

**NATIONAL WEATHER SERVICE MANUAL 50-1115**  
**APRIL 12, 2017**

***Safety and Environmental***  
***Occupational Safety and Health NWSPD 50-11***  
**OCCUPATIONAL SAFETY AND HEALTH**

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**SUMMARY OF REVISIONS:** This directive supersedes NWSM 50-1115, Occupational Safety and Health, dated July 16, 2014. Changes made to reflect the NWS Headquarters reorganization effective April 1, 2015. The following revisions were made:

(1) Chapter 1 - Fall Protection: Added a reference in the synopsis to the new Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910.140, Personal Fall Protection Systems. Added clarification that procedure excludes fixed ladders, scaffolds, and portable ladders (covered in Procedure #14). Updated the checklist to state that only full body harnesses with compatible components issued by the National Weather Service (NWS), can be utilized for personal fall arrest systems. Added a definition of “Free Fall” to section 1.2. Added a note to section 1.3.2 stating that unexpected or new fall hazards should be evaluated to ensure that fall protection provided is sufficient and appropriate for the hazard. Removed reference to rescue kits in section 1.3.2d (Note) since kits are issued to the office, not to individual climbers. Added a note to section 1.3.2d stating that only NWS issued components of personal fall arrest systems may be used by NWS personnel while climbing structures. Revised to add a note to section 1.3.2e stating that free falls must be limited to less than six feet. Added paragraphs 1.3.2i-1 in accordance with the new OSHA standard 1910.140 describing requirements related to anchorages, snaphooks and protecting fall protection equipment from being damaged. Added clarification in section 1.3.3a regarding the exemption for the use of fall protection system when persons are on the roof only to inspect, investigate or estimate roof level conditions. Removed section 1.3.6, Scaffolding, since it is covered in Procedure 14. Updated Agency Stock Numbers (ASN) for fall protection equipment stocked at National Logistics Support Center (NLSC) warehouse in section 1.3.7a. Deleted reference to rescue equipment inspection during recertification training classes in section 1.3.9f(3). Removed references to 29 CFR 1910.66, Appendix C, “Fall Arrest System” and 29 CFR 1910.145, “Signs and Tags.” These references are not relevant to the procedure. Removed reference to 29 CFR 1910.126 and added reference to a new standard 1910.140, Personal Fall Protection Systems. Added inspection checklist for the Miller 70 Universal Rescue System to Attachment A.

(2) Chapter 2 - Working Alone: Updated the checklist question (2.7) to add “procedural

directives” to the examples of documents to be reviewed for the additional personnel requirements. Revised the checklist question (2.3.2b, Note) to clarify that First Aid/CPR trained personnel must always be available when high-risk work is performed or when low-risk work is performed but medical services are not readily available. Requirement for additional First Aid/CPR trained personnel should be based on Job Hazard Analysis (JHA) reviews. Revised the checklist question (2.3.3) to add JHA reviews to determine when additional personnel are required. Added the section 2.3.2a stating that First Aid/CPR trained personnel will always be available when high risk work is being performed or when low risk work is being performed but medical services are not readily available. Requirements for additional First Aid/CPR trained personnel will be evaluated based on JHA reviews. Replaced the note in section 2.3.2b with the latest OSHA interpretation about close proximity of medical services to the workplace. Added a requirement for JHA reviews in section 2.3.3. Added a link to JHA presentation and template posted on NWS Environmental and Safety web page. Revised the paragraph to clarify requirements for additional personnel (safety observers) when work involves ascending and descending the structures. Revised section 2.3.4b to add a requirement for establishing procedures for emergency communications, including frequency of contact with a field office. Revised section 2.3.5 to clarify requirements for safety observers First Aid/CPR training requirements.

(3) Chapter 3 - Safe Electrical Work Practices: Combined two questions in the checklist (3.3.18) related to minimum clearance in front of electrical panels into one question. Added questions to the checklist about safety observers being properly trained as required by the procedure and about other office employees being trained in the portions of the procedure that are necessary to ensure their safety. Added definitions of “Arc Flash Hazard” and “Arc Flash Boundary.” Added definitions of “De-energized Parts” and “Qualified Person” (based on NFPA 70E Standard). Revised section 3.3.3d (2) to state that verification must be made that the circuit elements and equipment parts are de-energized to a zero energy state. Updated section 3.3.6 to discuss the information to be included on the Arc Flash label in accordance with National Fire Protection Association (NFPA) 70E requirements. Clarified that a safety observer trained in First Aid/CPR must always be present when an employee may be exposed to energized equipment. Revised the note in section 3.3.12a to state that electrical loads on multi-outlet surge protectors shall not exceed their rated capacity, multiple outlets shall not be “daisy-chained,” and use of extension cord in combination with power strip shall not be permitted. Modified section 3.3.12n to state all equipment shall be approved by OSHA Nationally Recognized Testing Laboratory [e.g., Underwriters Laboratories (U.L.)]. Moved section 8.3.7, Electrical Protective Devices, from Procedure 8 (Personal Protective Equipment) to section 3.3.15. Updated section 3.3.16, Note to add a reference to section 3.3.6 for information on Arc Flash labeling requirements. Added a note to section 3.3.23 stating that an employee who is undergoing on-the-job training for the purpose of obtaining the skills and knowledge necessary to be considered a qualified person and who demonstrates the ability to perform specific duties safely under direct supervision of qualified a person, shall be considered a qualified person for the performance of those specific duties. Added Attachment A, Protective Clothing and Personal Protective Equipment (per NFPA 70E).

(4) Chapter 4 - Control of Hazardous Energy Sources: Changed definition of “Hot Work” to “Work On or Near Energized Parts.” Removed detailed information related to NFPA 70E

Standard requirements in section 4.3.1a(2)(a). Reference to the NFPA 70E Standard is sufficient. Added reference to Lockout/Tagout safety kit stocked at NLSC warehouse to section 4.3.2. Added recommendation in section 4.3.2c (1) (ii) (e) to record lock and tag removal into the station log. Revised Equipment Lockout/Tagout template (Attachment A).

(5) Chapter 5 - Occupant Emergency Plan (OEP): Revised checklist question (5.3.13) to state that facility evacuation and Shelter-in-Place drills are to be conducted annually. Updated section 5.3.6 to add the following topics to the OEP: A map of the building and adjacent areas showing emergency exits, evacuation routes, and assembly areas; Lock Down; Terrorist Incidents; Emergency Communications Systems; and Safe Heaven (as appropriate). Revised the second sentence in section 5.3.12d to clarify that in the event of airborne threat, qualified personnel shall ensure that fans and heating, ventilation and air conditioning systems are turned off and outdoor air intakes are closed and secured. Added a note in section 5.3.14 stating that real life events count toward the annual drill requirement as long as an after action report is prepared and the event is documented. Removed the section 5.3.16b related to training of personnel involved in equipment and facility protection in the event of emergencies since it should be addressed in Continuity of Operations Plan. Revised section 5.4.3b to clarify that submission of OEP self-assessment surveys to National Oceanic and Atmospheric Administration (NOAA) and Department of Commerce (DOC) would be completed as requested. Added a new reference to section 5.5, “Interagency Security Committee, The Risk Management Process for Federal Facilities: An Interagency Security Committee Standard.”

(6) Chapter 6 - Fire Protection: Moved subparagraph o. in section 6.3.1 as a note below the introductory paragraph 6.3.1. Added subparagraph g. to section 6.3.2 recommending periodic Fire Prevention Plan reviews and updates. Added “Date of last Review” to the front page of the Fire Prevention Plan template (Attachment C).

(7) Chapter 7 – Hazard Communication: Changed the title “Major changes to the Hazard Communication Standard” to a “Summary of 2012 Changes to the Hazard Communication Standard” in section 7.3.1. Revised section 7.3.2 to state that the Hazard Communication (HAZCOM) Program must be up to date with regards to Global Harmonization System (GHS) requirements. Removed reference to GHS training deadline of December 1, 2013 in section 7.3.3, Note. Added GHS activities that were supposed to be completed by June 1, 2016. Added clarification on workplace labeling of containers. Removed GHS implementation timeline in Addendum I, Executive Summary. Removed the statement in Addendum I, B.2, “This Hazard Communication Program ensures that all NWS supervisors receive the information they need to inform and train their employees properly and to ensure that employee protection programs are in place. It also provides necessary hazard information to the staff so they can participate in and support the protective measures at their workplaces.” The information included in the procedure is provided as a guidance and template for site-specific program. Removed references to the old HAZCOM standard labeling in Addendum I, C.4 since deadlines for new GHS labeling have passed. Revised Addendum I, C.7 to state that most pipes are not required to be labeled but employees shall be informed of their content. Updated in Addendum I, J.1 with links to NOAA Safety and Environmental Compliance Office (SECO) GHS training and training resources available on the DOC Commerce Learning Center (CLC). Revised the second bullet in Addendum I, K.3.1 to state that material spilled, compliant container labeling, container’s

material and condition, or other relevant information need to be identified. Added a link to a list of reportable quantities in Addendum I, K.3.7. Added a reference to NWSM 50-5116, Section 3, Transportation of Hazardous Materials and Waste in Addendum I, K.3.7. Provided clarification for waste self-transporting by NWS employees. Clarified transportation requirements for mercury and mercury containing materials in Addendum I, K.4.1. Removed Printer Plotter section in Addendum I, K.5 since information is outdated. Updated Addendum I, K.5 requirements in accordance with 2014 EPA regulations update for solvent contaminated wipes. Revised Addendum I, K.6.1 to state that batteries are universal waste when recycled. Revised Addendum I, K.6.3 to clarify classification and handling of batteries. Revised Addendum I, K.6.4 to clarify that batteries need to be placed in the container based on type of the battery.

(8) Chapter 8 - Personal Protective Equipment (PPE): Added a reference in the synopsis that electrical protection is being covered in a separate procedure. Revised the checklist question (8.3.1b) to state that selection of appropriate PPE for the employees is done based on the Job Hazard Analysis (JHA) and/or using PPE Hazard Assessment form (Attachment C). Added “flying debris” to the question related to use of safety glasses to the checklist question (8.3.4). Revised definition of Class C (Conductive) hard hat to state that Class C hard hats are not recommended and cannot be used around electrical hazards. Revised section 8.3.1b to state that all PPE used at NWS facilities will be selected based on the JHA and/or PPE Hazard Assessment form (Attachment C). Added the web link to JHA presentation and template posted on NWS Environmental and Safety web page. Revised section 8.3.2a(2) to add a reference to JHA. Updated section 8.3.2a with a reference to revised Attachment C that includes PPE need evaluation summary based on specific hazards. Updated section 8.3.6d-e with safety shoes inspection requirements, cleaning and maintenance recommendations by manufacturer and a requirement to replace impact-resistant footwear must be replaced anytime heavy object is dropped on it. Added safety glasses with side shields for grinding operations in section 8.3.7. Added a summary of PPE Need Evaluation based on specific hazards to Attachment C. Added appropriate electrical protective gloves and properly rated arc flash equipment to Hazard Assessment form for Battery Charging and Replacement operations (Attachment G-6). Deleted section 9.3.6e stating that all electrical connections shall conform to 29 CFR 1910, Subpart S, for Class 1 Division 2 specifications. Deleted the statement in section 9.3.6f that the hydrogen generator tank must be regularly drained to prevent a buildup of condensate. Removed the reference to fire extinguisher training in section 9.4.2e since it is applicable to Procedure 5.

(9) Chapter 9 - Compressed Gas Safety: Added subparagraph 1. to section 9.3.5 stating the “NWS Hydrogen Safety Awareness Training” resource is available on CLC web site. Added reference to the “NWS Hydrogen Safety Awareness Training” in section 9.3.6a. Updated section 9.3.6b with a reference to ASNs for the static dissipation mat and grounding cord available for requisition from NLSC warehouse.

(10) Chapter 10 - Respiratory Protection: Replaced “NOAA SECO” with “NWS Headquarters Environmental and Safety staff” in checklist questions (10.3.2 and 10.3.11g). Replaced “NOAA SECO” with “NWS Headquarters Environmental and Safety staff” in section 10.3.2. Revised definition of Immediately Dangerous to Life or Health (IDLH). Revised Attachment B to replace Material Safety Data Sheet (MSDS) with Safety Data Sheet (SDS) and Maximum Use Limit with Maximum Use Concentration. Updated Attachment B with links to 29 CFR 1910.134, Appendix



C, OSHA Respirator Medical Evaluation Questionnaire; 29 CFR 1910.134, Appendix B-1, User Seal Check Procedures; and 29 CFR 1910.134, Appendix D, Information for Employees Using Respirators When not Required Under Standard. Revised Respiratory Selection Guide (Appendix 2-A).

(11) Chapter 11 - Hearing Conservation: Updated the last sentence in section 11.1 to state that procedure applies to all NWS facilities and work locations where employees work near sources of high intensity noise. Added a note under definition of “Noise Monitoring Program” in section 11.2 clarifying that the NWS relies on representative noise monitoring data of its operations at a variety of sites to determine the requirements for the use of hearing protection. Added the option to post “Hearing Protection Recommended” or “Hearing Protection Required” signs in section 11.3.1a. Added clarification of training methods in section 11.3.1b. Revised section 11.3.2d to state that previous noise monitoring studies (Attachment B) indicated it would be highly unlikely that NWS employees performing work duties at Weather Forecast Offices (WFOs) or WFO/River Forecast Offices (RFC) would be exposed to noise above the Action Level. Revised Station Manager’s responsibility in section 11.4.2b to ensure that noise exposure monitoring is conducted for operations unique to the facility in coordination with NWS Headquarters (WSH) safety staff. Added responsibility for WSH to conduct periodic noise exposure monitoring of common NWS operations in section 11.4.3b. Added Attachment B, Summary of Past Noise Study Results.

(12) Chapter 12 - Confined Space Entry: Added reference in section 12.3 to a template form that can be used for confined spaces identification and inventory (Attachment B). Clarified in section 12.3.3d(1) that the Entry Supervisor must be at the site to verify entry condition. Added information on non-entry retrieval systems and methods in section 12.3.3i. Added Attachment B, Confined Spaces Identification and Inventory Form.

(13) Chapter 13 - Indoor Air Quality: No changes.

(14) Chapter 14 - Walking-Working Surfaces: Revised requirements for ladder inspections and tagging in Initial Implementation Requirements. Added pre-use ladder inspection requirement before each shift. Added checklist questions about regular inspections and maintenance of walking-working surfaces, all open-sided platforms 4 feet or more above working levels being guarded by standard railings or personal fall arrest systems, and ladder pre-use inspections being conducted during each shift the ladder is used. Added checklist questions about training of personnel who work with scaffolding and about providing fall protection for scaffolding platforms above 10 feet. Added definitions of “alternating tread stairs,” “anchorage,” “cage,” “hole,” ladder safety device,” “landing platform,” “mobile ladder stand,” “opening,” “Qualified Person,” “ship stair,” “spiral stairway,” “step bolt,” “walking-working surface.” Updated definition of toeboard. Added the statement in section 14.1 that the procedure was developed in compliance with 29 CFR 1910, Subpart D, “Walking-Working Surfaces” to clarify the applicable OSHA standard. Updated general requirements for maintenance and safe access of walking-working surfaces in sections 14.3.2c & d. Updated section 14.3.2h with a requirement that all railings, including guardrail systems and handrails, shall be installed in accordance with OSHA’s standard on fall protection and falling object protection – criteria and practices, 29 CFR 1910.29(b). Removed the requirement to mark and post floor load rate limits on plates in section

14.3.2j and added a requirement that no load shall be placed on any floor or roof of a building or other structure that is greater than its load rating limit. Added walking-working surfaces inspection requirements to section 14.3.2l. Revised requirements for guarding of holes in sections 4.3.3b-e. Added requirements for guardrail systems maintenance in section 14.3.3h. Added a reference in section 14.3.3i to Procedure 1 for the use of personal fall arrest system while working on walking-working surfaces above 4 feet or more not guarded by standard railings. Added a requirement for protection of employees from falling objects in section 14.3.3j. Added a reference in section 14.3.3k to use of personal fall arrest system while working open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards as another option to prevent the contact with the hazard. Added a requirement in section 14.3.3l to guard opening by a standard guardrail system on all sides of the opening while hoisting equipment, including into the NEXRAD radome. If guardrail is not provided, or needs to be removed, employees must use fall protection equipment in accordance with Procedure 1. Replaced section 14.3.4 “Fixed Industrial Stairways” with section on general stairways safety requirements. Combined portable and fixed ladder requirements under section 14.3.5. Added general ladder requirements and expanded information for portable ladders. Added requirements for Mobile Ladder Stands and Mobile Ladder Stand Platforms. Revised and expanded requirements in section 14.3.6 for scaffolding in accordance with amended OSHA Walking-Working Surfaces standard. Removed section 14.3.7 on Manually Propelled Mobile Ladder Stands and Scaffolds (not applicable to NWS operations) and replaced section 14.3.9 (Other Working Surfaces) with section discussing safety requirements for dockboards. Added reference to 29 CFR 1910, Subpart D – Walking-Working Surfaces in section 14.5.

(15) Chapter 15 - Battery Charging and Storage Operations: No changes.

(16) Chapter 16 - Flammable and Combustible Liquid Storage: Procedure was updated in accordance with 2012 revision of the Hazard Communication standard requirements. Added a note under Synopsis stating that OSHA removed the use of the term “combustible liquid” from its standard on hazardous materials. Reference to combustible materials was removed from the procedure. Updated classification of flammable materials in accordance with new OSHA requirements in section 16.2. Added a link to the sample hazardous materials compatibility chart in section 16.3.1h. Added requirements for storage of flammable liquids in tanks, such as aboveground diesel storage tanks in section 16.3.1c. Removed Attachment B, Flammable/Combustible Liquids Storage (WFO Springfield, MO) since information is outdated.

(17) Chapter 17 - Ionizing and Non-Ionizing Radiation: No changes.

(18) Chapter 18 - Accident Illness Reporting and Recording: Revised the description of NOAA SECO incident recording and reporting notification procedures in section 18.3.6a. Replaced reference to Safety Information Reporting System with Microsoft Access database maintained by NOAA SECO. Deleted the reference to daily incident reports since current NOAA reporting system does have capability to generate them. Added clarification in section 18.3.6b that incidents resulting in recordable injury must be recorded on the OSHA Log 300 within 7 days of occurrence. Deleted the statement in section 18.4.6c that completed forms will be submitted to the supervisor within six days. Added reference to “Injury Compensation for Federal Employees

Publication CA-810” and DOC Worker’s Compensation: How to File a Claim web page for further instructions. Added references to NAO 209-1 and CA-810 in section 18.5. Updated Department of Labor and DOC web links in section 18.5.8. Updated safety incident rating details description chart per NOAA Administrative Order (NAO) 209-10 (Attachment A).

(19) Chapter 19 - Hand and Power Tool Safety: Updated section 19.3 with a reference to JHA and link to JHA presentation and template posted on NWS Environmental and Safety web page. Added a note in section 19.3.3 stating that employees shall not bring their own tools to Federal Government facilities. Clarified section 19.3.9 that compressed air cannot be used for cleaning purposes unless reduced to less than 30 psi.

(20) Chapter 20 - Machine Guarding: No changes.

(21) Chapter 21 - Laser Operations: No changes.

(22) Chapter 22 - Cranes, Hoists, and Slings: Updated section 22.3.9e to clarify that annual load testing is not required.

(23) Chapter 23 - Emergency Response Agreements: No changes.

(24) Chapter 24 - Safety Training Program: Deleted the requirement in section 24.3.3e to complete NOAA Safety, Environmental and Sustainability Awareness Course on an annual basis. It is required by NOAA only for new employees. Removed the reference in section 24.3.3f to current “Safety for Supervisors” training on DOC Learning Center. It is being replaced by two courses, one for senior managers (Executives) and another one for supervisors. Updated Table 24-1. Removed reference to annual NOAA Safety, Environmental and Sustainability Awareness training and “Safety for Supervisors” requirements. Clarified that training is required for operators of Snowmobiles/Snow Cats and All-Terrain Vehicles (ATV). Removed reference to Attachment C in section 24.3.3g. Removed reference to fire extinguisher training applicable to Procedure 5. Added “Seasonal Training” to the outline of Safety Orientation (Attachment A). Removed the Attachment C, Safety Training for Supervisors.

(25) Chapter 25 - Ergonomics: Added information in section 25.3.3 on ergonomic factors to be considered when evaluating ergonomic concerns including forceful movements, frequent repetition, and deviations from neutral posture.

(26) Chapter 26 - Trenching and Excavation Operations: No changes.

(27) Chapter 27 - Forklift: No changes.

(28) Chapter 28 - Welding/Hot Work: No changes.

(29) Chapter 29 - Small Boat Safety: Added a requirement to report any injury in section 29.3.4a(6). Added a requirement in section 29.3.4d to report minor incidents and near misses via NOAA Accident/Illness Reporting System.

(30) Chapter 30 - Office Safety: Added a subparagraph in section 30.3.16d describing requirements for multi-outlet surge protectors.

(31) Chapter 31 - Asbestos Safety: Changed the reference in section 31.3.3 from “NOAA SECO” to “NWS Headquarters Environmental and Safety staff.”

(32) Chapter 32 - Motor Vehicle Safety: Updated synopsis with initial and refresher training requirements for ATV and Snowmobile/Snow Cat operators. Updated section 32.4.2b to specify ATV and Snowmobile/Snow Cat training requirements. Revised the statement in Attachment C to clarify that driving through standing water is not allowed unless it can be verified that it is shallow enough to cross safely and an alternate route is not available.

(33) Bloodborne Pathogens (BBP): Replaced definition of “collateral duty safety observer” with “First Aid/CPR trained safety observer.” Updated definition of “Other Potentially Infectious Materials (OPIM).” Clarified information to be included in the Exposure Control Plan in section 33.3.1(3).

<u>Signed</u>	<u>March 29, 2017</u>
Deirdre R. Jones	Date
Director, Office of Facilities	

**OCCUPATIONAL SAFETY AND HEALTH MANUAL  
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ACRONYMS

## INTRODUCTION

**1. General.** This Occupational Safety and Health Manual implements one of the elements of the National Weather Service (NWS) Occupational Safety and Health Program defined in NWS Policy Directive NWSPD-50-11, Occupational Safety and Health. The manual includes 33 safety procedures developed in accordance with Occupational Safety and Health Administration (OSHA) standards, Department of Commerce Safety Manual and other Federal agencies safety and health standards (e.g., Department of Transportation, Nuclear Regulatory Commission, Federal Aviation Administration (FAA)). When no published OSHA standards existed, Guidance was derived from nationally recognized organizations (e.g., the National Fire Protection Association, American Conference of Industrial Hygienists, American National Standards Institute, National Institute for Occupational Safety and Health). In the absence of any published standards, guidance was developed to govern unique NWS activities.

**2. Applicability.** These procedures are applicable to NWS facilities, operations, and personnel (e.g., employees, contractors, visitors) and shall be implemented as directed by NWSPD-50-11. When NWS operations are conducted at another organization's site (e.g., Government agency, university), NWS safety requirements and procedures shall be followed unless the hosting organization's requirements and procedures pre-empt as determined in the lease agreement, Memorandum of Understanding, etc.

**3. Manual Matrix.** Each section of the manual consists of a table of contents, one-page summary (synopsis), checklist, and full text of the procedure. The summary highlights the most important aspects of the procedure and may be used by Station Managers as an overview for procedure implementation. The checklist should be used at least annually or, as needed, to review for compliance. In addition, examples, where available, of site-specific (WFO Springfield, MO) applications of the procedures are included as attachments to those procedures.

**4. References.** A list of specific references to regulations, standards, and guidelines is included in each procedure.

**PROCEDURE 1 - Fall Protection**

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## **Synopsis**

This procedure is promulgated to reduce the potential of fall hazards associated with work on unguarded horizontal and vertical work surfaces (e.g., radar pedestals, towers, river gauges, roofs). This procedure applies to all NWS facilities and work locations where fall protection is required and to all NWS employees who use fall protection in the performance of their jobs. It is developed in accordance with 29 CFR Subpart D, Walking-Working Surfaces, 1910.28-30 and 29 CFR Subpart I, 1910.140, Personal Fall Protection Systems requirements. This procedure excludes portable ladders, fixed ladders, and scaffolds (See procedure #14, Walking-Working Surfaces).

## **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Identify locations where employee(s) climb at elevations 4 feet or greater *(1.3.2)*
  - Identify personnel impacted by this procedure. *(1.3.9)*
  - Conduct Inspection of Fall Arrest System components. *(1.3.7a,b)*
- **Develop/Obtain Documentation/Information required for Site**
  - Document evaluation of locations with work area above 4 feet including the need for rescue equipment and emergency procedures. *(1.3.2)*
  - Document information relevant to Structure Climbing/Descending Emergencies *(Attachment C)*
  - Develop Emergency Response Agreements (ERA) with Local Emergency Response Organizations *(1.3.2a)*, if required
- **Designate Person to Administer the Fall Protection Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Fall Protection and Rescue Training/Certification of Climbers. *(1.3.9)*
  - Safety Observer Training. *(1.3.2b)*
- **Inventory Material/Equipment (Procure as required)**
  - Fall Protection Systems *(1.3.1)*
  - Communication Devices *(1.3.2b)*
  - Hard Hats *(1.3.2o)*
  - Postings/Signs *(1.3.4c)*
  - Fall Object Protection *(1.3.4)*
  - Barricades *(1.3.4b)*

## **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Evaluate all activities/locations for any changes in the fall protection requirements. *(1.3.2)*
  - Perform Inspection of Fall Arrest System components prior to each use. *(1.3.6a)*
  - Review Climbing Incidents that caused Equipment Stress Loading *(1.3.7c)*
  - Conduct Annual Equipment Inspections. *(1.3.6b, Attachments A & B)*
- **Review/Update Documentation/Information required for Site**
  - Update information relevant to Structure Climbing/Descending Emergencies. *(Attachment C)*



- Update Emergency Response Agreements (ERA) with Local Emergency Response Organizations. *(1.3.2a)*
- Maintain Personnel Training Records. *(1.3.8c)*
- **Provide Recertification of Site Personnel**
  - Recertification of Climbers with rescue responsibilities. *(1.3.8b)*
- **Provide Re-training of Site Personnel (as required)**
  - Re-training of Climbers. *(1.3.8e)*
- **Replace/Recalibrate/Maintain Material/Equipment (as required)**
  - Fall Protection Systems ( *1.3.1*)
  - Communication Devices *(1.3.2b)*
  - Hard Hats *(1.3.2o)*
  - Postings/Signs *(1.3.4c)*
  - Fall Object Protection *(1.3.4)*

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**Fall Protection Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	1.4.2				
Are Fall Protection Systems used when work is being performed on towers, river gauges and other elevated structures where potential fall distance is 4 feet or more?	1.3.1a				
Has recommended coordination with the local emergency response organization(s) been conducted prior to the commencement of work to determine rescue ability within 30 minutes?	1.3.2a Note				
Have Emergency Response Agreements (ERA) been prepared and updated, as recommended in paragraph 1.3.2a?	1.3.2a				
Does a Safety Observer accompany the person performing the work requiring personal fall arrest and restraint systems?	1.3.2b				
Does the Safety Observer have immediate access to a reliable communication device for contacting the local emergency response organization should an accident occur?	1.3.2b				
Are only full body harnesses, with compatible components, issued by the NWS, being utilized for personal fall arrest systems?	1.3.2d,e				
Has a Safety Observer been trained in summoning the assistance of a local emergency response organization in case an accident occurs and have immediate access to a reliable communication device?	1.3.2b				
Has a Safety Observer been trained in CPR/First Aid and in use of NWS issued fall protection rescue equipment, if local emergency organization is not available within 30 minutes?	1.3.2c				
Are vertical lifelines being used by NWS personnel for fall arrest purposes, when available?	1.3.2h				
Are fall restraint systems used by employees working on the elevated flat or sloped surfaces?	1.3.2n				

Requirements	Reference	YES	NO	N/A	Comments
Are ladder safety systems being used if installed?	1.3.2h				
Do employees use hard hats when climbing?	1.3.2o				
Are all employees who perform work on roofs, etc., protected from falling or tripping by using appropriate fall protection systems?	1.3.3				
Is falling object protection being used when work is being performed at an elevated work area?	1.3.4				
When work is performed at elevated work-sites, is the area enclosed with barricades, if required, to protect station personnel and other workers?	1.3.4b				
Are signs warning of the hazards of falling materials, posted where applicable according to this procedure?	1.3.4c				
Do contractors at this facility who use scaffolds and similar platforms, comply with this procedure?	1.3.6				
Are fall arrest systems inspected by the user prior to each use and also annually?	1.3.6a,b				
Are fall arrest system components removed from service and destroyed after being subjected to loading from a fall?	1.3.6a,c				
Are harnesses and lanyards maintained and stored according to this procedure?	1.3.7				
Have all employees required to climb, work on or descend structures been trained in fall protection and rescue?	1.3.8a				
Have previously trained active climbers with rescue duties been recertified every three years (nominal)?	1.3.8b				
Have all employees who use restraint system only received initial fall protection training?	1.3.8b NOTE				
Has re-training been provided to all affected employees, as required?	1.3.8e				

## 1 FALL PROTECTION

### 1.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to reduce the potential of fall hazards associated with work on unguarded horizontal and vertical work surfaces (e.g., radar pedestals, towers, river gauges, and roofs). This procedure applies to all NWS facilities and work locations where fall protection is required and to all NWS employees who use fall protection in the performance of their jobs. This procedure excludes portable ladders, fixed ladders, and scaffolds (See Procedure #14, Walking-Working Surfaces, NWSM 50-1115).

### 1.2 Definitions

Anchorage. A secure point of attachment for personal fall arrest equipment (e.g., lifelines, lanyards or deceleration devices), capable of supporting impact loading of 5,000 pounds per attached employee or designed and installed under the supervision of the Qualified Person. If designed, it must be part of a complete personal fall arrest system that maintains a safety factor of at least two while limiting maximum arresting force on an employee to 1800 pounds.

Body Belt. A strap that a worker can secure around his/her waist and to which a lanyard or device for positioning can be attached. **The use of body belts as part of a personal fall arrest system is prohibited.** Body belts can be used only as part of positioning systems.

Carabiner. A trapezoid or oval shaped connector with a normally closed gate that may be opened by turning of the closing/locking mechanism and applying pressure on the gate that automatically closes when pressure is released. NWS employees will use only steel auto-locking carabiners.

Competent Person. Person who (1) is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees and (2) has authority to take prompt corrective measures to eliminate or protect against those hazards. The scope of competency varies. A person may be competent in one discipline and not another. The NWS Fall Protection and Rescue initial or re-certification courses give attendees the knowledge and ability to be Competent Tower Climbers and Competent Tower Rescuers.

Connector. A device which is used to connect part of the personal arrest system, positioning or restraint systems together. It may be an independent component such as carabiner or it may be an integral component of body harness (D-rings) or lanyard (snap-hooks).

Construction Work. Construction, installation, alteration, and/or repair of facilities and/or ancillary equipment.

Environmental Hazards. Environmental issues such as, but not limited to ice, high winds, presence of contaminants on structures that could cause the employee to loose his/her grip or footing when working at heights.

Fall Restraint System. A system designed to prevent the worker from reaching an area in which a free fall could occur (e.g., roof work). Thus, no free fall is possible.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Free fall. The act of falling before the personal fall arrest system begins to apply force to arrest the fall. The distance of a free fall is measured as the vertical displacement of the arrest system's attachment point from the onset of the fall until the fall arrest system begins to apply force.

Full Body Harness. A design of multiple adjustable straps that can be secured around the body, having multiple D-rings as means for attaching carabiners, lanyards or other devices suitable for fall arrest, work positioning or restraint. The back (dorsal) D-ring is used for fall arrest or restraint, the front D-ring is used for work positioning or ladder climbing, and side D-rings are used for restraint and for work positioning.

Guardrail system. A vertical barrier erected along exposed edges of walking/working surfaces to prevent falls of persons to lower levels or the ground. A standard guardrail consists of top rail, mid rail, and posts, and shall have a vertical height of 42 inches plus or minus three (3) inches from the upper surface of top rail to floor, platform, runway, or ramp level. Nominal height of mid rail shall be at least 21 inches.

Guarded Roof Edge. A roof edge that is guarded by a parapet or similar structure with a minimum height of 39 inches.

Horizontal Lifeline. A component consisting of a flexible line for connection to anchorages at both ends to stretch horizontally and which serves as a means for connecting other components of a personal fall arrest system to the anchorage. Horizontal lifelines and their anchorage strength must be designed only by a Qualified Person (Professional Engineers are often used as qualified personnel).

Ladder Safety (Climbing) Systems. A fall arrest system that safeguards a worker while climbing or descending structures such as fixed ladders, small towers, poles. It consists of either a flexible steel cable or a rigid rail, mounting brackets, and a safety sleeve. The safety sleeve attached to the vertical cable/rail and worker's harness automatically follows the worker's movement and locks onto the cable/rail when a fall occurs.

Low-Sloped Roof. A roof having a slope less than four vertical inches in twelve horizontal inches.

Maintenance. Making or keeping a structure, equipment, fixture or foundation (substrates) in proper condition in a routine, scheduled or anticipated fashion.

Opening. A gap or void 30 inches (76 cm) or more high and 18 inches (48cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), and the Sterling Field Support Center (SFSC).

Personal Fall Arrest System. A system used to arrest a worker in a fall from a working level. It consists of an anchorage, connectors, a full body harness, shock absorbing lanyard and may include deceleration device, lifeline, or suitable combinations of these. **As of January 1, 1998, the use of a body belt for fall arrest is prohibited.**

Positioning Device System. A system that holds and sustains the worker on an elevated vertical surface and allows him/her to work with both hands free and limits the free fall to two feet. It

consists of a full body harness, connecting assembly (e.g., positioning lanyard), connectors, and anchorage.

Positioning Lanyard. A flexible line of webbing with connectors (snap-hooks) on both ends that connect to a worker harness's side D-rings. It must be rigged such that a worker cannot free fall more than two feet.

Qualified Person. One with a recognized degree, professional certificate, or professional standing, or who by extensive knowledge, training and experience has successfully demonstrated the ability to solve or resolve problems related to the subject matter of the work or the project.

Rope Grab. A mobile or static deceleration device attached to a vertical rope lifeline that automatically by friction locks onto the rope so as to arrest the fall of an employee.

Safety Net. A fall protection system that uses nets to stop falling persons before they would contact a lower level or obstruction.

Self-Retracting Lifeline. A connecting means that automatically adjust its length as the user moves towards and away from the anchorage. The self-retracting lifeline housing typically contains a spring loaded drum on which line (made of rope, wire rope and webbing) is wound and unwound. The device has a mechanism that locks the drum if the user falls.

Snap-hook. A connector having a hook-shaped body with a normally closed gate that opens by depressing an opening/locking mechanism and automatically closes when pressure is released. NWS employees shall use only self-closing and self-locking snap-hooks when used for fall protection.

Shock (Energy) Absorber. A component that is designed to dissipate kinetic energy and limits forces imposed on a worker during fall arrest to 900 pounds.

Shock Absorbing Lanyard. A flexible line of webbing, cable, or rope that has an integral shock absorber and connectors at each end for connecting a worker's harness to a lifeline or anchorage.

Steep Roof. A roof having a slope greater than four vertical inches to twelve horizontal inches.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Unguarded Roof Edge. Any side or edge of the roof where there is no wall or guardrail system at least 39 inches high.

Vertical Lifeline. A component consisting of a flexible line for connection to an anchorage at one end to hang vertically and which serves as a means for connecting other components of a personal fall arrest system to the anchorage. The lifeline shall have a nominal breaking strength of 5,000 pounds.

Warning Line System. A system of ropes, wires, or safety chains to warn and keep workers away from a fall hazard. The distance between the warning and the hazard will depend on type of work.

Work Positioning System. Any system or combination of components that holds a worker in position for hands-free operations.

Work Positioning Assembly. A system designed for work positioning. Typically consists of a positioning lanyard connected to positioning D-rings of a harness.

Y Lanyard (100% Tie-Off). Two-legged lanyard with an integral shock absorber, which allows worker to be tied off to one anchorage point all the time even when moving from one location to another. Each leg is terminated by a connector (snap-hook or carabiner) and a center connector (usually snap-hook) attaches to a back (dorsal) D-ring of a worker's harness.

### 1.3 Procedure

1.3.1 General. Fall protection systems (e.g., guardrails, railings, safety nets, personal restraint and fall arrest systems, positioning systems) are required under the following conditions:

- a. When potential fall distance is 4 feet or more (e.g., radar pedestals, towers, river gauges, unguarded roofs on Upper Air Buildings).
- b. When potential fall distance is 4 feet or less under particularly hazardous circumstances (e.g., working over objects or equipment imposing an impalement hazard).

**NOTE:** Fall protection equipment is not required for the HVAC fixed ladder inside WFO buildings. Personnel climbing the HVAC fixed ladder should still exercise caution and abide by the rules in section 14.3.5a (NWSM 50-1115).

#### 1.3.2 Fall Protection Safe Work Practices.

A Fall Protection Program Leader (Competent Climber) shall be designated at each field station to administer the fall protection program as required by this procedure. An effective fall protection program starts with preplanning which includes identifying locations, equipment, techniques, the people, and emergency response. All locations with work areas above 4 feet (towers, river gages, etc.) shall be assessed for fall hazards including environmental hazards such as ice, rain, etc. Fall hazards can be controlled by using appropriate fall protection solutions (e.g., Personal Fall Arrest System (PFAS)).

**NOTE:** Unexpected or new fall hazards should be evaluated to ensure that fall protection provided is sufficient and appropriate for the hazard. If PFAS is determined not to be appropriate, work should be halted.

The hierarchy of Fall Protection should be applied to any fall hazards in order to identify the best solution for a specific situation. In order of best to worst these solutions are:

- Hazard Elimination (engineering controls)
  - Traditional Fall Protection (guardrails, covers, barriers)
  - Fall restraint (roof restraint systems)
  - Fall Arrest System (towers, vertical structures)
  - Work procedures (used in construction industry and shall not be used at NWS facilities).
- a. Prior to conducting work on towers, river gauges or similar structures, coordination with the local emergency response organization(s) should be conducted to determine the ability of the organization(s) to respond to the



emergency and provide a rescue within 30 minutes.

**NOTE:** The coordination is intended to familiarize emergency response personnel with the fall protection equipment used by the NWS personnel, the structures the NWS personnel climb/descend, and the types of operations conducted. Familiarity with NWS operations and equipment will allow emergency response personnel to conduct the safest rescue operations possible. Emergency Response Agreement(s) are recommended to be prepared and updated in accordance with NWS Procedure #23, NWSM 50-1115. Information relevant to structure climbing/descending emergencies should be documented as a part of this procedure (see attachment C) and the site Occupant Emergency Plan, NWS Procedure #5, Attachment A (NWSM 50-1115).

- b. A safety observer must accompany the person involved in any work that requires the use of personal fall arrest or restraint system (e.g., climbing towers, descending river gauges). The safety observer must be trained in summoning the assistance of a local emergency response organization in case an accident occurs and must have immediate access to a reliable communication device (telephone, cellular phone, two-way radio, etc.). The safety observer will also be responsible for checking with a WFO if lightning is expected to affect the area within a 15-mile radius of a tower or other elevated structure.
- c. When a local emergency response organization is not available within the 30 minute response time, a safety observer trained in use of rescue equipment and rescue operations must be present. Appropriate rescue equipment shall be readily available in case an emergency rescue is required. In addition, the safety observer must be trained in First Aid/CPR.

**NOTE:** A minimum number of rescue equipment kits for towers under and over 100 feet in elevation have been provided to the NWS regions. Additional rescue equipment kits are stocked at the National Logistics Supply Center (NLSC) and available for ordering.

- d. Only NWS issued components of personal fall arrest systems may be used by NWS personnel while climbing on NWS business. Components of the complete fall arrest system provided to NWS climbers were selected by Qualified personnel. All components are compatible and must be used exclusively for fall arrest.
- e. The use of body belts for personal fall arrest systems is prohibited. Only full body harnesses and compatible components, including all connectors, shall be utilized for the personal fall arrest system.

**NOTE:** Fall protection equipment that are no longer used for climbing (and have not been subjected to stress loading in a fall) due to change in personnel's responsibilities or personnel leaving the NWS shall be turned in to the site Safety or Environmental/Safety Focal Point.

- f. Lanyards used as part of a personal fall arrest system shall have a maximum length of six feet and shall be equipped with integral shock absorbers. These

lanyards shall be attached to the rear (dorsal) D-ring of a full body harness and shall be free of knots.

<b>NOTE:</b>	Free falls must be limited to less than six feet. It is important to note that tying off to a working surface often results in a free fall greater than six feet, as the distance includes the length of the lanyard plus the distance from the working surface to the harness connection. Tie-off attachment points should be located at or above the connection point of the harness.
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- g. Before starting to work on an elevated surface, a climber shall connect to a work positioning system upon reaching the work area (e.g., performing maintenance above azimuth housing).
- h. Vertical lifelines should be used by NWS personnel for fall arrest purposes, when available. Each employee shall be attached to a separate lifeline. Horizontal lifelines, when used, must be designed only by a Qualified Person (Note: Professional Engineers are often used as qualified personnel).
- i. In the absence of vertical lifelines or ladder safety systems, NWS employees shall use Y lanyards with integral shock absorbers connected to a back (dorsal) D-ring of a full body harness when climbing towers and similar structures.
- j. Anchorages used to attach personal fall protection equipment must be independent of any anchorage used to suspend employees or platforms on which employees work.
- k. Anchorages must be designed in accordance with the requirements of 29 CFR 1910.140(c)(13).
- l. Personal fall protection equipment must be protected from being cut, abraded or otherwise damaged.
- m. Snaphooks and carabineers must not be connected to any of the following unless they are designed for such connections;
  - (1) Directly to webbing, rope or wire rope;
  - (2) To each other
  - (3) To a D-ring to which another snaphook, carabineer or connector is attached
  - (4) To a horizontal life line; or
  - (5) To any object that is incompatibly dimensioned or shaped
- n. While working on elevated flat or sloped structures, NWS employees shall use a fall restraint system. The length of the restraint system shall be adjusted to allow work while preventing free fall from the structure (e.g., wind profiler).
- o. While climbing, NWS employees shall wear hard hats that provide top and side impact protection and have three-point chin straps.
- p. Requirements for guarding of walking/working surfaces (e.g., floors, platforms, wall openings, etc.) shall be followed in accordance with Section 14,

Walking/Working Surfaces (NWSM 50-1115).

1.3.3 Roof Access

- a. A fall protection system is required for work performed on low-sloped roofs with a ground-to-eave height greater than six feet. This does not apply at points of access such as stairways, ladders and ramps or when persons are on the roof only to inspect, investigate or estimate roof level conditions and they will be able to accomplish their work without going near the danger zone. If inspectors are exposed to fall hazards, even for a short duration, the exemption would not apply. A fall protection system shall consist of one or more of the following:
  - (1) Guardrails.
  - (2) Safety nets.
  - (3) Personal fall arrest system.
  - (4) Warning lines.
  - (5) Work-positioning or work-restraint devices such as locking rope grabs and static lanyards that are designed to restrict motion within or at the work area.
- b. On roofs that are 50 feet or less in width, a monitoring system alone (*i.e.*, without a warning line) can be used. OSHA allows the use of a safety monitoring system alone because of the limited roof area in which work could be performed.
- c. For all work on steep roofs, a fall protection system shall be used as defined in paragraph 1.3.3a.

1.3.4 Falling Object Protection

- a. Falling object protection such as toeboards, paneling, screening and guardrails shall be utilized when work is performed at an elevated work area. No material or equipment shall be stored within four feet of the working edge.
- b. To protect other employees and workers on the site, the area below the elevated work site shall be completely enclosed with barricades not less than six feet back from the projected edge of the work above.
- c. Signs warning of the hazard of falling materials shall be posted, when necessary. For NEXRAD towers, these signs shall carry warnings about falling ice and shall be posted outside of ice falling area, where appropriate.

1.3.5 Aerial Lifts. Employees being lifted in aerial buckets shall wear a full body harness and be anchored to certified anchor points inside the bucket, connected by a lanyard adjusted as short as possible.

1.3.6 Inspection and Testing of NWS Fall Arrest and Rescue Equipment Components.

- a. Fall arrest system components shall be inspected by the user before each use (see Attachment A: Pre-use Inspection Guide). Each rivet shall be examined to be certain that it is secure. All fall protection hardware including buckles, D-rings, snap-hooks, and webbing shall be examined. Defective equipment shall be removed from service and returned to the Safety or Environmental/Safety Focal Point for disposal. The following components are available for replacement at NLSC:

- (1) Harnesses (ASN 060-P-31(Small/Medium), 060-P-32 (Large/X-Large),)
  - (2) Y Lanyard (ASN 060-P-20)
  - (3) Positioning Lanyard (ASN 060-P-21)
  - (4) Carabiners (ASN 060-P-22, 060-P-22)
  - (5) Rescue Equipment Kits
    - i Towers below 100 feet (ASN 060-K-3)
    - ii Towers above 100 feet (ASN 060-K-4)
- b. The Safety or Environmental/Safety Focal Point shall ensure that annual inspection of fall arrest system components and rescue kits system components is conducted and an inspection log is kept (see Attachments A and B).
- c. Equipment subjected to stress loading in a fall shall be destroyed after a review of the fall has been completed.
- d. Personal fall arrest system components issued to NWS climbers with rescue responsibilities will be inspected during re-certification courses every three years by the instructors with student participation. Pre-use inspection and annual inspections of fall protection equipment components and rescue kits at field offices are required (see Attachment A). If inspections indicate that any fall protection and fall protection rescue equipment or equipment components need to be replaced, field personnel can order replacement equipment or equipment components from the National Logistics Support Center.

<p><b>NOTE:</b> Self-retracting Lifelines purchased by the WFO personnel shall be inspected every two years, per manufacturer's recommendation and by manufacturer's approved vendor.</p>
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### 1.3.7 Maintenance and Storage

- a. Washing harnesses and lanyards in soapy water is the best way to remove loose debris, followed by rinsing with fresh water. Drying in a cool area away from ultra-violet (UV) light is recommended. Always make sure labels are legible. Do not use industrial solvents on synthetic materials. Do not oil moving parts unless instructed by manufacturer.
- b. Synthetic material should be kept away from bright sunlight and UV light during storage and maintained in a cool dry place. Fading of dyed synthetic color is an indicator to signify UV exposure which may be damaging.

### 1.3.8 Training

- a. Fall protection/rescue training shall be provided for all NWS employees required to climb, work on and descend structures in performance of their job duties. Training shall be provided by a qualified person as defined in 29 CFR 1910.30.
- b. Fall Protection/rescue training re-certification for the climbers who do not need to perform rescue (rescue is provided by fire department or rescue squad) is not required. For personnel who need to conduct rescue in addition to climbing, the recertification period is three years (nominal). At least one climber with should be currently certified in rescue responsibilities at the offices where local emergency response organizations are not available to provide rescue within 30

minutes to locations where climbing is performed.

**NOTE:** The three-year recertification period is nominal to account for changes in course schedule and personnel availability from year to year. For example, for a three-year recertification cycle, a climber with rescue duties certified in March 2015 would require recertification before the end of FY18, not necessarily in March 2018.

- c. A written certification shall be generated by the training/recertification organization that contains the name of the employee trained, the date of the training and the subject of the certification for each individual successfully completing the training. Fall Protection training records shall be maintained by the site safety or environmental/safety focal point or his/her designee.
- d. Training shall consist of, but not be limited to, the following:
  - (1) Recognition of the hazards related to falls.
  - (2) Procedures to be followed to minimize hazards related to falls.
  - (3) Successful demonstration of the ability to use fall protection equipment by trainees.
  - (4) Procedures for inspection of equipment such as harnesses and lanyards.
  - (5) Rescue techniques.
- e. Re-training shall be required when:
  - (1) Changes in the workplace render previous training obsolete.
  - (2) Changes in the types of fall protection systems or equipment to be used render previous training obsolete.
  - (3) Affected employees fail to retain the requisite knowledge of skill provided by the training.
- f. Recertification shall include, but not be limited to, the following:
  - (1) Classroom review of fall protection/rescue techniques taught during initial training.
  - (2) Successful demonstration of proficiency in application of fall protection and rescue techniques by each participant.
  - (3) Comprehensive inspections of fall arrest system conducted by instructors with student participation. If the inspection indicates that the equipment should be replaced, an instructor will provide a written statement to the student and to NWS headquarters environmental/safety staff.

**NOTE:** Contractors and employees that work on communication towers should also review OSHA Compliance (CPL) Directive 02-01-36 dated 3/26/02. This has direct application in placement of NOAA Weather Radio antennas on this type of tower.

## 1.4 Responsibilities

### 1.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 1.4.2 Station Manager

- a. Will review or delegate review of this procedure on an annual basis to ensure that facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- c. Will ensure that initial and periodic inventory of fall protection systems, communication devices, postings/signs, hard hats, barricades and other safety equipment is accomplished and adequate stock is maintained.

### 1.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 1.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

### 1.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.
- b. Report unsafe or unhealthful conditions and practices to their supervisor or safety or environmental/safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a>
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## 1.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

1.5.1 American National Standards Institute, ANSI Z359.1, "Safety Requirements for Personal Fall Arrest Systems."

1.5.2 National Weather Service, NWS Occupational Safety and Health Procedure 23, “Emergency Response Agreements.”

1.5.3 National Weather Service, NWS Occupational Safety and Health Procedure 5, “Occupant Emergency Plan.”

1.5.4 American National Standard Institute, ANSI 10.32, “Fall Protection for the Construction and Demolition Industry.”

1.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, Compliance Directive CPL 02-01-36, “Interim Inspection Procedures during communication tower construction activities.”

1.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.104, “Safety Belts, Lifelines, and Lanyards.”

1.5.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.140, “Personal Fall Protection Systems.”

1.5.8 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR Subpart D, Walking-Working Surfaces, 1910.28-1910.30.

## **1.6 Attachments**

Attachment A. Pre-Use Inspection Guide, Fall Protection and Rescue Equipment.

Attachment B. Annual Inspection Log, Fall Protection and Rescue Equipment.

Attachment C. Structure Climbing/Descending Emergencies.

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**ATTACHMENT A**  
**Pre-Use Inspection Guide**  
**Fall Protection Equipment**

**WEBBINGS - Harnesses/Lanyards**

**Expected Service Lifetime:** As long as the equipment is not used on daily basis and it is still usable (not stressed, stitching not broken or frayed, no UV damage, etc.) it will last well beyond five years.\*

**Recommended Check:** Look for cuts, wear burns, stitching problems, UV damage, chemical attack and/or ingrained dirt or oil.

**ROPES - Lifelines/Lanyards**

**Expected Service Lifetime:** As long as the equipment is not used on daily basis and it is still usable (not stressed, stitching not broken or frayed, no UV damage, etc.) it will last well beyond five years.\*

**Recommended Check:** Check termination splices, wear points, ingrained dirt, kinks and broken wires in cables and thimbles, cuts, wear in ropes, UV damage and/or chemical attack.

**HARDWARE - Snap Hooks/D-Rings and Ladder Climbing Devices**

**Expected Service Lifetime:** As long as the equipment is not used on daily basis and it is still usable, it will last well beyond five years.\*

**Recommended Check:** Cracks, distortions, wear points, sticking of gate, functioning of gate and keeper latch.

Self-retracting Lifelines purchased by the WFO personnel shall be inspected every two years, per manufacturer's recommendation and by manufacturer's approved vendor.

<b>NOTE:</b> If fall occurs, remove all equipment involved from service.
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\* Harnesses/lanyards and hardware issued to NWS climbers during initial fall protection/rescue training class will be inspected by the instructor during re-certification course for climbers with assigned rescue roles (every three years). If inspection indicates any of these components should be replaced, the NWS headquarters environmental/safety staff should be informed. All NWS climbers are required to conduct pre-use and annual inspections of fall protection equipment components and replace them, as necessary.

**Full Body Harness  
Inspection Checklist**

Harness Model/Name: \_\_\_\_\_

ID/Serial Number: \_\_\_\_\_

Comments: \_\_\_\_\_

<b>General Factors</b>	<b>Accepted/Rejected</b>	<b>Supportive Details/Comments</b>
1) <b>Hardware:</b> includes D-rings, buckles, keepers and back pads. Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
2) <b>Webbing:</b> Inspect for cuts, burns, tears, abrasions, frays, excessive soiling, and discoloration.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
3) <b>Stitching:</b> Inspect for pulled or cut stitches.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
4) <b>Labels:</b> Inspect, and make certain all labels are securely held in place and are legible.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
5) <b>Other:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
6) <b>Other:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
7) <b>Overall Disposition:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	Inspected by:  Date Inspected:

**Lanyards  
Inspection Checklist**

Lanyards Model/Name: \_\_\_\_\_

ID/Serial Number: \_\_\_\_\_

Comments: \_\_\_\_\_

General Factors	Accepted/Rejected	Supportive Details/Comments
1) <b>Hardware:</b> (includes snap hooks, carabiners, adjusters, keepers, thimbles, and D-rings). Inspect for damage, distortion, sharp edges, burrs, cracks, corrosion, and proper operation.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
2) <b>Webbing:</b> Inspect for cuts, burns, tears, abrasions, frays, excessive soiling, and discoloration.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
3) <b>Stitching:</b> Inspect for pulled or cut stitches.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
4) <b>Labels:</b> Inspect and make certain all labels are securely held in place and are legible.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
5) <b>Synthetic Rope:</b> Inspect for pulled or cut yarns, burns, abrasions, knots, excessive soiling, and discoloration.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
6) <b>Energy Absorbing Component:</b> Inspect for elongation, tears, and excessive soiling.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
7) <b>Overall Disposition:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	Inspected by:  Date Inspected:

**Snap Hooks/Carabiners  
Inspection Checklist**

Hook/Carabiner Model/Name: \_\_\_\_\_

ID/Serial Number: \_\_\_\_\_

Comments: \_\_\_\_\_

General Factors	Accepted/Rejected	Supportive Details/Comments
1) <b>Physical Damage:</b> Inspect for cracks, sharp edges, burrs, deformities and locking operations.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
2) <b>Excessive Corrosion:</b> Inspect for corrosion, which affects the operation and/or the strength.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
3) <b>Markings:</b> Inspect and make sure certain marking(s) are legible.	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
4) <b>Other:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
5) <b>Other:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
6) <b>Other:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	
7) <b>Overall Disposition:</b>	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>	Inspected by:  Date Inspected:

**Miller 70 Universal Rescue System  
Inspection Checklist**

<b>General Factors</b>	<b>Accepted/ Rejected</b>	<b>Supportive Details/Comments</b>
<p><b>VISUALLY INSPECT ALL ROPE:</b></p> <ol style="list-style-type: none"> <li>1) Make sure the rope:               <ol style="list-style-type: none"> <li>a) Is not cut or frayed – you should not be able to see the inner core of the rope through the outer sheathing.</li> <li>b) Is clean and does not have lumps, soft spots, or depressions in it.</li> </ol> </li> <li>2) Make sure ferrules at the bight (load side) end of the rope are in place, are tight.</li> <li>3) Make sure that the rope is routed properly through all rope guides and is wound around the rope drum properly.</li> <li>4) Make sure that the end of the free side rope has the knot in place and that it is tight.</li> </ol>	<p>Accepted <input type="checkbox"/></p> <p>Rejected <input type="checkbox"/></p>	
<p><b>CHECK HEAD ASSEMBLY AND ROLLER PULLEY:</b></p> <ol style="list-style-type: none"> <li>1) Make sure that the drum turns freely counterclockwise and does not turn clockwise.</li> <li>2) Make sure that the rope guides are not bent or broken.</li> <li>3) Inspect the back of the backing plate to make sure that all through fittings are bolted in place.</li> <li>4) Make sure that the roller/pulleys turn freely and are not bent or broken.</li> <li>5) 5. Make sure that the roller/pulley mounting bolts are complete and are tight.</li> </ol>	<p>Accepted <input type="checkbox"/></p> <p>Rejected <input type="checkbox"/></p>	
<p><b>MAKE SURE THAT ALL CARABINERS ARE COMPLETE AND FUNCTION PROPERLY:</b></p> <ol style="list-style-type: none"> <li>1) Make sure that the carabiners are not bent and that they close properly.</li> <li>2) Make sure that the knurled locknut is in place and that it opens and closes fully and easily.</li> </ol>	<p>Accepted <input type="checkbox"/></p> <p>Rejected <input type="checkbox"/></p>	

<p><b>CHECK THE ROPE CONTROL HANDLE:</b></p> <p>1) Make sure that the handle is not cracked or broken.</p> <p>2) Make sure that the safety catch lever and the rope release lever are in place, and that both levers are held closed by their built-in springs, but will open freely.</p> <p>3) Make sure that the rope release lever teeth are not fouled or worn down.</p>	<p>Accepted <input type="checkbox"/></p> <p>Rejected <input type="checkbox"/></p>	
<p><b>OVERALL DISPOSITION:</b></p>	<p>Accepted <input type="checkbox"/></p> <p>Rejected <input type="checkbox"/></p>	<p>Inspected by:</p> <p>Date Inspected:</p>

**MAINTENANCE AND STORAGE INSTRUCTIONS:**

1. The Series #70 System is designed to function in extreme conditions. The special rope is treated to withstand ultraviolet rays (sunlight), is rot proof, and mildew resistant.
2. Store the Series #70 System in a clean, dry location. Avoid oil or chemical contamination, prolonged direct sunlight, vapors or caustics.
3. The Series #70 Drum Assembly and roller pulleys are designed to be maintenance free. If exterior cleaning is needed, use a damp cloth. Do not immerse in water or use any lubricants.
4. If the rope becomes soiled, wash the rope with clean water.
5. Once the rope has been washed clean, it should be air-dried, out of direct sunlight.
6. The rope should be fully dry before it is placed back into its storage container. When placing the rope in the storage container, it should be laid in and pushed down. Do not coil the rope as it may become twisted or tangled.

**ATTACHMENT B**  
**Annual Inspection Log**  
**Fall Protection Equipment**  
(To be used with Attachment A)

<b>Component</b>	<b>Date</b>	<b>Pass/Fail</b>	<b>Comments</b>

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Inspector

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**ATTACHMENT C  
Structure Climbing/Descending Emergencies**

List structures maintained by site personnel (tower, river gauge, etc.):

No.	Structure Type	Location (address, if applicable)	Emergency Response Organization* (if available within 30-minute response time)

Emergency Response Organization(s):

Name \_\_\_\_\_ Phone Number \_\_\_\_\_  
 Name \_\_\_\_\_ Phone Number \_\_\_\_\_

(Attach Emergency Response Agreement, if available)

\* - N/A. If no Emergency Response Organization available within 30-minute response time, additional personnel trained in rescue operations and equipped with rescue and first aid kit must accompany the climber(s).

Include the following information in this document:

- a. If an emergency rescue is required, the telephone numbers should be called in the order that they are listed first, second, and third.
- b. A detailed map of the work site with any information that will help find the location, landmarks, etc. Written directions that can be read over the telephone to a police/fire department dispatcher or ambulance driver, describing how to get from their facility to the work site.
- c. A map with the route marked from the work site to the nearest hospital that someone can use to drive an employee with injuries.

- d. Detailed location of the closest first aid kit. To ensure minimal time lost looking for a first aid kit during an emergency, a kit should be removed from the vehicle and brought to the vicinity of the work site.
- e. Description of communication method that will be used between the suspended worker and rescue team.

**PROCEDURE 2 - Working Alone**

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## **Synopsis**

The purpose of this procedure is to provide guidelines to employees and supervisors when additional personnel assignment may be needed. This procedure applies to all NWS facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Assessment of site-specific situations/operations requiring additional personnel. (2.3.3)
- **Develop/Obtain Documentation/Information required for Site**
  - Develop General Rules to gauge the risks associated with each task. (2.3.3)
- **Designate Person to Administer Working Alone Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Safety Observer Training. (2.3.5a,b)
  - CPR Certification. (2.3.2a)
  - First Aid Training. (2.3.2a)
- **Inventory Material/Equipment (Procure as required)**
  - Communication Devices. (2.3.4b)

### **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Update General Rules to gauge the potential risk associated with each task. (2.3.3)
- **Provide Refresher Training of Site Personnel (when required)**
  - Safety Observer Training. (2.3.5a,b)
  - CPR Certification. (2.3.2a)
  - First Aid Training. (2.3.2a)
- **Replace/Re-calibrate/Maintain Material/Equipment as required**
  - Communication Devices. (2.3.4b)

**Working Alone Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	2.4.2				
Are Engineering Handbooks (EHBs), procedural directives, and system/equipment manuals reviewed by affected personnel for the additional personnel requirement?	2.7				
Are personnel trained in First Aid/CPR always available when high risk work is being performed (e.g., work on energized equipment) or when low risk work is being performed but medical services are not readily available?	2.3.2a, Note				
Is a Safety Observer present during all permit-required confined space entry activities?	2.3.2b				
Have all potentially hazardous conditions been evaluated and Job Hazard Analysis (JHA) reviews performed by the Station Manager, Environmental/Safety Focal Point, and/or Program Managers to determine when additional personnel are necessary to complete the task?	2.3.3				
Have the Station Manager and/or Environmental/Safety Focal Point established the rules for assignment of additional personnel?	2.3.3				
Have these rules been coordinated and documented?	2.3.3				
Are potentially hazardous environments routinely evaluated by the Environmental/Safety Focal point or another qualified individual prior to the commencement of operations?	2.3.3				
Are adequate communication measures in place for operations which must be performed alone?	2.3.4b				
Are Safety Observers selected and properly trained to perform their duties in accordance with this procedure?	2.3.5b				

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## 2 WORKING ALONE

### 2.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, National Weather Service (NWS) Headquarters (WSH) is promulgating this procedure to provide guidelines to employees and supervisors when additional personnel assignment may be needed. This procedure applies to all NWS facilities, work locations, and employees.

### 2.2 Definitions

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hazardous Work. Any work that, if not properly performed, poses potential risk to the safety and health of the worker or damage to property, equipment, or the environment.

Operating Unit. For the purpose of this procedure, operating unit includes National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), and Sterling Field Support Center (SFSC).

Qualified Person - A person qualified by education, training, and experience to estimate employee exposures to hazardous materials and work conditions.

Safety Observer – A person assigned to be present at worksite when the risk of serious injury to the NWS employee performing work is judged to be greater than normal. The safety observer must be able to summon medical assistance and/or must be trained to render First Aid/CPR.

Station Manager. For the purpose of this procedure, the station manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Working Alone. Performance of any work by an individual who is out of voice or visual contact with all other individuals. In addition to the obvious cases, employees perform work locally but still may be remote from the immediate inhabited areas of the WFO or WFO/RFC or other normally inhabited structure(s). For example, field personnel may work alone:

1. When working on the Radiosonde Replacement System (RRS) in the Upper Air shelter (radome), even though it is within the WFO general area - the pedestal has voltages of 120 volts present in the slip ring assembly.
2. When working in the equipment rooms at the WFO or WFO/RFC, employees may be out of sight or hearing of workers in the operations portion of the WFO or WFO/RFC.
3. Some NRC employees may work alone in the screen room when performing certain work on the WSR-88D, working on the pedestal in the “warehouse” area, or at certain times in one or more of the laboratory areas.

4. Students at, or employees of the NWSTC may work in laboratory or classroom areas out of sight or remote from other personnel. Similar examples may also apply to national centers, regional and national headquarters.

### 2.3 Procedure

2.3.1 Maintenance Procedures Requiring Two or More Persons. Material contained in the NWS maintenance manuals, procedural directives, and Engineering Handbooks (EHB) specifies when two or more maintenance personnel are required to safely perform maintenance procedures. Examples where guidance may be found include: the Doppler surveillance radar (WSR-88D), the Radar Data Acquisition (RDA) unit, antenna pedestal system, Radar Products Generator (RPG) unit, a part of EHB-6; the Radiosonde Replacement System (RRS) maintenance manual set, a part of EHB-9; and Real Property Installed Equipment (RPIE) maintenance manuals.

A detailed example, a summary of WSR-88D maintenance and repair operations requiring two or more maintenance persons, is presented in attachment A. It is NOT a complete listing of operations, as the list is continuously being modified and updated. It is to be used as an example only. For a complete and up-to-date listing, consult the WSR-88D maintenance manual. Some procedures mandate the presence of additional personnel to assist employees performing heavy duty work (e.g., lifting heavy equipment). Other procedures require the presence of a second employee solely as a safety observer to minimize the risk of injury to employees, as described in section 2.3.5, while still others require additional personnel simply due to the nature of the work involved.

2.3.2 Specific Conditions Requiring Additional Personnel. The following additional personnel requirements are derived from OSHA regulations and interpretations.

- a. First Aid/CPR trained personnel will be always available when high risk work is being performed (e.g., work on energized equipment) or when low risk work is being performed but medical services are not readily available (see the Note below). Requirements for additional First Aid/CPR trained personnel will be based on Job Hazard Analysis (JHA) reviews. JHA presentation and format template are posted on NWS Environmental and Safety web page: [https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm).
- b. In accordance with OSHA standard 1910.151, in the absence of an infirmary, clinic or hospital in near proximity to workplace, a person trained in First Aid shall be readily available.

<p><b>NOTE:</b> According to the OSHA interpretation (dated January 16, 2007), in workplaces where serious accidents such as those involving falls, suffocation, electrocution, or amputation are possible, emergency medical services must be available within 3-4 minutes if there is no employee on the site who is trained to render first aid. A longer response time of up to 15 minutes may be reasonable in workplaces where the possibility of such serious work-related injuries is more remote. In addition, OSHA has taken the stance that reasonable availability of a trained emergency service provider is equivalent to the establishments discussed in the standard.</p>
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- c. A safety observer must be present during all permit-required, confined-space entry activities.

2.3.3 Other Conditions that Require More than One Person. The station manager and the Safety or Environmental/Safety Focal Point, shall coordinate with site personnel to determine and document the general rules they will use to gage the risks under which personnel will be performing their assigned tasks. Job Hazard Analysis (JHA) reviews shall be performed. JHA presentation and format template are posted on NWS Environmental and Safety web page: [https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm).

Conditions such as severe weather, dangerous terrain (including areas where management determines potential risk to the employee to be unacceptably high), exposure to wild animals, exposure to hazardous chemicals, work in the open trenches, sea buoy operations, and others may dictate a need for additional personnel assignment, even if it is not required by the maintenance procedures. Potentially unsafe conditions shall be identified prior to execution of any project and brought to the attention of appropriate management personnel.

Working on a structure (e.g., Rohn tower) that involves ascending and descending while using personal fall protection equipment shall always require presence of a safety observer trained to summon assistance of local emergency response organization and provide First Aid/CPR (per Note 2.3.2b). . When local emergency rescue organization capable to provide fall rescue is not available within 30 minutes response time, the safety observer must also be trained in fall rescue.

The following paragraphs include, but are not limited to, examples of work conditions under which it is recommended that two or more people be assigned. The final decision about personnel assignment rests with the station manager, who will consider input from the Safety or Environmental/Safety Focal Point, NWS Employee Organization Representative (time permitting) and the personnel performing the work.

- a. Dangerous Weather or Terrain.
  - (1) When working on a cliff, narrow ledges, or near vertical mountainous slopes where a loss of footing would result in serious injury or death, or when working in areas where there is danger of rock falls or avalanches.
  - (2) When traveling to remote sites in winter, either on foot or by means of an off-road type vehicle, over secondary or unimproved roads or snow trails, in sparsely settled or isolated areas.
  - (3) When working or traveling in sparsely settled or isolated areas results in exposure to dangerous temperatures and/or high winds, and when shelter, other than a temporary shelter, and assistance are not readily available.
  - (4) When participating in snow plowing or snow or ice removal operations, regardless of whether on primary, secondary, or other classes of roads, when there is danger of avalanche; or there is the danger of missing the road and falling down steep mountainous slopes because of lack of snow stakes, “white out” conditions, or sloping ice-pack covering the snow.

- (5) When working outdoors in hot or cold weather conditions, use the guidance issued by the American Conference of Governmental Industrial Hygienists (ACGIH) for work-rest regimen in hot environment (Attachment B) and work-warming regimen in cold environment (Attachment C). Attachment B should be used for screening purposes only. It is possible that a condition may be above the criteria described in Attachment B and still not represent an unacceptable exposure.
  - (6) When working on river gauges that are located on the side of a bridge which is narrow and has high traffic flow or near rivers at or above flood levels.
- b. Exposure to Hazardous Chemicals. Exposure to hazardous chemicals in certain amounts and concentrations can present a danger to a person's life or health, especially when an accidental spill occurs or when chemicals are used in poorly ventilated and small room. An evaluation of hazard (air sampling) may be required before the work can be started. Two or more people shall be assigned when chemical concentrations could potentially exceed OSHA Permissible Exposure Limits, ACGIH Threshold Limit Values (TLVs), or 20% of a Lower Explosive Limit. The estimate of potential exposures shall be made by qualified personnel (such as an Industrial Hygienist, Safety Engineer, etc.). The NOAA SECO or NWS Regional/National Headquarters safety staff should be consulted, if necessary.
  - c. Work in Open Trenches. Working in an open trench that is 4 feet or more deep, until proper shoring, sloping, or another approved method of cave-in prevention has been installed.
  - d. Work Beneath Hovering Helicopter. Participating in ground operations to attach an external load to helicopters hovering overhead. The second person in the operation shall observe and remain in the view of the person attaching the load in order to signal an emergency since oral communication may not be possible due to helicopter engine or rotor noise.
  - e. Work in Unsafe Structures. Working within or immediately adjacent to a building or structure which has been severely damaged by earthquake, fire, tornado, flood, or similar cause. Such work may be performed if considered necessary for the safety of personnel or recovery of valuable materials or equipment, but only when the work is authorized by Regional Headquarters, and, if necessary, in conjunction with the National Headquarters.
  - f. Exposure to Wild Animals and Poisonous Insects and Snakes. Performing maintenance in undeveloped areas if danger of encountering wild animals exists (e.g., moose, polar/brown/grizzly bears, black bears in continental United States, large birds of prey), poisonous plants, insects or snakes.
  - g. Tropical Jungle Duty. Work that occurs outdoors in undeveloped jungle regions outside the continental United States can be unsafe. Work may involve the following:

- (1) An unusual degree of physical hardship caused by high heat, humidity, or other inclement conditions.
- (2) An unusual danger or serious injury due to:
  - i Travel on unimproved roads or rudimentary trails in rugged terrain (e.g., walking on narrow trails in steep mountainous areas, fording deep, fast-moving rivers, and crossing deep crevices via log or other unsafe means).
  - ii Immediate presence of dangerous wildlife (e.g., venomous snakes, poisonous insects, and large carnivores).
- h. High Crime Areas - Work in potentially high crime areas.
- i. Hoisting and Rigging Operations - Additional personnel may be required to assist as spotter(s) during some hoisting and rigging activities when visibility of the load by the operator may be compromised due to the nature of the lift.
- j. Cooperative Observer (COOP) Program - Station Manager or designated alternate (e.g., Electronics Systems Analyst) shall implement yearly safety reviews of Cooperative Observer Program sites according to the following process:
  - (1) The Cooperative Program Manager (CPM) or Management designee shall, on an annual basis, complete a site safety review form (Attachments D & E). Allegations of safety violations are to be documented.
  - (2) The form is provided to the Station Manager. The Station Manager provides a copy to the local union steward, who has 10 calendar days from delivery to provide union input.
  - (3) The Station Manager reviews the form and any input provided and makes a final determination on requirements for subsequent trips to the site. The Station Manager shall consider employee safety, possible remedies/mitigations to any noted hazards, and efficiency.

<p><b>NOTE:</b> At remote locations<sup>1</sup> without communications<sup>2</sup> between the CPM and the safety observer and others (e.g., urgent care providers), the safety observer shall be trained in First Aid.</p>
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<sup>1</sup> Remote locations are COOP Program sites located more than 3 miles from a home or business.

<sup>2</sup> Communications include land-line phone from the host site, walkie-talkie, cellular telephone reception or satellite telephone, if available.

#### 2.3.4 Considerations Concerning Assignment of Additional Personnel.

- a. When evaluating the particular situation, all factors contributing to the risk involved shall be considered. In instances when additional personnel are not readily available to support the assigned task, especially when work must be performed at remote sites or on a high structure, postponing routine maintenance

task until other personnel become available and/or severe weather conditions improve should be considered.

**NOTE:** In case of severe weather, travel to the work site may not be safe, even if two people are present.

- b. For situations when the two-person rule is not mandatory, procedures for emergency communications, (e.g., telephone, cell phone, two-way radio) including frequency of contact with field office, for personnel who must perform emergency equipment repair alone at remote locations shall be established.
- c. When means of communication are not readily available, emergency rescue measures may need to be arranged in advance.

2.3.5 Safety Observers (“Buddies”). Under special conditions, described in Section 2.3.2 and 2.3.3, when the risk of serious injury to NWS personnel is judged to be greater than normal, the presence of a safety observer is essential. The safety observer will be able to obtain medical assistance or must be trained to render First Aid/CPR. First Aid/CPR trained personnel will be always available when high risk work is being performed (e.g., work on energized equipment) or when low risk work is being performed but medical services are not readily available (see para 2.3.2, Note). Requirements for First Aid/CPR trained safety observers will be based on Job Hazard Analysis (JHA) reviews.

2.3.6 The safety observer must have immediate means of communication (e.g., phone, cellular phone, two-way radio, etc.). The following paragraphs provide the requirements applicable to safety observers.

- a. Work Conditions. When work is to be performed under high risk conditions, work shall not begin until a safety observer is present. A safety observer may be other maintenance personnel or trained staff members (e.g., operations staff, meteorology/hydrology staff).
- b. Knowledge and Training. Safety observers shall receive initial and refresher training (as appropriate). Safety observers do not have to be proficient in the task being observed, but as a minimum, should:
  - (1) Be briefed and/or familiar with the potential hazards of the task and be able to detect an unsafe act or condition during the work.
  - (2) Know how to use electrical safety equipment and be familiar with procedures to remove personnel from electrical hazards and when not to touch an affected person.
  - (3) Be trained in First Aid or First Aid/CPR based on conditions described in paragraph 2.3.2, Note.
  - (4) Be familiar with local procedures for obtaining medical assistance.
  - (5) Know where disconnect switches are located and know how to de-energize equipment.

- (6) Be familiar with and be able to recognize the appropriate safety controls (engineering and administrative) and to select personal protective equipment.
  - (7) When acting as a fire watch for welding and other hot work activities, the observer must be trained in the use of a fire extinguisher and know how to turn off bottled welding gas supplies, and secure and safely move bottled gas cylinders.
  - (8) The safety observer should have no responsibilities or duties other than being the safety watch.
- c. Duties/Responsibilities. The safety observer should:
- (1) Give positive warning of potential danger to anyone approaching the equipment.
  - (2) Be at a safe distance from which he/she can observe all personnel who are working on the equipment and have access to the main power switch.
  - (3) Have easy access to safety and rescue equipment.
  - (4) Provide near constant surveillance (e.g., two-way radio) or other alternative means of communication.
  - (5) Check with Weather Forecast Office if lightning is expected to affect the work area (see Lightning Safety guidance in Attachment A, Section 5, Occupant Emergency Plan).
- d. Assignment of Safety Observers. The Station Manager shall ensure that the safety observers are assigned before starting the tasks. Individuals making safety observer personnel assignments should consider splitting assignments among station staff to the extent possible.

## **2.4 Responsibilities**

### **2.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **2.4.2 Station Manager**

- a. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure and shall ensure that the requirements of this procedure are followed by individuals at the NWS facility.

2.4.2 NWS Headquarters (WSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

2.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

2.4.4 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
[www.nws.noaa.gov/directives/sym/pd05011curr.pdf](http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf)

**2.5 References**

2.5.1 American Conference of Governmental Industrial Hygienists, “Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs).”

2.5.2 National Weather Service, NWS Occupational Safety and Health Procedure 1, “Fall Protection.”

2.5.3 National Weather Service, NWS Occupational Safety and Health Procedure 12, “Confined Space Entry.”

2.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart Z, “Toxic Substances.”

**2.7 Attachments**

Attachment A. Table 2-1: Equipment Maintenance Procedures That Require More Than One (1) Person.

**NOTE:** Attachment A contains **examples** from NEXRAD manuals (EHB-6). It is provided as a guide only. The latest approved EHBs and system/equipment manuals must be used for equipment-specific guidance. It is appropriate to caution that there is no ultimate guarantee that errors and omission in documentation have been completely eradicated. Common sense and sound judgment should be applied in each and every decision process.

- Attachment B. Screening Criteria for Heat Stress Exposure (WBGT Values)
- Attachment C. TLVs Work/Warm up Schedule for Four-Hour Shift
- Attachment D. Cooperative Observer Program Site Safety Review Form
- Attachment E. Sample Cooperative Observer Program Site Safety Review Form

**ATTACHMENT A**  
**Equipment Maintenance Procedures That Require More Than One (1) Person**  
**WSR-88D maintenance and repair operations**

<b>Tech Manual (TM)</b>	<b>TM Chapter #</b>	<b>Reference</b>	<b>Number of Technicians Required</b>	<b>Statements from Procedure</b>
EHB 6-510 RDA Maintenance Shop	6	6.4.2	2	Lifting with Davit Crane and Maintenance Hatch
	6	Table 6-10	2	Wave Guide Switch - Replacement
	6	Table 6-10	2	Spectrum Filter – Replacement Procedure
	4	Table 4-43	2	RDA Restoration Procedures
EHB 6-511	4	4.5.3	2	Modulator Test Points Waveforms – Procedures
	4	4.5.4	2	Equipment Meters Calibration – Procedures
	4	4.5.5	2	Circuit Calibrations
	4	4.5.6	2	PFN Voltage Limit Control
	4	4.5.7	2	Filament Preheat/Power Interrupt Timing Adjustments
	4	4.5.8	2	Proportional Preheat Board Oscillator Adjustment
	4	4.5.9	2	280 Volt Power Supply Relay
	5	5.1.4	2	Interlock Bypass Procedure
	5	5.3.2	2	Transmitter Control Panel
	5	5.3.3	2	Proportional Preheat Battery Replacement
	5	5.3.5	2	280 Volt Power Supply
	5	5.3.6	2	Control Card Rack Circuit Boards
	5	5.3.7	2	Control Card Rack Interconnect Backplane
	5	5.3.8	2	RF Driver
	5	5.3.9	2	RF Pulse Sharper
	5	5.3.10	2	ARC Detector
	5	5.3.11	2	Post Charge Regulator
	5	5.3.12	2	Filter Capacitor Bank



	5	5.3.13	2	Charging Switch
	5	5.3.14	2	Trigger Amplifier
	5	5.3.15	2	Exhaust Blowers
	5	5.3.16	2	Filament Power Supply
	5	5.3.17	2	Focus Coil Power Supply
	5	5.3.18	2	+28 Volt Module J Power Supply
	5	5.3.19	2	+ 15 Volt Module I Power Supply
	5	5.3.20	2	- 15 Volt Module I Power Supply
	5	5.3.21	2	+ 5 Volt Module K Power Supply
	5	5.3.22	2	+ 45 Volt Module L1 Power Supply
	5	5.3.23	2	Vacuum Pump Power Supply Assembly
	5	5.3.24	2	Isolation Transformer
	5	5.3.25	2	Klystron Tube/Focus Coil
	5	5.3.26	2	Heat Exchanger
	5	5.4.2	2	Oil Tank Assembly
	5	5.4.3	2	Modulator Pulse Assembly
	5	5.4.4	2	Cabinet Blower Assembly
	5	5.5.2	2	Low Voltage Power Supplies
	5	5.5.3	2	Filament Current Adjustment
	5	5.5.4	2	Focus Coil Current Adjustments
	5	5.5.6	2	Transmitter Peak Power
	5	5.5.7	2	Post Charge Regulator Alignment
	5	5.5.10	2	Klystron Transmitter Tuning
EHB 6-518	3	Table 3-2	2	Elevation Limit Switch Replacement
	3	Table 3-2	3	RDADP DCU Drawer Power Supply
	3	Table 3-2	2	Elevation Manual items – Replacement Procedures
	3	Table 3-2	2	Azimuth Manual Items – Replacement Procedures
	3	Table 3-2	2	Receiver Protector Replacement Procedure
	3	Table 3-2	2	Low Noise Amplifier Replacement Procedure
	3	Table 3-2	2	Main Bearing Oil Sensor – Replacement Procedures

	3	Table 3-2	2	Azimuth Rotary Joint – Replacement Procedures
	3	Table 3-2	2	Circulator – Replacement Procedure
	3	Table 3-2	2	Bandpass Filter – Replacement Procedure
	6	6.4.2	2	Lifting with Davit Crane and Maintenance Hatch
EHB 6-520	6	Table 6-7	2	Router Assembly Replacement Procedure
	6	Table 6-7	2	KVM Switch Replacement Procedure
	6	Table 6-7	2	UPS Assembly Replacement
	6	Table 6-7	2	LAN Switch Replacement
	6	Table 6-7	2	FAA RMS Power Administrator Replacement
	6	Table 6-7	2	Power Filter Replacement
	6	Table 6-7	2	MSCF Processor Assembly Replacement
	6	Table 6-7	2	MSCF Processor Drive Replacement Procedure
	6	Table 6-7	2	MSCF Monitor Replacement
EHB 6-540	6	6.5.5	2	RDA/RPG MLOS Shelter PDP Circuit Breaker Replacement
EHB 6-550	3	3.2.11	2	Security Alarm Panel Operational Check
	3	3.2.23	2	Hydrogen Detector Operation Check
	3	3.3.3	2	RPIE Fault Maintenance Procedure
	3	3.5.4	2	Lifting with Davit Crane and Maintenance Hatch
	3	3.5.7.1 – .93	2	Removal Replacement Procedures for a variety of components
	3	3.6.1-.10	2	Alignment and Adjustments Procedures for a variety of components

**Equipment Maintenance Procedures That Require More Than One (1) Person  
Upper Air Maintenance Activities**

Tech Manual (TM)	TM Chapter #	Reference	Number of Technicians Required	Statements from Procedure
		ART -1	2	Removing and Replacing Azimuth Drive – device is over 90lbs Elevation Drive – device is over 90lbs
			2	Azimuth Drive Synchro Adjustment One person must work on exposed electrical wiring at or over 120 v while one ensures alignment is correct.
			2	Pylon Replacement Awkward work and weight of device
		ART - 2	2	Removing and Replacing Azimuth Drive – device is over 90lbs Elevation Drive – device is over 90lbs
			2	Azimuth Drive Synchro Adjustment One person must work on exposed electrical wiring at or over 120 v while one ensures alignment is correct.
			2	Pylon Replacement Awkward work and weight of device
		RRS	2	Scanner Replacement

**ATTACHMENT B**

**Screening Criteria for Heat Stress Exposure (WBGT values)**  
 (ACGIH, 2001 TLVs and BEIs)

Hourly Activity	Light		Moderate		Heavy		Very Heavy	
	Unacclimatized	Acclimatized	Unacclimatized	Acclimatized	Unacclimatized	Acclimatized	Unacclimatized	Acclimatized
100% Work	27.5	29.5	25	27.5	22.5	26.0	21.0	25.0
75% Work 25% Rest	29.0	30.5	26.5	28.5	24.5	27.5	22.5	26.5
50% Work 25% Rest	30.0	31.5	28.0	29.5	26.5	28.5	25.0	27.5
25% Work 75% Rest	31.0	32.5	29.0	31.0	28.0	30.0	26.5	29.5

**Notes:**

- WBGT values are expressed in °C and are rounded to the nearest half degree.
- Work and rest environments are assumed to be the same. When they are different, hourly time-weighted averages (TWA) should be calculated and used. TWAs for work rates should also be used when they vary within the hour.
- Values in the table are applied by reference to the "Work-Rest Regimen" section of the *Documentation* and assume 8-hour work days in a 5-day work week with conventional breaks as discussed in the *Documentation*. When work days are extended, consult the "Application of the TLV" section of the *Documentation*.

\* - TLVs - Threshold Limit Values

**ATTACHMENT C**  
**TLVs\* Work/Warm-Up Schedule for Four-Hour Shift**  
 (ACGIH, 2001 TLVs and BEIs)

Air Temperature - Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph wind		15 mph wind		20 mph wind	
<sup>0</sup> C (approx.)	<sup>0</sup> F (approx.)	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks
-26 <sup>0</sup> to -28 <sup>0</sup>	-15 <sup>0</sup> to -19 <sup>0</sup>	(Norm. Breaks) 1		(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4
-29 <sup>0</sup> to -31 <sup>0</sup>	-20 <sup>0</sup> to -24 <sup>0</sup>	(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32 <sup>0</sup> to -34 <sup>0</sup>	-25 <sup>0</sup> to -29 <sup>0</sup>	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35 <sup>0</sup> to -37 <sup>0</sup>	-30 <sup>0</sup> to -34 <sup>0</sup>	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
-38 <sup>0</sup> to -39 <sup>0</sup>	-35 <sup>0</sup> to -39 <sup>0</sup>	40 min	4	30 min	5	Non-emergency work should cease					
-40 <sup>0</sup> to -42 <sup>0</sup>	-40 <sup>0</sup> to -44 <sup>0</sup>	30 min	5	Non-emergency work should cease							
-43 <sup>0</sup> & below	-45 <sup>0</sup> & below	Non-emergency work should cease				Non-emergency work should cease					

Notes:

- Schedule applies to any 4-hour work period with moderate to heavy work activity, with Warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour period in a warm location. For light-to-moderate work (limited physical movement): apply schedule one step lower. For example, at -35° C (-30° F) with no noticeable wind (step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (step 5).
- The following is suggested as a guide for estimating wind velocity if accurate information is not available:  
 5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.
- TLVs apply only for workers in dry clothing.

\* - TLVs - Threshold Limit Values

**ATTACHMENT D**

**Cooperative Observer Program Site Safety Review Form**

This form covers site safety at a Cooperative Observer Program site for routine visits. It is not intended to cover every extenuating possibility. Cooperative Observer Program site visitors are expected to use sound judgment in ensuring personal safety.

