. Safety applications
- m. Knowledge of quality assurance requirements

18.4.1.2 Proficiency Examination Requirements

18.4.1.2.1 Riggers

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

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

18.4.1.2.2 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:

- a. Operating mobile cranes,
- b. Operating overhead or gravity cranes,
- c. Operating forklifts,
- d. Operating portable lifting cranes,
- e. Operating industrial truck cranes,
- f. Operating Hy-Ranger vehicles,
- g. Operating all types of bucket trucks, and
- h. Demonstrating operational proficiency in:
 - (1) Equipment inspection procedure,
 - (2) Positioning crane for lift,
 - (3) Outrigger deployment,
 - (4) Full-range boom and cab travel (empty),
 - (5) Hand-signal motions (empty),
 - (6) Lifting and braking with load,
 - (7) Hand-signal motions (loaded), and

- (8) A series of load placements.

18.4.1.3 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.

18.4.2 Class II - Restricted: Technical Employees Qualifications

This classification of Lifting Operators shall be restricted to operating the specific equipment listed on their LF 61.

Certification of Class II Lifting Operators is based upon the following:

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

18.4.2.1 Testing Requirements

Testing of Class II Lifting Operators shall include written examinations that contain appropriate questions addressing the work to be performed.

18.4.2.1.1 The questions shall address, as a minimum, the subject areas listed below:

- a. Determination of center of gravity (CG)
- b. Determination of load weight
- c. Calculation of lifting-line strength such as cable and rope and margin of safety
- d. Calculation of sling tension loads
- e. Use of common slings and hitches
- f. Selection of sizes and use of chocks
- g. Use of proof-loading specification
- h. Use of hand signals
- i. Use of and determining strength of shackles and hooks

- k. Distortion of loads (blocking)
- l. Safety applications
- m. Knowledge of quality assurance requirements

18.4.2.2 Proficiency Examinations

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

18.4.2.2.1 The examinations shall include:

- a. 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)
- b. Hand signaling a lift operation
- c. Demonstrating operational proficiency in special pieces of lifting equipment (i.e., lifting, braking, load placement, etc.) with and without hand signals

18.4.3 Forklift Operators

18.4.3.1 Testing Requirements

Testing requirements for Forklift Operators shall include written examinations that contain appropriate questions addressing the demands of the work to be performed.

18.4.3.1.1 The questions shall address, but are not limited to, the subject areas listed below.

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

i. Weight restrictions

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

18.4.3.2 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:

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

18.4.3.3 Experience Requirements

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

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

18.5 DOCUMENTATION

18.5.1 Class I Lifting Operator Documents

18.5.1.1 Civil servant employees who request safety certification on LaRC as a Class I Operator shall process their request on LF 66, and LF 185.

18.5.1.1.1 These forms shall be used to document and certify that the qualifications required in section 18.4 have been satisfied.

18.5.1.2 Contract personnel who require certification shall use an appropriate comparable form for certification.

18.5.1.2.1 The contractor's form shall provide information equivalent to that on LF 66 and shall contain an approval process.

18.5.1.3 LF 61, "Lifting Certification Card," shall be issued to certified civil service lifters who are qualified to perform lifts with specific equipment.

18.5.1.3.1 LF 61 shall list, on its reverse side, the specific equipment the individual is certified to operate.

18.5.1.3.2 The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

18.5.1.4 Contractors shall issue a certification card equivalent to LF 61 to all of their certified lifters.

18.5.1.5 Recertification shall be required every four years and shall follow the same process as the original certification process.

18.5.2 Class II Lifting Operator Documents

18.5.2.1 LF 66 and LF 185 shall be used to initiate the recommendation for the certification of Class II Lifting Operators.

18.5.2.1.1 These forms certify that all of the requirements contained in section 18.4 have been satisfied.

18.5.2.1.2 These forms shall require the signatures of the following authorizing individuals:

- a. Supervisor/Contract Manager
- b. OUM Training Coordinator

- c. Classroom Instructor
- d. Applications Instructor
- e. OUM/COTR
- f. LaRC Safety Manager

18.5.2.2 LF 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.

18.5.2.2.1 The LF 61 shall document the specific equipment that the lifting operator is certified to operate.

18.5.2.2.2 The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

18.5.2.2.3 Recertification shall be required every four years and shall follow the same process as the original certification process.