WFO \_\_\_\_\_

Cooperative Site	Hazard	Explanation	Remedy	Last Reviewed/initials

Hazards:

1. Siting Dangers - Requiring work (1) on a cliff, narrow ledge, or steeply inclined slope, where a loss of footing would result in death or serious injury, or when working in areas where there is significant danger of rock falls or avalanches; (2) on river gauges located on the side of a bridge without adequate sidewalks; (3) at a high crime site; (4) with hoisting or rigging operations; or (5) outdoors in undeveloped jungle regions outside the continental U.S.
  
2. Transient Factors – (1) Exposure to factors which may lead to danger, such as expected encounters with wild animals, birds of prey, or snakes who have a high potential for inflicting serious injury or death; or, (2) Hazardous Weather - When working at remote sites in extreme summer/winter weather, when shelter is not readily available.

**ATTACHMENT E**  
**Sample Cooperative Observer Program Site Safety Review Form**

WFO Charleston, WV

<b>Cooperative Site</b>	<b>Hazard</b>	<b>Explanation</b>	<b>Remedy</b>	<b>Last Reviewed/initials</b>
Elbow Knob 3SW, WV	None			6/27/03/JMP
Keebler, KY	a	Instrument shelter located on 35% grade (estimated); back slopes to cliff 5' away with 10' drop.		3/25/04/JMP
Mitchell General Store, WV	b(2)	11/28/03 visit - early season storm - 4+'' and falling, over 3 miles of unimproved roads (gravel)	Reschedule required service for summer months; 2 person trips for unscheduled service when accumulating warning criteria snow forecast.	11/28/03/GGR
Gypsum 1W, WV	None			6/02/03/JKS
Etc.				

Hazards:

1. Siting Dangers - Requiring work (1) on a cliff, narrow ledge, or steeply inclined slope, where a loss of footing would result in death or serious injury, or when working in areas where there is significant danger of rock falls or avalanches; (2) on river gauges located on the side of a bridge without adequate sidewalks; (3) at a high crime site; (4) with hoisting or rigging operations; or (5) outdoors in undeveloped jungle regions outside the continental U.S.
2. Transient Factors – (1) Exposure to factors which may lead to danger, such as expected encounters with wild animals, birds of prey, or snakes who have a high potential for inflicting serious injury or death; or, (2) Hazardous Weather - When working at remote sites in extreme summer/winter weather, when shelter is not readily available.

**PROCEDURE 3 - Safe Electrical Work Practices**

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## Synopsis

This procedure provides guidelines related to electrical hazards in the workplace. The procedure applies to all NWS equipment, facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Inspect/Test Electrical Equipment (3.3.2, 3.3.14)
  - Perform Initial Ground-Fault Circuit Interrupters (GFCI) amperage testing (3.3.20)
- **Develop/Obtain Documentation/Information required for Site**
  - Develop Lockout/Tagout procedures utilizing the template in NWS Occupational Safety and Health Procedure # 4, “Control of Hazardous Energy Sources” (3.3.2)
  - Ensure availability of Instrument Operator’s Manuals. (3.3.3)
- **Designate Person to Administer “Safe Electrical Work Practices” Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - “Qualified” Personnel Training (3.3.22)
  - Safety Observers (3.3.22)
  - Other Personnel (3.3.22)
- **Inventory Material/Equipment (Procure as required)**
  - Insulating & Shielding Materials (3.3.6)
  - Barricades (3.3.17)
  - Safety Postings/Signs (3.3.17)
  - Personal Protective Equipment. (3.3.15)
  - Insulated Tools (3.3.12)

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Annual Inspections/Testing of Electrical Equipment. (3.3.2, 3.3.14)
  - Annual Ground-Fault Circuit Interrupters (GFCI) amperage testing. (3.3.20)
- **Review/Update Documentation/Information required for Site**
  - Maintain Lockout/Tagout procedures for all applicable equipment on site. (3.3.2e)
- **Provide Refresher Training of Site Personnel**
  - “Qualified” Personnel Training (3.3.22)
  - Safety Observers (3.3.22)
  - Other Personnel (3.3.22)
- **Inspect/Replace/Maintain Material/Equipment**
  - Insulating & Shielding Materials (3.3.6)
  - Barricades (3.3.17)
  - Personal Protective Equipment (3.3.15)
  - Insulated Tools (3.3.12)

**Safe Electrical Work Practices Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	3.4.2				
Is equipment de-energized prior to being serviced or maintained?	3.3.2				
Are live parts that operate at less than 50 volts-to-ground de-energized if there is a safety risk?	3.3.2b				
Are circuit energizing parts locked-out and tagged-out during the process of de-energizing fixed electric equipment or circuits in accordance with the National Weather Services (NWS) Occupational Safety and Health Procedure # 4, “Control of Hazardous Energy Sources”?	3.3.2c				
Have procedures for Locking and Tagging of specific equipment been written, followed and maintained on file?	3.3.2d				
Is training of qualified individuals in proper Lockout/Tagout procedures conducted?	3.3.22				
Are equipment operation manuals being used by employees to ensure proper de-energizing procedures?	3.3.3				
Are equipment de-energizing methods being followed by employees at the facility as described in the procedure?	3.3.3 a-d				
Are equipment re-energizing requirements being followed by employees at the facility as described in	3.3.4a-e				

Requirements	Reference	YES	NO	N/A	Comments
the procedure?					
Has safety training been provided for employees who work on energized equipment/circuit parts?	3.3.6				
Is correct Personal Protective Equipment (PPE) being used when working on energized equipment/circuits parts?	3.3.6				
Are correct shielding and insulating materials and tools being used when working on equipment/circuit parts that have not been de-energized?	3.3.6				
Are procedures for “working near energized equipment” being followed/used when work is being performed near overhead lines?	3.3.7				
Is adequate lighting provided when working near energized equipment?	3.3.9				
Are correct PPE, barriers and insulating materials being used when working in confined spaces that contain exposed energized equipment?	3.3.10				
Are proper safety procedures being followed when working on conductive material and equipment?	3.3.11				
Are safety guidelines followed for the use of portable electric equipment?	3.3.12				
Are correct disconnecting means being used for routine opening, reversing, or closing circuits under load conditions?	3.3.13				

Requirements	Reference	YES	NO	N/A	Comments
Is correct equipment being used to disconnect a circuit under load?	3.3.13				
Are safety checks being performed prior to re-energizing equipment /circuit to determine what caused a device to trip?	3.3.13				
Is instrument/equipment testing being performed by a qualified person using equipment rated for the voltage and for the correct environment?	3.3.14				
Are appropriate signs and warning devices used to protect employees from electrical hazards?	3.3.17				
Is a minimum of 3 feet maintained in front of all 0-600 volt panels?	3.3.18				
Are all ground conductors color coded according to the National Electrical Code?	3.3.19				
Have grounding conductors been installed on all electrical equipment in accordance with this procedure?	3.3.19				
Are neutral-to-ground bonds kept separate at all sub-panel board and junction box?	3.3.19				
Are GFCI devices installed in areas where frequent electrical maintenance occurs, as recommended by paragraph 3.3.19b?	3.3.20				
Are GFCI devices utilized in damp locations and for all outside maintenance activities?	3.3.20				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Are GFCI devices tested on annual basis to ensure proper operation?	3.3.20				
Are correct safety/utilization procedures being used for GFI devices in accordance with this procedure?	3.3.21				
Have qualified individuals been properly trained as required by the procedure?	3.3.22 a				
Have safety observers been properly trained as required by the procedure?	3.3.22 b				
Have other office employees been trained in the portions of this procedure that are necessary to ensure their safety?	3.3.22 c				

### 3 SAFE ELECTRICAL WORK PRACTICES

#### 3.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is implementing this procedure related to electrical hazards in the workplace. This procedure applies to all NWS facilities, work locations and employees.

#### 3.2 Definitions

Arc Flash Hazard. A dangerous condition associated with possible release of energy caused by an electrical arc.

Arc Flash Boundary. When the arc flash hazard exists, and approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur.

Energized. Connected to an energy source or containing residual or stored energy.

De-energized Parts. Free from any electrical connection to a source of potential difference and from electric charge. (Note: testing shall be performed by qualified personnel to verify that the circuit elements and electrical parts of equipment are de-energized to a zero energy state).

Exposed. Energized part that is capable of being touched or approached nearer than a safe distance as specified in this procedure.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Ground-Fault Circuit-Interrupters (GFCI). Electrical receptacles designed to open the active (live) circuit when ground current exceeds a pre-established level, usually 5 milliamps. A current difference indicates that a path exists between the live circuit or an electrical component and ground. The current path could be an equipment short circuit or a human body making contact with an active circuit and ground.

Ground-Fault Interrupter (GFI). A GFI is an equipment protector, unlike the GFCI which is a personnel protector. It is intended to protect the equipment from damaging line-to-ground fault currents by opening all ungrounded conductors of the faulted circuit.

Ground. An electrically conducting connection between equipment or an electric circuit and the earth or to some other conducting body. A properly designed grounding system provides a reliable conducting path to earth or some other conducting body in place of the earth. This system provides a low impedance path for electric short circuits and faults enabling over-load protective devices to open the circuit. The grounding system maintains a common potential for grounded equipment at or near earth's potential level. It also provides a low impedance path for electrical short circuits, permitting large currents to pass through over-load protective devices permitting them to open.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC),

NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center, Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Qualified Person. A person who has demonstrated skills and knowledge related to construction and operation of electrical equipment and installations and has received safety training to identify and avoid hazards involved.

**NOTE:** Whether an employee is considered to be a "qualified person" will depend upon various circumstances in the workplace. It is possible that an individual is considered "qualified" with regard to certain equipment but is not "qualified" with regard to other equipment.

An employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a "qualified" person is considered to be a "qualified" person for the performance of those duties.

Safety Observer. Under special conditions, when the risk of serious injury to NWS personnel is judged to be greater than normal, the presence of a safety observer is essential. The safety observer should be able to obtain medical assistance or render emergency First Aid/CPR. If there is a risk of serious injury that may adversely affect employee's respiration or cause severe bleeding or other life threatening condition, the safety observer must be trained in CPR/First Aid.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SR&DC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 3.3 Procedure

3.3.1 Electrical Work Practices. Safety-related work practices shall be used to minimize the risk of electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are, or may be, energized.

3.3.2 De-Energized Parts. Live parts to which an employee may be exposed shall be de-energized before the employee works on or near them unless it can be shown that de-energizing introduces additional or increased hazards or is not feasible.

a. The NWS requires that systems be de-energized except in an emergency. The Station Manager or designee is responsible for making the decision about de-energizing the equipment unless there is a specific regional or national policy about a particular piece of equipment.

(1) During the time an employee may be exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the

circuits energizing the parts shall be locked out and tagged following NWS Occupational Safety and Health Procedure 4, "Control of Hazardous Energy Sources."

- (2) Examples of *increased or additional hazards* include deactivation of emergency alarm systems, shutdown of hazardous location ventilation equipment, or removal of illumination from an area.
- b. Live parts that operate at less than 50 volts to ground need not be de-energized if there will be no increased exposure to electrical burns, explosions due to electric arcs, or risk of equipment damage. If any of these situations are possible, the equipment should be de-energized. A qualified person shall determine if de-energizing is necessary based on testing to show the number of amps and the amount of energy in the system and system configuration.
- c. Conductors and parts of electric equipment that have been de-energized but have not been locked out and tagged following NWS Occupational Safety and Health Procedure 4, "Control of Hazardous Energy Sources" shall be treated as being energized.
- d. Procedures for locking out and tagging the specific piece of equipment must be written, maintained and kept on file. A template for these procedures is included in NWS Occupational Safety and Health Procedure 4, "Control of Hazardous Energy Sources."
- e. Interlocks for electric equipment shall not be used as a substitute for lockout and tagging procedures.

3.3.3 De-Energizing Equipment. Safe procedures for de-energizing circuits and equipment shall be determined before circuits or equipment are de-energized. The operating manual for the specific equipment shall be consulted for the proper method of de-energizing the equipment.

- a. The circuits and equipment to be worked on shall be disconnected from all electric energy sources.
- b. Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel.
- c. Stored non-electrical energy in devices that could re-energize electric circuit parts shall be blocked or relieved commensurate with the probability that the circuit parts could be accidentally energized by the device.

Example: A spring-loaded contactor found on switches in main power distribution areas such as transformers and on some motor controls. Another example: When working on or around high voltage power supplies or equipment including cathode ray tubes, the tube should be de-energized and grounded at the anode while working on other parts of the equipment in the vicinity of the high voltage areas to ensure against accidental shock.



- d. All circuits and equipment must be tested to verify that they have been de-energized. All of the following steps shall be performed to ensure de-energizing is accomplished:
- (1) A qualified person shall operate the equipment operating controls to verify that the equipment cannot be restarted.
  - (2) A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will, or may reasonably expect, to be exposed and shall verify that the circuit elements and equipment parts are de-energized to a zero energy state.

**NOTE:** If the circuit to be tested is over 600 volts nominal, the test equipment shall be checked for proper operation prior to and immediately after the test. An example of the test would be to check a circuit with a known voltage to ensure the instrument is reading properly. Always consult the instrument operator's manual for additional criteria to accomplish the test. Also see section 3.3.13. See 3.3.14 for personal protective equipment guidance.

3.3.4 Re-Energizing Equipment. Prior to re-energizing circuits or equipment, even temporarily, the following requirements shall be met in the order listed:

- a. A qualified person shall verify that all tools, electrical jumpers, shorts, grounds and other similar devices have been removed so that the circuits and equipment can be safely energized, including removal of equipment interlock-defeating devices.
- b. Individuals exposed to the hazards associated with re-energizing the circuit or equipment shall be warned to stay clear of circuits and equipment.
- c. All locks and tags shall be removed as specified in NWS Occupational Safety and Health Procedure 4, "Control of Hazardous Energy Sources."
- d. A visual check shall be made to ensure that all individuals are clear of the circuits and equipment.
- e. Where appropriate, protective covers, shields, and shrouds should be secured, unless specific maintenance guidance states otherwise.

3.3.5 Energized Equipment. If the exposed energized parts cannot be de-energized, an equivalent level of safety shall be provided to protect employees who may be exposed to the electrical hazards involved. Per NFPA 70E (Standard for Electrical Safety in the Workplace), energized work shall be permitted where the employer can demonstrate that the task to be performed is infeasible in de-energized state due to equipment design and operational limitations.

**Note:** Example of work that may be performed on or near energized circuit parts because of *infeasibility due to equipment design or operational limitations* include testing of electrical circuits that can only be performed with the circuit energized and work on circuits that form an integral part of a continuous process that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.

3.3.6 Equipment such as switchboards, electrical panels, meter socket enclosures, and motor control centers that are likely require examination, adjustment, servicing, or maintenance while energized, shall be marked with the Arc Flash label that includes the following information:

- a. Nominal system voltage
- b. Arc Flash Boundary
- c. At least one of the following:
  - (1) Available incident energy and the corresponding working distance or the arc flash PPE category
  - (2) Minimum arc rating of the clothing
  - (3) Site-specific level of PPE

Only qualified personnel may work on electric circuit parts or equipment that has not been de-energized. NEC 70 defines “qualified person” as one who has skills and knowledge related to the construction and operation of the electrical equipment and installations and received safety training to recognize and avoid hazards involved. The qualified personnel shall be properly trained regarding working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment (PPE), insulating and shielding materials and insulated tools as stated in 29 CFR 1910.333(c)(2). A safety observer trained in First Aid/CPR must be always present when employee may be exposed to energized equipment.

**NOTE:** NFPA 70E provides a detailed guidance on the hazard analysis, training, and selection of the acceptable level of protective clothing and PPE for the work performed on energized circuits. **Only NWS qualified personnel who received on the job or classroom training and equipped with appropriate level of protective equipment, tools, and arc resistant protective clothing are allowed to work on energized equipment.** Supervisory personnel are responsible to determine if employees working under their supervision are qualified to perform electrical work in compliance with safety-related work practices defined by OSHA standard and further detailed in NFPA 70E.

3.3.7 Overhead Lines. Work near overhead lines shall be avoided whenever possible. If work near overhead lines must be performed, the lines shall be considered to be energized and the requirements for working near energized equipment shall be followed. Emergency switches must be located to shut down the grid to overhead lines that employees will be working on or near.

3.3.8 Vehicular and Mechanical Equipment. When working near an energized overhead line, no part of a vehicle and mechanical equipment shall come within 10 feet of the line. This distance shall be increased by 4 inches for every 10kV over 50kV.

3.3.9 Lighting. An individual may not perform work near energized equipment unless the level of lighting is sufficient (at least 100 foot-candles) to enable the individual to work safely.

- a. A trouble light can be used to provide light and should be made of non-conducting material to avoid shorting conductors together. The flexible cord of a portable lamp should never be pinched, kinked, cracked or cut, exposing live wires or parts.
- b. An individual shall not reach blindly into areas that may contain energized equipment.

3.3.10 Confined or Enclosed Work Spaces. Individuals working in a confined or enclosed space (such as a manhole or vault) that contains exposed energized equipment shall use protective shields, barriers or insulating materials to avoid inadvertent contact with the energized equipment.

Example: Individuals working inside of the cabinet where the main power feeds enter into the Weather Forecast Office. The conductors feeding the cabinet must be covered to prevent accidental contact. Doors, covers, access panels, etc., shall be secured to prevent them from swinging into an employee and causing the employee to contact exposed energized parts.

Example: The access cover that must be removed when performing maintenance on the NEXRAD pedestal.

3.3.11 Conductive Materials and Equipment. Conductive materials and equipment shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts.

If there are conductive objects in a work area where there are exposed live parts or circuits, the worker(s) shall use insulated blankets, insulated gloves and protective barriers to help minimize accidental contact with the exposed parts or circuits.

Conductive articles of jewelry and clothing (e.g., watch bands, bracelets, rings, key chains or metal headgear) shall not be worn when working near electrical equipment.

3.3.12 Use of Portable Electric Equipment. Portable electric equipment such as drills, saws, and trouble lights shall be used in a safe manner and be connected to a circuit protected by GFCI capability (i.e., circuit breaker or separately enclosed, portable GFCI) unless UL listed as double insulated. The following guidelines provide minimum requirements for the use of this type of equipment.

- a. All cord and plug-connected electric equipment, flexible cord sets (extension cords), and portable electric equipment shall be handled in a manner that will not cause damage.

**NOTE:** Electrical loads on multi-outlet surge protectors shall not exceed their rated capacity. Multiple outlets shall not be “daisy-chained.” Use of extension cord in combination with power strip shall not be permitted.

- b. Flexible electric cords connected to equipment may not be used for raising or lowering the equipment.
- c. Flexible cords may not be fastened with staples or otherwise hung in a fashion that could damage the outer jacket or insulation.
- d. Portable cord- and plug-connected equipment and extension cords shall be visually inspected for external defects such as loose parts, deformed and missing pins, burns or scorch marks, or damage to outer jacket or insulation and for evidence of possible internal damage such as signs of pinching or crushing before use. However, cord- and plug-connected equipment and extension cords which remain connected once they are put in place and are not exposed to damage are not required to be visually inspected until they are relocated.
- e. If there is evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service and not used until repaired and tested to ensure the equipment is safe.
- f. Whenever an attachment plug is to be connected to a receptacle (including extension cords), the plug end and the receptacle shall be checked to ensure that they are of proper configurations and that the fit is snug.
- g. An extension cord used with grounding-type equipment shall contain an equipment grounding conductor.
- h. Plugs and receptacles may not be connected or altered in a manner that would prevent proper continuity of the equipment grounding conductor at the point where plugs are attached to receptacles. (**Note:** Do not cut off the ground prong on a plug). Additionally, those devices may not be altered to allow the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors.
- i. Adapters that do not allow continuity of the equipment grounding connection may not be used.
- j. Portable electric equipment and extension cords used in highly conductive work locations (such as areas with standing water), or in job locations where employees are likely to contact water shall be approved for those locations.
- k. Employees' hands may not be wet when plugging and unplugging flexible cords and cord- and plug-connected equipment if energized equipment is involved.
- l. Energized plug and receptacle connections may be handled only with insulating gloves if the condition of the connection could provide a conducting path to the employee's hand. For example, a cord connector is wet from being immersed in

water.

- m. Locking-type connectors shall be properly secured after connection.
- n. All equipment shall be approved by OSHA Nationally Recognized Testing Laboratory (e.g., Underwriters Laboratories (U.L.)).
- o. At least once a year, during a scheduled site visit, the qualified person shall test and inspect electrical receptacles, cords and plugs to ensure that all ground circuits, pins, and sockets are properly wired and are in good repair and operating condition. Adapters that permit the ground pin of an electrical plug to be by-passed shall **not** be used. All electrical cords must not be frayed and must be in good repair.

### 3.3.13 Electric Power and Lighting Circuits

- a. Load-rated switches (light switch), electrical disconnects and circuit breakers specifically designed as a disconnecting means shall be used for the routine opening, reversing, or closing of circuits under load conditions.
- b. Cable connectors not of the load-break type, fuses, terminal lugs, and cable splice connections may not be used to disconnect a circuit under load except in an emergency.
- c. After a circuit is de-energized by a circuit protective device (fuse, circuit breaker, thermal cutouts, etc.) the circuit may not be manually re-energized until it has been determined what caused the device to trip and if the equipment and circuit can be safely energized.
- d. Repetitive resetting of circuit breakers or re-energizing circuits through replaced fuses is prohibited.
- e. Overcurrent protection of circuits and conductors may not be modified, not even on a temporary basis.

3.3.14 Test Instruments and Equipment. Testing work on electric circuits or equipment may only be performed by qualified persons using equipment rated for the voltage which they will be testing and designed for the environment in which they will be used. Test instruments, equipment, associated test leads, cables, power cords, probes, and connectors shall be visually inspected for external defects and damage before the equipment is used. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service until it can be repaired and tested.

### 3.3.15 Electrical Protective Devices.

- a. Electrical protective equipment will be maintained in a safe, reliable condition.
- b. The following specific requirements apply to insulating blankets, covers, line hose, gloves, and sleeves made of rubber:
  - (1) Maximum use voltages will conform to those listed in Attachment D, "Rubber Insulating Equipment Voltage Requirements."

- (2) Insulating equipment will be inspected by a qualified person for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given an air test, along with the inspection.
- (3) Insulating equipment with any of the following defects may not be used:
  - i A hole, tear, puncture, or cut.
  - ii Ozone cutting or ozone checking (the cutting action produced by ozone on rubber under mechanical stress resulting in a series of interlacing cracks).
  - iii An embedded foreign object.
  - iv Any of the following texture changes: swelling, softening, hardening, or becoming sticky or inelastic.
  - v Any other defect that damages the insulating properties.
- (4) Insulating equipment found to have other defects that might affect its insulating properties will be removed from service and returned for testing.
- (5) Insulating equipment will be cleaned as needed to remove foreign substances.
- (6) Insulating equipment will be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions.
- (7) Protector gloves should be worn over insulating gloves if the task allows.

<p><b>NOTE:</b> Extra care is needed in the visual examination of the glove and in the avoidance of handling sharp objects.</p>
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- i Any other class of glove may be used for similar work without protector gloves if the employer can demonstrate that the possibility of physical damage to the gloves is small and if the class of glove is one class higher than that required for the voltage involved. Insulating gloves that have been used without protector gloves may not be used at their rated voltage until they have been tested.
- (8) Electrical protective equipment will be subjected to periodic electrical tests at a certified testing facility. For equipment that is in use, testing will be conducted every six months (e.g., rubber insulating gloves) or 12 months (e.g., rubber insulating blankets or sleeves). Equipment in storage or not in use will be tested annually.
- (9) Insulating equipment failing to pass inspections or electrical tests may not be used by employees, except as follows:
  - i Rubber insulating line hose may be used in shorter lengths with the defective portion cut off.

ii Rubber insulating blankets may be repaired using a compatible patch that results in physical and electrical properties equal to those of the blanket.

iii Rubber insulating blankets may be salvaged by severing the defective area from the undamaged portion of the blanket. The resulting undamaged area may not be smaller than 22 inches by 22 inches (560 mm by 560 mm) for Class 1, 2, 3, and 4 blankets.

iv Rubber insulating gloves and sleeves with minor physical defects, such as small cuts, tears, or punctures, may be repaired by the application of a compatible patch. Also, rubber insulating gloves and sleeves with minor surface blemishes may be repaired with a compatible liquid compound. The patched area will have electrical and physical properties equal to those of the surrounding material. Repairs to gloves are permitted only in the area between the wrist and the reinforced edge of the opening.

- (10) Repaired insulating equipment, including gloves will be re-tested by a certified testing facility before it may be used by employees.
- (11) The Safety or Environmental/Safety Focal Point will maintain equipment test or inspection records. The records will identify the equipment that passed the test or inspection and the date of the action.
- (12) Electrical Safety Board must be available at each NWS office and RDA site. All items for the safety board, including wooden cane for rescue of personnel, are available at NLSC.

3.3.16 Personal Protective Equipment. Individuals shall be provided and shall use electrical protective equipment that is appropriate for the type work and hazard level (as defined by NFPA 70E) to be performed. (Note: NFPA 70E contains specific guidance on selection of appropriate level of arc flash protective clothing and PPE). Personal protective equipment (PPE) shall be used and maintained in accordance with NWS Occupational Safety and Health Procedure 8, “Personal Protective Equipment” and NFPA 70E.

- a. If the insulating capability of protective equipment may be subject to damage during use, the insulating material shall be protected, for example, an outer covering of leather when it is used for the protection of rubber insulating material.
- b. Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.
- c. Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion. Employees shall wear protective face and body equipment when working on equipment using chemicals such as battery acid or caustic fluids.
- d. Employees shall wear approved protective equipment when working on

equipment with live voltages over 50 volts (e.g., gloves approved for high voltage work, per 29 CFR 1910.335). Attachment A contains a summary of protective clothing and PPE, as required by NFPA 70E. The clothing and PPE is to be used when working within the arc flash boundary.

3.3.17 General Protective Equipment and Tools. When working near exposed energized conductors or circuit parts, each employee shall use insulated tools or equipment if they might make contact with conductors or parts.

- a. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material shall be protected.
- b. Fuse handling equipment, insulated for the circuit voltage, shall be used to remove or install fuses when the fuse terminals are energized.
- c. Ropes and “fish tapes” used near exposed energized parts shall be nonconductive.
- d. Protective shields, protective barriers or insulating materials shall be used to protect individuals working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur.
- e. When normally enclosed live parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from coming in contact with parts if they are still energized.

3.3.18 Alerting Techniques. The following techniques shall be used to warn and protect employees from hazards which could cause injury due to electric shock, burns or failure of electric equipment parts.

- a. Safety signs, safety symbols or accident prevention tags shall be used, where necessary, to warn individuals about electrical hazards in their work area. Signs, symbols and tags shall conform to the requirements of 29 CFR 1910.145, “Specifications for Accident Prevention Signs and Tags.”

<b>NOTE:</b> Typical signs warning of electrical hazards include red danger tape with the words: “Danger - Electrical Hazard” or “Danger - High Voltage” or “Danger-High Voltage - Authorized Personnel Only” or “Danger - Electrical Shock Hazard.” Paragraph 3.3.6 includes Arc Flash labeling requirements.
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- b. Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing individuals to un-insulated energized equipment.

<b>NOTE:</b> Conductive barricades may not be used where they might cause an electrical contact hazard.
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- c. If signs and barricades do not provide sufficient warning and protection from electrical hazards, a safety observer or qualified person shall be stationed to warn and protect individuals from the potential hazard.



3.3.19 Clearances. A minimum of 3 feet shall be maintained in front of all 0-150 volt electrical panels that may be accessed periodically to perform maintenance on a circuit or to de-energize a circuit in an emergency. A minimum of 3 feet clear access to the front of all 151-600 volt panels shall be maintained.

3.3.20 Grounding. Grounding systems are intended to decrease the risk of electric shock to the human body from equipment and wiring.

- a. An Equipment Grounding Conductor (EGC) originating at the service equipment entrance or at the location of a separately derived system shall connect all non-current carrying metal equipment, enclosures, conduits, fittings, and metal outlets. This will provide the necessary electrical continuity required for the over-current devices to trip.
- b. The ground conductor shall be color coded green, green with a tracer color, or bare copper in accordance with the National Electric Code (NEC).
- c. Grounding conductors must be installed on all electrical equipment, including metal outlets and junction boxes, to comply with NEC and 29 CFR 1910.304 requirements.
- d. The only neutral-to-ground bond shall be at the service entrance and any separately derived source. The neutral and ground should be kept separate at all sub-panel boards and junction boxes. The only two locations where the neutral and ground are bonded together is at the main service entrance and at the secondary side of a separately derived system.
  - (4) Down line neutral-to-ground bonds result in parallel paths for the load return current where one of the paths becomes the ground circuit. This can cause a malfunction of protective devices and is a direct violation of the NEC.
  - (5) The Ground Electrode Conductor (GEC) will connect this neutral-to-ground bond to the facilities ground reference.

3.3.21 Ground-Fault Circuit-Interrupter (GFCI). GFCI receptacles are designed to open the active (live) circuit when ground current exceeds a pre-established level, usually five milliamps. Current on the ground wire indicates that a path exists between the live circuit or an electrical component and ground. The current path could be an equipment short circuit or a human body making contact with an active circuit and ground (e.g., touching a faulty double insulated power tool case).

- a. GFCI devices shall be used in wet or damp environments, or any other similar conditions, where the human body could accidentally come into contact with energized wiring or equipment and ground.
- b. Installing GFCI devices in areas where electrical maintenance is frequently performed is a good safety practice and is highly recommended.
- c. All outside maintenance work must be done with GFCI connections. As a minimum, NEC and local electric code requirements shall be followed.

- d. It is recommended that GFCI devices be self-tested with the testing indicator on GFCI device before each use to determine at what amperage the circuit trips. GFCIs that trip above 6 milliamps should be replaced.

3.3.22 Ground-Fault Interrupter (GFI). GFIs shall be used when there is a requirement to protect equipment from damaging line-to-ground fault currents by opening all ungrounded conductors of the faulted circuit.

GFI devices shall be used in wet or damp locations. GFIs are addressed in the 1996 NEC, Article 230-95, which requires the installation of all solid-grounded wye electrical services of more than 150 volts to ground, but not exceeding 600 volts, phase to phase for each service disconnect rated 1000 amperes or more.

3.3.23 Training.

- a. Initial training shall be given upon assignment to a position requiring an individual to work with or in close proximity to exposed electrical parts, equipment or conductors as a regular part of his/her job. Refresher training shall be given if there is a significant change in this procedure or work practices. Employees shall, at a minimum, be trained in, possess the knowledge of, and/or be familiar with the following to become a “qualified” personnel:
  - (1) The skills, knowledge and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
  - (2) The skills and techniques necessary to determine the nominal voltage of exposed live parts.
  - (3) The requirements specified in this procedure.
  - (4) Proper lockout/tagout procedures.

Note: An employee who is undergoing on-the-job training for the purpose of obtaining the skills and knowledge necessary to be considered a qualified person and who demonstrates the ability to perform specific duties safely under direct supervision of qualified a person, shall be considered a qualified person for the performance of those specific duties.

- b. Safety observers do not have to be proficient in the task being observed, but as a minimum, shall:
  - (1) Be briefed on and/or familiar with the potential hazards of the task and be able to detect an unsafe act or condition during the work.
  - (2) Know how to use electrical safety equipment and be familiar with procedures to remove personnel from electrical hazards and when **not** to touch an affected person.
  - (3) Be trained in First Aid/CPR based on conditions described in paragraph 2.3.2 (NOTE).
  - (4) Be familiar with local procedures for obtaining medical assistance.
  - (5) Know where disconnect switches are located and know how to de-

- energize equipment.
- (6) Be familiar with and be able to recognize the appropriate safety controls (engineered and administrative) and to select personal protective equipment.
- (7) Receive initial and refresher training (as appropriate).
- c. All other personnel shall be trained in the portions of this procedure that are necessary to ensure their safety. Refresher training shall be given if there is a significant change in work practices. This training should include but not be limited to:
  - (1) Warning signs indicating electrical hazards.
  - (2) The safe use of portable electrical equipment.
  - (3) Emergency notification procedures.

### **3.4 Responsibilities**

#### 3.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

#### 3.4.2 Station Manager

- a. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure and will ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- c. Will ensure appropriate clearances are maintained when working near overhead lines and energized circuits.
- d. Will ensure qualified personnel perform electrical work in accordance with the requirements of this procedure.
- e. Will ensure qualified personnel are trained to a level that, at a minimum, that meets the requirements of this procedure.

- f. Will ensure that initial and periodic inventory of PPE, barricades, insulating and shielding materials, insulating tools is accomplished and adequate stock is maintained.

3.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

3.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

3.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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### 3.5 References

3.5.1 Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- a. National Fire Protection Association, NFPA 70, NEC.
- b. National Fire Protection Association, NFPA 70E, “Standard for the Electrical Safety Requirements for Employee Workplaces.”
- c. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.145, “Specifications for Accident Prevention Signs and Tags.”
- d. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.301 “Introduction.”
- e. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.302 “Electrical Utilization Systems.”
- f. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.303 “General Requirements.”
- g. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.304 “Wiring Design and Protection.”

- h. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.305 “Wiring Methods, Components, and Equipment for General Use.”
- i. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.306 “Special Purpose Equipment and Installations.”
- j. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.307 “Hazardous (classified) Locations.”
- k. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.308 “Special Systems.”
- l. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.331-335 “Safety-Related Work Practices.”
- m. NWS Occupational Safety and Health Procedure 4, “Control of Hazardous Energy Sources.”
- n. NWS Occupational Safety and Health Procedure 2, “Working Alone.”
- o. NWS Occupational Safety and Health Procedure 8, “Personal Protective Equipment.”

**3.6 Attachments**

Attachment A, Protection Clothing and PPE (per NFPA 70E)

ATTACHMENT A

**Protective Clothing and PPE (per NFPA 70E)**

PPE Category	Protective Clothing and PPE
1	<p><u>Arc-Rated Clothing, Minimum Arc Rating of 4 cal/cm<sup>2</sup></u></p> <ul style="list-style-type: none"> <li>• Arc-rated long sleeve shirt and pants or arc-rated coverall</li> <li>• Arc-rated face shield or arc flash suit hood</li> <li>• Arc-rated jacket, parka, rainwear or hard hat liner</li> </ul> <p><u>PPE</u></p> <ul style="list-style-type: none"> <li>• Hard hat</li> <li>• Safety glasses or safety goggles</li> <li>• Hear protection (ear canal inserts)</li> <li>• Heavy duty leather gloves</li> <li>• Leather footwear</li> </ul>
2	<p><u>Arc-Rated Clothing, Minimum Arc Rating of 8 cal/cm<sup>2</sup></u></p> <ul style="list-style-type: none"> <li>• Arc-rated long sleeve shirt and pants or arc-rated coverall</li> <li>• Arc-rated flash suit hood or arc-rated face shield and arc rated baklava</li> <li>• Arc-rated jacket, parka, rainwear or hard hat liner</li> </ul> <p><u>PPE</u></p> <ul style="list-style-type: none"> <li>• Hard hat</li> <li>• Safety glasses or safety goggles</li> <li>• Hear protection (ear canal inserts)</li> <li>• Heavy duty leather gloves</li> <li>• Leather footwear</li> </ul>
3	<p><u>Arc-Rated Clothing Selected so that the System Arc Rating Meets the Required Minimum Arc Rating of 25 cal/cm<sup>2</sup></u></p> <ul style="list-style-type: none"> <li>• Arc-rated long-sleeve shirt</li> <li>• Arc-rated pants</li> <li>• Arc-rated coverall</li> <li>• Arc-rated flash suit jacket</li> <li>• Arc-rated flash pants</li> <li>• Arc-rated flash suit hood</li> <li>• Arc-rated gloves</li> <li>• Arc-rated jacket, parka, rainwear or hard hat liner</li> </ul> <p><u>PPE</u></p> <ul style="list-style-type: none"> <li>• Hard hat</li> <li>• Safety glasses or safety goggles</li> <li>• Hear protection (ear canal inserts)</li> <li>• Leather footwear</li> </ul>
4	<p><u>Arc-Rated Clothing Selected so that the System Arc Rating Meets the Required Minimum Arc Rating of 40 cal/cm<sup>2</sup></u></p> <ul style="list-style-type: none"> <li>• Arc-rated long-sleeve shirt</li> </ul>

PPE Category	Protective Clothing and PPE
	<ul style="list-style-type: none"> <li>• Arc-rated pants</li> <li>• Arc-rated coverall</li> <li>• Arc-rated flash suit jacket</li> <li>• Arc-rated flash pants</li> <li>• Arc-rated flash suit hood</li> <li>• Arc-rated gloves</li> <li>• Arc-rated jacket, parka, rainwear or hard hat liner</li> </ul> <p><u>PPE</u></p> <ul style="list-style-type: none"> <li>• Hard hat</li> <li>• Safety glasses or safety goggles</li> <li>• Hear protection (ear canal inserts)</li> <li>• Leather footwear</li> </ul>

**PROCEDURE 4 - Control of Hazardous Energy Sources**

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## Synopsis

The purpose of this procedure is to provide requirements related to hazards associated with the unexpected energizing or start up of machines or equipment or the release of stored energy (mechanical, electrical, gravitational). This procedure applies to all NWS equipment, facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Identify Equipment/Systems requiring Lockout/Tagout Procedures. (4.3.3, Attachment A)
- **Develop/Obtain Documentation/Information required for Site**
  - Develop Lockout/Tagout procedure for applicable equipment/systems. (4.3.3)
- **Designate Person to Administer Control of Hazardous Energy Sources Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Training/Certification of authorized personnel. (4.3.4a)
  - Safety Observer Training. (4.3.4i)
  - Awareness Training for all employees. (3.3.4c,d)
- **Inventory Material/Equipment (Procure as required)**
  - Lockout/Tagout Devices. (4.4.2b, 4.3.2)
  - Personal Protective Equipment (PPE). (4.4.2b, 4.3.1a(2)(c))

### **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Review and Update Lockout/Tagout Procedures. (4.3.3, 4.3.5)
  - Perform annual inspection of Lockout/Tagout Procedures (4.3.3, 4.3.5, Attachment D) - Maintain a log of all Lockout/Tagout procedures. (4.3.1g(11))
  - Maintain Training Records. (4.3.4h)
- **Provide Refresher Training of Site Personnel (If Applicable)**
  - Change in Equipment & Job Assignment Training. (4.3.4e,f)
- **Inspect/Replace/Maintain Material/Equipment**
  - Lockout/Tagout Devices. (4.4.2b, 4.3.2)
  - Personal Protective Equipment (PPE). (4.4.2b, 4.3.1a(2)(c))

**Control of Hazardous Energy Sources Checklist**

<b>REQUIREMENTS</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	4.4.2				
Have procedures been developed for properly locking out/ tagging out equipment/systems?	4.3.3 Attachment A				
Are Lockout/Tagout procedures reviewed and inspected at least annually?	4.4.2a, 4.3.5 Attachment D				
Are all Lockout locks standardized and used only for lockout purposes?	4.3.2a				
Are Lockout Devices used along with tags?	4.3.1c				
Has all equipment regularly maintained been modified to accommodate lockout device?	4.3.1d				
Do the tags have the name of person installing the lock and the date the lock was installed legibly printed on the lock?	4.3.2a, 4.3.1f				
Are tags affixed to lockout or energy isolation devices by a means of a strong fastening device?	4.3.2b				
Are Lockout/Tagout devices removed by personnel who applied the device or their designated representative?	4.3.2c				
If more than one individual is required to work on piece of equipment, are multiple lockout devices used?	4.3.1g(8)				

<b>REQUIREMENTS</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is NWS employee being designated to install additional lockout device when a contractor is performing work requiring use of such device?	4.3.1g(9)				
Have employees that perform Lockout/Tagout procedures been properly trained?	4.3.4a				
Have affected employees been instructed on the purpose of Lockout/Tagout procedures?	4.3.4b				
Are employees retrained when changes in equipment, job assignment or Lockout/Tagout procedures occur?	4.3.4e				
Is Safety Observer training conducted?	4.3.4i				
Are Training Certificates kept on file?	4.3.4h, Attachment C				

## 4 CONTROL OF HAZARDOUS ENERGY SOURCES

### 4.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure relative to hazards associated with the unexpected energizing or start up of machines or equipment or the release of stored energy (mechanical, electrical, gravitational). This procedure applies to all NWS facilities, work locations, and employees.

### 4.2 Definitions

Affected Employee. An employee who, in the performance of their official duties, is required: to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout/tagout, or to work in an area in which such servicing or maintenance is being performed.

Authorized Employee. A person who locks out and tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include servicing or performing maintenance as covered under this procedure.

Capable of Being Locked Out. An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which a lock can be affixed or if it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild or replace the energy isolating device or permanently alter its energy control capability.

Energized. Connected to an energy source or containing residual or stored energy.

Energy-Isolating Device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit-type devices of the momentary contact type are not energy-isolating devices.

Energy Source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy. Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hot Tap. A procedure used in the repair, maintenance, and service activities that involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or additions. A hot tap is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam and petrochemical distribution systems.

Work On or Near Exposed Energized Parts. For the purpose of this procedure this term will refer to performing work on or in the direct vicinity of unprotected/un-insulated energized electrical conductors or components.

Jogging or Cycling. A procedure in which the energy-isolating device is temporarily removed to allow the equipment/component to be energized for testing and/or positioning purposes.

Lockout. The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device. A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Lockout devices include blank flanges and bolted slip blinds.

Normal Production Operations. The use of machinery or equipment to perform their intended work function(s).

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Servicing and/or Maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energizing or startup of the equipment or release of hazardous energy.

Setting Up. Any work performed to prepare machinery or equipment to perform its normal work operation.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Tagout. The placement of a tagout device on an energy isolating device following established procedure, to indicate that the energy isolating device and the equipment being controlled shall not be operated until the tagout device is removed by the individual who tagged the device or by his/her designated safety representative.

Tagout Device. A prominent warning device such as a tag and a means of attachment which can be securely fastened to an energy isolating device, following established procedure, to indicate that the energy isolating device and the equipment being controlled shall not be operated until the tagout device is removed by the individual (or his/her designated safety representative) who tagged the device.

### 4.3 Procedure

4.3.1 Control of Hazardous Energy. The following procedures shall be used whenever there is potential for personal harm due to the unexpected energizing or start-up of equipment or the release of stored energy.

- a. This procedure does not cover the following:
  - (1) Work on equipment that can be completely de-energized by being unplugged, if the plug is always in the sight and control of the immediately responsible, physically endangered person(s) and if there are no other hazards associated with the operation. Even then, it is recommended that the user tagout the equipment or use a plug lockout device.
  - (2) Work on any electrical equipment that is to remain energized, if all of the following apply:
    - (a) The requirements and recommendations of the following publications are followed:
      - i National Electrical Code (NFPA 70)
      - ii National Electrical Safety Code (NESC) - ANSI/IEEEC2
      - iii OSHA 29 CFR Part 1910 Subpart S, Electrical
      - iv NWSM 50-1115, Procedure 3, Safe Electrical Work Practices
    - (b) NFPA 70E, Standard for Electrical Safety in the Workplace Documented procedures shall be followed and personal protective equipment which provides effective protection shall be worn while working on energized electrical equipment (e.g., high voltage gloves, bus blankets, insulated tools, etc.). See Procedure 3, Safe Electrical Work Practices for additional information.

<p><b>NOTE:</b> Hot work on an Uninterruptible Power System (UPS) will be performed following the same precautions used for live electrical equipment supplied power from the local utility lines or the back-up generator. Hot work activities do not differ based on types of power sources; therefore, the same precautions shall be followed.</p>
---

- (3) Normal production operations. Servicing and maintenance of equipment which takes place during normal production operations are covered under OSHA 29 CFR Part 1910, Subpart O, Machinery and Machine Guarding. Individuals performing minor tool changes and adjustments and/or other minor servicing activities that are routine, repetitive, and integral to the use of the equipment and that occur during normal work operations are not covered by this procedure, provided the work is performed using alternative measures that provide effective protection.
- b. Lockout locks and devices are the preferred method to isolate a potential hazard. They shall be used whenever:
  - (1) There is a hazard present that may cause personal harm by an inadvertent start-up or unexpected release of energy (such as a missing machine guard, panel, or other safety device) or toxic material.
  - (2) The equipment is capable of being locked out.
- c. Lockout locks shall always be accompanied by a tagout tag for identification purposes.
- d. All equipment that is regularly maintained, or which contains a high degree of hazard, should be modified to accommodate a lockout lock. New equipment procured after January 2, 1990, shall be capable of accommodating a lockout lock and/or lock device to which a lock can be attached.
- e. Tagout tags shall be used whenever:
  - (1) A lockout lock is used and/or,
  - (2) A hazard is present that may cause personal harm, and the equipment is not capable of being locked out. **If a tagout tag is used without a lockout lock, it is the responsibility of the user to provide an additional level of safety** to prevent release of the hazard(s). Examples of such actions include removal of an isolating circuit element, blocking of a controlling switch, installing of a blind flange, bracing or cribbing an opening, opening of an extra disconnecting device or the removal of a valve handle to reduce the likelihood of an inadvertent release or energizing.
- f. Tagout devices shall be signed and dated (month and year) by the installer. The installer shall also write the expected tagout period, which includes date, time and location of the person(s) performing the tagout of the circuit(s) on the tag.
- g. Installation and removal of lockout and/or tagout devices shall be performed in the following order:
  - (1) The installer shall ensure that all affected employees are notified that service or maintenance is to be performed on the equipment or system and that lockout and or tagout devices will be installed.

- (2) The equipment shall be shut down following the manufacturer's guidelines or by means of approved protocols established for the specific piece of equipment.
- (3) All forms of energy supplied to the equipment and the necessary means to isolate the energy source(s) (e.g., primary and backup) shall be identified and lockout and tagout devices shall be installed.
- (4) A lockout device(s) and tag(s) shall be placed on all energy isolation equipment or electrical circuits. If the lockout device is not capable of being locked, then a tag shall be affixed on or near the lockout device in such a manner that it is obvious which equipment or circuits the tag pertains to.

<p><b>NOTE:</b> Equipment that can not be locked out should be reported to Safety or Environmental/Safety Focal Point and Station Manager for equipment modification. If additional engineering or technical assistance is needed, it should be reported to the Regional Systems Operations Division or Regional Program Managers.</p>
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- (5) All stored energy in the equipment or system shall be released or constrained by means of venting, discharging, bleeding, blocking or repositioning.
- (6) Once all sources of energy have been isolated and all stored energy is released or constrained, system controls will be tested to ensure that the system cannot activate or release stored energy. Once this test has been completed, controls shall be returned to the neutral or off position.
- (7) Once the above items have been accomplished, the maintenance or servicing of equipment can be performed.
  - i If a function test or "jogging" that requires the removal of a lockout or tagout device must be performed during the servicing or maintenance of the equipment, all affected employees shall be notified.
  - ii Once the action requiring the energizing of the equipment has been completed, items 2 through 6 shall be completed again prior to work continuing.
- (8) If more than one individual is required to work on a piece of equipment, a multiple lockout device shall be used. Each individual working on the equipment shall install his/her lock and tag.
- (9) If a contractor is performing work that requires a lockout/tagout in the area where other NWS employees are present, NWS employees responsible for contractor and contractor employees must inform each other of their respective lockout/tagout procedures. Each affected employee must understand the restrictions and prohibitions and comply with them. An NWS employee shall be designated to lock and/or tag the equipment in



addition to the lockout/tagout device installed by the contractor. The NWS employee shall not remove his/her lockout/tagout device until the contractor has completed the work and removed their devices. This requirement does not apply to situations when contractors are working at the remote site by themselves.

- (10) Once work has been completed, all tools shall be removed from the area and all guards reinstalled, only then can the lockout/tagout devices be removed. All affected employees shall be notified that the equipment is safe for use.
- (11) Each site shall maintain a log containing all Lockout/Tagout operations performed on the site.
- (12) Only the employee that puts the lock on the locking device may remove the lock. If in an emergency occurs, then before the removal, the employee who installed the lockout device on must be contacted to ensure the employee is not at risk and the equipment repairs done before the removal of the locking device are not compromised.

4.3.2 Lockout/Tagout Device Requirements. Lockout locks and tagout tags shall be recommended by the NWSH Safety Office as to the manufacturer and model number of locks and the type of tag and the wording used for lockout/tagout purposes. This is to ensure standardization of locks and tags as required by code. NLSC warehouse stocks Lockout/Tagout safety kit (ASN 060-K-2).

- a. Lockout locks shall be individually identified by a number or similar marking to identify the individual that installed the lock. Lockout locks shall be used **only** for lockout purposes and shall be standardized at each facility.
- b. Tags shall be affixed to the lockout or isolation device by a means of a fastening device (e.g., wire or nylon cable ties) that exhibits a minimum breaking strength of 50 pounds and shall include a legend such as the following: **DANGER: DO NOT OPERATE, DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE.**
- c. Lockout/tagout devices shall only be removed by the individual who applied the device or his/her designated representative.
  - (1) When the authorized employee who applied the lockout lock and/or tagout tag is not available to remove it, other authorized employees may remove it provided that they:
    - i Understand the hazards created by removal of the lockout lock or tagout tag, and follow the requirements in this procedure for removal of lockout locks and/or tagout tags.
    - ii Accept responsibility for and perform the following:

- (a) Verify that the authorized employee who applied the lockout lock or tagout tag is not at the facility.
  - (b) Make good faith effort to contact the authorized employee who applied the lockout lock or tagout tag to tell him that their lockout lock and/or tagout tag has been removed.
  - (c) Ensure that the authorized employee who applied the lockout lock or tagout tag is told that their lockout lock or tagout tag has been removed before that employee resumes work at the facility.
  - (d) Return the lock and tag to the authorized employee.
  - (e) The appropriate supervisor is notified prior to removal of the lock. It is recommended that removal of the lock and tag is recorded in the station log.
- d. When jobs are worked by successive shifts, either:
- (1) The succeeding shift shall apply their lockout/tagout devices prior to the removal of the lockout/tagout devices already in place.
  - (2) The on-coming shift is given the keys to locks and replaces the tags from the shift going off with their own.

4.3.3 Equipment Procedures. Equipment/systems that require lockout/tagout devices shall be identified and equipment- specific procedures shall be developed using the template in Attachment A. All lockout/tagout procedures shall be maintained and updated as necessary.

- a. Equipment and systems may be exempted from this requirement provided all of the following elements exist and the exemption is approved by the Station Manager or his/her designee:
- (1) The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down.
  - (2) The machine or equipment has a single energy source which can be readily identified and isolated.
  - (3) The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
  - (4) The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
  - (5) A single lockout device will achieve a locked-out condition.
  - (6) The lockout device is under the exclusive control of the authorized employee performing the work.
  - (7) The servicing or maintenance does not create hazards for other employees.

- (8) There have been no accidents involving the unexpected activation or re-energizing of the machine or equipment during servicing or maintenance while using this exemption.
- b. If the equipment does not meet the above guidelines, a procedure shall be developed that includes the following items:
- (1) A detailed process to notify all affected employees.
  - (2) Specific steps for shutting down, isolating, blocking and securing equipment or systems to control hazardous energy.
  - (3) Specific steps for the placement, removal and transfer of lockout and or tagout devices and identification of the person who is responsible for them.
  - (4) Requirements for testing of equipment or systems to determine and verify the effectiveness of the lockout/tagout devices and any other energy control measures.
  - (5) Requirements for testing to ensure that there is no stored energy in the equipment that, if unexpectedly released (or released in an uncontrolled manner), poses risk of injury to the employee(s) working on or around the system/equipment. And, if there is stored energy, requirements for containing it or releasing it in a safe and controlled manner.

4.3.4 Training. Training shall be provided to ensure that the purpose of this procedure is understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy control devices are acquired by employees. The training shall include the following:

- a. Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- b. Each affected employee shall be instructed in the purpose and use of the Energy Control Procedure.
- c. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about this procedure, and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out or tagged out.
- d. When tagout systems are used, employees shall also be trained in the following limitations of tags:
  - (1) Tags are essentially warning devices affixed to energy-isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
  - (2) When a tag is attached to an energy-isolating means, it is not to be removed without the authorization of the person responsible for it, and it shall never be bypassed, ignored, or otherwise defeated.

- (3) Tags shall be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area.
  - (4) Tags and their means of attachment shall be made of materials which will withstand the environmental conditions encountered in the workplace.
  - (5) Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall Energy Control Procedure.
  - (6) Tags shall be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
- e. Affected employees shall be trained/re-trained when there is a change in equipment, job assignment, or change in energy control procedures.
  - f. Re-training shall also be performed when there are indications of inadequacies in the employee's knowledge or deviations from this procedure are observed or believed to be occurring.
  - g. All training shall establish employee proficiency with the material and processes presented during the training.
  - h. A certificate shall be issued containing the employee's name and date of training, indicating the employee has accomplished the required training. The certification shall be kept up to date. A sample certificate has been included in Attachment C.
  - i. Safety observer training shall be to the level required to sensitize the observer to unsafe work practices and to have the observer notify, warn, or otherwise advise the primary worker of any situation posing risk to personnel.

4.3.5 Annual Review (Inspection) Process. An annual review (further referenced as an inspection) of this program is required to verify compliance of the following tasks:

- a. Inspection of specific locking out/tagging out procedures to verify their effectiveness through visual observations and to correct deviations or inadequacies, if necessary. This inspection shall be performed annually by authorized employee (e.g., ESA) and include NWS employees using lockout and tagout procedures during maintenance and/or servicing of NWS machines/equipment. Attachment D contains the form to be used to certify completion of the annual inspection.
- b. Training on procedures is conducted in accordance with paragraph 4.3.4 as applicable.

#### **4.4 Responsibilities**

##### **4.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

4.4.2 Station Manager

- a. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will ensure that initial and periodic inventory of lockout/tagout devices, PPE and other safety equipment is accomplished and adequate stock is maintained.
- c. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- d. Will ensure that procedures are developed and implemented at NWS field offices for equipment that require lockout/tagout.
- e. Will ensure NWS employees follow the requirements of this procedure when performing lockout/tagout procedures.
- f. Will ensure that that all procedures developed for specific equipment are inspected annually.

4.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

4.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

4.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
[www.nws.noaa.gov/directives/sym/pd05011curr.pdf](http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf)

**4.5 References**

- 4.5.1 American National Standards Institute Z 244.1, "Control of Hazardous Energy - Lockout/Tagout and Alternative Methods
- 4.5.2 "U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.147, "The Control of Hazardous Energy (Lockout/Tagout)."
- 4.5.3 National Fire Protection Association, NFPA 70, NEC.

4.5.4 NWS Occupational Safety and Health Procedure 3, “Safe Electrical Work Practices.”

**4.6 Attachments**

- Attachment A. Equipment Lockout/Tagout Procedure Template
- Attachment B. Sample List of NWS Equipment Requiring Lockout/Tagout Procedure
- Attachment C. Sample Training Certificate
- Attachment D. Annual Lockout/ Tagout Procedures Inspection Certification Form

**ATTACHMENT A**

**Equipment Lockout/Tagout Procedure Template**

**Lockout/Tagout Procedure**

Equipment \_\_\_\_\_ Location \_\_\_\_\_

**1. Make Notifications**

Notify affected employees that a lockout is required, the reason for the lockout, and the expected duration. List the Name(s) of affected employees and how to notify them.

Affected Employee Name	Notification Method	Completion
		<input type="checkbox"/>
		<input type="checkbox"/>

**2. Machine or Equipment Isolation**

Determine all sources of energy feeding into the machine or equipment and the location of the isolation device needed to isolate the machine or equipment from the energy source. List the location of all energy sources and the sequence in which they need to be isolated. **Note:** The Equipment Manuals and Operations and Maintenance Manuals for the specific piece of equipment should provide the location and type of energy sources feeding into the equipment.

Energy Source	Energy Type	Location of Energy Source	Isolation Device

**3. Shutdown Equipment**

Provide the appropriate procedure to shut down the equipment.

1.	
2.	
3.	
4.	



**4. Lockout or Tagout Device Application**

List the location of all lockout devices. If a lockout device cannot be applied, list the location of the tagout device and any additional precautions taken to ensure the level of safety is equal to that of a lockout device.

**5. Release Stored Energy**

List any devices that may contain stored energy and the process to safely release or contain this energy. Examples include, but are not limited to, capacitors, springs, hydraulic cylinders, and pressurized piping.

Devices Containing Stored Energy	Method to Release Stored Energy

**6. Verification of Isolation**

To ensure that all energy sources have been isolated, ensure that no personnel can be exposed to operating machinery or equipment, operate all controls to ensure that the equipment will not operate. List all controls that need to be tested and all indicators that should be observed to ensure the equipment has been isolated from all energy sources. **“CAUTION”** - ensure all controls have been returned to the off or neutral position upon completion of the test.

**7. Jogging or Cycling**

If, during repair or maintenance activities, the machine or equipment is required to be jogged or cycled list the location of lockout/tagout device(s) is removed to accomplish this. Only the lockout/tagout devices absolutely necessary to allow the equipment or machine to be jogged or cycled should be removed. After the equipment or machine has been cycled or jogged the lockout/tagout devices shall be reapplied and steps two through six shall be repeated prior to commencing work.

**8. Release from Lockout/Tagout and Restoring to Service**

Before lockout/tagout devices are removed and energy is restored to the machine or equipment, inspect the area to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

- Check the work area to ensure that all employees are clear of the equipment or machine.
- Verify that all controls are in their neutral or off position.
- Each lockout/tagout device shall be removed from each energy isolation device by the employee who applied the device.
- Notify all affected employees that the lockout/tagout devices have been removed and the machine or equipment is safe for use.

**ATTACHMENT B**

**Sample List of NWS Equipment Requiring Lockout/Tagout Procedure**

**NOTE:** *This list is representative, not all inclusive*

1. Radar WSR-88D including all of the major groups of equipment:
  - a. Radar Data Acquisition (RDA) Group
  - b. Wide-Band Communication (WBC) Group
  - c. Radar Product Generator (RPG) Group
  - d. Principal User Processor (PUP) Group
  - e. Real Property Installed Equipment (RPIE) Group
  - f. Rotary UPS (RUPS)
  - g. Diesel Driven Generator (DDG)

Consult operations and maintenance instructions for the WSR-88D system found in Radar Systems EHB-6-510, and EHB-6-511 for the location of the power feeds and safety precautions for this system.

2. NOAA Weather Radio and the following components:
  - a. Exciters
  - b. Power Amplifiers
  - c. Power Supply Units
  - d. Cabinet Components

Consult the Operator Maintenance Instruction Manuals for SR-416D Dual VHF FM and WRT-1000 Dual 1 KW Transmitter Systems for the location of the power feeds and safety precautions for these units.

3. Upper Air Systems and the following components:
  - a. Antenna and Pedestal assembly (Unit 1)
  - b. Signal/Power Distribution (Unit 2)
  - c. Data Control Assembly (Unit 3)
  - d. ART Printer (Unit 4)
  - e. Remote Control Unit (Unit 5)
  - f. Range Antenna Assembly (ART-1R)
  - g. Phase Comparator Assembly (ART-1R)
  - h. 403 MHz Transmitter (ART-1R)

Consult the Operator Maintenance Instruction Manuals for the location of the power feeds and safety precautions for these components.

4. Any portion of the electrical wiring system of the forecasting offices and surrounding structures to include but not limited to:
  - a. Electrical outlets
  - b. Lighting systems
  - c. Main distribution unit for the facility
  - d. Auxiliary circuit panels
  - e. Emergency Generator (*This unit shall be isolated to ensure this unit does not accidentally start-up while being serviced*)

f. Security and Fire Alarm Systems

**NOTE:** The low voltage side of these systems (<50 volts) are exempted from the requirements of this procedure)

- g. Uninterruptable Power System (P). *Note: See Attachment 4L for UPS energy isolation and Attachments 4M and 5 for UPS battery replacement*
  - h. House Air Handling Units and Air Condensing Units
  - i. Future TMPS Systems
  - j. ASOS Systems
5. Cranes used at the NDBC shall be locked and tagged out when servicing activities could expose an individual to injury by an inadvertent start-up of the unit. Examples of service to the cranes that would require lockout/tagout include but are not limited to:
- a. Maintenance of the hoisting unit of the bridge crane in the high-bay.
  - b. Maintenance of the hydraulic system on the portable crane used to move the buoys.

**NOTE:** It was indicated that these cranes are not serviced by NWS personnel or their contractors. However, NWS personnel shall ensure that the servicing personnel lockout or tagout this equipment to prevent an accidental start-up of these units by NWS personnel.

**ATTACHMENT C**  
**Sample Training Certificate**

\_\_\_\_\_  
**Name**

**has satisfactorily completed the requirements for employee training in**

**Lockout/Tagout Procedures**

\_\_\_\_\_  
**Instructor**

\_\_\_\_\_  
**Date**

**ATTACHMENT D**

**Annual Lockout/ Tagout Procedures Inspection Certification Form**

**OFFICE LOCATION:** \_\_\_\_\_

**MACHINE/EQUIPMENT:** \_\_\_\_\_

Review with Employee(s) performing service or maintenance on the following:

LOCKOUT/TAGOUT TRAINING COMPLETED BY EMPLOYEE: YES \_\_\_ No \_\_\_

LOCKOUT PROCEDURES FOR THE ABOVE EQUIPMENT ARE AVAILABLE: YES \_\_\_ No \_\_\_

EMPLOYEE UNDERSTANDS LOCKOUT/TAGOUT RESPONSIBILITIES: YES \_\_\_ No \_\_\_

WERE LOCKOUT/TAGOUT PROCEDURES FOLLOWED? YES \_\_\_ No \_\_\_

LIST DEVIATION(S) OR INADEQUACIES OBSERVED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CORRECTIONS/CHANGES/COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**EMPLOYEE(S) OBSERVED:**

NAME: \_\_\_\_\_  
NAME: \_\_\_\_\_  
NAME: \_\_\_\_\_

**INSPECTED BY:**

NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

JOB TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

**PROCEDURE 5 - OCCUPANT EMERGENCY PLAN**

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**Synopsis**

The National Weather Service (NWS) is promulgating this Occupant Emergency Plan procedure to provide requirements related to responding and mitigating the potential consequences of an emergency at NWS sites. This procedure applies to all NWS facilities, work locations and employees, including NWS operations that are located on another agency’s facility.

**Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
- **Develop/Obtain Documentation/Information required for Site**
  - Prepare site-specific Occupant Emergency Plan (OEP) (5.3.1)
    - Prepare Site-Specific Emergency Route Maps (5.3.9)
    - Develop/Review/Negotiate/Coordinate Emergency Response Agreements (ERA) (5.3.9 NOTE)
    - Designate assembly areas and list emergency personnel names and phone numbers. (5.3.11b)
    - Prepare emergency procedures for potential emergency situations. (5.3.6)
    - Prepare procedures for notification of backup stations for weather forecast services.(5.3.10e)
    - Develop procedures for key employees required to remain and operate critical equipment.(5.3.10d)
    - Describe types of evacuations needed for the different types of emergencies. (5.3.10)
- **Designate Person to Administer OEP Procedure Requirements**
- **Provide Local Training for Site Personnel**
  - Training of site personnel on OEP procedures (5.3.15)
  - Training for site personnel to assist the DRO and Occupant Emergency Coordinator in safe and orderly emergency evacuation of employees. (5.3.16a)
  - Training for Emergency Systems Shutdown (5.3.16b)
- **Inventory Material/Equipment (Procure as required)**
  - Emergency Notification/Alarm Systems. (5.3.11a)
  - Personal Emergency Kit for SIP (5.3.12)

**Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required**
  - Update site-specific Occupant Emergency Plan (OEP) (5.3.1)
- **Provide Refresher Training for Site Personnel (If Applicable)**
- **Conduct Safety Exercises/Drills**
  - Plan/Conduct annual Emergency and SIP Drills. (5.3.13)
  - Conduct drills effectiveness evaluations and prepare after action reports (5.3.13, 5.3.14)
- **Inspect/Replace/Maintain Material/Equipment**
  - Emergency Notification/Alarm Systems. (5.3.11a)
  - Personal Emergency Kit for SIP (5.3.12)



**Occupant Emergency Plan Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	5.4.2				
Has an OEP been developed and implemented to comply with this procedure?	5.3.1, 5.3.2,				
Does the OEP identify the Emergency Operations Team?	5.3.8				
Has an Emergency Coordinator been designated?	5.3.8b				
Does the OEP require the site to post and designate routes and assembly areas for emergencies?	5.3.1a(1)				
Are there postings of emergency numbers and points of contact throughout the facility?	5.3.9				
Are facility evacuation and Shelter-in-Place drills conducted at least annually?	5.3.13				
Are evaluations conducted and after action reports developed after drills and actual emergency events?	5.3.13, 5.3.14				
Does the OEP address emergency procedures for personnel with special needs?	5.3.11d				
Are procedures developed for notification of backup stations and coordinated with emergency escape procedures?	5.3.10e				
Are emergency evacuation procedures in place for key employees who are required to remain to operate critical equipment?	5.3.10d				
Does the OEP contain a site personnel accountability method?	5.3.11e				

Requirements	Reference	YES	NO	N/A	Comments
Does the OEP designate floor/area monitors to account for personnel during an emergency?	5.3.11c				
Does the OEP address adequately trained employees to perform rescue and medical duties, if required?	5.3.16a,8				
Does the OEP include Emergency Response Agreements (ERA) with outside agencies that would be relied upon to provide services during an emergency, if applicable?	5.3.9, NOTE				
Are detailed explanations of rescue tasks and medical first aid duties included in the OEP or referenced by the plan and placed in a separate document?	5.3.9				
Does the OEP address alarm systems to notify employees of various types of emergencies in the work area?	5.3.11				
Does the OEP contain different types of evacuation methods that will be used for various types of emergencies?	5.3.10				
Is sufficient number of personnel trained to assist in the safe and orderly emergency evacuation of employees and to assist the Emergency Coordinator?	5.3.16a				
Are adequate number of qualified personnel trained to assist in equipment and facility protection in the event of emergencies?	5.3.16b				
Is the site-specific OEP reviewed with all employees annually?	5.3.15				

## 5 OCCUPANT EMERGENCY PLAN

### 5.1 Purpose and Scope

This Occupant Emergency Plan (OEP) procedure replaced the Emergency Action Plan (EAP) procedure which was prepared to meet OSHA standards only. The OEP procedure incorporates additional regulatory and Department of Commerce requirements. An OEP is an essential part of an emergency management program. A properly developed plan can reduce the risk to personnel, property, and other assets while minimizing work disruption in the event of an emergency. Personnel safety is the primary concern of any OEP. It is also important to protect the facility, property, equipment, and information. This procedure applies to all NWS facilities, work locations and employees, including NWS operations that are located on another agency's facility.

### 5.2 Definitions/Abbreviations

Designated Responsible Official (DRO). The highest ranking manager at an NWS site, such as the Meteorologist-in-Charge (MIC), Official-in-Charge (OIC), or Hydrologist-in-Charge (HIC). At facilities or sites with more than one NOAA DRO (i.e., Seattle NOAA complex), which share a common boundary and/or security arrangement, the highest ranking - senior NOAA official of the common area will act as DRO responsible for the complex OEP.

Evacuation. Evacuation is a temporary but rapid removal of people in an orderly fashion, from a building(s) or disaster (or threatened) area as a rescue or precautionary measure.

ERA (Emergency Response Agreement). A formal or informal agreement between the NWS and a response organization which outlines the basic agreement for cooperation during an emergency situation. This agreement should be in writing, if possible.

Facility Security Level (FSL). A categorization based on the analysis of five security-related facility factors, which then serves as the basis for implementation of certain protective security measures specified in other Interagency Security Committee standards. This replaces the previous Department of Justice hazard ranking system.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Floor/Area Monitor. A person designated to assist the Emergency Coordinator during an emergency. These activities include ensuring evacuation of their floor or area, assisting with accountability, etc.

Occupant Emergency Coordinator. The person in charge of the NWS site during an emergency. This may be the DRO or someone appointed by the DRO to fulfill the functions of this position.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), and the Sterling Field Support Center (SFSC).

Shelter-in-Place (SIP). Shelter-in-Place is a protective action that is voluntary (unless mandated by local law enforcement or public health authorities) to ensure public safety. A SIP action is taken inside the building with doors and windows closed to minimize chance of injury. Examples of SIP events include: severe weather (tornados, hail, etc.), civil unrest, accident chemical release or hazardous materials incident. Other less likely scenarios include: biological, chemical or radiological attack.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center,); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or MIC, HIC, or OIC.

### 5.3 Procedure

#### *Regulatory Requirements and Department of Commerce Authority*

- The Code of Federal Regulations, Title 41, Chapter 102 Federal Management Regulations (FMR), Part 102-74 (41 CFR 102-74.230 – 102-74.260) requires that OEP are prepared for all federally occupied facilities. The General Services Administration (GSA) is responsible for overseeing this requirement for GSA-owned and leased Federal buildings.
- The Department of Labor, Occupational Safety and Health Administration (OSHA) sets forth requirements for emergency planning in 29 CFR 1910.38-39, Employee Emergency Plans and Fire Prevention.
- The Department of Commerce's (DOC) Manual of Security Policies and Procedures contains requirements regarding the development of an OEP found in Section I, Security Administration, Chapter 7 - Occupant Emergency Plans and Procedures. Periodic DOC Anti-Terrorism Risk Assessments of NWS facilities include review and implementation of the OEP and its compliance with the DOC manual. In addition, annual DOC self-assessment surveys are conducted to ensure the OEP's compliance.

5.3.1 In accordance with federal regulations and DOC procedures, an Occupant Emergency Plan (OEP) shall be developed and implemented at each site, facility, or campus. An OEP is required for each individual occupied NWS building located on site. The OEP for each building should be incorporated into one larger facility OEP plan. This will ensure that consideration is given to communications compatibility and component standards where the entire campus may be impacted. The Designated Responsible Official (DRO) is responsible for oversight and compliance of the overall OEP. An up-to date OEP must be readily available to all station employees and visitors (e.g., web site or hard copy).

**NOTE:** The OEP replaces the EAP prepared to meet OSHA requirements. The OEP incorporates OSHA mandated requirements addressed in the EAP as well as additional emergency and Shelter-in-Place procedures mandated by "DOC Manual of Security Policies and Procedures."

5.3.2 Each OEP must be site-specific and reflect local conditions. Suggested OEP template

(developed based on Department of Homeland Security template and tailored to NWS facilities) can be found on the NWS Environmental and Safety web page: [Safety Manual Checklists, Forms, and Templates](#). It should be modified as applicable to local conditions. **Attachment A** to this procedure can be used as a self-evaluation checklist to ensure compliance with “DOC Manual of Security Policies and Procedures.”

**NOTE:** Relevant emergency procedures addressed in the weather forecast office Station Manual should be consistent with the OEP procedures. Continuity of Operations Plan (COOP) will be invoked, if required, in accordance with NWSI-10-2202.

5.3.3 If the NWS office is a tenant in multi-government agency facility, the government agency having the largest number of personnel residing in the building/facility is the primary occupant agency. As such, the highest ranking senior government official of the primary agency will be identified as DRO. He/she will be responsible for development, coordination, activation and maintenance of the OEP in accordance with 41 CFR 102, Federal Management Regulations. The senior NWS official or DRO will ensure that an OEP plan developed by other agency is evaluated based on DOC guidelines. If it is determined the plan is inadequate and the other agency will not make necessary adjustments, the DRO will supplement the overall OEP as necessary. Any supplement will be prepared as an appendix to the other agency’s OEP and will be distributed to NWS occupants as appropriate.

5.3.4 An NWS facility located on institutional, state government, or private property that has a standing emergency response plan will follow that plan’s requirements. The NWS DRO will ensure that an NWS-specific supplement is developed to comply with DOC Manual of Security Policies and Procedures, if applicable.

5.3.5 Facility Security Level I facility. FSL I facilities (e.g., <100 or fewer occupants, <10,000 square feet or less, low mission criticality, low symbolism and low volume of public contact), are allowed to use GSA Form 3415 to document emergency information. These facilities can also follow more comprehensive guidelines published in the “DOC Manual of Security Policies and Procedures” (e.g., Weather Service Offices (WSO) typically fall under the FSL I facility definition). An example Form 3415 is located in **Attachment B**. A copy of Form 3415 developed for each Level I facility should be included as an attachment to the main OEP if applicable. Since the GSA Form 3415 does not include a SIP procedure, it should be added and attached to the form.

**NOTE:** Upper Air Inflation and Radar Data Acquisition buildings that have intermittent occupancy will be incorporated as part of a comprehensive OEP prepared for WFO or WFO/RFC. These buildings should have emergency response procedures and contacts posted in a conspicuous place.

5.3.6 All other NWS Facilities. Facilities other than FSL I shall prepare OEP plans following guidelines published in the “DOC Manual of Security Policies and Procedures.” The plan shall include introduction describing the purpose, scope and general content of the plan and address at the minimum the following topics:

- A map of the building and adjacent areas showing emergency exits, evacuation routes, and assembly areas.
- Building and Tenant information

- The Emergency Organization/Team
- Emergency Contact Numbers
- Medical Assistance/Rescue
- Persons with Special Needs
- Fire Emergencies
- Lock Down
- Bomb Threats
- Hazmat Incidents
- Natural Disasters
- Demonstrations and Civil disorders
- Evacuation Procedure (Full or Partial if Applicable)
- Shelter in Place Procedure
- Workplace Violence
- Hostage Situations/Terrorist Incidents
- Reporting Suspicious activities
- Emergency Communications Systems
- Safe Haven, as appropriate
- Other high risk NWS activities that require more specific emergency planning (e.g., critical operations, extended power loss, structure climbing/ descending, and lightning safety, etc.)

Emergency procedures for all potential emergency situations must be developed and included in the OEP. The procedures shall define what actions are to be taken in each type of emergency and by whom.

5.3.7 For multiagency facilities, emergency operations will be directed by emergency organization composed of tenant agency representatives. For stand alone NWS facilities the OEP will identify an Emergency Operations Team. The Emergency Operations Team should be made up of site personnel designated to undertake certain responsibilities during emergencies to ensure that occupants are moved quickly to safety, damage to property is minimized, and the proper authorities are notified. All emergency operations are directed from the Command Center staffed by Emergency Operations Team members.

5.3.8 Command Center. A Command Center location (centralized place for all emergency response personnel to manage emergency situation) and staffing must be identified in the plan. An alternate off-site Command Center location should be also considered to be used in the event the emergency situation prevents use of the primary site. The Command Center should be equipped with communication devices, preferably portable/wireless such as radios and cell phones. A method of communication with occupants and with other Emergency Operations Team members should be established and described in the plan. These personnel must know when and how to report to the Command Center. Command Center should be staffed with, but not limited to, the following Emergency Operations Team members:

- a. DRO responsible for coordination, activation, and maintenance of the OEP plan.

- b. Occupant Emergency Coordinator(s) may be appointed by the DRO (one for each shift) to assist during emergencies.

<b>NOTE:</b> The DRO may act as an Occupant Emergency Coordinator unless the function is delegated to another person at the facility.
---

- c. Technical personnel familiar with the buildings utilities, mechanical, and electrical systems, who can advise the DRO/Occupant Emergency Coordinator during emergency situation.
- d. Other personnel, as designated by the DRO.

Additional Emergency Operations Team members may include:

- e. Floor/Area Monitors appointed to sweep the assigned floor or area(s) to ensure that all personnel have evacuated. At least one monitor shall be on duty during hours of operations, including the night shift.
- f. Assistants (“buddies”) to the persons with special needs. If assistance is required for personnel with special needs, it is recommended to designate two “buddies” for each person.
- g. Volunteers to perform medical, rescue and post emergency duties, if applicable.

5.3.9 Emergency Personnel Postings. A list of the site emergency operations personnel and emergency telephone numbers shall be posted throughout the facility. It is recommended that a quick emergency procedures reference guide be developed and provided for building occupants.

<b>NOTE:</b> If volunteers are to perform rescue and medical First Aid/CPR duties, they must be identified and provided with adequate training. A list of training that these volunteers have been trained to perform shall be included in the plan or referenced by the plan if placed in a separate document. If outside agencies are relied upon to provide these services, Emergency Response Agreements are recommended to be developed with these agencies as described in NWS Occupational Safety and Health Procedure 23, “Emergency Response Agreements.” Emergency Response Agreements related to the Occupant Emergency Plan (e.g., Fire Department) should be included as attachments to the plan, reviewed annually, and updated as necessary.
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#### 5.3.10 OEP Activation.

The DRO or other personnel, as assigned by DRO, can activate an evacuation or Shelter-in-Place and must be listed in the OEP. The DRO or designee must evaluate each type of emergency and consider the following scenarios and actions to be taken:

- a. Total evacuation may be considered during serious emergencies, such as a large fire, explosion or gas leak.
- b. Partial evacuation may be considered when a small emergency is contained to a certain section of the facility and it will not place the safety of others located in a different part of the facility in jeopardy. Examples would be a water leak in the

ceiling of a conference room or a small fire in another section of the building separated by a fire-wall.

- c. Operation of Critical Equipment. Procedures for personnel required to remain at the facility to operate critical equipment, if applicable, shall include items such as:
  - (1) What equipment to shut down and in what sequence.
  - (2) Inventory and locations of utilities that need to be shut off, such as closing the gas valve or the main power to the building during an emergency. Necessary tools (if needed) should be available near by.
- b. Procedures for emergency notification of backup forecast stations and associated actions should be coordinated with emergency evacuation procedures.

#### 5.3.11 Emergency Evacuation

- a. Emergency Notification/Signals: The method of notifying occupants to evacuate may vary depending on the building layout and alarm system installed. An employee notification/alarm system (e.g., intercom, telephones, fire alarm, public announcement system, etc.) must be established in accordance with section 6.3.4 of the NWS Occupational Safety and Health Procedure 6, "Fire Protection." To ensure that alarms, signals, radios or other methods of communication are in working order, a periodic test of the system should be conducted without actual evacuation. Prior notification on such tests should be provided to all occupants.

<b>NOTE:</b> If the site fire alarm is not connected to the local fire department, the method of contacting the department shall be specified in the plan.
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- b. Evacuation routes and assembly area(s): When an evacuation of the building or an area is announced, the occupants and visitors must leave their workstation (unless they are assigned to operate critical equipment) and go to the designated assembly area(s). Emergency escape route maps showing the nearest emergency exits shall be conspicuously posted in the work areas. Evacuation assembly area(s) must be designated on the postings and included in the OEP. Assembly area(s) can be parking lots, neighboring buildings, nearby fields, streets, etc.
- c. Floor/Area Monitors shall sweep the assigned area(s) or floor to ensure that all personnel have evacuated. Floor/Area Monitors need to communicate to the Command Center on the status of occupant evacuation and any problems encountered during the evacuation. If applicable, Floor/Area Monitors or buddies should report on the evacuation status of personnel with special needs.
- d. Special Needs Personnel. Specific evacuation procedures for individuals with special needs (personnel and visitors) must be developed.
- e. Accounting for personnel. Each organizational unit at the facility must have a system in place to account for its employees and visitors once they have evacuated the building.



Building Re-entry: Members of the Emergency Operations Team as designated will ensure that occupants do not re-enter evacuated areas until determined safe and only after the approval of the DRO/Occupant Emergency Coordinator in consultation with emergency response personnel, if applicable.

5.3.12 Shelter-in-Place (SIP). Some emergency situations may require that the building is not evacuated because it may be safer to stay inside. SIP events may last up to 24 hours, but are expected to last only 2-4 hours. It is recommended that all occupants maintain a personal supply of non-perishable food items and a personal emergency kit (information on personal emergency kits can be found in Appendix S-6 of the “DOC Manual of Security Policies and Procedures”: [https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)). While planning for SIP the following must be considered:

- a. SIP declaration. Building occupants may be directed by a DRO or a designee to shelter-in-place. Alerting/notification method chosen for building occupants to shelter-in-place should be easily distinguishable from the one used for an emergency evacuation. Participation in the SIP is voluntary. When emergency conditions permit, an advance notice should be provided to occupants before activation of SIP procedures, if possible.
- b. Selection of SIP meeting areas. Interior meeting areas for building occupants should be selected away from exterior openings such as windows and doors. The room(s) should have adequate space for everyone to sit down.
- c. Floor /Area Monitors. These personnel should assist DRO(s), Occupant Emergency Coordinator, and supervisors in assembling of personnel in the designated SIP areas and accounting for personnel.
- d. Securing the building for SIP event. Exterior doors and windows should be closed and secured. In the event of an airborne threat, qualified technical personnel familiar with building’s mechanical systems shall ensure fans and heating/air conditioning systems are turned off and outdoor air intakes are closed and secured. The exception is the Equipment Room Liebert Units, which are a closed-loop system and do not draw in outside air. If turned off in summer, the AWIPS system can potentially overheat and shut down. All windows, doors, and vents should be blocked with plastic sheeting and duct tape.

5.3.13 Drills. To be effective, an OEP must be tested. Exercising emergency procedures enables Emergency Operations Team members to become familiar with their duties and gives occupants an opportunity to experience evacuation and SIP.

- a. A full-scale simulated emergency evacuation and SIP drill will be conducted at least annually. Unannounced drills are more effective as they can test actual emergency preparedness.
- b. Drill effectiveness will be evaluated by Emergency Operations Team immediately after drill completion. An after action report will be developed including comments, observations, weaknesses, and recommendations for improvement as determined by drill results.

- c. The DRO/Emergency Coordinator or their designee(s) will maintain written records for all drills. These records should include:
- Date/time
  - Scenario used
  - Participants involved
  - Action taken by the participants
  - An after action report to include any corrective actions or improvements that are necessary.

5.3.14 Actual Emergency Events and False Alarms. Like drills, actual emergency events or false alarms that result in either an SIP action or an evacuation of the building, allow Emergency Operations Team to test OEP plan effectiveness. (**Note:** Real life events count toward the annual drill requirement as long as an after action report is prepared and the event is documented.)

- a. Each evacuation or SIP event must be followed by an evaluation of its effectiveness by Emergency Operations Team. After action report that includes after action comments, observations, weaknesses, and recommendations as determined by the event must be prepared.
- b. The DRO/Emergency Coordinator or their designee will maintain written records for all evacuations and SIP actions. These records include:
- Date/time
  - Scenario used
  - Participants involved
  - Action taken by the participants
  - An after action report to include any corrective actions or improvements that are necessary.

5.3.15 OEP review. OEP shall be reviewed:

- a. With all NWS personnel at each facility when the plan is initially developed and annually thereafter.
- b. When a new employee begins duty at a site or facility.
- c. When an employee's responsibilities or duties under the plan change, the plan will be reviewed with that employee again.
- d. When the plan is changed such that facility personnel will be affected (e.g., change of assembly area(s), change in method of communication, etc.).

5.3.16 OEP Training Requirements.

- a. A sufficient number of personnel (Floor/Area Monitor, buddies, and volunteers) shall be trained to assist the DRO and Emergency Coordinator in the safe and orderly emergency evacuation of employees and in the SIP event. Training shall

include:

- (1) Identification of potential emergency situation and associated hazards.
- (2) The designation and location of primary and alternate assembly areas as well as safe areas within the building for Shelter-in-Place events.
- (3) Primary and alternate evacuation routes of egress and use of floor plans to locate Assembly Area(s).
- (4) Methods of evacuation sweeps for the entire assigned building area.
- (5) Procedures to account for all employees in the Assembly Area(s).
- (6) Methods of communication with Command Center and accountability tasks.
- (7) Procedures to assist personnel with special needs.
- (8) Rescue and medical duty (CPR/First Aid), if required.

## **5.4 Responsibilities**

### **5.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **5.4.2 Station Manager**

- a. Will review or delegate review of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- c. Will act as the Designated Responsible Official and the Emergency Coordinator unless that function is delegated to another person at the facility.
- d. Will respond to an annual OEP self-assessment survey conducted by DOC.
- e. Will ensure that Emergency Operations Team has sufficient number of trained volunteers.
- f. Will ensure all affected personnel have reviewed this procedure and are aware of their responsibilities as related to the plan.

5.4.3 NWS Headquarters (NWSH)

- a. Will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure. NWSH will coordinate with NOAA, as necessary, regarding compliance issues related to this procedure.
- b. Will distribute the annual OEP self-assessment survey, monitor and review the submissions, and provide updates to NOAA and DOC, as requested.

5.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

5.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.
- b. Employees will participate in all drills and report their special needs (if any) that need to be considered in OEP to DRO.
- c. Report unsafe or unhealthful conditions and practices to their supervisor, safety or environmental/safety focal point.

**5.5 References**

The following list of references is incorporated in whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 5.5.1 Public Contracts and Property Management, 41 CFR 102, Federal Management Regulation (FMR), Part 102-74 (41 CFR 102-74.230 – 102-74.260).
- 5.5.2 U.S. Department of Commerce Manual of Security Policies and Procedures, Section I – Security Administration, Chapter 7 – Occupant Emergency Plans and Procedures.
- 5.5.3 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.38-39, Employee Emergency Plans and Fire Prevention.
- 5.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1960, Basic Program Elements for Federal Employees, (29 CFR 1960.34, General Provisions).
- 5.5.5 Interagency Security Committee, The Risk Management Process for Federal Facilities: An Interagency Security Committee Standard
- 5.5.6 National Weather Service Policy Directive 50-11, Safety and Environmental, Occupational Safety and Health.
- 5.5.7 U.S. Department of Commerce Occupational Safety and Health Manual.
- 5.5.8 National Fire Protection Association, NFPA 101: Life Safety Code, Fire Exit Drills.
- 5.5.9 National Weather Service Occupational Safety and Health Procedure #6, “Fire Protection.”