18.5.3 Forklift Operator Documents

18.5.3.1 Civil servant employees

18.5.3.1.1 Shall process their request on LF 66.

18.5.3.1.2 LF 66 shall be used to document and certify that worker qualifications required in section 18.4.3 have been satisfied.

18.5.3.1.3 LF 65 shall be issued to certified civil service Forklift Operators.

18.5.3.1.4 The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

18.5.3.2 Contractor personnel

18.5.3.2.1 Contractor personnel shall use an appropriate comparable form provided by their company for certification which shall:

- a. provide equivalent information as LF 66, and
- b. shall contain an approval process.

18.5.3.2.2 Contractor personnel shall issue a certification card equivalent to LF 65 to all of their certified Forklift Operator which shall show the specific forklift equipment that the worker is certified to operate on the reverse side of the document.

18.5.3.2.3 The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

18.6 MEDICAL SURVEILLANCE

18.6.1 Civil service employees shall have their required medical examinations at the OMC.

18.6.2 All contracts/agreements awarded on LaRC shall require that the contracting company provide medical surveillance of their personnel who will perform these duties.

18.6.3 Pre-Certification Medical Examination

Personnel requiring certification as Hardware Handlers shall undergo and pass a medical examination in compliance with LaRC OMEPs, prior to issuance of an LF 61 or LF 65 or contractor equivalent.

18.6.3.1 This examination is accomplished through routine processing of LF 66 or the equivalent contractor's form.

18.6.3.2 A medical disqualification shall result if a candidate does not satisfy the requirements of the OMEPs.

18.6.4 Medical Examinations

18.6.4.1 Class I Lifting Operators shall annually undergo and pass a medical examination in accordance with LaRC OMEPs.

18.6.4.2 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 OMEPs.

18.6.4.3 Forklift Operators shall undergo and pass a medical 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.

19. HEAVY EQUIPMENT OPERATOR

19.1 NASA REQUIREMENT 32170

19.2 CERTIFICATION

19.2.1 Only individuals pre-qualified to operate heavy equipment may do so. This qualification is documented on an LF 65.

19.2.2 Operators of equipment that can be used on public highways must have a valid driver's license.

Note: includes specialized maintenance and construction equipment such as backhoes, bulldozers, excavators, skid steers, wheel loaders, dump trucks, etc.

19.3 RESPONSIBILITY

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

19.3.1.1 Managers and supervisors shall ensure that only qualified and authorized employees are assigned to use heavy equipment.

19.4 QUALIFICATION

19.4.1 Employees who are to operate heavy equipment must be qualified and certified to do so.

19.4.1.1 Training shall include both a classroom portion and a hands-on skills demonstration element under the guidance of a certified heavy equipment operator.

19.5 DOCUMENTATION

19.5.1 The supervisor will maintain equipment operator qualification records.

19.6 MEDICAL SURVEILLANCE

19.6.1 Frequency:

- a. Pre-placement/Baseline Examination
- b. Biennial Exam

19.6.2 Laboratory:

- a. Audiogram: Hearing threshold in better ear < 40 dB (500, 1000, 2000 Hz)
- b. ECG
- c. Pulmonary Function
- d. Visual Acuity: 20/40 with or without corrective lenses
- e. Gross Visual Fields: 70 degrees in each eye
- f. Color: Recognize and distinguish between the colors
- g. Urinalysis (dipstick)
- h. Discretionary Tests:

19.6.3 Chest X-Ray:

- a. Blood Chemistry Profile
- b. Complete Blood Count (CBC)
- c. Stress Test (age determined)

19.6.4 Physical Exam:

- a. Occupational and Medical History
- b. Physical Examination with focus on assessing any condition affecting vision and/or hearing that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, loss of physical control, or similar undesirable conditions

19.6.5 Written Opinion

19.6.6 Job Certification with any limitations

20. CONFINED SPACE WORKER

20.1 NASA REQUIREMENT 32171

20.2 CERTIFICATION

20.2.1 All individuals who participate in the entry of confined spaces shall be properly trained and safety qualified as confined space workers. This will be documented on an LF 60.

20.2.1.1 This includes all personnel that will be entrants, attendants and/or entry supervisors.

20.2.2 The safety certification shall be completed in accordance with this document.

20.2.3 A "permit-required confined space (permit space)" means a confined space that has one or more of the following characteristics:

- a. Contains or has a potential to contain a hazardous atmosphere;
- b. Contains a material that has the potential for engulfing an entrant;
- c. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- d. Contains any other recognized serious safety or health hazard.

20.2.4 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 defined that is designated a confined space (see LPR 1740.2).

20.3 RESPONSIBILITY

20.3.1 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.

20.4 QUALIFICATIONS

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

- a. Hazard recognition,

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

20.5 DOCUMENTATION

20.5.1 LF 60 shall be used to document the certification of Confined Space Workers.

20.5.2 LF 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.

20.5.3 LF 60 shall require the signature of the employee's supervisor to approve the certification of a worker as a Confined Space Worker.

20.6 MEDICAL SURVEILLANCE

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

21. LOCKOUT/TAGOUT PERSONNEL

21.1 NASA REQUIREMENT 32172

21.2 CERTIFICATION

21.2.1 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)."

21.2.2 The above individuals will be issued an LF 453, LF 403, or LF 425 upon compliance with the requirements in LPR 1710.10.

21.3 RESPONSIBILITY

21.3.1 It is the responsibility of the head of each organization that controls energized equipment to ensure that personnel who lockout/tagout the equipment are trained and certified in compliance with this document.

21.3.1.1 Managers and supervisors shall ensure that only qualified and authorized employees are assigned to lockout/tagout equipment.

22. HAZMAT HANDLER

22.1 NASA REQUIREMENT 25115

22.2 CERTIFICATION

22.2.1 All individuals who handle, transport, or package hazardous materials but do not otherwise disturb the integrity of the basic properly-packaged shipping container that holds the hazardous material must be trained and certified to perform these functions.

22.2.2 Those who transport HAZMAT over public roads must have a valid state commercial driver's license (CDL) of the appropriate Class, with and endorsement H for hazardous materials.

22.3 RESPONSIBILITY

22.3.1 Each first-line supervisor and FSH shall ensure that personnel within their organization who function as HAZMAT handlers are trained and qualified.

22.4 QUALIFICATIONS

22.4.1 Prior to working as a HAZMAT Handler, personnel must be trained in accordance with 49 CFR 171 and 49 CFR 172 which require:

- a. Hazard recognition
- b. DOT labeling
- c. packaging and placarding
- d. compatibility
- e. loading, and segregation
- f. documentation
- g. transportation safety and security
- h. General awareness/familiarization
- i. Function-specific, training
- j. Safety
- k. Security awareness

- l. In-depth security training, if a security plan is required. LaRC has a security plan
- m. Driver training (for each HAZMAT employee who will operate a vehicle)
- n. HAZMAT training is completed within 90 days of employment or change in job function
- o. Reoccurring training is required at least once every 3 years.
- p. Maintaining training records.

22.5 DOCUMENTATION

22.5.1 Individuals who transport HAZMAT over public roads must have a valid state commercial driver's license (CDL) Class A, with and endorsement H for hazardous materials.

22.6 MEDICAL SURVEILLANCE

22.6.1 Employees who perform work as a HAZMAT handler shall not be required to undergo a medical examination prior to safety certification unless they are a driver transporting HAZMAT over public roads.

22.6.2 Drivers of vehicles transporting HAZMAT must possess a current Department of Transportation Medical Examiner's certificate in addition to the CDL license with the H endorsement.

23. IONIZING RADIATION WORKER

23.1 NASA REQUIREMENT LPR 1800.1, CHAPTER 4.13

23.2 CERTIFICATION

23.2.1 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 and be issued an LF 492.

23.2.2 Most hazardous operations at LaRC are defined by an LF 498. An LF 498 shall be initiated by the submission of either an LF 38, LF 38 or LF 48.

23.2.3 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 6, as a result of exposure to radiation-producing equipment on LaRC, shall also be trained and certified as Ionizing Radiation Workers.

23.2.4 Questions concerning this certification requirement shall be directed to the Radiation Safety Officer (RSO).

23.3 RESPONSIBILITY

23.3.1 It is the responsibility of each FSH/OFSH to ensure that personnel within their facility, who fall under the parameters outlined in section 23.2.1, shall be trained and certified under the safety certification requirements of an Ionizing Radiation Worker.

23.3.2 It is the responsibility of the supervisor of each organization that works with ionizing radiation to ensure that personnel who work with ionizing radiation are trained and certified in compliance with this document.