5.5.10 National Weather Service Occupational Safety and Health Procedure #23, “Emergency Response Agreements.”

**5.6 Attachments**

Attachment A. DOC “Occupant Emergency Plans and Procedures Vulnerability Review Checklist”

Attachment B. GSA Form 3415

**ATTACHMENT A  
DOC "Occupant Emergency Plans and Procedures Vulnerability Review Checklist"**

<b>"Occupant Emergency Plans and Procedures" Vulnerability Review Checklist</b>					
<p>This electronic checklist (excel spreadsheet) will assist the OSY with evaluating the status of each Occupant Emergency Plan (OEP) for each DOC/GSA occupied and unoccupied facility. Your responses will provide us with information necessary to determine the status of each OEP, ascertain OEP viability and assess the risk of the facility occupants. Please check the appropriate block/response that applies to your facility.</p> <p>The Comment block is provided for additional detail or explanation.</p> <p>Refer to Chapter 7 and Appendix S, OSY Security Manual, for additional guidance on developing an OEP for your facility.</p>					
<p>For DOC Level 1 Facilities using GSA Form 3415 (Facility 1 is identified as a facility with 10 or fewer federal occupants), please complete Sections A, B, F and G of the checklist. All other facilities must complete Sections A, and C - G of the checklist.</p>					
DOC Facility Number:					
Evaluation Date:					
Evaluator:					
DOC Security Level:					
Ownership of the Facility:					
Location:					
Lead/Primary Bureau within Facility:					
<b>Section A</b>					
<b>Establishment of OEP</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Has your facility developed and implemented an OEP?					
<b>Section B</b>					
<b>GSA Form 3415</b>					
<b>Level 1 Facility Only (GSA Form 3415 only)</b> ***					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
1. Is Form 3415 is authorized in this facility?					
2. If Form 3415 is in use, is it up-to-date, complete and communicated effectively to all occupants.					
3. Has an Evacuation exercise been conducted within the past 12 months? If so, give the date.					
4. Has a Shelter-in-Place drill been conducted within the past 12 months? If so, give the date.					
<b>Section C</b>					
<b>Establishment of OEP</b>					
<b>Level II, III, or IV Facility or a Level I Facility (not using GSA Form 3415)</b>					

<b>"Occupant Emergency Plans and Procedures" Vulnerability Review Checklist</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
1. Is the OEP available to be seen by all occupants?					
2. Are the persons responsible for executing the OEP known to the employees?					
3. Are emergency notification procedures accomplished via EBS, PA system, IT network or a combination of these?					
<b>Section D</b>					
<b>OEP Emergency Organization (IAW Chapter 7)</b>					
<b>Building and Tenant Information:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
1. Does the OEP contain information about the building's construction, fire prevention/protection systems, and tenant information?					
2. Are floor plans with evacuation routes clearly marked and readily available?					
3. Are emergency procedures in place to control elevators, air handling systems, and other critical facility components?					
4. Have arrangements been made to address the restoration of services?					
5. If the building is leased, is the responsibility of the owner/leaser defined?					
6. Are authorities defined for contract guards, if applicable?					
<b>Emergency Organization:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
7. Has the DOC Designated Official or DOC senior level manager been identified?					
8. Are the emergency procedures easy to implement rapidly in a crisis situation?					
9. Has a command center been identified and established?					
10. Are communications in the command center adequate?					
11. Do emergency organization members know under what circumstances they are to report to the command center?					
12. Are employees without specific duties excluded from the command center?					
<b>Emergency Contact Numbers:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
13. Are emergency phone numbers posted in the command center and throughout the building?					

<b>"Occupant Emergency Plans and Procedures" Vulnerability Review Checklist</b>					
14. Are emergency phone numbers published and readily available?					
15. Are emergency phone numbers updated regularly?					
16. Do all personnel in the facility know whom to contact in case of an emergency?					
<b>Available Emergency Services:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
17. Does the OEP identify, with phone numbers, the services required for each emergency as well as capabilities, limitations and response times of each service.					
<b>Section E</b>					
<b>OEP Emergency Procedures (IAW Chapter 7)</b>					
<b>Medical Assistance/Rescue:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
1. Have medical assistance and rescue resources surrounding the facility been identified?					
2. Do all occupants know how to obtain first aid, CPR, or AED devices if necessary?					
3. Do occupants know how to report a serious illness or injury?					
<b>Persons with Special Needs:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
4. Have persons with special needs been identified?					
5. Has an Individual Emergency Plan been developed to address each of their needs during an emergency?					
<b>Fire Emergencies:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
6. Are all occupants aware of what to do in the event a fire alarm is announced?					
7. Are all occupants familiar with the procedures for reporting a fire?					
8. Is there a written plan to manage fire emergencies?					
9. Have fire emergency plans been developed that coordinate internal and external resources?					
<b>Bomb Threats:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>



<b>"Occupant Emergency Plans and Procedures" Vulnerability Review Checklist</b>					
10. Are there written plans for reporting bomb threats and explosions?					
11. Do occupants know what procedures to follow should they receive a telephone bomb threat?					
12. Are procedures for reporting and responding to a bomb threat spelled out in the plan?					
<b>Hazardous Materials (HAZMAT) Incidents:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
13. Is there a plan to address and manage hazardous material incidents?					
14. Has a hazard communication program been implemented in accordance with 29 CFR 1910.1200?					
15. Has a comprehensive inventory of all hazardous materials used in the facility been compiled?					
<b>Natural Disasters:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
16. Is guidance provided for severe weather and/or natural disasters?					
<b>Demonstrations and Civil Disorders:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
17. Is there a written plan to deal with demonstrations or civil disorders?					
18. Do occupants know what procedures to follow in the event of demonstrations of civil disturbances?					
<b>Workplace Violence:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
19. Are procedures in place to address workplace violence and/or hostage situations?					
<b>Hostage Situations:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
20. Is there a written plan to manage hostage situations?					
21. Has the plan been coordinated and approved by appropriate law enforcement agencies?					
<b>Suspicious Activities and Unlawful Acts:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
22. Have written procedures been established for occupants to report any suspicious person/activity, unlawful act, or other incidents requiring a response?					

<b>"Occupant Emergency Plans and Procedures" Vulnerability Review Checklist</b>					
23. Do occupants know how to report unlawful acts?					
<b>Emergency Communications Systems:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
24. Does the facility have a system to rapidly communicate information to occupants during emergency situations?					
25. How often is this system validated?					
26. When was it last tested?					
<b>Evacuation:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
27. Are evacuation plans clearly communicated?					
28. Are exit paths identified?					
29. Are assembly areas a safe distance away from the building identified?					
30. Are occupants aware of the procedures to follow during an evacuation?					
31. Is employee/contractor accountability addressed?					
<b>Shelter-In-Place:</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
32. Are SIP plans clearly communicated?					
33. Do the occupants know the SIP areas available to them?					
34. Are occupants aware of the procedures to follow during a SIP?					
35. Is employee accountability addressed?					
36. Are occupants aware of the methods available to announce a SIP event?					
<b>Section F</b>					
<b>Annual Evacuation and Shelter-in-Place Tests, Training and Exercises</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
1. Does the plan undergo a scheduled internal review annually?					
2. Are regularly scheduled drills held to evaluate specific portions of the plan?					
3. Provide date of last evacuation or evacuation drill/training exercise. If no evacuation or drill was conducted within the last 12 months, identify "No" and explain why not.					

<b>"Occupant Emergency Plans and Procedures" Vulnerability Review Checklist</b>					
4. Provide date of last SIP or SIP drill/training exercise. If no SIP or SIP drill was conducted within the last 12 months, identify "No" and explain why not.					
<b>Section G</b>					
<b>Agency Self-Assessment</b>					
<b>Question</b>	<b>YES</b>	<b>DATE</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
1. Has your facility conducted an annual OEP self-assessment (See Chapter 7, Appendix S-3 Vulnerability Review Checklist)? If yes, provide the date of last self-assessment.					
2. Based on the last self-assessment of the facility OEP, is the OEP in compliance with Chapter 7 regulations? If no, provide brief comment on noncompliance of OEP.					

**ATTACHMENT B  
GSA Form 3415**

**NOTE:** It is not recommended to open windows during tornado event (see “severe weather” block of the Form 3415 and make correction on printed hard copy).

<p><b>ACTS</b></p> <p>OTHER PHONE</p>	<p style="text-align: center;"><b>NAMES AND TELEPHONE NUMBERS OF EMERGENCY CONTACTS</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;">NAME</th> <th style="width:40%;">OFFICE PHONE</th> </tr> </thead> <tbody> <tr><td>Fire Department</td><td></td></tr> <tr><td>Police Department</td><td></td></tr> <tr><td>Medical Assistance</td><td></td></tr> <tr><td>Federal Protective Service</td><td></td></tr> <tr><td>Building Manager/Lessor</td><td></td></tr> <tr><td>Official in Charge</td><td></td></tr> <tr><td>Bomb Squad</td><td></td></tr> </tbody> </table> <p style="text-align: center;"><b>EMERGENCY ORGANIZATION INFORMATION (Coordinator, Monitors, and Bomb Search Officer)</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">OFFICE PHONE</th> <th style="width:30%;">OTHER PHONE</th> <th style="width:30%;">NAME</th> <th style="width:10%;">DUTY</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>1.</td><td></td></tr> <tr><td></td><td></td><td>2.</td><td></td></tr> <tr><td></td><td></td><td>3.</td><td></td></tr> </tbody> </table>	NAME	OFFICE PHONE	Fire Department		Police Department		Medical Assistance		Federal Protective Service		Building Manager/Lessor		Official in Charge		Bomb Squad		OFFICE PHONE	OTHER PHONE	NAME	DUTY			1.				2.				3.	
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		1.																															
		2.																															
		3.																															

**GUIDANCE** — Be prepared to assist the handicapped. **EMERGENCY PLAN** — Know Evacuation Routes. Know the Plan on Reverse Side. **Bomb Threat Checklist**

**BOMB THREAT**

Record information on back of this form.

Notify Official in charge.

Notify Police.

Notify Building Manager/Lessor.

Notify Federal Protective Service.

Search immediate area and public areas for any suspicious packages or objects.

If suspicious package or bomb is found:

Do not touch.

Notify Bomb Squad

Evacuate the area.

**SEVERE WEATHER**

Secure objects outside building.

Prepare to move to place of safety.

Stay away from large windows.

For tornado, open windows.

Know location of utility shutoff valves and switches.

Stay tuned to weather reports.

Standby for further instructions.

**EARTHQUAKE**

Take cover under a table, desk, or in a doorway.

Do not run outdoors.

**FIRE OR SMOKE**

Sound building alarm.	
Call Fire Department.	
Notify Official in charge.	
Notify Building Manager/Lessor.	
Notify Federal Protective Service.	
Assist Fire Department.	
Evacuate area immediately.	
Close windows and doors ( <i>Do not lock</i> )	If s

**HAZARDOUS MATERIAL**

Do not handle the substance.	
Do not clean the substance.	
Isolate employees.	
Keep employees calm.	
Notify Federal Protective Service	
Notify Fire Department.	
Shut off the HVAC.	

**CIVIL DISTURBANCES**

Notify Official in charge.	
Secure all doors.	
Notify Police.	
Notify Building Manager/Lessor.	
Notify Federal Protective Service.	

TELEPHONE BOMB THREAT CHECKLIST
Important: REMAIN CALM

SECTION I - INSTRUCTIONS

Follow instructions received from your supervisor, Federal Protective Officer, or the designated official.

If you are ordered to evacuate, take with you any drafts, forms, or reports you may have prepared regarding the threat.

SECTION II - PERTINENT DATA

Form section for SECTION II - PERTINENT DATA, including fields for TIME BOMB/EVENT IS SET TO EXPLODE (AM or PM), PRESENT LOCATION OF BOMB OR PACKAGE, FLOOR, BUILDING, DESCRIPTION OF BOMB OR PACKAGE, AREA, BOMB TO EXPLODE, EXPLAIN WHY CALLER WISHES TO INJURE OR KILL INNOCENT PERSONS (Use exact words of caller), and WHAT WILL CAUSE THE BOMB TO EXPLODE.

DO YOU RECOGNIZE VOICE? [ ] NO [ ] YES (Explain):

DESCRIPTION OF CALLER'S VOICE

DESCRIPTION OF VOICE

SECTION III - DESCRIPTION OF CALLER

Form section for SECTION III - DESCRIPTION OF CALLER, including checkboxes for MALE, FEMALE, MIDDLE-AGE, YOUNG, OLD, REFINED, CALM, NERVOUS, ROUGH, SOBER, DRUNK, and IMPEDIMENT.

DO YOU RECOGNIZE VOICE? [ ] NO [ ] YES (Explain):

SECTION IV - BACKGROUND NOISE

Form section for SECTION IV - BACKGROUND NOISE, including checkboxes for LABORERS, MACHINERY, MISC., RECORDERS, WHISTLES, RUNNING MOTOR, and TRAFFIC.

SECTION V - TELEPHONE LINE DATA

Form section for SECTION V - TELEPHONE LINE DATA, including fields for LINE ON WHICH CALL WAS RECEIVED, WAS THRU LINE BY, IS THIS A NIGHT NUMBER, LISTED NUMBER?, UNLISTED NUMBER?, and HAS A BOMB THREAT CALL BEEN PREVIOUSLY RECEIVED ON THIS NUMBER?

SECTION VI - REPORTING OF THREAT (Caution: DO NOT TALK TO OTHERS about incident.)

Form section for SECTION VI - REPORTING OF THREAT, including fields for NAME OF PERSON RECEIVING CALL, DIVISION, TELEPHONE NUMBER, REPORT THREAT TO: FEDERAL PROTECTIVE SERVICE, BUILDING MANAGER/LESSOR, TIME CALL RECEIVED, and DATE CALL RECEIVED.

**PROCEDURE 6 - Fire Protection**

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## Synopsis

The purpose of this procedure is to provide guidelines related to potential fire hazards in the workplace. This procedure applies to all NWS facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Conduct Inspection of Fire Extinguishers and other Systems (6.3.1j, Attachment C)
  - Evaluate major Fire Hazards (6.3.2a.1, Attachment C)
  - Inventory Flammable/Combustible Materials (6.3.2a, Attachment C)
- **Develop/Obtain Documentation/Information required for Site**
  - Develop Fire Prevention Plan (6.3.2a, Attachment C)
  - Develop written Maintenance Schedule for thermostats and thermal overload devices (6.3.2d)
- **Designate Person to Administer Fire Protection Program Requirements**
  - List personnel responsible for maintenance of equipment and systems used to control fires. (Attachment C)
- **Provide Local Training of Site Personnel**
  - Fire Extinguisher Training (if applicable). (6.3.1o)
  - Fire Hazard Awareness Training. (6.3.2b)
  - Reporting Emergencies Training. (6.3.4d)
- **Inventory Material/Equipment (Procure as required)**
  - Alarm Systems for WFOs (where installed). (6.5.2e, 6.3.4)
  - Fire Extinguishers (as required).(6.5.2e, 6.3.2)
  - Emergency Lights for egress (as required). (6.5.2e, 6.3.5)

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Perform Monthly Visual and Annual Fire Extinguisher Maintenance Check. (6.3.1l, 6.3.1k)
  - Conduct periodic Hydrostatic Testing of fire Extinguishers. (6.3.1n)
  - Conduct routine Inspections of Thermostats and Thermal Overload Devices. (6.3.2d)
  - Provide testing of Fire Alarm Systems (where installed) (6.3.4h, k)
  - Conduct periodic Inspection of Electrical Equipment. (Attachment C)
- **Review/Update Documentation/Information required for Site**
  - Maintain Annual Maintenance Inspections Records. (6.3.1m)
  - Update Fire Prevention Plan. (6.3.2)
  - Maintain Training Records. (6.3.2c)
- **Provide Refresher Training of Site Personnel (If Applicable)**
  - Annual Refresher Training for Fire Extinguisher use. (6.3.1o)
- **Conduct Annual Fire Drills**
- **Inspect/Replace/Maintain Material/Equipment**
  - Alarm systems for WFOs (where installed). (6.5.2e, 6.3.4)
  - Fire Extinguishers (as required).(6.5.2e, 6.3.2)
  - Emergency Lights for egress (as required). (6.5.2e, 6.3.5)



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**Fire Protection Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	6.4.2				
Have personnel been designated to oversee inspections, maintenance and testing of fire extinguishers?	6.3.1j				
Are fire extinguishers properly selected according to the potential fire hazard and the construction and occupancy of the building?	6.3.1b				
Are fire extinguishers readily available for immediate use in case of fire?	6.3.1c				
Are monthly visual inspections of portable fire extinguishers performed and documented using a tag?	6.3.1k				
Is annual maintenance check of fire extinguishers performed?	6.3.1l				
Are written records of maintenance checks kept for one year?	6.3.1m				
Are fire extinguishers hydrostatically tested at periodic intervals based upon the type of extinguisher?	6.3.1n Attachment A				
Are employees trained in fire extinguisher use upon initial employment and annually (if site-specific Occupant Emergency Plan calls for employees to fight the fire)?	6.3.1 Note				
Is a Fire Prevention Plan developed and available for employees review?	6.3.2a, Attachment C				

Requirements	Reference	YES	NO	N/A	Comments
Are facility's major fire hazards inventoried and documented as part of Fire Prevention Plan?	Attachment C				
Has personnel been designated to perform maintenance and inspection of equipment and systems used to control the fire?	6.3.1j, Attachment C				
Is a written schedule for maintenance of thermostats and other thermal overload devices developed?	6.3.2d				
Has the awareness training on potential fire hazards associated with materials and processes been provided?	6.3.2b				
Are written records of personnel training kept on file?	6.3.2c				
Is periodic inspection of electrical equipment performed?	Attachment C				
Are routine inspections of thermostats and thermal overload devices performed?	6.3.2d				
Are general fire prevention guidelines outlined in the procedure followed?	6.3.3				
Are monthly inspections of egress paths, combustible/flammable storage areas and general facility housekeeping performed?	6.3.3j				
Are means for reporting the fire established and communicated to the site personnel?	6.3.4b-e				
Are supervised alarm systems tested annually for reliability and adequacy (if applicable)?	6.3.4k				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Are non-supervised alarm systems tested every two months (if applicable)?	6.3.4h				
Are fire drills conducted at least annually?	6.3.4m, 5.3.1a(3)				
Are requirements for the building egress met?	6.3.5				

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## 6 FIRE PROTECTION

### 6.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to fire hazards in the workplace. This procedure applies to all NWS facilities, work locations, and employees.

### 6.2 Definitions

ADA. Americans with Disabilities Act.

Approved. For the purposes of this procedure “approved” shall mean equipment listed or approved by a nationally recognized testing laboratory.

Class A Fire. Fire involving materials such as wood, paper and cloth which produce glowing embers or char.

Class B Fire. Fire involving flammable gases, liquids and greases including gasoline and most hydrocarbon liquids which must be vaporized for combustion to occur.

Class C Fire. Fire in live electrical equipment or in materials near electrically powered equipment.

Class D Fire. Fire involving combustible metals such as magnesium, zirconium, potassium and sodium.

Occupant Emergency Plan. A plan for a workplace, or parts thereof, describing what procedures the employer and employees must take to ensure employee safety from fire or other emergencies.

Emergency Escape Route. The route that employees are directed to follow in the event they are required to evacuate the workplace or seek a designated refuge area. (See also means of egress, exit, exit access and exit discharge.)

Exit. Exit is that portion of a means of egress which is separated from all other spaces of the building or structure by construction or equipment as required in this subpart to provide a protected way of travel to the exit discharge.

Exit Access. A continuous and unobstructed way of exit from any point in a building or structure to an exit.

Exit Discharge. That portion of a means of egress between the termination of an exit and a public way.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Fire. Fire is a rapid oxidation process accompanied by the evolution of heat and light by various degrees.

High-Hazard Contents. Contents which are likely to burn with extreme rapidity, emanate poisonous fumes/vapors or explode in the event of fire.

Loaded Stream. A water-based extinguishing medium that uses an alkali metal salt as a freezing point depressant.

Low Hazard Contents. Contents with such low combustibility that no self-propagating fire can occur and the only probable danger requiring the use of emergency exits will be from panic, non-toxic fumes, or smoke or fire from some external source.

Means of Egress. A means of egress is a continuous and unobstructed way of exit travel from any point in a building or structure to a public way and consists of three separate and distinct parts: the way of exit access, the exit and the way of exit discharge.

NFPA. National Fire Protection Association.

Ordinary Hazard Contents. Contents which are likely to burn with moderate rapidity and to give off a considerable volume of smoke, but from which neither poisonous fumes nor explosions are to be feared in case of fire.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC); Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Storm Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Supervised Alarm System. An employee alarm system that has a monitoring signal carried by the wiring from the alarm panel to all detection devices and appliances that will detect a malfunction such as a short or break in the wiring and activate a supervisory alarm or trouble code at the alarm panel.

Tactile Device. A device or piece of equipment that can be perceptible to the touch.

UL. Underwriter's Laboratories.

Unsupervised Alarm System. An alarm system that does not monitor the alarm circuitry.

<p><b>NOTE:</b> All employee alarm systems installed after January 1, 1981 capable of being supervised shall be supervised.</p>
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### 6.3 Procedure

6.3.1 Fire Extinguishers. A portable fire extinguisher can be very effective when used for fighting incipient stage fires. Fire extinguishers are provided at all NWS offices and the associated sites. Primarily, these fire extinguishers are classified as ABC-type fire extinguishers, but some may only be classified for BC-type usage. The proper fire extinguisher should be selected, appropriate for the type of fire it is used to extinguish.

NOTE: Where Occupant Emergency Plan calls for the employee's use of fire extinguishers, an educational program shall be provided to familiarize all employees with the general principles of fire extinguisher use and the hazards involved with incipient-stage firefighting. The education program (e.g., Fire Department training, etc.) shall be provided upon initial employment and at least annually thereafter.

- a. Fires are classified into four general categories depending on the type of material or fuel involved. The type of fire determines the type of extinguisher that should be used to extinguish it.
  - (1) Class A fires involve materials such as wood, paper and cloth which produce glowing embers or char.
  - (2) Class B fires involve flammable gases, liquids and greases including gasoline and most hydrocarbon liquids which must be vaporized for combustion to occur.
  - (3) Class C fires involve fires in live electrical equipment or in materials near electrically powered equipment.
  - (4) Class D fires involve combustible metals such as magnesium, zirconium, potassium and sodium.
- b. Extinguishers shall be selected according to the potential fire hazard, the construction and occupancy of facilities, hazard to be dealt with and other factors pertinent to the situation.
- c. Extinguishers shall be conspicuously located and readily accessible for immediate use in the event of fire. They shall be located along normal paths of travel and egress. Wall recesses and/or flush-mounted cabinets shall be used as extinguisher locations whenever possible.
- d. Extinguishers shall be clearly visible. In locations where visual obstruction cannot be completely avoided, directional arrows shall be provided to indicate the location of extinguishers, and the arrows shall be marked with the extinguisher classification.
- e. If extinguishers intended for different classes of fire are located together, they shall be conspicuously marked to ensure that the proper class extinguisher selection is made at the time of a fire. Extinguisher classification markings shall be located on the front of the shell above or below the extinguisher nameplate. Markings shall be of a size and form to be legible from a distance of three (3) feet.



- f. Portable extinguishers shall be maintained in a fully charged and operable condition. They shall be kept in their designated locations at all times when not being used. When extinguishers are removed for maintenance or testing, a comparable fully charged and operable replacement unit shall be provided.
- g. Extinguishers shall be installed on hangers, brackets, or in cabinets. Extinguishers having a gross weight exceeding 40 pounds shall be installed so that the top of the extinguisher is not more than 3½ feet above the floor. Extinguishers less than 40 pounds shall be installed so that the top of the extinguisher is not more than 5 feet above the floor.
- h. Extinguishers mounted in cabinets or wall recesses or set on shelves shall be placed so that the extinguisher operating instructions face outward. The location of such extinguishers shall be made conspicuous by marking the cabinet or wall recess in a contrasting color which shall distinguish it from the normal decor.
- i. Extinguishers shall be distributed in such a way that the amount of time needed to travel to their location and back to the fire does not allow the fire to get out of control. OSHA requires that the travel distance for Class A and Class D extinguishers not exceed 75 feet. The maximum travel distance for Class B extinguishers is 50 feet because flammable liquid fires can get out of control faster than Class A fires. There is no maximum travel distance specified for Class C extinguishers, but they shall be distributed on the basis of appropriate patterns for Class A and B hazards.

<b>NOTE:</b> It is recommended that the maximum travel distance to any extinguisher not be more than 50 feet.
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- j. Once an extinguisher is selected, purchased and installed, it is the responsibility of the Station Manager or his/her designee to oversee the inspection, maintenance and testing of fire extinguishers to ensure that they are in proper working condition and have not been tampered with or physically damaged.
- k. Visual inspections of portable fire extinguishers shall be conducted monthly and documented using a tag. The monthly inspection shall include such items as:
  - (1) Ensuring the pressure has not leaked from the extinguisher if a pressure gauge is present.
  - (2) Inspecting the hose of the extinguisher to ensure it is not cracked, torn or dry rotted.
  - (3) Ensuring the outlet nozzle is not blocked by a foreign object.
  - (4) Ensuring that the extinguisher is not blocked.
  - (5) Ensuring that the extinguisher is properly mounted.
  - (6) Vehicle-mounted extinguishers shall be turned upside down and shaken vigorously to help prevent the powder in the extinguisher from compacting and caking due to vibration from the vehicle.

- (7) Ensuring that the shell of the extinguisher is not corroded or physically damaged.
- l. If applicable, ensuring that safety pull pins are in place. An annual maintenance check of fire extinguishers shall be performed. This check shall include the following:
  - (1) The mechanical parts of the extinguisher.
  - (2) The extinguishing agent used.
  - (3) The means by which the agent is expelled.

**NOTE:**

An internal examination of non-rechargeable, carbon dioxide or stored pressure fire extinguishers is not required during the annual maintenance check. However, stored pressure extinguishers with a loaded stream shall be disassembled on an annual basis.

- m. A written record of the annual maintenance check shall be maintained for one year. This is best accomplished with a tag placed upon the extinguisher by the service contractor performing the check.
- n. Fire extinguishers shall be hydrostatically tested at periodic intervals based upon the type of extinguisher. Attachment A provides the hydro-static test intervals for the various types of fire extinguishers.

6.3.2 Fire Prevention Plan.

- a. Each facility shall develop and maintain a written Fire Prevention Plan (See Attachment C: Fire Prevention Plan Template) which, at a minimum, contains the following elements:
  - (1) A list of the major workplace fire hazards and their proper handling and storage procedures.
  - (2) Potential ignition sources (such as smoking, hot surfaces, welding and others) and their control procedures.
  - (3) A list of the types of fire protection equipment or systems which can control fires involving the major workplace fire hazards.
  - (4) Names or job titles of the individual(s) responsible for maintenance and inspection of fire protection/detection equipment or systems.
  - (5) Names or job titles of the individual(s) responsible for controlling potential fuel sources that may create a fire hazard.
  - (6) A list of flammable/combustible materials.
  - (7) Procedures for handling, storage and disposal of flammable and combustible waste materials.
- b. Employees shall be given awareness training to apprise them of the potential fire hazards associated with materials and processes which they are exposed to in their work area. This training shall be given upon initial assignment.

- c. A written record of the training and attendance shall be maintained.
- d. A written maintenance schedule shall be established to ensure thermostats and thermal overload devices on heat producing equipment are regularly inspected and maintained to prevent accidental ignition of combustible materials and included as part of the Fire Prevention Plan.
- e. The written Fire Prevention Plan shall be kept in the workplace and made available for employee review.
- f. Upper Air issues related to hydrogen fire prevention shall be addressed in accordance with NWSM 10-1401, Rawinsonde Observations. Employees involved in maintenance of Upper Air Sites shall receive training in accordance with WSOM 10-1401.
- g. Fire Prevention Plan should be reviewed periodically (e.g., annually or more frequently, if needed).

6.3.3 General Fire Prevention Guidelines. The following guidelines shall be followed at all NWS facilities and associated sites to help reduce the potential for fire at these locations:

- a. Flammable material shall be stored and used in accordance with NWS Occupational Safety and Health Procedure 16, “Flammable and Combustible Liquid Storage.”
- b. Materials such as oily rags shall be collected in fire-safe container and disposed of properly by a licensed contractor.
- c. Electrical circuits shall not be loaded beyond their rated capacity.
- d. Equipment with frayed or damaged electrical cords or plugs shall be removed from service.
- e. Portable electric heating devices shall be in good physical condition and be UL listed. The manufacturer’s recommendations for clearances shall be followed when these devices are in use.

<p><b>NOTE:</b> The operation of portable heaters, fans, and other such devices in Government-controlled space is prohibited unless authorized by the General Services Administration building manager or by agencies that have been given delegated authority to perform building management.</p> <p>If approved, building circuits must be sufficient to carry extra load. Heaters <u>shall</u> be equipped with tip-over switch.</p>
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- f. Combustible materials shall not be stored under stairways or in exit ways.
- g. Spills of combustible or flammable materials shall be cleaned up immediately. Contaminated materials shall be disposed of properly in accordance with Procedure #7, “Hazard Communication.”
- h. Smoking is not permitted within 50 feet of flammable material storage areas.

- i. Fire hydrants, building fire department connections and other fire suppression related fixtures shall be kept clear of plants, materials and other items that may block their access.
- j. Monthly inspections shall be conducted for egress paths, combustible loadings, chemical storage and general facility conditions.
- k. Flammable/combustible materials brought to the facility by Contractors must be evaluated for fire potential and incompatibility with materials at the site.
- l. Any hot work that includes grinding with sparks, use of propane gas for heating of metal or thawing pipes, welding activities will have a permit approved by Safety or Environmental/Safety Focal Point. See procedure 28, Welding/Hot work for Hot Work Permit requirements.

6.3.4 Emergency Alarm/Notification Systems. NWS facilities with more than ten employees shall have an alarm system to warn employees of workplace emergencies. The following criteria not only apply to fire alarms but also to alarms used to notify employees of other workplace emergencies.

- a. The alarm shall be capable of being seen and/or heard above ambient light and noise levels in the work area. Sight- or hearing-impaired individuals may be notified by flashing lights, vibrating devices, air fans or other tactile devices.

<p><b>NOTE:</b> Individual smoke detectors that do not report to a central alarm panel or are not interconnected in such a way that when one detector activates all detectors alarm, shall be able to be heard in rooms or hallways adjacent to the location in which the detector is installed.</p>
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- b. Communication systems such as intercoms and telephones may serve as an employee alarm system provided that all emergency messages have priority over all non-emergency messages.
- c. If the ringer on a telephone system is used as an employee alarm, the ring shall be distinctive and recognizable as a signal to evacuate the work area.
- d. Employees shall be made aware of, and instructed in the proper use of, the preferred means of reporting emergencies such as pull-boxes, telephones, public address systems, etc.
- e. When the telephone system is used as the preferred method of reporting emergencies, emergency numbers shall be posted near telephones, employee notice boards and other conspicuous locations.
- f. All devices, components, combination of devices or systems constructed and installed to act as an employee alarm system shall be approved by their appropriate agency or organization.
- g. All alarm systems shall be maintained in operating condition except when undergoing repairs or maintenance.
- h. A test of the reliability and adequacy of non-supervised employee alarm systems shall be made every two months.

- i. Power supplies shall be maintained as often as necessary to assure the alarm system is fully operational. A back-up means of alarm such as employee runners shall be provided when systems are out of service.
- j. Alarm circuitry that is capable of being supervised and installed after January 1, 1981, shall be supervised and shall provide positive notification whenever a deficiency exists in the system.
- k. All supervised alarm systems shall be tested at least annually for reliability and adequacy.
- l. Manually operated alarm devices such as pull-boxes shall be unobstructed, conspicuous and readily accessible.
- m. Fire drills shall be conducted at least annually and can be done when the alarm systems are being tested.

6.3.5 Egress. Every building or structure, new or old, designed for human occupancy shall be provided with exits sufficient to permit the prompt escape of occupants in case of fire or other emergency. The design of exits and other safeguards shall be such that reliance for safety to life in case of fire or other emergency shall not depend solely on any single safeguard; additional safeguards shall be provided for life safety in case any single safeguard is ineffective due to some human or mechanical failure.

- a. Every building or structure shall be provided with an adequate number of exits to ensure all individuals have a quick direct route of escape in an emergency and to avoid undue danger to the lives and safety of the individuals from fire, smoke, fumes or resulting panic during the period of time reasonably necessary to escape the building.
- b. Emergency lighting shall be provided in the event power and/or illumination is lost during an emergency situation to allow for a safe means of egress.
- c. Exits shall be arranged and maintained to provide free and unobstructed egress from all parts of the building at all times when it is occupied.
- d. Doors shall be designed to allow free escape from the inside of the building during an emergency.
- e. Exits shall be clearly visible and marked along their entirety in such a manner that the direction for escape from any point in the building is unmistakable to all occupants. Attachment B provides criteria for the placement of exit signs.

**NOTE:** Typical WFO has less than 30 people working at any given shift and egress paths are less than 100 ft, therefore, a single exit is permitted for the work areas (e.g., Operations Room, Electronics Shop).

2003 International Building Code (Section 1014, Exit and Exit Access Doorways) states that two exits and exit access doorways from any space shall be provided for group "B" occupancy when the occupant load of the space exceeds 50 people and common path of egress travel exceeds 75 ft. However, if occupant load is less than 30 people (typical for WFO), the common path of egress travel shall not exceed 100 ft.

WSR-88D Radar sites, Wind-profiler sites and Upper Air Inflation buildings are not considered normally occupied work areas.

- f. At least two exit routes must be available in workplace to permit the prompt evacuation of employees, **with exception** when the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would be able to evacuate safely during emergency. The exits shall be arranged in such a manner to minimize the threat of both exits being blocked by one fire or other emergency condition. An exit is defined as a means of egress which is separated from all other spaces of the building or structure by construction or equipment placement. For example, an office building with a central hallway with offices on each side would use the hallway as the start of the exit. The office is not considered part of the exit.
- g. Exit doors serving more than fifty people shall swing out with exit travel and not open in against the flow of people.
- h. Exits shall not require individuals to travel from a low hazard content area through an ordinary hazard content area or from a low hazard content area through a high hazard content area to the exit discharge. For example, travel from an office area through an electrical room to the outside as part of the exit way is not permitted.
- i. The means of egress, exit, exit way and exit discharge shall all be constructed to meet the requirements of the applicable local building codes or NFPA 101 "Life Safety Code."
- j. The width of corridors, aisles, and door openings shall be in compliance with local building codes and "ADA Standards for Accessible Design" (28 CFR Part 36, July 1994).
- k. All exits shall discharge directly to the street, or to a yard, court or other open space that gives safe access to a public way. The area to which the exit discharges shall be of adequate width and size to provide all persons leaving the building with ready and safe access to the street.
- l. The exit discharge and exterior way of exit shall be kept clear of accumulations of snow and ice or other materials that impede its usage.

#### 6.3.6 Motel/Hotel Fire Safety – Official Travel

Employees on official travel status should attempt to find lodging that meets the requirements of the Hotel and Motel Fire Safety Act of 1990. This act directly applies to Federal Employees on travel status and provides guidance that must be followed as it pertains to fire safety in all places of public accommodation affecting commerce.

Fire Prevention and Control Guidelines for Places of Public Accommodation require that a motel hotel is equipped with:

- a. Hard-wired, single-station smoke detectors be installed in accordance with National Fire Protection Association Standard 74 in each guestroom in each place of public accommodation affecting commerce; and
- b. An automatic sprinkler system to be installed in accordance with National Fire Protection Association Standard 13 or 13-R, whichever is appropriate in each place of public accommodation affecting commerce except those places that are 3 stories or lower.

If the motel/hotel does not meet the above guidelines, a traveler should attempt to find lodging elsewhere.

### **6.4 Responsibilities**

#### 6.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

#### 6.4.2 Station Manager

- a. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- c. Will ensure that fire extinguishers are properly located, tested, and maintained.
- d. Will ensure that a written fire protection plan is developed, and maintained.
- e. Will ensure employee alarm systems are installed, tested, and maintained.
- f. Will ensure that initial and periodic inventory of fire extinguishers, emergency lights and other safety equipment is accomplished and adequate stock is maintained.

#### 6.4.3 NWS Headquarters (NSWH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters,

Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.

- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

#### 6.4.4 Safety or Environmental/Safety Focal Point

Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

#### 6.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a>
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### 6.5 **References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 6.5.1 American National Standards Institute (ANSI) Standards, as applicable.
- 6.5.2 Public Law 101-391, "Hotel and Motel Fire Safety Act of 1990"
- 6.5.3 US Department of Labor, Occupational Safety and Health Administration, 28 CFR Part 36, "ADA Standards for Accessible Design."
- 6.5.4 2003 International Building Code, Section 1014, "Exit and Exit Access Doorways."
- 6.5.5 National Fire Protection Association, NFPA 10, "Fire Extinguishers."
- 6.5.6 National Fire Protection Association, NFPA 70, "National Electrical Code."
- 6.5.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.38, "Employee Emergency Plans and Fire Prevention Plans."
- 6.5.8 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.157, "Portable Fire Extinguishers."
- 6.5.9 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.164, "Fire Detection Systems."
- 6.5.10 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.165, "Employee Alarm Systems."
- 6.5.11 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart L, Appendix A, "Fire Protection."
- 6.5.12 NWS Occupational Safety and Health Procedure 5, "Occupant Emergency Plan."
- 6.5.13 Americans with Disabilities Act (ADA) Section 4, "Accessible Elements and Spaces: Scope and Technical Requirements."



**6.6 Attachments**

Attachment A. Fire Extinguisher Hydrostatic Test Frequency

Attachment B. Exit Marking and Placement Criteria

Attachment C. Fire Prevention Plan Template

Attachment D: Fire Prevention Plan (WFO Springfield, MO)

**ATTACHMENT A**

**Fire Extinguisher Hydrostatic Test Frequency**

Type of Extinguisher	Hydrostatic Test Interval (years)
Soda acid (soldered brass shells)	1
Soda acid (stainless steel shell)	5
Cartridge operated water and/or antifreeze	5
Stored pressure water and/or antifreeze	5
Wetting agent	5
Foam (soldered brass shells)	1
Foam (stainless steel shell)	5
Aqueous Film Forming foam (AFFF)	5
Loaded stream	5
Dry chemical with stainless steel	5
Carbon Dioxide	5
Dry chemical, stored pressure, with mild steel, brazed brass or aluminum shells	12
Dry chemical, cartridge or cylinder operated, with mild steel shells	12
Halon 1211	12
Halon 1301	12
Dry powder, cartridge or cylinder operated with mild steel shells	12
(1) Extinguishers having shells constructed of copper or brass joined by soft solder or rivets shall be removed from service.	

**ATTACHMENT B**

**Exit Marking and Placement Criteria**

- B.1 Exit Marking. Exits shall be marked by a readily visible sign. Access to exits shall be marked by readily visible signs in all cases where the exit or way to reach it is not immediately visible to the occupants.
- a. Any door, passage or stairway which is neither an exit nor a way of exit access and which is so located or arranged as to be likely to be mistaken for an exit, shall be identified by a sign reading "No Exit" or shall be identified by a sign indicating its actual character such as "To Basement," "Storeroom," "Linen Closet." "No Exit" signs shall not be illuminated.
  - b. Every sign designating an exit or way of exit access shall be readily visible and distinguishable from its background.
  - c. A sign reading "Exit" with an arrow indicating the directions shall be placed in every location where the direction of travel to reach the nearest exit is not immediately apparent.
  - d. Every exit sign shall be suitably illuminated by a reliable light source giving a value of not less than 5-foot candles on the illuminated surface. The light source shall continue to illuminate the sign for a minimum of 90 minutes in the event of a power outage.
  - e. Exits signs shall remain illuminated when normal illumination in the area is reduced.
  - f. Every exit sign shall have the word "Exit" in plainly legible letters not less than 6 inches high, with the principal strokes of letters not less than  $\frac{3}{4}$ -inch wide.
  - g. If the direct means to an exit is readily apparent, an exit sign is not required. For example, a room with one door leading directly to the outside would not require an exit sign.

**ATTACHMENT C**

**Fire Prevention Plan (*template*)**

**FIRE PREVENTION PLAN**

**for**

**Facility Name** \_\_\_\_\_

**Facility Address** \_\_\_\_\_

DATE PREPARED: \_\_\_\_\_

DATE OF LAST REVIEW: \_\_\_\_\_

**LIST OF MAJOR FIRE HAZARDS**

The following materials and equipment (check applicable) are present on site and can become the potential fire hazards when handled improperly or if in poor working condition:

- Electrical circuits, wiring and extension cords
  - Electrical Equipment
  - Coffee and tea pots
  - Toasters
  - Portable Heaters
  - Flammable/combustible materials
  - Welding equipment
  - Oil-soaked rags
  - Other \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**FLAMMABLE/COMBUSTIBLE MATERIALS  
STORAGE AND HANDLING**

The following flammable/combustible materials are stored or/and used on site (List diesel fuel tanks, heating oils, gasoline, hydrogen, solvents, etc.):

Name	Quantity	Type of Container	Location

***Storage:***

- Flammable/combustible materials shall be stored in approved flammable storage cabinets. Flammable cabinets are located in \_\_\_\_\_
- The storage of flammable/combustible liquids shall not physically obstruct any means of egress from the building or work area.
- Rooms used for storing flammable/combustible materials must be well ventilated.
- “NO SMOKING” signs shall be posted near areas where flammable/combustible materials are stored or used.
- The minimum practical amount of flammable/combustible materials should be kept on hand.
- Flammable/combustible solvents shall be stored in the approved safety cans.

Portable containers shall not exceed the maximum capacity of 5 gallons.

- Flammable paints and oils used for maintenance purpose may be stored outside of approved storage areas if kept at the work area for less than 10 calendar days.
- Water-reactive materials shall not be stored in the same room as flammable/combustible liquids.
- Liquefied petroleum storage tanks (if applicable) shall be guarded to prevent damage from moving vehicles.
- Fire extinguishers, Class B, shall be located within 10 feet from the flammable storage areas.

***Handling:***

- Containers of flammable and combustible liquids have to be tightly sealed.
- Combustible waste materials and residues shall be kept to a minimum and disposed of daily.
- Oil- and solvent-soaked rags shall be placed in approved waste containers.
- Spills of flammable/combustible materials shall be cleaned up immediately. Absorbent materials used for spill clean up shall be disposed of properly.
- Flammable materials shall not be used near sources of ignition (e.g., open flames, smoking, lightning, electrical and mechanical sparks, etc.).



## ELECTRICAL EQUIPMENT AND FIRE PREVENTION

Any electrical equipment is a potential source of fire. The fire can be caused by short circuits, overheated equipment, and failure of current limiters, thermal sensors or other devices. To prevent these hazards, the following safety practices should be in place:

- Electric wiring and equipment shall be in accordance with the current edition of the National Electrical Code, National Fire Protection Association (NFPA 70) and American National Standards Institute (ANSI) requirements.
- A fuse or a circuit breaker shall not have a rating higher than specified for a circuit.
- Frames of electrical equipment shall be grounded.
- Electrical circuits shall not be overloaded at any time. Only one heat producing appliance may be plugged in the socket.
- Wiring should be covered when joined (e.g., outlets, switches, junction boxes, etc.).
- Extension cords may not be used longer than 90 days.
- Utility lights shall be furnished with wire guards.
- Electrical motors shall be kept clean and in good working condition to prevent them from overheating.
- Periodic inspections of electrical equipment shall be performed to detect:
  - a. Damaged electrical cords, wiring and fittings,
  - b. Defective electric tools that spark,
  - c. Loose electrical connections,
  - d. Machinery that comes in contact with flammable materials, and
  - e. Overloaded circuits.

### **HOUSEKEEPING PRACTICES**

The following housekeeping practices should be in place to prevent fire hazards:

- General work areas such as offices and shops must be kept orderly and free of trash.
- Discarded packing material or scrap should not be accumulated inside the buildings.
- A sufficient number of trash receptacles and waste baskets should be placed at each work area and should be emptied daily.
- Oil or chemical-soaked rags should be placed into a covered metal or other approved containers.
- Dust and debris should be kept off machinery or electrical equipment.
- Spills of flammable/combustible materials should be cleaned up promptly.
- Corridors and traffic areas shall be free of boxes or other obstructions. Care should be taken of deliveries - boxes must be kept away from traffic areas.
- Combustible materials should be minimized.

**FIRE PROTECTION EQUIPMENT AND SYSTEMS**

**Types:** The following types of fire protection equipment and/or systems are available at the facility (check applicable):

- Portable Fire Extinguishers** (circle applicable and specify quantity)
  - a. Carbon Dioxide: \_\_\_\_\_
  - b. Dry Chemical \_\_\_\_\_
  - c. Other \_\_\_\_\_

**NOTE:** The production of Halon has stopped in 1994. It is still legal to purchase and use recycled Halon. There are, however, a replacement alternatives on the market.

*Inspection/maintenance:* Visual (Monthly) / Mechanical (Annually)

*Hydrostatic testing:* Carbon Dioxide - Every 5 years  
Halon 1301 - Every 12 years

- Automatic Sprinkler Systems**

*Main drain flow test:* Annually

*Opening of inspector's test valve:* Every two years

- Fixed Fire Extinguishing Systems** (circle applicable)

- a. Dry Chemical
- b. Gaseous Agent
- c. Water Spray and Foam

*Inspection/maintenance:* Semi-annually

*(Weight and pressure check of refillable and non-refillable containers)*

- Fire Detection Systems**

*Inspection/maintenance/testing:* Annually and as often as needed

*Cleaning and sensitivity adjustments:* At periodic intervals

**Fire Alarm Systems**

*Maintenance and replacement of power supply:* As often as needed

*Testing of non-supervised alarm systems:* Every two months

*Testing of supervised alarm systems:* Once a year

***Inspection and Maintenance:***

The following personnel are ultimately responsible for inspection and maintenance of fire protection equipment and/or systems.

Name or Job Title	Type of Equipment

The status of the fire protection equipment inspection/maintenance activities is shown below:

Type of Equipment	Last Inspection/ Maintenance Date	Name and Phone Number of Contractor

Date \_\_\_/\_\_\_/\_\_\_

**ATTACHMENT D**

**Fire Prevention Plan for  
WFO Springfield, MO**

DATE PREPARED:

**LIST OF MAJOR FIRE HAZARDS**

The following materials and equipment (check applicable) are present on site and can become the potential fire hazards when handled improperly or if in poor working condition:

- Electrical circuits, wiring and extension cords.
  
- Electrical Equipment
  
- Coffee and tea pots
  
- Toasters
  
- Portable Heaters
  
- Flammable/combustible materials.
  
- Welding equipment.
  
- Oil-soaked rags.
  
- Other \_\_\_\_\_
  
- \_\_\_\_\_
  
- \_\_\_\_\_
  
- \_\_\_\_\_

**FLAMMABLE/COMBUSTIBLE MATERIALS  
STORAGE AND HANDLING**

The following flammable/combustible materials are stored or/and used on site (List diesel fuel tanks, heating oils, gasoline, hydrogen, solvents, etc.):

<b>Name</b>	<b>Quantity</b>	<b>Type of Container</b>	<b>Location</b>
Hornet & Wasp	15 oz.	15 oz. spray can	County Warning Area
Insect Repellant	14 oz.	14 oz. spray can	County Warning Area
Isopropyl Alcohol	16 oz.	16 oz. bottle	County Warning Area
Laquer Thinner	32 oz.	32 oz. can	County Warning Area
WD-40	14 oz.	14 oz. spray can	County Warning Area
#2 Diesel Fuel	1000 gallons	1000 gallons	Generator Building
Battery Cleaner	14 oz.	14 oz. can	Generator Building
Battery Protector	4 oz.	4 oz. can	Generator Building
Isopropyl Alcohol	2 gallon	1 gallon containers	Generator Building
Kleen Glean	6oz.	6oz. Can	Generator Building
Lacquer thinner	32 oz.	32 oz. container	Generator Building
Lubricating Oil	1 quart	1 quart container	Generator Building
Spray Laquer	16 oz.	16 oz. can	Generator Building
Spray Paint	10 oz.	10 oz. can	Generator Building
Spray Paint	12 oz.	12 oz. can	Generator Building
Spray Paint	12 oz.	12 oz. can	Generator Building
Spray Paint	24 oz.	12 oz. cans	Generator Building
Torn-Lable	8 oz.	8 oz. can	Generator Building
Truck and Van Paint	11 oz.	11 oz. spray can	Generator Building
Blue Shower	1 can	1 can	On site office
Correction Fluid -	0.68 fl. oz.	0.68 fl. oz. bottle	On site office
Daal Magnetic eye	4oz.	4oz. bottles	On site office
Freon TP-35	7oz.	7oz. bottle	On site office
Head Cleaner	2oz.	2oz. bottle	On site office
Home Best Insect	1 gallon	1 gallon jug	On site office
Klear Clean	6 oz.	6 oz. bottles	On site office
Lubricating oil	2oz.	2oz. Bottle	On site office
Park Horse	8oz.	1- 8oz. spray can	On site office

Name	Quantity	Type of Container	Location
Spray paint	33 oz.	3- 11oz. cans	On site office
StatFree Spray	96 oz.	3- 32oz. bottles	On site office
Staticide	1qt.	1- 1qt. bottle	On site office
WD-40	12.9 oz.	1- 12.9 oz. can	On site office
#2 Diesel Fuel	500 gallons	250 gallon tank	RDA Shelter
Isopropyl Alcohol	1pt.	1pt. bottle	RDA Shelter
Krylon	12 oz.	12 oz. spray can	RDA Shelter
Paint	1pt.	1pt. can	RDA Shelter
Paint	1pt.	1pt. can	RDA Shelter
Parks	32 oz.	32 oz. spray bottle	RDA Shelter
WD-40	11oz.	11oz. Spray can	RDA Shelter
Hydrogen	60 (2000 psi)	2000 psi containers	UAIB
WD-40	9 oz.	9 oz. spray can	UAIB
Propane	250 Gallon	250 gallon tank	WXJ-61Avilla, MO

**Storage:**

- Flammable/combustible materials shall be stored in approved flammable storage cabinets. Flammable cabinets are located in the generator building storage room.
- The storage of flammable/combustible liquids shall not physically obstruct any means of egress from the building or work area.
- Rooms used for storing flammable/combustible materials should be well ventilated.
- “NO SMOKING” signs shall be posted near areas where flammable/combustible materials are stored or used.
- The minimum practical amount of flammable/combustible materials should be kept on hand.
- Flammable/combustible solvents shall be stored in the approved safety cans. Portable containers shall not exceed the maximum capacity of 5 gallons.
- Flammable paints and oils used for maintenance purpose, may be stored outside of approved storage areas if kept at the work area for less than 10 calendar days.
- Water-reactive materials shall not be stored in the same room as flammable/combustible liquids.
- Liquefied petroleum storage tanks (if applicable) shall be guarded to prevent damage from moving vehicles.
- Fire extinguishers, Class B, shall be located within 10 feet from the flammable storage areas.



***Handling:***

- Containers of flammable and combustible liquids have to be tightly sealed.
- Combustible waste materials and residues shall be kept to a minimum and disposed of daily.
- Oil- and solvent-soaked rags shall be placed in approved waste containers.
- Spills of flammable/combustible materials shall be cleaned up immediately. Absorbent materials used for spill clean up shall be disposed of properly.
- Flammable materials shall not be used near sources of ignition (e.g., open flames, smoking, lightning, electrical and mechanical sparks, etc.).

## **ELECTRICAL EQUIPMENT AND FIRE PREVENTION**

Any electrical equipment is a potential source of fire. The fire can be caused by short circuits, overheated equipment, and failure of current limiters, thermal sensors or other devices. To prevent these hazards, the following safety practices should be in place:

- Electric wiring and equipment shall be in accordance with the current edition of the National Electrical Code, National Fire Protection Association (NFPA 70) and American National Standards Institute (ANSI) requirements.
- A fuse or a circuit breaker shall not have a rating higher than specified for a circuit.
- Frames of electrical equipment shall be grounded.
- Electrical circuits shall not be overloaded at any time. Only one heat producing appliance may be plugged in the socket.
- Wiring should be covered when joined (e.g., outlets, switches, junction boxes, etc.).
- Utility lights shall be furnished with wire guards.
- Electrical motors shall be kept clean and in good working condition to prevent them from overheating.
- Periodic inspections of electrical equipment shall be performed to detect:
  1. Damaged electrical cords, wiring and fittings,
  2. Defective electric tools that spark,
  3. Loose electrical connections,
  4. Machinery that comes in contact with flammable materials, and
  5. Overloaded circuits.

## HOUSEKEEPING PRACTICES

The following housekeeping practices should be in place to prevent fire hazards:

- General work areas such as offices and shops must be kept orderly and free of trash.
- Discarded packing material or scrap should not be accumulated inside the buildings.
- A sufficient number of trash receptacles and waste baskets should be placed at each work area and should be emptied daily.
- Oil or chemical-soaked rags should be placed into a covered metal or other approved containers.
- Dust and debris should be kept off machinery or electrical equipment.
- Spills of flammable/combustible materials should be cleaned up promptly.
- Corridors and traffic areas shall be free of boxes or other obstructions. Care should be taken of deliveries - boxes must be kept away from traffic areas.
- Combustible materials should be minimized.

**FIRE PROTECTION EQUIPMENT AND SYSTEMS**

*Types:*

The following types of fire protection equipment and/or systems are available at the facility (check applicable):

**Portable Fire Extinguishers** (circle applicable and specify quantity)

- a. Carbon Dioxide: 4
- b. ABC Dry Chemical: 7

**NOTE:** Halon is still allowable but is being phased out. There are however a number of alternatives on the market.

*Inspection/maintenance:*

Visual (Monthly) / Mechanical (Annually)

*Hydrostatic testing:* Carbon Dioxide - Every 5 years

ABC Dry Chemical - Every 12 years

***Inspection and Maintenance:***

The following personnel are ultimately responsible for inspection and maintenance of fire protection equipment and/or systems.

**Name or Job Title**

- 
- William Davis, Meteorologist-In-Charge
- 
- Larry Dooley, Focal Point
- 

The status of the fire protection equipment inspection/maintenance activities is shown below:

<b>Type of Equipment</b>	<b>Last Inspection/ Maintenance Date</b>	<b>Name and Phone Number of Contractor</b>
Fire Extinguisher	August 1999	Kenco Fire Equipment 831-7669

Date \_\_\_/\_\_\_/\_\_\_

**PROCEDURE 7 - Hazard Communication**

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## Synopsis

The purpose of this procedure is to educate all personnel about chemical hazards in the workplace. This procedure applies to all NWS facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Identify Hazardous Chemicals on site. (*B.3.2, C.1*)
  - Inspect all labels on each container containing a hazardous chemical. (*B.3.4, C.4*)
- **Develop/Obtain Documentation/Information Required for Site**
  - Prepare a list of hazardous chemicals (*C.1*)
  - Develop site-specific Hazard Communication Program. (*7.3.3*)
    - Safety Data Sheets (SDS) (*B.3.3, C.2.1*)
    - Procedures for control of chemical purchases. (*B.3.2, C.3*)
    - Training Lesson Plans. (*C.5, K*)
    - Procedure for updating chemical list. (*B.3.2, C.1*)
    - Procedure for contractor's compliance. (*C.10*)
- **Designate Person to Administer Hazard Communication Program Requirements**
- **Provide Local Training of Site Personnel**
  - SDS (*C.5, K*)
  - Labeling of Hazardous Chemical Containers. (*K*)
  - Chemical Hazards in the workplace. (*C.5, K*)
  - Emergency Procedures (*C.5, K*)
  - Hazardous Materials Cleanup and Disposal. (*L*)
- **Inventory Material/Equipment (Procure as required)**
  - Container Labels. (*7.5.2b, B.3.4*)
  - Training Videos (*7.5.2b, K*)
  - Spill Cleanup Equipment. (*7.5.2b, L*)

### **Recurring and Annual Task Requirements:**

- **Perform Inspections/Assessment/Testing**
  - Inspect labels on each container containing a hazardous chemical. (*B.3.4, C.4*)
- **Review/Update Documentation/Information required for Site**
  - Maintain a list of hazardous chemicals (*C.1*)
  - Update site-specific Hazard Communication Program. (*7.3.3*)
    - Safety Data Sheets (SDS) (*B.3.3, C.2.1*)
    - Procedures for control of chemical purchases. (*B.3.2, C.3*)
    - Training Lesson Plans. (*C.5, K*)
    - Procedure for updating chemical list. (*B.3.2, C.1*)
    - Procedure for contractor's compliance. (*C.10*)
- **Provide Refresher Hazard Communication Training of Site Personnel (*C.5*)**
- **Inspect/Replace/Maintain Material/Equipment**
  - Container Labels. (*7.5.2b, B.3.4*)
  - Training Videos (*7.5.2b, K*)
  - Spill Cleanup Equipment. (*7.5.2b, L*)

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**Hazard Communication Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	7.4.2				
Has a written Hazard Communication Program been developed?	7.3.3, C				
Has the Hazard Communication training been provided to all personnel?	K				
Have all affected employees read, understood and complied with the requirements of this procedure?	7.5.4a				
Has the list of hazardous chemicals been prepared and updated semi-annually?	B.3.2 C.1				
Are employees trained on hazards associated with chemicals present in the workplace and how they can protect themselves from these hazards?	K C.5				
Are all containers containing Hazardous Chemicals labeled, tagged, and include the identity and appropriate warnings of the hazardous chemical?	B.3.4 C.4				
Have facility personnel been trained on the use, interpretation and importance of labeling?	B.3.4 C.5				
Are employees trained in the use and interpretation of Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS)?	K C.5				
Are there complete and legible SDS or MSDS for all Hazardous chemicals at this facility?	B.3.3 C.2				
Are SDS or MSDS kept in a location(s) so that they are readily available to all personnel on all shifts?	B.3.3 C.2				



Requirements	Reference	YES	NO	N/A	Comments
Are employees trained on who to contact and what to do in an emergency?	B C.5				

## 7 HAZARD COMMUNICATION

### 7.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to educate all personnel about chemical hazards in the workplace. This procedure applies to all NWS facilities, work locations, and employees.

### 7.2 Definitions

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or Data Collection Office (DCO).

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.

SDS – Safety Data Sheet. Replaced Material Safety Data Sheets (MSDS) in the 2012 update of the Hazard Communication Standard.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 7.3 Procedure

7.3.1 The Station Manager shall ensure that the facility implements a comprehensive Hazard Communication Program which complies with the requirements of OSHA 29 CFR 1910.1200, “Hazard Communication” and Globally Harmonized System (GHS) adopted by OSHA in 2012. The following OSHA web page contains comprehensive information on the new standard: <https://www.osha.gov/dsg/hazcom/index.html>.

#### Summary of 2012 Changes to the Hazard Communication Standard

- **Hazard classification:** Provides specific criteria for classification of health and physical hazards, as well as classification of mixtures.
- **Labels:** Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.
- **Safety Data Sheets:** Will now have a specified 16-section format.

- **Information and training:** Employers are required to train workers by December 1, 2013 on the new labels elements and safety data sheets format to facilitate recognition and understanding.

7.3.2 Each facility shall develop a site-specific Hazard Communication Program using the template provided in Addendum I, Section C: “NWS Hazard Communication Program.” The Program must be up to date with regards to GHS requirements.

7.3.3 The Safety or Environmental/Safety Focal Point shall oversee the implementation and maintenance of the facility’s Hazard Communication Program.

**NOTE:** In 2012 OSHA modified the Hazard Communication Standard (HCS) to conform to the United Nations Globally Harmonized System (GHS). To assist with implementation of new OSHA requirements, the NOAA Safety and Environmental Compliance Office (SECO) has developed the online training course and associated quiz, posted on the following Google web site: <https://secure.seco.noaa.gov/safetyhome.html> (Under Safety Quick Links). The training is required for all NWS employees who have any, even minimal or sporadic, chemical handling as part of their jobs. NWS contractors are also encouraged to complete the course.

By June 1, 2016 the following activities are to be completed:

- Ensure that GHS compliant Safety Data Sheets (SDS) are in place.
- Identify and modify workplace warning signs in accordance with new GHS requirements, as necessary.

**Note:** Per OSHA, employers may choose to label workplace containers either with the same label that would be on shipped containers for the chemical under the revised rule, or with label alternatives that meet the requirements for the standard.

For example, alternative labeling systems such as the National Fire Protection Association (NFPA) 704 Hazard Rating and the Hazardous Material Information System (HMIS) are permitted for workplace containers. Since these alternative labels would, at a minimum, only provide the product identifier and "general" information regarding the hazards of the chemicals, the employer must also make "specific" information regarding the physical and health hazards of the chemical immediately available to employees through other means under the hazard communication program (i.e., Safety Data Sheets (SDS)). Employees need to be familiar with SDS content.

Use of alternative (NFPA, DOT) labeling supplemented by “Danger-Diesel Fuel (Propane) - No Smoking” sign would be acceptable labeling for emergency generator propane and diesel fuel tanks.

## 7.4 Responsibilities

7.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.

- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

#### 7.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and periodic inventory of container labels, spill cleanup and other safety equipment is accomplished and adequate stock is maintained.
- c. Will ensure that facility's Hazard Communication Plan is updated to address GHS elements and all applicable requirements are implemented in accordance with the implementation schedule described in 7.3.3.
- d. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

#### 7.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

#### 7.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will oversee the implementation and maintenance of the facility's Hazard Communication Program.

#### 7.4.5 Employees

Employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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### 7.5 **References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.1200, "Hazard Communication."

**Addenda**

Addendum I: Hazard Communication Program Compliance Kit

**ADDENDUM I**

**HAZARD COMMUNICATION PROGRAM KIT**

**SECTION A**

**Executive Summary**

A standardized NWS Hazard Communication Program template is found in Section C. It meets the *minimum* OSHA requirements and covers newly adopted Globally Harmonized System (GHS) requirements.

The Station Manager or his/her designee (e.g., Safety or Environmental/Safety Focal Point) shall review the Hazard Communication Program template presented in Section C and fill in the blanks to include unique information about each work site. The written program shall be available for employees to review. The program consists of the following sections:

<b>Section</b>	<b>Description</b>
A	Executive Summary
B	Compliance Guidance
C	NWS Hazard Communication Program (template)
D	Worksite Hazardous Chemical List
E	Labeling Information
F	Worksite Training Records
G	NWS Hazardous Chemical List Requirements
H	Safety Data Sheet (SDS) Requirements.
I	NWS Safety Data Sheet Requests. (1) Sample letter for requesting a SDS. (2) Sample letter for requesting additional information about a SDS, and (3) SDS Request File sheet
J	Training Program.
K	Cleanup and Disposal of Typical Hazardous Materials and Wastes.

## SECTION B

### Compliance Guidance

**B.1 Introduction.** About thirty two-million workers in the United States are potentially exposed to one or more chemical hazards. This poses a serious problem for exposed workers and their employers. Chemical exposure may cause or contribute to many serious health effects such as heart ailments, kidney and lung damage, sterility, cancer, burns, and rashes. Some chemicals may also be safety hazards and have the potential to cause fires and explosions and other serious accidents.

Because of the seriousness of these safety and health problems, and because many employers and employees know little or nothing about them, in 1983 the Occupational Safety and Health Administration (OSHA) issued a standard called **Hazard Communication** that applies to employers in the manufacturing sector of industry. The scope of the standard was expanded in 1987 to include employers in the non-manufacturing sector and Federal Government. The finalized standard was promulgated on August 24, 1987, and amended in March 1997. Further explanations are found in the Federal Register 52 (163): 31852-31886, August 24, 1987. In 2012, OSHA modified the Hazard Communication Standard (HCS) to adopt Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. Information regarding the GHS can be found at the following web sites:

- <https://www.osha.gov/dsg/hazcom/HCSFactsheet.html>
- <https://www.osha.gov/dsg/hazcom/>

The basic goal of the standard is to ensure that supervisors and employees know about chemical hazards and know how to protect themselves. This knowledge, in turn, should help to reduce the incidence of chemical source illnesses and injuries.

**B.2 What the Standard Requires.** The Hazard Communication Standard establishes uniform requirements to assure that the hazards of all chemicals imported, produced or used in U.S. workplaces are evaluated for physical and health hazards, and that the resultant hazard information and associated protective measures are transmitted to supervisors and potentially exposed employees by means of labels on containers and safety data sheets (SDS), or Material Safety Data Sheets (MSDS) under previous versions of Hazard Communication Standard.

**B.3 How to Comply with the Standard.** The NWS Station Manager shall ensure that the field office complies with the HCS and that a site-specific hazard communication program is developed. The Station Manager shall designate personnel who shall be responsible for development and maintenance of the program. See paragraph B.3.5 for more details. The following is a process to be used by the Safety or Environmental/Safety Focal Point in developing a Hazard Communication Program unique to their office.

**B.3.1 Read the Standard.** Review the standard and ensure that the provisions of the Standard are understood. NOAA SECO online training is available to explain provisions of the new GHS standard <https://secure.seco.noaa.gov/safetyhome.html>



(Under Safety Quick Links). Side-by-Side Comparison of OSHA's Existing Hazard Communication Standard (HCS 1994) vs. the Revised Hazard Communication Standard (HCS 2012) can be found at:

<https://www.osha.gov/dsg/hazcom/side-by-side.html>.

**B.3.2 List the Hazardous Chemicals in the Workplace.**

- Walk around the workplace, read the labels of all the containers, and list the identity of materials that may be hazardous; the manufacturer's product name, manufacturer, quantity on hand, location where product is stored, and the work area where the product is used (see table in Section D). Be sure to include hazardous chemicals that are generated in the work operation but are not in a container (e.g., welding fumes, soldering fumes, etc.) and compressed gases.
- Ensure that chemical products purchased through the Consolidated Logistics System (CLS) which are classified as hazardous are listed.
- Review the chemical hazards list and determine whether any substances are exempt [see paragraph (b) of the referenced standard for exemptions], e.g., pesticides, food additives, cosmetics.
- Establish a file on hazardous chemical products used in the workplace, and include copies of the latest SDSs, and any other pertinent information.
- Develop procedures to keep the list current. When new products are used or purchased, add them to the list. Establish purchasing procedures. See Section C, paragraph C.3, for details.

**B.3.3 Obtain SDS (MSDS if no SDS is Available) for All Chemical Substances.**

- If there is no SDS for a hazardous substance in the workplace, request a copy from the chemical manufacturer, distributor or importer as soon as possible (See Section I for a sample letter requesting an SDS). The Internet can also be used to obtain missing SDS. An SDS shall accompany or precede the shipment from a distributor or the National Logistics Support Center (NLSC) and shall be used to obtain identifying information such as the chemical name and the hazards of a particular substance.
- Review each SDS to be sure that it is complete, legible, and clearly written. The SDS shall contain information required by OSHA HCS including but not limited to the physical and chemical properties of a substance, as well as the physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures, and control measures.
  - If the SDS is incomplete or unclear, contact the manufacturer or importer to get clarification on the missing information.
  - If the SDS contains trade secret information, make sure that an emergency number is included.
  - Make sure the SDS is available to facility staff, volunteer observers, and contractors.

- Upon request, allow a representative of the Assistant Secretary for Occupational Safety and Health (OSHA inspector) to see SDS files.

**B.3.4 Make Sure That All Containers Are Labeled.** The manufacturers, importers or distributors are responsible for labeling containers in accordance with GHS standard, but both the supervisors and facility staff shall adhere to the following:

- Ensure that all containers of hazardous substances in the workplace are labeled, tagged or marked and include the identity of the hazardous chemical, and the appropriate hazard warnings. Container labels for purchased chemicals shall also include the name and address of the chemical manufacturer, importer, or other responsible party.
- Check all incoming shipments of hazardous chemicals to be sure that they are labeled per GHS standard requirements.
- If a container is not labeled, obtain a label or the label information from the **manufacturer, importer, or other responsible party** or prepare a label using information obtained from these sources. Do not try to “guess” if you are not sure what is in the container.
- Do not remove or deface existing labels on containers unless the container is immediately marked with the required information.
- Remove all old labels before using a container for other products.
- Instruct facility staff on the importance of labeling portable receptacles into which they have poured hazardous substances. If the portable container is for their immediate use, the container does not have to be labeled; however, such a container shall be emptied after the employees leave the area.

**NOTE:** Per OSHA HCS, labels on existing chemical products will not have to be updated unless chemical manufacturers, importers, distributors or employers become aware of any significant information regarding the hazards of the chemical. In this case, the labels will have to be revised within six months of becoming aware of the new information.

**B.3.5 Develop and Implement a Written Hazard Communication Program.** This program shall include:

- SDSs (Or MSDSs where SDS are unavailable);
- Container labeling and other forms of warnings;
- Employee training based upon the hazardous chemicals list, SDSs, and labeling information; and
- Methods for communicating hazards and protective measures to facility staff and others.

Subsequent sections of this kit will discuss each of these steps in more detail and provide samples of the material discussed and lists of products, services, and other resources. See Section C, for the general template of the standardized NWS Hazard Communication

Program. Review it, fill in the blanks and add any information specific to the site. In order to implement the Program, the Station Manager and other site supervisors shall be actively involved in the process.

If you need further assistance with program development and training, contact the NWS Regional/Operating Unit Environmental/Safety Coordinator or the NWS Safety Officer.

**B.4 Checklist.** The following checklist can assist Station Manager in their evaluation of the Hazard Communication Program.

- Yes \_\_\_ No \_\_\_ Reviewed hazardous chemicals at the worksite.
- Yes \_\_\_ No \_\_\_ Established a master hazardous chemical list.
- Yes \_\_\_ No \_\_\_ Obtained SDS (or MSDS where SDS are unavailable) for each hazardous chemical in use.
- Yes \_\_\_ No \_\_\_ Developed and implemented procedures to ensure that all incoming hazardous chemicals are labeled.
- Yes \_\_\_ No \_\_\_ Reviewed each SDS for completeness.
- Yes \_\_\_ No \_\_\_ Ensured SDS are readily available, where necessary.
- Yes \_\_\_ No \_\_\_ Prepared a written Hazard Communication Program.
- Yes \_\_\_ No \_\_\_ Developed and implemented processes to communicate hazards to facility personnel.
- Yes \_\_\_ No \_\_\_ Informed facility staff of protective measures for hazardous chemicals used in the workplace.
- Yes \_\_\_ No \_\_\_ Alerted facility staff to other forms of warning that may be used.

<p><b>NOTE:</b> In order to aid in the management of this procedure, only the minimum and essential hazardous materials and products should be purchased and stored.</p>
--

**SECTION C**

**National Weather Service Hazard Communication Program**

The following written Hazard Communication Program has been established for:

National Weather Service Office: _____
Region: _____
Address: _____

It is prepared to comply with the U.S. Department of Labor, Occupational Safety and Health and Administration Standard Title 29 Code of Federal Regulations (CFR) Part 1910 Section 1200, Hazard Communication standard requirements.

The Station Manager at this site:

_____
-------

is responsible for the occupational safety and health of the personnel and the Hazard Communication program at the site. Functional responsibility for the Hazard Communication Program has been delegated to:

_____ (Safety or Environmental/Safety Focal Point) name
--

The Safety or Environmental/Safety Focal Point shall review and update the program on a semiannual basis. This program applies to all worksites associated with the (circle one):

- a. Weather Forecast Office (WFO)
- b. Weather Forecast Office/River Forecast Center (WFO/RFC)
- c. Weather Service Office
- d. Data Collection Center
- e. Operating Unit (e.g., NCEP, NDBC, etc.)
- f. Other

NWS employees, their designated representatives, and contractors at this facility and upon request, the Occupational Safety and Health Administration (OSHA) representatives, and emergency and medical service providers have access to this written Hazard Communication Program at the following location: \_\_\_\_\_

The worksites listed on this page are sites where NWS personnel may be exposed to the chemical hazards under normal working conditions or during an emergency situation.

<b>Locations</b>			
<b>Site Location:</b>		<b>State:</b>	
List of the offices, WSR-88D Radar Data Acquisition (RDAs) sites, Upper Air Inflation Buildings (UAIBs), Automated Surface Observing System (ASOS) sites, National Oceanic and Atmospheric Administration (NOAA) Weather Radio, cooperative stations, transition power maintenance shelters, storage sites, etc., associated with this Weather Forecast Office (WFO) or WFO/River Forecast Center (RFC) or Operating Unit.			
<b>Type of Facility/Description</b>		<b>Location</b>	

**C.1. Hazardous Chemical List.** The Station Manager has the primary responsibility to ensure that a list of hazardous chemicals used at the field office or Operating Unit and associated sites is prepared and kept current. The Safety or Environmental/Safety Focal Point or Station Manager’s designee \_\_\_\_\_ shall develop the master hazardous chemical list and update it semiannually. A new item shall be added on the master chemical list after the Safety or Environmental/Safety Focal Point has reviewed the Safety Data Sheets (under revised OSHA Hazard Communication Standard) and cleared it for purchase (see paragraph C.3 for purchasing requirements). Only the Safety or Environmental/Safety Focal Point or the Station Manager’s designated representative can update the master hazardous chemical list. Personnel in charge of associated sites are responsible for updating the site hazardous chemical list in accordance with the master list.

Section D contains a master list of all known chemical products and items containing chemicals to which employees at this site are or may be potentially exposed (e.g., via spills). Separate lists are available for RDAs, UAIBs, ASOS, NOAA Weather Radio, cooperative stations, etc. and are posted and accessible to fire department or other emergency response organization(s) personnel

during emergency situations. (Local municipal fire officials may request specific arrangements for displaying the lists outside the building(s)).

The Worksite Hazardous Chemical List includes the following:

- a. product/generic name, as shown on the label and SDS (names shall be identical);
- b. manufacturer's or distributor's address, and, if available, telephone number;
- c. generic name;
- d. operational area used;
- e. quantity on hand;
- f. date entered into the system;
- g. National Stock Number (NSN)/Agency Stock Number (ASN), if applicable; and
- h. location where used or stored.

It is recommended to have the list organized alphabetically, by product name and/or by manufacturer.

**C.2 Safety Data Sheets (SDSs) or Material Safety Data Sheets (MSDS).** SDS (MSDS) provide specific information on the chemical product. Both SDS and MSDS may be present at the location if the site was not provided with an SDS update by the chemical manufacturer or distributor.

The Safety or Environmental/Safety Focal Point or another designated employee is responsible for compiling and maintaining a complete master set of SDSs (MSDSs) for chemical products identified on the worksite hazardous chemical list (see Section D).

For products already in use at NWS facilities for which there are no current SDS, the Safety and Environmental/Safety Focal Point shall ensure that a corresponding SDS is obtained from the manufacturer or vendor.

If a product is ordered through the Consolidated Logistics System (CLS), the shipment shall automatically include SDS. If the SDS is not included with a shipment, the ordering employee shall contact the National Logistics Support Center (NLSC) and request the corresponding SDS.

All purchase requisitions for new chemical products shall be reviewed and cleared by the Safety or Environmental/Safety Focal Point or another designated person, as described in paragraph C.3.

The Safety or Environmental/Safety Focal Point shall contact a manufacturer or vendor if within a reasonable time, an SDS has not been received, or additional clarification and research is necessary. It is advisable to contact the manufacturer's SDS Technical Service Department first by telephone. When this approach is not successful, the Safety or Environmental/Safety Focal Point shall contact the manufacturer by letter (see Section I for sample letters requesting SDS or additional information). A copy of the letter shall be retained to document efforts to obtain the SDS.

The Safety or Environmental/Safety Focal Point shall ensure that SDSs containing trade secret chemical components include the manufacturer's emergency number. The manufacturer shall

disclose the identity of a trade secret component in case of medical emergency to a treating physician. If the product with a trade secret component requires monitoring or other special protective measures, industrial hygiene professionals have a right to require the identity of trade secret components. The Safety or Environmental/Safety Focal Point shall contact NOAA SECO safety personnel, or the NWS Regional/Operating Unit Environmental/Safety Coordinator for technical advice in such cases.

C.2.1 SDS Sets to Maintain. A master SDS set shall be maintained at the field office or Operating Unit as part of the Hazard Communication Program. Maintenance of SDS sets at all collocated sites is recommended. Uniquely defined SDS subsets shall be available at all remote locations and maintained by the Safety or Environmental/Safety Focal Point or other personnel designated by the Station Manager for the following sites:

- RDA,
- UAIB and/or balloon inflation launching shelter (BILS),
- ASOS
- NOAA Weather Radio
- Cooperative Stations (if chemical products are used)
- Transition power maintenance shelter (TPMS),
- Storage sites, and
- Other sites associated with the facility: \_\_\_\_\_

In addition, supervisors shall ensure that applicable SDS are available within individual work areas under their control.

Copies of SDS can be obtained from the Safety or Environmental/Safety Focal Point.

**C.3 Purchasing Requirements.** Purchase orders for products that are hazardous or may contain hazardous chemicals/materials shall include a provision, or be accompanied by a written request, to the vendor or supplier that:

- a. An up-to-date SDS is provided,
- b. Containers bear required identification and warning labels (see paragraph C.4 for labeling requirements), and
- c. Department of Transportation (DOT) requirements for shipment are met.

Prior to the acquisition of new chemical products, the SDS for those products shall be obtained and forwarded to the Safety or Environmental/Safety Focal Point for review in order to determine if the potential for physical and health hazards exists, and if there are any special requirements for shipment, disposal, and storage. If working with the product would present more than a minor health hazard and require special preventive measures (local exhaust, air monitoring), the usage of such a product shall be discouraged. The product shall be replaced by less hazardous alternatives, if available. NWS employees are mandated to actively search for viable replacement for hazardous products so as to replace them with environmentally 'friendly' products that are less hazardous to human health and the environment. Product cost estimates

shall include all expenditures for operating and disposing of that product. This includes the costs for the initial purchase of the product as well as the use of personal protective equipment and the proper disposal of a used product or residue.

While SDS are not required to be physically attached to a shipment, they should accompany or precede the shipment. When the manufacturer/supplier fails to send an SDS with a shipment, the Safety or Environmental/Safety Focal Point or his/her designee shall obtain one from the manufacturer/supplier.

When purchasing hazardous materials from the foreign companies, NWS personnel shall ensure the following:

- a. Import of hazardous material(s) into the U.S. is not prohibited by any U.S. agency and/or regulations.
- b. Shipment of hazardous material(s) into U.S. is performed in accordance with applicable U.S. DOT regulations.

**C.4. Container Labeling and the Use of Placards.** Chemical manufacturers, importers, and distributors are mandated by law to label, tag, or mark all containers leaving their plants or warehouses. Unlike the SDS, the label is not an exhaustive description of the chemical substance. Rather, the label is meant to warn users of health and/or chemical hazards.

Under revised HCS of 2012, labels require to have the following information:

- a. Product identifier;
- b. Signal word;
- c. Hazard statement;
- d. Pictogram(s);
- e. Pre-cautionary statement; and
- f. The name and address of the manufacturer, importer, distributor, or responsible party.

In most cases, chemical products purchased in retail stores have the required labeling. Products purchased in bulk from wholesale distributors or supply houses are more likely to have labeling problems and, therefore, shall be thoroughly checked.

Personnel who purchase or receive shipments shall verify that each container's label contains all required information. The following additional requirements shall be met:

- a. the chemical name shall be identical with the one listed on the SDS. For items ordered through CLS, there shall be a national stock number (NSN) and agency stock number (ASN) on the label;
- b. labels shall be legible and in English;
- c. labels shall not be defaced or otherwise damaged; and
- d. container labeling shall be in conformance with hazardous material transportation regulations promulgated by Department of Transportation (DOT) and set forth in Title 49



CFR. DOT requires proper shipping name, UN ID #, and hazard labels on shipping container.

If any problems are discovered, shipments shall not be accepted, and the Safety or Environmental/Safety Focal Point shall be notified. If the problem cannot be resolved locally, the NWS Regional/Operating Unit Environmental/Safety Coordinator shall be contacted for advice regarding further action.

Station managers and supervisors are responsible for ensuring that personnel use only labeled/marked containers. To comply with this requirement, existing unlabeled containers shall be labeled (if the content is known) and any new purchase or shipment shall be checked before the product is used.

To further ensure that employees are aware of the chemical hazards of materials used in their work areas, supervisors for each work area and/or shift shall ensure that all secondary containers are labeled. Any container label that becomes damaged shall be replaced. This label may be replaced with either an extra copy of the original manufacturer's label, or with generic label alternatives that meet the requirements of the revised HCS (e.g., NFPA labels are permitted, however, information on these labels must be consistent with the revised HCS – no conflicting warnings or pictograms). When transferring chemicals from one container to another (e.g., transfer of a solvent from a 5-gallon container into a 1-gallon can), the person responsible for the transfer is also responsible for the proper labeling of the new container.

Labels may not be required on temporary **portable containers** in which chemicals are:

- a. transferred from labeled containers,
- b. when such a container is intended for the transferring employee's immediate use,
- c. the quantity does not exceed a one day supply, and
- d. the container is used only by the transferring employee.

If all of these conditions are not satisfied, the container shall be labeled. Care shall be taken by an employee and supervisor to assure that chemicals are not disposed into temporary containers that previously held incompatible chemicals, unless the containers are properly cleaned.

<p><b>NOTE:</b> No flammable material may be placed into temporary containers not designated for flammables.</p>
--

Placards or signs which convey the hazard information may be posted in lieu of container labels for stationary containers within a work area which have similar content and hazards, e.g., hydrogen for generators and hydrogen storage area.

The Safety or Environmental/Safety Focal Point or another person designated by the Station Manager should inspect container labeling at least semiannually in conjunction with the hazardous list and SDS update. Any unlabeled containers of unknown content and surplus chemical products shall be disposed of by a certified disposal company. There are a number of Federal and state regulations that govern the handling, transport, storage, and disposal of hazardous chemicals. Any surplus activity shall be planned ahead including accumulation, storage, and disposal of surplus chemicals. If necessary, assistance can be requested from the NWS Environmental and Safety Coordinator.

Pesticides, foods, food additives, colorings, drugs, and consumer products that are controlled by other federal agencies and laws do not require labeling under the OSHA Hazard Communication Standard.

**C.5 Employee Training and Information.** NWS personnel who (even occasionally) work with, purchase, or are potentially exposed to chemicals shall receive initial training on the Hazard Communication Program.

The Station Manager, along with the Safety or Environmental/Safety Focal Point shall determine which station or operating unit personnel have not yet received Hazard Communication training and need to be trained. Information on training can be found in Section J, Training Program. The Safety or Environmental/Safety Focal Point will facilitate and coordinate NWS office personnel HAZCOM training. The training program shall include the following topics:

- a. an overview of the requirements contained in OSHA standard 29 CFR 1910.1200;
- b. chemical and physical properties (flashpoint, reactivity, etc.) of hazardous materials and associated physical hazards (explosive, flammable, etc.);
- c. health hazards, including signs and symptoms of exposure and routes of entry;
- d. how to interpret labels and SDS;
- e. methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area (such as monitoring, visual appearance, or odor, etc.);
- f. how to lessen or prevent exposure to the hazardous chemicals through usage of safe work practices, engineering controls (ventilation), and personal protective equipment;
- g. chemicals present in the work area;
- h. location and availability of the written Hazard Communication Program, hazardous chemical lists, and SDSs;
- i. emergency procedures to follow if an employee is exposed to these chemicals; and
- j. spill cleanup and disposal of typical NWS hazardous materials and wastes.

Each new employee who has not been trained shall receive the initial training. Upon completion of the initial training, each employee shall sign the training form (see Section G) or a form approved by the Station Manager.

When new chemicals or chemical products are introduced into the work area, the Safety and Environmental/Safety Focal Point or another designated employee shall:

- a. review the SDS associated with the chemical products,
- b. identify potential hazards and determine hazard control requirements, if applicable, and
- c. ensure that all employees working with or exposed to the hazardous chemicals are properly trained in their use.

Additional training of NWS personnel shall be done whenever a new hazard is introduced into a workplace. Refresher training shall take place based upon an evaluation by the Station Manager

along with the Safety or Environmental/Safety Focal Point. The need for refresher training shall be based on the employee's demonstration that he/she has less than a thorough understanding of the Hazard Communication Program or based on personnel turnover. Online training course that covers revised OSHA HCS standard is available on the following secure NOAA SECO web site: <https://secure.seco.noaa.gov/safetyhome.html> (under Safety Quick Links).

**C.6 Hazardous Non-Routine Tasks.** Infrequently, NWS employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, affected employees shall be given information by their supervisor and the Safety or Environmental/Safety Focal Point about the hazards to which they may be exposed during such activity. If more technical advice is required, the NWS Regional/Operating Unit Environmental/Safety Coordinator or NWSH safety personnel should be contacted.

The information shall include:

- SDS and description of other physical and health hazards,
- Personal protective equipment and safety measures the employee shall use,
- Measures that the Station Manager or his designee has taken to lessen the hazards associated with non-routine task, including area ventilation, assignment of a second person or safety observer, spill emergency procedures, etc.

**C.7 Chemicals in Unlabeled Pipes.** Work activities are often performed by employees in areas where chemicals are transferred through unlabeled pipes. Most pipes are not required to be labeled; however, employees shall be informed of their content. Per NFPA 5503.4.3, compressed gas pipes do need to be labeled with the name of the contents and the direction of flow. The field office or Operating Unit may have the following unlabeled pipes: potable water, sewer, oil piping, air conditioning, equipment piping (e.g., air conditioning piping contains Freon that is asphyxiant; maintenance on such piping shall be done only by certified mechanics with specialized recovery equipment).

Prior to starting work in these areas, employees shall contact the responsible supervisor for information regarding:

- the chemical(s) in the pipes,
- potential health hazards, and
- safety precautions which shall be taken.

**C.8 Station Manager Responsibilities.** The Station Manager, with assistance of the site Safety or Environmental/Safety Focal Point, shall ensure that each employee has a basic knowledge of the information contained in SDS and an understanding of proper use of that information. The Station Manager shall ensure:

- SDSs are available to employees in their work areas during each work shift, and
- SDS information is provided for each hazardous chemical.

**C.9 Employee Responsibilities.** Successful implementation of the Hazard Communication Program depends on active involvement of personnel at the field office or Operating Unit. Every NWS employee who purchases, handles, or uses hazardous chemical products is responsible for:

- a. Knowing where to get information about the hazardous chemical labels used in the work area;
- b. Reading and understanding the information on hazardous chemical labels and SDS;
- c. Keeping the work areas clean;
- d. Using protective clothing and equipment, as required;
- e. Not to smoking, eating, or drinking around hazardous chemicals;
- f. Learning the emergency procedures for the work area;
- g. Following the procedures for hazardous chemical disposal and spill cleanup;
- h. Practicing safe work habits; and
- i. Attending required training.

**C.10 On site Contractors.** When soliciting a contract, it is the Contracting Officer's Technical Representative (COTR) responsibility to inform the Contracting Officer of any possible hazards associated with work on a contract, so that notification and special conditions can be put into the solicitation prior to contract award. The site Safety or Environmental/Safety Focal Point shall advise the COTR of possible hazards that contractor employees encounter while working at an NWS facility. Contractors working at the field office or Operating Unit shall comply with the state of \_\_\_\_\_ occupational safety and health regulations.