23.4 QUALIFICATIONS

23.4.1 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:

- a. General description of radiation and radiation hazards (provided by RSO or contracting company),
- b. Basic principles of radiation safety (provided by RSO or contracting company),
- c. Appropriate Federal regulations and LPR 1710.5,
- d. Emergency procedures (provided by FSH), and

- e. Radiation safety procedures relevant to duties associated with employment (provided by each FSH).

23.5 DOCUMENTATION

23.5.1 Ionizing Radiation Workers on LaRC include both civil service and contract employees. The specific documents that these workers shall complete and, in some cases, possess that identify them as Ionizing Radiation Workers are identified in this chapter.

23.5.1.1 Worker Appointment and Certification Forms

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

23.5.1.2 Civil Service Workers

23.5.1.2.1 .Civil servants shall complete and submit LF 66.

23.5.1.3 Contractors

23.5.1.3.1 Contract personnel shall complete and submit an appropriate comparable form provided by their company to the RSO.

23.5.1.3.2 The contractor's form shall provide for equivalent information as required by LF 66

23.5.1.3.3 The contractor's form shall contain an approval process.

23.5.1.4 Radiation Worker's Certification Card

23.5.1.4.1 Upon receipt and approval of an LF 66 the RSO shall issue the civil service requester an LF 492.

23.5.1.4.2 Contractor employees shall be issued an equivalent certification card by their contracting company, upon receipt and approval of the contracting company's comparable form.

23.5.1.4.3 The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

23.5.1.5 Revalidation of Certification

23.5.1.5.1 LF 492s or contractor equivalent are valid for two years from the date of issuance.

23.5.1.5.2 Each radiation worker shall have the LF 492 or contractor equivalent revalidated by the RSO or contracting company prior to the card expiration date.

23.5.1.6 Termination of Certification

23.5.1.6.1 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 LF 492 to the RSO or contractor equivalent to the contracting company.

23.6 MEDICAL SURVEILLANCE

23.6.1 Due to the potential dangers involved in radiation, all Ionizing Radiation Workers shall undergo and pass medical examinations.

23.6.1.1 These examinations shall be required:

- a. before they are certified to begin work,
- b. annually while they are functioning in the position, and
- c. upon termination.

23.6.1.2 Civil servants shall receive medical examinations at the LaRC Occupational Medical Center (OMC) in accordance with LaRC OMEP's.

23.6.1.3 Additionally, contracts issued on LaRC shall require the same level of medical surveillance for contract employees.

23.6.1.4 Medical surveillance requirements for contract employees, however, shall be the responsibility of the contracting company.

23.6.2 Pre-Certification Examination

23.6.2.1 Civil servants shall receive these medical examinations at the LaRC OMC, Building 1216.

23.6.2.2 They are accomplished through routine processing of the LF 66 and scheduled by the RSO.

23.6.2.3 Contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

23.6.3 Annual Examinations

23.6.3.1 Ionizing Radiation Workers shall be required to undergo and pass an annual medical examination to maintain their certification.

23.6.3.2 These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations.

23.6.3.3 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.

23.6.4 Termination Examinations

23.6.4.1 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.

23.6.4.2 Termination medical examinations shall be scheduled and conducted under the same guidelines as the annual medical examinations.

23.6.4.3 Line supervisors shall be responsible for notifying the RSO when civil servants or contractor employees are being decertified as Ionizing Radiation Workers.

23.6.4.5 This notification is required two weeks prior to the termination so that the examination can be scheduled.

24. CHEMICAL WORKER

24.1 NASA REQUIREMENT NPR 1800.1, CHAPTER 4.7

24.2 CERTIFICATION

24.2.1 LaRC civil service and contract employees who handle specified potentially hazardous materials (PHM) shall be classified as Chemical Workers and be issued an LF 62, Chemical Worker's Certification Card.

24.2.2 Chemical Workers conduct operations or perform functions using materials listed on LF 498s.

24.2.3 The certification of chemical workers is outlined in LPR 1710.12 "Potentially Hazardous Materials – Hazard Communication Standard."

24.3 RESPONSIBILITY

24.3.1 It is the responsibility of the head of each organization that uses PHM to ensure that personnel who handle the PHM are trained and certified in compliance with this document.

24.3.1.1 Managers and supervisors shall ensure that only qualified and authorized chemical workers are assigned to work with PHM.

25. FALL PROTECTION AUTHORIZED USER

25.1 NASA REQUIREMENT NPR 8715.3 CHAPTER 3.18.1

25.2 CERTIFICATION

25.2.1 Personnel whose normal or periodic duties or assignments require them to function at any walking/working surface where fall protection is required, shall be certified as a fall protection authorized user.

25.2.1.1 This certification shall be documented on an LF 65.

25.2.2 Personnel who work on walking/working surfaces where OSHA compliant guardrails have been installed are not required to be certified.

25.2.3 Personnel who are certified as an aerial lift worker and perform their duties inside of the aerial lift are not required to be certified.

25.3 RESPONSIBILITY

25.3.1 Supervisors shall refer all questions relative to working at elevated levels to the LaRC Safety Manager, or designee, for advice and guidance.

25.3.2 Supervisors shall ensure that all personnel under their supervision designated as Fall Protection Authorized Users are, and remain, certified in accordance with the requirements herein.

25.4 QUALIFICATIONS

25.4.1 As a minimum, and prior to working as a Fall Protection Authorized User, candidate personnel shall receive formal classroom training in fall protection from a competent person or qualified person before they use fall protection systems, or are exposed to a fall hazard.

25.4.2 Training for Fall Protection Authorized Users shall include:

- a. How to inspect, anchor, assemble and use the fall protection equipment commonly used;
- b. Physical demonstration by trainee on how to inspect, anchor, assemble and use fall protection equipment commonly used in location where they work.
- c. Fall hazard recognition;
- d. Fall hazard elimination and control methods;

- e. Their responsibilities under applicable fall protection regulations;
- f. How to use written fall protection procedures;
- g. Inspection of equipment components and systems before use;
- h. Fall protection rescue procedures;

25.5 DOCUMENTATION

25.5.1 Personnel performing work on LaRC as a Fall Protection Authorized User shall be required to complete specific documentation and request certification to perform their duties.

25.5.2 Fall Protection Authorized Users on LaRC may be either civil service employees or contract employees. The specific documents that shall be required to be processed and issued for both of these classes of workers identified in this chapter.

25.5.3 Worker Appointment and Certification Forms

25.5.3.1 Applicants shall complete and submit the appropriate Appointment and Certification Form which stipulate that the training and safety certification requirements of a Fall Protection Authorized User have been fulfilled.

25.5.4 Civil Service Workers

25.5.4.1 Civil servants shall complete and submit LF 66.

25.5.5 Contractors

25.5.5.1 Contract personnel shall complete and submit an appropriate comparable form provided by their company.

25.5.5.2 The contractor's form shall provide for equivalent information as required by the LF 66.

25.5.5.3 The contractor's form shall contain an approval process.

25.5.6 Worker's Certification Card

25.5.6.1 Upon receipt and approval of an LF 66 the LaRC Safety Manager, or designee shall issue the civil service requester an LF 65.

25.5.6.2 Contractor employees shall be issued an equivalent certification card by their contracting company, upon receipt and approval of the contracting company's comparable form.

25.5.6.3 Employees shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

25.5.6.4 LF 65 or contractor equivalent are valid for two years from the date of issuance.

25.5.7 Termination of Certification

25.5.7.1 Upon termination of employment, or when the worker no longer needs to be certified as a Fall protection Authorized User:

- a. Civil Service employees shall immediately surrender the LF 65 to the LaRC Safety Manager, or designee.
- b. Contractor employees shall surrender their equivalent certification card to their contracting company safety representative.

25.6 **MEDICAL SURVEILLANCE**

25.6.1 Due to the potential dangers involved in working at heights, all Fall Protection Authorized Users shall undergo medical examinations.

25.6.2 These examinations shall be required:

- a. before they are certified to begin work, and
- b. annually while they are functioning as a Fall Protection Authorized User.

25.6.3 Civil servants shall receive these medical examinations at the LaRC OMC in accordance with LaRC OMEP's.

25.6.4 Additionally, contracts issued on LaRC shall require the same level of medical examinations for contract employees.

25.6.5 Medical surveillance requirements for contract employees, however, shall be the responsibility of the contracting company.

25.6.6 Pre-Certification Medical Examination

25.6.6.1 Civil servants shall receive these medical examinations at the LaRC OMC.

25.6.6.2 They are accomplished through routine processing of the LF 66 and scheduled by the Clinic.

25.6.6.3 Contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

25.6.7 Annual Medical Examinations

25.6.7.1 Fall Protection Authorized Users shall be required to undergo and pass an annual medical examination to maintain their certification.