(Enter NA if state does not have an OSHA approved plan)

**Note:** Federal employees on the federal property are not governed by state OSHA.

The Contracting Officer shall obtain from a contractor a list of all chemicals the contractor intends to bring into or on to the work area (interior/exterior paint, sealants, tile or carpet adhesives, cleaning supplies, fertilizers, etc.). This includes construction as well as janitorial and landscaping contracts. A copy of the SDS(s) shall be provided to the COTR and the Safety or Environmental/Safety Focal Point. SDS(s) shall be posted in the work area, so that all employees affected by the contract work can have an access to them. If any engineering controls (ventilation, etc.) are required, the contractor shall describe the method(s) that shall be used to implement these controls and a work schedule for the implementation. This information should be posted or otherwise communicated to affected personnel.

Upon notification by the COTR, the Safety or Environmental/Safety Focal Point shall advise outside contractor employees of any hazards that they may encounter at NWS facilities. Contractor employees shall be informed about the location of this Hazard Communication Program and the availability of SDS(s). The information provided by the Government shall be sufficient to enable the contractor to satisfy his own Hazard Communication Program responsibilities as promulgated by the \_\_\_\_\_ State OSHA-approved plan (if applicable). (no entry if state does not have an OSHA approved plan)

In addition, the COTR shall ensure that contractor personnel have received Hazard Communication training in accordance with the Federal and state OSHA requirements (as applicable).

**SECTION D**  
**Worksite Hazardous Chemical List**

Site/Location: \_\_\_\_\_ Region: \_\_\_\_\_

Address: \_\_\_\_\_

The following is a master chemical list of all known hazardous chemicals used at this facility. Further information on each noted chemical can be obtained by reviewing the worksite Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS).

<b>HAZARDOUS CHEMICAL LIST</b>							
<b>Product Name on Label</b>	<b>Manufacturer Listed on Label</b>	<b>Generic Name</b>	<b>Operation/ Work Area Used</b>	<b>Quantity on Hand (oz., gal, liters, lbs., tons)</b>	<b>Date entered into system</b>	<b>ASN, NSN, or Part #</b>	<b>Location</b>

## SECTION E

### Labeling Information

To comply with revised OSHA HCS (2012), chemical warning labels shall include the following information:

**Product Identifier** - product name, chemical name, or trade name

**Signal Word** - stating the degree of hazard, such as “**Caution!**”, “**Warning!**” or “**Danger!**”

**Hazard Statement** - means a statement assigned to hazard and category that describes the nature of the hazard(s) of a chemical, including where appropriate a degree of hazard. ”

**Precautionary Statement** - what to do to avoid injury or illness, such as: “**acute breathing vapors**” or “**wash thoroughly after handling**”

**Pictograms** – a composition that may include a symbol plus other graphic element, such as a border, background pattern, or color intended to convey specific information about the hazards of a chemical. Under the revised OSHA HCS eight pictograms are used to indicate the hazard category.

**Name, address and telephone number of the chemical manufacturer, importer or other responsible party.**

Labels may also include:

**Instructions in Case of Exposure** - first aid information for exposure to the chemical(s).

**Fire, Spill, or Leak Instructions** - how to put out or control fires and clean up leaks or spills.

**Handling and Storage Instructions** - special procedures for handling and storing chemical containers.

**Antidotes** - measures that can be used by medical personnel to counteract the effects of chemical exposure.










**Notes to Physician** - information for physician concerning exposure to the chemical(s).

**Disposal Instructions** - special disposal instructions may be provided on the label; however, follow state and local disposal requirements.

As of June 1, 2015, all labels are required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements can be found at the following OSHA web page: <https://www.osha.gov/Publications/OSHA3492QuickCardLabel.pdf>. Supplemental information can also be provided on the label as needed.

**Hazard Communication Standard Pictogram**

As of June 1, 2015, the Hazard Communication Standard (HCS) requires pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards		
<p><b>Health Hazard</b></p>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<p><b>Flame</b></p>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<p><b>Exclamation Mark</b></p>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
<p><b>Gas Cylinder</b></p>  <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<p><b>Corrosion</b></p>  <ul style="list-style-type: none"> <li>• Skin Corrosion/Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<p><b>Exploding Bomb</b></p>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><b>Flame Over Circle</b></p>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p><b>Environment</b> (Non-Mandatory)</p>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p><b>Skull and Crossbones</b></p>  <ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

**SECTION F**

**Worksite Training Records**

**SITE NAME:** \_\_\_\_\_





---

*Enter name of site, location*

**HAZARD COMMUNICATION TRAINING RECORD**

**This certifies that**

---

*Employee name*

has received Hazard Communication Training as described in the Hazard Communication Program. The training was conducted on \_\_\_\_\_

*date*

---

*Instructor's signature*

I understand the Hazard Communication Standard requirements and know where the written NWS Hazard Communication Program is located. I will perform my job in compliance with instructions contained herein.

---

*Employee signature*

---

*date*

## SECTION G

### NWS Hazardous Chemical List Requirements

**H.1 How to Identify Hazardous Chemicals.** The responsibility for determining whether a chemical is hazardous lies with the chemical manufacturer or importer of a chemical. The chemical manufacturer or importer shall pass this information to their customers. As a user of chemicals, NWS employees have to rely on the evaluation received from these suppliers through labels on containers and safety data sheets (SDS). To prepare a list of the chemicals at the work site, the site shall be surveyed and the names of chemicals that have a label indicating a potential hazard shall be written down or look for words such as: DANGER, WARNING, CAUTION, or HARMFUL on the warning label. Personnel involved in surveying the site shall also be aware of hazardous substances that are not enclosed in containers and that are generated during work operations (e.g., soldering or welding fumes, dusts, etc.) or in normal administrative tasks (e.g., copier toner, printer cartridges, or pen inks).

Check whether any of the chemicals identified during the survey are listed in the following publications:

- Title 29 Code of Federal Regulations (CFR) Part 1910, Subpart Z, Toxic and Hazardous Substances;
- The American Conference of Government Industrial Hygienists (ACGIH) latest edition of Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment; and
- The latest edition of the Annual Report on Carcinogens for suspected or confirmed carcinogens by the National Toxicology Program, or the International Agency for Research on Cancer (IARC) in the latest edition of their IARC monographs.

The Occupational Safety and Health Administration (OSHA) provides interpretations of the Act and the Hazard Communication Standard for various products, based upon users' requests. Once the hazardous chemicals list is completed, it shall be reviewed to determine if any of the materials or chemicals are exempted by 29 CFR Part 1910.1200 paragraph (b)(6). For example, rubbing alcohol maintained at a first-aid station would be exempt under paragraph (b)(6)(vi) of the 29 CFR 1910.1200 standard because it is intended for personal use by employees. To be prudent, some employers include all chemicals even if they are exempted. In general, if there is any question regarding a particular chemical, it is best to include that chemical in the hazardous chemical list. The listing shall include all chemicals at the work site rather than rely on the exemption rule.

**H.2 How to List Chemicals in the Workplace.** All hazardous chemicals known to be present in the workplace shall be listed, using an identifier that appears on the appropriate SDS and on label for the chemical. The list may also include common or trade names, Chemical Abstract Service (CAS) Registry numbers, etc. See Section D for NWS Hazardous Chemicals List requirements. The master list shall be compiled for the entire workplace and shall include the lists developed for individual buildings associated with the facility. This master list is designed to be an inventory of all items for which an SDS shall be obtained. It shall be a part of the written Hazard Communication program and shall be available to employees upon their request.

The following list identifies most common types of potentially hazardous chemicals and chemical products that may be present at the work site:

Acids	Insecticides
Adhesives	Janitorial supplies
Aerosols	Kerosene
Asbestos	Lacquers
Batteries	Lead
Battery fluids	Lye
Benzene	Metals and welding rods used in welding
Catalysts	Oxalic acid
Caustics	Paints
Cleaning agents	Pesticides
Coal tar pitch	Plastics
Coatings	Process chemicals
Compressed gases such as hydrogen, propane, oxygen, etc.	Resins
Copier toner (only for those who service the copier)	Sealers
Degreasing agents	Shellacs
Detergents	Solders
Dusts	Solvents
Etching agents	Strippers
Fiberglass	Wood preservatives
Flammables	Xylene
Foaming resins	Thinners
Fuels	
Gasoline	
Glues	
Greases	
Industrial oils	
Inks	

**Interpreted as Exempt, under 29 CFR 1910.1200 (b)(6)(iv)**

“white out”

most office products (pens, pencils, adhesive tape)

copier toner - for those who use the copier intermittently

**Typical NWS Hazardous Chemical Products**

helium

hydrogen

oxygen

propane

acetylene

mercury

potassium hydroxide

lead acid batteries

solvents

gasoline

lubrication oils and greases

diesel fuel

dielectric oil

paints

## SECTION H

### Safety Data Sheet Requirements

**I.1 Introduction.** The Safety Data Sheet (SDS), referred to as Material Safety Data Sheet (MSDS) under previous versions of the HAZCOM standard, is a detailed information bulletin prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling, and use, emergency and first aid procedures, and control measures. Information presented in an SDS can assist in the selection of safe products and can help to prepare employers and employees to respond effectively to daily exposure situations as well as to emergency situations.

SDSs are a comprehensive source of information for all types of employers. There may be information on the SDS that is not useful or important in your particular operations. Concentrate on the applicable portions. Generally, hazard information and protective measures shall be the focus of concern.

**I.2 OSHA Requirements.** Chemical product buyers are entitled to obtain SDS automatically upon the purchase of the material. When new and significant information concerning a product's hazards or ways to protect against the hazards becomes available, chemical manufacturers, importers, or distributors shall add it to their SDS within three (3) months and provide it to their customers with the next shipment. Station managers shall ensure that SDSs for each hazardous chemical used in the workplace are available. If there are multiple suppliers of the same chemical, there is no need to retain multiple SDSs for that chemical.

**I.3 Shipments.** While SDSs are not required to be physically attached to a shipment, they should accompany or precede the shipment. When the manufacturer/supplier fails to send an SDS with a shipment labeled as hazardous chemical, the ordering employee shall obtain one from the chemical manufacturer, importer, or distributor as soon as possible. Similarly, if the SDS is incomplete or unclear, the Safety or Environmental/Safety Focal Point shall contact the manufacturer or importer to obtain clarification or missing information. Section I provides a sample letter for requesting an SDS or additional information.

**I.4 Obtaining SDS.** When the Safety or Environmental/Safety Focal Point is unable to obtain an SDS from a supplier or manufacturer, he/she shall submit a formal written complaint to the nearest OSHA area office.

**I.5 Sections of an SDS.** OSHA specifies the information to be included on an SDS. The SDS shall be in English and, at a minimum, and under revised OSHA HCS include the following information:

- (i) Section 1, Identification;
- (ii) Section 2, Hazard(s) identification;
- (iii) Section 3, Composition/information on ingredients;
- (iv) Section 4, First-aid measures;
- (v) Section 5, Fire-fighting measures;

- (vi) Section 6, Accidental release measures;
- (vii) Section 7, Handling and storage;
- (viii) Section 8, Exposure controls/personal protection;
- (ix) Section 9, Physical and chemical properties;
- (x) Section 10, Stability and reactivity;
- (xi) Section 11, Toxicological information.
- (xii) Section 12, Ecological information;
- (xiii) Section 13, Disposal considerations;
- (xiv) Section 14, Transport information;
- (xv) Section 15, Regulatory information; and
- (xvi) Section 16, Other information, including date of preparation or last revision.

Sections 12 through 15 are not mandatory under the OSHA requirements.

**SECTION I**

**NWS Safety Data Sheet (SDS) Request**

**SAMPLE LETTER REQUESTING AN SDS**

Weather Forecast Office  
National Weather Service  
\_\_\_\_\_  
\_\_\_\_\_  
City, State, Zip Code

Blitz Manufacturing Company  
1923 Oak Grove Lane  
Springfield, Massachusetts 02110

Gentlemen:

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) requires employers to obtain Safety Data Sheets (SDS) for all hazardous substances used in their facility, and to make these SDS(s) available to employees potentially exposed to these hazardous substances.

We request a copy of the SDS for your product listed as Part/Stock Number \_\_\_\_\_ We did not receive an SDS with the initial shipment of the \_\_\_\_\_ (list the product name) delivered to us on \_\_\_\_\_(specify date). We also request any additional information supplementing the SDS or any other relevant data that your company or supplier has concerning the safety and health aspects of using this product.

Please consider this letter as a standing request to your company for any information concerning the safety and health aspects of using this product that may become known in the future. The SDS and any other relevant information shall be sent to us within 10, 20, 30 days (select appropriate time). Delays in receiving the SDS information may prevent use of your product. Please send the requested information to:

Mr./Mrs./Ms. \_\_\_\_\_  
Safety or Environmental/Safety Focal Point  
Street Address \_\_\_\_\_  
City, State, Zip Code \_\_\_\_\_

Please be advised that if we do not receive the SDS on the above chemical by \_\_\_\_\_ (date), we shall notify OSHA of our inability to obtain this information. It is our intent to comply with all provisions of the Hazard Communication Standard (1910.1200). Availability of SDS(s) is integral to this effort.

Your cooperation is greatly appreciated. Thank you for your timely response to this request. If you have any questions concerning this matter, please contact Mr./Mrs./Ms. \_\_\_\_\_  
at (        ) \_\_\_\_\_ - \_\_\_\_\_

Sincerely,

\_\_\_\_\_  
Safety or Environmental/Safety Focal Point



**SAMPLE LETTER REQUESTING  
ADDITIONAL INFORMATION ON SDS**

Weather Forecast Office  
National Weather Service

---

*Street Address*

---

*City, State, Zip Code*

ACE Chemical Company, Incorporated  
214 Capitol Drive  
Richmond, Virginia 23230

Dear Mr. Winston:

In an effort to comply with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard set forth in 29 CFR 1910.1200, the National Weather Service is seeking additional information on a chemical produced by ACE Chemical Company. The safety data sheets (SDS) forwarded to us appear to be deficient in the following:

1. Clear-VU 210 - no health effects listed.
2. Cleanup 34 - Solvent - no physical hazard listed.

Please be advised that in order to comply with the Hazard Communication Standard and to provide adequate training for our employees, we must have complete SDSs, particularly for the above-named items. Thank you for timely response to this request. Your cooperation is greatly appreciated.

Sincerely,

---

*Safety or Environmental/Safety Focal Point*



**SECTION J**  
**Training Program**

**J.1 Introduction.** Training is an integral part of the Hazard Communication Program. NWS employees need to know about the hazardous materials and chemicals with which they work. They need to know whether these materials and chemicals present a risk to their safety or health, and how to minimize or eliminate such risks.

The Station Manager shall ensure that all employees receive initial Hazard Communication training and re-training, as appropriate. Employees involved in use of hazardous materials and chemicals shall be trained on requirements of the OSHA HCS revisions made in 2012. To assist with this effort, online course was developed and posted on secure NOAA SECO web site: <https://secure.seco.noaa.gov/safetyhome.html> (under Safety Quick Links). Additional training resources are available via a search for “Hazard Communication” in the Department of Commerce’s Commerce Learning Center.

**J.2 Training Checklist.**

	<u>Complete</u>	<u>Incomplete</u>
1. Establish Hazard Communication training program.	_____	_____
2. Identify employees who need training.	_____	_____
3. Establish training program that ensures new employees are informed and trained at the time of their initial assignment and whenever new hazards are introduced.	_____	_____
4. Inform employees of the requirements of the Hazard Communication standard.	_____	_____
5. Inform employees of the location and availability of the written Hazard Communication Program, including the required list(s) of hazardous chemicals and Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS).	_____	_____
6. Inform employees of any operations in their work areas where hazardous chemicals are present.	_____	_____
7. Train employees about the measures that can be used to protect them from the chemical hazards.	_____	_____
8. Train employees about the physical and health hazards of the chemicals in the work area.	_____	_____
9. Train employees about the methods to detect the presence or release of hazardous chemicals in the	_____	_____

**J.2 Training Checklist.**

	<u>Complete</u>	<u>Incomplete</u>
workplace.		
10. Train employees in the use of proper work practices, personal protective equipment and clothing, and other controls to reduce or eliminate their exposure to the chemicals in their work areas.	_____	_____
11. Train employees in emergency and first aid procedures and signs of overexposure.	_____	_____
12. Train employees to understand labeling system and SDS and how to obtain and use the appropriate hazard information.	_____	_____
13. Establish procedures to ensure proper labeling for containers that hold hazardous chemicals.	_____	_____
14. Establish procedures to identify and inform employees of new hazardous chemicals before they are introduced into a work area.	_____	_____
15. Establish a way to inform employees of new hazards associated with the chemicals they already use.	_____	_____
16. Establish a procedure to train employees involved in performing hazardous non-routine tasks (e.g., confined space entry, etc.).	_____	_____
17. Establish procedures to evaluate the effectiveness of the training program and to keep track of personnel training.	_____	_____

## SECTION K

### Cleanup and Disposal of Typical Hazardous Materials and Wastes

#### **K.1 Hazardous Materials Used in the National Weather Service:**

The following is the list of hazardous materials typically used by NWS personnel:

- hydrogen (for balloon launching),
- potassium hydroxide (for hydrogen generators),
- mercury (applicable to barometers, thermostats, mercury switches, rotary joints),
- • lead acid, mercury-oxide, and other batteries,
- propylene glycol when contaminated by oil (for precipitation gages),
- dielectric oil (for Doppler weather surveillance radar, WSR-88D),
- solvents and degreasers,
- diesel fuel,
- paints, and
- cleaners.

The above listed hazardous materials have a potential for release during routine NWS operations. A release is defined as any spilling, leaking, pumping, emitting, emptying, discharging, injection, escaping, leaching, dumping, or disposing into the environment. The term excludes release of nuclear materials and normal application of fertilizers.

#### **K.2 Safety Data Sheet (SDS) or Material Safety Data Sheets (MSDS)**

SDSs or MSDSs for most hazardous materials utilized by NWS personnel acquired through the Consolidated Logistics System (CLS) are available at the National Logistics Support Center (NLSC). When ordering an item, the Safety and Environmental/Safety Focal Point shall request an SDS (MSDS) unless it is already available at the site.

If any chemical product or item containing a chemical is purchased at a local specialty store, the purchaser shall ask the vendor for the SDS (MSDS). The instructions specified in the written NWS Hazard Communication Program shall be followed. Certain items in stock at NLSC are identified as potentially hazardous to human health; however, they are not assigned hazardous code in CLS. Currently, hazardous material codes in CLS are based upon Department of Transportation classifications. It is good operational practice to obtain SDS (MSDS) even for the items that do not display typical hazardous characteristics, but may present health hazards.

**K.3 Small Spill Cleanup (General guidelines).** The following are general steps for NWS personnel to minimize the hazards generated by a small spill of hazardous or potentially hazardous substances:

- evaluation,

- site security,
- notification,
- personal protective equipment,
- controlling the spill,
- containing the spill,
- clean up,
- waste transportation.

Each of the above steps is composed of subsections that are described below. A thorough pre-planning is necessary to ensure a safe response to hazardous materials spills.

K.3.1 Evaluation. The process of evaluation allows the situation to be sized up and the most *immediate hazard* to be identified. The following steps shall be followed:

- Identify spill “transportation” mechanism.

Spill “transportation” mechanisms are routes by which the spilled material shall move. These routes may include drains, sumps, channels, ducts, and exposed soils. Consider the physical/chemical properties of the material that has been released. For instance, if the spill is a powdered material, a breeze might create a hazardous dust as particles become airborne. Liquids and heavier-than-air gases tend to flow along low areas. Lighter than air gases will dissipate unless weather conditions or obstructions (such as buildings) prevent the escape of the gas.

- Identify material spilled, compliant container labeling, container’s material and condition, or other relevant information.

Look for labels, especially Department of Transportation (DOT) warning labels, National Fire Protection Association (NFPA) 704 Warning Diamonds, or labels meeting revised OSHA HCS requirements.

Note the type and construction material of the container (e.g., open head, steel 55-gallon drum or tight head polypropylene 5-gallon can).

If possible, note the condition of the container. Check for the following: dents, ruptures, physical damage, valve or bung leaking, and container corrosion.

- Obtain the MSDS (SDS) for the product.

K.3.2 Secure the Area. In order to secure the area, barriers such as caution tape or cones may be put up. If more than one NWS employee is available, one may perform a security role, keeping other employees out of the area while a second employee notifies a supervisor.

K.3.3 Notify Supervisor(s). When the area is secured so that an unsuspecting individual shall not be harmed by chancing upon the spill, the person who discovered the spill shall notify their Safety or Environmental/Safety Focal Point and the Station Manager.

Important information that needs to be conveyed to the Safety or Environmental/Safety Focal Point and the Station Manager includes:

- exact *location* of the spill,
- *volume* of material released,
- *rate* of release,
- *direction* of spill movement, and
- *product* involved.

Other important information may include:

- color, appearance, and form of spilled substances (for unknowns),
- fires or ignition sources,
- chemical reactions, and
- spill running off the property.

K.3.4 Personal Protective Equipment (PPE). For hazardous materials that can be released into the environment, all potentially affected NWS employees shall have training regarding the proper use of personal protective equipment. For most small spills, the extent of personal protective equipment is limited to chemical resistant gloves, protective eye wear, possibly a respirator (air purifying), and a chemical resistant apron. Steel-toed shoes and other equipment, including non-sparking tools and chemical resistant clothing, may also be required.

K.3.5 Control the Spill. Simply closing a valve on a pipe that is upstream from the release, tightening a bung on a drum, or up-righting a container can easily control many small spills. Employees are not encouraged to take unsafe steps to control spills. For instance, no one shall attempt to upright a 55-gallon drum without assistance or without using a drum cradle.

K.3.6 Contain the Spill. Where “control the spill” refers to stopping the release at the source, “containing the spill” refers to stopping the movement of the spilled material once it has been released. Spill containment may include such things as using dikes, booms, pads, or other materials to stop the flow of the spilled chemical. Spill containment devices are typically specific for the type of chemical. For instance, a boom manufactured for petroleum spills will not be effective in the containment of a caustic material release.

The appropriate spill containment devices shall be placed in the close proximity to the area where these chemicals are stored or used. At NWS facilities, this applies to the emergency generator spill kit, or the mercury spill kit located near a barometer. A spill kit works well for this purpose and may combine the features and equipment necessary to perform spill cleanup steps described in Section K.3.

K.3.7 Clean Up. Basically, there are three means of cleaning up a spill. The material may be recovered, absorbed, or neutralized. Once the spill is cleaned up, the debris generated during this operation needs to be disposed of properly. Also, any contaminated equipment (including personal protective equipment) and personnel shall be decontaminated.

- Recovery.

The recovery of a spill requires appropriate equipment, such as a special vacuum unit. Usually, recovery requires some filtering or other means of separating out the debris from the product. For example, there is a special vacuum unit designed to vacuum mercury spills.

- Absorption.

Absorption of a spill requires the use of a material which will not react with the spill but will soak it up, collecting it into a form which may be safely handled.

Pads or booms made of absorbent material are commonly used (this applies to oil spills). Clay-based litters such as a kitty box litter, once commonly used, have been replaced for several reasons. First, the clay-based litters do not absorb many materials. They generate a heavy waste with high disposal cost. Also, they tend to produce dusts, which, in combination with the spilled material, may create a respiratory hazard.

- Neutralization.

If the spilled material is corrosive (either an acid or a base), neutralizing the spill before attempting to containerize the debris may be safest.

Acids may be neutralized with bases such as metallic carbonates (sodium carbonate is known as soda ash) and bicarbonates (sodium bicarbonate is baking soda), or lime (calcium hydroxide).

Bases may be neutralized with acids such as acetic acid (vinegar). For example, potassium hydroxide spills shall be neutralized by a 5 percent vinegar solution.

- Disposal.

Containment debris may meet the Environmental Protection Agency (EPA) regulatory definition of a hazardous waste or hazardous debris [as defined in the Resource Conservation and Recovery Act, (RCRA)]. If so, specific steps shall be taken to ensure the safe disposal of this waste material in accordance with applicable regulatory requirements. Many local jurisdictions have established programs for the collection of hazardous waste from small businesses, small Government facilities, households, etc. Municipal landfill or hazardous material transfer stations shall be contacted to verify if they can accept hazardous waste generated at small Government facilities.

If the debris does not meet the regulatory definition of a hazardous waste, it may be disposed of along with commercial solid waste (trash). If there are any questions regarding the disposal of hazardous waste, the NWS Regional or Operating Unit Environmental/Safety Coordinator, or the State environmental agency shall be contacted



for assistance. Local landfill may also be able to help with determining the best way to dispose the waste (note: accepting liquid waste is illegal for landfills).

- Decontamination.

Equipment and personnel decontamination is typically very easy. The following is a simplified overview of decontamination procedures. The actual steps taken shall be appropriate for the chemical being handled during the spill cleanup. SDS (MSDS) give specific recommendations on decontamination.

- a. PPE (e.g., gloves) utilized during cleanup can be thrown away (preferably with the contaminated debris). The gloves shall be inverted so that the contamination is “contained” inside the glove.
- b. Respirators shall be washed with a mild soap and water, thoroughly dried, and inspected prior to storage (cartridges shall be removed in most instances). Alcohol shall not be used to clean respirators because it can degrade the face piece material. Respirators shall be stored in a clean, dry bag away from sources of heat, chemicals, light, and dust.

<b>NOTE:</b> Respirators shall not be used unless Respiratory Protection Program is established as described in Chapter 10, Respiratory Protection.
---

- c. Tools may also be washed in a mild soap-and-water solution (trisodium phosphate is a very common cleaner used to decontaminate equipment).
- d. If NWS personnel come into contact with chemical (skin, eyes, etc.), the affected area may be washed, generally by using plenty of water and a mild soap (for skin). SDS (MSDS) recommendations shall be followed.
- e. NWS personnel involved in a spill cleanup shall be especially careful of material which may be on the soles of their shoes. The “decontamination” area shall be near the spill site to avoid tracking contamination into clean areas. Certain materials, such as leather, are difficult to decontaminate adequately.

- Reporting.

Section 304 of the Superfund Amendments and Reauthorization Act (SARA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) require generators of waste to report a release of hazardous substance equal to or greater than reportable quantities. The release shall be reported only to the National Response Center (1-800-424-8802) and the State Emergency Response Commission.

Regional/Operating Unit Environmental/Safety Coordinator and NOAA SECO must be immediately notified when the spill occurs. This is applicable to 1 pound of mercury, 100 pounds of spent solvent (tetrachloroethylene), 1 pound of polychlorinated biphenyls (PCB), and other regulated substances. A list of reportable quantities can be found here: [http://www.ecfr.gov/cgi-bin/text-idx?SID=5eb9206a60662143cb26a1b0a7263e74&mc=true&node=se40.28.302\\_14&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=5eb9206a60662143cb26a1b0a7263e74&mc=true&node=se40.28.302_14&rgn=div8)

- Waste Transportation

Any waste transportation must be conducted in accordance with the NWS Environmental Management Manual, NWSM 50-5116, Section 3, Transportation of Hazardous Materials and Waste. In general, hazardous waste cannot be transported by NWS employees as it requires an EPA Identification Number, however, certain wastes, considered universal wastes by the EPA and hazardous by the Department of Transportation, can be transported by NWS employees provided they follow the applicable regulations outlined in the Environmental Manual.

**K.4 Mercury Cleanup.** Mercury is a naturally occurring metal found throughout the environment as the normal breakdown of minerals in the earth's crust. Mercury is a heavy metal that, in a liquid state, can readily evaporate even at room temperature. An increase in room temperature would raise the rate of mercury evaporation. Vapors are colorless and odorless, therefore, they cannot be detected by human senses. Only mercury detectors (sniffers) can detect actual levels of mercury vapors in the surrounding air. Most exposures on the job occur as a result of inhaling mercury vapor or by getting mercury on the skin when cleaning up a spill of metallic mercury. The Occupational Safety and Health Administration (OSHA) regulates the level of mercury vapors to which workers can be exposed. That level is called the Permissible Exposure Limit (PEL) and it is 0.1 mg of mercury in one cubic meter of air. Several studies conducted at the National Institute of Safety and Health (NIOSH) showed that a short exposure to a higher level of mercury vapors is less dangerous than a prolonged exposure to a lower level of mercury vapors. NIOSH recommends a PEL of 0.05 mg of mercury in one cubic meter of air. NWS employees can encounter mercury spills from broken thermometers, switches, old radars' rotary joints, Fortin barometers, and standard barometers.

**K.4.1 Small Mercury Spills from Broken Thermometers/Mercury Switches.** It is easier to clean up small mercury spills from broken thermometers and mercury switches, than larger spills from broken barometers. The level of mercury vapors from small spills will most likely not exceed the PEL, unless the spill occurs in an extremely small space without any ventilation. However, to be on the safe side, when a spill occurs, one shall lower the space temperature and ventilate the space if possible. Opening windows and using portable exhaust fans to improve ventilation is advisable.

It is required that each field office, Operating Unit, and headquarters office have a "mercury spill kit," which includes a small manual vacuum pump, a jar of mercury absorption powder, and proper eye and hands protective equipment. The procedures for cleaning up mercury spills are as follows:

- Read the SDS (MSDS) before beginning the cleanup procedure.
- Wear polyethylene, rubber, or polyvinyl chloride (PVC) gloves, plastic disposal boot protectors, and safety glasses when performing a cleanup.
- Use the manual vacuum pump to vacuum a mercury puddle and droplets of mercury.
- If spill occurred on a hard surface and the removal of small droplets by vacuum pump is almost impossible, use mercury absorbent sponges to finish the cleanup.

- In deep cracks mercury absorbent powder shall be wiped over the contaminated areas to ensure that all residual mercury droplets will be converted into a mercury amalgam. The amalgam then can be collected and removed.
- The removal of mercury from carpeted areas is very difficult. All visible droplets of mercury shall be picked up by a mercury vacuum pump. After that, a carpet shall be treated with a paste of mercury absorbent powder and water. The level of mercury vapors shall be checked as described in the cleanup procedure for barometer spills in succeeding paragraphs.
- Mercury recovered from a spill can be stored in plastic or glass bottles. All mercury residues shall be collected into a plastic zip-lock bag. Usage of plastic bags is not sufficient if broken glass is involved.
- Sponges designed to absorb small mercury spills on hard surfaces can be used. They can be bought separately. A sponge needs to be moistened and small droplets can be simply wiped up. The sponge and its container shall be properly disposed of as described below.
- If field office and Operating Unit has an arrangement with a local hazardous waste disposal company and the company handles mercury, arrange for pick up. Otherwise, find other local companies that can provide mercury pickup and disposal. Also, check with local recycling facilities if they accept small quantities of mercury.
- Arrange with your local Hazardous Material Transfer Station (usually associated with a landfill station) for mercury disposal. Many counties have program in place to accept wastes from small businesses and small federal facilities. The Hazardous Material Division at a Transfer Station usually requires advance notice for hazardous material acceptance. They will accept pure mercury as well as broken thermometers and mercury switches. To prevent any spill accidents and mishandling of waste, use proper containers and keep the appropriate SDS (MSDS) on hand while transporting mercury waste.
- Always place the mercury container in a secondary container (a metal or plastic drum with a lid) to prevent any leaks or spills in case of an accident. Affix the proper label to the container: WASTE MERCURY, UN 2809, RQ. EPA hazardous waste identification number for mercury is U151.
- Mercury and mercury containing equipment (MCE) for disposal is considered hazardous waste by the EPA and cannot be transported by employees. Mercury/MCE to be recycled is considered a universal waste. Procedures in Section 3 of NWSM-50-5116 must be followed regarding mercury transport.

K.4.2 Large Mercury Spills from Broken Barometers. The barometers used by personnel at NWS facilities contain a large amount of mercury. The Fortin barometer contains approximately 1.6 pounds of mercury, and the standard barometer can hold up to 4-5 pounds of mercury. These amounts of mercury, if spilled over the large floor area, can evaporate rapidly even at the room temperature. Since mercury vapors present a serious health hazard, immediate spill response actions are required. Facilities that have mercury barometers shall make arrangements for emergency cleanup with the local Fire Department or local spill clean-up company. A person in charge of the spill response (e.g., Safety and Environmental/Safety Focal Point or other NWS personnel) shall attempt to contain the spill and to reduce mercury evaporation. Once the spill is

contained, the Regional/Operating Environmental/Safety Coordinator, NOAA SECO, and NWS Safety Officer shall be notified.

The following steps shall be followed in case of a large mercury spill:

- Do not disturb a mercury puddle (any mercury movement will increase evaporation). Evacuate personnel if the spill is extensive, the room is small and the ventilation is poor. Isolate the spill area with signs, barriers, or tapes.
- Decrease room temperature, if possible.
- Prevent mercury vapors from entering the heating, ventilation, and air conditioning (HVAC) system by blocking return air registers.
- Ventilate area as much as possible (e.g., open windows). Use portable exhaust fans to increase air movement and to disperse the mercury vapors.
- The levels of mercury vapors in the air shall be monitored as soon as possible. A mercury sniffer is only device that can detect mercury concentration in the air surrounding the spill area. The local safety equipment rental stores shall be called to check if they have a mercury monitor available immediately. If measured mercury concentration is below  $0.05 \text{ mg/m}^3$ , the spill is contained, and the area is ventilated adequately, personnel can remain in the office. If mercury reading exceeds  $0.05 \text{ mg/m}^3$ , all employees shall immediately evacuate the office.
- If you are unable to monitor the air and, therefore, assure employees safety, call a local hazardous spill cleanup company to provide emergency cleanup or local Fire Department if prior arrangements have been made. Each field office and Operating Unit shall have a list of such companies on hand. Services of the companies that can provide cleanup of barometer spill shall be used at all NWS facilities.

All NWS employees working with mercury-containing equipment need to understand that mercury presents a serious danger to their health and safety. Therefore, the mercury-containing equipment, especially barometers, shall be handled with extreme care. In the event of a spill, the primary goal is to protect the employees from exposure to mercury vapors.

Mercury spills shall be properly reported. For example, if one pound of mercury is released into the environment (this does not apply if spill occurred within enclosed building or enclosed containment structure where there is no release to air, water, or soil), it shall be reported within 24 hours to the National Response Center ( tel. 1-800-424-8802), and/or state or local environmental agencies.

**K.5 Cleanup Towels.** In 2014 the EPA changed the regulations regarding solvent contaminated wipes. Wipes including rags used with flammable solvents other than trichloroethylene that would meet the ignitability characteristic for hazardous waste do not need to be treated as hazardous waste provided they contain no free liquids as measured by the EPA's Paint Filter Liquids Test. Essentially this means the rags cannot drip liquid.

Solvent wipes may be accumulated for up 180 days in a closed container labelled "Excluded Solvent-Contaminated Wipes." They may be sent to an EPA approved handling facility including an industrial laundry, a municipal solid waste landfill that meets the design criteria in 40 CFR

Part 258.40, a municipal waste combustor regulated under section 129 of the Clean Air Act or a hazardous waste facility. Any free liquid that accumulates in the container due to percolation or compression of the wipes must be separated from the wipes and handled as hazardous waste.

If the wipes are free of liquid they are not considered hazardous and may be disposed of in a separate closed and labeled container along with other solid waste.

**Note:** Not all states have adopted this EPA regulation so some field offices may still need to dispose of their solvent contaminated wipes as hazardous waste. A listing of adoption of solvent wipes regulation by state can be found here:

[http://www3.epa.gov/epawaste/hazard/wastetypes/wasteid/solvents/wipes\\_fnl\\_rul\\_effctv.htm](http://www3.epa.gov/epawaste/hazard/wastetypes/wasteid/solvents/wipes_fnl_rul_effctv.htm)

Wipes used with trichloroethylene or to clean other types of hazardous material such as toxics, corrosives or reactives are still considered hazardous waste and must be disposed of as such with the proper characterization, labelling, and marking. These wipes must be identified with the same EPA hazardous waste number as the hazardous material cleaned. These wastes cannot be transported by NWS employees.

### **K.6 Batteries.**

The paragraphs below describe general requirements applicable to batteries. NWS personnel shall always consult with the state agency regarding current status of the rules for batteries.

**K.6.1 Automotive lead acid batteries.** These batteries are universal waste when recycled and shall be taken by NWS personnel to local collection sites or retailers for recycling.

**K.6.2 Mercury-Containing and Rechargeable Batteries.** Mercury-containing and Rechargeable Battery Act was passed by Congress and signed by the President in 1997.

This Act:

- Requires batteries to be labeled: “Battery shall be recycled or disposed of properly”.
- Prohibits the sale of alkaline, magnesium, and carbon-zinc batteries that contain mercury and mercury oxide.
- Prohibits the sale of nickel-cadmium and sealed lead-acid batteries if they are not labeled properly.

Recyclable Battery Recycling Corporation (RBRC) has been created to establish a national battery recycling program. The RBRC information service is available at 1-877-723-1297 and [www.call2recycle.org](http://www.call2recycle.org).

**K.6.3 Other Batteries.** Most batteries are marked as to the type of battery and the capacity. Batteries must be segregated by type and are considered universal waste. Damaged batteries must be kept in a closed, structurally sound container that is compatible with the type of battery. Unmarked batteries must be considered hazardous waste.

**K.6.4 General Precautions.** Batteries shall be handled in such a manner that a release of the battery’s contents to the environment is prevented. Under no circumstances shall batteries be disposed of in the trash.

- Keep batteries in a closed container compatible with the content of the batteries. The container shall not show leaks, spills and damage that could cause future spills.
- Do not break up batteries or open the closed cells.
- Clearly mark the container: "Used battery(ies)."

K.6.5 Transporting Batteries. Arrange with a local waste disposal company to pick up the batteries for disposal/recycling. This is a preferable method of disposal. When picking up batteries by an outside contractor is not feasible, either of the two methods described below is recommended:

- Check if local department or retail specialty stores accept used batteries for recycling and obtain any specific conditions for battery acceptance. As an infrastructure for universal waste collection develops, there will be more collection sites available. When NWS employees self-transport batteries to a collection site, they become universal waste transporters. The requirements of
- Deliver used batteries to a municipal transfer station/collection facility which may be associated with a municipal landfill.

Procedures for transporting batteries to recycling centers outlined in Section 3 of NWSM-50-5116 must be followed. Batteries cannot be transported for disposal by NWS employees.

#### **K.7 Shipping Instructions for Decommissioned Equipment.**

K.7.1 Unbroken Thermometers and Mercury Switches. The Instrument Decommissioning Plan prepared at WSH, by Engineering Division personnel, includes a requirement to return unbroken thermometers, mercury switches, and mercury batteries from equipment replaced by ASOS to NWS National Reconditioning Center (NRC) in Kansas City, MO.

Shipping materials can be ordered from NLSC by contacting the shipping department at 1-816-926-3990. Please be prepared to provide the following information when ordering shipping materials from NLSC:

- Organizational Code
- Address of ordering unit
- Amount of items to be shipped
- ASN
- Accounting Code
- Any Special Instructions

<b>NOTE:</b> Contact NRC to verify current policy for shipment of unbroken Mercury Thermometers and Mercury Switches.
---

K.7.2 Shipping Mercury Barometers. Mercury spills resulting from the breakage of barometers must be prevented by following proper shipment procedures. The procedures for preparing the barometer for shipment using Princo packing material are described below. Special packing

material for the G010D barometer shall be ordered from NLSC. Packing material included all required labels and markings.

- Before removing the barometer to be shipped from its mountings, adjust the mercury column all the way up to prevent breakage or loss of vacuum during shipment. This can be done by a series of three or four turns of the cistern screw. Pause for about thirty (30) seconds between each series of turns to assure that the air has time to bleed out of the cistern. When the mercury column gets to the top of the glass tube, you will feel a marked resistance to any further turning of the cistern screw. At that point, wait about five minutes and try the cistern screw again to make sure the column is all the way up. The barometer can now be packed for shipment.
- With the barometer hanging only by the top hanger, slide the plastic bag up over it.
- Remove the barometer from the hanger.
- Remove excess air from the bag and place a tie wrap around the top of the plastic bag to seal it.
- Place the bagged barometer into a foam, rubber-lined inner carton.
- Insert the inner carton containing the bagged barometer into the cardboard sleeve by turning it upside down and sliding it into the sleeve.
- Mark “Cistern End” of the sleeved barometer.
- Place a foam end cap over each end of the sleeve and insert the sleeve into the outer carton.
- Wrap wide filament tape around the outer carton at the center and near each end.
- Mark “Cistern End” of the outer carton, and label the outer carton with “LAY FLAT” and “FRAGILE” stickers or write it with a large red felt pen.
- The barometer can now be safely shipped.
- Fill out the Shippers’ Declaration of Dangerous Goods form:

<b>NOTE:</b> Ask NLSC to prepare Government Bill of Lading
--

Proper Name:	Mercury Contained in Manufactured Articles
Class or Division:	8
UN Number:	UN 2809
Quantity and Type of Packing:	Cardboard Crate Containing 698.5 g (1.54 lb) Mercury Inside Sealed Plastic Liners
Packing Instruction:	805

**PROCEDURE 8 - Personal Protective Equipment**

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**Synopsis**

This procedure defines the requirements for selection, training, application and usage of personal protective equipment (PPE) at NWS facilities. The PPE covered in this procedure includes eye and face protection, head protection, foot protection, hand protection, protective clothing, and protective shields and barriers. Electrical protection, respiratory protection, hearing protection, and fall protection are covered in separate procedures. This procedure applies to all NWS facilities and work locations where PPE is used and to all NWS employees who use PPE in the performance of their jobs.

**Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Perform a Hazard Assessment. (8.3.2)
    - Review Injury/Accident Data. (8.3.2a(1))
    - Conduct a walk-through of problem areas to identify sources of hazards. (8.3.2a(2) & 8.3.2a(3)(a-j))
    - Prepare an analysis of the information gathered from hazard assessment to enable selection of PPE. (8.3.2a(4))
- **Develop/Obtain Documents/Information required for Site**
  - Prepare a Hazard Assessment Form. (8.3.2a(2))
- **Designate Person to Administer PPE Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - PPE Training/Certification (8.3.4g & 8.3.10)
- **Inventory Material/Equipment (Procure as required)**
  - PPE (safety glasses, hard hats, safety shoes, face shields, electrical safety gloves, welding helmets, eyewash stations, body/face rinsing facilities, etc.). (8.5.2e, 8.3.4)

**Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Re-Assess Hazards on site. (8.3.2.5c)
    - Review Injury/Accident Data. (8.3.2a(1))
    - Conduct a walk-through of problem areas to identify sources of hazards. (8.3.2a(2) & 8.3.2a(3)(a-j))
    - Prepare an analysis of the information gathered from hazard assessment to enable selection of PPE. (8.3.2a(4))
- **Review/Update Documentation/Information required for Site**
  - File the Hazard Assessment Form. (8.3.2a(2))
- **Provide Refresher Training of Site Personnel (If Required)**
- **Inspect/Replace/Maintain Material/Equipment**
  - PPE (safety glasses, hard hats, safety shoes, face shields, electrical safety gloves, welding helmets, eyewash stations, body/face rinsing facilities, etc.). (8.5.2e, 8.3.4)

**Personal Protective Equipment Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	8.4.2				
Are all Personal Protective Equipment (PPE) used at this facility appropriate for the intended use?	8.3.1h				
Has a Hazard Assessment been performed to determine the hazards that are present and to determine the appropriate PPE needed?	8.3.2				
Has the Station Manager certified that a Hazard Assessment has been performed with a written “Hazard Assessment Form”?	8.3.2b				
Has a walk-through survey been conducted in accordance with this procedure to identify the hazard sources?	8.3.2a.2 & 8.3.3a-j				
Has an analysis of the hazards found during the Hazard Assessment been prepared to enable proper selection of PPE?	8.3.2a(4)				
Is the selection of appropriate PPE for the employees done based on the Job Hazard Analysis (JHA) and/or using PPE Hazard Assessment form (Attachment C)?	8.3.1b				
Are PPE used only when engineering and/or administrative controls cannot be adopted to control the hazard?	8.3.1				
Has the previous injury/accident data been reviewed to help identify problem areas on site?	8.3.2a.1				
Are employees provided with and required to use properly selected and fitted PPE?	8.3.1a				

Requirements	Reference	YES	NO	N/A	Comments
Are all damaged and worn PPE removed from service and disposed of properly?	8.3.1e				
Are all PPE distinctly marked with its manufacturer's identification?	8.3.1g & 8.3.4d				
Are all PPE periodically cleaned and maintained?	8.3.1k & 8.3.4j				
Are all eye and face protection in compliance with this procedure?	8.3.4b				
Are warning signs posted, in accordance with this procedure, in areas where potential eye hazards can occur?	8.3.4e				
Do employees use appropriate eye or face protection when exposed to potential face hazards?	8.3.4a				
Are protective goggles or face shields provided and worn where there is any danger of flying particles or corrosive materials?	8.3.8a.1				
Have all personnel required to use eye protection been trained in its purpose and use?	8.3.4g				
Are facilities for flushing/rinsing eyes, face and body located within 10 seconds of unobstructed travel within the work area where employees are exposed to injurious corrosive materials?	8.3.4m				
Are approved safety glasses required to be worn at all times in areas where there is a risk of eye injuries such as punctures, abrasions, contusions, burns or flying debris?	8.3.4				

Requirements	Reference	YES	NO	N/A	Comments
Are employees who need corrective lenses (glasses or contacts) in working environments having harmful exposures, required to wear only approved safety glasses, protective goggles, or use other medically approved precautionary procedures?	8.3.4				
Are all employees wearing appropriate hand protection where there is a potential for injury?	8.3.5a				
Does all protective footwear comply with this procedure?	8.3.6a,b				
Is appropriate foot protection required where there is the risk of foot injuries from hot, corrosive, or poisonous substances, falling objects, crushing or penetrating actions?	8.3.6b				
Are all electrical PPE maintained in safe, reliable condition?	8.3.7a				
Are all requirements concerning insulating blankets, covers, etc. being met?	8.3.7b				
Are all employees dressed appropriately when using machinery?	8.3.8a.2 & 8.3.8a.				
Have employees been trained on personal protective equipment procedures?	8.3.10a-d				
Are hard hats provided and worn where danger of falling objects exists?	8.3.3				
Are hard hats inspected periodically for damage to the shell and suspension system?	8.3.3				

## 8 PERSONAL PROTECTIVE EQUIPMENT

### 8.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to define the requirements for selection, use and maintenance of personal protective equipment (PPE) at NWS facilities. The PPE covered in this procedure includes eye, face, head, foot and hand protection equipment, protective clothing, and protective shields and barriers. Respiratory, hearing and fall protection equipment are covered in separate procedures. This procedure applies to all NWS facilities and work locations using PPE and to all NWS employees who use PPE in the performance of their jobs.

### 8.2 Definitions

Class G (General) Hard Hat. Hard hats which are intended to reduce impact and penetration and provide electrical protection from low voltage conductors (tested to 2,200 volts). However, this voltage is not intended as an indication of the voltage at which hard hats protect the wearer. (Please note: Class G hard hats were formerly known as Class A).

Class E (Electrical) Hard Hat. Hard hats which provide impact and penetration resistance and provide electrical protection from high voltage conductors (tested to 20,000 volts). However, this voltage is not intended as an indication of the voltage at which hard hats protect the wearer. (Please note: Class E hard hats were formerly known as Class B).

Class C (Conductive) Hard Hat. Hard hats which provide impact and penetration resistance and are not intended to provide protection against contact with electrical conductors. Class C hard hats are not recommended and cannot be used around electrical hazards.

#### Electrical Gloves:

- Class 00 Gloves. Gloves having the following properties: Maximum use voltage a-c rms-- 500 V, Retest voltage a-c rms - 2,500 V, Retest voltage d-c avg - 10,000 V.
- Class 0 Gloves. Gloves having the following properties: Maximum use voltage a-c rms-- 1,000 V, Retest voltage a-c rms-- 5,000 V, Retest voltage d-c avg - 20,000 V.
- Class 1 Gloves. Gloves having the following properties: Maximum use voltage a-c rms-- 7,500 V, Retest voltage a-c rms-- 10,000 V, Retest voltage d-c - 40,000 V.

Compression. Injury caused when a body part or the entire body is pinched or crushed in or by a machine, heavy object or vehicle.

Face Shield. Secondary eye and face protectors utilized in conjunction with primary protectors, i.e., safety glasses, to protect the wearer's face and eyes from flying objects or chemical hazards.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Gloves. Hand protection designed to protect the hands and forearms from various hazards. The specific hazard anticipated will determine which glove to utilize.

Goggles. Protective devices worn over safety glasses and designed to fit snugly around the wearer's eyes to protect against certain hazards, i.e., chemical splashes.

Hard Hat. Headgear also known as a protective helmet. Hard hats are rigid headgear of varying materials designed to protect the wearer's head from falling objects, other impact hazards or electrical hazards.

Hazard Assessment. A survey of work site hazards to determine proper selection of personal protective equipment.

Impact. To impinge or make contact especially forcefully.

Maximum Use Voltage. The a-c voltage (rms) classification of the protective equipment that designates the maximum nominal design voltage of the energized system that may be safely worked.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Personal Protective Equipment (PPE). Devices worn by the worker to protect against hazards in the environment. These devices include but are not limited to the following: protective helmets, spectacles, face shields, gloves and safety shoes.

Safety Glasses. A protective eyewear, also known as spectacles, worn to shield the wearer's eyes from a variety of hazards.

Safety Shoes. Protective footwear designed to protect the foot from external forces.

Station Manager. For the purpose of this procedure, the Station Manager will be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Welding Helmet. A protective shield for the eyes and face of the wearer to guard against optical radiation and impact. Welding helmets are secondary protection and will be used only in conjunction with primary protectors determined by the factors of electrode size, arc current, or plate thickness.

### 8.3 Procedure

8.3.1 Personal protective equipment (PPE) will be used when engineering and/or administrative controls cannot be adopted to control the hazards of a process or the environment that may cause injury or impairment to employees or to supplement engineering and/or administrative controls. PPE will only be used when other forms of hazard control are not feasible or adequate.

- a. For those hazards which necessitate the use of PPE, the NWS will select, and have each affected employee use, the types of PPE that will protect the affected employees. The NWS will communicate selection decisions to each affected employee and will select PPE that properly fits each affected employee.
- b. All PPE used at NWS facilities will be selected for use based on the Job Hazard Analysis (JHA) and/or PPE Hazard Assessment form (Attachment C) . JHA presentation and template are posted on NWS Environmental and Safety web page: [https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)
- c. All PPE used by NWS employees in the performance of their jobs will be subject to inspection by the Safety or Environmental/Safety Focal Point.
- d. PPE that has been worn to the point that it has reached the end of its useful life, or PPE that is defective or damaged, will be immediately removed from service and disposed of properly. For example, gloves soaked with grease, oil or other chemicals will be disposed of in accordance with EPA regulations. (Refer to NWS Occupational Safety and Health Procedure #7, “Hazard Communication Program”).
- e. All PPE will be of safe design and construction for the work to be performed.
- f. All PPE will be distinctly marked to identify the manufacturer.
- g. All PPE used by the NWS will comply with all applicable guidelines such as ANSI, ASTM, NFPA, NIOSH, etc.
- h. All protective equipment, including personal protective equipment, will be provided by the NWS at no cost to employees, when the need for this equipment is determined by hazard assessment. NWS employees will not provide and/or use their own PPE while performing work for the NWS.
- i. In fitting PPE, careful consideration must be given to comfort and fit. Care should be taken to ensure that the right size of the PPE is selected.
- j. PPE will be kept clean and properly maintained.

**Note:** Refer to Procedure 3, Safe Electrical Work Practices, for information on electrical PPE requirements.

8.3.2 Each facility will perform a hazard assessment of the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE.

- a. In order to assess the need for PPE the following steps should be taken:

- (1) Review injury/accident data to help identify problem areas.
- (2) Conduct a walk-through survey of the areas in question. The purpose of the survey is to identify sources of hazards to workers. Information from the survey can be entered into either a Job Hazard Analysis (JHA) form or a Hazard Assessment Form (Attachment C). A written certification of the hazard assessment is required. JHA presentation and template are posted on NWS Environmental and Safety web page:  
[https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)
- (3) Consideration should be given to the basic hazard categories:
  - i Impact
  - ii Penetration
  - iii Compression (roll-over)
  - iv Chemical
  - v Exposure to heat or cold weather environment
  - vi Harmful dust
  - vii Light (optical) radiation
  - viii Electrical
- (4) During the walk-through survey, the person performing the assessment should observe:
  - i Sources of motion; i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects.
  - ii Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.
  - iii Types of chemical exposures.
  - iv Sources of harmful dust.
  - v Sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
  - vi Sources of falling objects or potential for dropping objects.
  - vii Sources of sharp objects which might pierce the feet or cut the hands.
  - viii Sources of rolling or pinching objects which could crush the feet.
  - ix Layout of workplace and location of workers.
  - x Any electrical hazards.
- (5) Following the walk-through survey, organize the data and information for use in the assessment of hazards. The objective is to prepare for an



analysis of the hazards in the environment to enable proper selection of protective equipment.

- (6) Having gathered and organized the data, an estimate of the potential for injuries will be made. Each of the basic hazards should be reviewed and a determination made as to the type, level of risk, and seriousness of potential injury from each of the hazards found in the work area. The possibility of exposure to several hazards simultaneously will be considered. Any PPE that is already used for the task should be entered into the “Controls in Place” column of the JHA. Additional recommended PPE should be entered into the “Additional Recommendations” column. A PPE need assessment summary based on specific hazards is provided in Attachment C.
- b. The Station Manager or his/her designee will certify that the workplace hazard assessment has been performed with a written “Hazard Assessment Form” (Attachment C) or a Job Hazard Analysis (JHA) that contains the following information: the workplace evaluated; the name and signature of the person certifying that the evaluation has been performed; the date(s) of the hazard assessment.
- c. Tasks will be re-assessed as necessary by identifying and evaluating new equipment and processes, reviewing accident records, and re-evaluating the suitability of previously selected PPE.

#### 8.3.3 Head Protection.

- a. Hard hats will be worn when there is a potential for injury to the head from falling objects. Some examples include ice falling from a NEXRAD dome, working below other workers where there is a potential for tools or materials to fall; working on, around or below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors. An example would include replacing equipment or performing maintenance on ROHN Towers.
- b. All head protection will meet the requirements of the latest revision of ANSI Z89.1. When selecting head protection, knowledge of potential electrical hazards in the work area must be considered.

#### 8.3.4 Eye and Face Protection.

- a. Employees will use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, chemical gases or vapors, during electrical “hot” work, or potentially injurious light radiation.
- b. Eye and face protection will conform to the latest revision of ANSI Z87.1.
- c. With respect to eye protection, such equipment will not have an adverse effect on employee performance or otherwise increase the health or safety risk to the employee.

- d. Eye and face PPE will be distinctly marked to facilitate identification of the manufacturer.
- e. All eye hazard areas will be posted with appropriate warning signs in accordance with 29 CFR 1910.145.
- f. Eye protection will be worn by employees, contractors, and visitors passing through eye hazard areas.
- g. All personnel working in eye hazard areas will be trained on the need for and use of eye protection.
- h. Safety glasses will have side protection when there is a hazard from flying objects such as grinding, drilling and machining operations. Detachable side protectors are acceptable.
- i. Each employee who typically wears prescription lenses while engaged in operations that involve eye hazards will wear eye protection that incorporates the prescription in its design or will wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.
- j. Protective eye wear will be properly maintained in clean and a fully operational condition.
- k. Welding helmets will have filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation (see Attachment A, “Eye Protection Selection Chart” and Attachment B, “Guide for Selection of Proper Shade Number.”)
- l. Photochromatic safety glasses (glasses that change color with exposure to sun light) are not permitted to be used for protection against potentially injurious light radiation due to their slow change properties.
- m. Emergency eyewash and or deluge shower facilities will be provided in all areas where employees can be exposed to corrosive materials (e.g., hydrogen generators, battery charging areas).

<p><b>Note:</b> Per ANSI Z358.1, eye/face wash units will be in accessible locations that require no more than 10 seconds to reach.</p>
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#### 8.3.5 Hand Protection.

- a. Hand protection (gloves) will be worn when there is a potential for injury to the hands from exposure to hazards such as but not limited to those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns and harmful temperature extremes.
- b. Attachment F, “Glove Selection Table” is a generic glove selection table which can be referenced when selecting hand protection for different situations.

8.3.6 Foot Protection.

- a. Protective footwear will be worn in areas where there is a danger of falling or rolling objects, or objects piercing the sole such as but not limited to:
  - (1) Routinely lifting or moving heavy or cumbersome objects or materials.
  - (2) Using landscaping devices, i.e., lawnmowers, trimmers.
  - (3) Working in areas where forklifts or powered vehicles are used.
  - (4) Performing trenching operations.
  - (5) Having potential for encounter with poisonous snakes.
- d. Safety footwear will be inspected prior to each use. Shoes should be checked for the signs of wear and tear including:
  - (1) Cracks and holes in soles or heels
  - (2) Separation of between soles and uppers (e.g., steel toe is visible)
  - (3) Broken buckles and laces
  - (4) Metal embedded in heels or soles of electrical safety shoes
- e. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.
- f. Impact-resistant footwear must be replaced anytime heavy object is dropped on it.
- g. Non-conductive (electrical hazard) foot protection will be worn where the employee's feet are exposed to electrical hazards.
- h. Protective footwear will meet the requirements of the latest revision of ASTM F2413 [replaced ANSI Z41].

**NOTE:** Electronic Technicians and Facilities Engineering Technicians and Facilities Maintenance Mechanics will be provided with nonconductive safety shoes. Hydro-meteorological Technicians and Hydrology Program Managers (if required to perform field work) will be provided with safety shoes. At least two pairs of toe guards will be provided at each office to be used by other personnel as required.

8.3.7 Shop Safety

- a. Safety glasses with side shields will be used by each machine operator. Goggles or safety glasses with side shields will be worn when grinding. Contact lenses are not permitted to be used in areas where welding or cutting operations are taking place.
- b. The use of close-fitting garments by machine operators and service personnel is required. Loose clothing such as ties, dangling cuffs, jewelry and lab coats, is prohibited.
- c. Personnel with long hair will wear close-fitting, stiff-brim caps, hats or hair nets while working around moving machine parts.

- d. Gloves will not be worn when there is a possibility that the gloves will become entangled in a machine or tool, creating an additional hazard.
- e. A leather glove or glove rated for the service will be used when working in areas with hot surfaces. While grinding, leather gloves will be worn unless it can be shown that the gloves create a greater hazard. Welding or cutting operations require the use of welding gloves.
- f. Welding helmets will be used during all arc welding or arc cutting operations. Helpers or attendants will also wear proper eye protection. Safety glasses or goggles will be worn in conjunction with welding helmets. (See Attachment B, “Guide for the Selection of Proper Shade Numbers”).

#### 8.3.8 Construction Sites

At all construction sites, hard hats, safety shoes and safety glasses are required for all personnel, both NWS and contractor. Hard hats designed to reduce electrical shock hazard will be worn when exposed electrical conductors could contact the head. Other PPE (respirators, gloves, etc.) are dependent upon the type of construction being performed.

#### 8.3.9 Cold Weather Environment

All work assignments involving cold weather environment must be assessed for the use of cold weather protective gear. During this review, the type of work activities, time required to work in cold environment, as well as, articles of cold weather equipment should be considered. See also Procedure 2, “Working Alone”, Attachment C, for recommended Work Warm up Schedule. OSHA Fact Sheet 98-55 Protecting Workers in Cold Environment can provide helpful information for this review.

#### 8.3.10 Training

- a. PPE training will be provided for each employee required to use PPE by this procedure.
- b. The content of the PPE training will consist of but not be limited to the following:
  - (1) When the PPE is necessary.
  - (2) What PPE are necessary.
  - (3) How to properly put on, take off, adjust, and wear the PPE.
  - (4) The limitations of the PPE.
  - (5) The proper care, maintenance, useful life and disposal of the PPE.
  - (6) Circumstances where re-training is required include, but are not limited to, situations where:
    - i Changes in the workplace render previous training obsolete.
    - ii Changes in the types of PPE to be used render previous training obsolete.

- iii Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.
- c. Personnel having received PPE training will demonstrate an understanding of the training and the ability to use the PPE properly before performing any work requiring the use of the PPE.
- d. A written certification will be generated by the Station Manager or his/her designee that states the name of the employee trained, the date of the training and the PPE for which the employee was trained. (See Attachment E, "NWS PPE Training Certification Form").

## **8.4 Responsibilities**

### **8.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **8.4.2 Station Manager**

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review will be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- c. Will ensure that a PPE hazard assessment has been performed as required by this procedure.
- d. Will ensure that NWS personnel wear the PPE required for the task they are performing.
- e. Will ensure that NWS personnel are properly trained to wear the PPE required for a particular task.
- f. Will ensure that initial and periodic inventory of PPE is accomplished and adequate stock is maintained.

### **8.4.3 NWS Headquarters (NWSH)**

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

8.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

8.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.
- b. Report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a>
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**8.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 8.5.1 American National Standards Institute/ISEA, ANSI Z89.1, "American National Standard for Industrial Head Protection."
- 8.5.2 American National Standards Institute, ANSI Z87.1, "American National Standard Practice for Occupational and Educational Eye and Face Protection Devices."
- 8.5.3 American Society of Testing Material, ASTM F2413, "Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear."
- 8.5.4 American National Standards Institute, ANSI Z358.1, "Emergency Eyewash and Shower Equipment."
- 8.5.5 Department of Commerce (DOC) Safety Manual.
- 8.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.145, "Specifications for Accident Prevention Signs and Tags."
- 8.5.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910 Subpart I, "Personal Protective Equipment."
- 8.5.8 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart Q, "Welding, Cutting and Brazing."
- 8.5.9 NWS Occupational Safety and Health Procedure #7, "Hazard Communication Program."
- 8.5.10 NWS Occupational Safety and Health Procedure #3, "Safe Electrical Work Practices."
- 8.5.11 OSHA Fact Sheet 98-55 "Protecting Workers in Cold Environment."

**8.6 Attachments**

Attachment A. Eye Protectors Selection Chart, ANSI Standard Z87.1

Attachment B. Guide for Selection of Proper Shade Number, 29 CFR 1910.252

Attachment C. Hazard Assessment Form

Attachment D. Rubber Insulating Equipment Voltage Requirements

Attachment E. NWS PPE Training Certification Form

Attachment F. Glove Selection Table

Attachment G. Hazard Assessment Forms for PPE (WFO Springfield, MO)

**ATTACHMENT A**  
**Eye Protectors Selection Chart**

(ANSI Z87.1) (OSHA 29 CFR 1910.133)

<b>Operations</b>	<b>Electrode Size 1/32 in. (mm)</b>	<b>Arc Current</b>	<b>Minimum Protective Shade</b>	<b>Shade* Number</b>
Shielded metal arc welding	<3 (2.5)	<60	7	-
	3-5 (2.5-4)	60-160	8	10
	5-8 (4-6.4)	160-250	10	12
	>8 (6.4)	250-550	11	14
Gas metal arc welding and flux cored arc welding		<60	7	-
		60-160	10	11
		160-250	10	12
		250-550	10	14
Gas tungsten arc Welding		<50	8	10
		50-100	8	12
		150-500	10	14
Air Carbon Arc cutting	(Light)	<500	10	12
	(Heavy)	500-1,000	11	14
Plasma arc welding		<20	6	6 to 8
		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light)**	<300	8	9
	(Medium)**	300-400	9	12
	(Heavy)**	400-800	10	14
Torch brazing		-	3 or 4	-
Torch soldering		-	2	-
Carbon arc welding		-	14	-



**Footnote (\*)** As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade, which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

**Footnote (\*\*)** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

**ATTACHMENT B****Guide for Selection of Proper Shade Number**

(29 CFR 1910.252)

	Plate Thickness		Shade Number*
	Inches	mm	
<b>Gas Welding</b>			
Light	<1/8	<3.2	4 or 5
Medium	1/8-1/2	3.2-12.7	5 or 6
Heavy	>1/2	>12.7	6 or 8
<b>Oxygen Cutting</b>			
Light	<1	<25	3 or 5
Medium	1-6	25-150	4 or 5
Heavy	>6	>150	5 or 6

**Footnote (\*)** As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade, which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

**ATTACHMENT C**

**Hazard Assessment Form for Personal Protective Equipment**

Location/Operation: \_\_\_\_\_ Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Injury Potential			PPE Recommended	Comments
		High	Med	Low		
Temp. Extremes						
Chemical Exposure						
Harmful Dusts						
Light Radiation						
Falling Objects						
Sharp Objects						
Nip Points						
Flying Objects						
Electrical						
Fire/Explosion						
Noise						

Assessment Completed By: \_\_\_\_\_

**PPE NEED EVALUATION**

(Based on OSHA’s Training Materials: [https://www.osha.gov/dte/library/ppe\\_assessment/ppe\\_assessment.html](https://www.osha.gov/dte/library/ppe_assessment/ppe_assessment.html))

<b>Effected Body Part</b>	<b>Potential Hazards</b>	<b>Examples of Tasks</b>	<b>Examples of PPE</b>
<b>EYES</b>	Employees are exposed to airborne dust or flying particles	Sawing, cutting, drilling, sanding, grinding, hammering, chopping, abrasive blasting, punch press operations, etc.	Safety goggles, chipping goggles, face shields, safety glasses with side shields
	Employees are exposed to hazardous liquid chemicals	Pouring, mixing, painting, cleaning, etc.	Safety goggles, face shields, safety glasses with face shields
	Potential exposure physical or chemical irritants	Battery charging, installing fiberglass insulation, compressed gas operations, etc.	Safety goggles, face shields, safety glasses with face shields
	Employees are exposed to intense light or lasers	Welding, cutting, laser operations, etc.	Welding goggles, welding helmets
<b>FACE</b>	Employees are exposed to hazardous liquid chemicals	Pouring, mixing, painting, cleaning, etc.	Safety goggles, face shields, safety glasses with face shields
	Employees are exposed to extreme heat	Welding, pouring molten metal, smithing, baking, cooking, drying, etc.	Safety goggles, safety glasses, heat reflective and wire-screen face shields (used in addition to safety goggles or safety glasses)
	Employees are exposed to other potential irritants	Cutting, sanding, grinding, hammering, chopping, pouring, mixing, painting, cleaning, etc.	Safety goggles, face shields, safety glasses with face shields
<b>HEAD</b>	Tools or other objects fall from above and strike employees on the head	Construction, trenching, utility work, etc.	Class G (General) hard hat
	Employees might bump their heads while standing or bending, near exposed beams, machine parts, pipes, etc.	Construction, confined space operations, building maintenance, etc.	Class G (General) hard hat
	Employees work with or near exposed electrical wiring or components	Building maintenance; utility work; construction; wiring; work on or near	Class E (Electrical) Hard Hats

Effected Body Part	Potential Hazards	Examples of Tasks	Examples of PPE
		communications, computer, or other high tech equipment; arc or resistance welding; etc.	
<b>FEET</b>	Potential for tools, heavy equipment, or other objects roll, fall onto, or strike employees' feet	Construction, plumbing, smithing, building maintenance, trenching, utility work, grass cutting, etc.	Safety shoes with impact resistant toe
	Working with or near exposed electrical wiring or components	Building maintenance; utility work; construction; wiring; work on or near communications, computer, or other high tech equipment; arc or resistance welding; etc.	Electrical hazard, safety-toe shoes (nonconductive) safety shoes
	Handling or working near employees who handle, molten metal	Welding, foundry work, casting, smithing, etc.	Foundry safety-toe shoes
	Work with explosives or in explosive atmospheres	Demolition, explosives manufacturing, grain milling, spray painting, abrasive blasting, work with highly flammable materials, etc.	Electrically conductive safety shoes
<b>HANDS</b>	Employees' hands come into contact with tools or materials that might scrape, bruise, or cut	Grinding, sanding, sawing, hammering, material handling, etc.	
	Employees handle chemicals that might irritate skin, or come into contact with blood	Pouring, mixing, painting, cleaning, syphoning, dip tank operations, health care and dental services, etc.	Chemical- and liquid-resistant gloves (e.g., natural, butyl, neoprene, nitrile and fluorocarbon (viton))
	Work procedures require employees to place their hands and arms near extreme heat	Welding, pouring molten metal, smithing, baking, cooking, drying, etc.	Leather, aluminized, aramid, synthetic gloves.
	Employees' hands and arms placed near exposed electrical wiring or components	Building maintenance; utility work; construction; wiring; work on or near communications, computer, or other high	Electrical insulating gloves and sleeves rated for the voltage to

Effected Body Part	Potential Hazards	Examples of Tasks	Examples of PPE
		tech equipment; arc or resistance welding; etc.	which employee is exposed.
<b>BODY</b>	Employees' bodies exposed to irritating dust or splashes	Pouring, mixing, painting, cleaning, machining, sawing, battery charging, installing fiberglass insulation, compressed air or gas operations, etc.	Paper-like fiber clothing (dust protection);
	Employees' bodies exposed to sharp or rough surfaces	Cutting, grinding, sanding, sawing, glazing, material handling, etc.	Duck (closely woven cotton fabric) clothing
	Employees' bodies exposed to extreme heat and flames	Welding, pouring molten metal, smithing, baking, cooking, drying, etc.	Treated wool and cotton clothing, leather clothing
	Employees' bodies exposed to acids or other hazardous substances	Pouring, mixing, painting, cleaning, syphoning, dip tank operations, etc.	Rubber, rubberized fabrics, neoprene and plastics
<b>HEARING</b>	Employees exposed to loud noise from machines, tools, music systems, etc.	Machining, grinding, sanding, work near conveyors, pneumatic equipment, generators, ventilation fans, motors, punch and brake presses, etc.	Single-use earplugs, pre-formed or molded earplugs, earmuffs

**NOTE:** Arc flash PPE is addressed in Procedure 3.



**ATTACHMENT D**  
**Rubber Insulating Equipment Voltage Requirements**

Class of Equipment	Maximum use voltage (1) a-c-rms	Retest voltage (2) a-c-rms	Retest voltage (2) d-c-avg
0	1,000	5,000	20,000
1	7,500	10,000	40,000
2	17,000	20,000	50,000
3	26,500	30,000	60,000
4	36,000	40,000	70,000

Footnote (1): The maximum use voltage is the a-c voltage (rms) classification of the protective equipment which designates the maximum nominal design voltage of the energized system that may be safely worked.

Footnote (2): The proof-test voltage will be applied for at least one minute, but no more than three minutes.



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**ATTACHMENT E**  
**NWS PPE Training Certification Form**

Location: \_\_\_\_\_

Course: \_\_\_\_\_

Date of Training: \_\_\_\_\_

Pursuant to the National Weather Service Occupational Safety & Health Procedure Number \_\_\_\_\_ and title

\_\_\_\_\_ I certify I have received training on the following personal protective equipment

(PPE): \_\_\_\_\_

Printed Name of Employee: \_\_\_\_\_

Signature of Employee: \_\_\_\_\_

Signature of Instructor: \_\_\_\_\_

Distribution:

Employee's Supervisor

Safety or Environmental/Safety Focal Point

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## ATTACHMENT F

## Glove Selection Table

Resistance of Chemicals of Common Glove Materials

<b>E = Excellent</b>	<b>G = Good</b>	<b>F = Fair</b>	<b>P = Poor</b>	
<b>Chemical</b>	<b>Natural Rubber</b>	<b>Neoprene</b>	<b>Nitrile</b>	<b>Vinyl</b>
Acetaldehyde	G	G	E	G
Acetic acid	E	E	E	E
Acetone	G	G	G	F
Acrylonitrile	P	G	-	F
Ammonium hydroxide (sat)	G	E	E	E
Aniline	F	G	E	G
Benzaldehyde	F	F	E	G
Benzene <sup>a</sup>	P	F	G	F
Benzyl chloride <sup>a</sup>	F	P	G	P
Bromine	G	G	-	G
Butane	P	E	-	P
Butyraldehyde	P	G	-	G
Calcium hypochlorite	P	G	G	G
Carbon disulfide	P	P	G	F
Carbon tetrachloride <sup>a</sup>	P	F	G	F
Chlorine	G	G	-	G
Chloroacetone	F	E	-	P
Chloroform <sup>a</sup>	P	F	G	P
Chromic acid	P	F	F	E
Cyclohexane	F	E	-	P

<b>Chemical</b>	<b>Natural Rubber</b>	<b>Neoprene</b>	<b>Nitrile</b>	<b>Vinyl</b>
Dibenzyl ether	F	G	-	P
Dibutyl phthalate	F	G	-	P
Diethanolamine	F	E	-	E
Diethyl ether	F	G	E	P
Dimethyl sulfoxide <sup>b</sup>	-	-	-	-
Ethyl acetate	F	G	G	F
Ethylene dichloride <sup>a</sup>	P	F	G	P
Ethylene glycol	G	G	E	E
Ethylene trichloride <sup>a</sup>	P	P	-	P
Fluorine	G	G	-	G
Formaldehyde	G	E	E	E
Formic acid	G	E	E	E
Glycerol	G	G	E	E
Hexane	P	E	-	P
Hydrobromic acid (40%)	G	E	-	E
Hydrochloric acid (conc)	G	G	G	E
Hydrofluoric acid (30%)	G	G	G	E
Hydrogen peroxide	G	G	G	E
Iodine	G	G	-	G
Methylamine	G	G	E	E
Methyl cellosolve	F	E	-	P
Methyl chloride <sup>a</sup>	P	E	-	P
Methyl ethyl ketone	F	G	G	P
Methylene chloride <sup>a</sup>	F	F	G	F
Monoethanolamine	F	E	-	E

<b>Chemical</b>	<b>Natural Rubber</b>	<b>Neoprene</b>	<b>Nitrile</b>	<b>Vinyl</b>
Morpholine	F	E	-	E
Naphthalene <sup>a</sup>	G	G	E	G
Nitric acid (conc)	P	P	P	G
Perchloric acid	F	G	F	E
Phenol	G	E	-	E
Phosphoric acid	G	E	-	E
Potassium hydroxide (sat)	G	G	G	E
Propylene dichloride <sup>a</sup>	P	F	-	P
Sodium hydroxide	G	G	G	E
Sodium hypochlorite	G	P	F	G
Sulfuric acid (conc)	G	G	F	G
Toluene <sup>a</sup>	P	F	G	F
Trichloroethylene <sup>a</sup>	P	F	G	F
Tricresyl phosphate	P	F	-	F
Triethanolamine	F	E	E	E
Trinitrotoluene	P	E	-	P

<sup>a</sup> Aromatic and halogenated hydrocarbons will attack all types of natural and synthetic glove materials. Should swelling occur, the user should change to fresh gloves and allow the swollen gloves to dry and return to normal.

<sup>b</sup> No data on the resistance to dimethyl sulfoxide of natural rubber, neoprene, nitrile rubber, or vinyl materials are available; the manufacturer of the substance recommends the use of butyl rubber gloves.

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**ATTACHMENT G**

**Hazard Assessment Forms for PPE (WFO Springfield, MO)**

Table of Contents

Attachment G-1. Extreme Weather Activities

Attachment G-2. Upper Air

Attachment G-3. Work at Heights

Attachment G-4. Soldering

Attachment G-5. Equipment Maintenance

Attachment G-6. Battery Charging and Replacement



ATTACHMENT G-1

Hazard Assessment Form for Personal Protection Equipment

Location/Operation Extreme Weather Activities Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes	Weather	<input type="checkbox"/> High <input type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Rain Gear, Insulated  Overalls, Insulated Boots
Chemical Exposure		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Harmful Dusts		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Light Radiation		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Falling Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Sharp Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Nip Points		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Flying Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Electrical		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		

Assessment by: \_\_\_\_\_

ATTACHMENT G-2

Hazard Assessment Form for Personal Protection Equipment

Location/Operation Upper Air Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> X Low		
Chemical Exposure		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Harmful Dusts		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Light Radiation		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Falling Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Sharp Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Nip Points		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Flying Objects	Ruptured Balloon Fragments	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> X Low	Yes	Safety Glasses or Safety Goggles
Electrical		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		

Assessment by: \_\_\_\_\_

ATTACHMENT G-3

Hazard Assessment Form for Personal Protection Equipment

Location/Operation Work at Heights Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Chemical Exposure		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Harmful Dusts		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Light Radiation		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Falling Objects	Falling Debris, Tools, etc.	<input type="checkbox"/> High <input checked="" type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Hard hat
Sharp Objects	Sharp aspects of structures or equipment being climbed	<input type="checkbox"/> High <input checked="" type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Gloves
Nip Points		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Flying Objects		<input type="checkbox"/> High <input checked="" type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Safety Glasses or Safety Goggles
Electrical		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		

Assessment by: \_\_\_\_\_

ATTACHMENT G-4

Hazard Assessment Form for Personal Protection Equipment

Location/Operation Soldering Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes	Hot Iron	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> X Low	No	
Chemical Exposure		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Harmful Dusts	Lead and Tin Fume	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> X Low	No	Exposure Potential low in reference to PEL
Light Radiation		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Falling Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Sharp Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Nip Points		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Flying Objects	Splattering of hot solder	<input type="checkbox"/> High <input type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Safety Glasses or Safety Goggles
Electrical		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		

Assessment by: \_\_\_\_\_

ATTACHMENT G-5

Hazard Assessment Form for Personal Protection Equipment

Location/Operation Equipment Maintenance Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> X Low		
Chemical Exposure	Lubricants and Solvents	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> X Low	Yes	Gloves, and Safety Glasses or Safety Goggles
Harmful Dusts		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Light Radiation		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Falling Objects	Falling materials or tools	<input type="checkbox"/> High <input type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Hard hat
Sharp Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Nip Points		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Flying Objects	Scrap from use of power or hand tools	<input type="checkbox"/> High <input type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Safety Glasses or Safety Goggles
Electrical	High and Medium Voltage	<input type="checkbox"/> High <input type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Rubber Gloves Boots without metal eyelets, fiberglass toes

Assessment by: \_\_\_\_\_

ATTACHMENT G-6

Hazard Assessment Form for Personal Protection Equipment

Location/Operation: Battery Charging and Replacement Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Chemical Exposure	Lubricants and Solvents	<input type="checkbox"/> High <input type="checkbox"/> X Med <input type="checkbox"/> Low	Yes	Chemical Resistant Gloves, Chemical Resistant Apron and Safety Glasses or Safety Goggles
Harmful Dusts		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Light Radiation		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Falling Objects	Falling materials or tools	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Sharp Objects		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Nip Points		<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low		
Flying Objects	Scrap from use of power or hand tools	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low	Yes	
Electrical	High and Medium Voltage	<input type="checkbox"/> High <input type="checkbox"/> Med <input type="checkbox"/> Low	Yes	Appropriate electrical protective gloves and properly rated arc flash equipment

Assessment by: \_\_\_\_\_

**PROCEDURE 9 - Compressed Gas Safety**

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## Synopsis

The purpose of this procedure is to provide guidelines for hazards associated with the use, handling and storage of compressed gases. This procedure applies to all NWS facilities and work locations where compressed gases are used and/or stored, and to the employees using compressed gases.

### Initial Implementation Requirements:

- **Analyze Site Operations versus Requirements of the Procedure**
- **Develop/Obtain Documentation/Information required for Site**
  - Obtain Copies of Material Safety Data Sheets for Compressed Gases. (9.5.3d)
- **Designate Person to Administer Compressed Gas Safety Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Hydrogen Generator Training, if applicable. (9.3.6a)
  - Training of personnel working with Compressed Gas Cylinders. (9.5.2b)
  - **Inventory Material/Equipment (Procure as required)**
  - Warning Signs (9.5.3c, 9.3.1u, 9.3.5e)

### Recurring and Annual Task Requirements:

- **Perform Inspections/Assessment/Testing**
- **Review/Update Documentation/Information required for Site**
  - Maintain Training Records for personnel handling Compressed Gases. (9.5.2b)
- **Provide Refresher Training of Site Personnel (If Applicable)**
  - Hydrogen Generator Training. (9.3.6a), as required
  - Training of personnel working with Compressed Gas Cylinders. (9.5.2b)
  - **Replace/Maintain Material/Equipment**
  - Warning Signs (9.5.3c, 9.3.1u, 9.3.5e)



**Compressed Gas Safety Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	9.4.2				
Do only “Qualified Personnel” handle, use, and store compressed gas cylinders?	9.3.1a				
Have employees working with Hydrogen Generator systems received appropriate training?	9.3.6a				
Are periodic inspections of Compressed Gas storage and usage areas performed and deficiencies corrected?	9.5.3b				
Are all Cylinders visually inspected upon delivery?	9.3.1b				
Are all Cylinders legibly marked to identify the gas contained?	9.3.1f				
Are all empty Cylinders marked as “empty”?	9.3.1s				
Are work areas maintained in clean and orderly condition?	9.3.1d				
Are “No Smoking” signs posted inside storage areas and at the entrances to storage areas?	9.3.1u				
Are hydrogen storage areas marked with “Hydrogen-Flammable Gas - No Smoking - No Open Flames”	9.3.5e				
Are Safety Data Sheets available for all	9.5.3c				

Requirements	Reference	YES	NO	N/A	Comments
compressed gases used?					
Are Cylinders handled, stored and used appropriately depending on the type of gas used?	9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5				
Are adequate fire extinguishers available for fire emergencies at storage areas?	9.3.1t				

## **9 COMPRESSED GAS SAFETY**

### **9.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is implementing this procedure related to the hazards associated with the use, handling and storage of compressed gases. This procedure applies to all NWS facilities, work locations, and employees where compressed gases are used and/or stored.

### **9.2 Definitions**

Compressed Gas. Any material or mixture contained at a pressure of 40 psi at 70° F or 104 psi at 13° F. Any liquid material having a pressure exceeding 40 psi at 100° F.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Handling. An activity in which the employee is involved in the storage, transportation or use of compressed gas cylinders.

Housekeeping. Maintaining the general cleanliness of the work area, which includes the proper and safe storage of all compressed gas cylinders.

Inflation Gas System. A system in which gas is delivered, stored and discharged to consumer piping. The system includes stationary or moveable containers, pressure regulators, safety relief devices, interconnection piping and controls.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Personal Protective Equipment (PPE). Safety devices worn by the workers to protect against hazards in the environment.

Qualified Employee. A person who has received specific training in the inspection, storage, and use of compressed gases.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **9.3 Procedure**

#### **9.3.1 Compressed Gases - General Instructions**

- a. Only qualified employees shall handle, use and store compressed gas cylinders.

- b. Employees shall visually inspect compressed gas cylinders upon delivery and before each use. Damaged cylinders shall be marked and the supplier shall be contacted to arrange for disposal.
- c. Smoking, eating or drinking shall be prohibited in compressed gas storage and working areas.
- d. Work and storage areas shall be kept in clean and orderly condition at all times.
- e. Employees shall ensure that the compressed containers with which they are working carry legible labels or markings identifying the contents. The primary means of identification shall be by chemical name or the commercially accepted name of the material legibly marked on the container.
- f. Containers not bearing any legible written identification shall not be used and shall be picked up by the supplier.
- g. Compressed gas cylinders shall not be rolled or stored on their side, dragged or slid.
- h. Compressed gas cylinders shall be stored in accordance with all state and local regulations and in accordance with OSHA, National Fire Protection Association (NFPA) and the Compressed Gas Association (CGA).
- i. Where removable caps are provided by the supplier for valve protection, the user shall keep such caps on containers, except when containers are connected to dispersing units.
- j. Compressed gas cylinders shall be stored upright (valve end up) and shall be individually secured with approved restraining device.
- k. The user shall keep container valves closed at all times when not in use.
- l. Compressed gas cylinders shall not be subjected to indoor temperatures above 125° F (51° C).
- m. Storage areas shall be dry and well ventilated and built of a fire-resistant material. Combustible materials shall not be stored within 20 feet (6.1 meters) of compressed gas cylinders.
- n. Where compressed gas cylinders are connected to a manifold system, the manifold and its related equipment shall be of a proper design for the products they are to contain.

<p><b>NOTE:</b> A manifold system shall not be used with hydrogen cylinders used for hydrogen weather balloons inflation. Manifold can be used as part of hydrogen fuel cells system at ASOS sites.</p>
---

- o. Regulators, gauges, hoses and other appliances provided for use with a particular gas, or groups of gases shall not be used on containers containing gases having different chemical properties unless information obtained from the supplier indicates that it is permissible. Adapters are not permitted.

- p. Valves should be opened slowly and pointed away from persons or sources of ignition. On valves without wheels, only non-sparking wrenches provided by or recommended by the supplier shall be used.
- q. Connections to piping, regulators and other appliances shall be tight to prevent leakage. If leak is suspected, a gas detection fluid, soapy water or other commercially available solution shall be used for leak detection (e.g., "Snoop" leak detection solution).
- r. Release of gas pressure within system shall be done before removal of appliances, hoses or regulators.
- s. Empty cylinders shall be legibly marked as empty.
- t. Adequate portable fire extinguishers of carbon dioxide or dry chemical types shall be available for fire emergencies at storage areas.
- u. "No Smoking" signs shall be posted in the storage areas and entrances to storage areas.
- v. Each cylinder bearing a DOT specification marking must be inspected, re-tested, and marked in conformance with 49 CFR 173.34, "Qualifications, Maintenance and Use of Cylinders."
- w. Cylinders shall not be lifted by their caps.

#### 9.3.2 Oxygen compressed gases

- a. Containers, valves, regulators, hose and oxygen appliances shall be free from oil or grease and shall not be handled with oily hands, oily gloves or with greasy equipment.
- b. Oxygen containers shall be separated from flammable gas containers or combustible materials a minimum of 20 feet or by a noncombustible barrier at least 5 feet high having a fire resistance rating of at least ½ hour.
- c. Bulk oxygen storage systems shall be located above ground and outdoors, or shall be installed in a building of noncombustible construction, adequately vented, and used for that purpose only.

#### 9.3.3 Acetylene compressed gases

- a. In-plant transfer, storage, and utilization of acetylene cylinders shall be in accordance with Compressed Gas Association Pamphlet G-1, Acetylene, 1996.
- b. Acetylene tanks shall be transported, stored and utilized only in an upright position.
- c. Only regulators designed for acetylene gases shall be used on acetylene tanks.
- d. Storage near oxidizers shall be prohibited.