25.6.7.2 These examinations shall be conducted under the same guidelines as the pre-certification examinations.

26. SCAFFOLD ASSEMBLERS/ INSPECTORS

26.1 NASA REQUIREMENT NPR 8715.3 CHAPTER 3.18.1

26.2 CERTIFICATION

Personnel whose normal or periodic duties or assignments require them to erect or inspect scaffolding shall complete the following Center training requirements:

- a. Classroom instruction
- b. Hands on demonstration accompanied by a Level I Instructor

26.2.2 Upon completion of the above, an LF 347 will be issued for the appropriate level.

26.3 RESPONSIBILITY

26.3.1 Supervisors shall ensure that all personnel under their supervision who assemble or inspect scaffolding are provided training appropriate to their level of involvement.

26.4 QUALIFICATIONS

26.4.1 Prior to work assembling or inspecting scaffolding, employees must have the appropriate training. Personnel shall receive formal classroom training from a competent person before they assemble/inspect scaffolding systems.

26.5 DOCUMENTATION

26.5.1 Worker Appointment and Certification Forms

26.5.1.1 Applicants shall complete and submit the appropriate Appointment and Certification Form which stipulate that the training and safety certification requirements of a Scaffold Class I - Verifier, Class II – General (assemble & Inspector), or Class III – Inspector only, have been fulfilled.

26.5.1.2 **Civil servants shall complete and submit LF 66.**

26.5.1.2.1 Contract personnel shall complete and submit an appropriate comparable form provided by their company.

26.5.1.2.2 The contractor's form shall provide for equivalent information as required by the LF 66.

26.5.1.2.3 The contractor's form shall contain an approval process.

26.5.4 Worker's Certification Card

26.5.4.1 Upon completion of training and receipt and approval of an LF 66, the LaRC Safety Manager, or designee shall issue the civil service requester an LF 347.

26.5.4.2 Contractor employees shall be issued a certification card equivalent to LF 66 by their contracting company, upon receipt and approval of the contracting company's comparable form.

26.5.4.3 Employees shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

26.5.4.4 LF 347 or contractor equivalent are valid for four years from the date of issuance.

26.5.5 Termination of Certification

26.5.3.1 Upon termination of employment, or when the worker no longer needs to be certified as a Scaffold User:

- a. Civil Service employees shall immediately surrender the LF 347 to the LaRC Safety Manager, or designee.
- b. Contractor employees shall surrender their equivalent certification card to their contracting company safety representative.

26.6 **MEDICAL SURVEILLANCE**

26.6.1 Scaffold Users are not required to undergo medical examinations.

APPENDIX A ACRONYMS

- A.1** AGE – Arterial gas embolism
- A.2** CDL – Commercial Driver’s License
- A.3** CG – Center of Gravity
- A.4** CPR – Cardiopulmonary resuscitation
- A.5** DCS – Decompression sickness
- A.6** DOT – Department of Transportation
- A.7** DSO – Dive Safety Officer
- A.8** ECG – Electrocardiogram
- A.9** FSH – Facility Safety Head
- A.10** FTS – Flight Termination System
- A.11** HAZMAT – Hazardous Materials
- A.12** JHA – Job Hazard Analysis
- A.13** LaRC – Langley Research Center
- A.14** LF – Langley Form
- A.15** LMS – Langley Management System
- A.16** LOTO – Lockout Tagout
- A.17** LPR – Langley Procedural Requirement
- A.18** MSDS – Material Safety Data Sheet
- A.19** NAUI - National Association of Underwater Instructors
- A.20** NPR – NASA Procedural Requirement
- A.21** NPS – Non-Personal Service
- A.22** OFSH – Organizational Facility Safety Head
- A.23** OMC – Occupational Medicine Clinic
- A.24** OMEP - Occupational Medicine Examination Protocol
- A.25** OSHA – Occupational Safety and Health Administration
- A.26** OUM – Organizational Unit Manager
- A.27** PADI - Professional Association of Diving Instructors
- A.28** PHM – Potentially Hazardous Materials
- A.29** RSO – Radiation Safety Officer
- A.30** SCUBA – Self-Contained Underwater Breathing Apparatus
- A.31** SFAB – Safety and Facility Assurance Branch
- A.32** SPE – Standard Practice Engineer
- A.33** UAS – Uninhabited Aerial System