#### 9.3.4 Liquified petroleum gases (LPG)

- a. Storage of LPG (e.g., propane gas containers) within buildings is prohibited.

- b. When stored outside of buildings, containers awaiting use shall be located away from the nearest building or group of buildings, in accordance with the following:

Quantity of LP - Gas Stored	Distance (feet)
500 lbs. or less	0
501 to 6,000 lbs.	10
6,001 to 10,000 lbs.	20
Over 10,000 lbs.	25

- c. Containers shall be stored in a suitable ventilated enclosure or otherwise protected against tampering.
- d. Storage locations shall be provided with at least one approved portable fire extinguisher having a rating of not less than 20-B:C.
- e. Propane Tank Inspection Checklist can be found on: [https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm).

9.3.5 Hydrogen Compressed Gases. Specific procedures for filling weather balloons with hydrogen can be found in NWSM Directive 10-1401, Rawinsonde Observations, and Federal Meteorological Handbook No.3 (FMH-3), Rawinsonde and Pibal Observations. The following paragraphs provide general safety guidance on the handling of compressed hydrogen.

- a. Hydrogen containers shall comply with the DOT specifications or ASME Boiler and Pressure Vessel Code, Section VIII.
- b. Each container shall be marked with the name “Hydrogen.”
- c. Only spark-proof tools shall be used in and around hydrogen environment.
- d. A static dissipative mat shall be placed at the end of inflation table in the Upper Air Building to prevent static electricity buildup when filling balloons.
- e. Hydrogen storage areas shall be permanently placarded as follows: “DANGER-HYDROGEN-NO SMOKING” (ASN P810-3).
- f. Bottled hydrogen cylinders shall be kept within the storage room.
- g. Hydrogen systems shall be located so that they are readily accessible to delivery equipment and to authorized personnel.
- h. Manifold systems shall not be used with compressed hydrogen for weather balloon inflation operations at Upper Air buildings. Manifolds can be used as part of hydrogen fuel cells system at ASOS sites and when helium is used.

- i. Safety posters shall be prominently displayed in the inflation room and cylinders storage area. The entire set of five posters can be ordered from NLSC using ASN P810-4:
  - P810-4A - General rules for hydrogen fire prevention
  - P810-4B - Safety rules for hydrogen cylinders
  - P810-4C - Balloon rupture procedures
  - P810-4D - Hydrogen-fed fires
  - P810-4E - Non-hydrogen fires
- j. A limited number of hydrogen cylinders should be stored on site. This should be limited to 15 cylinders (or no more than 3,000 cu feet of hydrogen). Any exception to this should be approved by appropriate Regional or National Headquarters personnel.
- k. At least two fire extinguishers shall be placed in Upper Air building inflation room. One of these two extinguishers shall be at least 20-lbs and be placed near the exit of inflation room. Additional fire extinguishers shall be placed in the cylinders storage room and radome.
- l. The **NWS Hydrogen Safety Awareness Training** resource is available on CLC web site. It consists of Compressed Gas Safety and Introduction to Hydrogen Safety for NWS Employees courses.

#### 9.3.6 Hydrogen Generator Systems

- a. Only personnel completed the Hydrogen Generator training course shall perform operations and maintenance on such units. The **NWS Hydrogen Safety Awareness Training** resource is available on CLC web site. It consists of Compressed Gas Safety and Introduction to Hydrogen Safety for NWS Employees courses.
- b. Operators will use static dissipative mats to prevent static electricity buildup between the operator and gas lines with filling balloons and between the operator and the hydrogen generator when operating or performing routine maintenance. The static mat and grounding cord are available at NLSC warehouse (ASN 060-M-3-MP1 and ASN 060-M-3-MP2).
- c. Hydrogen Generator Systems areas shall be permanently placarded as follows: "HYDROGEN-FLAMMABLE GAS-NO SMOKING-NO OPEN FLAMES."
- d. There shall be no use of electric tools or power equipment while operating the hydrogen generator. The area should be monitored for hydrogen gas prior to maintenance. Telephones, flashlights, pagers, etc. shall not be used unless intrinsically safe.
- e. Following events where the pressure vessel is purged of hydrogen by filling it with water to allow work on the vessel, the drain valve should be used to drain all liquid water prior to refilling the tank with hydrogen from the electrolyzer.

## **9.4 Responsibilities**

### **9.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **9.4.2 Station Manager**

- a. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- c. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- d. Will ensure that required initial and refresher training is given to those employees working with compressed gas cylinders and training records are maintained.
- e. Will ensure compliance with all federal, state and local regulations and policies associated with compressed gas cylinders used at NWS facilities.

### **9.4.3 NWS Headquarters (NWSH)**

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure

### **9.4.4 Safety or Environmental/Safety Focal Point**

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will ensure that Material Safety Data Sheets (MSDS) are available for all gases utilized at the site.
- c. Will ensure that warning signs are obtained and posted.

### **9.4.5 Employees**

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.



- b. Report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a>
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## 9.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 9.5.1 American National Standards Institute, ANSI Z48.1, Marking Portable Compressed Gas Containers.
- 9.5.2 American National Standards Institute, ANSI B31.1, Power Piping.
- 9.5.3 American National Standards Institute, ANSI UL 407, Manifolds for Compressed Gases.
- 9.5.4 American Society of Mechanical Engineers, ASME Boiler and Pressure Vessel Code, Section VIII.
- 9.5.5 Federal Meteorological Handbook, No. 3.
- 9.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.101, Compressed Gases (general requirements).
- 9.5.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.102, Acetylene.
- 9.5.8 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.103, Hydrogen.
- 9.5.9 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.104, Oxygen.
- 9.5.10 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.253, Oxygen-Fuel Gas Welding and Cutting.
- 9.5.11 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart M, Compressed Gases and Compressed Air Equipment.
- 9.5.12 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart S, Electrical.
- 9.5.13 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.153, Liquefied Petroleum Gases.
- 9.5.14 U.S. Department of Transportation, 49 CFR 173.34 “Qualifications, Maintenance and Use of Cylinders.
- 9.5.15 NWSM 10-1401, Rawinsonde Observations.

## 9.6 Attachments

None

**PROCEDURE 10 - Respiratory Protection**

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## Synopsis

The purpose of this procedure is to establish requirements related to respiratory protection. This procedure applies to all NWS facilities and work locations where respiratory protection is required and to the employees using respiratory protection.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Evaluate Workplaces for airborne contaminants. (*10.5.2c, 10.3.2*)
  - Evaluate the use of Engineering and Administrative Controls, if applicable (*10.5.2c, 10.3.11*)
- **Develop/Obtain Documentation/Information required for Site**
  - Establish Respiratory Protection Program (*10.3.11c, Attachment B*), if required
    - Develop Procedures for selecting respirators. (*10.3.11e.1*)
    - Develop Procedures for proper use of respirators. (*10.3.11e.4*)
    - Prepare Fit Test Procedures. (*10.3.11e.3*)
    - Develop Procedures and Schedule for maintenance of respirators. (*10.3.11e.5*)
  - Establish Records for Medical Evaluations, Fit Tests and Training. (*10.3.10*)
- **Provide Medical Evaluations to all employees required to use respirators**
  - Medical Evaluation. (*10.3.3 & 10.3.11e.2*)
  - Fit Testing (*10.3.4*)
- **Designate Person to Administer Respiratory Protection Program**
- **Provide Local Training of Site Personnel**
  - Respiratory Hazards Training. (*10.3.11e.7*)
  - Training for Respirator Users. (*10.3.11e.8*)
- **Inventory Material/Equipment (Procure as required)**
  - Notification Signs/Postings. (*10.5.2b, 10.3.8*)
  - Respirators/Filters. (*10.5.2b, 10.3.7*)

### **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Maintain Respiratory Protection Program (*10.3.11c, Attachment B*), if required
  - Maintain Records for Medical Evaluations, Fit Tests and Training. (*10.3.10*)
- **Provide Refresher Training of Site Personnel**
  - Annual Training for Respirator Users. (*10.3.9*)
- **Provide Medical Evaluations to all employees required to use respirators**
  - Medical Examination. (*10.3.3 & 10.3.11e.2*), as necessary
  - Annual and as-required Fit Testing (*10.3.3, Attachment A*)
- **Inspect/Replace/Maintain Material/Equipment**
  - Notification Signs/Postings. (*10.5.2b, 10.3.8*)
  - Respirators/Filters. (*10.5.2b, 10.3.7*)

**Respiratory Protection Checklist**

Requirements	Reference	YES	NO	N/A	Comments
Is initial and annual review of this procedure conducted and documented?	10.4.2				
Does the facility require a written Respiratory Protection Program?	10.3.11c				
Is this program updated as necessary to reflect the changes in the workplace that affect respiratory use?	10.3.11d				
Are the Safety or Environmental/Safety Focal Point, Regional Environmental/Safety Coordinator, and the NWS National Headquarters environmental and safety staff being notified when work activities are suspected to involve breathing contaminated air?	10.3.2				
Is a “Qualified Individual” being used to determine the need for protection based on air monitoring and/or professional judgment for those work activities suspected to involve breathing contaminated air?	10.3.2				
Have all feasible administrative and engineering controls been exhausted prior to implementing the use of respiratory protection?	10.3.1				
Are respirators that are appropriate for the hazard to which the employee is exposed being selected and issued by a “Qualified Individual”?	10.3.6				
Have all employees who must use a respirator, been medically evaluated by a physician or a licensed health care professional (PLHCP) prior to being fit tested?	10.3.3				

Requirements	Reference	YES	NO	N/A	Comments
Has a health care professional provided a written recommendation concerning each employee’s ability to use a respirator?	10.3.3				
Has the “Qualified Individual” performed Fit Testing for all employees who have been medically cleared to use a respirator?	10.3.4				
Have all employees who have been issued a respirator received annual training in the testing, maintenance, donning and use of respirators?	10.3.5				
Where respirators are required, are the respirators, training and medical evaluations provided at no cost to the employee?	10.3.11h				
Are all respirators being cleaned and disinfected every two weeks or at the end of each project?	10.3.7				
Are notification signs stating “Respiratory Protection Required” used at each entrance of the work area where respirators are used?	10.3.8				
Is Fit Testing completed on an annual basis, or when major facial changes or loss of weight occurs?	10.3.11e				
Are records maintained for those employees who have been medically evaluated, fit tested and received respirator training?	10.3.10				
Are procedures in place to establish guidelines for voluntary respirator use?	10.3.11f				
Is the Safety or Environmental/Safety Focal Point, in conjunction with the NWS Headquarters environmental and	10.3.11g				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
safety staff and the NWS Environmental/Safety Regional Coordinator, conducting required evaluations to measure the overall program effectiveness, if required?					

## 10 RESPIRATORY PROTECTION

### 10.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to establish requirements related to respiratory protection. This procedure applies to all NWS facilities, work locations, and employees where respiratory protection is used.

### 10.2 Definitions

Air-Purifying Respirator. A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Demand Respirator. An atmosphere-supplying respirator that admits breathing air through the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Fit Testing. Evaluation of sealing characteristics and performance of the respirator under controlled conditions while worn by the user.

Harmful Atmosphere. Any atmosphere with contaminant concentrations above OSHA Permissible Exposure Levels (PEL's) or American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Values (TLV's), in addition to atmospheres with recognized hazardous levels of contaminants.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

PEL. Permissible Exposure Level. Established by OSHA, PELs are the maximum allowable concentrations of substances in the air that an employee can be exposed to without harmful effects during an 8-hour period.

Qualified Individual. A person who is qualified by appropriate education, training, and experience to provide technical support on respiratory protection issues, e.g., selecting the appropriate respirator for a specific environment.

Respirator. A device used to protect the wearer from the inhalation of harmful atmospheres.

SDS. Safety Data Sheet.

NOAA SECO: NOAA Safety and Environmental Compliance Office

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC)

Supplied-Air Respirator. An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-Fitting Respirator. A respirator with a respiratory inlet covering that forms a complete seal with the face.

TLV. Threshold Limit Value. Exposure guidelines established by ACGIH for airborne concentrations of various chemicals.

### **10.3 Procedure**

10.3.1 Respirators shall be used when engineering or administrative controls cannot be adopted to control or prevent the inhalation of harmful atmospheres. Respiratory protection may be required for NWS personnel involved in work with certain hazardous chemicals; during sand blasting operations; when spray painting; when exposed to dust, smoke and fumes associated with welding operations; or when working in an oxygen-deficient or potentially oxygen-deficient atmosphere.

10.3.2 When work activities are suspected to involve contaminated breathing air, the Safety or Environmental/Safety Focal Point shall be notified in advance of any work performed. The Focal Point should notify the Regional Environmental/Safety Coordinator and the NWS Headquarters environmental and safety staff as needed. The Safety or Environmental/Safety Focal Point shall then, with assistance of SECO, obtain services of a Qualified Individual to determine the need for protection based on air monitoring and/or professional judgment.

10.3.3 Before an employee can be fit tested, a physician or other licensed health care professional (PLHCP) shall evaluate and determine if the employee is physically able to use a respirator.

10.3.4 For employees who have been medically cleared to use a respirator, a fit test shall be performed by a Qualified Individual to ensure that a proper face seal is maintained. Fit testing shall be provided initially, annually and as necessary.

10.3.5 Respirators shall then be provided to those employees who have received training in the testing, maintenance, donning and use of respirators. Employees shall also receive training on the proper types and uses of respirators and filters and their limitations.

10.3.6 The Qualified Individual shall select and issue respirators which are appropriate for the hazard to which the employee is exposed.

10.3.7 In order to help provide the wearer with the proper protection, routinely used respirators shall be cleaned and disinfected every two weeks or at the end of the project (whichever comes first) or, as needed. Respirators shall be inspected before each use and during cleaning. Worn parts shall be replaced.



10.3.8 In work areas where respirators are required to be used, a notification sign shall be posted at each entrance which states “Respiratory Protection Required.” Employees shall not enter an area where respiratory protection is required without proper training, medical clearance, and fit testing.

10.3.9 Respiratory protection training shall be given to respirator users annually and shall include, at a minimum, the proper use, inspection, and cleaning of respirators.

10.3.10 Records shall be maintained on those employees who have been medically evaluated; fit tested; or received respirator training. Records of medical evaluations shall be kept for the duration of the wearer's employment and 30 years following.

10.3.11 It is the policy of the NWS to adhere to the provisions of 29 CFR 1910.134, “Respiratory Protection” including the following:

- a. In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, when effective engineering and/or administrative controls are not feasible, or while they are being instituted, appropriate respirators shall be used.
- b. Respirators shall be provided when such equipment is necessary to protect the health of the employee. The respirators shall be applicable and suitable for the purpose intended.
- c. In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, a written Respiratory Protection Program with worksite-specific procedures shall be established, implemented, and maintained.
- d. The Respiratory Protection Program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use.
- e. The Respiratory Protection Program shall include the following provisions, as applicable:
  - (1) Procedures for selecting respirators for use in the workplace.
  - (2) Medical evaluations (initially and as necessary) of employees required to use respirators.
  - (3) Fit-testing procedures for tight-fitting respirators.
  - (4) Procedures for proper use of respirators in routine and emergency situations.
  - (5) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding and otherwise maintaining respirators.
  - (6) Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators.
  - (7) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations.

- (8) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.
- (9) Procedures for regularly evaluating the effectiveness of the Program:
  - f. Where respirator use is not required and voluntary respirator use is permissible, the employer shall establish and implement those elements of a written Respiratory Protection Program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

**NOTE:** NWS does allow voluntary use of disposable dust masks (i.e., filtering facepieces, which are provided for the employee's comfort). There are no medical limitations on the use of dust masks. Employers who allow use of dust masks are required to ensure that the masks are not dirty or contaminated, that their use does not interfere with employees' ability to work safely.

- g. The Site Focal Point, in conjunction with the NOAA SECO and the NWS Environmental/Safety Regional Coordinator, shall administer or oversee the Respiratory Protection Program and conduct the required evaluations of program effectiveness.
- h. Respirators, training, and medical evaluations shall be provided at no cost to the employee.

## 10.4 Responsibilities

### 10.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 10.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and periodic inventory of notification signs/postings, respirators, filters and other safety equipment is accomplished and adequate stock is maintained, as required.
- c. Will ensure that workplaces are evaluated for air contaminants, if required, and that engineering or/and administrative controls are used, if possible, before establishing the Respiratory Protection Program.
- d. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review

shall be forwarded to the Regional or Operating Unit Environmental/ Safety Coordinator.

10.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

10.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will ensure that a “qualified individual” identifies the site operations which require the use of respiratory protection.

10.4.5 Physician or Other Licensed Health Care Professional (PLHCP)

- a. Will determine, if required, the physiological and psychological capabilities of the potential respirator user to certify that the employee is fit to wear a respirator.

10.4.6 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and to report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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## 10.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 10.5.1 American National Standards Institute, ANSI Standards Z88.2 - “American National Standard for Respiratory Protection.”
- 10.5.2 National Institute for Occupational Safety and Health (NIOSH), 84 CFR 42, “Respiratory Protection.”
- 10.5.3 National Safety Council, Fundamentals of Industrial Hygiene, 4th edition.
- 10.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, Standard 29 CFR 1910.134, “Respiratory Protection.”
- 10.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, Standard 29 CFR 1910.139, “Respiratory Protection for M. Tuberculosis.”

- 10.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, Standard 29 CFR 1910, Subpart Z, "Toxic and Hazardous Substances."

**10.6 Attachments**

Attachment A: Information for Employees Using Respirators When Not Required Under the Standard (29 CFR 1910.134).

Attachment B: Sample Respiratory Protection Program

**ATTACHMENT A**

**Information for Employees Using Respirators When Not Required Under the OSHA Standard (29 CFR 1910.134, Appendix D).**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and comply with all instructions provided by the manufacturer on use, maintenance, cleaning and care of respirators, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health and Human Services certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

**ATTACHMENT B**  
**Sample Respiratory Protection Program**

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**V. Program Elements**

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4. Limitations of Air Purifying Respirators
5. Medical Evaluations
6. Fit testing
7. Face Seal Protection
8. Training and Information
9. Recordkeeping
10. Program Evaluation

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- Appendix 1-b: Respirator Selection Guidelines
- Appendix 2: Information for Employees Using Respirators when Not Required
- Appendix 3: Cleaning Procedures
- Appendix 4: Medical Questionnaire
- Appendix 5: User Seal Check

**I. Purpose**

The purpose of this plan is to establish a program and procedures for respiratory protection at the \_\_\_\_\_ . This program supports compliance with the Occupational Safety and Health Administration Respiratory Protection Standard, 29 CFR 1910.134. This program describes the procedures for identifying airborne hazards, selecting and using proper respirators, medical evaluations of employees, fit testing of respirators, and training and record keeping requirements. The program outlines the policy and procedures necessary to implement a Respiratory Protection Program.

## II. Scope

This program applies to all employees who are required to wear air purifying respirators to prevent exposure to airborne contaminants. It also applies to employees who voluntarily wear respirators although respirators are not required.

This program does not cover the use of atmosphere supplying respirators in oxygen deficient atmospheres, high concentration atmospheres, or unknown atmospheres.

## III. Definitions

**Administrative Controls:** administrative changes in work schedules or procedures that reduce employee exposure to respiratory hazards.

**APR:** air purifying respirator. A respirator with an air purifying filter cartridge or canister that removes specific air contaminants by passing ambient air through the air purifying element.

**Atmosphere supplying respirator:** a respirator that supplies the wearer with breathing air from a source independent of the ambient air, including supplied air respirators (SAR) and self contained breathing apparatus (SCBA).

**Canister or cartridge:** means a container with a filter, sorbent or catalyst, or a combination of these items, which removes specific contaminants from the air passed through the container.

**Contaminants:** substances in the air that can cause immediate (acute) or long term (chronic) health problems.

**Concentration:** the amount of contaminant in the air, measured in parts per million (ppm) or milligrams per cubic meter (mg/m<sup>3</sup>).

**Demand respirator:** means an atmosphere supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

**Dusts:** are fine particles that are created when solid material breaks down. Operations that typically create dust are grinding, crushing, drilling, sanding and milling.

**Dust Masks (Filtering Facepieces):** a negative pressure particulate respirator with a filter as an integral part of the facepiece, or with the entire facepiece composed of the filtering medium.

**Emergency situation:** means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

**Employee exposure:** means an exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

**End of Service Life Indicator (ESLI):** a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

**Engineering Controls:** specialized equipment, processes or practices that can reduce employee exposure to respiratory hazards.

**Escape only respirator:** means a respirator that is intended to be used only for emergency exit.

**Exposure:** coming into contact with a hazardous substance through inhalation, ingestion, skin contact or absorption.

**Fit factor:** means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

**Fit test:** means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

**Fumes:** are created when solid materials vaporize under extreme heat. As the vapor cools it condenses into an extremely small particle, e.g., fumes created during welding and cutting of steel.

**Gases:** gases have the ability to diffuse and spread throughout an enclosure or area. Examples of gases are nitrogen, carbon monoxide and carbon dioxide.

**Hood:** means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulder and torso.

**IDLH:** a OSHA defines “Immediately Dangerous to Life or Health” as an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere. **Loose fitting facepiece:** a respirator with an inlet covering that is designed to form a partial seal with the face.

**Mists:** are created when liquids are atomized and condensed. Typical sources of mists are spraying operations, mixing and cleaning operations.

**SDS: Safety Data Sheet.** Written or printed material from the product manufacturer which has information about the hazards of a material.

**Maximum use concentration (MUC).** Means the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. **Negative Pressure Respirator:** a tight fitting respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air outside the respirator.

**NIOSH: National Institute for Occupational Safety and Health.** A federal agency which establishes minimum performance standards for respirators and approves respirators for various uses.



**Oxygen Deficiency:** too little oxygen in the air, which can result in illness or injury to employees. By OSHA definition, it is an oxygen level less than 19.5%.

**PAPR:** *a powered air purifying respirator.* A respirator that uses a blower to force the ambient air through air purifying elements to the inlet covering.

**PEL:** *Permissible Exposure Level.* Established by OSHA, PELs are the maximum allowable concentrations of substances in the air that an employee can be exposed to without harmful effects during an 8-hour period.

**PLHCP:** *Physician or other licensed health care professional,* whose legally permitted scope of practice allows him or her to independently provide or be delegated the responsibility to provide some or all of the health care services required by this program.

**Positive pressure respirator:** means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

**PPE:** *Personal Protective Equipment.* Any equipment used to protect an employee from danger, including hard hats, boots, gloves, hoods, goggles, and respirators.

**QLFT:** *Qualitative fit test:* means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

**QNFT:** *Quantitative fit test:* means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**Respiratory inlet covering:** means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit or a mouthpiece respirator with nose-clamp.

**Self Contained Breathing Apparatus (SCBA):** means an atmosphere supplying respirator for which the breathing air source is designed to be carried by the user.

**Supplied air respirator (SAR):** means an atmosphere supplying respirator for which the source of breathing air is not designed to be carried by the user. (e.g., an airline respirator).

**Tight fitting facepiece:** a respirator with an inlet covering that forms a complete seal with the face.

**TLV: Threshold Limit Value.** Exposure guidelines established by American Conference of Governmental Industrial Hygienist (ACGIH) which have been established for airborne concentrations of many chemical compounds.

**TWA: Time Weighted Average.** A weighted average exposure level over a given amount of time, usually 8 hours.

**User seal check:** means an action conducted by the respirator user to determine if the respirator is properly sealed to the face.

**Vapors:** are formed through the evaporation of liquids or solids. Examples include gasoline, paint thinners, and solvents.

## IV. Responsibilities

### **The Program Administrator is responsible for:**

- Maintaining a written Respiratory Protection Program.
- Ensuring the coordinating of hazard assessments, respirator selection, training, medical evaluations and fit tests.
- Maintaining records and a current list of approved respirator wearers, including training, medical evaluations, fit tests, and the types of respirators which have been approved for use.
- Purchasing and providing approved respirators and replacement cartridges.
- Funding medical evaluations and fit tests for employees who wear respirators.
- Auditing the program for continued effectiveness.

### **The Supervisor of employees who wear respirators is responsible for:**

- Knowing the hazards in their areas that require respiratory protection.
- Knowing the types of respirators that need to be used.
- Ensuring that Respirator Program procedures are followed.
- Enforcing the wearing of respirators where it is required.
- Ensuring that employees receive training and medical evaluations when necessary.
- Coordinating annual re-training.
- Notifying Environmental Health and Safety of any problems with respirator use, or any changes in work processes that would impact airborne contaminant levels.

### **The Employee who wears a respirator is responsible for:**

- Participating in all training.
- Wearing the respirator in accordance with the program policies and work site-specific procedures.
- Properly maintaining their respiratory protection equipment.
- Reporting any malfunctions or concerns to their supervisor.

## V. Program Elements

### **1. Identification of Airborne Contaminants**

#### Types of Contaminants

- There are two main types of respiratory hazards: oxygen deficiency and airborne contaminants. This program covers only airborne contaminants.
- The main types of airborne contaminants are:
  - a. dusts: particles, released during work operations such as grinding and sawing.
  - b. mists: particles of liquid, released during operations such as spray painting.

- c. vapors: gaseous forms of a liquid, such as paint solvents.
- d. fumes: vaporized condensed metals, as present in welding operations.
- e. gases: such as nitrogen, methane, carbon monoxide.

Workplace Evaluations/Hazard Assessments

- Each workplace shall be evaluated for possible airborne contaminants by Safety or Environmental Health and Safety focal point or his/her designee. A hazard assessment shall be conducted in workplaces with the possibility of over exposure.
- Once a respiratory hazard has been identified, the work area shall be monitored for any changes in concentration level or for new hazards. Changes in work processes, substitution of materials, or changes in the ventilation of an area may necessitate re-testing. Supervisors are responsible for monitoring day to day operations and reporting changes to Safety or Environmental Health and Safety focal point.

**2. Selecting Proper Respiratory Protection**

Controlling airborne hazards

When controlling airborne hazards, engineering and administrative controls will first be considered as a means to reduce the hazards. Engineering controls can include enclosure, substitution, process modification, and ventilation. Administrative controls include scheduling changes to reduce time spent in contaminated areas.

Required Use of Respirators

In situations where engineering and administrative controls do not sufficiently reduce exposure to levels below Permissible Exposure Levels (PEL's), respirators are required.

Selection of Respirators

- Only NIOSH approved respirators will be used.
- Single strap disposable comfort masks are not approved respirators.
- Respirators will be selected based on the respiratory hazards to which the employee is exposed, and the workplace and user factors that affect performance.
- An employee shall wear only a respirator which has been fit tested and approved for the employee and for the hazards of the exposure.
- Respirator types, sizes, and cartridges are not interchangeable.
- The following factors are to be considered when determining the proper respiratory protection:
  - a. Employee exposure (e.g., concentration, route of exposure).
  - b. Physical form and chemical state of the contaminant.
- If the employee exposure cannot be identified or estimated, then the atmosphere shall be considered IDLH.
- For protection against particulates, one of the following respirators shall be provided:
  - a. An atmosphere supplying respirator or,

- b. An air purifying respirator equipped with a filter certified by NIOSH as a HEPA (High Efficiency Particulate Air) filter or,
  - c. An air purifying respirator equipped with a filter certified for particulates by NIOSH or,
  - d. For contaminants consisting primarily of particulates with a mass median aerodynamic diameter (MMAD) of at least 2 micrometers, an air purifying respirator with any filter certified for particulates by NIOSH.
- For protection against gases and vapors, one of following respirators shall be provided:
    - a. An atmosphere supplying respirator or,
    - b. An air purifying respirator that is either equipped with a chemical cartridge that has an end of service life indicator (ESLI) certified by NIOSH for the contaminant, OR if there is no appropriate ESLI, then a replacement schedule must be in place for cartridges and filters based on information that will assure the cartridges are changed before their end of service life. The replacement schedule must be included in the worksite specific instructions.
  - Consult Appendix A-1 for a description of Respirator types and Appendix A-2 for selection guidelines.

#### Voluntary Use of Respirators

- Employees will be allowed to use respirators voluntarily if the respirator itself will not create a hazard.
- Employees who only use dust mask (filtering facepiece) are not subject to the requirements of the written program.
- Employees voluntarily wearing air purifying respirators are subject to the requirements of this program, including medical evaluations, training, and maintenance procedures.
- Fit tests are not required for voluntary users, but are encouraged.
- All employees voluntarily wearing respirators will be provided a copy of the information contained in Appendix B: “Information for Employees Using Respirators When Not Required under the Standard.”

### **3. Maintenance and Care of Respirators**

#### Cleaning and Disinfecting

- Each employee shall be provided with a respirator that is clean, sanitary and in good working order.
- Respirators shall be cleaned and disinfected using the procedures in Appendix C or procedures recommended by the manufacturer if they are equally effective.
- The frequency for cleaning and disinfecting is as follows:
  - a. Respirators used by only one employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
  - b. Shared respirators must be cleaned and disinfected prior to use.

- c. Emergency use respirators must be cleaned and disinfected after each use.
- d. Respirators used in fit tests and training exercises must be cleaned and disinfected after use.

Storage

- Respirators shall be stored so as to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals.
- Respirators shall be stored in such a manner as to prevent deformation of the facepiece and valves.
- Emergency use respirators shall be kept accessible to the work area, in compartments or covers that are clearly marked as containing emergency respirators, and stored in accordance with the manufacturer's instructions.

Inspection

- Respirators used in routine situations shall be inspected before each use and during cleaning.
- Emergency use respirators shall be inspected at least monthly, and in accordance with the manufacturer's instructions.
- Emergency use respirators shall also be checked for proper function before and after each use.
- Escape-only respirators shall be inspected before being brought into the work area.
- A respirator inspection includes the following:
  - a. A check of respirator function, tightness of connections, and the condition of the various parts, including the facepiece, head straps, valves, connecting tubes, cartridges, canisters and filters.
  - b. A check of the elastic parts for pliability or deterioration.

Repairs

- Respirators that fail inspections or are otherwise found to be defective shall be removed from service and discarded, repaired, or adjusted by appropriately trained persons, with NIOSH approved parts, according to manufacturer's specifications.
- Valves, regulators and alarms shall be adjusted or repaired only by the manufacturer or manufacturer's technicians.

Identification of Filters, Cartridges and Canisters

- Filters, cartridges and canisters must be labeled and color coded with the NIOSH approval label. The label is not to be removed and must remain legible.

#### 4. Limitations of Air Purifying Respirators

##### IDLH Atmospheres

- Air purifying respirators shall not be used in oxygen deficient atmospheres, IDLH atmospheres, or unknown atmospheres. All confined spaces shall be considered IDLH unless proven otherwise. If assistance is required to determine an unknown atmosphere, contact Safety or Environmental Health and Safety focal point.

##### Respirator Types

Respirator types, models, and sizes are not interchangeable. An employee shall only wear a respirator which has been fit tested and approved for the employee's use.

##### Cartridges and Filters

Cartridges and filters are specific to certain hazards. Use the cartridge approved for the task. Do not interchange manufacturer's cartridges or filters.

##### Concentration

There are limits to the concentration levels that can be used with half mask and full face respirators. Consult the cartridge's Maximum Use Concentration and Safety or Environmental Health and Safety focal point to determine if you have the proper level of protection.

##### Face Seal Protection

- Anything that breaks the seal of a respirator will reduce its effectiveness. Facial hair, temple bars of glasses and head coverings are not to be worn.
- Corrective lenses can be fitted inside a full face respirator with a special insert kit.

#### 5. Medical Evaluations

##### Initial Evaluations

- Every employee must be medically evaluated prior to fit testing and initial use of a respirator.
- Medical evaluations shall be conducted by a physician or other licensed health care professional (PLHCP).
- Medical evaluations shall consist of either a medical questionnaire or an initial medical examination that obtains the same information as the questionnaire.
- The requirements of the respirator medical evaluation questionnaire are mandatory ([1910.134, Appendix C](#)).
- Medical questionnaires and examinations shall be administered confidentially and during normal working hours.

##### Followup Medical Examinations

- Follow up medical examinations are necessary if an employee gives a positive response to any of the questions numbered 1 through 8 in section 2 of the questionnaire.

- The followup medical examination shall include any medical tests, consultations or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Supplemental Information for the PLHCP.

- The following information must be supplied to the PLHCP before a recommendation is made:
  - a. type and weight of the respirator to be used.
  - b. duration and frequency of use.
  - c. expected physical effort.
  - d. additional protective clothing and equipment to be worn.
  - e. temperature and humidity that may be encountered.
  - f. a copy of the written program and the regulation.

Medical Determination

- The Program Administrator must obtain a written recommendation from the PLHCP on whether or not the employee is medically able to use the respirator.
- The recommendation shall include only the following information:
  - a. any limitations on respirator use related to the medical condition of the employee or workplace conditions including whether the employee is medically able to wear the respirator.
  - b. the need, if any, for a follow-up medical examination.
  - c. a statement that the PLHCP has provided the employee with a copy of the recommendation.
  - d. If the PLHCP finds an employee cannot use a negative pressure respirator, a PAPR will be provided, if suitable.

Additional Medical Evaluations

Additional medical evaluations shall be provided if:

- an employee reports medical signs or symptoms related to the ability to use a respirator.
- a PLHCP, supervisor, or the program administrator deems an employee needs re-evaluation.
- information from the program, observations during fit tests, or evaluations indicate the need for re-evaluation.
- changes in the workplace conditions result in increased physiological burden on the employee.

Employee Access

- The employee shall receive a copy of the PLHCP's recommendation.
- The employee shall have an opportunity to discuss the questionnaire and examination with the PLHCP.

## 6. Fit testing

### Initial Fit Tests

- Before wearing a respirator, employees are required to be fit tested with the same make, model, style and size of respirator that will be used.
- A sufficient number of respirator models and sizes shall be available so that the respirator is acceptable to and correctly fits the user.
- Employees shall wear only respirators which have been fit tested and approved for use.

### Fit Test Procedures

- Fit tests are either qualitative or quantitative, depending on the respirator type and use, and must follow the procedures outlined in the OSHA Standard 1910.134.
- Fit test shall be performed by qualified fit test technicians. To be qualified, a fit test technician must have been trained in both qualitative and quantitative fit test procedures in a 16 hour training course.

### Frequency

- Fit testing shall be conducted initially, annually, and whenever changes in an employee's physical condition could affect respirator fit, and whenever requested by the employee because the fit is unacceptable.

### Records

- Records of fit tests must be maintained by the Program Administrator and should include names, dates, types of tests, results and make, model, style and size of the respirator fitted.

## 7. Face Seal Protection

### Prohibitions

- Tight fitting face pieces are not to be worn by employees:
  - Who have facial hair that comes between the sealing surface and the face, or that interferes with valve function.
  - Who have any condition that interferes with the seal, such as missing dentures, jewelry, or head gear.
  - When corrective glasses, goggles or other PPE interfere with the seal.

### User Seal Checks

- Employees must perform a user seal check each time they put on the respirator according to the procedures in [1910.134, Appendix B-1, User Seal Check Procedures \(Mandatory\)](#) .

### Continued Respirator Effectiveness

- Appropriate surveillance of the work area and employee exposure shall be maintained by the supervisor and Program Administrator. Respirator effectiveness must



be re-evaluated when there is a change in work area conditions or degree of employee exposure or stress.

Leaving the Respirator Work Area

- a. Employees must be allowed to leave the respirator use area:
  - to wash their faces and respirators as necessary to prevent eye or skin irritation.
    - if they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.
  - to replace the respirator or the filter cartridges or canisters.
- b. A defective respirator must be replaced or repaired before returning to the work area.

**8. Training and Information**

For Required Users of Respirators

- All employees who are required to wear respirators will receive initial training in their use and maintenance.
- Employees must be trained sufficiently to demonstrate:
  - a. a knowledge of why the respirator is required.
  - b. how improper fit, usage or maintenance can compromise the protectiveness of the respirator.
  - c. the limitations and capabilities of the respirator.
  - d. how to deal with emergencies or malfunctions.
  - e. how to inspect, don and remove, and check the seal of the respirator.
  - f. maintenance and storage procedures.
  - g. medical symptoms and signs that may limit or prevent the effective use of respirators.
  - h. general requirements of this standard.
- Training shall be provided by qualified persons who are familiar with the regulatory requirements of the Respiratory Protection Standard and trained in respirator use and fit test procedures.

For Voluntary Users of Respirators

- Employees voluntarily wearing a respirator shall be provided the information in [1910.134, Appendix D, \(Mandatory\) Information for Employees Using Respirators When not Required Under Standard.](#)

Frequency of Re-Training

- Re-training will be provided annually and whenever the following occur:
  - a. changes in the workplace or type of respirator used.
  - b. inadequacies in the employee's knowledge or use of the respirator are apparent.

- c. any other situation in which re-training is necessary to ensure safe respirator use.

**9. Recordkeeping**

- Records of training and fit testing shall be kept by the Program Administrator for the duration of the wearer’s employment.
- Records of medical evaluations shall be kept for the duration of the wearer’s employment and 30 years following.

**10. Program Evaluation**

- The Program Administrator shall conduct evaluations of the workplace as necessary to ensure the provisions of this written program are being effectively implemented.
- The program evaluation shall include consulting with employees required to wear respirators to assess the employee’s views on program effectiveness and to identify any problems. Any problems identified shall be corrected.
- Factors to be assessed include respirator fit, appropriate respirator selection, proper use and maintenance.

**Summary of Program Requirements:**

<b>Element</b>	<b>Frequency</b>	<b>Documentation</b>	<b>Responsibility</b>
Hazard Assessment	initially whenever work processes change	written hazard assessment	Program Administrator
Cleaning and Disinfecting	respirators used by one employee must be cleaned as often as necessary	none	Employee
	shared respirators must be cleaned prior to use	none	Employee
	emergency respirators must be cleaned after each use	none	Employee
User seal check	each time a respirator is put on	none	Employee
Inspections	respirators must be inspected before each use and during cleaning	none	Employee
	emergency respirators must be inspected monthly	a record of inspections	Supervisor
Medical Evaluations	initially as necessary	records kept	Program Administrator
Fit testing	initially annually as necessary	records kept	Program Administrator
Training	initially annually as necessary	records kept	Program Administrator
Program Evaluation	as necessary (at least annually)	written evaluation	Program Administrator

**Appendix 1-A  
Respirator Types**

<b>Type</b>	<b>Capabilities</b>	<b>Fit Test</b>	<b>Limitations</b>
Air Purifying (AR), Chemical Cartridge, Half-face	Chemical Specific Cartridge APF = 10	qualitative	Not for use in atmosphere with concentrations above 10 times the PEL.  Not for use for any chemical not listed on the cartridge, IDLH or unknown atmospheres.
Air Purifying, Chemical Cartridge, Full-face	Chemical Specific Cartridge APF = 50	qualitative or quantitative	Qualitative fit testing is not approved for respirator use in atmospheres above 10 times the PEL.  Not for use for any chemical not listed on the cartridge, IDLH or unknown atmospheres.
Powered Air Purifying (PAP), Chemical Cartridge, Full-face	Chemical Specific Cartridge APF = 1000	qualitative or quantitative	Not for use for any chemical not listed on the cartridge, IDLH or unknown atmospheres.

**Appendix 2-A  
Respirator Selection Guide**

**What is the Oxygen Concentration present?**

Greater than 19.5%	Less than 19.5%

**What is the contaminant concentration?** SUPPLIED AIR RESPIRATOR

Above the PEL	Below the PEL
	AT EMPLOYEE OPTION

**What are the concentration and characteristics of the contaminant?**

< 10 x PEL	10-50 x PEL	> 50 x PEL
HALF FACE APR	FULL FACE APR	FULL-FACE PAPR

### Appendix 3 Respirator Cleaning Procedures

#### Procedures for Cleaning Respirators:

1. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
3. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F maximum]), preferably running water and drain.
4. Disinfect components. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  - a. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
  - b. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,
  - c. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
5. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F maximum]), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
6. Dry components. Components should be hand-dried with a clean lint-free cloth or air dried.
7. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
8. Test the respirator to ensure that all components work properly.

**Appendix 4**  
**OSHA Respirator Medical Evaluation Questionnaire**  
**(OSHA 1910.134, Appendix C)**

*To the employer:*

Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

*To the employee:*

Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

**Part A Section 1 (Mandatory)**

The following information must be provided by every employee who has been selected to use any type of respirator.

(please print)

1. Today's date: \_\_\_\_\_
2. Your name: \_\_\_\_\_
3. Your age (to nearest year): \_\_\_\_\_
4. Sex (circle one): Male/Female
5. Your height: \_\_\_\_\_ ft. \_\_\_\_\_ in.
6. Your weight: \_\_\_\_\_ lbs.
7. Your job title: \_\_\_\_\_
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): \_\_\_\_\_
9. The best time to phone you at this number: \_\_\_\_\_
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No
11. Check the type of respirator you will use (you can check more than one category):
  - a. \_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non-cartridge type only).

b. \_\_\_\_\_ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator before? (circle one): Yes/No

If "yes," what type(s): \_\_\_\_\_

**Part A Section 2 (Mandatory)**

Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

**1. Do you currently smoke tobacco, or have you smoked tobacco in the last month?**

Yes/No

**2. Have you ever had any of the following conditions?**

- a. Seizures (fits): Yes/No
- b. Diabetes (sugar disease): Yes/No
- c. Allergic reactions that interfere with your breathing: Yes/No
- d. Claustrophobia (fear of closed-in places): Yes/No
- e. Trouble smelling odors: Yes/No

**3. Have you ever had any of the following pulmonary or lung problems?**

- a. Asbestosis: Yes/No
- b. Asthma: Yes/No
- c. Chronic bronchitis: Yes/No
- d. Emphysema: Yes/No
- e. Pneumonia: Yes/No
- f. Tuberculosis: Yes/No
- g. Silicosis: Yes/No
- h. Pneumothorax (collapsed lung): Yes/No
- i. Lung cancer: Yes/No
- j. Broken ribs: Yes/No
- k. Any chest injuries or surgeries: Yes/No
- l. Any other lung problem that you've been told about: Yes/No

**4. Do you currently have any of the following symptoms of pulmonary or lung illness?**

- a. Shortness of breath: Yes/No
- b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No

- c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
- d. Have to stop for breath when walking at your own pace on level ground: Yes/No
- e. Shortness of breath when washing or dressing yourself: Yes/No
- f. Shortness of breath that interferes with your job: Yes/No
- g. Coughing that produces phlegm (thick sputum): Yes/No
- h. Coughing that wakes you early in the morning: Yes/No
- i. Coughing that occurs mostly when you are lying down: Yes/No
- j. Coughing up blood in the last month: Yes/No
- k. Wheezing: Yes/No
- l. Wheezing that interferes with your job: Yes/No
- m. Chest pain when you breathe deeply: Yes/No
- n. Any other symptoms that you think may be related to lung problems: Yes/No

**5. Have you ever had any of the following cardiovascular or heart problems?**

- a. Heart attack: Yes/No
- b. Stroke: Yes/No
- c. Angina: Yes/No
- d. Heart failure: Yes/No
- e. Swelling in your legs or feet (not caused by walking): Yes/No
- f. Heart arrhythmia (heart beating irregularly): Yes/No
- g. High blood pressure: Yes/No
- h. Any other heart problem that you've been told about: Yes/No

**6. Have you ever had any of the following cardiovascular or heart symptoms?**

- a. Frequent pain or tightness in your chest: Yes/No
- b. Pain or tightness in your chest during physical activity: Yes/No
- c. Pain or tightness in your chest that interferes with your job: Yes/No
- d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
- e. Heartburn or indigestion that is not related to eating: Yes/No
- f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

**7. Do you currently take medication for any of the following problems?**

- a. Breathing or lung problems: Yes/No
- b. Heart trouble: Yes/No



c. Blood pressure: Yes/No

d. Seizures (fits): Yes/No

**8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, go to question 9).**

a. Eye irritation: Yes/No

b. Skin allergies or rashes: Yes/No

c. Anxiety: Yes/No

d. General weakness or fatigue: Yes/No

e. Any other problem that interferes with your use of a respirator: Yes/No

**9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire? Yes/No**

\* Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

**10. Have you ever lost vision in either eye (temporarily or permanently)? Yes/No**

**11. Do you currently have any of the following vision problems?**

a. Wear contact lenses: Yes/No

b. Wear glasses: Yes/No

c. Color blind: Yes/No

d. Any other eye or vision problem: Yes/No

**12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No**

**13. Do you currently have any of the following hearing problems?**

a. Difficulty hearing: Yes/No

b. Wear a hearing aid: Yes/No

c. Any other hearing or ear problem: Yes/No

**14. Have you ever had a back injury? Yes/No**

**15. Do you currently have any of the following musculoskeletal problems?**

a. Weakness in any of your arms, hands, legs, or feet: Yes/No

b. Back pain: Yes/No

c. Difficulty fully moving your arms and legs: Yes/No

d. Pain or stiffness when you lean forward or backward at the waist: Yes/No

e. Difficulty fully moving your head up or down: Yes/No

- f. Difficulty fully moving your head side to side: Yes/No
- g. Difficulty bending at your knees: Yes/No. Difficulty squatting to the ground: Yes/No
- i. Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
- j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

**Part B**

Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them:

---

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

- a. Asbestos: Yes/No
- b. Silica (e.g., in sandblasting): Yes/No
- c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
- d. Beryllium: Yes/No
- e. Aluminum: Yes/No
- f. Coal (for example, mining): Yes/No
- g. Iron: Yes/No
- h. Tin: Yes/No
- i. Dusty environments: Yes/No
- j. Any other hazardous exposures: Yes/No If "yes," describe these exposures: \_\_\_\_\_

---

4. List any second jobs or side businesses you have:

---

---

5. List your previous occupations:

\_\_\_\_\_

6. List your current and previous hobbies: \_\_\_\_\_

\_\_\_\_\_

7. Have you been in the military services? Yes/No

If ``yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If ``yes," name the medications if you know them: \_\_\_\_\_

10. Will you be using any of the following items with your respirator(s)?

a. HEPA Filters: Yes/No

b. Canisters (for example, gas masks): Yes/No

c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle ``yes" or ``no" for all answers that apply to you)?

a. Escape only (no rescue): Yes/No

b. Emergency rescue only: Yes/No

c. Less than 5 hours per week: Yes/No

d. Less than 2 hours per day: Yes/No

e. 2 to 4 hours per day: Yes/No

f. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:

a. Light (less than 200 kcal per hour): Yes/No

If ``yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ minutes.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

b. Moderate (200 to 350 kcal per hour): Yes/No

If ``yes," how long does this period last during the average shift: \_\_\_\_\_ hrs \_\_\_\_\_ minutes.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. Heavy (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs.  
\_\_\_\_\_ minutes.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator? Yes/No

If "yes," describe this protective clothing and/or equipment

\_\_\_\_\_  
\_\_\_\_\_

14. Will you be working under hot conditions (temperature exceeding 77 deg. F)?  
Yes/No

15. Will you be working under humid conditions? Yes/No

16. Describe the work you'll be doing while you're using your respirator(s):

\_\_\_\_\_  
\_\_\_\_\_

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

\_\_\_\_\_  
\_\_\_\_\_

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of the second toxic  
substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of the third toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

The name of any other toxic substances that you'll be exposed to while using your respirator:

\_\_\_\_\_  
\_\_\_\_\_

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, or security):

\_\_\_\_\_  
\_\_\_\_\_

## Appendix 5

### User Seal Check Procedures (OSHA 1910.134, Appendix B-1)

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on.

Either the positive and negative pressure checks listed below, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

#### Positive and/or Negative Pressure Checks

- a. Positive pressure check.**
  - i.** Close off the exhalation valve and exhale gently into the facepiece.
  - ii.** The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal.
  - iii.** For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- b. Negative pressure check.**
  - i.** Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s).
  - ii.** Inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds.
  - iii.** The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove.
  - iv.** If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

#### Manufacturer's Recommended User Seal Check Procedures

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

**PROCEDURE 11 - Hearing Conservation**

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### **Synopsis**

The purpose of this procedure is to provide guidelines to reduce potential overexposure to noise. This procedure applies to all NWS facilities and work locations where employees work near sources of high intensity noise.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Evaluate Feasible Engineering and Administrative Controls (*11.3.2a*)
- **Develop/Obtain Documentation/Information required for Site**
  - Establish a Hearing Conservation Program, if required. (*11.3.2e*)
- **Designate Person to Administer Hearing Conservation Procedure Requirements (if required)**

### **Provide Local Training of Site Personnel**

- Training for affected personnel. (*11.3.1b, 11.3.2e.7*)
- **Inventory Material/Equipment (Procure as required)**
  - Postings, Signs. (*11.3.1a, 11.3.2e.6*)
  - Hearing Personal Protective Equipment (PPE). (*11.3.1a, 11.3.2e.5*)

### **Recurring and Annual Task Requirements:**

- **Perform Assessment/Testing/Update Documentation**
  - Maintain a Hearing Conservation Program, if required. (*11.3.2e*)
- **Provide Refresher Training for Site Personnel**
  - Annual Refresher Training for affected personnel. (*11.3.1b, 11.3.2e.6*)
- **Inspect/Replace/Recalibrate Material/Equipment**
  - Postings, Signs. (*11.3.1a, 11.3.2e.6*)
  - Hearing PPE. (*11.3.1a, 11.3.2e.5*)



**Hearing Conservation Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	11.4.2				
Have engineering controls been used to reduce excessive noise levels? Where engineering controls are determined to not be feasible, are administrative controls (i.e. worker rotation) being used to minimize individual employee exposure to noise?	11.3.2a				
Is approved hearing protective equipment available to every employee working in noisy areas?	11.3.1a & 11.3.2e.5				
Are employees properly fitted and instructed on the use and limitations of ear protectors?	11.3.1b				
Are signs “Hearing Protection Recommended” or “Hearing Protection Required” posted in high noise areas?	11.3.2e.6				
Is there an annual training program to educate employees in safe levels of noise, exposures; effects of noise on their health; and the use of personal protective equipment?	11.3.2e.7 11.3.1b				
Has the facility established a Hearing Conservation Program (if required) for employees who are exposed to noise levels equal to or exceeding an 8-hour time-weighted average sound level of 85 decibels on the A-weighted scale?	11.3.2d Attachment B				
Has facility developed and implemented a noise monitoring program where noise exposure is likely to equal or exceed an 8-hour TWA of 85 dBA?	11.3.2e.1 Attachment B				
Has baseline audiometric testing been conducted for	11.3.2e.4				

Requirements	Reference	YES	NO	N/A	Comments
affected personnel required to be enrolled in Hearing Conservation Program?					
Is there an established and maintained an audiometric testing program for affected employees required to be enrolled in Hearing Conservation Program?	11.3.2e.4				
Are all audiometric test records maintained for the duration of the employee employment?	11.3.2f.2				
Are affected employees noise exposure measurement records maintained for two years?	11.3.2f.1				

## 11 HEARING CONSERVATION

### 11.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is implementing this procedure to protect employees from the effects of overexposure to noise. This procedure applies to all NWS facilities, work locations where employees work near sources of high intensity noise.

### 11.2 Definitions

Action Level. An 8-hour, time-weighted average (TWA) of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of 50 percent.

Audiometric Testing Program. A program in which audiometric testing is made available to all employees whose noise exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

Baseline Audiogram. The audiogram against which future audiograms are compared.

Continuous Noise. Broadband noise of approximately constant level and spectrum to which an employee is exposed for a period of eight hours per day, 40 hours per week. (When the variations in noise level involve maxima at intervals of one second or less).

Criterion Sound Level. The decibel level that will yield a 100 percent dose in eight hours. For OSHA, 90 dBA is typically used.

Decibel (dB). A unit used to express sound-power level and sound-pressure level.

dBA. Sound level in decibels read on the A scale of a sound-level meter.

Field office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hearing Conservation. The prevention or minimization of noise-induced hearing loss through the use of hearing protection devices, the control of noise through engineering methods, annual audiometric tests, and employee training.

Hertz (Hz). Unit of measurement of frequency, numerically equal to cycles per second.

Impact/Impulse Noise. A sharp burst of sound occurring for less than one-half second in duration and not repeating more than once per second.

Intermittent Noise. Exposure to a given broadband sound-pressure level several times during a normal workday.

Noise. Any unwanted sound.

Noise Monitoring Program. A program where the noise levels to which employees are exposed are recorded using area and/or personal noise monitoring. The sampling strategy is designed to identify employees for inclusion in a Hearing Conservation Program and to enable the proper selection of hearing protectors.

**NOTE:** A Noise Monitoring Program is required when information indicates that any employee’s exposure may equal or exceed an 8-hour time-weighted average of 85 decibels. In general, the NWS relies on representative noise monitoring data of its operations at a variety of sites to determine the requirements for the use of hearing protection. Previous studies conducted at several WFOs and WFO/RFCs have indicated it is highly unlikely that any NWS employee would be exposed above the Action Level (Attachment B). These readings are confirmed periodically.

Any operations uniquely performed at the site or by site personnel need to be evaluated if there is reason to suspect they would expose employees at or above the action level.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.

Slow Response. A sound measurement in which all of the high-level noises of short-lived duration are averaged out.

Sound Level Meter. An instrument for the measurement of sound level.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Time Weighted Average Sound Level (TWA). That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

### 11.3 Procedure

#### 11.3.1 General Requirements for Short Term High-Level Noise Exposure.

- a. Suitable hearing protectors (ear plugs and/or ear muffs) are recommended for use whenever personnel are exposed to high levels of noise even if it is for short periods of time and below the 8-hour TWA of 85 dBA (e.g., inside the emergency generator facility when the generator is on-line; sandblasting cabinets at the NDBC; some facilities adjacent to airports, etc.). Signs reading either “Hearing Protection Recommended” or “Hearing Protection Required” should be posted at the entrance of high noise areas.
- b. Personnel who use hearing protection (e.g., inside the Emergency Generator building when the generator is on-line) and are not required to be in a Hearing Conservation Program shall receive annual training in the following areas: the

effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; and the selection, fit, and care of hearing protectors. Training can be accomplished through the use of online or in-person training by competent personnel.

11.3.2 Requirements of a Hearing Conservation Program.

When employees are subjected to sound levels exceeding those listed in Table 11-1, it is the policy of the NWS to adhere to the provisions of 29 CFR 1910.95, “Occupational Noise Exposure,” including the following:

- a. Feasible administrative or engineering controls shall be utilized to provide protection against the effects of the noise exposure. Examples of noise control measures include making alterations in engineering design, damping and/or isolation of the noise and limiting the time of exposure.

<b>TABLE 11-1 - PERMISSIBLE NOISE EXPOSURES</b>	
Duration Per Day (Hours)	Sound Level (dBA), Slow Response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

- b. If engineering and/or administrative controls fail to reduce sound levels within the levels of Table 11-1 when measured on the A scale of a standard sound level meter at slow response, personal protective equipment (hearing protectors) shall be provided to reduce sound levels to levels equal to or less than those in the Table.
- c. Hearing protectors shall be used by employees exposed to any continuous noise above 115 dBA, and any impulse or impact noise greater than 140 dB peak sound pressure level.
- d. A continuing, effective Hearing Conservation Program shall be administered whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of 50 percent. Previous noise monitoring studies (Attachment B) indicated it is highly unlikely that NWS employees performing work duties at WFOs or WFO/RFCs would be exposed to noise above the Action Level.

e. When any employee's exposure is likely to equal or exceed an 8-hour TWA of 85 dBA, these requirements shall be followed:

- (1) A Noise Monitoring Program shall be developed and implemented. The sampling strategy shall be designed to identify employees for inclusion in a Hearing Conservation Program and to enable the proper selection of hearing protectors.
- (2) Noise monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that additional employees may be exposed at or above the Action Level, or the attenuation provided by hearing protectors being used by employees is inadequate.
- (3) Affected employees shall be notified of the results of the required noise monitoring.

<b>NOTE:</b> Affected employees and their representatives shall have the opportunity to observe any noise monitoring conducted.
---

- (4) An audiometric testing program shall be established and maintained for affected employees. Within six months of an employee's first exposure at or above the Action Level, a valid baseline audiogram shall be established. At least annually after obtaining the baseline audiogram, a new audiogram shall be obtained for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. The program shall be provided at no cost to the employees.
- (5) Hearing protectors shall be made available to affected employees and replaced as necessary. Hearing protectors shall attenuate employee exposure, at a minimum, to an 8-hour TWA of 90 dBA.
- (6) In affected areas, signs which read "Hearing Protection Required" shall be posted at each entrance.
- (7) A training program dealing with hearing conservation shall be implemented for all employees who are exposed to noise at or above the Action Level.

f. An accurate record of all employee exposure measurements shall be maintained for employees subjected to sound levels exceeding those listed in Table 11-1.

- (1) Noise exposure measurement records shall be retained for two years.
- (2) Audiometric test records shall be retained for the duration of the affected employees' employment. (See Attachment A, Sample Format for Audiometric Test Records.

## 11.4 Responsibilities

### 11.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities

### 11.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that noise exposure monitoring is conducted for operations unique to the facility, in coordination with NWSH safety staff.
- c. Will ensure that suitable hearing protectors are provided to personnel as needed and are worn.
- d. Will ensure that initial and periodic inventory of hearing PPE, postings/signs and other safety equipment is accomplished and adequate stock is maintained.
- e. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 11.4.3 NWS Headquarters (NWSH)

- a. Will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. Will conduct periodic noise exposure monitoring of common NWS operations.
- c. Will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 11.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

### 11.4.5 Employees

Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
---

## **11.5 References**

Incorporated References. The following list of references was incorporated as a whole or in part into this procedure. These references can provide addition, explanation or guidance for the implementation of this procedure.

- 11.5.1 American Conference of Governmental Industrial Hygienists, TLV's and BEI's, Threshold Limit Values for Chemical Substances and Physical Agents, Current Edition.
- 11.5.2 American National Standards Institute, ANSI S1.4, "Sound Level Meter."
- 11.5.3 American National Standards Institute, ANSI S1.25, "Personal Noise Dosimeters".
- 11.5.4 Department of Commerce (DOC) Safety Manual.
- 11.5.5 National Institute for Occupational Safety and Health, NIOSH Criteria for a Recommended Standard: Occupational Noise Exposure
- 11.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.95, "Occupational Noise Exposures"

## **11.6 Attachments**

Attachment A: Sample Format for Audiometric Test Records.

Attachment B: Summary of Past Noise Study Results.



**ATTACHMENT A**  
**Sample Format for Audiometric Test Records**

Audiometric Testing Date \_\_\_\_\_  
Name: \_\_\_\_\_  
Type of Testing: Annual Baseline Other  
Tested by: \_\_\_\_\_

Previous Job with Loud Noise \_\_\_\_\_  
Wears Hearing Protection \_\_\_\_\_  
H.P. prior to test \_\_\_\_\_  
Loud Noise in past 14 hours \_\_\_\_\_  
Wears Hearing Aid \_\_\_\_\_  
Family Member hearing loss <50 yr. \_\_\_\_\_  
Ear Pain \_\_\_\_\_  
Ear Drainage \_\_\_\_\_  
Vertigo/Imbalance \_\_\_\_\_  
Tinnitus \_\_\_\_\_  
Sudden Hearing Loss History \_\_\_\_\_  
Intermittent Hearing Loss \_\_\_\_\_  
Fullness/Discomfort in Ears \_\_\_\_\_  
Cerumen Impaction \_\_\_\_\_  
Foreign Body in Canal \_\_\_\_\_  
Unconscious-Head Injury \_\_\_\_\_  
Allergies/Hay Fever \_\_\_\_\_  
Measles \_\_\_\_\_  
Mumps \_\_\_\_\_  
Scarlet Fever \_\_\_\_\_  
Head Cold Today \_\_\_\_\_  
Military Service \_\_\_\_\_  
Noisy Hobbies \_\_\_\_\_  
Loud Music with Headphones \_\_\_\_\_

**ATTACHMENT B**

**Summary of Past Noise Study Results**

The NWS has conducted a variety of noise exposure measurements and calculations in the past. In summary, it is highly unlikely that an employee in their normal duties at a WFO, WSO or in a general office setting would be exposed to noise at or above the OSHA Action Level of 85 decibels on the A-weighted scale over an eight hour time weighted average (TWA). OSHA also does not permit employees to be exposed unprotected to an impact or impulse noise above 140 dB. Special operations, including NDBC, NLSC, NRC, SFSC and ROC maintain their own evaluations.

**Personal Exposure Monitoring**

Personal exposure monitoring evaluates the noise a person is exposed to during their normal work activities. It takes into account changing work conditions, including operating status of equipment and changing work locations and tasks. Due to the intermittent nature of the tasks performed by the NWS employee exposed to the highest noise levels, personal exposure monitoring, not area sampling, is used to make the final determination of the requirement to enroll an employee in a Hearing Conservation Program. This is in accordance with OSHA regulation.

Personal exposure monitoring has been conducted on more than 20 Electronics Technicians at a variety of facilities performing an assortment of tasks that include radar equipment maintenance, generator maintenance and ASOS maintenance and repair. Electronics technicians are considered to be the NWS employees most exposed to occupational noise. Table 1 summarizes the findings of the personal exposure monitoring.

**Table 1 – Personal Exposure Monitoring Summary**

<b>Employee Type</b>	<b>8-Hour TWA Range (dBA)*</b>	<b>Maximum Noise Level Range (dBA)**</b>
Electronics Technician	52.6 - 81.4	97.5 – 132.2

\*- Criteria for enrollment in a Hearing Conservation Program is 85 dBA over an 8-hour TWA

\*\* - Criteria for enrollment in a Hearing Conservation Program is 140 dBA

Based on this information and the fact that the exposure evaluations were conducted simulating worse case scenarios, NWS employees performing duties at WFOs, WSOs or general offices are not required to be enrolled in a Hearing Conservation Program. NWS does encourage its employees to voluntarily utilize hearing protection and reduce their time spent in noisy environments to the extent possible to further reduce any potential for exposure at or above the action level.

**Area Monitoring**

Area monitoring surveys are conducted to develop an understanding of the long term exposures of different types of work. No criteria are set for area noise limits, but they can give an indication of where additional control may be necessary, including administratively reducing employees’ time spent in those areas.

Area noise measurements have been conducted at a variety NWS sites on the equipment most likely to expose employees to occupational noise, either through their operation, or through their locations. Table 2 summarizes the findings of the area noise monitoring.

**Table 2 – Area Noise Monitoring Summary**

<b>Area</b>	<b>8-Hour TWA Range (dBA)</b>	<b>Maximum Noise Level Range (dBA)</b>
ASOS Sites	68.5 – 86.4	100.2 – 132.3
Generator Building	69.5 - 78.0	103.5 - 117.0
RDA Shelter	84.4 – 87.9	91.3 – 110.6

NWSH will continue to periodically monitor typical operations to ensure exposures remain below the OSHA Action Level. NWSH will also respond to any inquiries or complaints about further noise testing.

**PROCEDURE 12 - Confined Space Entry**

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**Synopsis**

The purpose of this procedure is to provide employees with guidelines concerning hazards associated with entry into and performance of work in confined spaces. This procedure applies to all NWS facilities and work locations which have confined spaces and to NWS employees at these facilities and locations performing confined space entry.

**Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Evaluate Confined Spaces. (12.4.2)
  - Conduct Atmospheric testing (if applicable). (12.3.3h)
- **Develop/Obtain Documentation/Information required for Site**
  - Prepare Listing of Permit-Required Confined Spaces. (12.3)
  - Develop Confined Space Entry Permits. (12.3.3)
  - Develop Emergency Response Agreements (ERA) for Emergency Rescue. (12.3.3i)
- **Designate Person to Administer Confined Space Entry Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Confined Space Training for Designated Site Personnel. (12.3.3.d)
  - Visitor/Contractor Safety Briefings. (12.5.2d)
- **Inventory Material/Equipment (Procure as required)**
  - Hand-held Monitors (if applicable). (12.5.2e, 12.3.3k)
  - Safety Equipment. (12.5.2e, 12.3.3k)
  - Personal Protective Equipment (PPE). (12.5.2e, 12.3.5.b)
  - Communication Equipment. (12.5.2e, 12.3.5.c)
  - Confined Spaces Postings, Barriers and Warning devices. (12.5.2e, 12.3.3)

**Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Re-evaluate confined spaces (if applicable). (12.3)
  - Conduct Atmospheric Testing (if applicable). (12.3.3h)
- **Review/Update Documentation/Information required for Site**
  - Update Listing of permit confined spaces. (12.3)
  - Prepare Confined Space Entry Permits. (12.3.3)
  - Maintain ERA for Emergency Rescue. (12.3.3.i)
- **Provide Refresher Training of Site Personnel (If applicable)**
  - Confined Space Training for Designated Site Personnel. (12.3.3.d)
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - Hand-held monitors. (12.5.2e, 12.3.3.k)
  - Safety Equipment. (12.5.2e, 12.3.3.k)
  - Personal Protective Equipment. (12.5.2e, 12.3.16b)
  - Communication Equipment. (12.5.2e, 12.3.5.c)
  - Confined Spaces Postings, Barriers and Warning devices. (12.5.2e, 12.3.3)

**Confined Space Entry Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	12.4.2				
Are confined spaces evaluated and inventoried using Attachment B?	12.3				
Are non permit confined spaces reassessed if new hazard are introduced?	12.3				
Can any permit required confined space be temporary re-classified? If yes, is the reclassification procedure documented?	12.3 .2.d				
Are there written Entry Permits for all Permit Required Confined Spaces prior to entry?	12.3.3 Attachment A				
Are appropriate signs for permit required confined spaces posted and access restricted from unauthorized personnel?	12.3.1 a, b				
Are contractors briefed on hazards of confined spaces and operations coordinated between contractor and government employees?	12.3.1 c				
Do all Entry Permits contain the required information?	12.3.3 a-g Attachment A				
Are Entry Permits available at the space or posted in a conspicuous location near the space during the entry and kept on file at the office for at least a year?	12.3.3.				
Are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substances and explosive concentrations in the confined space before entry and continuous monitoring is conducted to ensure a safe atmosphere?	12.3.3h				
Have a listing of all permit required confined spaces been prepared?	12.3.1 d				
Are all personnel involved in entry into a confined space, trained?	12.3.1.d				

Requirements	Reference	YES	NO	N/A	Comments
Are plans for rescue and emergency situation developed, and kept on file?	12.3.3.i				
Are means of communication between attendant and entrant established and documented?	12.3.3.j				
Is there a signed permit located in a conspicuous location near the permit confined space point of entry?	12.3.4				
Is the authorized attendant appropriately trained and equipped to handle an emergency?	12.3.5				
Is there an assigned safety observer (attendant) outside of the confined space, when required, whose sole responsibility is to watch the work in progress, sound an alarm if necessary, and render assistance?	12.3.6				
Is the authorized attendant prohibited from entering the confined space and trained to summon rescue services in the event of an emergency?	12.3.6i				
Does the entry supervisor specify entry conditions and the appropriate safety equipment required for entry into a permit confined space?	12.6.d( 1)				

## 12 CONFINED SPACE ENTRY

### 12.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is implementing this procedure related to the hazards associated with the entry into and performance of work in confined spaces. OSHA developed confined space regulations because some spaces have a combination of physical characteristics and existing/potential hazards that make them particularly dangerous. The heightened danger comes from the fact that rescue (self-rescue or rescue by others) is hampered by obstacles. The regulations dictate how these spaces are handled and mandate certain measures when they must be entered. This procedure applies to all NWS facilities and work locations which have confined spaces and to NWS employees performing work in those spaces.

### 12.2 Definitions

Attendant. One of three roles required for a permit entry, the attendant is stationed somewhere outside the permit-required confined space and is responsible for maintaining contact with the authorized entrant(s) conducting work inside and initiating rescue actions if necessary. Full responsibilities are defined in Section 12.3.6.

Authorized Entrant. One of three roles required for a permit entry, the authorized entrant (or entrants) performs the specified work in the permit-required confined space. Full responsibilities are defined in Section 12.3.5.

Confined Space. A space that meets all of the following criteria:

- a. Is large enough for a person to bodily enter; and
- b. Has limited means of egress (OSHA is concerned about people being able to quickly escape a space in an emergency situation - they are looking for impediments to escape); and
- c. Is not designed for continuous human occupancy (continuous human occupancy must consider occupancy while the space is in its normal operating state).

Entry. Entry of a confined space occurs when any part of a person's body breaks the plane of the entrance. For example, placing a hand through the hatch of a confined space is considered entry.

Entry Permit (or Permit). A document establishing acceptable entry conditions, methods of personnel protection, communication protocol, rescue procedures and other details required when a permit-required confined space is entered. See Section 12.3.3.

Entry Supervisor. One of three roles required for a permit entry, the entry supervisor manages activities associated with entry of the permit-required confined space including signing the entry permit. Full responsibilities are defined in Section 12.3.4.



Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Isolation. A process whereby the confined space is removed from unwanted forms of energy and completely protected against the inadvertent release of material or energy by the following: blank flange installation, removing sections of lines and piping, electrical lockouts and/or the disconnection of any other energy source or mechanical linkage that could cause personal harm if released unexpectedly.

Lockout/Tagout (LO/TO). The placement of lock(s) and tag(s) on energy isolating devices in accordance with 29 CFR 1910.147 to assure the energy isolating devices are not inadvertently defeated.

Non-Permit Required Confined Space. A confined space that does not contain hazards that qualify it as a permit-required confined space.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support (SFSC).

Permit Entry. The process of entering a permit-required confined space, conducting work, and exiting the space. All aspects are planned and the evolution is managed via an Entry Permit.

Permit-Required Confined Space. A confined space that meets at least one of the following conditions:

- a. The space has a hazardous atmosphere or is capable of developing a hazardous atmosphere; or
- b. The contents of the space can present an engulfment hazard (“engulfment” means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing); or
- c. The space is of such configuration that a worker 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. The space contains any other recognized serious hazard (operational conditions must be considered when evaluating potential hazards).

<p><b>NOTE:</b> Examples of permit-required confined spaces at NWS facilities include NEXRAD radomes, large air handlers, electrical and sewer manholes, river gauge pits, and buoys.</p>
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Re-classification. A process by which hazards associated with certain permit-required confined spaces are temporarily eliminated, allowing them to be temporarily treated as non-permit required confined spaces.

NOAA SECO. NOAA Safety and Environmental Compliance Office

Safety Briefing. Prior to entry, safety instruction will be provided by the Station Manager or his/her designee for visitors and contractors. This instruction will include confined space entry procedure highlights, specific hazards associated with entry and precautions to be taken during entry. The briefing shall also cover the provisions for authorizing a confined space entry performed by a visitor or contractor.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **12.3 Procedure**

Each NWS facility shall conduct and document an assessment of spaces with regard to confined space requirements. Personnel conducting space assessments should contact their Regional or Operating Unit Safety or Environmental/Safety Coordinator or National Headquarters Safety Office if questions arise. These resources must be contacted any time a hazardous atmosphere is identified or suspected. The assessment must be kept on file by the Safety or Environmental/Safety Focal Point. Attachment B contains a template form that can be used for confined spaces identification and inventory.

Spaces that are not confined spaces require no action. Spaces that are determined to be non-permit required confined spaces should be identified and documented. Such spaces meet the three criteria for a confined space but do not have serious hazards (do not meet any of the four criteria) that would classify them as permit-required confined spaces. Non-permit required confined spaces require no action, but must be reassessed if new hazards are introduced. For example, a crawlspace under a building may be a non-permit required confined space. If a proposed new task includes painting components in the crawlspace with a volatile paint, the space would require reassessment. Use of the paint in the crawlspace could lead to development of a hazardous atmosphere, which would cause the space to be classified as a permit-required confined space. Based on this assessment, personnel would have to figure out the best way to complete the task. One idea would be using lower volatility paint and providing ventilation. Another idea could involve the use of a supplied air respirator. The point is that non-permit required confined spaces are sensitive to the introduction of new hazards and should be watched accordingly.

Spaces that are determined to be permit-required confined spaces require development of a permit-required confined space program. The program addresses signage, access

control, training personnel, coordination with contractors, entry procedures and other topics. A listing of permit required confined spaces shall be maintained on the site by the Safety or Environmental/Safety Focal Point. Entry into a permit-required confined space can be conducted in one of two ways. If the hazards in the space can be eliminated from outside the space, the space can be temporarily reclassified as a non-permit required confined space. If the space cannot be reclassified, entry must be conducted through a process called permit entry.

### 12.3.1 General Requirements

- a. Signs. OSHA requires employers to inform employees who have access to permit-required confined spaces of the nature of the spaces, their location and their hazards, by posting danger signs or by other equally effective means. A typical sign states: **“DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER.”**

Posting of signs is not necessary if the space is protected from unauthorized entry (typically by locks) and all unauthorized personnel and visitors are told not to enter them. This constitutes “equally effective means.” Signs may still be posted as an added safety measure even if equally effective means are put in place.

- b. Access. OSHA requires the public and unauthorized personnel be restricted from access to permit-required confined spaces. Common means to restrict access include locked perimeter fences, and/or a lock on the entrance of a space.
- c. Use of Contractors. If an employer chooses to use a contractor to perform work that involves a permit-required confined space, the employer must notify the contractor of the presence of the permit-required confined space and indicate that entry is only allowed through compliance with a confined space program. The employer must identify the hazards associated with the space and identify precautions and procedures that the employer has in place to protect personnel. If both employer and contractor personnel are to enter the space, entry operations must be coordinated before entry begins. The employer shall debrief contractors at the conclusion of entry operations regarding hazards confronted or created during the entry. The contractor shares responsibility for ensuring coordination is conducted when work involves permit-required confined spaces.
- d. Training. Training in regards to the permit-required confined space must be provided for site personnel. Those with a need for access to the space must be trained on the hazards present and the procedures put in place to control the hazards. They must understand entry procedures and be proficient in the use of any special equipment including LO/TO equipment. The training must be documented and records maintained on site. Training records must include the employee names and signatures, name of trainer(s), and dates of training. Personnel who do not access permit-required confined spaces must be made aware of permit-required confined space issues and warned to observe signs and access controls. Awareness training may be conducted via memorandum, with each person signing that they have read and understand the hazards. Awareness training should also be incorporated into the facility’s visitor/contractor

orientation. Additional training is required when job duties change, there is a change in the permit-confined space program or the permit confined space operation presents a new hazard or when an employee's confined space performance shows deficiencies. Confined Spaces Awareness Course can be found at OPS1 environmental and safety web page:

[https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm).

- e. Contractors working in NWS permit-required confined spaces must be briefed on hazards of spaces and furnished a copy of applicable procedures. Verification of this coordination shall be in writing and kept on file at the facility.

### 12.3.2 Reclassification

- a. OSHA allows temporary reclassification of a permit-required confined space to a non-permit required confined space if the following conditions are met:
  - (1) The space is not subject to actual or potential atmospheric hazards\*, and
  - (2) All hazards within the space are eliminated before entering the space.

<p>* - The responsible Regional or Operating Unit Environmental/Safety Coordinator or National Headquarters safety personnel must be contacted any time a hazardous atmosphere is identified or suspected.</p>
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Such a permit-required confined space will remain reclassified as a non-permit required confined space for as long as the hazards remain eliminated and as long as no new hazards are introduced.

- b. A key concept in reclassification is the elimination of hazards. Software commands, software interlocks, electro/mechanical interlocks and other similar means do not qualify as hazard elimination methods. Indisputable, physical disruption of hazard sources is required. Valid methods of hazard elimination are defined by OSHA in 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout).
- c. If a permit-required confined space is a candidate for reclassification, a reclassification procedure must be developed and documented. All reclassification procedures must contain LO/TO procedures. OSHA requires that LO/TO procedures be reviewed annually for accuracy.

### 12.3.3 Permit Entry

If a permit-required confined space is not a candidate for reclassification, entry must be conducted via a permit entry process and additional preparations must be made. The preparations are demonstrated in a document called an entry permit, which must be available at the space or posted in a conspicuous location near the space during the entry and must be kept on file at the office for at least a year. A permit template is included as Attachment A of this document. The following paragraphs identify the information required for the entry permit and describe the necessary preparations. If work is to be accomplished solely by a contractor, NWS

personnel will not create a permit.

- a. Permit-Required Confined Space to be Entered. The name and location of the space must be entered on the template. A street address should be included when available.
- b. Purpose of Entry. The issue or problem prompting the entry, and the work to be accomplished by conducting the permit entry must be documented on the template.
- c. Date and Duration of the Entry Permit. The date, start and completion times of the permit entry must be documented on the permit.
- d. Authorized Entrant(s)/Attendant(s)/Entry Supervisor. Three roles are required for conduct of the permit entry: the Entry Supervisor; Entrant; and Attendant. The responsibilities of each role are discussed in general terms here and described in detail in later paragraphs.
  - (1) The Entry Supervisor manages activities associated with entry of the permit-required confined space including signing the entry permit. His/her signature certifies that all personnel are properly trained and that acceptable entry conditions are met before entry. Therefore, the Entry Supervisor must be at the site during the permit entry to verify entry conditions. Despite the title, the Entry Supervisor does not have to be a supervisor in respect to the normal chain of authority. Any NWS employee can serve as an Entry Supervisor provided he/she has the proper training and understanding of the issues. The Entry Supervisor role may be performed by the Authorized Entrant or Attendant. Therefore, a permit entry may be conducted with as few as two people.
  - (2) The Authorized Entrant performs the specified work in the permit-required confined space. Multiple entrants are allowed provided they can all be safely accommodated in the space.
  - (3) The Attendant is stationed outside the permit-required confined space and is responsible for maintaining contact with the Authorized Entrant(s) conducting work inside, and initiating rescue actions if necessary. The attendant does not have to maintain visual contact with the entrant(s) but must maintain communication. Multiple Attendants are allowed as backups, but only one may act as the Attendant at any given time. At least one attendant on site must have current certification in First Aid and CPR.

The names of personnel who will fill each of the three roles must be documented on the template.

- e. Hazards of the Space. The hazards associated with the space are described in this section of the template. Examples include rotating machinery, high voltage, radiation, etc.
- f. Measures to Eliminate or Control Hazards Before Entry. Steps must be developed to eliminate or control hazards to the extent possible before entry.

- g. Acceptable Entry Conditions. The conditions required prior to entry are documented. Typically they correspond with measures to eliminate or control hazards. When all of the acceptable entry conditions are met and verified, the entry supervisor may sign the permit and entry may proceed.
- h. Initial and Periodic Test Results. In some instances initial measurements or tests will be performed to validate entry conditions. These may be repeated on a periodic basis depending on the circumstances. For example, if hazardous atmosphere is a potential hazard, the atmosphere shall be tested with remote or hand-held monitors for oxygen content, combustible and toxic atmospheres, in that order prior to entry. While work is being performed in the permit-confined space, continuous monitoring shall be conducted to ensure a safe atmosphere. If at any time the alarm is activated, personnel inside the space will evacuate immediately.
- i. Rescue and Emergency Services. NWS personnel shall not perform emergency confined space rescue. Planning for rescue and emergency services must be performed before a permit entry is conducted. At a minimum, reliable means for summoning help must be available during a permit entry. Non-entry retrieval systems or methods shall be used for any entry conducted using a permit, unless the equipment would increase the overall risk of the entry or not contribute to the rescue of the entrant. The retrieval line shall be attached to a full body harness and connected to a mechanical device or fixed point that would allow a rescuer to initiate a non-entry rescue if it becomes necessary. Rescue devices are available for rent should a permitted entry by an NWS employee be required.

Further measures may include stocking advanced first aid supplies/equipment and should consider the response time of rescue and emergency services. Plans for rescue and emergency services must be documented on the permit. Each facility should pre-plan rescue scenarios with local emergency responders or qualified rescue organizations so they are aware of unique rescue issues, such as the NEXRAD radome stairway and hatch, and so they are aware of any rescue equipment that will be kept on site for their use. Rescuers ability to rescue must be evaluated in terms of proficiency with rescue-related tasks and equipment:

- (1) Do they have the capability to reach the victims within a time frame that is appropriate for the permit space hazard(s) identified?
- (2) Are they equipped for and proficient in performing the needed services?
- (3) Are rescue teams or rescue services personnel aware of the hazards they may confront when called on to perform rescue at the site?

If possible, an Emergency Response Agreement should be developed in accordance with NWSM 50-1115, Chapter 23. Rescue pre-planning efforts should be documented and kept on file.

- j. Communication Procedures. The attendant and entrant must have a reliable means of communication during the permit entry. If the attendant cannot see the entrant at all times, a communication protocol must be developed before a permit

entry is conducted. A break in the communication protocol will be presumed to indicate an emergency and prompt the attendant to begin an emergency response. The means of communication and description of the communication protocol must be documented on the permit. All personnel involved in a permit entry must be trained on the communication protocol.

- k. Required Equipment. Special equipment required for entry into a permit-confined space shall be designated in writing on the permit by the entry supervisor. Special equipment may include LO/TO equipment, monitoring equipment, special tools, etc.
- l. Other Information. A general description of the permit entry process is suggested. Other information unique to a given permit entry should be included on the permit. The name of the person responsible for keeping completed entry permits and any other pertinent information should be documented on the template.

Upon completion of the work inside the permit-required confined space, associated equipment shall be removed and the permit-confined space prepared for service. Upon completion of all work inside the permit-required confined space, the entry supervisor will cancel the confined space entry permit by recording the end time.

**NOTE:** Evaluations of NWS NEXRAD Radomes, Air Handlers and Upper Air Radomes with regards to OSHA confined space requirements is posted on the NWS OPS 1 Environmental and Safety web page:  
[www.nws.noaa.gov/directives/sym/pd05011curr.pdf](http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf)

#### 12.3.4 Entry Supervisor's Duties

- a. Know space hazards including information on the mode of exposure, signs, or symptoms and consequences of exposure.
- b. Verify emergency plans and specified entry conditions such as permits, tests, procedures, and equipment before allowing entry.
- c. Terminate entry and cancel permits when entry operations are completed or if a new condition exists.
- d. Take appropriate measures to remove unauthorized entrants.
- e. Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

#### 12.3.5 Authorized Entrant's Duties

- a. Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption), signs or symptoms, and consequences of the exposure.
- b. Use appropriate personal protective equipment properly (e.g., face and eye protection, and other forms of barrier protection such as gloves, aprons, and coveralls) when applicable.
- c. As necessary, maintain communication (i.e., telephone, radio, visual observation) with attendants to enable the attendant to monitor the entrant's status as well as to

alert the entrant to evacuate.

- d. Exit from permit-confined space as soon as possible when ordered by an authorized person, when the entrant recognizes the warning signs or symptoms of exposure exist, when a prohibited condition exists, or when an automatic alarm is activated.
- e. Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.
- f. Read and sign the confined space entry permit prior to start of work.

#### 12.3.6 Attendant's Duties

- a. Perform no other duties that interfere with the attendant's primary duties.
- b. Remain outside permit-confined space during entry operations unless relieved by another authorized attendant.
- c. Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects.
- d. Maintain communication with and keep an accurate account of those workers entering the permit-required confined space.
- e. Order evacuation of the permit-confined space when a prohibited condition exists, when a worker shows signs of physiological effects of hazardous exposure, when an emergency outside the confined space exists, or when the attendant cannot effectively and safely perform required duties.
- f. Summon rescue and other services during an emergency.
- g. Ensure that unauthorized persons stay away from permit confined spaces or exit immediately if they have entered the permit space.
- h. Inform authorized entrants and entry supervisor of entry by unauthorized persons.
- i. In the event of the incapacitation of the authorized entrant, NWS attendants will not enter the permit-confined space. Rescue shall be performed in accordance with paragraph 12.3.3.i.

## 12.4 Responsibilities

### 12.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 12.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure and shall ensure that the requirements of this procedure are followed by individuals at the NWS facility.



- b. Will ensure confined-space entry supervisors, attendants and entrants receive appropriate training.
- c. Will designate the safety equipment required for entry in writing on the permit.
- d. Will provide a briefing to visitors before they enter a confined space.
- e. Will ensure that initial and periodic inventory of hand-held monitors, PPE, communication equipment, confined spaces postings, barriers and warning devices is accomplished and adequate stock is maintained.
- f. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- g. Before initial work assignment begins, the Station Manager Will ensure that proper training for all workers who are required to work in permit confined spaces.

#### 12.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

#### 12.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will maintain a listing of all permit-required confined spaces located within the facility.

#### 12.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.weather.gov/directives/050/pd05011c.pdf">http://www.weather.gov/directives/050/pd05011c.pdf</a></p>
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### 12.5 **References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 12.5.1 American National Standards Institute, ANSI Z117.1, Safety Requirements for Confined Spaces.
- 12.5.2 National Institute for Occupational Safety and Health, NIOSH Alert Request for Assistance in Preventing Occupational Fatalities in Confined Spaces, 1986.
- 12.5.3 National Institute for Occupational Safety and Health, NIOSH Criteria for a Recommended Standard Working in Confined Spaces, November 1979.
- 12.5.4 National Institute for Occupational Safety and Health, NIOSH A Guide to Safety in Confined Spaces, July 1987.
- 12.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.146, Permit Required Confined Spaces, and 1910.252, Welding Cutting and Brazing.
- 12.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout).

## **12.6 Attachments**

Attachment A. Permit-Required Confined Space Entry Permit

Attachment B. Confined Spaces Identification and Inventory Form

Attachment A

Permit-Required Confined Space Entry Permit

Permit-Required Confined Space to be Entered:

Confined space located at \_\_\_\_\_

Purpose of Entry

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date and Duration of the Entry Permit

Date: \_\_\_\_\_ Start Time: \_\_\_\_\_ Completion Time: \_\_\_\_\_

Authorized Entrant(s)

Attendant(s)\*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\* At least one attendant must have current certification in First Aid and CPR.

Entry Supervisor

\_\_\_\_\_  
Signature\*\*

Print Name

\*\* Signature certifies all personnel are trained and acceptable entry conditions are met before entry.

**Hazards of the Space**

Potential Hazards	<input checked="" type="checkbox"/>	Comments
Corrosive Materials		
Hot Equipment		
Flammable Materials		
Toxic Materials		
Inert Gases		
Flame/Spark-Producing Operations		
Electrical Shock		
Stored Energy		
Moving Machinery		
Spilled Liquids		
Pressurized Systems		
Other		

**Measures to Eliminate Hazards Before Entry:**

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**Acceptable Entry Conditions:**

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**Initial and Periodic Test Results:**

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**Rescue and Emergency Services:**

Should emergency occur, the attendant will summon the help from:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Phone

If necessary, the attendant will perform first aid.

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**Communication Procedures**

Entrant(s) and attendant will communicate by \_\_\_\_\_

**Communication protocol:** \_\_\_\_\_

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**Required Equipment**

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**PERSONAL SAFETY EQUIPMENT** (Check those that are applicable and comment)

Eye Protection		
Head Protection		
Hand Protection		
Foot Protection		
Protective Clothing		
Respiratory Protection		
Recovery Device		
Retrieval Lines and Harness		
Supplemental Lighting		
Communication Equipment		(Entrants _____ Security _____)
Auxiliary Ventilation		
Atmospheric Monitoring Equipment		
Other		

**Other Information**

This permit must be kept at the \_\_\_\_\_ site during entry. The completed permit must be retained for at least one year at the WFO. Provide completed permit to:

\_\_\_\_\_  
Name

**Attachment B  
Confined Spaces Identification and Inventory Form**

Space Inventory (list space location)	Confined Space*			Permit Required?***	
	Capable of being bodily entered?	Limited means of entry or exit?	Not designed for continuous occupancy?	Potentially contains serious safety and health hazard?****	List Potential Hazards
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

\* - All three conditions must be met to be considered a confined space

\*\* - To be a Permit-Required Confined Space, space must first meet the conditions of a Confined Space and

\*\*\* - **Serious safety and health hazards include:**

- Hazardous atmospheres,
- Engulfment hazards (e.g., fluids & flowable solids)
- Configurations that could trap or asphyxiate,
- Unguarded moving machine parts,
- Live, unguarded electrical hazards or
- Other hazards that would impair the employee's ability to escape a confined space.

Examples of common permit-required confined spaces encountered by NWS employees include NEXRAD Radomes, large air-handlers, electrical and sewer manholes, river gauge pits and buoys. If a space is determined to be a permit-required confined space it must be marked or otherwise secured to prevent unauthorized entry. The site must also develop a permit-required confined space program. Temporary reclassification of a permit-required confined space to a non-permit required confined space is allowed if the space is not subject to actual or potential atmospheric hazards, and all hazards within the space are eliminated before entering the space.

**PROCEDURE 13 - Indoor Air Quality**

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## **Synopsis**

This procedure identifies health hazards associated with poor indoor air quality and provide guidelines to reduce potential exposure to these hazards. This procedure applies to all NWS facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Perform Indoor Air Quality Investigation to address employees' complaints (if applicable). (13.3.8)
- **Develop/Obtain/Provide Documentation/Information required for Site**
  - Inform personnel about painting, renovations and other activities that may affect the Air Quality (13.3.1f.3)
- **Designate Person to Administer the Indoor Air Quality Procedure Requirements**
- **Provide Local Training of Site Personnel (if applicable)**
- **Designate Person for Contractor Oversight (If applicable)**
- **Inventory Material/Equipment (Procure as required)**
  - HVAC filters (13.3.7)

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment**
  - Maintain HVAC systems per established preventive maintenance schedule (13.3.3)
- **Review/Update Documentation**
  - Maintain records of indoor air quality complaints, investigations, and corrective actions (13.3.8)
- **Provide Refresher Training of Site Personnel (As required)**
- **Inspect/Replace/Recalibrate Maintain Material/Equipment**
  - HVAC filters (13.3.7)

**Indoor Air Quality Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Are initial and annual reviews of this procedure conducted and documented?	13.4.2				
Is facility's Heating, Ventilation and Air Conditioning (HVAC) system being checked semi-annually as recommended by this procedure?	13.3.3				
Has the facility established a preventative maintenance schedule for the HVAC system?	13.3.3				
Is the facility free of areas of microbial growth, particularly the HVAC drip pans, drop ceiling panels, carpeting, etc.?	13.3.4				
Is the relative humidity maintained between 30% and 60% in the facility?	13.3.4				
Are HVAC systems designed to properly distribute air throughout the workspace?	13.3.5				
Are HVAC air intakes located to minimize the entrance of contaminants into the workplace (from sources such as industrial areas or parking lots)?	13.3.6				
Are all HVAC drip pans equipped with gravity drains?	13.3.4				
Have all indoor air quality concerns been investigated and documented?	13.3.8				

## **13 INDOOR AIR QUALITY**

### **13.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is implementing this procedure related to hazards associated with poor indoor air quality. This procedure applies to all NWS facilities, work locations, and employees.

### **13.2 Definitions**

ACGIH. American Conference of Governmental Industrial Hygienists.

ASHRAE. American Society of Heating, Refrigeration, and Air Conditioning Engineers.

CFR. Code of Federal Regulations.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

EPA. United States Environmental Protection Agency.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SR&DC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **13.3 Procedure**

13.3.1 New facility Heating, Ventilation and Air Conditioning (HVAC) systems for NWS facilities shall be designed to comply with ASHRAE 62, "Ventilation for Acceptable Indoor Quality" and ASHRAE Standard 55, "Thermal Environmental Conditions for Human Occupancy." In particular, the volume of outside fresh air supplied to the workplace shall comply with the most recent version of ASHRAE 62.

13.3.2 Existing facility HVAC systems at NWS facilities shall comply with ASHRAE 62 to the maximum extent feasible.

13.3.3 Facilities personnel shall perform periodic checks on HVAC system performance. These checks should coincide with the facility's established preventative maintenance schedule. A semi-annual schedule is recommended.

13.3.4 Any areas where microbial growth is noted shall be properly sanitized, particularly in

areas where spores and mold may be introduced into the workplace air. A relative humidity between 30 and 60 percent is generally recommended to minimize microbial growth. All drip pans located in ductwork should have gravity drains. Care shall be taken to ensure that condensate does not accumulate in ductwork and that drains are kept clean.

13.3.5 HVAC systems shall be designed so that air is properly distributed throughout the workplace. During design or remodeling of office spaces, care shall be given to the correct placement of supply and return air ducts and diffusers. Office partitions shall be located in positions which will not disrupt correct airflow.

13.3.6 HVAC air intakes shall be located within a facility to minimize intake of contaminants from parking lots, exhaust stacks, adjacent highways or other sources of contaminants.

13.3.7 HVAC systems shall be maintained per manufacturer’s recommendations, including periodic inspection and changing of filters. Adequate stock of filters shall be maintained, as required.

13.3.8 The Station Manager shall contact the NWS Regional Environmental/Safety Coordinator to obtain assistance in evaluating and addressing employees’ complaints or concerns related to indoor air quality. The EPA document “Building Air Quality: A Guide for Building Owners and Facility Managers” provides guidelines for performing Indoor Air Quality investigations. Facility personnel may be incorporated into the investigation if warranted. Investigations results shall be documented and maintained along with corrective actions which were implemented.

13.3.9 No employee shall be exposed to any regulated contaminant in excess of OSHA permissible exposure limits or ACGIH threshold limit values. The table 13-1, “Common Indoor Air Contaminants,” lists a few of the common contaminants found in the indoor environment. The exposure limits are listed in terms of milligrams per cubic meter (mg/m<sup>3</sup>) or parts per million (ppm). Although OSHA and EPA do not have specific exposure limits for indoor air quality, the EPA recommends offices should not exceed 10% of industrial health exposure limits.

**Table 13-1. COMMON INDOOR AIR CONTAMINANTS**

<b>CONTAMINANT</b>	<b>OSHA PEL, 8 HOUR TWA</b>	<b>ACGIH TLV, 8 HOUR TWA</b>	<b>OTHER GUIDELINES</b>
Carbon Monoxide	50 ppm	25 ppm	11 ppm - World Health Organization
Formaldehyde	0.72 ppm	0.3 ppm	N/A
Total Particulate	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	75 ug/m <sup>3</sup> - EPA Ambient Air Standard
Total Respirable Particulate	5 mg/m <sup>3</sup>	3 mg/m <sup>3</sup>	N/A
Carbon Dioxide	5000 ppm	5000 ppm	1000 ppm - ASHRAE 62

13.3.10 ASHRAE recommends a temperature range of 73°-79° F in summer conditions and a range of 68°-73° F in winter to maximize thermal comfort in office environments.

13.3.11 Miscellaneous. The complexity of studying and measuring the quality of office environment arises from various factors including:

- a. Office building floor plans are frequently changing to accommodate increasingly more employees and organization.
- b. Office buildings frequently undergo building renovations such as installation of new carpet, modular office partitions and freestanding offices, and painting.
- c. Many of the health symptoms appearing are vague and common both to the office and home environment.
- d. In general, very little data on pollutant levels within office environments is available.
- e. Guidelines or standards for permissible personal exposure limits to pollutants within office building are very limited.
- f. Ensure custodial employees are cleaning horizontal surfaces on the regular schedule (once a week is recommended).
- g. Frequently odors associated with chemical contaminants are noticeable following a building's renovation or installation of new carpeting. Vapors from paints, adhesives, sealants, office furniture, carpeting, and vinyl wall coverings are the source of a variety of irritant compounds. Although there is often no immediate danger to employees' safety and health (unless an employee has a known allergic reaction), measures shall be taken to minimize the discomforts associated with the irritating vapors. Among the measures to be employed are:
  - (1) Schedule carpeting, painting and other renovation activities for the weekends or after regular hours, whenever possible.
  - (2) Ventilate the affected area as much as possible to diminish concentration of the chemicals in the air as well as odors associated with the vaporized chemicals.
  - (3) Inform personnel regarding upcoming renovation activities that may cause irritating vapors to occur. This measure will allow time to arrange a temporary move of individual(s) with known allergy problems to another work area.

#### **13.4 Responsibilities**

##### 13.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

##### 13.4.2 Station Manager

- a. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- b. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.

#### 13.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

#### 13.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will investigate employee(s) concerns related to indoor air quality and shall ensure that deficiencies are remediated.

#### 13.4.5 Employees

Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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### 13.5 **References**

Incorporated references. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure

- 13.5.1 American Conference of Governmental Industrial Hygienists, TLVs and BEIs, Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices.
- 13.5.2 American Society of Heating, Refrigerating, and Air Conditioning Engineers Standard 55, latest edition, "Thermal Environmental Conditions for Human Occupancy."
- 13.5.3 American Society of Heating, Refrigerating, and Air Conditioning Engineers Standard 62, latest edition, "Ventilation for Acceptable Indoor Air Quality."
- 13.5.4 U.S. Environmental Protection Agency, Building Air Quality: A Guide for Building Owners and Facility Managers.

13.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart Z, "Toxic and Hazardous Substances."

**13.6 Attachments**

None

**PROCEDURE 14 - Walking - Working Surfaces**

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## **Synopsis**

This procedure provides guidelines to reduce potential slips, trips, and falls associated with walking-working surfaces. This procedure applies to all NWS facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Perform inspection of ladders. *(14.3.5a.(4),(5), Attachment A)*
  - Tag portable ladders. *(14.3.5b.(2))*
- **Develop/Obtain Documentation/Information required for Site**
  - Complete annual ladder inspection checklist. *(14.3.5a.(5), Attachment A)*
- **Designate Person to Administer Walking-Working Surfaces Procedure Requirements**
- **Inventory Material/Equipment (Procure as required)**
  - Ladder Safety Devices for fixed ladders, cages (if required). *(14.3.5c.(1))*

### **Annual Review and Recurring Task Requirements:**

- **Perform Inspections/Assessments/Testing**
  - Conduct Annual Inspection of Ladders. *(14.3.5a.(5); Attachment A)*
  - Conduct pre-use ladder inspection each shift. *(14.3.5a.(4))*
  - Conduct inspection of floors, passageways, store rooms and workplaces *(14.3.2l)*
- **Review/Update Documentation/Information required for Site**
  - Maintain Ladder Inspection Checklists. *(14.3.5a.(5); Attachment A)*
- **Inspect/Replace/Maintain Material/Equipment**
  - Damaged Ladders. *(14.3.5a.(4))*

**Walking - Working Surfaces Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	14.4.2c				
Are general requirements related to walking-working surfaces followed?	14.3.2				
Are walking-working surfaces inspected on a regular basis and maintained in safe condition?	14.3.2l				
Are openings and holes guarded or covered as required by the procedure?	14.3.3				
Are all open-sided platforms 4 feet or more above working levels guarded by standard railings or personal fall arrest systems?	14.3.3f,i				
Are pre-use inspections of ladders being conducted each shift the ladder is used?	14.3.5a.(4)				
Are annual inspections of portable ladders being conducted?	14.3.5a.(5) Attachment A				
Are ladders with defects withdrawn from service and tagged as “Dangerous, Do Not Use”?	14.3.5a.(4)				
Does each portable ladder have a unique identification number posted on a tag?	14.3.5b.(2)				
Are safety requirements for the portable ladders followed?	14.3.5b.				
Are fixed ladders with length of more than 20 feet to a maximum unbroken length of 30 feet equipped with cages or ladder safety devices?	14.3.5c.(1)				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Are safety requirements for fixed ladders met?	14.3.5c				
Are safety requirements for scaffolding followed?	14.3.6				
Are NWS employees who work with scaffolding appropriately trained?	14.3.6b				
Are scaffolds inspected for defects prior to each work shift?	14.3.6p				
Are signs, barricades and safety tape materials available if needed to warn of dangers associated with walking-working surfaces?	14.3.2				
Are damaged or weakened scaffold repaired immediately?	14.3.6q				
Is fall protection provided for scaffolding platforms more than 10 feet above a lower level?	14.3.6w				
Are ladder inspection checklists maintained and filed?	Attachment A				

## 14 WALKING - WORKING SURFACES

### 14.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to the slips, trips, and falls associated with walking-working surfaces. This procedure applies to all NWS facilities, work locations, and employees. This procedure was developed in compliance with 29 CFR 1910, Subpart D, "Walking-Working Surfaces."

### 14.2 Definitions

Alternating Tread Stairs. A type of stairway consisting of a series of treads that usually are attached to a center support in an alternating manner such that an employee typically does not have both feet on the same level while using the stairway.

Anchorage. A secure point of attachment for equipment such as lifelines, lanyards, deceleration devices, and rope descent systems designed to the criteria found in 29 CFR 1910.140(c)(13).

ANSI. American National Standards Institute.

ASTM. American Society for Testing and Materials.

Cage. Also referred to as a ladder cage. An enclosure mounted on the side rails of a fixed ladder or fastened to a structure behind the fixed ladder that is designed to surround the climbing space of the ladder. A cage is not a ladder safety device.

Dockboards. Devices for spanning short distances between railcars or highway vehicles and loading platforms.

Extension Ladder. A ladder that is adjustable in length, is not self-supporting, and consists of two or more sections.

Field Office. A Field Office may include the following: Weather Forecast Office, River Forecast Center, Weather Service Office, or a Data Collection Office.

Handrail. A single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp, to furnish persons with a handhold for use in case of tripping.

Hole. A gap or open space in a floor, roof, horizontal walking-working surface, or similar surface that is at least 2 inches (5 cm) in its least dimension.

Ladder Safety Device. A system designed to eliminate or reduce the possibility of falling from a ladder. A ladder safety system usually consists of a carrier, safety sleeve, lanyard, connectors, and body harness.

Landing Platform. A feature of fixed ladders which provides a means of interrupting a freefall and serves as a resting place during long climbs.

Mobile Ladder Stand. A mobile, fixed-height, self-supporting ladder that usually consists of wheels or casters on a rigid base and steps leading to a top step.

NFPA. National Fire Protection Association.

Opening. A gap or open space in a wall, partition, vertical walking-working surface, or similar surface that is at least 30 inches (76 cm) high and at least 18 inches (46 cm) wide, through which an employee can fall to a lower level.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction, National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.

Platform. A working surface for persons elevated above the surrounding floor or ground, such as a balcony or platform for the operation of machinery or equipment.

Qualified Person. A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.

Runway. A passageway for persons, elevated above the surrounding floor or ground level, such as a foot walk along shafting or a walkway between buildings.

Ship Stair. A stairway that is equipped with treads, stair rails, and open risers, and has a slope that is between 50 and 70 degrees from the horizontal

Single Ladder. A ladder that is non-adjustable in length, non-self-supporting and consisting of one section.

Spiral Stairway. A series of treads attached to a vertical pole in a winding fashion, usually within a cylindrical space.

Stair Railing. A vertical barrier erected along exposed sides of a stairway to prevent a person from falling.

Standard Handrail. A standard handrail consists of a lengthwise member mounted directly on a wall or partition by means of brackets attached to the lower side of the handrail in order to keep a smooth, unobstructed surface along the top and both sides of the handrail. The brackets shall hold the rail 3 inches from the wall and be no more than 8 feet apart.

Standard Railing. A vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons. A standard railing consists of top rail, mid rail, and posts, shall have a vertical height of 42 inches nominal from the upper surface of top rail to floor, platform, runway, or ramp level. Nominal height of mid rail is 21 inches.

Standard Stair Railing. A standard stair railing (stair rail) shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches nor less than 30 inches from the upper surface of the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Stepladder. A self-supporting portable ladder, non-adjustable in length, having flat steps and a hinged back.

Step Bolt. A bolt or rung attached at intervals along a structural member used for foot placement and as a handhold when climbing or standing. Often used in tower climbing.

Toeboard. A vertical barrier at floor level erected along exposed edges of a floor opening, wall opening, platform, runway, or ramp to prevent materials from falling. A standard toeboard system is four inches nominal in vertical height, with not more than one-fourth inch clearance above floor level.

Walking-Working Surface. Any horizontal or vertical surface on or through which an employee walks, works, or gains access to a work area or workplace location.

### **14.3 Procedure**

14.3.1 It is the policy of the NWS to adhere to the provisions of 29 CFR 1910, Subpart D, "Walking-Working Surfaces."

#### 14.3.2 General Requirements

- a. All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.
- b. Every workroom floor shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained and gratings, mats, and/or raised platforms shall be provided.
- c. Walking- working surfaces shall be maintained free of hazards such as sharp or protruding objects, loose boards, corrosion, leaks, spills, snow, and ice.
- d. Safe means of access to all walking-working surfaces must be provided. Employees must use these safe means.
- e. Aisles and passageways shall be kept clear and in good repair with no obstruction across passageways or in aisles that could create a hazard.
- f. Permanent aisles and passageways shall be appropriately marked.
- g. Aisles shall be sufficiently wide where mechanical handling equipment is used.
- h. All railings, including guardrail systems and handrails, shall be installed in accordance with OSHA's standard on fall protection and falling object protection – criteria and practices, 29 CFR 1910.29(b)
- i. Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, and the like.

- j. No load shall be placed on any floor or roof of a building or other structure that is greater than its load rating limit.
- k. In addition, all buildings equipped for artificial illumination shall be provided with adequate and reliable lighting, including emergency lighting where necessary, for all exit routes.
- l. Walking-working surfaces must be inspected on a regular basis and maintained in a safe condition.
  - (1) Any hazardous conditions must be corrected before the surface is used by an employee. If a correction cannot be made immediately, the hazard must be guarded until the repair can be made.
  - (2) Any correction or repair involving the structural integrity of the walking-working surface must be supervised by a qualified person.

<p><b>NOTE:</b> Signs, barricades and safety tape materials should be available, if needed, to warn of dangers associated with walking-working surfaces.</p>
--

#### 14.3.3 Guarding Openings and Holes

- a. Standard railing shall be provided on all exposed sides of a stairway opening, except at the stairway entrance.
- b. Ladderway holes must be protected by a standard guardrail and toeboard system on all sides, except at the entrance to the hole. A self-closing gate or offset railing system must be provided at the entrance to prevent employees from falling. Chains across the entrance opening are not sufficient protection.
- c. Holes 4 feet or more above a lower level must be guarded by;
  - (1) Covers capable of supporting twice their maximum intended load
  - (2) Standard guardrail systems
  - (3) Use of personal fall arrest systems in accordance with NWS Safety Manual, NWSM 50-1115, Procedure 1, Fall Protection when employees are exposed to the hazard
- d. When a cover is not in place, a temporary guardrail shall be in place, or an attendant shall be stationed at the opening to warn personnel.
- e. Employees must be protected from tripping into or stepping into or through any hole less than 4 feet above a lower level by covers or guardrails.

<p><b>NOTE:</b> Concerning access panels on raised computer room floors, as long as an access panel is only removed temporarily and does not remain off on a permanent basis, signs, barrier tape, and/or safety cones are acceptable.</p>
--

- f. Every open-sided floor or platform 4 feet or more above adjacent floor or ground level should be guarded by a standard railing on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides, persons can pass or

there is moving machinery or equipment which could create a hazard if material were to fall.

- g. Every runway should be guarded by a standard railing, or the equivalent, on all sides 4 feet or more above floor or ground level. Wherever tools, machine parts, or materials are likely to be used on the runway, a toeboard shall also be provided on each exposed side.
- h. Guardrail systems must be maintained in a smooth condition to prevent catching or snagging and employee injury from puncture or laceration.
- i. When working on walking-working surfaces 4 feet or more above a lower level not guarded by standard railings, employees must be provided with and use personal fall arrest systems in accordance with NWS Safety Manual, NWSM 50-1115, Procedure 1, Fall Protection.
- j. Where employees are exposed to falling objects from work levels above, toeboards or canopies should be used to protect them from the hazard. Alternatively, barricades may be established around the area into which objects may fall.
- k. Regardless of height, open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards shall be guarded with a standard railing and toeboard or, alternatively, employees utilizing these platforms may use a personal fall protection system in accordance with Procedure 1 of the NWS Safety Manual that would be sufficient to prevent them from contacting the hazard.
- l. When hoisting equipment, including into the NEXRAD radome, the opening shall be protected by a standard guardrail system on all sides of the opening. If such a rail is not provided, or needs to be removed, employees must wear fall protection in accordance with Procedure 1 of the NWS Safety Manual while the rail is not in place.

#### 14.3.4 Stairways

- a. All stairways, including standard, spiral, alternating tread and ship stairs, must be constructed and maintained in accordance with the requirements of OSHA's standard on stairways, 29 CFR 1910.25.
- b. Spiral, ship or alternating tread type stairs may only be used where standard stairs cannot be feasibly provided.
- c. Fixed industrial stairs shall be provided for access to and from places of work where operations necessitate regular travel between levels.
- d. Every flight of stairs with four or more risers shall have standard stair railings or standard handrails as specified in 1910.28(b)(11).



14.3.5 Ladders

a. General requirements

- (1) All ladders must be constructed in accordance with the requirements of the OSHA standard on Ladders, 29 CFR 1910.23. Ladders purchased or constructed by reputable suppliers should meet these requirements.
- (2) Wooden ladders must not be coated with any material that may obscure structural defects
- (3) All ladder surfaces must be free of puncture and laceration hazards
- (4) Ladders must be inspected before use in each work shift, or more frequently as necessary, to identify any visible defects that could cause employee injury. Ladders which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous - Do Not Use."
- (5) Each ladder shall be inspected initially upon being received at the station and annually, thereafter, by the Safety or Environmental/Safety Focal Point. Initial and annual inspections shall be conducted in accordance with the guidelines specified in Attachment A, "Portable Ladder Inspection Checklist." Inspection checklists should be completed and maintained.
- (6) The worker shall always face the ladder when climbing up or down.
- (7) Any person climbing up or down a ladder shall maintain three points of contact with the ladder at all times (e.g., two feet and one hand or two hands and one foot). A person shall not carry any object or load that could cause the person to lose balance and fall.

b. Portable Ladders

- (1) Rungs and steps of portable ladders must be formed or treated to minimize the possibility of slipping.
- (2) Each ladder shall be tagged with its own unique identification number.

**NOTE:** In facilities which have more than one ladder of the same type/manufacturer, tagging allows each ladder to be easily identified.

- (3) Portable stepladders longer than 20 feet shall not be used.
- (4) Single ladders longer than 30 feet shall not be used.
- (5) Extension ladders longer than 60 feet shall not be used.
- (6) Ladders shall only be used on stable, level surfaces unless they are secured or stabilized to prevent accidental displacement. Ladders shall not be placed on boxes, barrels or other unstable surfaces to extend their height.
- (7) Ladders shall not be moved, shifted or extended while an employee is on them.

- (8) Ladders placed in locations of heavy traffic, such as passageways or doorways must be either:
  - i Secured to prevent accidental displacement, or
  - ii Guarded by a temporary barricade to keep traffic away from the ladder
- (9) Ladders used to gain access to a roof or other area shall extend at least 3 feet above the point of support.
- (10) Short ladders shall not be spliced together to make long ladders.
- (11) Ladders shall never be used in the horizontal position as scaffolds or work platforms.
- (12) Stepladders shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in open position.
- (13) Ladder racks shall be established for the storage of all portable ladders in their general use areas.
- (14) Ladders shall be maintained in good condition at all times and shall be free of grease and oil.
- (15) When using a single or extension ladder, the base of the ladder shall rest securely on a flat surface and the top of the ladder should be tied off to a secure point.
- (16) The foot of a single or extension ladder shall, where possible, be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter of the working length of the ladder (the length along the ladder between the foot and the support).
- (17) The top of a non-self-supporting ladder must be placed so that both side rails are supported, unless the ladder is equipped with a single support attachment.
- (18) No person shall walk beneath a ladder when another person is on the ladder.
- (19) Any person helping to stabilize a ladder shall wear an approved hard hat.
- (20) A person working on a ladder shall not lean over to either side or backward away from the ladder to perform work.
- (21) No more than one person shall work on or climb the same ladder at a time.
- (22) Fall protection is not required while working from portable ladders (e.g. painting, changing light bulb, etc.). However, OSHA advises and encourages the use of fall protection when an employee must work with both hands and fall protection is feasible.

- (23) For any maintenance work performed from NEXRAD portable ladders when three points of contact with the ladder cannot be maintained at all times, the use of appropriate fall protection equipment is mandatory, if feasible (e.g., anchor points for the use of self-retracting lanyards (SRL) and/or work positioning are available and use of fall protection equipment does not interfere with a person's ability to perform the maintenance action).
- (24) The top two levels of a stepladder shall not be used as steps.
- (25) Only fiberglass ladders shall be used in locations around electrical equipment. Metal ladders shall never be used near electrical equipment.
- (26) Employees shall contact the Safety or Environmental/Safety Focal Point if any ladder or ladder component is believed to be unsafe or defective. The Safety or Environmental/Safety Focal Point shall immediately remove any unsafe ladder from service.

c. Fixed Ladders

- (1) Fixed ladders with a length of more than 20 feet to a maximum unbroken length of 30 feet shall be equipped with a ladder safety device. Cages are acceptable on ladders installed prior to November 18, 2018.
- (2) Cages shall extend a minimum of 42 inches above the top of a landing, unless other acceptable protection is provided.
- (3) Cages shall extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder.
- (4) When fixed ladders are used to ascend to heights exceeding 20 feet (except on chimneys), landing platforms shall be provided for each 30 feet of height or fraction thereof, when cages are used, except that, where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof.
- (5) Ladder safety devices may be used on tower, water tank, and chimney ladders over 20 feet in unbroken length in lieu of cage protection. No landing platform is required in these cases.
- (6) The preferred pitch of fixed ladders shall be considered to come in the range of 75 degrees and 90 degrees with the horizontal. Fixed ladders shall be considered to be substandard if they are installed within the pitch range of 60 and 75 degrees with the horizontal. Substandard fixed ladders are permitted only where it is found necessary to meet conditions of installation. This substandard pitch range is a critical range to be avoided.
- (7) Ladders having a pitch in excess of 90 degrees with the horizontal are prohibited.

d. Mobile Ladder Stands and Mobile Ladder Stand Platforms

- (1) Mobile ladder stands must not be moved while an employee is on them

- (2) The maximum work height shall not exceed four times the minimum base dimension unless outriggers, guys or braces are added to provide stability.
  - (3) Guardrails and toeboards are required for work levels 10 feet or more above the ground or floor.
  - (4) Employees must be tied off (fall arrest) when working in an aerial lift to reduce potential for or protect employee from being bounced out/off of the basket/work platform.
- e. If a step bolt is bent more than 15 degrees from the perpendicular in any direction, that step bolt must be removed and replaced with a step bolt that meets regulatory requirements prior to an employee using it.

#### 14.3.6 Safety Requirements for Scaffolding

- a. Scaffolds must meet the construction, operation, maintenance and use requirements in 29 CFR 1926, Subpart L.
- b. NWS Employees who work with scaffolding, including its assembly, disassembly, maintenance, inspection and performing work while on scaffolding must be trained to recognize the hazards associated with the type of scaffolding they will use and procedures to control or minimize the hazards. Training must include;
  - (1) The nature of scaffold, electrical, fall, and falling object hazards in the work area
  - (2) Proper procedures for erecting, maintaining, moving, using, inspecting, and disassembling scaffolding, fall protection, and falling object protection to be used
  - (3) Proper use of scaffolding and proper handling of materials while on the scaffold
  - (4) Maximum intended load and load-carrying capacities of the scaffold
  - (5) Correct procedures for dealing with any associated electrical hazards
- c. Employees must be retrained where their supervisor believes the employee requires it for safe use or when changes to the procedures or use of scaffolding, or the hazards associated with its use occur.
- d. Scaffolds must be designed by a qualified person. Where scaffolding kits are provided by a manufacturer, this design will be considered adequate.
- e. The footing or anchorage for scaffolds shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement. Unstable objects, such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
- f. Scaffolds must be erected so that the front edge of the working platform is not more than 14 inches away from the face of the work unless a guardrail system is erected along the front edge or personal fall arrest systems are in use in accordance with Procedure 1 of the NWS Safety Manual.

- g. The end of a platform must extend over the centerline of its support by at least 6 inches. Where the platform is 10 feet or less in length the end of the platform must not extend more than 12 inches over the centerline of its support.
- h. Platform units (i.e., planks or decking) must not have more than 1 inch between each platform unit and between the platform unit and the uprights.
- i. Wood platforms must not be covered by opaque finishes. Edges may be marked for identification purposes.
- j. Unstable objects will not be used as working platforms.
- k. Poles, legs, posts, frames and uprights must be plumb and braced to prevent swaying and displacement.
- l. Scaffold components manufactured by different manufacturers shall not be intermixed.
- m. Scaffolds and their components shall be capable of supporting at least four times the maximum intended load. Scaffolds must not be loaded in excess of their maximum intended load.
- n. Where swinging loads are being hoisted onto or near scaffolds, tag lines or equivalent measures to control the loads shall be used.
- o. Scaffolds shall be maintained in a safe condition and shall not be altered or moved horizontally while they are in use or occupied.
- p. Scaffolds must be inspected for visible defects prior to each work shift and after any occurrence that could affect the scaffold's structural integrity
- q. Damaged or weakened scaffolds shall be immediately repaired and shall not be used until repairs have been completed.
- r. A safe means must be provided to gain access to the working platform level through the use of a ladder, ramp, etc.
- s. Cross braces must not be used as a means of access or egress.
- t. Makeshift devices (e.g., boxes and barrels) must not be used to increase the working level height of employees.
- u. Where ladders are used on scaffolding, the scaffold and platform units must be secured against any sideways force the ladder may exert on the platform. Ladder legs must be secured to prevent them from slipping.
- v. Overhead protection such as canopies or toeboards on working levels above must be provided for personnel on a scaffold exposed to overhead hazards.
- w. Fall protection must be provided for all scaffold working platforms more than 10 feet above a lower level. Fall protection can be achieved through the use of;
  - (1) Guardrails, mid rails, and toeboards installed on all open sides and ends of platforms in accordance with 29 CFR 1926.451(g)(4). Wire mesh must be

installed between the toeboard and the guardrail along the entire opening, where persons are required to work or pass under the scaffolds, or,

- (2) Use of personal fall arrest systems in accordance with Procedure 1 of the NWS Safety Manual.
  - i In addition to the requirements of Procedure 1, personal fall arrest systems used on scaffolds must be attached by lanyard to a vertical or horizontal lifeline, or a scaffold structural member.
  - ii Vertical lifelines must be secured to a fixed, safe anchorage point independent of the scaffolds. Multiple vertical lifelines cannot be connected to the same anchorage point.
- x. Employees shall not work on scaffolds during storms or when scaffolds are covered with ice or snow.
- y. Scissors lifts are considered by OSHA definition scaffolds when employees are raised to over 10 foot (scaffolding rule). They must be protected from falling by restraint system, fall arrest or guard rails.

#### 14.3.7 Dockboards

- a. Portable dockboards (bridge plates) shall be secured in position, either by being anchored or equipped with devices which will prevent their slipping.
- b. Handholds shall be provided on portable dock boards to permit safe handling when the dock board must be repositioned or relocated.
- c. Dockboards put into initial service on or after January 17, 2017 must be designed to prevent vehicles which travel over the dockboard (i.e., forktrucks) from running off the dockboard edge.
- d. Measures such as wheel chocks or sand shoes must be used to prevent the transport vehicle (e.g., truck, trailer, semi-trailer) on which a dockboard is placed, from moving while employees are on the dockboard.
- e. Employees who use dockboards must be trained in their proper placement and securing.

### 14.4 Responsibilities

#### 14.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

14.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and periodic inventory of ladders, ladder safety devices and other safety equipment is accomplished and adequate stock is maintained.
- c. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

14.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

14.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will inspect ladders as specified in this procedure.
- c. Will provide initial and periodic inspections of floors, passageways, store rooms and workplaces as specified in 14.3.2.

14.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWSM 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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**14.5 References**

Incorporated References. The following list of references was incorporated as a whole or in part into this procedure. These references can provide additional explanations or guidance for the implementation of this procedure.

- 14.5.1 American National Standards Institute, ANSI A1264.1 “Safety Requirements for Workplace Walking/Working Surfaces and Their Access; Workplace, Floor, Wall and Roof Openings; Stairs and Guardrails Systems.”
- 14.5.2 American National Standards Institute, ANSI A14.2 “Ladders - Portable Metal - Safety Requirements.”

- 14.5.3 American National Standards Institute, ANSI 14.3 “Ladders Fixed - Safety Requirements.”
- 14.5.4 American National Standards Institute, ANSI A14.1 “Ladders - Portable Wood - Safety Requirements.”
- 14.5.5 American Society for Testing and Materials, ASTM A36/A36M, “Standard Specification for Carbon Structural Steel.”
- 14.5.6 National Fire Protection Association, NFPA 101, “Life Safety Code.”
- 14.5.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.23, “Guarding floor and wall openings and holes”
- 14.5.8 NWS Occupational Safety and Health Procedure #1, “Fall Protection.”
- 14.5.9 American National Standard Institute , ANSI A92.2 “Vehicle-Mounted Elevating and Rotating Aerial Devices”
- 14.5.10 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.67, “Aerial Lifts”
- 14.5.11 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.45, “Work Platforms”

#### **14.6 Attachments**

Attachment A. Portable Ladder Inspection Checklist



**ATTACHMENT A**  
**Portable Ladder Inspection Checklist**

Ladder Location: \_\_\_\_\_

Ladder Weight Rating: \_\_\_\_\_

- \_\_\_\_\_ All movable parts are operating correctly.
- \_\_\_\_\_ The ladder is free of any structural damage.
- \_\_\_\_\_ Bolts and rivets are in place, secured and free from excessive wear.
- \_\_\_\_\_ Steps and rungs are secure and without any looseness or wobble.
- \_\_\_\_\_ Ropes and pulleys on extension ladders are operational and free from defects.
- \_\_\_\_\_ Ladders are not twisted, distorted or warped.
- \_\_\_\_\_ Ladders are free from corrosion, rust, rot or other degenerative process.
- \_\_\_\_\_ Ladders exposed to excessive heat are removed from service, pending an inspection by the Safety or Environmental/Safety Focal Point.
- \_\_\_\_\_ Ladders are not painted except with clear paint, varnish, or for limited identification labeling.
- \_\_\_\_\_ Ladders are stored in such a way that the ladder supports no more than its own weight and is in an area free from excessive heat and moisture.
- \_\_\_\_\_ Wooden ladders used around toxins, carcinogens or potential carcinogens are sealed with varnish, polyurethane or comparable clear paint.
- \_\_\_\_\_ The ladder's weight rating is clearly visible on the ladder.

**Note:** Ladder repairs must restore the ladder to a condition meeting its original design criteria before the ladder can be returned to use. If the ladder cannot be restored to its original design criteria it shall be taken from use permanently. The ladder shall then be destroyed and disposed of to prevent accidental use.

\_\_\_\_\_  
Inspector

\_\_\_\_/\_\_\_\_/\_\_\_\_  
Date

**PROCEDURE 15 - Battery Charging and Storage Operations**

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## Synopsis

The purpose of this procedure is to provide guidelines to reduce potential hazards associated with battery charging and battery storage operations. Battery charging operations include the charging of batteries for powered industrial trucks, uninterrupted power supplies or battery backups for computer systems, battery systems for emergency generators or lighting systems and other similar operations. These systems may include lead acid batteries, lithium chloride batteries, and other similar devices. Charging of low current battery systems such as rechargeable NiCad batteries, small consumer batteries, self-contained uninterruptible power supplies (typically used for individual computers), etc., is not included. This procedure applies to all NWS facilities and work locations where battery charging and storage operations are conducted, and to all employees who work in these facilities.

### Initial Implementation Requirements:

- **Analyze Site Operations versus Requirements of the Procedure**
- **Develop/Obtain Documentation/Information required for Site**
  - Manufacturer's Recommendations. (15.3.5)
- **Designate Person to Administer "Battery Charging & Storage Operations" Procedure Requirements**
- **Provide Local Training of Site Personnel (If Applicable)**
- **Inventory Material/Equipment (Procure as required)**
  - PPE (e.g., chemical resistant apron, goggles, gloves). (15.5.2c, 15.3.2)
  - Spill Control Trays (15.5.2c, 15.3.6)
  - Specific Gravity Testers. (15.5.2c, 15.3.5)
  - Eyes, face and body flushing/rinsing facilities (15.5.2c, 5.3.3)
  - Protective Barriers. (15.5.2c, 15.3.4), if applicable

### Recurring and Annual Task Requirements:

- **Perform Inspections/Assessment/Testing**
  - Monthly Inspections batteries per manufacturer's recommendations (e.g., check electrolyte levels and specific gravity). (15.3.5)
  - Visual Inspections of UPS batteries (15.3.5)
- **Review/Update Documentation/Information required for Site**
- **Provide Refresher Training of Site Personnel (If Applicable)**
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - PPE (e.g., chemical resistant apron, goggles, gloves). (15.5.2c, 15.3.2)
  - Spill Control Trays (15.5.2c, 15.3.6)
  - Specific Gravity Testers. (15.5.2c, 15.3.5)
  - Eyes, face and body flushing/rinsing facilities (15.5.2c, 15.3.3)
  - Protective Barriers. (15.5.2c, 15.3.4), if applicable

**Battery Charging and Storage Operations Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	15.5.2				
Are there areas designated for Battery Charging Operations?	15.3.1				
Are eyewash/body drenching facilities available whenever sealed and unsealed (e.g., UPS) batteries are handled?	15.3.3				
Are eyewash/body drenching facilities located within 10 seconds of unobstructed travel time distance from the charging station?	15.3.3				
Is adequate PPE available for personnel working on battery charging systems?	15.3.2				
Are batteries charging operations adequately guarded against mechanical damage?	15.3.4				
Are stored and charging batteries being inspected monthly to ensure compliance with manufacturer's recommendations?	15.3.5				
Are all batteries stored on spill control trays or other similar devices where practicable?	15.3.6				
Is the ventilation in the vicinity of charging batteries adequate to prevent the buildup of combustible gas?	15.3.7				
Are all battery top surfaces kept clean and free of	15.3.8				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
electrolyte material?					
Are all battery terminal connectors kept tight and free of corrosion?	15.3.9				

## **15 BATTERY CHARGING AND STORAGE OPERATIONS**

### **15.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with battery charging and storage operations. Battery charging operations include the charging of batteries for powered industrial trucks, uninterrupted power supplies or battery backups for computer systems, battery systems for emergency generators or lighting systems and other similar operations. These systems may include lead acid batteries, lithium chloride batteries, and other similar devices. Charging of low-current battery systems such as rechargeable NiCad batteries, small consumer batteries, self-contained uninterruptible power supplies (typically used for individual computers), etc., is not included. This procedure applies to all NWS facilities and work locations where battery charging and storage operations are conducted, and to all employees who work in these facilities.

### **15.2 Definitions**

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

NFPA. National Fire Protection Association.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.

PPE. Personal Protective Equipment.

Eyewash/Body Drenching Facility. A device used to remove corrosive or injurious materials from the eyes, face or body (e.g., a drenching hose, emergency shower or eyewash unit)

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **15.3 Procedure**

15.3.1 Battery charging operations shall take place only in areas designed for this purpose.

15.3.2 Adequate PPE shall be kept in proximity to battery charging operations. PPE shall include a chemical-resistant apron, splash-resistant face shield, safety goggles and chemical-resistant gloves. Generally, gloves made from natural rubber, nitrile, and other similar materials

provide good protection against battery acid. The gloves provided for use with battery charging operations shall be used for this purpose only.

15.3.3 Eyewash/body drenching facilities and the work area with water shall be provided wherever electrolyte is handled (e.g., office and RDA Emergency Power Generator batteries). Eyewash/body drenching facilities shall also be provided for personnel handling sealed lead-acid batteries (e.g., office and RDA UPS batteries). Portable eyewash/body drenching units are acceptable. The requirement for eyewash/body drenching units does not apply to ASOS sites since lead-acid batteries used in DCP are enclosed in a vented plastic box.

**NOTE:** 15 minutes of continuing flushing at 0.4gpm is required per ANSI Z358.1 standard. The eyewash units shall be available within 10 seconds of unobstructed travel-time distance from the charging station. These facilities shall be well marked and placed in locations free from obstructions. Care shall be taken when locating the units so as not to create a potential electrocution or shock hazard to personnel.

**NOTE:** When water supply is not available, e.g., at RDA sites, portable eyewash unit shall be provided. The portable, pressurized eyewash/drench units are not required to be kept filled and pressurized in the WFO UPS room, WFO Emergency Generator building, RDA TPS shelter or RDA Emergency Generator shelter. A unit must be prepared if NWS personnel will be servicing batteries and should be prepared if a contractor is coming on site to service the batteries. Servicing includes, but is not limited to, checking electrolyte and removing/replacing batteries.

15.3.4 Facilities or barriers must exist to protect the battery charging operation from damage by trucks or other materials handling equipment.

15.3.5 Stored and charging batteries shall be inspected monthly and shall be maintained in full compliance with manufacturer's recommendations. These inspections shall be conducted by the Safety or Environmental/Safety Focal Point or his/her designee. Electrolyte levels and specific gravity shall be checked for conformance with manufacturer's recommendations on unsealed vented batteries. The manufacturer's method for conducting these tests shall be followed. The inspection shall verify that no leakage of electrolyte material has occurred. Gel cell batteries shall be inspected per manufacturer's recommendations.

15.3.6 Batteries, including gel cells in Electronics Technicians shop, shall be stored on spill control trays or other similar devices designed to contain any spills which may occur.

15.3.7 Adequate ventilation shall be provided to prevent the buildup of combustible gas. This ventilation may be passive or active in nature.

15.3.8 Battery top surfaces shall be kept clean and free of electrolyte material using appropriate personal protective equipment and neutralizing/cleansing solution. The neutralizing/cleansing solution should be to the manufacturer's specifications for the particular electrolyte being utilized.

15.3.9 Battery terminal connectors shall be kept tight and free of corrosion. If the terminal connectors are corroded, they shall be removed and cleaned with bicarbonate of soda. Additionally, battery studs and cable ends shall be kept clean.

15.3.10 Personnel involved in UPS battery changing operations should follow lock out/ tag out procedures outlined in Attachment D of Section 4, Control of Hazardous Energy Sources.

## 15.4 Responsibilities

### 15.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 15.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that stored and charging batteries are inspected monthly and that batteries are maintained in full compliance with manufacturer's recommendations.
- c. Will ensure that initial and periodic inventory of PPE and safety equipment/instrumentation is accomplished and adequate stock is maintained.
- d. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 15.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 15.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

### 15.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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## **15.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 15.5.1 American National Standards Institute, ANSI Z358.1, “Emergency Eyewash and Shower Equipment.”
- 15.5.2 National Fire Protection Association, NFPA 70B, “Recommended Practice for Electrical Equipment Maintenance.”
- 15.5.3 National Fire Protection Association, NFPA 110, “Standard for Emergency and Standby Power Systems.”
- 15.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.178, “Powered Industrial Trucks.”

## **15.6 Attachments**

None

**PROCEDURE 16 - Flammable Liquid Storage**

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**NOTE:** OSHA removed the use of the term combustible liquid from its standards on hazardous materials concurrent with its 2012 revision of the Hazard Communication standard. To reduce confusion, the NWS is adopting this terminology in its safety manual.

### **Synopsis**

The purpose of this procedure is to provide guidelines to reduce potential exposure from hazards associated with the use and storage of flammable liquids in the workplace. This procedure applies to all NWS facilities and work locations where flammable liquids are used and/or stored and to all NWS employees involved with the usage and/storage of flammable liquids.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Evaluate storage areas for compliance with the procedure. *(16.3.1)*
  - Assess the adequacy of ventilation in the area of stored Flammable Materials *(16.3.2c)*
- **Develop/Obtain Documentation/Information required for Site**
  - Obtain compatibility chart to be used when storing Flammable Materials. *(16.3.1h)*
  - Obtain Material Safety Data Sheets (MSDS) for Flammable Chemicals. *(16.3.2g)*
- **Designate Person to Administer Flammable Liquid Storage Procedure Requirements**
- **Inventory Material/Equipment (Procure as required)**
  - Spill Kits. *(16.3.2e)*
  - Flammable Storage Cabinets. *(16.3.1b)*
  - Metal Containers for Flammable Waste Materials. *(16.3.5c)*

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessments/Testing**
  - Conduct periodic assessment for adequacy of flammable materials use and storage. *(16.3.1K.)*
- **Review/Update Documentation/Information required for Site**
  - Obtain SDS for new materials used. *(16.3.2g)*
- **Inspect/Replace/Maintain Material/Equipment**
  - Spill Kits Replenishment. *(16.3.2e)*
  - Flammable Storage Cabinets. *(16.3.1b)*
  - Metal Containers for Flammable Waste Materials. *(16.3.5c)*

**Flammable Liquid Storage Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	16.4.2				
Are flammable materials storage areas in compliance with requirements of this procedure?	16.3.1				
Are storage cabinets available for storage of flammable liquids and are labeled “Flammable-Keep Fire Away”?	16.3.1b(1)				
Are flammable waste materials (e.g., oily rags) stored in covered metal containers and removed from the work place promptly?	16.3.5c				
Are flammable liquid materials storage rooms provided with adequate ventilation to prevent accumulation of vapors?	16.3.2c				
Are adequate aisles provided and maintained to ensure unobstructed movement of personnel and access to the fire protection equipment?	16.3.5d				
Are all flammable liquids kept in closed containers when not in use?	16.3.2d				
Are “NO SMOKING” signs posted in areas where flammable materials are used or stored?	16.3.1i				
Are spill kits available for cleanup of flammable materials spills?	16.3.2e				
Are fire extinguishers available at the locations where flammable materials stored or used?	16.3.1j				
Are grounds around building and work areas in which flammable materials are stored or used kept free of trash, weeds or other combustible materials?	16.3.5e				

## 16 FLAMMABLE LIQUID STORAGE

### 16.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with the use and storage of flammable liquids in the workplace. This procedure applies to all NWS facilities and work locations where flammable liquids are used and/or stored and to all NWS employees involved with the usage and/storage of flammable liquids.

### 16.2 Definitions

Closed Container. A container sealed by means of a lid or other device that neither liquid nor vapor will escape from at ordinary temperatures.

Flammable Liquid. Any liquid having a flashpoint below 199.4°F (93°C). Flammable liquids are divided into four categories:

**Category 1** includes liquids having flashpoints below 73.4°F (23°C) and having a boiling point at or below 95°F (35°C). An example would be ethyl ether.

**Category 2** includes liquids having flashpoints below 73.4°F (23°C) and having a boiling point above 95°F (35°C). An example would be gasoline.

**Category 3** includes liquids having flashpoints at or above 73.4°F (23°C) and at or below 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C). An example would be diesel fuel.

**Category 4** includes liquids having flashpoints at or above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 liquid is heated within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C). An example would be oil-based paint.

When a liquid with a flashpoint above 199.4°F (93°C) is heated within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 4 liquid.

Flammable Storage Cabinet. Flammable Storage Cabinet must meet NFPA Standard 251 “Standard Methods of Tests of Fire Endurance of Building Construction and Materials.” Generally, the cabinet is approved by Underwriters Laboratory (UL) or Factory Mutual (FM).

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Flashpoint. The minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

Office Occupancy. The occupancy or use of a building or structure or any portion thereof for the transaction of business or the rendering or receiving of professional services.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Safety Can. An approved container of not more than 5 gallons capacity having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Ventilation. For the purpose of this procedure, ventilation is the movement of air into and out of an area by natural or mechanical means and is used to help prevent fires and/or explosions. Ventilation is considered adequate if it is sufficient to prevent an accumulation of significant quantities of vapor-air mixtures in a concentration over one-fourth of the lower flammable limit.

### **16.3 Procedure**

16.3.1 Storage of Flammable Liquids. Flammable liquids (including flammable aerosols) used at NWS facilities must be stored in accordance with the following requirements:

- a. Flammable liquids shall only be stored in containers approved under the guidelines of National Fire Protection Association, NFPA 30, "Flammable and Combustible Liquids Code."
- b. Storage cabinets must meet the requirements of 29 CFR 1910.106 "Flammable Liquids" as listed below:
  - (1) Must be clearly and legibly labeled "Flammable - Keep Fire Away."
  - (2) No more than 60 gallons of a Category 1, 2, or 3 liquid or no more than 120 gallons of a Category 4 liquid shall be stored in a single storage cabinet.
  - (3) Shall be designed and constructed to limit the internal temperature to not more than 325°F when subjected to a 10-minute fire test as set forth in NFPA 251, "Standard Methods of Tests of Fire Resistance of Building Construction and Materials."
- c. Flammable liquids storage tanks and piping, including tanks for diesel fuel, must be installed in accordance with the requirements of OSHA's flammable liquids standard, 29 CFR 1910.106, as well as any applicable environmental standards.

Notes on applicable environmental standards can be found in the NWS Environmental Management Manual, NWSM 50-5116, Procedure 1, Hazardous Materials Storage.

- (1) Appropriate vent piping must be installed in accordance with the regulation to prevent over-pressuring and explosion
  - (2) Spill and leak containment must also be provided in accordance with applicable standards
- d. Flammable liquids, or cabinets for same, shall not be stored/ placed so as to limit use of exits, stairways or areas normally used for the safe egress of people.
  - e. Storage of flammable liquids outside of flammable storage cabinets or storage rooms in office areas shall be prohibited except for the minimum amount of products necessary for the work being done (e.g., maintenance and operation of the building, operation of equipment, etc.) provided that the storage and handling of flammable liquids is accomplished in the smallest container size possible and the container used is appropriate for material stored.
  - f. Storage of flammable liquids shall be prohibited in sumps. The volume of the sump would be changed to allow the possibility of a leak to the environment.
  - g. Leaking containers shall be removed to a storage room or taken to a safe location outside the building and the contents transferred to an undamaged container.
  - h. A compatibility chart shall be obtained and consulted when storing flammable liquids. The following NAVOSH Compatibility Chart can be used as a reference: <https://trainex.org/osc2012/uploads/541/IncompatibleMaterials.pdf>

<p><b>NOTE:</b> Attachment A: “Common Flammable Liquids in Use at a Weather Forecast Office” lists some flammable liquids normally found in NWS facilities.</p>
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- i. “No Smoking” signs shall be posted near all flammable liquids storage areas.
- j. Fire extinguishers shall be available at the locations where flammable materials stored or used. At least one portable fire extinguisher having a rating of not less than 12-B units shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage.
- k. Periodic assessments for adequacy of flammable materials use and storage shall be performed.

16.3.2 Usage of Flammable Liquids. The following guidelines shall be followed when using flammable liquids at NWS facilities or workplaces:

- a. Areas in which flammable liquids are transferred from one tank or container to another container shall be separated from other operations in the building by adequate distance or by construction having adequate fire resistance.
- b. Drainage into a collection tank or sump or other means such as curbing or dikes shall be provided to control spills.

- c. Adequate natural or mechanical ventilation shall be also provided to prevent the accumulation of vapors in the area.
- d. Flammable liquids shall be kept in covered containers when not actually in use.
- e. Where flammable liquids are used or handled, except in closed containers, a means shall be provided to promptly and safely contain leakage or spills. An example of this would be absorbent material such as kitty litter or absorbent pads and pillows. A means must also be provided for disposal of material used to absorb spilled liquids.
- f. Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C) shall be used only where there are no open flames or other sources of ignition within the possible path of vapor travel.
- g. The Safety Data Sheets (SDS) shall be obtained and reviewed by chemical users prior to use.

16.3.3 Sources of Ignition. Adequate precautions shall be taken to prevent the ignition of flammable vapors.

- a. Sources of ignition include but are not limited to: open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, static, electrical and mechanical sparks, spontaneous ignition including heat-producing chemical reactions and radiant heat.
- b. Hot work such as welding or cutting operations, use of spark-producing power tools and chipping operations shall be permitted only under supervision of an individual in charge. The individual in charge shall make an inspection of the area to be sure that it is safe for the work to be done and that safe procedures will be followed for the work specified.

16.3.4 Grounding. Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C) shall not be dispensed into containers unless the nozzle and container are electrically interconnected. This can be accomplished by bonding, by means of a wire, the fill stem to the container into which the liquid is being dispensed.

16.3.5 Housekeeping. The following requirements shall be followed to prevent the accumulation of flammable liquids in the workplace.

- a. Maintenance and operating practices shall be followed in order to control leakage and prevent the accidental escape of flammable liquids.
- b. Spills shall be cleaned up promptly.
- c. Flammable waste material and residues in a building or work area shall be kept to a minimum, stored in covered metal receptacles and disposed of daily unless the amount of material does not exceed half the quantity of the receptacle.
- d. Adequate aisles shall be maintained to allow for unobstructed movement of personnel and so that fire protection equipment can be readily brought to bear on any part of a flammable liquid storage or usage area.



- e. The ground around buildings and work areas in which flammable liquids are stored or used shall be kept free of weeds, trash or other unnecessary combustible material.
- f. Any hazardous waste that is considered regulated under U.S. EPA 40 CFR Part 261.21 “Characteristic of Ignitability,” shall be disposed of properly depending on the characteristic of the material.

## **16.4 Responsibilities**

### **16.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **16.4.2 Station Manager**

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure flammable liquids are used and stored according to the requirements of this procedure.
- c. Will ensure that initial and periodic inventory of spill kits, flammable storage cabinets and other safety equipment is accomplished and adequate stock is maintained.
- d. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### **16.4.3 NWS Headquarters (NWSH)**

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### **16.4.4 Safety or Environmental/Safety Focal Point**

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

### **16.4.5 Employees**

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
[www.nws.noaa.gov/directives/sym/pd05011curr.pdf](http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf)

## **16.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure

- 16.5.1 National Fire Protection Association, NFPA 30, “Flammable and Combustible Liquids Code.”
- 16.5.2 National Fire Protection Association, NFPA 251, “Standard Methods of Tests of Fire Resistance of Building Construction and Materials.”
- 16.5.3 U.S. Department of Labor, Occupational Safety and Health Administration, CFR 1910.106, “Flammable Liquids.”
- 16.5.4 U.S. Environmental Protection Agency 40 CFR Part 261.21, “Characteristic of Ignitability.”

## **16.6 Attachments**

Attachment A: Common Flammable Liquids in Use at a Weather Forecast Office

## ATTACHMENT A

## Common Flammable Liquids in Use at a Weather Forecast Office

<b>Product Name</b>	<b>Chemical Ingredients</b>
WD-40	Mineral oil, Petroleum oil
Spray Paint Enamel Aerosol	Acetone, Toluene, Xylene
Windex Blue	Isopropyl alcohol, Ethanol
Contact Cement	Toluene, Methyl ethyl ketone
Invisible Shield	Ethyl alcohol, Sulfuric acid
Oatey All-Purpose Cement	Tetrahydrofuran, Methyl ethyl acetone, Cyclohexanone
Kit Paste Wax	Ammonia, Formaldehyde
Plastic Welder Activator	Methyl ester, Methacrylic acid
Lacquer Thinner	Isobutyl isobutyrate, Acetone, Methanol, Toluene
Magnetic Tape Head Cleaner	Xylene, Ethane, Benzene
Liquid Solder Flux	Isopropyl alcohol, Volatile organic compound
Defthane Satin	Petroleum, Solvent naphtha
Isopropyl Alcohol	Pure mixture
Diesel Fuel	Organic petroleum liquid

**PROCEDURE 17 - Ionizing and Non-Ionizing Radiation**

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## Synopsis

The purpose of this procedure is to provide guidelines to reduce potential exposure to hazards associated with ionizing and non-ionizing radiation. This procedure applies to all NWS facilities, work locations, and employees

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
- **Develop/Obtain Documentation/Information required for Site**
  - Develop a list of all Ionizing Radiation Sources on site. (17.3.1b)
  - Develop a list of all Non-ionizing Radiation Sources on site.(17.3.2b)
  - Develop Training Records. (17.3.1f, 17.3.2g)
- **Designate Person to Administer Ionizing & Non-Ionizing Radiation Program Requirements**
- **Provide Local Training of Site Personnel**
  - Awareness Training on Ionizing Radiation. (17.3.1f)
  - Awareness Training on Non-Ionizing Radiation. (17.3.2g)
- **Inventory Material/Equipment (Procure as required)**
  - Safety Postings (RDA, WSR, etc.)(17.5.2e, 17.3.1e)
  - Barriers. (17.5.2e, 17.3.2f)
  - Interlocks. (17.5.2e, 17.3.2f)

### **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Maintain a list of all Ionizing Radiation Sources on site. (17.3.1b)
  - Maintain a list of all Non-ionizing Radiation Sources on site. (17.3.2b)
  - Maintain Training Records. (17.3.1f, 17.3.2g)
- **Provide Refresher Training of Site Personnel (as needed)**
  - Awareness Training on Ionizing Radiation. (17.3.1f)
  - Awareness Training on Non-Ionizing Radiation. (17.3.2g)
- **Inspect/Replace/Maintain Material/Equipment**
  - Safety Postings (RDA, WSR, etc.)(17.5.2e, 17.3.1e)
  - Barriers. (17.5.2e, 17.3.2f)
  - Interlocks. (17.5.2e, 17.3.2f)

**Ionizing and Non-ionizing Radiation Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	17.4.2				
Has this facility developed and maintained a list of ionizing and non-ionizing radiation sources on site?	17.3.1b 17.3.2b				
Are all employees subjected to a total cumulative dose of less than 100 mrem per calendar year?	17.3.1d				
Are all sources of ionizing radiation properly labeled and shielded?	17.3.1e				
Are all employees who work with or in the vicinity of ionizing radiation properly trained in the hazards and protective measures associated with the radiation?	17.3.1f				
Is work requiring licensing by NRC being performed in accordance with this procedure?	17.3.1g				
Are shields installed prior to transmitter operations?	17.3.1h				
Have field strength measurements been conducted on sources of non-ionizing radiation at the facility?	17.3.2c				
Is annual and periodic inspection of waveguides performed?	17.3.2d				
Are transmitters being operated only when all waveguide components are in place and all coaxial cables are properly terminated?	17.3.2j				
Are all employees who work with or near non-					

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
ionizing radiation sources properly trained?	17.3.2g				
During servicing, are all sources of significant non-ionizing radiation adequately locked out/tagged out in accordance with the facility Lockout/Tagout program?	17.3.2h				

## 17 IONIZING AND NON-IONIZING RADIATION

### 17.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with ionizing and non-ionizing radiation. This procedure applies to all NWS facilities, work locations, and employees.

### 17.2 Definitions

ACGIH. American Conference of Governmental Industrial Hygienists.

BEI. Biological Exposure Index.

Electromagnetic Radiation. OSHA 29 CFR 1910.97 defines electromagnetic radiation as restricted to that portion of the spectrum commonly defined as the radio frequency region, which for the purpose of the standard shall include the microwave frequency region.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

High Radiation Area. Any area accessible to personnel where radiation is at such levels that a major portion of the body could receive a dose in excess of 100 millirems in any one (1) hour.

Ionizing Radiation. Waves at frequencies greater than  $10^{15}$  Hz (Hertz) and energy levels greater than 10 electron volts that interact with bio-systems at the atomic level by generation of free charge. Includes alpha rays, beta radiation, gamma rays, neutrons and other atomic particles.

NLSC. National Logistics Supply Center.

Non-Ionizing Radiation. Waves at frequencies less than  $10^{15}$  Hz (Hertz) and energy levels less than 10 electron volts that interact with the molecular or cellular level without ionization. Includes electromagnetic radiation in the sub-radio frequency, radio frequency, microwave, infrared, visible light and ultraviolet ranges. The wavelength ranges from approximately 1,000 km to 100 nanometers (nm).

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.



Qualified Person. A person who has the education, training and experience to assess radiation hazards and determine if hazardous levels of radiation are present.

Radioactive Material. Defined by OSHA as any material which emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations.

Restricted Area. Defined by OSHA as any area to which access is controlled by the employer for the purpose of protection of individuals from exposure to radiation or radioactive materials.

Rad (Radiation Absorbed Dose). OSHA defines as a measure of the dose of any ionizing radiation to body tissues in terms of the energy absorbed per unit of mass of the tissue. One (1) Rad is the dose corresponding to the absorption of 100 ergs per gram of tissue.

Roentgen Equivalent in Man (rem). OSHA defines as a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of one (1) roentgen of X-rays. The relation of the rem to other dose units depends upon the biological effect under consideration and upon the conditions of irradiation. For example:

- a. A dose of one (1) roentgen due to X- or gamma radiation.
- b. A dose of one (1) rad due to X-, gamma or beta radiation.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

TLV. American Conference of Governmental Industrial Hygienists Threshold Limit Value.

Unrestricted Area. Defined by OSHA as any area access to which is not controlled by the employer for purposes of protection of individuals from exposure to radiation or radioactive materials.

## **17.3 Procedure**

### **17.3.1 Ionizing Radiation**

- a. The Safety or Environmental/Safety Focal Point shall be informed of any ionizing radiation source which is present or which is brought on to the site.
- b. The Safety or Environmental/Safety Focal Point shall develop and maintain an inventory of all ionizing radiation sources present at the facility. Currently, the only source of ionizing radiation in the NWS is extremely low-level x-rays emitted from the WSR-88D Klystron.
- c. It is the policy of the NWS to adhere to all provisions of 29 CFR 1910.1096,

“Ionizing Radiation.”

- d. Adequate control measures shall be implemented to ensure that no NWS employee receives ionizing radiation exposure in excess of the Department of Energy (DOE) maximum levels for ionizing radiation for the general public. The maximum level is 100 mrem per year.

**NOTE:** The Klystron generates extremely low-intensity x-rays (ionizing radiation). The transmitter contains lead shielding to further reduce the x-ray levels. The WSR-88D was originally designed to limit x-ray emissions to below 2mrem/hour at one foot from the Klystron surface which is below permissible exposure levels. Based upon this design, development testing, and periodic testing at field sites, routine testing of the ionizing radiation levels from the WSR-88D is not required. Measurements taken six inches from the Klystron surface measured a maximum x-ray level of 0.03mrem/hour. The level dropped to zero outside of the transmitter cabinet. Normally, routine testing for ionizing radiation for NWS Klystron equipment is not required.

- e. All radiation and high radiation areas as well as radiation source storage areas shall be labeled in accordance with 29 CFR 1910.1096.
- f. All employees who work in the immediate area of radiation sources or in regulated areas shall be trained in safe work practices, protective measures and on the nature of the sources. Training records shall be maintained by the Safety or Environmental/Safety Focal Point.
- g. Any work requiring licensing by the Nuclear Regulatory Commission (NRC) shall be performed in accordance with 10 CFR 20, “Ionizing Radiation.”
- h. Transmitters shall not be operated unless all shielding is in place. NWS personnel shall not modify any NEXRAD transmitters in a manner that might decrease radiation shielding.

### 17.3.2 Non-Ionizing Radiation

- a. The Safety or Environmental/Safety Focal Point shall be informed of any non-ionizing radiation source which is present or which is brought on to the site.
- b. No NWS employee shall be exposed to radio or microwave frequency radiation in excess of the OSHA maximum level or the ACGIH TLV, whichever is more restrictive for the frequency involved. For 10 MHz to 100 GHz, OSHA mandates a maximum exposure to personnel of 10 milliwatts (mW) per square centimeter, as averaged over any possible 0.1 hour period. ACGIH TLV’s for a particular frequency are calculated in Table 1, “Radiofrequency and Microwave TLV’s” of the Non-Ionizing Radiation and Fields section of Threshold Limit Values for Chemical Substances and Physical Agents.

**NOTE:** The RF generated by the NEXRAD transmitter represents non-ionizing radiation and the maximum permitted levels within the RDA shelter are 10mW per cm<sup>2</sup> for the OSHA standard and 5mW per cm<sup>2</sup> for the FCC standard. However, measurements taken within the RDA shelter in the vicinity of the Klystron and the waveguide joints have measured essentially no RF leakage within the RDA shelter. It should be noted that the interlocks prevent the transmitter from operating in a degraded mode in most cases. Testing for non-ionizing radiation is required as follows: (1) Annually within the RDA equipment; (2) When local maintenance procedures require it to be accomplished; (3) Whenever any waveguide component is disassembled and reassembled such as replacing the klystron or waveguide switch; and (4) Whenever an RF leak is suspected and the following symptoms that are not corrected by normal corrective maintenance procedures are present: wavy interference patterns on the RDA maintenance display, LIN/LOG CHANNEL CLUTTER REJECTION DEGRADED alarms (leaks around the waveguide switch), low antenna power with high transmitter power, low transmitter power, high VSWR, hard drive crash, illumination of the neon fuse indicators in the transmitter fuse box in the center bay of the transmitter, even though the fuses are still good, loud noise in the phone system when in operation, unsolicited wideband disconnect when the transmitter is placed in operation, and receiver interference. The transmitter flexible waveguide can develop small pinhole RF leaks that do not produce equipment alarms.

17.3.3 All employees who work in the immediate area of non-ionizing radiation sources (e.g., NEXRAD, NWR) shall be trained in safe work practices, protective measures and on the nature of the sources.

- a. When potential sources of radio or microwave frequency (non-ionizing) radiation are being serviced, the equipment shall be de-energized and locked out in accordance with the facility Lockout/Tagout Program.
- b. For non-radio or microwave frequency radiation, all non-ionizing radiation exposures shall be below the appropriate ACGIH TLV.
- c. Transmitters shall not be operated unless all waveguide components are in place and all coaxial cables are properly terminated.

## 17.4 Responsibilities

### 17.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

17.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that the Safety or Environmental/Safety Focal Point maintains an inventory of all radioactive sources present at the site.
- c. Will ensure that all personnel working with radioactive sources or in regulated areas are properly trained.
- d. Will ensure that initial and periodic inventory of safety postings, barriers, interlocks and other safety equipment is accomplished and adequate stock is maintained.
- e. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

17.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

17.4.4 Safety or Environmental/Safety Focal Point

Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

17.4.5 Employees

Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a></p>
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**17.5 References**

Incorporated references. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 17.5.1 American Conference of Governmental Industrial Hygienists, TLV's and BEI's, Threshold Limit Values for Chemical Substances and Physical Agents, Current Edition.

- 17.5.2 U.S. Department of Energy, 10 CFR 20, “Standards for Protection against Radiation.”
- 17.5.3 U.S. Department of Energy, 10 CFR 835.208, “Occupational Radiation Protection.”
- 17.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.97, “Non-Ionizing Radiation.”
- 17.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.1096, “Ionizing Radiation.”
- 17.5.6 Federal Communications Commission (FCC) Office of Engineering and Technology (OET) Bulletin No. 65, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.”

**17.6 Attachments**

- Attachment A. Inventory of Radiation Sources at WFO Springfield, MO
- Attachment B. Radiation Survey for WFO Springfield, MO

**ATTACHMENT A**  
**Inventory of Radiation Sources at WFO Springfield, MO**  
**January 20, 2000**

**Sources of Ionizing Radiation:**

- 1) WSR-88D Klystron (X-rays)

**Sources of Non-Ionizing Radiation:**

- 1) NEXRAD transmitter (RF)
- 2) Water Tech Water Purifier (UV)
- 3) ASOS (RF)
- 4) NWR (RF)
- 5) Wind profiler (RF)
- 6) Some river gauges (MW)
- 7) UHF Radio Link (RF)
- 8) Cell phones (MW)

**ATTACHMENT B  
Radiation Survey for WFO Springfield, MO**

On January 13, 2000, radiation testing was conducted in the RDA Shelter at the Springfield WFO. The purpose of the testing was to identify the potential for radiation exposure for NWS personnel.

X-rays levels (mR/h) for the WSR-88D Klystron were measured using a Victoreen Meter, Model 440RF/D, S/N 733. The x-rays levels were less than the level of detection or essentially zero.

The non-ionizing RF (mW/cm<sup>2</sup>) generated by the NEXRAD transmitter was measured using a Raham Radiation Hazard Meter, Model 481B, Serial #231365. Table 1 shows the results of the testing for RF.

**Table 1, Measured Levels of RF Generated by the Springfield NEXRAD Transmitter**

Location Within RDA Facility	(Radiation, mW/cm <sup>2</sup> ) X (Frequency Correction Factor of 0.635)	Corrected Radiation Levels (mW/cm <sup>2</sup> )
Outside of WRS-88D with the door closed.	0.0 X 0.635	0.0
At the waveguide switch.	0.1 X 0.635	0.064
At the WSR-88D with the door open.	0.5 X 0.635	0.032

Per OET Bulletin 65, the limit to non-ionizing radiation is 5 mW/cm<sup>2</sup> for the frequency range associated with the NEXRAD transmitter. Note that the RDA Shelter is an un-manned facility. Additionally, the waveguide switch is well above working height, and the transmitter is off-line when the unit is serviced.

The low levels of radiation measured in the Springfield RDA Shelter in conjunction with similar results at other NWS facilities supports the position that routine radiation testing of Doppler Radar equipment is unnecessary.

**PROCEDURE 18 - Accident/Illness Reporting and Recording**

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## **Synopsis**

This procedure establishes requirements and responsibilities for investigating and recording all occupational injuries, illnesses, equipment/property damage, motor vehicle and near-miss accidents and incidents. The procedure complies with the requirements of 29 CFR 1904, "Recording and Reporting Occupational Injuries and Illnesses" and 29 CFR 1960 Subpart I, "Record Keeping and Reporting Requirements for Federal Employees" and NAO 209-1A, NOAA Occupational Safety and Health Policy. This procedure applies to all NWS facilities, work locations and employees.

## **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
- **Develop/Obtain Documentation/Information required for Site**
  - Ensure that all accidents including near misses are reported by supervisors via the web-based NOAA Initial Report of NOAA Incident, Injury, Work Related Illness, or Near Miss (*18.3.1.a*)
  - Ensure all accidents are fully investigated (*18.3.3*)
  - Ensure availability of required accident/illness reporting forms CA-1, CA-2, SF-91, SF-94, etc. (Attachments B-G, OPS1 web site: [https://www.ops1.nws.noaa.gov/Secure/SAFETY/EHB-15/Procedures\\_final/accident\\_reporting.htm](https://www.ops1.nws.noaa.gov/Secure/SAFETY/EHB-15/Procedures_final/accident_reporting.htm) or the OPS1 website <https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html> - Workers' Compensation page).
- **Provide Local Training of Site Personnel**
- **Personnel Awareness Training**

## **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Maintain records related to incidents and unsafe conditions for 5 years (*18.3.6*)
  - Post annual summary of occupational incidents and illnesses (*18.3.6*)
- **Perform Occupational Injuries Investigation/Corrective Action Determination**
- **Provide Refresher Training of Site Personnel (If Applicable)**

**Accident/illness Reporting and Recording Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	18.4.2				
Are all employees and supervisors aware of web based safety incident/accident reporting procedures?	18.3.1				
Do employees report to their supervisors upon return to work from an occupational accident or illness?	18.3.1c				
Are required worker's compensation forms available for site personnel use?	18.3.2 Attachments B-G				
Are all safety incidents/accidents and near misses investigated and corrective actions taken to preclude recurrence of similar incidents?	18.3.3				
Are employees encouraged to orally report unsafe/unhealthful working conditions or use Form CD-351, if necessary?	18.3.5				
Are Forms SF-91, SF-94, used to report motor vehicle related incidents? Are they readily available in vehicle glove compartments?	18.3.4				
Is a copy of annual site specific summary of occupational injuries and illnesses (Log 300A) posted from February 1 to April 30?	18.3.6c				

## **18 ACCIDENT/ILLNESS REPORTING AND RECORDING**

### **18.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) has established requirements and responsibilities for the investigation and recording of all occupational injuries, illnesses, equipment/property damage, motor vehicle and near-miss accidents and incidents to comply with the requirements of 29 CFR 1904, "Recording and Reporting Occupational Injuries and Illnesses" and 29 CFR 1960 Subpart I, "Record Keeping and Reporting Requirements for Federal Employees." This procedure applies to all NWS facilities, work locations and employees.

### **18.2 Definitions**

Accident/Incident: Defined as an unplanned event, or series of events, which results in one or more of the following:

- Occupational illness to NOAA employees, volunteers, student interns, NOAA Corps personnel, or NOAA affiliates.
- Injury to on-duty NOAA employees, volunteers, student interns, or NOAA affiliates.
- Damage to NOAA property.
- Damage to public or private property, and/or injury or illness to non-NOAA personnel caused by NOAA operations (e.g. NOAA had a causal or contributing role in the accident).

Employee. Any person employed or otherwise permitted, or required to work by the NWS.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), and a Data Collection Office (DCO).

Near Miss. An accident/incident which does not result in personal injury/illness and/or property damage but had the potential to do so and/or a situation in which an inappropriate action occurs or necessary action is omitted, but is detected and corrected before an adverse effect on personnel or equipment results.

Occupational Illness. Any abnormal physical conditions or disorders other than one resulting from an occupational injury caused by exposure to environmental factors which are associated with employment.

Occupational Injury. Any injury such as a cut, fracture, sprain, amputation, etc. which results from a work accident or from a single instantaneous exposure in the work environment.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National

Logistics Support Center (NLSC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA Recordable Injury or Illness. All work-related fatalities, illnesses and those work-related injuries which result in loss of consciousness, restriction of work or motion, transfer to another job or required medical treatment beyond first aid.

NOAA SECO. NOAA Safety and Environmental Compliance Office.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center; Storm Prediction Center; Tropical Prediction Center; and Space Weather Prediction Center); Directors of the NDBC, NWSTC, and Chiefs of NRC, NLSC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **18.3 Procedure**

#### **18.3.1 Safety Incident/Accident Reporting and Classification**

When a safety incident/accident occurs, the first priorities are to ensure that the work area is safe in order to prevent injuries to additional personnel and to provide prompt medical assistance to the injured. The affected employee shall immediately report the incident to his/her supervisor. Employees should seek initial treatment for work related illness or injury at health units where available. All job-related safety incidents/accidents, illnesses, near-misses, and property damage/loss must be reported. Any delay in reporting an accident may slow the compensation process. Reporting of near-miss incidents can prevent future occurrences.

##### **a. Incident Classification**

###### **Class A Incident**

- An incident in which:
  - The resulting total cost of property damage or environmental clean-up is \$1,000,000 or more
  - A NOAA aircraft or NOAA Class I, Class II, or Class III ship is destroyed, missing, or abandoned
- An injury and/or occupational illness that results in:
  - A fatality
  - A permanent total disability

###### **Class B Incident**

- An incident in which:
  - The resulting total cost of property damage is \$200,000 or more, but less than \$1,000,000
  - A NOAA marine vessel of any size that is destroyed, missing, or abandoned that does not result in a Class A incident

- An injury and/or occupational illness that results in:
  - Permanent partial disability
  - Any work-related amputation of a limb
  - Any work-related loss of an eye
  - When one or more personnel are hospitalized as inpatients (for other than the sole purpose of observation) as the result of a single incident
- An environmental incident that results in:
  - The release of a listed environmental pollutant in a quantity greater than or equal to the chemical's Reportable Quantity (RQ)
  - The release of an environmental pollutant outside the boundaries of a NOAA Facility that requires notification and a cleanup response in accordance with applicable regulations

**Class C Incident**

- An incident in which:
  - The total cost of property damage is \$20,000 or more, but less than \$200,000
- A nonfatal injury or occupational illness that causes:
  - One or more days away from work beyond the day or shift on which the accident occurred.
  - A disability at any time (that does not meet the definition of Class A or B and is a lost time case)
- An environmental incident that results in the release of a listed environmental pollutant approaching but not at the Reportable Quantity (RQ)

**Class D Incident**

- An incident in which the resulting total cost of property damage is less than \$20,000.
- A nonfatal injury or illness resulting in:
  - Restricted work activity
  - Work-related loss of consciousness
  - Transfer to another job.
  - Medical treatment greater than first aid
  - Needle-stick injuries and cuts from sharps that are contaminated from another person's blood or other potentially infectious material
  - Medical removal under medical surveillance requirements of an OSHA standard
  - Occupational hearing loss
  - Work-related tuberculosis case

- An environmental incident that results in the unintentional release of materials into the secondary containment

**Other Incidents**

- A near miss event that could have resulted in an injury to personnel, property damage or loss.
- Incidents that result in first aid treatment only

b. Reporting of Incidents

**Class C and Class D incidents must be reported within 24 hours** of occurrence, except for **incidents of a serious nature (Class A and Class B) for which report must be made within 8 hours** (see Attachment A, Safety Incident Rating Details Description).

NOAA Web-based Accident/Illness Reporting System must be used to report all safety incidents/accidents and near misses involving NOAA employees, contractors, and NOAA property. The web site can be accessed via: [NOAA Accident/Illness Reporting System](#).

The following must be **reported to OSHA**: <https://www.osha.gov/report.htm>.

- All work-related fatalities (for any fatality that occurs **within 30 days** of a work-related incident, report **within 8 hours of finding out about it**).
- All work-related inpatient hospitalizations of one or more employees
- All work-related amputations
- All work-related losses of an eye

**NOTE:** For any inpatient hospitalization, amputation, or eye loss that occurs within 24 hours of a work-related incident, employers must report the event **within 24 hours** of learning about it.

For more details consult OSHA Fact Sheet [Updates to OSHA's Recordkeeping Rule: Reporting Fatalities and Severe Injuries](#).

**Only NWS supervisory personnel will enter incident information into the NOAA web-based Accident/Illness Reporting System.** If there is not enough information at the time of report completion, a Follow-Up Information Report (available on the web site) should be filled out as soon as information becomes available.

Incidents include accidents with and without injury (near-miss incidents); fatalities, all driving accidents while on government business; all property losses including those from fire, ship damage, or environmental spills; and any other incident that results in property damage. Incidents also include any work related illnesses which may involve exposure to chemical, physical (noise, radiation) and biological (bacterial, viral) agents. Prior returning to work from an occupational injury, accident, or illness, employees will advise supervisors of their return to work status and of any restrictions or conditions for work.

18.3.2 Workers' Compensation

Many NWS incidents involve treatment by a private physician or an emergency room. NOAA

uses the Federal Employees Compensation Act (called “Workers' Compensation” for short) to pay for these services.

All Department of Commerce (DOC) workers’ compensation claims processing and liaison services have been provided by a commercial vendor.

To ensure timely claims submission, supervisors shall send all initial claims (CA-1's and CA-2's), CA-16 (see Note below), and claims for disability compensation (CA-7's) to the Worker’s Compensation contractor. The address and contact information can be found at: <https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html>.

**NOTE:** Workers’ Compensation forms should be filed electronically using the ECOMP (<https://www.ecomp.dol.gov/#>), in order to ensure timely submission and to facilitate processing of initial claims (CA-1's and CA-2's) and claims for disability compensation (CA-7's).

More information about the DOC Workers’ Compensation Program, the Department of Labor Office of Workers’ Compensation Program can be found on the following web site: [http://hr.commerce.gov/Employees/WorkLifeIssues/DEV01\\_006457](http://hr.commerce.gov/Employees/WorkLifeIssues/DEV01_006457) and OPS1 web site: <https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html> and [https://www.ops1.nws.noaa.gov/Secure/SAFETY/EHB-15/Procedures\\_final/accident\\_reporting.htm](https://www.ops1.nws.noaa.gov/Secure/SAFETY/EHB-15/Procedures_final/accident_reporting.htm). Attachment H to this manual contains a summary of Accident/illness Reporting and Recordkeeping Requirements.

**NOTE:** CA-16 should be issued when employee needs to seek prompt medical care related to injury. In most instances, a supervisor should consult with NOAA’s Workers’ Compensation contractor, prior to the issuance of the CA-16. The contractor can help the supervisor determine if a CA-16 is warranted based on the facts related to the injury and provide guidance if additional forms are required.

### 18.3.3 Incident/Accident Investigation

Each accident, including near misses, must be investigated to:

- Prevent a recurrence. Accident investigation often brings out “hidden” safety issues that need to be addressed;
- Determine a cause. Determining the cause is not placing blame. Usually accidents have multiple causes and contributing factors;
- Document events and allow proper management of workers’ compensation claims; and
- Meet legal requirements for reporting to the Occupational Safety and Health Administration (OSHA).

Requirements for investigation of safety incidents are set by the accident class. Specific information on the incident reporting, reporting and analysis can be found in The immediate cause of an accident is often operational practices or conditions. Examples of operational practices are: operating without authority, using equipment improperly, not using personal protective equipment when required, not using correct lifting techniques, alcohol or

drug use, horseplay, and not properly securing equipment. Examples of conditions are: unserviceable tools and equipment, inadequate warning systems or instructions, bad housekeeping practices, poorly lit work spaces, and unhealthy work environment.

#### 18.3.4 Accident/Incident Resulting in Equipment/Property/Motor Vehicle Damage

All accidents/incidents causing equipment, property, or motor vehicle damage shall be reported on the NOAA Web-based Accident/Illness reporting system as soon as possible. This includes GSA owned, leased, or rented vehicles used by NWS employees; personally owned vehicles if on official duty; and vehicles used by contractors during government related travel. Drivers must report all accidents involving these vehicles within 24 hours and 8 hours if the accident is serious.

Any vehicle accident on public roads shall be investigated by police if feasible. Drivers and supervisors should make every attempt to obtain copies of any police reports. Employee injuries must also be reported using the guidelines outlined in 18.3.1 "Safety Incident/Accident Reporting." Contractor injuries must be reported by company employees to the contractor's insurance company.

Form SF-91 "Operator's Report of Motor Vehicle Accident Report" and, if appropriate, Form SF-94 "Statement of Witness" must be completed ([https://www.ops1.nws.noaa.gov/Secure/SAFETY/EHB-15/Procedures\\_final/accident\\_reporting.htm](https://www.ops1.nws.noaa.gov/Secure/SAFETY/EHB-15/Procedures_final/accident_reporting.htm)). Form SF-94 may be used to record witness identity and accident/illness information. Copies of the SF-91 and SF-94, vehicle repair estimates, and police reports (if available) must be faxed to the DOC Office of General Counsel (202-482-5858). This allows damage to civilian vehicles or property to be adjudicated. The following steps should be followed if you are involved in an accident:

- a. Stop immediately.
- b. Take steps to prevent another accident at the scene.
- c. Call a doctor or ambulance if necessary.
- d. Notify the police.
- e. Do not sign any paper or make any statement as to who was at fault (except to your supervisor or to a Federal government investigator).
- f. Get the name and address of each witness. Ask each witness to complete Standard Form 94, Statement of Witness (the form should be located in the glove compartment).
- g. Give the police your name, address, place of employment, and name of your supervisor. Upon request, show your operator's permit and vehicle registration card. (NOTE: Only government-owned or leased vehicles registered in the District of Columbia or displaying state tags have registration cards.)
- h. Complete Standard Form 91, Motor Vehicle Accident Report. Notify the Dispatch Pool Manager as soon as possible by calling the telephone number(s) listed in the vehicle's Log Book.
- i. If you are unable to reach the Dispatch Pool Manager, call the GSA Maintenance Control Center (888-622-6344).



- j. If the vehicle is unsafe to drive and you are unable to contact the Dispatch Pool Manager or the GSA Maintenance Control Center (e.g., due to an accident after normal duty hours) have it towed to the nearest repair shop and contact the Dispatch Pool Manager as soon as possible.

18.3.5 Unsafe /Unhealthful Working Conditions Reporting

- a. Employees are encouraged to orally report unsafe or unhealthful work conditions to their immediate supervisor who shall promptly investigate the situation and take appropriate corrective actions.

**NOTE:** Per NAO 209-1A, NOAA Safety Policy All NOAA employees, volunteers, student interns and NOAA affiliates shall report unsafe or unhealthful working conditions to their immediate supervisor who will promptly investigate the situation and take appropriate actions to resolve the safety condition/issue. NAO 209-10 (NOAA Occupational Safety and Health Management System Manual) also states that employees have the right to decline to perform their assigned task because of a reasonable belief that the task or situation poses an imminent risk of death or serious bodily harm, and that there is insufficient time to reduce the risk through normal hazard reporting and abatement procedures.

Supervisors may contact NWS personnel with authority to correct the unsafe/unhealthful working condition, if required. NWS Regional or Operating Unit Environmental/Safety Coordinator and NWSH safety staff may also be contacted for assistance.

- b. If employee does not wish to notify supervisor for personal reasons or supervisor fails to take a corrective action within a reasonable time frame, the employee may submit a written report of unsafe/unhealthful working conditions (Form CD-351). Regional or Operating Unit chain of command should be followed for CD-351 submittal (See Attachment B). If issue is not resolved at Regional or Operating Unit level, the employee can contact NWSH and NOAA SECO safety personnel for assistance. Online tool is provided by NOAA SECO to report suspected hazards, and unsafe, or unhealthful working conditions: [NOAA Hazard Report](#).
- c. The CD-351 shall provide a detailed description of the unsafe/unhealthful working condition, including but not limited to the following: the date when the condition was first observed; name(s) and/or job title(s) of personnel to whom the request to address the unsafe/unhealthful condition was submitted and when; outcome of requests for resolution; NWS personnel impacted; any interim measures taken to protect employees (e.g., administrative, engineering, PPE), etc.
- d. If unsafe/unhealthful working condition is related to a specific NWS Program (e.g., NWR, Upper Air, NEXRAD, etc.) and does not present potentially serious hazard or imminent danger, it should be coordinated with appropriate Regional Program Managers first.

**NOTE:** The CD-351 can also be prepared by Regional Headquarters personnel for unsafe/unhealthful working conditions impacting all or majority of NWS offices in that Region. The same CD-351 form that is used by individual offices can be used. The Regional CD-351 will be submitted to NWSH for review and evaluation. All remaining Regions will be also involved in review in order to determine if similar working conditions are present at their respective offices.

- e. A person who receives CD-351 shall contact originator of report, if possible, to acknowledge its receipt and discuss the seriousness of the reported unsafe/unhealthful working condition. Supervisor shall be informed about the CD-351 submitted.
- f. Imminent danger situations reported shall be investigated within 24 hours.
- g. Potentially serious situations shall be investigated within 3 days.
- h. If the reported working condition involves a health hazard, the assistance of a certified industrial hygienist shall be requested.
- i. The person who received CD-351 must provide a written interim or complete response to the originator of the report within 15 working days of receipt. Interim reports should include the expected date for a complete response.
- j. The complete response shall indicate the appropriate channels available for formal appeal (see Chapter 10, paragraph 03 of DOC Safety Manual for additional information related to appeals).
- k. Employees involved in a near miss shall report the incident to their supervisor(s) who shall investigate it immediately and report it in NOAA Web-based Accident/Illness Reporting System.
- l. The records related to unsafe or unhealthful working conditions or near-miss incidents shall be maintained for five years.

#### 18.3.6 Recording and Recordkeeping

- a. All safety incidents/accidents are recorded in the NOAA Web-based Accident/Illness reporting system by supervisors and in the Microsoft Access database maintained by NOAA SECO. A cumulative monthly accident report is provided to respective Regional Directors and Operating Unit Directors by NWSH safety staff. This monthly report includes OSHA recordable injuries/illnesses rates as well as lost time rates for each Region/Operating Unit.

**NOTE:** “Privacy Case,” instead of name, must be entered in web-based reporting system for Bloodborne Pathogens exposure incidents. “Exposure Incident Report” (see Chapter 33, Bloodborne Pathogens) will be kept as a confidential file (under lock and key). The web-based report number will be referenced on the paper Exposure Incident Report, so that supplemental information can be added to the reporting system, as necessary.

- b. OSHA Log 300 “Log of Work-Related Injuries” shall be completed by Station Manager or his/her designee for a calendar year. Incidents resulting in recordable

injury must be recorded on the log within 7 days of occurrence and maintained on site for five years. This Log includes names of employees and should be handled as confidential information.

**NOTE:** Employee's name **will not** be entered on the OSHA 300 Injury and Illness Log in the case where an employee develops a bloodborne disease from an occupational exposure (HIV, Hepatitis B, Hepatitis C) or receives a needlestick injury or cut from a sharp object contaminated by human blood or OPIM. Where the name would otherwise appear on the log, the words "privacy case" will be entered. A separate, confidential list of case numbers and employee names is maintained.

- c. Log 300A "Summary of Work-Related Injuries and Illnesses" shall be prepared to record incidents/illnesses for a calendar year by Station Manager or his/her designee. This Log does not include names of employees. It shall be signed by the manager and posted **from February 1 to April 30** of the year following the calendar year covered by the summary in a conspicuous place or places where notices to employees are customarily posted. If there were no incident/accidents at the site, the OSHA Log 300A should still be posted with "None" in the incident description block. This Log must be maintained on site and for at least five years. It is also recommended that Regional and Operating Unit Environmental and Safety Coordinators maintained copies of the Log 300A prepared by field offices.

## 18.4 Responsibilities

### 18.4.1 Regional and Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 18.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that annual Log 300 is maintained and Log 300A is posted in accordance with 18.3.6.
- c. Will assure that all accidents/incidents resulted in injury/illness are reported and investigated by supervisors or other designated/authorized personnel.
- d. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

18.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

18.4.4 Supervisor

- a. Will complete Form CA-1, “Federal Employees Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation” items 17 through 38, and obtain witness information (if appropriate, item 16) for completion of Items 17 through 20 (See Attachment C).
- b. Will complete Form CA-2, “Notice of Occupational Disease and Claim for Compensation” items 19 through 35 (See Attachment D).

**NOTE:** Completed Forms CA-1 and CA-2, will be sent to the address on the website <https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html>

- c. Will complete and sign Part A of Form CA-16 “Authorization for Examination and/or Treatment” (See Attachment G).
- d. Will assure that all accidents/incidents resulted in injury/illness or property damage/loss as well as near miss incidents are reported in NOAA Web-based Accident/Illness Reporting System.

18.4.5 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will assist in the investigation, information-gathering, and recording of all illnesses/ accidents and incidents, as requested by the Station Managers.

18.4.6 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.
- b. Employees will report unsafe or unhealthful conditions and practices to their supervisor or safety or environmental/safety focal point. Employees who choose to submit Form CD-351 will complete items 1 through 8 of the form. Completed form will be submitted to the Regional or Operating Unit Environmental/Safety Coordinator. The Environmental/Safety Coordinator can get assistance from NOAA SECO personnel, if necessary.
- c. Employees will complete items 1 through 15 of Form CA-1 and items 1 through 18 of Form CA-2. For further instructions, consult U.S. DOL, OWCP Publication CA-810, Injury Compensation for Federal Employees: (<https://www.dol.gov/owcp/dfec/regs/compliance/DFECfolio/CA-810.pdf>) and

DOC Worker's Compensation resource page:

[http://hr.commerce.gov/Employees/WorkLifeIssues/DEV01\\_006457](http://hr.commerce.gov/Employees/WorkLifeIssues/DEV01_006457).

- d. Employees will provide information about medical facility or Physician's office to personnel designated/authorized to complete the Form CA-16, before medical treatment can be obtained (if employee is cognizant and not in a life threatening situation).

**NOTE:** - Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.weather.gov/directives/050/pd05011c.pdf>

## 18.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 18.5.1 U.S. Department of Commerce, Department Administrative Orders Series, Chapter 9, Safety.
- 18.5.2 NAO 209-1A, NOAA Occupational Safety and Health Policy
- 18.5.3 CA-810, Injury Compensation for Federal Employees
- 18.5.4 US. Department of Commerce Occupational Safety and Health Manual, July 1997, Chapter 11.
- 18.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
- 18.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1960, Subpart I: Record Keeping and Reporting Requirements for Federal Employees.
- 18.5.7 U.S. Department of Labor Reporting Forms:  
<https://www.dol.gov/owcp/dfec/regs/compliance/forms.htm>  
U.S. Department of Labor, Division of Federal Employees' Compensation Home Page:  
<https://www.dol.gov/owcp/dfec/>  
U.S. Department of Commerce, Office of Human Resource Management:  
[http://hr.commerce.gov/Employees/WorkLifeIssues/DEV01\\_006096](http://hr.commerce.gov/Employees/WorkLifeIssues/DEV01_006096)

## 18.6 Attachments

Attachment A: Safety Incident Rating Details

Attachment B: U.S. Department of Commerce Form CD-351 "Report of Possible Safety/Health Hazard"

Attachment C: U.S. Department of Labor Form CA-1 "Federal Employees Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation"

Attachment D: U.S. Department of Labor Form CA-2 "Notice of Occupational Disease and Claim for Compensation"

Attachment E: U.S. Department of Labor Form SF-91 “Operator’s Report of Motor Vehicle Accident”

Attachment F: U.S. Department of Labor Form SF-94 “Statement of Witness”

Attachment G: U.S. Department of Labor Form CA-16 “Authorization for Examination and/or Treatment”

Attachment H: Summary of Accident/Illness Reporting and Recordkeeping Requirements

**ATTACHMENT A**  
**Safety Incident Rating Details Description**

<b>Incident Rating Details Description Chart</b>				
<b>Class A Incident</b>	<b>Injury to individuals</b>	<ul style="list-style-type: none"> <li>• Incident resulting in a fatality.</li> <li>• Incident resulting in permanent total disability.</li> </ul>		
	<b>Dollar loss</b>	<ul style="list-style-type: none"> <li>• Property damage or loss estimated at greater than \$1,000,000.</li> </ul>		
	<b>Other</b>	<ul style="list-style-type: none"> <li>• Incident when a NOAA aircraft or NOAA ship is destroyed, missing, or abandoned.</li> </ul>		
<b>Class B Incident</b>	<b>Injury to individuals</b>	<ul style="list-style-type: none"> <li>• Any incident when one or more personnel are hospitalized as inpatients (for other than the sole purpose of observation) as the result of a single accident occurrence.</li> <li>• Incident resulting in any work related amputation.</li> <li>▪ Incident resulting in permanent partial disability.</li> <li>• Incident resulting in work related loss of an eye.</li> </ul>		
	<b>Dollar loss</b>	<ul style="list-style-type: none"> <li>• Property damage or loss estimated at greater than \$200,000 but less than \$1,000,000.</li> </ul>		
	<b>Environmental damage</b>	<ul style="list-style-type: none"> <li>• The release of a listed environmental pollutant in a quantity greater than or equal to the chemical’s Reportable Quantity (RQ).</li> <li>• The release of an environmental pollutant outside the boundaries of a NOAA Facility that requires notification and a cleanup response in accordance with applicable regulations.</li> </ul>		
	<b>Other</b>	<ul style="list-style-type: none"> <li>• A NOAA marine vessel of any size that is destroyed, missing, or abandoned that does not result in a Class A Accident</li> </ul>		
<b>Class C Incident</b>	<b>Injury to individuals</b>	<ul style="list-style-type: none"> <li>• A nonfatal injury or illness that causes:                             <ul style="list-style-type: none"> <li>➢ One or more days away from work beyond the day or shift on which it occurred.</li> <li>➢ A disability at any time (that does not meet the definition of Class A or B and is a lost time case).</li> </ul> </li> </ul>		
	<b>Dollar loss</b>	<ul style="list-style-type: none"> <li>• Property damage or loss up to \$20,000 or more, but less than \$200,000.</li> </ul>		
	<b>Environmental damage</b>	<ul style="list-style-type: none"> <li>• An environmental incident that results in the release of a listed environmental pollutant approaching but not at the Reportable Quantity (RQ).</li> </ul>		
<b>Class D Incident</b>	<b>Injury to individuals</b>	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 60%;"> <ul style="list-style-type: none"> <li>• A nonfatal injury or illness resulting in:                                     <ul style="list-style-type: none"> <li>➢ Restricted work activity</li> <li>➢ Work related loss of consciousness</li> <li>➢ Transfer to another job</li> <li>➢ Medical treatment greater than first aid</li> </ul> </li> </ul> </td> <td style="vertical-align: top; width: 40%;"> <ul style="list-style-type: none"> <li>➢ Medical removal under medical surveillance requirements of an OSHA standard</li> <li>➢ Occupational hearing loss</li> <li>➢ Work-related tuberculosis case</li> <li>➢ Needle stick injuries and cuts from sharps that are contaminated from another person’s blood or other potentially infectious material</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>• A nonfatal injury or illness resulting in:                                     <ul style="list-style-type: none"> <li>➢ Restricted work activity</li> <li>➢ Work related loss of consciousness</li> <li>➢ Transfer to another job</li> <li>➢ Medical treatment greater than first aid</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➢ Medical removal under medical surveillance requirements of an OSHA standard</li> <li>➢ Occupational hearing loss</li> <li>➢ Work-related tuberculosis case</li> <li>➢ Needle stick injuries and cuts from sharps that are contaminated from another person’s blood or other potentially infectious material</li> </ul>
	<ul style="list-style-type: none"> <li>• A nonfatal injury or illness resulting in:                                     <ul style="list-style-type: none"> <li>➢ Restricted work activity</li> <li>➢ Work related loss of consciousness</li> <li>➢ Transfer to another job</li> <li>➢ Medical treatment greater than first aid</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➢ Medical removal under medical surveillance requirements of an OSHA standard</li> <li>➢ Occupational hearing loss</li> <li>➢ Work-related tuberculosis case</li> <li>➢ Needle stick injuries and cuts from sharps that are contaminated from another person’s blood or other potentially infectious material</li> </ul>		
	<b>Dollar Loss</b>	<ul style="list-style-type: none"> <li>• An incident resulting in total cost of property damage is less than \$20,000.</li> </ul>		
<b>Environmental Damage</b>	<ul style="list-style-type: none"> <li>• An environmental incident that results in the unintentional release of materials into the secondary containment.</li> </ul>			



**ATTACHMENT B**  
**Form CD-351 “Report of Possible Safety/Health Hazard”**

**INSTRUCTIONS FOR COMPLETING CD-351**  
**(Report of Possible Safety/Health Hazard)**

**EMPLOYEE**

Supervisors have responsibility for ensuring the safety and well-being of their employees. Therefore, while you have the right to go directly to a safety official, you are encouraged to first contact your supervisor whenever you observe a possible safety or health hazard.

If you do not wish to notify your supervisor for personal reasons or if your supervisor fails to take corrective action within a reasonable time-frame, then you should contact your Area Safety Representative, Operating Unit Safety & Health Representative or Regional Safety Manager.

After notifying the safety official, complete the appropriate section of the CD-351 and submit the form to the safety official notified.

**Complete Blocks 1 through 8.**

- **Blocks 2 and 3**—Optional under the Privacy Act. However, not providing this information may hinder any investigation since safety personnel will not be able to contact you for additional information nor inform you of any corrective action being taken. (See **Block 5** below.) Include area code or use “999” if FTS in **Block 3**.
- **Block 5**—By indicating “no” to this question, safety personnel may only reveal your name to other safety personnel involved in the investigation. They may not reveal your name to your supervisor or other management Officials.
- **Block 6**—Include operating unit, line organization, name and address of your duty station.
- **Block 7**—Identify specific location (e.g., stairwell, room number, etc.) building number (if appropriate), and address.

Sign (optional) and date form, retain employee's copy, and submit original and other copies to the safety official.

**INVESTIGATING SAFETY OFFICIAL**

Investigate all reports filed as quickly as possible. (If investigation indicates a life-threatening situation, ASRs should contact appropriate OUSHR or RSM immediately.)

**Complete Blocks 9 through 13.**

- **Block 11**—Describe interim (if applicable) and permanent corrective action(s) that have or will be taken.
- **Block 12**—Indicate date permanent corrective action was taken (actual) or will be taken (estimate).

After completing form, retain investigator's copy, forward original to appropriate OUSHR/RSM and notification copy to employee (if known).

FORM <b>CD-351</b> LF (REV. 5-89) DAO 209-4		U.S. DEPARTMENT OF COMMERCE		Case: _____
<b>REPORT OF POSSIBLE SAFETY/HEALTH HAZARD</b> <b>SAFETY &amp; HEALTH MANAGEMENT INFORMATION</b>				Date Received: _____
				Control: _____
				Org. Code: _____
<b>TO BE COMPLETED BY EMPLOYEE</b>				
1. Reason for Report: <input type="checkbox"/> Safety Hazard <input type="checkbox"/> Health Hazard				
2. Name: _____                      3. Phone: _____ <small>(Last, First, M.I.)</small>				
4. Have you Reported Condition to Supervisor? <input type="checkbox"/> Yes <input type="checkbox"/> No				
5. May we Reveal Your Name During Investigation? <input type="checkbox"/> Yes <input type="checkbox"/> No				
6. Duty Station Address:			7. Location of Hazard:	
8. Description of Hazard:				
Signature: _____                      Date: _____				
<b>TO BE COMPLETED BY INVESTIGATOR</b>				
9. Investigation Findings:				
10. Life Threatening? <input type="checkbox"/> Yes <input type="checkbox"/> No				
11. Corrective Action:				
12. Completion Date : _____ <input type="checkbox"/> Estimated <input type="checkbox"/> Actual				
Investigator's Signature: _____			Date : _____	
Title: _____			Phone: _____	

**ATTACHMENT C**  
**Form CA-1 “Federal Employees Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation”**

**Benefits for Employees under the Federal Employees' Compensation Act (FECA)**

The FECA, which is administered by the Office of Workers' Compensation Programs (OWCP), provides the following benefits for job-related traumatic injuries:

- (1) Continuation of pay for disability resulting from traumatic, job-related injury, not to exceed 45 calendar days. (To be eligible for continuation of pay, the employee, or someone acting on his/her behalf, must file Form CA-1 within 30 days following the injury and provide medical evidence in support of disability within 10 days of submission of the CA-1. Where the employing agency continues the employee's pay, the pay must not be interrupted unless one of the provision's outlined in 20 CFR 10.222 apply.
  - (2) Payment of compensation for wage loss after the expiration of COP, if disability extends beyond such point, or if COP is not payable. If disability continues after COP expires, Form CA-7, with supporting medical evidence, must be filed with OWCP. To avoid interruption of income, the form should be filed on the 40th day of the COP period.
  - (3) Payment of compensation for permanent impairment of certain organs, members, or functions of the body (such as loss or loss of use of an arm or kidney, loss of vision, etc.), or for serious defringement of the head, face, or neck.
  - (4) Vocational rehabilitation and related services where directed by OWCP.
  - (5) All necessary medical care from qualified medical providers. The injured employee may choose the physician who provides initial medical care. Generally, 25 miles from the place of injury, place of employment, or employee's home is a reasonable distance to travel for medical care.
- An employee may use sick or annual leave rather than LWOP while disabled. The employee may repurchase leave used for approved periods. Form CA-7b, available from the personnel office, should be studied BEFORE a decision is made to use leave.
- For additional information, review the regulations governing the administration of the FECA (Code of Federal Regulations, Chapter 20, Part 10) or pamphlet CA-810.

**Privacy Act**

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. 552a), you are hereby notified that: (1) The Federal Employees' Compensation Act, as amended and extended (5 U.S.C. 8101, et seq.) (FECA) is administered by the Office of Workers' Compensation Programs of the U.S. Department of Labor, which receives and maintains personal information on claimants and their immediate families. (2) Information which the Office has will be used to determine eligibility for and the amount of benefits payable under the FECA, and may be verified through computer matches or other appropriate means. (3) Information may be given to the Federal agency which employed the claimant at the time of injury in order to verify statements made, answer questions concerning the status of the claim, verify billing, and to consider issues relating to retention, rehire, or other relevant matters. (4) Information may also be given to other Federal agencies, other government entities, and to private-sector agencies and/or employers as part of rehabilitative and other return-to-work programs and services. (5) Information may be disclosed to physicians and other health care providers for use in providing treatment or medical/vocational rehabilitation, making evaluations for the Office, and for other purposes related to the medical management of the claim. (6) Information may be given to Federal, state and local agencies for law enforcement purposes, to obtain information relevant to a decision under the FECA, to determine whether benefits are being paid properly, including whether prohibited dual payments are being made, and, where appropriate, to pursue salary/administrative offset and debt collection actions required or permitted by the FECA and/or the Debt Collection Act. (7) Disclosure of the claimant's social security number (SSN) or tax identifying number (TIN) on this form is mandatory. The SSN and/or TIN, and other information maintained by the Office, may be used for identification, to support debt collection efforts carried on by the Federal government, and for other purposes required or authorized by law. (8) Failure to disclose all requested information may delay the processing of the claim or the payment of benefits, or may result in an unfavorable decision or reduced level of benefits.

**Note:** This notice applies to all forms requesting information that you might receive from the Office in connection with the processing and adjudication of the claim you filed under the FECA.

**Receipt of Notice of Injury**

This acknowledges receipt of Notice of Injury sustained by  
(Name of injured employee)

Which occurred on (Mo., Day, Yr.)

At (Location)

Signature of Official Superior

Title

Date (Mo., Day, Yr.)

Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation

U.S. Department of Labor  
Employment Standards Administration  
Office of Workers' Compensation Programs

Employee: Please complete all boxes 1 - 15 below. Do not complete shaded areas.  
Witness: Complete bottom section 16.  
Employing Agency (Supervisor or Compensation Specialist): Complete shaded boxes a, b, and c.

Employee Data			
1. Name of employee (Last, First, Middle)		2. Social Security Number	
3. Date of birth Mo. Day Yr.	4. Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	5. Home telephone	6. Grade as of date of injury Level Step
7. Employee's home mailing address (Include city, state, and ZIP code)		8. Dependents <input type="checkbox"/> Wife, Husband <input type="checkbox"/> Children under 18 years <input type="checkbox"/> Other	

Description of Injury
9. Place where injury occurred (e.g. 2nd floor, Main Post Office Bldg., 12th & Pine)

10. Date injury occurred Mo. Day Yr.	Time <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	11. Date of this notice Mo. Day Yr.	12. Employee's occupation
---	--	--	---------------------------

13. Cause of injury (Describe what happened and why)

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14. Nature of injury (Identify both the injury and the part of body, e.g., fracture of left leg)	a. Occupation code
	b. Type code    c. Source code
	OWCP Use - NOI Code

**Employee Signature**

15. I certify, under penalty of law, that the injury described above was sustained in performance of duty as an employee of the United States Government and that it was not caused by my willful misconduct, intent to injure myself or another person, nor by my intoxication. I hereby claim medical treatment, if needed, and the following, as checked below, while disabled for work:

b. Continuation of regular pay (COP) not to exceed 45 days and compensation for wage loss if disability for work continues beyond 45 days. If my claim is denied, I understand that the continuation of my regular pay shall be charged to sick or annual leave, or be deemed an overpayment within the meaning of 5 USC 5584.

a. Sick and/or Annual Leave

I hereby authorize any physician or hospital (or any other person, institution, corporation, or government agency) to furnish any desired information to the U.S. Department of Labor, Office of Workers' Compensation Programs (or to its official representative). This authorization also permits any official representative of the Office to examine and to copy any records concerning me.

Signature of employee or person acting on his/her behalf \_\_\_\_\_ Date \_\_\_\_\_

Any person who knowingly makes any false statement, misrepresentation, concealment of fact or any other act of fraud to obtain compensation as provided by the FECA or who knowingly accepts compensation to which that person is not entitled is subject to civil or administrative remedies as well as felony criminal prosecution and may, under appropriate criminal provisions, be punished by a fine or imprisonment or both.

Have your supervisor complete the receipt attached to this form and return it to you for your records.

**Witness Statement**

16. Statement of witness (Describe what you saw, heard, or know about this injury)

Name of witness	Signature of witness	Date signed
Address	City	State    ZIP Code

**Official Supervisor's Report: Please complete information requested below:**

**Supervisor's Report**

17. Agency name and address of reporting office (include city, state, and zip code) OWCP Agency Code

OSHA Site Code

ZIP Code

18. Employee's duty station (Street address and ZIP code)

19. Employee's retirement coverage  CSRS  FERS  Other, (identify)

20. Regular work hours From:  a.m.  p.m. To:  a.m.  p.m. 21. Regular work schedule  Sun.  Mon.  Tues.  Wed.  Thurs.  Fri.  Sat.

22. Date of injury Mo. Day Yr. 23. Date notice received Mo. Day Yr. 24. Date stopped work Mo. Day Yr. Time:  a.m.  p.m.

25. Date pay stopped Mo. Day Yr. 26. Date 45 day period began Mo. Day Yr. 27. Date returned to work Mo. Day Yr. Time:  a.m.  p.m.

28. Was employee injured in performance of duty?  Yes  No (If "No," explain)

29. Was injury caused by employee's willful misconduct, intoxication, or intent to injure self or another?  Yes (If "Yes," explain)  No

30. Was injury caused by third party?  Yes  No (If "No," go to item 32.) 31. Name and address of third party (Include city, state, and ZIP code)

32. Name and address of physician first providing medical care (Include city, state, ZIP code) 33. First date medical care received Mo. Day Yr.

34. Do medical reports show employee is disabled for work?  Yes  No

35. Does your knowledge of the facts about this injury agree with statements of the employee and/or witnesses?  Yes  No (If "No," explain)

36. If the employing agency controverts continuation of pay, state the reason in detail. 37. Pay rate when employee stopped work \$ Per

**Signature of Supervisor and Filing Instructions**

38. A supervisor who knowingly certifies to any false statement, misrepresentation, concealment of fact, etc., in respect of this claim may also be subject to appropriate felony criminal prosecution.

I certify that the information given above and that furnished by the employee on the reverse of this form is true to the best of my knowledge with the following exception:

Name of supervisor (Type or print)

Signature of supervisor Date

Supervisor's Title Office phone

39. Filing instructions  No lost time and no medical expense: Place this form in employee's medical folder (SF-66-D)  No lost time, medical expense incurred or expected: forward this form to OWCP  Lost time covered by leave, LWOP, or COP: forward this form to OWCP  First Aid Injury

**Instructions for Completing Form CA-1**

Complete all items on your section of the form. If additional space is required to explain or clarify any point, attach a supplemental statement to the form. Some of the items on the form which may require further clarification are explained below.

**Employee (Or person acting on the employees' behalf)**

**13) Cause of injury**

Describe in detail how and why the injury occurred. Give appropriate details (e.g.: if you fell, how far did you fall and in what position did you land?)

**14) Nature of Injury**

Give a complete description of the condition(s) resulting from your injury. Specify the right or left side if applicable (e.g., fractured left leg; cut on right index finger).

**15) Election of COP/Leave**

If you are disabled for work as a result of this injury and filed CA-1 within thirty days of the injury, you may be entitled to receive continuation of pay (COP) from your employing agency. COP is paid for up to 45 calendar days of disability, and is not charged against sick or annual leave. If you elect sick or annual leave you may not claim compensation to repurchase leave used during the 45 days of COP entitlement.

**Supervisor**

At the time the form is received, complete the receipt of notice of injury and give it to the employee. In addition to completing items 17 through 39, the supervisor is responsible for obtaining the witness statement in Item 16 and for filling in the proper codes in shaded boxes a, b, and c on the front of the form. If medical expense or lost time is incurred or expected, the completed form should be sent to OWCP within 10 working days after it is received.

The supervisor should also submit any other information or evidence pertinent to the merits of this claim.

If the employing agency controverts COP, the employee should be notified and the reason for controversion explained to him or her.

**17) Agency name and address of reporting office**

The name and address of the office to which correspondence from OWCP should be sent (if applicable, the address of the personnel or compensation office).

**18) Duty station street address and zip code**

The address and zip code of the establishment where the employee actually works.

**19) Employers Retirement Coverage.**

Indicate which retirement system the employee is covered under.

**30) Was injury caused by third party?**

A third party is an individual or organization (other than the injured employee or the Federal government) who is liable for the injury. For instance, the driver of a vehicle causing an accident in which an employee is injured, the owner of a building where unsafe conditions cause an employee to fall, and a manufacturer whose defective product causes an employee's injury, could all be considered third parties to the injury.

**32) Name and address of physician first providing medical care**

The name and address of the physician who first provided medical care for this injury. If initial care was given by a nurse or other health professional (not a physician) in the employing agency's health unit or clinic, indicate this on a separate sheet of paper.

**33) First date medical care received**

The date of the first visit to the physician listed in item 31.

**36) If the employing agency controverts continuation of pay, state the reason in detail.**

COP may be controverted (disputed) for any reason; however, the employing agency may refuse to pay COP only if the controversion is based upon one of the nine reasons given below:

- a) The disability was not caused by a traumatic injury.
- b) The employee is a volunteer working without pay or for nominal pay, or a member of the office staff of a former President;
- c) The employee is not a citizen or a resident of the United States or Canada;
- d) The injury occurred off the employing agency's premises and the employee was not involved in official "off premise" duties;
- e) The injury was proximately caused by the employee's willful misconduct, intent to bring about injury or death to self or another person, or intoxication;
- f) The injury was not reported on Form CA-1 within 30 days following the injury;
- g) Work stoppage first occurred 45 days or more following the injury;
- h) The employee initially reported the injury after his or her employment was terminated; or
- i) The employee is enrolled in the Civil Air Patrol, Peace Corps, Youth Conservation Corps, Work Study Programs, or other similar groups.

**Employing Agency - Required Codes**

**Box a (Occupation Code), Box b (Type Code), Box c (Source Code), OSHA Site Code**

The Occupational Safety and Health Administration (OSHA) requires all employing agencies to complete these items when reporting an injury. The proper codes may be found in OSHA Booklet 2014, "Recordkeeping and Reporting Guidelines."

**OWCP Agency Code**

This is a four-digit (or four digit plus two letter) code used by OWCP to identify the employing agency. The proper code may be obtained from your personnel or compensation office, or by contacting OWCP.

**ATTACHMENT D**  
**Form CA-2 "Notice of Occupational Disease and Claim for Compensation"**

The FECA, which is administered by the Office of Workers' Compensation Programs (OWCP), provides the following general benefits for employment-related occupational disease or illness:

- (1) Full medical care from either Federal medical officers and hospitals, or private hospitals or physicians of the employee's choice.
- (2) Payment of compensation for total or partial wage loss.
- (3) Payment of compensation for permanent impairment of certain organs, members, or functions of the body (such as loss or loss of use of an arm or kidney, loss of vision, etc.), or for serious disfigurement of the head, face, or neck.
- (4) Vocational rehabilitation and related services where necessary.

The first three days in a non-pay status are waiting days, and no compensation is paid for these days unless the period of disability exceeds 14 calendar days, or the employee has suffered a permanent disability. Compensation for total disability is generally paid at the rate of 2/3 of an employee's salary if there are no dependents, or 3/4 of salary if there are one or more dependents.

An employee may use sick or annual leave rather than LWOP while disabled. The employee may repurchase leave used for approved periods. Form CA-7b, available from the personnel office, should be studied BEFORE a decision is made to use leave.

If an employee is in doubt about compensation benefits, the OWCP District Office servicing the employing agency should be contacted. (Obtain the address from your employing agency.)

For additional information, review the regulations governing the administration of the FECA (Code of Federal Regulations, Title 20, Chapter 1) or Chapter 810 of the Office of Personnel Management's Federal Personnel Manual.

**Privacy Act**

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. 552a), you are hereby notified that: (1) The Federal Employees' Compensation Act, as amended (5 U.S.C. 8101, et seq.) (FECA) is administered by the Office of Workers' Compensation Programs of the U.S. Department of Labor, which receives and maintains personal information on claimants and their immediate families. (2) Information which the Office has will be used to determine eligibility for and the amount of benefits payable under the FECA, and may be verified through computer matches or other appropriate means. (3) The information may be given to the Federal agency which employed the claimant at the time of injury in order to verify statements made, answer questions concerning the status of the claim, verify billing, and to consider issues relating to retention, rehire, or other relevant matters. (4) The information may also be given to Federal agencies, other government entities, and to private-sector agencies and/or employers as part of rehabilitative and other return-to-work programs and services. (5) Information may be disclosed to physicians and other health care providers for use in providing treatment or medical/vocational rehabilitation, making evaluations for the Office, and for other purposes related to the medical management of the claim. (6) Information may be given to Federal, state and local agencies for law enforcement purposes, to obtain information relevant to a decision under the FECA, to determine whether benefits are being paid properly, including whether prohibited dual payments are being made, and, where appropriate, to pursue salary/administrative offset and debt collection actions required or permitted by the FECA and/or the Debt Collection. (7) Disclosure of the claimant's social security number (SSN) or tax identifying number (TIN) on this form is mandatory. The SSN and/or TIN, and other information maintained by the Office, may be used for identification, to support debt collection efforts carried on by the Federal government, and for other purposes required or authorized by law. (8) Failure to disclose all requested information may delay the processing of the claim or the payment of benefits, or may result in an unfavorable decision or reduced level of benefits.

**Receipt of Notice of Occupational Disease or Illness**

This acknowledges receipt of notice of disease or illness sustained by:  
(Name of injured employee)

I was first notified about this condition on (Mo., Day, Yr.)

At (Location)

Signature of Official Superior

Title

Date (Mo., Day, Yr.)

This receipt should be retained by the employee as a record that notice was filed.



Notice of Occupational Disease and Claim for Compensation

U.S. Department of Labor Employment Standards Administration Office of Workers' Compensation Programs



Employee: Please complete all boxes 1 - 18 below. Do not complete shaded areas. Employing Agency (Supervisor or Compensation Specialist): Complete shaded boxes a. b. and c.

Employee Data section containing items 1-7: Name of employee, Social Security Number, Date of birth, Sex, Home telephone, Grade as of date of last exposure, Employee's home mailing address, and Dependents.

Claim Information section containing items 9-13: Employee's occupation, Occupation code, Location (address) where you worked when disease or illness occurred, Date you first became aware of disease or illness, Date you first realized the disease or illness was caused or aggravated by your employment, and Explain the relationship to your employment.

Item 14: Nature of disease or illness. Includes OWCIP Use - NOI Code, Type code, and Source code.

Item 15: If this notice and claim was not filed with the employing agency within 30 days after date shown above in item #12, explain the reason for the delay.

Item 16: If the statement requested in item 1 of the attached instructions is not submitted with this form, explain reason for delay.

Item 17: If the medical reports requested in item 2 of attached instructions are not submitted with this form, explain reason for delay.

Employee Signature section containing item 18: I certify, under penalty of law, that the disease or illness described above was the result of my employment with the United States Government...

Signature of employee or person acting on his/her behalf. Date. Have your supervisor complete the receipt attached to this form and return it to you for your records.

Any person who knowingly makes any false statement, misrepresentation, concealment of fact or any other act of fraud to obtain compensation as provided by the FECA or who knowingly accepts compensation to which that person is not entitled is subject to civil or administrative remedies as well as felony criminal prosecution and may, under appropriate criminal provisions, be punished by a fine or imprisonment or both.

Official Supervisor's Report of Occupational Disease: Please complete information requested below

Supervisor's Report

19. Agency name and address of reporting office (include city, state, and ZIP Code) OWCP Agency Code

OSHA Site Code

ZIP Code

20. Employee's duty station (Street address and ZIP Code) ZIP Code

21. Regular work hours From:  a.m. To:  a.m.  p.m.  p.m.

22. Regular work schedule  Sun.  Mon.  Tues.  Wed.  Thurs.  Fri.  Sat.

23. Name and address of physician first providing medical care (include city, state, ZIP code)

24. First date medical care received

25. Do medical reports show employee is disabled for work?  Yes  No

26. Date employee first reported condition to supervisor Mo. Day Yr.  a.m.  p.m.

27. Date and hour employee stopped work Mo. Day Yr. Time:  a.m.  p.m.

28. Date and hour employee's pay stopped Mo. Day Yr. Time  a.m.  p.m.

29. Date employee was last exposed to conditions alleged to have caused disease or illness Mo. Day Yr.

30. Date returned to work Mo. Day Yr. Time  a.m.  p.m.

31. If employee has returned to work and work assignment has changed, describe new duties

32. Employee's Retirement Coverage  CSRS  FERS  Other, (Specify)

33. Was injury caused by third party?  Yes  No  
If "No," go to Item 34.

34. Name and address of third party (include city, state, and ZIP code)

Signature of Supervisor

35. A supervisor who knowingly certifies to any false statement, misrepresentation, concealment of fact, etc., in respect to this Claim may also be subject to appropriate felony criminal prosecution.

I certify that the information given above and that furnished by the employee on the reverse of this form is true to the best of my knowledge with the following exception:

Name of Supervisor (Type or print)

Signature of Supervisor Date

Supervisor's Title Office phone

**INSTRUCTIONS FOR COMPLETING FORM CA-2**

Complete all items on your section of the form. If additional space is required to explain or clarify any point, attach a supplemental statement to the form. In addition to the information requested on the form, both the employee and the supervisor are required to submit additional evidence as described below. If this evidence is not submitted along with the form, the responsible party should explain the reason for the delay and state when the additional evidence will be submitted.

**Employee (or person acting on the employee's behalf)**

Complete items 1 through 18 and submit the form to the employee's supervisor along with the statement and medical reports described below. Be sure to obtain the Receipt of Notice of Disease or Illness completed by the supervisor at the time the form is submitted.

**1) Employee's statement**

In a separate narrative statement attached to the form, the employee must submit the following information:

- a) A detailed history of the disease or illness from the date it started.
- b) Complete details of the conditions of employment which are believed to be responsible for the disease or illness.
- c) A description of specific exposures to substances or stressful conditions causing the disease or illness, including locations where exposure or stress occurred, as well as the number of hours per day and days per week of such exposure or stress.
- d) Identification of the part of the body affected. (If disability is due to a heart condition, give complete details of all activities for one week prior to the attack with particular attention to the final 24 hours of such period.)
- e) A statement as to whether the employee ever suffered a similar condition. If so, provide full details of onset, history, and medical care received, along with names and addresses of physicians rendering treatment.

**2) Medical report**

- a) Dates of examination or treatment.
- b) History given to the physician by the employee.
- c) Detailed description of the physician's findings.
- d) Results of x-rays, laboratory tests, etc.
- e) Diagnosis.
- f) Clinical course of treatment.
- g) Physician's opinion as to whether the disease or illness was caused or aggravated by the employment, along with an explanation of the basis for this opinion. (Medical reports that do not explain the basis for the physician's opinion are given very little weight in adjudicating the claim.)

**3) Wage loss**

If you have lost wages or used leave for this illness, Form CA-7 should also be submitted.

**Supervisor (Or appropriate official in the employing agency)**

At the time the form is received, complete the Receipt of Notice of Disease or Illness and give it to the employee. In addition to completing items 19 through 34, the supervisor is responsible for filling in the proper codes in shaded boxes a, b, and c on the front of the form. If medical expense or lost time is incurred or expected, the completed form must be sent to OWCP within ten working days after it is received. In a separate narrative statement attached to the form, the supervisor must:

- a) Describe in detail the work performed by the employee. Identify fumes, chemicals, or other irritants or situations that the employee was exposed to which allegedly caused the condition. State the nature, extent, and duration of the exposure, including hours per days and days per week, requested above.
- b) Attach copies of all medical reports (including x-ray reports and laboratory data) on file for the employee.
- c) Attach a record of the employee's absence from work caused by any similar disease or illness. Have the employee state the reason for each absence.
- d) Attach statements from each co-worker who has first-hand knowledge about the employee's condition and its cause. (The co-workers should state how such knowledge was obtained.)
- e) Review and comment on the accuracy of the employee's statement requested above.

The supervisor should also submit any other information or evidence pertinent to the merits of this claim.

**Item Explanations: Some of the items on the form which may require further clarification are explained below.**

- 14. Nature of the disease or illness**  
Give a complete description of the disease or illness. Specify the left or right side if applicable (e.g., rash on left leg; carpal tunnel syndrome, right wrist).
- 19. Agency name and address of reporting office**  
The name and address of the office to which correspondence from OWCP should be sent (if applicable, the address of the personnel or compensation office).
- 20. Employee's duty station, street address and ZIP code**  
The street address and zip code of the establishment where the employee actually works.
- 23. Name and address of physician first providing medical care**  
The name and address of the physician who first provided medical care for this injury. If initial care was given by a nurse or other health professional (not a physician) in the employing agency's health unit or clinic, indicate this on a separate sheet of paper.
- 24. First date medical care received**  
The date of the first visit to the physician listed in item 23.
- 32. Employee's Retirement Coverage.**  
Indicate which retirement system the employee is covered under.
- 33. Was the injury caused by third party?**  
A third party is an individual or organization (other than the injured employee or the Federal government) who is liable for the disease. For instance, manufacturer of a chemical to which an employee was exposed might be considered a third party if improper instructions were given by the manufacturer for use of the chemical.

**Employing Agency - Required Codes**

**Box a (Occupational Code), Box b, (Type Code), Box c (Source Code), OSHA Site Code**  
The Occupational Safety and Health Administration (OSHA) requires all employing agencies to complete these items when reporting an injury. The proper codes may be found in OSHA Booklet 2014, Record Keeping and Reporting Guidelines.

**OWCP Agency Code**  
This is a four digit (or four digit two letter) code used by OWCP to identify the employing agency. The proper code may be obtained from your personnel or compensation office, or by contacting OWCP.

**ATTACHMENT E**  
**Form SF-91 “Operator’s Report of Motor Vehicle Accident”**

<b>MOTOR VEHICLE ACCIDENT REPORT</b>	Please read the Privacy Act Statement on Page 3.	INSTRUCTIONS: Sections I thru IX are filled out by the vehicle operator. Section X, Items 72 thru 82c are filled out by the operator's supervisor. Sections XI thru XII are filled out by an accident investigator for bodily injury, fatality, and/or damage exceeding \$500.			
<b>SECTION I - FEDERAL VEHICLE DATA</b>					
1. DRIVER'S NAME (Last, first, middle)		2. DRIVER'S LICENSE NO./STATE/LIMITATIONS		3. DATE OF ACCIDENT	
4a. DEPARTMENT/FEDERAL AGENCY PERMANENT OFFICE ADDRESS			4b. WORK TELEPHONE NUMBER		
5. TAG OR IDENTIFICATION NUMBER	6. EST. REPAIR COST \$	7. YEAR OF VEHICLE	8. MAKE	9. MODEL	
11. DESCRIBE VEHICLE DAMAGE				10. SEAT BELTS USED <input type="checkbox"/> YES <input type="checkbox"/> NO	
<b>SECTION II - OTHER VEHICLE DATA (Use Section VII if additional space is needed.)</b>					
12. DRIVER'S NAME (Last, first, middle)		13. DRIVER'S LICENSE NUMBER/STATE/LIMITATIONS			
14a. DRIVER'S WORK ADDRESS			14b. WORK TELEPHONE NUMBER		
15a. DRIVER'S HOME ADDRESS			15b. HOME TELEPHONE NUMBER		
16. DESCRIBE VEHICLE DAMAGE			17. ESTIMATED REPAIR COST \$		
18. YEAR OF VEHICLE	19. MAKE OF VEHICLE	20. MODEL OF VEHICLE		21. TAG NUMBER AND STATE	
22a. DRIVER'S INSURANCE COMPANY NAME AND ADDRESS			22b. POLICY NUMBER		
			22c. TELEPHONE NUMBER		
23. VEHICLE IS <input type="checkbox"/> CO-OWNED <input type="checkbox"/> RENTAL <input type="checkbox"/> LEASED <input type="checkbox"/> PRIVATELY OWNED		24a. OWNER'S NAME(S) (Last, first, middle)		24b. TELEPHONE NUMBER	
25. OWNER'S ADDRESS(ES)					
<b>SECTION III - KILLED OR INJURED (Use Section VIII if additional space is needed.)</b>					
26. NAME (Last, first, middle)		27. SEX	28. DATE OF BIRTH		
29. ADDRESS					
<b>A</b>	30. MARK "X" IN TWO APPROPRIATE BOXES <input type="checkbox"/> KILLED <input type="checkbox"/> DRIVER <input type="checkbox"/> PASSENGER <input type="checkbox"/> INJURED <input type="checkbox"/> HELPER <input type="checkbox"/> PEDESTRIAN		31. IN WHICH VEHICLE <input type="checkbox"/> FED <input type="checkbox"/> OTHER (2)	32. LOCATION IN VEHICLE	33. FIRST AID GIVEN BY
	34. TRANSPORTED BY		35. TRANSPORTED TO		
36. NAME (Last, first, middle)		37. SEX	38. DATE OF BIRTH		
39. ADDRESS					
<b>B</b>	40. MARK "X" IN TWO APPROPRIATE BOXES <input type="checkbox"/> KILLED <input type="checkbox"/> DRIVER <input type="checkbox"/> PASSENGER <input type="checkbox"/> INJURED <input type="checkbox"/> HELPER <input type="checkbox"/> PEDESTRIAN		41. IN WHICH VEHICLE <input type="checkbox"/> FED <input type="checkbox"/> OTHER (2)	42. LOCATION IN VEHICLE	43. FIRST AID GIVEN BY
	44. TRANSPORTED BY		45. TRANSPORTED TO		
<b>46. Pedestrian</b>	a. NAME OF STREET OR HIGHWAY		b. DIRECTION OF PEDESTRIAN (SW corner to NE corner, etc.) FROM _____ TO _____		
	c. DESCRIBE WHAT PEDESTRIAN WAS DOING AT TIME OF ACCIDENT (Crossing intersection with signal, against signal, diagonally, in roadway playing, walking, hitchhiking, etc.)				

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**SECTION IV - ACCIDENT TIME AND LOCATION** (Use Section VIII if additional space is needed.)

47. DATE OF ACCIDENT	48. PLACE OF ACCIDENT (Street address, city, state, ZIP Code; Nearest landmark; Distance nearest intersection; Kind of locality (industrial, business, residential, open country, etc.); Road description).
49. TIME OF ACCIDENT AM PM	

50. INDICATE ON THIS DIAGRAM HOW THE ACCIDENT HAPPENED

Use one of these outlines to sketch the scene. Write in street or highway names or numbers.

a. Number Federal vehicle as 1, other vehicle as 2, additional vehicle as 3 and show direction of travel with arrow.

Example: → 1 ◊ 2 ←

b. Use solid line to show path before accident and broken line after the accident

c. Show pedestrian by ○

d. Show railroad by + + + + +

e. Place arrow in this circle to indicate NORTH

51. POINT OF IMPACT (Check one for each vehicle)

FED	2	AREA
		a. FRONT
		b. R. FRONT
		c. L. FRONT
		d. REAR
		e. R. REAR
		f. L. REAR
		g. R. SIDE
		h. L. SIDE

52. DESCRIBE WHAT HAPPENED (Refer to vehicles as "Fed", "2", "3", etc. Please include information on posted speed limit, approximate speed of the vehicles, road conditions, weather conditions, driver visibility, condition of accident vehicles, traffic controls (warning light, stop signal, etc.) condition of light (daylight, dusk, night, dawn, artificial light, etc.) and driver actions (making U-turn, passing, stopped in traffic, etc.).

**SECTION V - WITNESS/PASSENGER** (Witness must fill out SF 94, Statement of Witness) (Continue in Section VIII.)

A	53. NAME (Last, first, middle)	54. WORK TELEPHONE NUMBER	55. HOME TELEPHONE NUMBER
	56. BUSINESS ADDRESS	57. HOME ADDRESS	
B	58. NAME (Last, first, middle)	59. WORK TELEPHONE NUMBER	60. HOME TELEPHONE NUMBER
	61. BUSINESS ADDRESS	62. HOME ADDRESS	

**SECTION VI - PROPERTY DAMAGE** (Use Section VIII if additional space is needed.)

63a. NAME OF OWNER	63b. OFFICE TELEPHONE NUMBER	63c. HOME TELEPHONE NUMBER
63d. BUSINESS ADDRESS	63e. HOME ADDRESS	
64a. NAME OF INSURANCE COMPANY	64b. TELEPHONE NUMBER	64c. POLICY NUMBER
65. ITEM DAMAGED	66. LOCATION OF DAMAGED ITEM	67. ESTIMATED COST \$

**SECTION VII - POLICE INFORMATION**

68a. NAME OF POLICE OFFICER	68b. BADGE NUMBER	68c. TELEPHONE NUMBER
69. PRECINCT OR HEADQUARTERS	70a. PERSON CHARGED WITH ACCIDENT	70b. VIOLATION(S)



**SECTION VIII - EXTRA DETAILS**

SPACE FOR DETAILED ANSWERS. INDICATE SECTION AND ITEM NUMBER FOR EACH ANSWER. IF MORE SPACE IS NEEDED, CONTINUE ITEMS ON PLAIN BOND PAPER.

**SECTION IX - FEDERAL DRIVER CERTIFICATION**

In compliance with the Privacy Act of 1974, solicitation of the information requested on this form is authorized by Title 40 U.S.C. Section 491. Disclosure of the information by a Federal employee is mandatory as the first step in the Government's investigation of a motor vehicle accident. The principal purposes for using this information is to provide necessary data for legal counsel in legal actions resulting from the accident and to provide accident information/statistics in analyzing accident causes and developing methods of reducing accidents. Routine use of information may be by Federal, State or local governments, or agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions. An employee of a Federal agency who fails to report accurately a motor vehicle accident involving a Federal vehicle or who refuses to cooperate in the investigation of an accident may be subject to administrative sanctions.

I certify that the information on this form (Sections I thru VIII) is correct to the best of my knowledge and belief.

71a. NAME AND TITLE OF DRIVER	71b. DRIVER'S SIGNATURE AND DATE
-------------------------------	----------------------------------

**SECTION X - DETAILS OF TRIP DURING WHICH ACCIDENT OCCURRED**

72. ORIGIN	73. DESTINATION
------------	-----------------

74. EXACT PURPOSE OF TRIP

75. TRIP BEGAN	DATE	TIME (Circle one) a.m. p.m.	76. ACCIDENT OCCURRED	DATE	TIME (Circle one) a.m. p.m.
----------------	------	-----------------------------------	-----------------------	------	-----------------------------------

77. AUTHORITY FOR THE TRIP WAS GIVEN TO THE OPERATOR <input type="checkbox"/> ORALLY <input type="checkbox"/> IN WRITING (Explain)	78. WAS THERE ANY DEVIATION FROM DIRECT ROUTE <input type="checkbox"/> NO <input type="checkbox"/> YES (Explain)
---	---

79. WAS THE TRIP MADE WITHIN ESTABLISHED WORKING HOURS <input type="checkbox"/> YES <input type="checkbox"/> NO (Explain)	80. DID THE OPERATOR, WHILE ENROUTE, ENGAGE IN ANY ACTIVITY OTHER THAN THAT FOR WHICH THE TRIP WAS AUTHORIZED. <input type="checkbox"/> NO <input type="checkbox"/> YES (Explain)
--	--

81. COMPLETED BY DRIVER'S SUPERVISOR	a. DID THIS ACCIDENT OCCUR WITHIN THE EMPLOYEE'S SCOPE OF DUTY <input type="checkbox"/> YES <input type="checkbox"/> NO	b. COMMENTS
--------------------------------------	---	-------------

82a. NAME AND TITLE OF SUPERVISOR	82b. SUPERVISOR'S SIGNATURE AND DATE	82c. TELEPHONE NUMBER
-----------------------------------	--------------------------------------	-----------------------

**SECTION XI - ACCIDENT INVESTIGATION DATA**

83. DID THE INVESTIGATION DISCLOSE CONFLICTING INFORMATION.  YES  NO (If "Yes", explain below.)

**84. PERSONS INTERVIEWED**

NAME		DATE	NAME		DATE
a.			c.		
b.			d.		

85. ADDITIONAL COMMENTS (Indicate section and item number for each comment.)

**SECTION XII - ATTACHMENTS**

LIST ALL ATTACHMENTS TO THIS REPORT

**SECTION XIII - COMMENTS/APPROVAL**

86. REVIEWING OFFICIAL'S COMMENTS

**87. ACCIDENT INVESTIGATOR**

**88. ACCIDENT REVIEWING OFFICIAL**

a. SIGNATURE AND DATE	a. SIGNATURE AND DATE
b. NAME (First, middle, last)	b. NAME (First, middle, last)
c. TITLE	c. TITLE
d. OFFICE	d. OFFICE
e. OFFICE TELEPHONE NUMBER	e. OFFICE TELEPHONE NUMBER



**ATTACHMENT F**  
**Form SF-94 "Statement of Witness"**

<b>STATEMENT OF WITNESS</b> <i>(Attach additional sheets if necessary)</i>	<b>1. DID YOU SEE THE ACCIDENT?</b>	<b>2. WHEN DID THE ACCIDENT HAPPEN?</b>	
		A. TIME <u>    </u> a.m. <u>    </u> p.m.	B. DATE

3. WHERE DID THE ACCIDENT HAPPEN? *(Give street location and city)*

---

4. TELL IN YOUR OWN WAY HOW THE ACCIDENT HAPPENED

---

5. WHERE WERE YOU WHEN THE ACCIDENT OCCURRED?

---

6. WAS ANYONE INJURED, AND IF SO, EXTENT OF INJURY IF KNOWN?

---

7. DESCRIBE THE APPARENT DAMAGE TO PRIVATE PROPERTY

---

<b>8. DESCRIBE THE APPARENT DAMAGE TO GOVERNMENT PROPERTY</b>	<b>9. IF TRAFFIC CASE GIVE APPROXIMATE SPEED OF:</b>
	a. GOVERNMENT VEHICLE      MPH
	b. OTHER VEHICLE              MPH

10. GIVE THE NAMES AND ADDRESSES OF ANY OTHER WITNESSES TO THE ACCIDENT *(if known)*

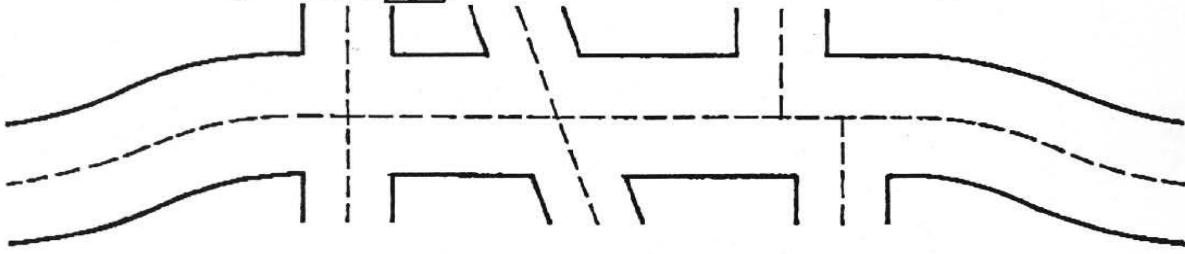
<b>A. NAMES</b>	<b>B. ADDRESSES</b>

<b>WITNESS COMPLETING THIS FORM</b>	<b>11. HOME ADDRESS (INCLUDE ZIP CODE)</b>	<b>12. WITNESS (PRINT OR TYPE NAME)</b>	<b>A. HOME TELEPHONE NO.</b>
		SIGN HERE	<b>B. TODAY'S DATE</b>

<b>13. BUSINESS ADDRESS (INCLUDE ZIP CODE)</b>	<b>TELEPHONE NO.</b>

14. INDICATE ON THE DIAGRAM BELOW WHAT HAPPENED:

- 1. Number Federal vehicle as 1—other vehicle as 2—additional vehicle as 3, and show direction of travel by arrow  
*(Example: → 1 ← 2 ← 3)*
- 2. Use solid line to show path before accident  
Broken line after accident
- 3. Show pedestrian by
- 4. Show railroad by
- 5. Give names or numbers of streets or highways
- 6. Indicate north by arrow in this circle



**ATTACHMENT G**  
**Form CA-16 “Authorization for Examination and/or Treatment”**

Authorization for Examination  
And/Or Treatment

U.S. Department of Labor  
Employment Standards Administration  
Office of Workers' Compensation Programs



The following request for information is authorized by law (5 USC 8101 et. seq.). Benefits and/or medical services expenses may not be paid or may be subject to suspension under this program unless this report is completed and filed as requested. Information collected will be handled and stored in compliance with the Freedom of Information Act, the Privacy Act of 1974 and OMB Cir. No. A-108.

OMB No.: 1215-0103  
Expires: 09-30-91

PART A - AUTHORIZATION

1. Name and Address of the Medical Facility or Physician Authorized to Provide the Medical Service:

2. Employee's Name (last, first, middle)	3. Date of Injury (mo., day, yr.)	4. Occupation
--	-----------------------------------	---------------

5. Description of Injury or Disease:

6. You are authorized to provide medical care for the employee for a period of up to sixty days from the date shown in item 11, subject to the condition stated in item A, and to the condition indicated either 1 or 2, in item B.

- A. Your signature in item 35 of Part B certifies your agreement that all fees for services shall not exceed the maximum allowable fee established by OWCP and that payment by OWCP will be accepted as payment in full for said services.
- B.  1. Furnish office and/or hospital treatment as medically necessary for the effects of the injury. Any surgery other than emergency must have prior OWCP approval.
- 2. There is doubt whether the Employee's condition is caused by an injury sustained in the performance of duty, or is otherwise related to the employment. You are authorized to examine the employee using indicated non-surgical diagnostic studies, and promptly advise the undersigned whether you believe the condition is due to the alleged injury or to any circumstances of the employment. Pending further advice you may provide necessary conservative treatment if you believe the condition may be to the injury or to the employment.

7. If a Disease or Illness is Involved, OWCP Approval for issuing Authorization was Obtained from: (Type Name and Title of OWCP Official)	8. Signature of Authorizing Official:
	9. Name and Title of Authorizing Official: (Type or print clearly)

10. Local Employing Agency Telephone Number:	11. Date (mo., day, year)
--	---------------------------

12. Send one copy of your report: (Fill in remainder of address)  <b>U.S. DEPARTMENT OF LABOR</b> Employment Standards Administration Office of Workers' Compensation Programs	13. Name and Address of Employee's Place of Employment:
	Department or Agency
	Bureau or Office
Local Address (Including Zip Code)	

Public Burden Statement

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to the Office of Information Management, Department of Labor, Room N1301, 200 Constitution Avenue, N.W., Washington, D.C. 20210; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

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Form CA-16  
Rev. Oct. 1988



**ATTACHMENT H**  
**Summary of Accident/illness Reporting and Recordkeeping Requirements**

Form Type	Applicability	When Completed	Completed By	Where Submitted
<p>CD-351, Report of Possible Safety/Health Hazard (DOC)</p>	<p>The form should be used to report possible safety and health hazards if employee does not wish to notify supervisor for personal reasons or supervisor fails to take corrective action within a reasonable time frame.</p>	<p>The form may be completed any time.</p>	<p>Blocks 1-8 shall be completed by employee.  Blocks 8-13 shall be completed by investigating personnel.</p>	<p>Report should be submitted following Regional or Operating Unit chain of command. If issue is not resolved at Regional or Operating Unit level, the employee can contact NWSH safety personnel and NOAA SECO for assistance.</p>
<p>CA-1, Federal Employees Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation (DOL)</p>	<p>The form shall be completed to initiate a workers' compensation claim and to obtain continuation of pay benefit for disability resulting from traumatic job-related injury.</p>	<p>Form must be filed within 30 days following the injury.  To avoid possible interruption of pay, form should be filed within two working days.</p>	<p>Employee or someone acting on his/her behalf shall complete items 1-15.  Item 16 is completed by a witness, if applicable.  Supervisor or Compensation Specialist completes items 17-38</p>	<p>CA-1 should be forwarded by Supervisor or Compensation Specialist to DOC's workers' compensation contractor for ultimate submission to DOL no later than ten working days after receiving it from the employee.  The mailing address for DOC's workers' compensation contractor is posted on the following web site:  <a href="https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html">https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html</a></p>
<p>CA-2, Notice of Occupational Disease and Claim for Compensation (DOL)</p>	<p>The form shall be completed by employee who intends to claim compensation related to occupational disease That results from continuing conditions of work environment for over a period longer than one workday or shift.</p>	<p>When disease is diagnosed by a medical professional and connected to work-related activities.</p>	<p>Employee must complete items 1-18.  Supervisor completes items 19-35.</p>	<p>CA-2 should be submitted to DOC's workers' compensation contractor for ultimate submission to DO.L The mailing address is posted on the following web site:  <a href="https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html">https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html</a></p>

Form Type	Applicability	When Completed	Completed By	Where Submitted
<p>CA-16, Authorization for Examination and/or Treatment (DOL)</p>	<p>The form is used to authorize initial medical treatment in traumatic injury cases.</p> <p>The name of the person who approved issuing of authorization must be recorded in item 7 on the form.</p> <p>Note: CA-16 is not issued for occupational disease cases (Form CA-2), just for traumatic injury cases (Form CA-1).</p>	<p>The CA-16 form shall be completed immediately or as soon as possible when urgent/emergency medical treatment. <b>In most cases, the DOC workers' compensation contractor should be contacted to determine if Form CA-16 is warranted based on the facts related to the injury.</b></p> <p>Contact information is found at:  <a href="https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html">https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html</a></p>	<p>Station Manager or other Authorizing official fills out Part A. Part B is filled out by Attending Physician.</p>	<p>CA-16 is submitted to the DOC workers' compensation contractor. The mailing address is posted on the following web site:  <a href="https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html">https://www.ops1.nws.noaa.gov/Secure/SAFETY/WorkersComp.html</a></p>
<p>CA-20, Attending Physician's Report</p>	<p>The CA-20 should be taken to the treating physician when a CA-16 is not issued within seven days or if the employee referred to another medical professional.</p>	<p>If 7 days has passed from the date of injury and the employee decides he/she needs treatment, he/she should take the CA-20 to the doctor for their initial treatment. If employee goes back to the same doctor at a later date they can take form CA-20 but it is not necessary.</p>	<p>Treating Physician</p>	
<p>SF-91, Operator's Report of Motor Vehicle Accident</p>	<p>The form shall be filled out in case of a motor vehicle accident resulting in equipment, property</p>	<p>As soon as accident occurred.</p>	<p>Section I-IX shall be completed by employee involved in the accident</p>	<p>If GSA vehicle is involved in the accident, a copy of the form should be submitted to GSA in accordance with instructions shown in the</p>

Form Type	Applicability	When Completed	Completed By	Where Submitted
(DOL)	and motor vehicle damage.		Section X is completed by employee's supervisor Sections XI-XIII are completed by an accident investigator for bodily injury, fatality and/or damage exceeding \$500.	vehicle packet.  Copy of the SF-91, vehicle repair estimates, and police reports (if available) must be faxed to the DOC Office of General Counsel (202-482-5858)
SF-94, Statement of Witness (DOL)	The form should be filled out if there is a witness of motor vehicle accident resulted in equipment, property and motor vehicle damage.	After accident occurred.	Witness of the accident	Copy of the SF-94, vehicle repair estimates, and police reports (if available) must be faxed to the DOC Office of General Counsel (202-482-5858)



**PROCEDURE 19 - Hand and Power Tool Safety**

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## Synopsis

This procedure provides requirements and recommended practices for using hand and power tools. The procedure applies to all NWS facilities and work locations where hand or power tools are used and to employees who use hand or power tools at NWS facilities.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Perform inspection of Power Tools. *(19.3.4 & 19.3.7a.6)*
  - Determine appropriate Personal Protective Equipment (PPE). *(19.5.2b, 19.3.7b.1)*
  - Designate personnel permitted to use Power Tools. *(19.3.7a.5)*
  - Designate Hand and Power Tool Storage Areas. *(19.3.5)*
- **Develop/Obtain Documentation/Information required for Site**
  - Request Power Tool Operational Manuals. *(19.5.2c, 19.3.7b.2), as necessary*
- **Designate Person to Administer Hand and Power Tool Safety Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Training on Power Tools Safety. *(c)*
- **Inventory Material/Equipment (Procure as required)**
  - PPE. *(19.5.2b, 19.3.7b.1)*
  - Power Tools. *(19.5.2b, 19.3.2)*

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Conduct periodic inspection of Power Tools. *(19.3.4 & 19.3.7a.6)*
- **Review/Update Documentation/Information required for Site**
  - Review Power Tool Operational Manuals. *(19.3.7b.2)*
- **Provide Refresher Training of Site Personnel (If Applicable)**
  - Training on Power Tools Safety. *(19.3.7a.4,5)*
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - Power Tools. *(19.5.2b, 19.3.4 & 19.3.7a.6)*
  - PPE. *(19.5.2b, 19.3.7b.1)*

**Hand and Power Tool Safety Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
<i>Hand Tools and Equipment</i>					
Is initial and annual review of this procedure conducted and documented?	19.4.2				
Are appropriate Personal Protective Equipment (e.g., safety glasses, face-shields, etc.) used while using hand tools or equipment which might produce flying materials or be subject to breakage?	19.3.1& 19.3.6				
Are all Hand Tools and Equipment inspected prior to use?	19.3.2				
Are all defective Hand Tools and Equipment replaced, serviced, or repaired prior to use?	19.3.2				
Are all tools and equipment, used by employees at their workplace, in good condition?	19.3.3 & 4				
Are hand tools such as chisels and punches, which develop mushroomed heads during use, reconditioned or replaced as necessary?	19.3.2				
Are broken or fractured handles on hammers, axes and similar equipment replaced promptly?	19.3.2				
Are employees made aware of the hazards caused by faulty or improperly used hand tools?	19.3.2				
Are tool cutting edges kept sharp so the tool will move smoothly without binding or skipping?	19.3.2				
Are tools stored in dry, secure locations?	19.3.5				
Is eye and face protection used when driving hardened or tempered					

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
spuds or nails?	19.3.6				
<b><i>Portable (Power Operated) Tools and Equipment</i></b>					
Are all Power Tools of approved doubled-insulated type or grounded according to this procedure?	19.3.7a.1				
Are all qualified employees authorized and trained to operate all Power Tools?	19.3.7a.5				
Are all employee provided with appropriate Personal Protective Equipment when using Portable Tools and Equipment?	19.3.1				
Are all Portable Tools and Equipment inspected prior to use?	19.3.2				
Are all defective Portable Tools and Equipment replaced, serviced, or repaired prior to use?	19.3.2				
Are all tools and equipment, used by employees at their workplace, in good condition?	19.3.3 & 4				
Are Power Tools used with the correct shield, guard, or attachment recommended by the manufacturer?	19.3.7a.3				
Are rotating or moving parts of equipment guarded to prevent physical contact?	19.3.7a.3				
Are portable fans provided with full guards or screens having opening of 1/2" or less?	19.3.7a.3				
Are pneumatic and hydraulic hoses on power operated tools checked regularly for deterioration or damage?	19.3.4				

## **19 HAND AND POWER TOOL SAFETY**

### **19.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating requirements for using hand and power tools. This procedure applies to all NWS facilities and work locations where hand or power tools are used and to employees who use hand or power tools at NWS facilities.

### **19.2 Definitions**

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Qualified Person. Means a person with the specific training, knowledge and experience in the area for which the person has the responsibility and the authorization to control.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9)); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **19.3 Procedure**

19.3.1 The employer shall provide and demonstrate, as needed, the appropriate personal protective equipment (PPE) to be used with hand and power tools at the NWS. Job Hazard Analysis (JHA) should be used to determine specific PPE needs. JHA presentation and template are posted on the NWS Environmental and Safety web page:

[https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)

19.3.2 The employee shall inspect all tools prior to use. Any defective tool or equipment shall be replaced, corrected or repaired prior to use.

- a. Any cracked blades, wheels or pulleys of tools or equipment shall be removed from service. (Power saws, floor and hand grinders).
- b. Any impact tool shall be kept free of mushroomed heads (Chisels, punches, hammers).
- c. Wooden handles of tools shall be kept free of splinters and cracks and shall be securely attached to the tool.

19.3.3 Each employee is responsible for the safe operation and condition of the tools and equipment that he/she uses.

**NOTE:** Employees shall not bring their own tools to government facilities.

19.3.4 During the work shift, employees shall periodically inspect the condition of the tools and equipment in use.

19.3.5 After using tools and equipment, employees shall clean and return the tools and equipment to their designated areas.

19.3.6 Hand Tools. Eye protection shall be worn when using hand tools in operations where fragments are generated. Additional PPE may be required to protect from exposures to harmful noise, dust, fumes, mists, vapors, and gases.

19.3.7 Power Tools.

a. General Provisions.

- (1) Electric power tools shall either be of the approved doubled-insulated type or grounded according to National Electric Code (NEC) 250-114 and local regulations.
- (2) Powering of electric power tools shall conform to NEC and local regulations.
- (3) All guards that are part of each power operated tool shall remain installed while in use unless the guard proves to provide a greater hazard in use. Guarding shall meet the requirements set forth by the American National Standards Institute (ANSI) B11.1.
- (4) Employees shall be trained about the hazards and the proper use and care of powered tools and equipment.
- (5) Only qualified personnel who are authorized and trained to use power tools shall be permitted to operate such tools.
- (6) Plug and cord-connected power tools shall be inspected by users before and after usage. This inspection may include the following:
  - i Missing, corroded, or damaged plug prongs
  - ii Frayed, worn, burned, or missing insulation
  - iii Exposed conductors
  - iv Loose or poor connections
  - v Missing or improper sized fuses
  - vi Damaged or cracked cases
  - vii Burns or scorch marks
- (7) All power tools shall be in control of the operator.
- (8) All power tools shall be equipped with a constant pressure switch or control and may have a lock on control provided that turnoffs can be

accomplished with a single motion of the same finger or fingers that turn it on.

- (9) All hand-held, gasoline-powered tools shall be equipped with a constant pressure throttle that will deactivate the power to the tool motion when the pressure is released.
- (10) All gasoline-powered tools shall be used in well-ventilated areas.
- (11) Hydraulic power tools shall be used only with approved fire-resistant fluids.
- (12) It is recommended that electric tools used outside have a ground fault interrupt connector (GFIC) device placed on the electrical cord.

b. Employee Requirements.

- (1) Employees shall wear the PPE specified by the equipment manufacturer, by federal, state, or local regulations, or by NWS procedures when operating power tools.
- (2) Employees shall review the operator's manual prior to initial use of a tool and review periodically as needed.
- (3) Employees shall not hoist or lower electric tools by their cords.

19.3.8 Lawnmower Safety

- a. All power-driven chains, belts, and gears shall be so positioned or otherwise guarded to prevent the operator's accidental contact, during normal starting, mounting, and operation of the machine.
- b. The words, "Caution. Be sure the operating control(s) is in neutral before starting the engine," or similar wording shall be clearly visible at an engine starting control point on self-propelled mowers.
- c. Warning instructions shall be affixed to the mower near the opening stating that the mower shall not be used without either the catcher assembly or the guard in place.
- d. A shutoff device shall be provided to stop operation of the motor or engine. This device shall require manual and intentional reactivation to restart the motor or engine.
- e. The catcher assembly or the guard shall be shipped and sold as part of the mower. The instruction manual shall state that the mower shall not be used without either the catcher assembly or the guard in place.
- f. The catcher assembly, when properly and completely installed, shall not create a condition which violates the limits given for the guarded opening.
- g. The word "Caution" or stronger wording shall be placed on the mower at or near each discharge opening.

- h. The mower handle shall be fastened to the mower so as to prevent loss of control by unintentional uncoupling while in operation.
- i. A positive upstop or latch shall be provided for the mower handle in the normal operating position(s). The upstop shall not be subject to unintentional disengagement during normal operation of the mower. The upstop or latch shall not allow the center or the handle grips to come closer than 17 inches horizontally behind the closest path of the mower blade(s) unless manually disengaged.

#### 19.3.9 Compressed Air Sources

- a. Compressed air cannot be used for cleaning purposes unless reduced to less than 30 psi.
- b. Compressed air is not to be used to blow dirt, chips, or dust from clothing.

### **19.4 Responsibilities**

#### 19.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

#### 19.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that appropriate power tools and PPE are selected and provided for employees and adequate stock is maintained.
- c. Will ensure that power tools manuals are available.
- d. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

#### 19.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

#### 19.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.



- b. Will perform periodic inspections of tools and equipment and report or remove from service any tools that are defective.
- c. Will inspect all new tools and equipment received before they are put into service.

#### 19.4.5 Employees

Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.weather.gov/directives/050/pd05011c.pdf">http://www.weather.gov/directives/050/pd05011c.pdf</a>
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### 19.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 19.5.1 American National Standards Institute (ANSI) B11.1, “Safety Requirements for Mechanical Power Presses.”
- 19.5.2 National Electric Code (latest edition) 250-114 “Equipment Connected by Cord and Plug.”
- 19.5.3 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.242, “Hand and Portable Powered Tools and Equipment.”
- 19.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.243, “Guarding of Portable Powered Tools.”
- 19.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.244, “Other Portable Tools and Equipment.”
- 19.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.21, “Safety Training and Education.”
- 19.5.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926, Subpart I - “Tools-Hand and Power.”
- 19.5.8 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart I - “Personal Protective Equipment.”

Additional information can be found at: <https://www.osha.gov/SLTC/handpowertools/>

### 19.6 Attachments

None

**PROCEDURE 20 - Machine Guarding**

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## **Synopsis**

The purpose of this procedure is to provide the requirements and guidelines relative to hazards associated with improper or insufficient machine guarding. The procedure applies to all NWS facilities and work locations where machine guarding is required, and to the employees using the machines.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Inspect machine guards. *(20.3.1)*
- **Develop/Obtain Documentation/Information required for Site**
  - Develop Machine Guard List. *(20.5.3b)*
- **Designate Person to Administer Machine Guarding Procedure Requirements**
- **Provide Local Training of Site Personnel**
- **Inventory Material/Equipment (Procure as required)**
  - Guards. *(20.5.2b, 20.3.1)*
  - Special Tools (e.g., push sticks, blocks, hand-feeding tools). *(20.5.2b, 20.3.2)*

### **Annual Review and Recurring Task Requirements:**

- **Perform Inspection/Assessments/Testing**
  - Inspect Guards prior to each equipment use and periodically. *(20.3.1, 20.5.3b)*
- **Review/Update Documentation/Information required for Site**
  - Update Equipment Guard List. *(20.5.3b)*
- **Provide Refresher Training of Site Personnel (if Applicable)**
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - Guards. *(20.5.2b, 20.3.1)*
  - Special Tools (e.g., push sticks, blocks, hand-feeding tools). *(20.5.2b, 20.3.2)*

**Machine Guarding Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	20.4.2				
Are power saws and similar equipment provided with safety guards?	20.3.1				
Are all machines or operations that expose operators or other personnel to rotating parts, pinch points, flying chips, particulates, or sparks adequately guarded?	20.3.1				
Do drill presses and lathes have guards?	20.3.1				
Are fan blades, pulleys, belts protected with a guard when operating within 7' of the floor or working level?	20.3.1				
Are special tools being used for placing and removing materials from points of operation?	20.3.2				
Are equipment and machinery securely placed and anchored to prevent tipping and other movement?	20.3.3				
Is sufficient clearance provided around and between machine to allow safe operations, set up, servicing, material handling, and waste removal?	20.3.5				
Are abrasive grinding wheel tool rests adjusted to within 1/8" of the periphery of the wheel and tongue guards adjusted to 1/4" of the periphery of the wheel?	20.3.5				
Are machines equipped with anti starting devices?	20.3.8				
Is the power shut off switch within reach of the operator?	20.3.9				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is wood working machinery kept clean and properly maintained?	20.3.10				
Has an equipment guard listing been developed for use to perform periodic inspections of guarding?	20.5.3				

## **20 MACHINE GUARDING**

### **20.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with improper or insufficient machine guarding. This procedure applies to all NWS facilities, work locations and employees where machine guarding is required.

### **20.2 Definitions**

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Guard. A barrier that prevents entry of the operator's hand, fingers or other body parts into the point of operation.

Nip Point. A point between two in-running rolls where it is possible for a part of the body to be pinched and/or injured.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Pinch Point. Any point other than the point of operation at which it is possible for a part of the body to be caught between moving or stationary parts of a press or auxiliary equipment.

Point of Operation. The area on a machine where work is actually performed upon the material being processed.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **20.3 Procedure**

20.3.1 The employer shall follow the guidelines listed below to protect the operator and other employees in the machine area from hazards that could cause injury or damage. Employees will not remove guards, paneling, or safety interlocks without first locking out energy to equipment.

- a. Points of operation, pinch points, nip points, rotating shafts, couplers, etc., shall have appropriate guarding. The following are some of the machines that usually require point of operation guarding: paper cutters, guillotine cutters, woodworking machinery, grinders, shears, alligator shears, power presses, milling machines, power saws, joiners, portable power tools, forming roller and calenders.

- b. The guard shall be such that it does not facilitate or cause an accident in itself.
- c. Guards shall be inspected prior to each use.
- d. Openings between the guard and machine surface shall not be greater than ½ inch.
- e. Mechanical power-transmission apparatus shall be guarded when parts are located within seven (7) feet of floor or working platform.
- f. Blades shall be guarded when the periphery of the blades is less than seven (7) feet above the floor or working level.

20.3.2 Special tools shall be available for placing and removing material from the point of operation. These tools shall permit easy handling of material without requiring the operator to place a hand in the danger zone. Examples of these tools include push sticks, blocks, hand-feeding tools, etc. Such tools shall not be used in lieu of other guarding required by regulations and/or procedures.

20.3.3 All machines designed for a fixed post shall be securely anchored to prevent walking or moving.

20.3.4 Cage-type guarding shall not have any opening larger than ½ inch.

20.3.5 Abrasive wheel guarding shall cover the spindle end, nut and flange projections.

- a. The safety guard shall be mounted so as to maintain proper alignment with the wheel.
- b. The strength of the fasteners shall exceed the strength of the guard.
- c. Work rests shall be adjusted with the gap, between the rest and the wheel, not to exceed 1/8 inch in order to help prevent the work from jamming.
- d. The exposure adjustment at the top guard shall not exceed ¼-inch distance from the wheel.
- e. Bench and floor grinders must be anchored so that they can not vibrate, move, or fall over.

20.3.6 All hand and power tools and similar equipment shall be maintained in a safe condition.

<b>NOTE:</b> Employees shall not bring their own tools to government facilities.
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20.3.7 All safety attachments and guards furnished by the manufacturer shall be used and maintained at all times.

20.3.8 Anti-starting devices shall be installed where injury to the operator might result if motors were to restart after power failures.

20.3.9 Power controls and operating controls shall be located within easy reach of the operator when in a regular work position.

20.3.10 Cleanliness shall be maintained around woodworking machinery, particularly in regard to the effective functioning of guards.

20.3.11 Dull, badly set, improperly filed, or improperly tensioned saws shall be immediately removed from service, as they may interfere with the proper functioning of the guard.

20.3.12 HVAC Equipment Guards shall be maintained and kept in place according to the manufacturer's specifications.

## 20.4 Responsibilities

### 20.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 20.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and periodic inventory of guards and special tools is accomplished and adequate stock is maintained.
- c. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 20.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 20.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will develop and maintain an equipment guard listing for use to perform periodic inspections of guarding and report or remove from service any equipment that is deficient or poses a danger with use.

### 20.4.5 Employees

Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.weather.gov/directives/050/pd05011c.pdf">http://www.weather.gov/directives/050/pd05011c.pdf</a></p>
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## 20.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 20.5.1 National Electric Code, Latest Edition (as applicable).
- 20.5.2 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.212, General Requirements for all Machines.
- 20.5.3 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.213, Woodworking Machinery Requirements.
- 20.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910. 215, Abrasive Wheel Machinery.
- 20.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.300, Tools - Hand and Power.

## 20.6 Attachments

None

**PROCEDURE 21 - Laser Operations**

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## Synopsis

The purpose of this procedure is to establish requirements relative to the hazards associated with laser operations. The procedure applies to all NWS facilities, work locations, and employees. Although this procedure covers safety practices applicable to Class 1, 2, 3a, 3b and 4 lasers, it should be noted that the NWS operations do not currently employ Class 3b and 4 lasers or laser systems.

### Initial Implementation Requirements:

- **Analyze Site Operations versus Procedure Requirements**
  - Review all lasers prior to operation (21.3.5)
  - Baseline Eye Examination (If required) (21.3.10)
- **Develop/Request Documentation/Information required for Site**
  - Develop Laser Inventory (21.3.9)
  - Request Laser Inventory (21.3.1)
- **Designate Person to administer Laser Operations Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Training of site personnel on Laser Safety. (21.3.7, 21.3.8)
- **Inventory Material/Equipment**
  - Laser Systems and Devices (21.3.9)

### Annual Review and Recurring Task Requirements:

- **Review/Update Documentation/Information required for Site**
  - Maintain Laser Inventory (21.3.9)
- **Provide Refresher Training of Site Personnel**
  - Refresher Training of site personnel on Laser Safety. (21.3.7, 21.3.8)
- **Conduct Employee Examinations**
  - Annual Eye Examination (If required) (21.3.10)

**Laser Operations Checklist**

Requirements	Reference	YES	NO	N/A	Comments
Is initial and annual review of this procedure conducted and documented?	21.4.2				
Is there a current inventory of all lasers or laser systems at this facility?	21.3.9				
Have all laser systems (except Class 1) been approved by the Safety or Environmental/Safety Focal Point or his/her designee prior to operation?	21.3.5				
Have personnel who work routinely with or around laser systems been provided with safety training?	21.3.7 21.3.8				
Are all laser system instructions for laser systems maintained and kept on file?	21.3.1				
Have any laser operators of Class 3b and 4 laser systems received annual eye examinations?	21.3.10				

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## 21 LASER OPERATIONS

### 21.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with laser operations. Although this procedure covers safety practices applicable to Class 1, 2, 3a, 3b and 4 lasers, it should be noted that the NWS operations do not currently employ Class 3b and 4 lasers or laser systems.

### 21.2 Definitions

ACGIH. American Conference of Governmental Industrial Hygienists.

ANSI. American National Standards Institute.

Class. The unit of laser hazard classification. Lasers are rated (in order of lowest to highest class) Class 1, 2a, 3a, 3b, and 4 as defined by ANSI Z136.1. Class 1 lasers are considered to be incapable of producing damaging radiation levels during operation and are, therefore, exempt from any control measures or other forms of surveillance. An example of a Class 1 laser is the ASOS Ceilometer. Class 2 lasers are visible light lasers that could produce excessive exposures if viewed for more than the 0.25 second response time of the aversion reflexes. Class 3 lasers may be hazardous under direct and specular reflection viewing conditions, but the diffuse reflection is usually not a hazard. Class 4 lasers pose hazards to the eyes and skin, and can be also a fire hazard.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Laser System. An assembly of electrical, mechanical and optical components which included a laser.

MPE. Maximum Permissible Exposure is a level of laser radiation to which a person may be exposed without hazardous effect or adverse biological changes in the eye or skin. Commercial laser products are manufactured to meet MPE levels.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Protective Housing. An enclosure surrounding the laser or laser system that prevents the access to laser radiation above the applicable MPE level.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC,

ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 21.3 Procedure

21.3.1 Procedures shall be followed by personnel.

21.3.2 Engineering controls such as protective housing (all classes of lasers), interlock system (Class 3b and 4 lasers), and warning labels (all classes, except for Class 1) shall be supplied by manufacturer of laser products. Engineering controls shall be in accordance with ANSI Z136.1 standard.

21.3.3 Administrative and procedural controls such as instructions that specify rules and/or work practices implementing or supplementing engineering controls shall be established only for Class 3b and 4 lasers or laser systems.

21.3.4 Written standard operating procedures are required for Class 3b and 4 lasers or laser systems.

21.3.5 All lasers used at NWS facilities (with exception of Class 1 lasers) shall be approved by the Safety or Environmental/ Safety Focal Point or his/her designee prior to operation of the laser.

21.3.6 Requirements listed in Section 1.1.1 (Automatic Observing Equipment (<https://www.ops1.nws.noaa.gov/Secure/ehbs/EHB11Files/ehb11toc.htm>)) for Class 1 lasers shall be followed including the following practice:

*Never look directly into operating lasers, particularly with magnifying glasses or binoculars.*

21.3.7 Training shall be provided to each employee working routinely with or around Class 3b and 4 lasers. Commercially available safety guide literature, audio/video or computer based instruction or short-term classroom course on laser safety are recommended.

21.3.8 Training should be provided to employees working with Class 2 and 3a lasers or laser systems (e.g., laser pointers and hand-held barcode scanners) to educate employees against the misuse of the laser products. Attachment A contains information that may be provided for education of laser pointer users.

21.3.9 The Safety or Environmental/Safety Focal Point shall maintain a current inventory of lasers (with exception of Class 1 lasers) at the facility.

21.3.10 Laser operators (Class 3b and 4 lasers) who have potential for hazardous eye exposure to laser beams shall have a baseline eye examination prior to contact with laser equipment. In addition, annual eye examinations shall be conducted by qualified medical personnel for those employees. Records of these examinations shall be maintained by the medical staff or human resources.

## 21.4 Responsibilities

### 21.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 21.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 21.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 21.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

### 21.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.weather.gov/directives/050/pd05011c.pdf>

## 21.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

21.5.1 Safe Use of Lasers

21.5.2 National Safety Council, Fundamentals of Industrial Hygiene, Fourth Edition.

21.5.3 Automatic Observing Equipment



21.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 21 CFR Parts 1910.101-102, ( Laser Products)

21.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, Standard OSHA-1910.101 (Pub 8.8.7), Guidelines for Laser Safety and Hazard Assessment

**21.6 Attachments**

Attachment A. Laser Pointer Safety Information

## ATTACHMENT A

### Laser Pointer Safety Information

Commercial laser pointers are most commonly designed to assist speakers when giving lectures or business presentations. A high-tech alternative to the retractable metal pointer, the laser pointer beam will produce a small dot of light on whatever object at which it is aimed. It can be used to highlight a point in a slide show. Majority of laser pointers are Class II or Class III. **NEVER SHINE A LASER POINTER AT ANYONE.**

There have been increasing numbers of laser pointer incidents reported concerning misuse of these devices. It is important for the users to understand that the nuisance effects of glare or flash blindness can produce potentially dangerous secondary hazards as a result. The following are recommendations published by the Laser Institute of America:

- a. Never shine a laser pointer at anyone. Laser pointers are designed to illustrate inanimate objects.
- b. Do not allow minors to use a pointer unsupervised.
- c. Laser pointers are not toys.
- d. Do not point a laser pointer at mirror-like surfaces. A reflected beam can act like a direct beam on the eye.
- e. Do not purchase a laser pointer if it does not have a caution or danger sticker on it identifying its class. Report suspicious devices to the U.S. Food and Drug Administration.

**PROCEDURE 22 - Cranes, Hoists and Slings**

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## Synopsis

The purpose of this procedure is to establish requirements relative to the hazards associated with the use of cranes, hoists and slings in the workplace. It applies to all NWS facilities that operate portable and fixed cranes and hoists. The WFOs that utilize portable hoists such as the hoists in the radar domes and those used to lift instruments to the top of towers shall at a minimum follow the requirements of sections 22.3.1; 22.3.2; 22.3.4; 22.3.9; 22.3.10 b; 22.4; and 22.5.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
- **Develop/Obtain Documentation/Information required for Site**
  - Obtain and file Cranes and Hoists Rated Capacity Certification. (22.3.9b,e)
  - File Load Testing Reports. (22.3.9e)
  - File Inspection Reports. (22.3.9d, Attachment B)
  - Obtain Manufacturer's Instructions/Manuals to establish Preventive Maintenance Program. (22.3.9f)
- **Designate Person to Administer Cranes, Hoists and Slings Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Hoists and Rigging Equipment Operators Training/Qualification. (22.3.10)
- **Inventory Material/Equipment (Procure as required)**
  - Hoists, Slings & Rigging Equipment Accessories. (22.5.2d, 22.3.9)

### **Recurring and Annual Task Requirements:**

- **Perform Inspections/Assessment/Testing/Certification**
  - Conduct Inspection of Hoisting and Rigging Equipment. (22.3.9a, Attachments A & B)
  - Conduct visual inspections of equipment prior to each use. (22.3.9c)
  - Conduct Annual Sling and Rigging Accessories Inspections. (22.3.9d)
  - Conduct Load Testing (125% capacity) of cranes and hoists. (22.3.9b & 22.3.9e)
  - Obtain certification of new, re-installed and extensively repaired cranes, hoists and slings by a qualified inspector. (22.3.9b)
- **Review/Update Documentation/Information required for Site**
  - Maintain Annual Sling and Rigging Accessories Inspection Reports. (22.3.9d)
  - Maintain Annual Load Testing Reports/Certification (22.3.9e).
- **Provide Refresher Training of Site Personnel (If Applicable)**
  - Hoists and Rigging Equipment Operators Training/Qualification. (22.3.10)
- **Inspect/Replace/Maintain Material/Equipment**
  - Hoists, Slings & Rigging Equipment Accessories (22.5.2d, 22.3.9)

**Cranes, Hoists and Slings Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	22.4.2				
Are safety practices/guidelines outlined in the procedure observed while performing hoisting and rigging operations?	22.3.1 - 4				
Do crane operators adhere to the safety requirements outlined in the procedure?	22.3.5 - 7				
Is hoisting/rigging equipment installed, maintained, operated, inspected and certified in accordance with this procedure?	24.3.9				
Does the damaged equipment get tagged with “DO NOT USE” tag?	22.3.9				
Are initial and annual inspections of all hoisting and rigging equipment performed and reports kept on file?	22.3.9a, Attachment A				
Are new, re-installed and extensively repaired cranes, hoists and slings load tested to 125% of capacity and certified by a qualified inspector prior to use and annually?	22.3.9b				
Are visual inspections of equipment conducted before and after each use?	22.3.9c				
Does the maximum acceptable load and the last test get posted on the crane or fixed hoist?	22.3.9e				
Are load testing reports/certifications maintained?	22.3.9e				
Are manufacturer’s manuals kept on file to establish					

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
preventive maintenance program of hoisting and rigging equipment?	22.3.9f				
Are only proper trained and qualified operators permitted to work with hoisting and rigging equipment?	22.3.10				

## 22 CRANES, HOISTS AND SLINGS

### 22.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with the use of cranes, hoists and slings in the workplace. This procedure applies to all NWS facilities that operate portable cranes and fixed cranes and hoists, specifically the NDBC.

The WFOs that utilize portable hoists such as the hoists in the radar domes and those used to lift instruments to the top of towers shall at a minimum follow the requirements of sections 22.3.1, 22.3.2, 22.3.4, 22.3.9, 22.3.10 b, 22.4, and 22.5.

### 22.2 Definitions

Cable Reeving. A cable passing through a pulley or similar device.

Crane. A machine for lifting and lowering a load and moving it horizontally with the hoisting mechanism as an integral part of the machine. Cranes, whether fixed or mobile, are driven manually or by power.

Drum. A cylindrical flanged barrel of uniform (cylindrical) or tapering (conical) diameter on which the cable is wound for operation or storage. It may be smooth or grooved.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hoist. A device which applies a force for vertical lifting or lowering.

Lift. The hoisting of a load.

Lifting Attachments. Hardware typically used in conjunction with a sling. Includes but is not limited to shackles, eye bolts, rings, etc.

Load Angle. The angle of a sling under load in degrees to the horizontal.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Portable Hoist. A manually or electrically operated lifting device such as, but not limited to, chain falls, come-a-longs, chain hoists, lever operated chain hoists, cable hoists, etc.

Qualified Inspector. A competent person recognized by the U.S. Department of Labor as being authorized to provide testing to certify hoisting and rigging equipment.

Qualified Operator/Qualified Rigger. A person having training and knowledge to be capable of identifying existing and potential hazards associated with hoisting and rigging activities and having the authority to stop work.

Sheave. A grooved pulley.

Shock Loading. An unsafe hoisting and rigging activity caused by an unexpected slackening and re-tensioning of a load.

Sling. An assembly which connects the load to the material handling equipment. These can be made of rope, nylon, polyester, chain, wire rope, etc.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Storm Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Vehicle Winch. A device which is mounted on a vehicle which applies a force for vertical lifting or horizontal pulling.

### **22.3 Procedure**

22.3.1 Qualified Riggers. The Qualified Rigger shall observe the following practices when performing hoisting and rigging operations:

- a. Before each use, the sling and all attachments shall be inspected for damage or defects.
- b. Slings and attachments that are damaged or defective shall not be used.
- c. Slings shall not be shortened with knots or bolts or other makeshift devices.
- d. Sling legs shall not be kinked.
- e. Slings shall not be loaded in excess of their rated capacities.
- f. Slings used in a basket hitch shall have their loads balanced to prevent slippage.
- g. Slings shall be securely attached to their loads.
- h. Slings shall be padded to protect them from the sharp edges of the load.
- i. Suspended loads shall be kept clear of all obstructions.
- j. All employees shall be kept clear of loads about to be lifted and of suspended loads.
- k. Hands and fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- l. Shock loading of slings and other hoisting and rigging equipment is prohibited.
- m. A sling shall not be pulled from under a load when the load is resting on the sling.
- n. The Qualified Rigger shall determine when additional personnel will be required solely to provide emergency medical assistance or to contact emergency services if necessary.



- o. The Qualified Rigger shall determine when a spotter(s) is required to provide an additional measure of safety to the lift.

22.3.2 Making the Lift. When making the lift, the following guidelines shall be followed:

- a. Identify the path of travel and the place where the load will be set down. Make certain the load will safely clear any obstructions.
- b. As the lift starts, check to see that the slings, chains or lifting devices being used are well secured and free of twists and kinks. Make sure the load is properly balanced before it is raised more than a few inches. If it is not, set it down and readjust the hook-up.
- c. Do not overload a hook or carry the load on the point of the hook. Always carry the load in the saddle of the hook.
- d. Do not guide, position or alter a suspended load by hand if it has been raised above waist height. Use a tether rope having sufficient length to reach the floor or ground from the highest point the load can reach.
- e. When guiding a load, keep hands clear of pinch points. Anticipate a quick take-up of the slack of the tether rope.
- f. Do not walk or stand under a suspended load. Warn others to keep out from underneath the load being lifted by the crane. A hard hat area shall be established for all employees working close to or under a load, including employees managing a tag line.
- g. Never walk between a stationary object and an object which is being moved.
- h. Ensure that a clear line of communication exists at all times between the person directing the lift and the operator.

22.3.3 Moving the Load. As the load travels, the following guidelines shall be observed:

- a. Do not carry loads over personnel.
- b. Walk ahead of the load and give a clear warning to personnel on the ground.
- c. Do not ride on a load or allow anyone else to do so.

22.3.4 Placing the Load. When setting the load down the following requirements shall be followed:

- a. Carefully set up blocking if needed, so that slings, grab hooks or lifting devices can be easily removed from the load and prepared for the next move.
- b. Hold onto slings firmly when removing them from the load. They may snap out or snag some object when removed.

22.3.5 Crane Operators. Qualified Crane Operators shall adhere to the following requirements:

- a. Completely plan the lift prior to actually performing the lift.
- b. Do not allow anyone to ride on the load.

- c. Allow sufficient space to place the load down and ensure that it is properly supported.
- d. Do not position a load over personnel and avoid placing it over another piece of equipment whenever possible.
- e. Never leave a load unattended while suspended.
- f. Do not raise a load any higher than necessary.
- g. When turning a load, keep the load between 4 and 10 inches above the floor if possible.
- h. Know the approximate weight of the load, its center of gravity, and specifications of the rigging hardware to ensure a safe lift.
- i. When rigging outside, always take into account wind conditions, tag lines, ground conditions and crane limitations.
- j. Make sure a clear line of communication exists between the person directing the lift and the crane operator.
- k. The operator shall not engage in any practice which will divert his/her attention while actually engaged in operating the crane.
- l. The operator shall respond to signals only from the person who is directing the lift or his/her appointed signaler. However, the operator shall obey a stop signal at all times from anyone.
- m. During hoisting, care shall be taken to ensure that there is no sudden acceleration or deceleration of the moving load and that the load does not contact any obstructions.
- n. When starting the bridge and when the load or hook approaches nearby personnel, a warning signal shall be sounded.
- o. The operator shall not traverse loads over people.
- p. The operator shall test the brakes each time a load approaching the rated capacity is handled by raising the load a few inches and applying the brakes.

22.3.6 Crane Safety. The following general crane safety guidelines shall be adhered to during all hoisting and rigging operations:

- a. Before operating the crane:
  - (1) Thoroughly inspect the crane and the equipment used with it before each use. Do not operate a defective crane or use defective equipment.
  - (2) Check controls, the alarms or sounding devices, and the brakes. Check the rails for the presence of foreign objects. Whenever the main or emergency switch is open, do not close it until you are certain that no one is on or about the crane.

- b. The crane shall not be loaded beyond its rated capacity.
- c. The hoist chain or cable shall be free from kinks or twists and shall not be wrapped around the load.
- d. The load shall be attached to the load-block hook by means of slings or other approved devices.
- e. Care shall be taken to make certain that: the sling clears all obstacles; the multiple-part lines are not twisted around each other; the hook is brought over the load in such a manner as to prevent swinging; and the rope or cable is properly seated on the drum and in the sheaves.
- f. The crane shall not be used for side pulls.

22.3.7 Stop Safety. The following requirements shall be followed when stopping a load:

- a. Ensure that the load has come to a full stop prior to reversing the hoisting motors.
- b. Do not use limit switches for stop switches.
- c. Do not stop the load at high speeds within a short distance. This could increase stresses on the slings and crane.
- d. Do not leave the crane controls unattended while the load is suspended.

22.3.8 Emergency Power Failure Procedures. If the power goes off, promptly move all controllers to the OFF position. Be sure that all controllers are in the OFF position before re-establishing power.

22.3.9 Equipment Maintenance and Inspections. Hoisting and rigging equipment shall be installed, maintained, operated, inspected and certified in accordance with ANSI Standard B30, Construction Package; 29 CFR 1910.179, 1910.180, and 1910.184. Any equipment found to be in unacceptable condition shall either be tagged “Do Not Use” and repaired or shall be destroyed.

- a. Initial and periodic inspections shall be conducted on all hoisting and rigging equipment. Attachment A, “Inspection Criteria” provides guidance for inspecting hoisting and rigging equipment. The equipment operator or rigger shall also perform a visual inspection prior to each use.
- b. Prior to initial use, all new, reinstalled or extensively repaired cranes, hoists, slings, etc., shall be inspected and load tested to 125 percent of capacity and certified by a qualified inspector.
- c. Visual inspections shall be conducted before each use. The following items shall be inspected for defects which might appear between annual inspections:
  - (1) All functional operating mechanisms and controls for proper operation and wear.
  - (2) Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.

- (3) Hooks and retainers for deformations or cracks.
  - (4) Hoist chains, including end connections, for excessive wear, twisted or distorted links interfering with proper function or stretched beyond manufacturer's recommendations.
  - (5) Wire rope reeving for noncompliance with manufacturer's recommendations.
- d. Annual sling and rigging accessory inspections shall be performed using criteria set forth in Attachment A of this Procedure. Written, dated and signed reports as provided in Attachment B shall be kept on file.
  - e. Inspection of cranes and hoists shall be performed annually by a qualified inspector. The maximum acceptable load shall be posted on the crane or fixed hoist. The load test certification report shall be placed on file at the field office.

<p><b>NOTE:</b> Portable hoists (chain falls, come-a-longs, etc.) are excluded from load tests. The hoists in the radar domes do not need to be load tested if a certification of its rated capacity is on file. If no certification is on file, an initial load test of these hoists must be performed.</p>
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- f. A formal preventive maintenance program based on the operating equipment manufacturer's recommendations shall be established at all NWS locations with hoisting and or rigging equipment. The following guidelines shall be followed when caring for equipment:
  - (1) Cranes and hoists shall be lubricated and serviced as recommended by the equipment manufacturer.
  - (2) Store all lifting equipment in an orderly, safe manner that will protect it from damage when not in use. Straighten out slings before storing them.
  - (3) Do not paint hooks, slings and other lifting devices, as paint will cover up cracks and flaws.
  - (4) Immediately remove all defective equipment from service and report it to the Station Manager. Do not use the defective equipment or repair it yourself.

22.3.10 Training Requirements. Only qualified operators, those who received proper training and qualification, shall be permitted to operate hoisting and rigging equipment. The established qualified-operator training program shall include, but not be limited to: written tests, field training and trials, personnel physical requirements and examinations, trainee status and training procedures. Refresher training shall be provided, as required. Operating procedures for specialized equipment (e.g., portable hoists, radar hoists, and vehicle winches) will vary by manufacturer. The operator's manual for the equipment being used shall be referenced for these specific procedures.

Crane Operators shall be experienced and knowledgeable in:

- a. Access and egress during normal and emergency conditions.
- b. Normal and emergency power for the hoisting equipment.
- c. Inspection and proper use of wire ropes, lifting attachments, slings and chains.
- d. The hoisting drum and proper windings.
- e. The use and operation of control devices.
- f. Limit switches.
- g. Brakes, both mechanical and solenoid types.
- h. Safety devices such as fire extinguishers, signal horns, bells, etc.
- i. Handling of the hoisting mechanism.
- j. The purpose of and how to perform a test lift.
- k. Hand and verbal signals
- l. Operating procedures and safe practices.
- m. Proper shutdown of equipment.
- n. Release and lockout of crane for maintenance or overhaul.
- o. Riggers shall be experienced and knowledgeable in:
  - (1) The safe use of synthetic slings, wire rope, portable manual hoists, uses of rope, shackles, hooks, hoisting principles, relative weight.
  - (2) Estimation, center of gravity, factors of safety and the effect of sling angles and angular loading.
  - (3) The safe attachment of slings for straight lifts, basket hitches, chokers and multiple-bridle lifting.
  - (4) The safe and unsafe placement of sling hooks.
  - (5) Hook safety latches and hook mousing for safety
- p. Risks associated with rigging near power transmission lines, the mandatory safe distances, and the necessary precautions.

## **22.4 Responsibilities**

### **22.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

Shall perform an annual assessment of the regional headquarter facilities or

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.

- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

22.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure personnel using portable hoists have received training in accordance with the requirements of this procedure.
- c. Will ensure that portable hoists and any related slings, hooks, shackles, etc. are properly maintained and inspected and a record of the inspection maintained.
- d. Will ensure that initial and periodic inventory of hoists, slings and rigging equipment accessories is accomplished and adequate stock is maintained.
- e. Will ensure that contractors providing crane operations are familiar with the requirements of this procedure before any activity starts. A pre-work meeting with a contractor must be conducted to ensure that safety rules are understood.
- f. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

**Note:** All Contractor work shall be performed consistent with the Federal Acquisition regulations at 48 C.F.R. 52.236-13.

22.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

22.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

22.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.weather.gov/directives/050/pd05011c.pdf>

## **22.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 22.5.1 American National Standards Institute, ANSI B30, Construction Package.
- 22.5.2 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.180, "Crawler Locomotive and Truck Cranes."
- 22.5.3 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.184, "Slings."
- 22.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.550, "Cranes and Derricks."

## **22.6 Attachments**

Attachment A. Inspection Criteria

Attachment B. Inspection Record

**ATTACHMENT A**  
**Inspection Criteria**

**Synthetic Slings.** Synthetic slings shall be removed from service when any of the following deficiencies are visible:

- Acid or caustic burns.
- Melting or charring.
- More than 5 percent of visible stitches or strands broken.
- Permanent elongation.
- Distorted fittings.
- Any other apparent defects which cause doubt as to the strength of the equipment.

**Wire Rope Slings:** Wire rope slings shall be removed from service when any of the following defects are visible:

- More than six randomly broken wires in one lay.
- Wear or scraping of one-third the original diameter of outside individual wires.
- Kinking, crushing, bird caging or any other damage resulting in distortion of the rope structure.
- Evidence of heat damage.
- End attachments that are cracked, deformed or worn.
- Any signs of corrosion.
- Any other apparent defects which cause doubt as to the strength of the equipment.

**Shackles, Rings, etc.:** Shackles, rings, etc., shall be removed from service when any of the following defects are visible:

- Wear, corrosion, spreading or deformation (greater than 10 percent of new condition).
- Visible cracking.
- Nonstandard shackle pins.
- Any other apparent defects which cause doubt as to the strength of the equipment.

**Hoists:** Hoists shall be removed from service when any of the following defects are visible:

- Upper and lower hooks do not swivel.
- Hooks are open more than 10 percent of the original dimension or twisted more than 10 degrees from centerline and/or show signs of cracking.
- Hook latches not intact and/or operable.
- Hoists dirty and/or show evidence of foreign material damage or undue wear.
- Load chain nicked and/or gouged which can cause stress concentrations. Imperfections shall be ground out and the new diameter checked with gauges or tables.



- Load chain in need of lubrication. However, internal hoist mechanisms shall be oil free.
- Any other apparent defects which cause doubt as to the strength or effective operation of the equipment.



**PROCEDURE 23 - Emergency Response Agreements**

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## **Synopsis**

This procedure provides guidance for the preparation and updating of Emergency Response Agreements (ERA) between the National Weather Service (NWS) and local off-site emergency response organizations. The procedure applies to all NWS facilities, work locations and employees and supports the preparation of a site-specific Occupant Emergency Plan (OEP) (See Procedure 5, Occupant Emergency Plan; Procedure 12, Confined Space Entry; and Procedure 1, Fall Protection).

## **Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
- **Develop/Obtain Documentation/Information required for Site**
  - Prepare list of Local Response Organizations (23.3.1)
  - Develop ERAs (if required) (23.3.2)
  - Develop ERA Resources List. (23.3.4c.2)
  - Prepare Site Layout Plan for Local Emergency Response Organizations (23.3.4c.3), as required.
- **Designate Person to Administer ERA Procedure Requirements**

## **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Update list of Local Response Organizations. (23.3.1)
  - Update ERAs (if required) (23.3.3)
  - Update ERA Resource List. (23.3.4c.2)
  - Amend Site Layout for Local Emergency Response Organizations, as required. (23.3.4c.3)

**Emergency Response Agreements Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	23.4.2				
Has a list of Local Off-Site Emergency Response Organizations been developed?	23.3.1				
Has a need for Emergency Response Agreements (ERA) with local emergency response organizations been determined?	23.3.2				
Have existing ERAs been evaluated and updated to ensure that they contain the information contained in this procedure?	23.3.3 23.3.4a-e				
Do all ERAs for this facility contain the purpose of the ERA, the definition of all responsibilities, areas of cooperation, and terms of agreement and approvals?	23.3.4a-e Attachment A				
Are all new and existing ERAs forwarded and reviewed by the appropriate NWS personnel?	23.3.5				
Are the ERAs being maintained at the facility which entered into the agreement?	23.3.8				
Are copies of the ERAs forwarded to the Regional or Operating Unit Environmental/Safety Coordinator?	23.3.8				

## 23 EMERGENCY RESPONSE AGREEMENTS

### 23.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) has provided guidance for the preparation and updating of Emergency Response Agreements (ERAs) between the NWS and local off-site emergency response organizations. This procedure should be considered for all NWS facilities and work locations. ERAs are highly recommended for facilities and work locations that are remote, or where unusual or hazardous conditions exist. This procedure will support the preparation of a site-specific OEP (See Occupational Safety and Health Procedure #5, 'Occupant Emergency Plan')

### 23.2 Definitions

Emergency. Any situation that poses an actual threat to the environment or to the health or safety of workers or the public.

Emergency Medical Services (EMS). The locally operated and dispatched emergency organization that responds with ambulance and rescue equipment to provide first aid and medical supplies at the scene. EMS handles patient stabilization and transportation to a fixed medical facility.

Emergency Response Agreement. A formal or informal agreement between the NWS and a response organization which outlines the basic agreement for cooperation during an emergency situation. This agreement should be in writing, if possible. If it is not possible to obtain written agreement, at least a telephone conversation log should be kept on file.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hazardous Incident Response Team (HIRT). The off-site organization responsible for responding to hazardous materials incidents such as chemical spills/releases and fire involving hazardous materials.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 23.3 Procedure

23.3.1 A listing of local off-site emergency response organizations shall be obtained and maintained. This list should include all local organizations that may be contacted to provide emergency assistance to the NWS facility.

23.3.2 As part of the preparation of a site OEP, it is highly recommended that the NWS facility contact local off-site emergency response organization(s) to determine a need for ERA. ERAs may be established with the following community response organizations for coverage of properties, personnel and equipment:

- a. Local fire department(s).
- b. Hazardous Incident Response Team (HIRT) (where available).
- c. Local police department.
- d. Local county EMS.
- e. Local hospitals or clinics.
- f. Civil Air Patrol.

23.3.3 Existing ERAs should be evaluated and updated to ensure that they contain the information listed in section 23.3.4 of this procedure.

23.3.4 If a new ERA is being prepared, the new document should contain, but is not limited to, the following sections:

- a. **PURPOSE:** This section describes the purpose of the ERA, organization with whom the agreement is made, the NWS facility entering into the agreement, and the address of the facility. This is a standard format and may be taken directly from an existing document, substituting the appropriate organization name.
- b. **RESPONSIBILITIES:** This section has the following two goals:
  - (1) To define the responsibilities of NWS as related to the agreement with the emergency response organization.
  - (2) To define the responsibilities of the outside organizations responding to the NWS facility in an emergency.
- c. **AREAS OF COOPERATION:** This section has several divisions in a relatively standard format. They are:
  - (1) Notification: This section of the ERA defines how the NWS will notify off-site organizations that their services are needed at the facility. This is usually done through the 911 service in the area. However, some organizations are not dispatched through this service and the notification method should be verified with the organization entering into the agreement.
  - (2) Resources: This section of the ERA lists resources the NWS will make available to the responding organization. This usually includes equipment, materials and personnel.

- (3) Exercises/Visitation: This section of the ERA sets the groundwork to allow off-site organizations the opportunity to visit the NWS site and become familiar with the operations, layout of the facility, and the personnel with whom they will interact during an emergency. A visit may be especially important when the facility is remote, difficult to find or where unusual or hazardous conditions exist.
- (4) Other: Additional information (radio communication frequencies, emergency planning information, media relations, etc.) may be appropriate depending on the outside organization.
- d. **TERMS OF AGREEMENT**: This section has a standard format. It states the conditions for continuation and cancellation.
- e. **APPROVAL**: The completed ERA should be signed by a designated NWS official and the lead official of the off-site organization.

23.3.5 Upon completion of a new draft ERA or upon updating an existing ERA, the ERA should be reviewed by the appropriate NWS personnel for comments or suggestions.

- a. The list of reviewers may include, if appropriate, the following:
  - (1) Safety or Environmental/Safety Focal Point.
  - (2) Station Manager.
  - (3) Regional Maintenance Specialist.
  - (4) Regional or Operating Unit Environmental/Safety Coordinator.
  - (5) Regional Director, as appropriate.
- b. A meeting with outside organization is suggested to provide a tour of the NWS facility if conditions of the facility or its location may affect the ability of outside organization to respond to an emergency.

23.3.6 The ERA shall be maintained at the facility which entered into the agreement. A copy of the ERA shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

23.3.7 Attachment A provides a sample ERA that can be used as a guideline for developing a site-specific ERA.

## **23.4 Responsibilities**

### **23.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.



23.4.2 Station Manager

- a. Shall ensure that ERAs are in place, if necessary, to ensure adequate response to on-site emergencies.
- b. Shall review the existing ERAs on an annual basis to determine if the agreement is still fulfilling the needs of the NWS or if any organizational or policy changes have occurred that would affect the existing ERA.
- c. Will review or delegate review of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

23.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

23.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

23.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor, safety or environmental/safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.weather.gov/directives/050/pd05011c.pdf>

**23.5 References**

Incorporated References. The following reference is incorporated as a whole or in part into this procedure. The reference can provide additional explanation or guidance for the implementation of this procedure.

23.5.1 1DWLRQDO : HDWKHU 6HUYLFH 2FFXSDWLRQDO 6DIHW\ D  
Emergency 3ODQ

**23.6 Attachments**

- Attachment A. Sample Emergency Response Agreement between the Local County Emergency Medical Service and the National Weather Service.
- Attachment B. Emergency Response Agreements (WFO Springfield, MO)

**ATTACHMENT A**

**Sample Emergency Response Agreement between the Local County Emergency Medical Service and the National Weather Service**

**I. PURPOSE**

This emergency response agreement is to establish a framework of cooperation between \_\_\_\_\_ local Emergency Medical Service (EMS) and the National Weather Service Facility for the purpose of planning, preparedness, and response for emergency situations at \_\_\_\_\_.

(Type the facility name)

**II. RESPONSIBILITIES**

- a. Once on site, EMS will report to the NWS Safety or Environmental/Safety Focal Point for specific assistance requests and integration into the response effort at the scene.
- b. EMS will supply medical support on site which will include triage, stabilizing the patient, and transporting the patient from a triage area to a fixed medical facility.
- c. NWS will provide supporting assistance as requested by EMS, if available.

**III. AREAS OF COOPERATION**

- a. Notification: NWS will notify the Emergency Centralized Communications Organization (911, where applicable) of emergency which requires the assistance of EMS at the NWS facility. The Emergency Centralized Communications Organization will in turn notify the appropriate emergency response organizations, in this case EMS.
- b. NWS Resources: NWS resources are available to EMS upon request in the event of any emergency and may be obtained by contacting the Station Manager.
- c. Visitation: If it is determined that conditions of the NWS facility or the location of the facility may impact the ability of the EMS to deliver emergency response services, the NWS will host a site visit by the EMS during the month of \_\_\_\_\_. This will allow EMS personnel the opportunity to become familiar with the operation of the facility and personnel working at the NWS facility.
- d. Public Affairs: NWS will conduct all public affairs activities for on-site emergencies. EMS will refer all requests for information to the Station Manager at (\_\_\_\_) - - - .

**TERMS OF AGREEMENT**

This ERA is effective upon signature by both parties and will continue until canceled by either party with a 30-day advanced written notice to the other. Amendments or modifications to this ERA may be made upon written agreement by both parties.

APPROVED FOR \_\_\_\_\_ COUNTY EMERGENCY MEDICAL SERVICE

\_\_\_\_\_  
Supervisor, County Emergency Medical Service

\_\_\_\_\_  
Date

APPROVED FOR THE NATIONAL WEATHER SERVICE

\_\_\_\_\_  
Station Manager, NWS

\_\_\_\_\_  
Date

**ATTACHMENT B**  
**Emergency Response Agreements for WFO Springfield, MO**

January 20, 2000

Emergency response services at WFO Springfield are coordinated through Greene County, MO Emergency Services. Response for medical emergency, fire, law enforcement and hazardous material incidents are all handled by Greene County Emergency Services via the 911 system. One Emergency Response Agreement was developed to document the relationship with Greene County Emergency Services.

WFO Springfield has made arrangements for establishing a remote work/communication site should NWS personnel be forced to evacuate the WFO facility. The primary evacuation office is at the Springfield-Branson Regional Airport in space to be provided by the FAA. Should the primary evacuation office be unavailable, two alternate evacuation offices have been arranged. One is located at the Greene County 911 Dispatch Center, and the other at Missouri Highway Patrol, Troop D headquarters. ERAs have been developed to document the evacuation office arrangements with the FAA and the Highway Patrol. The arrangement with Greene County Emergency Services was documented in the ERA for emergency response.

Three ERAs are included in this Attachment:

ERA between Green County, MO Emergency Services and NWS WFO, Springfield, MO

ERA between the FAA and NWS WFO, Springfield, MO

ERA between Missouri Highway Patrol Troop D and NWS WFO, Springfield, MO

The existence of these ERAs and the procedures to implement them are reflected in the Emergency Station Duty Manual Section 4.01, Building Security/Fire/Natural Disaster/Evacuation.

**EMERGENCY RESPONSE AGREEMENT  
BETWEEN  
GREENE COUNTY, MISSOURI EMERGENCY SERVICES  
AND THE  
NATIONAL WEATHER SERVICE,  
WEATHER FORECAST OFFICE, SPRINGFIELD, MISSOURI**

**I. PURPOSE**

This Emergency Response Agreement is to establish a framework of cooperation between Greene County, MO Emergency Services and the National Weather Service (NWS), Weather Forecast Office (WFO), Springfield, MO for the purpose of planning, preparedness, and response for off-normal/unusual occurrences and emergency situations at WFO Springfield.

**II. RESPONSIBILITIES**

**a. WFO Springfield shall:**

1. Request emergency response through the Greene County 911 system.
2. Provide available supporting assistance as requested by Greene County or responding organizations.
3. Provide available resources, as applicable, for use by responding organizations.
4. Participate in emergency preparedness planning by maintaining active membership in the Greene County Local Emergency Planning Committee (LEPC).

**b. Greene County Emergency Services shall:**

1. Provide centralized contact and dispatch for emergencies that require response by medical, fire, law enforcement, and hazardous material response organizations.
2. Continue to monitor emergency situations based on updates from WFO Springfield and emergency responders.
3. Provide facilities for WFO Springfield personnel to conduct work should an evacuation of the WFO be necessary and use of the primary backup facility be impossible.

**AREAS OF COOPERATION**

- a. Notification: WFO Springfield will notify Greene County Emergency Services via the 911 system when an emergency occurs. Greene County Emergency Services will in turn notify and dispatch the appropriate emergency response agencies.

- b. NWS Resources: WFO Springfield resources are available to emergency responders upon request and may be obtained by contacting the Station Manager.
- c. Visitation: WFO Springfield will host a site visit by Greene County Emergency Services and associated emergency response organizations during the month of April 2000. This visit will allow emergency personnel the opportunity to become familiar with the operations and personnel at the facility, independently assess hazards at the site, identify potential resources, form preliminary response strategies, and suggest changes that could improve the safety of the facility.

d. Other:

Once on site, emergency responders will report to the senior NWS official on site for specific assistance requests and integration into the response effort at the scene. This person will be either the Station Manager or Lead Meteorologist.

NWS will conduct all public affairs activities for on-site emergencies. Emergency responders will refer all requests for information to the Station Manager, Bill Davis at (417) 889-5785.

IV. TERMS OF AGREEMENT

This ERA is effective upon signature by both parties and will continue until canceled by either party with a 30-day advanced written notice to the other. Amendments or modifications to this ERA may be made upon written agreement by both parties.

APPROVED FOR GREENE COUNTY EMERGENCY SERVICES

\_\_\_\_\_  
Supervisor, Greene County Emergency Services

\_\_\_\_\_  
Date

APPROVED FOR THE NATIONAL WEATHER SERVICE

\_\_\_\_\_  
Station Manager, WFO Springfield, MO

\_\_\_\_\_  
Date

**EMERGENCY RESPONSE AGREEMENT  
BETWEEN  
FEDERAL AVIATION ADMINISTRATION,  
SPRINGFIELD-BRANSON REGIONAL AIRPORT  
AND THE  
NATIONAL WEATHER SERVICE,  
WEATHER FORECAST OFFICE, SPRINGFIELD, MISSOURI**

I. PURPOSE

This Emergency Response Agreement is to establish a framework of cooperation between the Federal Aviation Administration (FAA) at Springfield-Branson Regional Airport and the National Weather Service (NWS), Weather Forecast Office (WFO), Springfield, MO for the purpose of providing work space and communications should a situation force evacuation of the WFO Springfield facility.

II. RESPONSIBILITIES

- a. WFO Springfield shall:  
Inform the FAA of facility evacuation and request use of the space identified in this ERA.
- b. FAA Springfield-Branson Regional Airport shall:  
Provide access to two unused phone jacks and counter space in the FAA Tower while the WFO evacuation is in force.

III. AREAS OF COOPERATION

- a. Notification: WFO Springfield will notify the FAA of their intention to use the FAA space by calling the FAA tower at (417) 869- R U E \ G L D O L Q J <sup>3</sup> located at the tower entrance. R Q W K H

- b. Visitation: WFO Springfield personnel will visit the FAA tower during the month of April 2000. This visit will allow WFO personnel to become familiar with FAA personnel, the location and use of the tower phone, and provide an opportunity to practice setup of communications using the phone jacks provided by the FAA.

c. Other:

NWS will conduct all public affairs activities for on-site emergencies. FAA personnel will refer all requests for information to the Station Manager, Bill Davis at (417) 889-5785.

IV. TERMS OF AGREEMENT

This ERA is effective upon signature by both parties and will continue until canceled by either party with a 30-day advanced written notice to the other. Amendments or modifications to this ERA may be made upon written agreement by both parties.

APPROVED FOR FAA, SPRINGFIELD-BRANSON REGIONAL AIRPORT

\_\_\_\_\_  
Supervisor, FAA, Springfield-Branson Regional Airport

\_\_\_\_\_  
Date

APPROVED FOR THE NATIONAL WEATHER SERVICE

\_\_\_\_\_  
Station Manager, WFO Springfield, MO

\_\_\_\_\_  
Date



**EMERGENCY RESPONSE AGREEMENT  
BETWEEN  
MISSOURI HIGHWAY PATROL TROOP D  
AND THE  
NATIONAL WEATHER SERVICE,  
WEATHER FORECAST OFFICE, SPRINGFIELD, MISSOURI**

I. PURPOSE

This Emergency Response Agreement is to establish a framework of cooperation between Missouri Highway Patrol Troop D and the National Weather Service (NWS), Weather Forecast Office (WFO), Springfield, MO for the purpose of providing work space and communications should a situation force evacuation of the WFO Springfield facility.

II. RESPONSIBILITIES

a. WFO Springfield shall:

Inform the Highway Patrol of facility evacuation and request use of the space identified in this ERA.

b. Missouri Highway Patrol Troop D shall:

Provide access to workspace and phone lines at Troop D headquarters should an evacuation of WFO Springfield be necessary and use of the primary backup facility be impossible.

III. AREAS OF COOPERATION

a. Notification: WFO Springfield will notify Missouri Highway Patrol Troop D of their intention to use the space at Troop D headquarters by calling (417) 895-6568 when an evacuation occurs.

b. Visitation: WFO Springfield personnel will visit the Troop D headquarters during the month of April 2000. This visit will allow WFO personnel to become familiar with Troop D personnel, the location of the headquarters, and provide an opportunity to practice setup of communications using the phone jacks provided.

c. Other:

NWS will conduct all public affairs activities for on-site emergencies. Highway Patrol personnel will refer all requests for information to the Station Manager, Bill Davis at (417) 889-5785.

IV. TERMS OF AGREEMENT

This ERA is effective upon signature by both parties and will continue until canceled by either party with a 30-day advanced written notice to the other. Amendments or modifications to this ERA may be made upon written agreement by both parties.

APPROVED FOR MISSOURI HIGHWAY PATROL TROOP D

\_\_\_\_\_  
Supervisor, Missouri Highway Patrol

\_\_\_\_\_  
Date

APPROVED FOR THE NATIONAL WEATHER SERVICE

\_\_\_\_\_  
Station Manager, WFO Springfield, MO

\_\_\_\_\_  
Date

PROCEDURE 24- Safety Training Program

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## Synopsis

This procedure establishes requirements and guidance for the NWS occupational safety and health training. The procedure applies to all NWS facilities, work locations, and employees.

### Initial Implementation Requirements:

- x Analyze Site Operations versus Requirements of the Procedure
- x Develop/Obtain Documentation/Information required for Site
  - Evaluate and document site specific training requirements (24.5.2b, 24.3.3b, Attachment B)
  - Develop site specific Safety Orientation. (24.5.2c, 24.3.2b, 24.3.3a, Attachment A)
- x Designate Person to Administer Safety Training Procedure Requirements
- x Provide Local Training of Site Personnel
  - Safety Orientation for the visitors, contractors and newly hired site personnel. (24.3.2b, 24.3.3a, Attachment A)
  - Focal Points Training on safety procedures applicable to the site. (24.3.3c)

### Recurring and Annual Task Requirements

- x Review/Update Documentation/Information required for Site
  - Perform annual review of Site Specific Training Requirements (24.4.2)
  - Maintain/File/Review Training Records (24.5.3b)
- x Provide Refresher Training of Site Personnel (as required)
  - Focal Points Training on safety procedures applicable to the site. (24.3.3c)

Safety Training Program Checklist

Requirements	Reference	YES	NO	N/A	Comments
Is initial and annual review of this procedure conducted and documented?	24.4.2				
Do short and long term visitors and contractor personnel receive an appropriate safety orientation as required by this procedure?	24.3.2a,b Attachment A				
Are contractor personnel required to have all applicable safety training before commencing work?	24.3.2d				
Do new NWS employees receive a safety orientation within one week of being hired?	24.3.3a				
Do all site personnel receive applicable safety and health training for specific job tasks?	24.3.3b Attachment B				
Does Safety or Environmental/Safety Focal Point receive initial online safety training?	24.3.3c				
Has the Station Manager been provided with an overview of applicable safety procedures?	24.3.3d				
Are all training records maintained in an accessible location on site?	24.5.3b				

## 24 SAFETY TRAINING PROGRAM

### 24.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to establish requirements and guidance for the NWS occupational safety and health training. This procedure applies to all NWS facilities, work locations, and employees.

### 24.2 Definitions

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), Data Collection Office (DCO).

Hazardous Energy Source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy that has the potential to cause injury to employees.

Long-Term Visitor. A visitor whose intended stay is estimated at more than 10 working days.

NWS Employees. For the purpose of this procedure, this includes full-time, part-time and temporary NWS employees.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Safety Orientation. An overview of NWS selected safety and health procedures and site-specific information which is presented as part of new employee and contractor orientation.

Short-Term Visitor. A visitor whose intended stay is estimated at 10 working days or less.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 24.3 Procedure

24.3.1 In an effort to provide a safe and healthful workplace, safety training will be provided to all NWS employees, contractors, and long-term visitors. The safety training will emphasize risks that are present and controls that are in place. All NWS employees shall participate in the training programs that are required for their job category. An employee who feels that more information is needed shall inform his/her supervisor and/or the Safety or Environmental/Safety Focal Point.

24.3.2 Visitors

- a. Short-term visitors under escort will not be required to receive a safety orientation. However, short-term visitors without an escort will be given a safety orientation at the time of their arrival.
- b. On the day of their arrival at the NWS, long-term visitors will be given a safety orientation. The safety orientation shall be given by the Safety or Environmental/Safety Focal Point or his/her designee. Short-term visitors without an escort shall also be given a safety orientation at the time of their arrival. (See Attachment A: Safety Orientation Outline).
- c. Before commencing work, contractors will attend a safety orientation. This orientation will provide a brief explanation of the NWS safety requirements (See Attachment A: Safety Orientation Outline).
- d. Contractor personnel will have all safety and health training applicable to the specific work being performed.

24.3.3 NWS Personnel. All NWS personnel shall participate in an ongoing process of safety training.

- a. Within one week of being hired, new employees will be given a safety orientation. In addition, new employees must take NOAA Safety, Environmental and Sustainability Awareness Course on line via the Commerce Learning Center at <https://doc.csod.com>
- b. The midlevel supervisors will complete PDQG DWRU \ 36DIHW \ 7UDLQLQ 6XSHUY for BRY known as StoS 7DNLQJ \$YRLGDEOH 5LVNV 6 training) available on line via the Commerce Learning Center at <https://doc.csod.com>
- c. Employees will also receive safety and health training applicable to the specific work being performed. NWS training courses and their applicability to employees and facilities are listed in table 24. Example of site-specific training requirements can be found in Attachment B.
- d. Safety or Environmental/Safety Focal Points will receive initial online training on all safety and health procedures applicable to their sites. They will also take 36DIHW \ 7UDLQLQJ for BRY known as STAR training) training). Online courses are available via via the Commerce Learning Center at <https://doc.csod.com>

Table 24 -1. Summary of NWS Training

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
1. Fall Protection	29 CFR 1910.28, .66, .145; 29 CFR 1926.104, Subpart M, Subpart L; ANSI Z359.1	Applicable to all NWS facilities. Applicable to all NWS personnel working on or near unguarded elevated surfaces or climbing/descending structures (e.g. towers, river gauges).	Initial 2.5-day Course for new climbers 2.5 days Refresher: Every 3 years- for climbers with assigned rescue role only.
2. Working Alone	NWS Occupational Safety and Health Procedure #12, Safety and Health Procedure #12, & R Q I L Q H G 6 S D F H ( C & ) 5 6 X E S D U W = 6 X E V W D Q F H V ' \$ & * , + / L P L W 9 D O X H V '	Applicable to all NWS facilities. Applicable to NWS personnel who perform potentially hazardous duties that require additional personnel assignment.	When work is to be performed under high risk conditions, work shall not begin until a safety observer is present. Safety observers shall receive initial and refresher training (as appropriate) including First Aid/CPR training. See paragraph 2.3.5b for additional information.
3. Safe Electrical Work Practices	29 CFR 1910.145, .30, .308, .331, .335; NFPA 70E; NFPA 70; NWS Occupational Safety and Health Procedure #12, Safety and Health Procedure #12, & R Q I L Q H G 6 S D F H ( C & ) 5 6 X E S D U W = 6 X E V W D Q F H V ' \$ & * , + / L P L W 9 D O X H V '	Applicable to all NWS facilities and personnel involved in maintenance and repair of electrical equipment.	1. "Qualified" personnel initial training shall be given upon assignment to a position requiring an individual to work with or in close proximity to exposed electrical parts, equipment and conductors as a regular part of his/her job. Refresher training shall be given if there is a significant change in this procedure or work practices. 2. Safety Observer training including First Aid/CPR 3. Other personnel should be trained in the portion of the procedure necessary to ensure their safety. See paragraph 3.3.21 for additional details.



Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
4. Control of Hazardous Energy Sources	29 CFR 1910.147; ANSI Z244.1; National Fire Protection Association, NFPA 70, NEC; NWS Occupational Safety and Health 3 U R F H G X U H 3 U D F W L F H V ' 3 6 D I H	Applicable to all NWS facilities and personnel. General training applicable to all NWS employees; specific training applicable to NWS employees involved in the installation and/or the maintenance and repair of electrical equipment.	<p>1. Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.</p> <p>2. Each affected employee shall be instructed in the purpose and use of the Energy Control Procedure. Affected employees shall be trained when there is a change in equipment, job assignment, or change in energy control procedures.</p> <p>3. All other employees whose work operations are or may be in an area where energy control procedure may be utilized, shall be instructed about this procedure, and about the prohibition relating to attempts to restart or energize machines or equipment which are locked out or tagged out. Re-training shall also be performed when there are L Q G L F D W L R Q V R I L Q D G H T X D F knowledge or deviations from this procedure are observed or believed to be occurring.</p>

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
5. Occupant Emergency Plan (former Emergency Action Plan)	29 CFR 1910.38; USDOC Occupational Safety and Health Manual; NFPA 101, 101.31.1.5; NWS Occupational Safety and Health Procedure #23, 3 (PHUJHQF\ 5HVSIRQV)	Applicable to all NWS facilities and personnel.	<p>1. The Occupant Emergency Plan shall be reviewed with all NWS personnel at each facility annually and at the following times:</p> <ol style="list-style-type: none"> <li>(1) When the plan is initially developed</li> <li>(2) When a new employee begins duty at a site or facility</li> <li>(3) When the plan is changed such that personnel responsibilities or duties under the plan change, the plan will be reviewed with that employee again</li> <li>(4) When the plan is changed such that personnel will be affected, a review of the plan and its changes will be reviewed with those personnel.</li> </ol> <p>2. The Occupant Emergency Plan shall include training for an adequate number of qualified volunteers to assist in the evacuation and accountability of all personnel at the site.</p> <p>3. Occupant Emergency Plan shall include training for adequate qualified personnel to assist in equipment and facility protection in the event of emergencies.</p>



Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
7. Hazard Communication	29 CFR 1910.1200, Hazard Communication.	Applicable to all NWS facilities and personnel working with or around hazardous chemicals.	<p>NWS personnel who (even occasionally) work with purchase, or are potentially exposed to chemicals shall receive initial training on the Hazard Communication Program.</p> <p>2. Additional training of NWS personnel shall be done whenever a new hazard is introduced into a workplace.</p> <p>3. Refresher training shall take place based on an evaluation by the Station Manager along with the Safety or Environmental Safety Focal Point. The need for refresher training shall be based on the HPSOR\HH\V GHPRQVWUDWLR thorough understanding of the Hazard Communication Program or based on personnel turnover.</p> <p>4. Global Harmonization System training shall be provided to all employees who handle chemical products as part of their work duties.</p>
8. Personal Protective Equipment	29 CFR 1910 Subpart I, 3 H U V R Protect L Y H ( T X L S P H Q W ' 1910.95, .145; 29 CFR 1910 6 X E S D U W 4 ' : H O G L C % U D ] L Q J ' \$ 1 6 , = ANSI Z87.1; ANSI Z89.1; DOC Safety Manual; NWS Occupational Safety and Health Procedure #7, ' 3 + D ] D U G & R P P X Q L F D	Applicable to all NWS facilities and personnel required to use PPE.	<p>PPE training shall be provided for each employee required to use PPE. Circumstances where training is required include, but are not limited to the following situations</p> <ul style="list-style-type: none"> <li>i. Changes in the workplace render previous training obsolete.</li> <li>ii. Changes in the types of PPE to be used render previous training obsolete.</li> <li>iii. , Q D G H T X D F L H V L Q D Q D I I H F knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.</li> </ul>

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
9. Compressed Gas Safety	29 CFR 1910.101104, .253; CFR 1910 Subpart M; CGA #; NFPA, as applicable; ANSI UL 407 & 248.1 & B31.1; Compressed Gas Association, as applicable; Federal Meteorological Handbook, No. 3.; ASME Boiler and Pressure Vessel Code; 49 CFR 173.34 3 4 X D O L I L F D W L R Q V ( 8 V H R I & \ O L Q G H U V ' of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart S, Electrical; U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.153, liquefied Petroleum Gases.	Applicable to all NWS facilities which use compressed gases. Applicable to all NWS personnel required to use/handle or work in the close proximity of compressed gases	1. Only personnel who have completed the Hydrogen Generator training course shall perform operations and maintenance on such units. 2. Station Manager shall ensure that required initial and refresher training is given to those employees working with compressed gas cylinders and training records are maintained.
10. Respiratory Protection	29 CFR 1910.134, .139, Subpart Z ANSI Z88.2; NIOSH 84 CFR 42; Fundamentals of Industrial Hygiene Latest Edition.	Applicable to all NWS facilities and employees who are required to use respiratory protection.	1. Training of employees in the respiratory hazards which they are potentially exposed during routine and emergency situations. 2. Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
11. Hearing Conservation	29 CFR 1910.95, Occupational Noise Exposure; <u>ACGIH TLVs for Chemicals Substances and Physical Agents, Biological Exposure Indices</u> (1998); NIOSH Criteria for a Recommended Standard: Noise Exposure (1972); ANSI S1.4	Applicable to all NWS facilities. Applicable to all NWS employees exposed to noise at or above the OSHA action level.	<ol style="list-style-type: none"> <li>1. Personnel who use hearing protection (e.g., inside the Emergency Generator building when the generator is online) and are not required to be in a Hearing Conservation Program shall receive annual training in the following areas: the effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; and the selection, fit, and care of hearing protectors. Employees can either be trained inhouse or offsite by qualified NWS or contractor personnel.</li> <li>2. A training program dealing with hearing conservation shall be implemented for all employees who are exposed to noise at or above the Action Level.</li> </ol>
12. Confined Space Entry	29 CFR 1910.146, .147, .252; NIOSH Alert Request for Assistance in Preventing Occupational Fatalities in Confined Spaces (1986); NIOSH A Guide to Safety in Confined Spaces, July 1987; NIOSH Criteria for a Recommended Standard Working in Confined Spaces, November 1979	Applicable to all NWS facilities which have confined spaces. Applicable to all NWS employees who are involved in confined space entry.	<ol style="list-style-type: none"> <li>1. Any NWS employee can serve as an Entry Supervisor provided he/she has the proper training and understanding of the issues.</li> <li>2. Before initial work assignment begins, the Station Manager shall ensure that proper training for all workers who are required to work in permit confined spaces.</li> <li>3. Station Manager shall ensure confined space entry supervisors, attendants, and entrants receive appropriate training.</li> <li>4. Shall provide a briefing to visitors before they enter a confined space.</li> </ol>

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
13. Indoor Air Quality	29 CFR 1910 Subpart Z; ASHRAE Standards 55 and 62; SEPA Building Air Quality: A Guide for Building Owners and Facility Managers; ACGIH, TLVs and BEIs Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices.	Applicable to all NWS facilities. Applicable to all NWS personnel involved with the maintenance and/or operation of HVAC systems.	Local training as applicable.
14. Walking and Working Surfaces	29 CFR 1910 Subpart D; NFPA 101; ANSI 14.3; ANSA1264.1; ANSI A14.1; ANSI A14.2; ANSI A14.3; ASTM A36/A36M; NWS Occupational Safety and Health 3 U R F H G X U H <sup>3</sup> ) D O (	Applicable to all NWS facilities and personnel.	Local training as applicable.
15. Battery Charging and Storage Operations	29 CFR 1910.178; NFPA 70B, 110-16	Applicable to all NWS facilities which have battery systems. Applicable to all NWS personnel involved in the maintenance of batteries and equipment or those who work with or in close proximity to battery charging systems.	Local training as applicable.

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
16. Flammable and Combustible Liquid Storage	29 CFR 1910.106; NFPA 30; NFPA 251; U.S. Environmental Protection Agency 40 CFR Part 261.21, 3 & K D U D F W H U L V W L F	Applicable to all NWS facilities using/storing flammable and/or combustible liquids. Applicable to all NWS personnel who work with or in close proximity to flammable and/or combustible liquids.	Local training as applicable.
17. Ionizing and Non-Ionizing Radiation Safety	29 CFR 1910.97, 1096; ACGIH TLVs for Chemical Substances and Physical Agents 10 CFR 83.208 3 2 F F X S D R A D I A T I O N 3 U R W H F W L R Q ' 1 5 & 3 6 W D Q G D U G V I R U 3 U 5 D G L D W L R Q '	Applicable to all NWS facilities which have radiation-producing equipment. Applicable to all NWS personnel required to work around radiation-producing equipment.	<ol style="list-style-type: none"> <li>1. All employees who work in the immediate area of radiation sources or in regulated areas shall be trained in safe work practices, protective measures and on the nature of the sources. Training records shall be maintained by the Safety or Environmental/Safety Focal Point.</li> <li>2. All employees who work in the immediate area of non-ionizing radiation sources (e.g., NEXRAD, NWR) shall be trained in safe work practices, protective measures and on the nature of the sources. Training records shall be developed and maintained by the Safety or Environmental/Safety Focal Point.</li> </ol>



Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
18. Accident /Illness Reporting and Recording	29 CFR 1960 Subpart I, Recordkeeping and Reporting Requirements; 29 CFR 1904, USDOC Occupational Safety and Health Manual Chapter 11; U.S. DOC Department Administrative Orders 209 Series, Safety	Applicable to all NWS facilities and personnel.	Local training as applicable.
19. Hand and Power Tool Safety	29 CFR 1910.242-244, Subpart I; 29 CFR 1926.21, Subpart I; NEC 250-114; ANSI B11.1	Applicable to all NWS facilities which use hand and power tools. Applicable to all NWS personnel who perform maintenance on use hand and/or power tools in the performance of their jobs.	<ol style="list-style-type: none"> <li>1. Employees shall be trained about the hazards and the proper use and care of power tools and equipment.</li> <li>2. Only qualified personnel who are authorized and trained to use power tools shall be permitted to operate such tools.</li> </ol>
20. Machine Guarding	29 CFR 1910.212, .213, .215; 29 CFR 1926.300 U.S. DOC Department Administrative Orders 209 Series, Safety; NEC.	Applicable to all NWS facilities. Applicable to NWS employees who work on/with equipment that require guarding.	Local training as applicable

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
21. Laser Safety	ACGIH TLVs for Chemical Substances and Physical Agents; ANSI Z136.1; 21 CFR Parts 1000 & 1040; NWS Engineering Handbook 11; NSC Fundamentals of Industrial Hygiene 4 <sup>th</sup> Edition.	Applicable to all NWS facilities which are using laser systems. Applicable to all NWS personnel involved in laser operations.	1. Training shall be provided to each employee working routinely with or around Class 3b and 4 lasers. Commercially available safety guide literature audio/video or computer based instruction or short term classroom course on laser safety are recommended. 2. Training should be provided to employees working with Class 2 and 3a lasers or laser systems (e.g., laser pointers and handheld barcode scanners) to educate employees against the misuse of the laser products. Attachment A contains information that may be provided for education of laser pointer users.
22. Cranes, Hoists and Slings	29 CFR 1910.179, .180, .184; 29 CFR 1926.550; ANSI B30.2, B30.9, B30.10, B30.16	Applicable to all NWS facilities which have cranes, hoists and slings. Applicable to all NWS personnel involved in operating/using cranes, hoists and slings.	Only qualified operators, those who received proper training and qualification, shall be permitted to operate hoisting and rigging equipment. The established qualified operator training program shall include, but not be limited to: written tests, field training and trials, personnel physical requirements and examinations, trainee status and training procedures. Refresher training shall be provided, required.
23. Emergency Response Agreements	NWS Occupational Safety and Health Emergency Response	Applicable to NWS facilities. Applicable to all NWS personnel who establish ERAs with local emergency response organizations.	Local training as applicable.
24. Safety Training Program	OSHA 2254 (Revised), 1992, 37 U D L Q L Q J 5 H T X L U H 6 W D Q G D U G V D Q G 7 U	Applicable to all NWS facilities, personnel, contractors and visitors	1. Within one week of being hired, new employees shall be given a safety orientation. In addition, new employees must take NOAA Safety Environmental Sustainability Awareness Course on line via the

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
			<p>Commerce Learning Center <a href="https://doc.csod.com">https://doc.csod.com</a></p> <p>2. The midlevel supervisors shall complete P D Q G D W R U \ O L D Q H W R U 7 6 X S H U Y (formerly known as Stop Taking Avoidable Risks (STAR) training) available on line via the Commerce Learning Center <a href="https://doc.csod.com">https://doc.csod.com</a></p> <p>3. Employees shall receive safety and health training applicable to the specific work being performed</p> <p>4. Safety or Environmental/Safety Focal Points shall receive initial online training available via the Commerce Learning Center <a href="https://doc.csod.com">https://doc.csod.com</a> on all safety and health procedures applicable to the sites.</p>
25. Ergonomics	<p>ACGIH TLVs for Chemical and Physical Agents; IES/ANSI RP; IES/ANSI RP1; (NIOSH), <u>Applications Manual for the Revised Lifting Equation</u> (NIOSH) <u>Lifting Work Practices Guide</u> <u>Working Safely with Video Display Terminals</u> OSHA Publication 3092.</p>	Applicable to all NWS facilities and personnel.	Local training as applicable.

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
26. Trenching and Excavation Operations	CFR 1926 Subpart P; 29 CFR 1910.6X E S D U W 0 3 ) D 29 CFR 1910, Subpart Z, ACGIH TLVs for Chemical Agents and Physical Agents; NWS Occupational Safety and Health Procedures #8, 3 H U V R Q D O 3 U R W H F and NWS Occupational Safety and Health Procedures #9, 3 U R W H F W L R Q 3 U R J U	Applicable to all NWS facilities and personnel involved in construction or maintenance where trenching and/or excavation are involved.	Station Manager shall ensure that initial and refresher training of competent persons is provided.
27. Forklift	29 CFR 1910.178; ANSI B56.1; NWS Occupational Safety and Health Procedures #10, 3 U R F H G X U H D Q G & R P E X V W L E O H	Applicable to all NWS facilities where forklifts are used. Applicable to all NWS personnel who operate forklifts.	<ol style="list-style-type: none"> <li>1. Only trained and authorized personnel shall be permitted to operate a forklift.</li> <li>2. A forklift-specific, hands-on training program shall be implemented and maintained to qualify new operators and periodically re-qualify existing operators in the proper use of each forklift that they will operate.</li> <li>3. The training shall include both written and practical safe work activities that are representative of actual worksite conditions and associated forklift maneuvers.</li> <li>4. A license card and/or equivalent training documentation for qualified operators shall be implemented and maintained.</li> </ol>



Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
29. Small Boat Safety	33 CFR, Navigation and Navigable Waters; NAO 209-125, NOAA Small Boat Safety Program; NOAA Small Boat Standards and Procedures Manual; NAO 209-115, NOAA Employees Aboard Non NOAA Vessels; NWS Occupational Safety and Health Procedure #18, 3 \$ F F L G H Q W , O O Q H V V Recording	Applicable to all NWS facilities and personnel which operate small boat	All CBOs and crewmen shall receive training on small boat safety per NOAA Small Boat Standards and Procedures Manual. Additional training shall be provided as needed including  a. Emergency procedures involving boating accidents b. Training for personnel changing job assignments and with expanded responsibilities.
30. Office Safety	NWS Occupational Safety and Health Procedure #25, 3 ( U J R Q R P L F V ' 1 : 6 2 Safety and Health Procedure #13 3 , Q G R R U \$ L ; N W S X D O L V Occupational Safety and Health 3 U R F H G X U H 3 : D O : R U N L Q J 6 X U I D F H V '	Applicable to all NWS facilities.	Education regarding potential injuries, their causes symptoms and treatments shall be provided as a method that assists both supervisors and personnel creating a safe office environment.
31. Asbestos Safety	U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.1001 Asbestos; U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.1001, Appendix D, Medical Questionnaires, Mandatory; U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.1101, Asbestos. U.S. Environmental Protection Agency 40 CFR 763.92.	Applicable to all NWS facilities, and work locations which contain asbestos or asbestos-containing materials (ACMs) are used. Applicable to all NWS employees who work in facilities or work locations which contain ACMs.	All NWS employees that work in facilities where presence of friable asbestos is confirmed must receive the 2-hour Asbestos Awareness course recommended by Asbestos Hazard Emergency Response Act (AHERA). Other NWS employees who provide housekeeping or maintenance activities in a building that contains ACM must also complete awareness level training. More detailed description of required training can be found in the NWSM 50-16 Environmental Management Manual, Section 17.6

Procedure Number and Name	Reference	Applicability to NWS	Initial/Recurring
32. Motor Vehicle Safety		Applicable to all NWS facilities. Applicable to all NWS employees that operate snowmobiles/snow cats and All-Terrain Vehicles (ATVs) in the performance of their job duties.	Station Manager shall ensure that initial and refresher awareness training are provided, as required for operators snowmobiles/snow cats and All-Terrain Vehicles (ATVs)
33. Bloodborne Pathogens	NWS Occupational Safety and Health Procedure # 3 D W K R J H Q V	Applicable to all NWS facilities, work locations, and employees where potential for exposure to Bloodborne Pathogens is present.	<p>Station manager shall ensure the employee(s) covered by the Exposure Control Plan receive initial training and annual refresher training</p> <p>Bloodborne pathogens training will be provided for designated First Aid, Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED) collateral duty providers. Training presentation slides and quiz are available on the Office of Operational Systems, Operations Division (OPS1) web site: <a href="https://www.ops1.nws.noaa.gov/Secure/env_new.html">https://www.ops1.nws.noaa.gov/Secure/env_new.html</a></p> <p>Training should also be offered for general awareness to site employees, other than designated collateral duty First Aid/CPR/AED providers.</p>

## 24.4 Responsibilities

### 24.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 24.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will evaluate and document site-specific training requirements.
- c. Will develop site-specific safety orientation outline.
- d. Will ensure that all employees receive the required training.
- e. Will review this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 24.4.3 NWS Headquarters (NWSH)

- a. The NWSH Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 24.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will ensure that all training records are maintained in an accessible location on site.

### 24.4.5 Employees

Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p>NOTE: Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.weather.gov/directives/050/pd05011c.pdf">http://www.weather.gov/directives/050/pd05011c.pdf</a></p>
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## 24.5 References

Incorporated References. The following reference is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

24.5.1 U.S. Department of Labor, Occupational Safety and Health Administration, OSHA 2254 5 H Y L V H G Training Requirements in OSHA Standards and Training Guidelines Superintendent of Documents, U.S. Government Printing Office.

## 24.6 Attachments

Attachment A: Sample Safety Orientation Outline

Attachment B: Site-Specific Training Requirements (WFO Springfield, MO)

ATTACHMENT A

Sample Safety Orientation Outline

The Safety Orientation shall include, but not be limited to, an overview of the following areas:

1. Emergency Preparedness/Evacuations

A Notification of personnel

B. Assembly & Accountability Procedures

2. Reporting Requirements

A. Accident/Incident

B. Illness

C. First Aid

3. Motor Vehicles

A. Speed limit in parking areas

B. Parking procedures

C. Traffic flow

4. Site Requirements

A. Designated smoking/no smoking areas

B. Eating/Break areas

C. Reporting damage to property

D. Clothing

E. Security

5. Personal Protective Equipment

A. Building placards system

B. Areas requiring use of PPE.

C. Types of PPE by location.

6. Fire Protection

A. Reporting of fires

B. Housekeeping

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D. No smoking areas

7. Permit Operations

A. Welding/Burning operations

B. Confined Space Entry

C. Excavations

D. Special Work

8. Hazardous/Solid Waste

A. Storage locations/Handling

B. Responsibility

C. Chemical spill procedures

D. Recycling

9. Hazard Communication

A. Right-to-Know

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C. Labeling

10. Unique Hazards As Required

11. Seasonal Training

ATTACHMENT B

Site-Specific Training Requirements (WFO Springfield, MO)

Procedure No. & Title	Training Required	Employee Classification
1. Fall Protection	Use of Fall Protection Equipment	Electronic Technicians DAPM ESA
2. Working Alone	First Aid and CPR	Electronic Technicians Station Managers and Supervisors Meteorological Technicians and Interns
4. Control of Hazardous Energy Sources	Safe Application Usage and Removal of Energy Control Devices	Electronic Technicians Supervisors
5 Occupant Action Plan	Sufficient Number of Employees to assist with evacuation, accountability, and equipment and facility protection.	Administrative Asst. Electronic Technicians Meteorologists Supervisors Meteorological Technicians and Interns Station Managers and Supervisors
6. Fire Protection	Fire extinguisher training.  Awareness training.  ----- UAIB Hydrogen Fire Prevention	Administrative Asst. Electronic Technicians Meteorologists Station Managers and Supervisors Meteorological Technicians and Interns ----- Electronic Technicians Meteorologists Station Managers and Supervisors Meteorological Technicians and Interns
7. HAZCOM	HAZCOM training of NWS Personnel who work with, purchase, or are potentially exposed to chemicals	Administrative Asst. Meteorologists Station Managers and Supervisors

Procedure No. & Title	Training Required	Employee Classification
		Meteorological Technicians and Interns
8. Personal Protective Equipment	Need, Use, Selection, and Care of PPE	Electronic Technicians Station Managers and Supervisors Meteorological Technicians and Interns
12. Confined Space	NWS Confined Space a. Entry Supervisor b. Entrant c. Attendant	Electronic Technicians Station Managers and Supervisors
24. Safety Training	Orientation and as required by specific procedures	Administrative Asst. Meteorologists Station Managers and Supervisors Meteorological Technicians and Interns Short and Long Term Visitors Contractors



**PROCEDURE 25 - Ergonomics**

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## **Synopsis**

The purpose of this procedure is to provide guidance relative to ergonomic workplace hazards. The procedure applies to all NWS facilities, work locations, and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Optimum Workstation Seating. (25.3.1a)
  - Optimum Workstation Surfaces. (25.3.1b)
  - Suitable Computer Monitors. (25.3.2c)
  - Wrist Rest or Wrist Support. (25.5.1d)
  - Adequate Lighting. (25.5.1d)
  - Routine Lifting Tasks. (25.3.2)
- **Develop/Obtain Documentation/Information required for Site**
  - Document Findings and Corrective Actions. (25.3.3)
- **Designate Person to Administer Ergonomics Procedure Requirements**
- **Provide Local Training of Site Personnel**

### **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Maintain Findings and Corrective Actions Documentation. (25.3.4)
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - Optimum Workstation Seating. (25.3.1a)
  - Optimum Workstation Surfaces. (25.3.1b)
  - Suitable Computer Monitors. (25.3.2c)
  - Wrist Rest or Wrist Support. (25.5.1d)
  - Adequate Lighting. (25.5.1d)



**Ergonomics Checklist**

<b>REQUIREMENTS</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	25.4.2				
Are employees ergonomics-related concerns evaluated?	25.3.3				
Are ergonomics-related findings and corrective actions being thoroughly documented?	25.3.3				
Do employees who exhibit physical symptoms consult a qualified medical professional?	25.3.3				
Do workstations provide optimum seating as described in the procedure?	25.3.1a				
Do workstations provide optimum worktable surfaces as described in this procedure?	25.3.1b				
Are guidelines for efficient use of monitors followed?	25.3.1c				
Are guidelines for lighting levels and designs in work areas followed?	25.3.1d				
Do routine lifting tasks conform to the guidelines referenced in this procedure?	25.3.2				

## **25 ERGONOMICS**

### **25.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to ergonomic workplace hazards. This procedure applies to all NWS facilities, work locations, and employees.

### **25.2 Definitions**

ACGIH. American Conference of Governmental Industrial Hygienists.

ANSI. American National Standards Institute.

Qualified Individual - An individual who, on the basis of professional training or experience, is qualified to analyze an NWS workstation for compliance with accepted ergonomics principles and who is capable of recommending corrective actions for noted deficiencies. Training courses dealing with ergonomics are available from numerous organizations, such as the American Society of Safety Engineers, American Industrial Hygiene Association, the National Safety Council, etc.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

IES. Illumination Engineering Society.

NIOSH. National Institute of Occupational Safety and Health.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

OSHA. Occupational Safety and Health Administration.

NOAA SECO. NOAA Safety and Environmental Compliance Office.

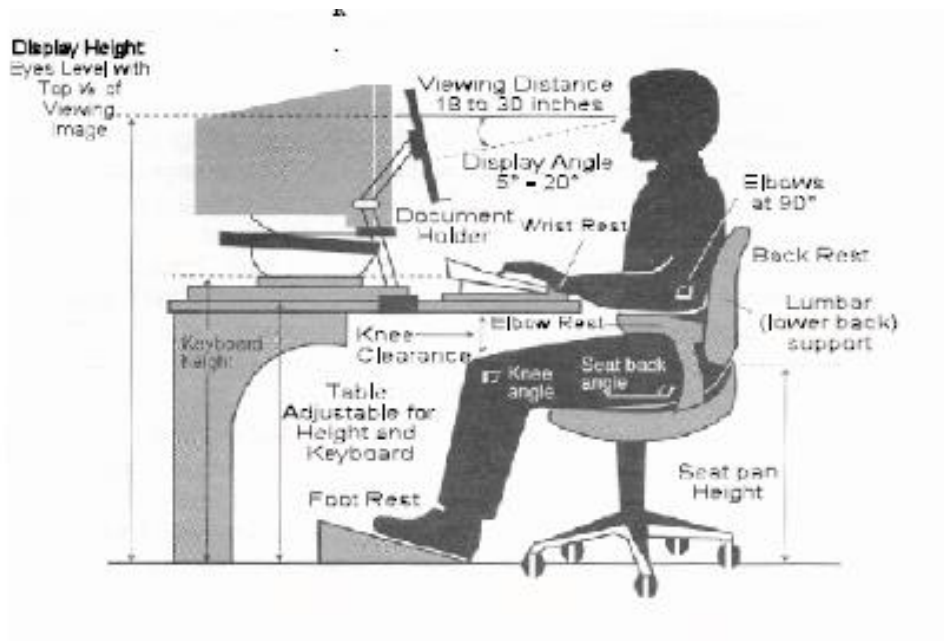
Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

TLV. ACGIH Threshold Limit Value, representing conditions under which it is believed that nearly all workers may be repeatedly exposed to day after day without adverse health effects.

### **25.3 Procedure**

25.3.1 Employee computer workstations should be designed to the greatest extent feasible to fit the employees using them. (See Figure 25-1 for illustration)

- a. Optimum workstation seating includes:
- (1) Seat height range from 16 to 20.5 inches from the floor.
  - (2) The seat tilt range of 0 to 10 degrees.
  - (3) Seat constructed of material not conducive to sliding.
  - (4) Seat size of at least 18 inches wide, with a depth of 15-17 inches.
  - (5) Adjustable back rest to provide support to the lumbar region of the back.



- (6) A minimum of five casters to support the chair.
- b. Optimum worktable surfaces are:
- (1) Adjustable to reduce the need for adjustment of individual components, such as keyboards and monitors.
  - (2) Large enough to permit to components to be moved forward and backward, while allowing room for a wrist rest and working documents.
- c. Monitor use can be made most efficient by:
- (1) Placing the monitor on articulating platforms which allow adjustability in all directions.
  - (2) Setting monitor so that there is minimal forward tilt of the head.
  - (3) Ensuring that the top of the monitor is never higher than eye level.
  - (4) Allowing for vertical adjustment of the monitor.

- (5) Placing monitor so that it can be adjusted from 18 to 30 inches from the operator's eyes.
  - (6) Using a monitor that can be tilted to reduce glare and reflection. A clean screen will give off less glare.
- d. Miscellaneous:
- (1) Articulating arms which attach to the chair or worktable and allow a large number of work positions are recommended where extensive keyboard work is required.
  - (2) Wrist rests or wrist supports can reduce spinal disc pressure, alleviate shoulder muscle fatigue, and decrease wrist extension. These are low-cost items that can easily be added to most work stations.
  - (3) Excessive light levels should be avoided to reduce glare and eye fatigue. Workstations should be placed at 90 degrees from light sources, including all windows.
  - (4) Fatigue and excessive repetition can be avoided by:
    - i Changing work tasks at least once each hour.
    - ii Standing up, stretching, flexing muscles, rotating the head, and shifting the body's position every 15 minutes. Also, eyes can be rested by briefly closing them or changing focus by looking at distant objects.
    - iii Using a soft touch on the keyboard and keeping the shoulders, hands and fingers relaxed.
    - iv Using a document holder, positioned at about the same plane and distance as the display screen.

25.3.2 Routine lifting tasks should follow the guidelines listed in the NIOSH publication, "Applications Manual for the Revised Lifting Equation." The publication is used to analyze particular tasks and determine a maximum permissible load and lifting frequency. The lifting safety guidance for the office environment can be found in Attachment A.

25.3.3 All employee ergonomics-related concerns should be evaluated by the Station Manager or his/her designee in conjunction with the Regional or Operating Unit Environmental/Safety Coordinator or the NWSH Environmental and Safety staff.

- a. When evaluating concerns, the major ergonomic factors should be considered.
  - (1) Forceful movements
  - (2) Frequent repetition, generally considered repeating the motion several times a minute
  - (3) Deviations from neutral posture. Neutral posture is generally considered to be;

- i Standing or seated with,
  - ii Shoulder above and in line with hips
  - iii Upper arms in line with torso
  - iv Feet on the ground shoulder width apart
  - v Wrists in line with forearms
- (4) Combinations of the risk factors, or adding vibration or temperature extremes can exacerbate potential issues
- b. All findings and corrective actions should be thoroughly documented and maintained.
  - c. When employees exhibit physical symptoms, a qualified medical professional should be consulted.

## **25.4 Responsibilities**

### **25.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **25.4.2 Station Manager**

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will assume the duties of or designate a person to serve as Ergonomics Program Manager.
- c. Will ensure that all ergonomics-related problems are investigated and that all needed corrective actions are implemented.
- d. Will ensure that employee work stations are designed and maintained in accordance with the latest ergonomic principles to the greatest extent feasible.
- e. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### **25.4.3 NWS Headquarters (NWSH)**

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.

- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

25.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

25.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.weather.gov/directives/050/pd05011c.pdf">http://www.weather.gov/directives/050/pd05011c.pdf</a></p>
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**25.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 25.5.1 American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents, Current Edition. The Illuminating Engineering Society/American National Standards Institute, IES/ANSI.
- 25.5.2 IES RP 1, American National Standard Practice for Office Lighting, The Illuminating Engineering Society/American National Standards Institute, IES/ANSI.
- 25.5.3 IES RP 7, American National Standard Practice for Industrial Lighting Facilities.
- 25.5.4 Occupational Safety and Health, NIOSH Applications Manual for the Revised Lifting Equation.
- 25.5.5 Working with Safety Video Display Terminals, OSHA Publication 3092

Additional information can be found at the following website <http://www.cdc.gov/niosh/docs/97-141/>

**25.6 Attachments**

Attachment A. Lifting Safety Guidance

**ATTACHMENT A**  
**Lifting Safety Guidance**

Although a typical office job may not involve lifting large or especially heavy objects, it's important to follow the principles of safe lifting. Small, light loads (i.e., stacks of files, boxes of computer paper, books) can wreak havoc on your back, neck, and shoulders if you use your body incorrectly when you lift them. Backs are especially vulnerable; most back injuries result from improper lifting. Before you pick up a carton or load, ask yourself these questions:

- Is this too heavy for me to lift and carry alone?
- How high do I have to lift it?
- How far do I have to carry it?
- Am I trying to impress anyone by lifting this?

If you feel that the lift is beyond your ability, contact your supervisor or ask another employee to assist you.

Safe Lifting Steps

- Take a balanced stance, feet placed shoulder-width apart. When lifting something from the floor, squat close to the load.
- Keep your back in its neutral or straight position. Tuck in your chin so your head and neck continue the straight back line.
- Grip the object with your whole hand, rather than only with your fingers. Draw the object close to you, holding your elbows close to your body to keep the load and your body weight centered.
- Lift by straightening your legs. Let your leg muscles, not your back muscles, do the work. Tighten your stomach muscles to help support your back. Maintain your neutral back position as you lift.
- Never twist when lifting. When you must turn with a load, turn your whole body, feet first.
- Never carry a load that blocks your vision.
- To set something down, use the same body mechanics designed for lifting.

Lifting from a Seated Position

- Bending from a seated position and coming back up places tremendous strain on your back. Also, your chair could be unstable and slip out from under you. Instead, stand and move your chair out of the way.
- Squat and stand whenever you have to retrieve something from the floor.

Ergonomic Solutions to Backbreaking Tasks

- If you are doing a lot of twisting while lifting, try to rearrange the space to avoid this. People who have to twist under a load are more likely to suffer back injury.
- Rotate through tasks so that periods of standing alternate with moving or sitting. Ask for stools or footrests for stationary jobs.
- Store materials at knee level whenever possible instead of on the floor. Make shelves shallower (12-18") so one does not have to reach forward to lift the object. Break up loads so each weighs less.
- If you must carry a heavy object some distance, consider storing it closer, request a table to rest it on, or try to use a hand truck or cart to transport it.



**PROCEDURE 26 - Trenching and Excavation Operations**

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## **Synopsis**

The purpose of this procedure is to establish requirements relative to the hazards associated with trenching and excavation operations. The procedure applies to all NWS facilities, work locations and employees involved in trenching and excavation operations.

### **Initial Implementation Requirements:**

- **Analyze Site Operation versus Requirements of Procedure**
- **Designate Person to Administer Trenching and Excavation Operations Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Competent Person Training. (26.5.2b)
- **Inventory Material/Equipment (Procure as required)**
  - Emergency Rescue Equipment. (26.5.2c, 26.3.14f)
  - Personal Protective Equipment. (26.5.2c, 26.3.14d)
  - Protective Systems. (26.5.2c, 26.3.21 & 26.3.22)
  - Shields. (26.5.2c, 26.3.28)

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment**
  - Conduct daily inspections of excavations, adjacent areas and protective measures (26.3.19)
- **Provide Refresher Training of Site Personnel (as required)**
  - Competent Person Training. (26.5.2b), as appropriate
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - Emergency Rescue Equipment. (26.5.2c, 26.3.14f)
  - Personal Protective Equipment. (26.5.2c, 26.3.14d)

**Trenching and Excavation Operations Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	26.4.2				
Are all Excavation operations being performed in full compliance with this procedure?	26.3.1				
For excavations on NWS property, has a Competent Person been appointed?	26.3.3				
Has the Competent Person been trained according to this procedure?	26.5.4 a-h				
Are all Protective Systems designed or approved by the Competent Person, and are they in accordance with this procedure?	26.3.21-25				
Have all underground utilities been identified and flagged prior to excavation?	26.3.5				
Are structural ramps designed or approved by the Competent Person?	26.5.2b, 26.3.7				
Are adequate safeguards, approved by a Competent Person, being utilized while an excavation is open to ensure workers safety?	26.3.6				
Do all ramps, used in lieu of steps, have cleats or treated surfaces to reduce slip hazards?	26.3.10				
Are safety precautions being implemented to ensure that no employees are permitted under loads being handled by lifting or digging equipment?	26.3.12				
Are employees exposed to vehicular traffic provided with proper	26.3.13				

Requirements	Reference	YES	NO	N/A	Comments
Personal Protective Equipment (PPE)?					
For all excavations greater than 4 feet in depth and where required, is air monitoring performed to determine possible hazardous or oxygen deficient atmospheric conditions?	26.3.14b				
Are engineering controls, such as ventilation, being used, if possible, where there is potential hazardous or oxygen deficient atmospheric conditions?	26.3.14d				
Is rescue equipment available near excavations, and are Qualified Personnel available to perform a rescue?	26.3.14f				
Are adequate safety precautions being taken to protect employees against hazards posed when work is being done in an excavation where there is accumulated water?	26.3.15				
Are approved support systems being used where the stability of adjoining buildings, walls, or structures are endangered by excavation operations?	26.3.16				
Are procedures being followed when excavation operation is being done below the base or footing of any foundation/retaining wall that can pose hazard to personnel?	26.3.17				
Are personnel protected from the falling hazards such as loose rock and soil?	26.3.18				
Has the Competent Person performed daily inspections of excavations, adjacent areas and protective measures?	26.3.19				
Are walkways provided where employees or equipment are required or	26.3.20				

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
permitted to cross over an excavation?					
Are employees performing excavations protected from cave-ins by an adequate protection system?	26.3.21				
Are support systems being designed, constructed and installed in accordance with this procedure?	26.3.26 a-e				
Are protective shields designed and used in accordance with this procedure?	26.3.28 b-e				

## **26 TRENCHING AND EXCAVATION OPERATIONS**

### **26.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with trenching and excavation operations. This procedure applies to all NWS facilities, work locations and employees involved in trenching and excavation operations.

### **26.2 Definitions**

Accepted Engineering Practices. Those requirements which are compatible with standards of practice required by a registered Professional Engineer.

Aluminum Hydraulic Shoring. A pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (wales). These systems are designed to support the sidewalls of an excavation and prevent a cave-in.

Bell Bottom Pier Hole. A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a bell shape.

Benching System. A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-In. The separation of a mass of rock or soil material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by sliding or falling, in sufficient quantity so that it could entrap, bury or otherwise injure an employee.

Competent Person. Defined by OSHA as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authority to take prompt corrective measures to eliminate them. The Competent Person must remain at the job site during operations.

Contracting Officer. Government Officer who is responsible for the award and overseeing of all contractor operations.

Engineering Controls. Ventilation system or air cleaning equipment used for remediation of hazardous air conditions.

Excavation. Any man-made cut, cavity, trench or depression in an earth surface, formed by earth removal operations.

Failure. The breakage, displacement or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hazardous Atmosphere. An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic or otherwise harmful, may cause death, illness or injury.

Kickout. The accidental release or failure of a cross brace.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Professional Engineer. An individual licensed and registered under the laws of the State having jurisdiction to engage in the practice of engineering.

Shield. A structure that is able to withstand the forces imposed on it by a cave-in and therefore can protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Shields used in trenches are referred to as “trench boxes” or “trench shields.”

Shoring System. A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sloping System. A method of protecting employees from cave-ins by excavating to form sides of excavation inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure and application of surcharge loads.

Stable Rock. Natural solid mineral that can be excavated with vertical sides and will remain intact while exposed.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Trench (Trench Excavation). A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of the trench as measured at the bottom is not greater than 15 feet.

Uprights. The vertical members of a trench-shoring system placed in contact with the earth.

Wales. Horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or the earth.

### **26.3 Procedure**

26.3.1 All excavations shall be performed in full compliance with OSHA 29 CFR 1926, Subpart P “Excavations.”

26.3.2 The Contracting Officer with assistance of a Competent Person shall ensure that all excavations are conducted in accordance with the OSHA standards.

26.3.3 The Contracting Officer shall ensure a Competent Person as defined in section 26.2 approves all procedures and hazard controls for excavations at the NWS site.

26.3.4 All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

26.3.5 The estimated location of utility installations, such as sewer, water, electrical service lines, etc., which may be affected shall be determined prior to opening an excavation. As the excavation approaches the estimated location, the actual location shall be verified by safe and acceptable means. Local utilities departments should be contacted before starting the trenching and excavation operations.

26.3.6 While the excavation is open, adequate safeguards shall be approved by the Competent Person to ensure underground utilities do not pose a safety or health hazard to personnel.

26.3.7 Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a Competent Person.

26.3.8 Ramps and runways constructed of two or more structural members shall have the members connected in such a way as to prevent the possibility of displacement. Members shall be of uniform thickness.

26.3.9 Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a way to prevent tripping hazards to personnel.

26.3.10 Ramps used in lieu of steps shall have cleats or a surface treatment to reduce the slipping hazard.

26.3.11 A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.

26.3.12 No employee shall be permitted under loads being handled by lifting or digging equipment.

26.3.13 Employees exposed to vehicular traffic shall be provided with and shall wear warning vests or other suitable garments capable of warning approaching traffic. Reflective or high visibility material shall be used on all these garments.

26.3.14 Potentially Hazardous or Oxygen Deficient Atmospheres.

- a. No employee shall be exposed to harmful atmospheres in excavations. All contaminant levels shall be below the relevant OSHA Permissible Exposure Limits and American Conference of Governmental Industrial Hygienists (ACGIH)



Threshold Limit Values (TLVs) and their associated Short Term Exposure Limits (STELs) and Ceiling Values.

- b. Where the possibility exists of an oxygen deficient or a hazardous atmosphere, as determined by the Competent Person, air monitoring shall be conducted before the start of work by either government or contractor employees (no exception) in all excavations deeper than 4 feet. Air monitoring shall be conducted by a person trained in the use of the monitoring equipment.

<b>NOTE:</b> An oxygen deficient atmosphere is one with an oxygen concentration of less than 19.5 percent.
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- c. Continual air monitoring shall be conducted if the possibility exists of a hazardous or oxygen deficient atmosphere occurring in the excavation. A safety harness must be worn by personnel where the possibility of a hazardous atmosphere or oxygen deficient atmosphere exists to facilitate rescue.
- d. Adequate engineering controls must be used to eliminate hazardous atmospheres if possible. If not, adequate personal protective equipment must be used to reduce the hazard. Respirators must be selected by the Competent Person to ensure their adequacy. All respirator usage shall conform to the requirements of NWS Occupational Safety and Health Procedure 10, "Respiratory Protection." If the oxygen concentration in the excavation is less than 19.5 percent, a supplied air or self-contained breathing apparatus must be used.
- e. Adequate precautions, such as providing ventilation, shall be enacted to prevent any employee exposure to an atmosphere containing a concentration of flammable gas in excess of 20 percent of its lower flammable limit. Atmospheric testing must be conducted as frequently as necessary to ensure the continued effectiveness of the control measures.
- f. Emergency rescue equipment such as breathing apparatus, a safety harness and line, or a basket stretcher shall be readily available when hazardous atmospheric conditions exist or may possibly exist. Personnel shall be properly trained on the use of the rescue equipment.

26.3.15 Employees shall not work in excavations where there is accumulated water, or where water is accumulating unless adequate precautions have been taken to protect employees against the hazards posed by the water.

26.3.16 Where the stability of adjoining buildings, walls or structures is endangered by excavation operations, support systems shall be provided to ensure the stability of the structures and the safety of employees.

26.3.17 Excavation below the base or footing of any foundation or retaining wall that could reasonably be expected to pose a hazard to personnel shall not be conducted unless:

- a. A support structure to ensure the stability of the structure and the safety of employees is installed.

- b. The excavation is in stable rock.
- c. A registered Professional Engineer has determined that the structure is at a sufficient distance from the excavation to be unaffected.

26.3.18 Adequate measures shall be taken to ensure that personnel are protected from loose rock, soil or other falling hazards.

26.3.19 Daily inspections of excavations, adjacent areas and protective measures shall be conducted by the Competent Person for evidence of a situation which could result in a potential cave-in, indications of the failure of a protective system, hazardous atmospheres or other hazardous conditions. When any of the listed hazardous situations are identified, employees shall immediately leave the excavation and not return until adequate control measures are instituted.

26.3.20 Walkways shall be provided where employees or equipment are required or permitted to cross over an excavation. Guardrails complying with 29 CFR 1926.502 (b) shall be provided where walkways are 6 feet or more above lower levels.

26.3.21 Every employee performing excavation shall be protected from cave-ins by an adequate protection system designed in accordance with 29 CFR 1926.652, paragraphs unless:

- a. The excavation is made in stable rock.
- b. Excavations are less than 5 feet in depth and examination of the ground by a Competent Person provides no indication of a potential cave-in.

26.3.22 Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

26.3.23 The slopes and configuration of sloping and benching systems shall be selected and constructed by the NWS or its contractor in accordance with 29 CFR 1926.652, paragraphs (b)(1), (b)(2), (b)(3) or (b)(4).

26.3.24 Materials and equipment used for protective systems shall be free from damage or defects which might impair their functions.

26.3.25 All pre-manufactured materials and equipment for protective systems shall be used and maintained in accordance with manufacturer's recommendations.

26.3.26 Support Systems.

- a. The design and construction of support systems shall be selected and constructed by the NWS or its contractor and shall be in accordance with 29 CFR 1926.652, paragraphs (c)(1), (c)(2), (c)(3) or (c)(4).
- b. Members of support systems shall be securely connected together to prevent sliding, falling, kickouts or other failures.
- c. Support systems shall be installed and removed in a manner that protects employees from cave-ins and other failures.
- d. Removal of support systems shall begin at the bottom of the excavation.

- e. Backfilling shall progress together with the removal of support systems from excavations.

26.3.27 Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when the employees at the lower levels are protected from falling, rolling or sliding materials or equipment.

26.3.28 Shields.

- a. Shields shall not be exposed to loads greater than their designed capacity.
- b. Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.
- c. Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.
- d. Employees shall not be allowed in shields when shields are being installed, removed or moved vertically.
- e. Excavations of earth material to a level not greater than 2 feet below the bottom of a shield shall be permitted.

26.3.29 Open excavations shall be protected by barricades, covers, or other means deemed appropriate by the Competent Person to prevent personnel from accidentally falling into the excavation, particularly during non-work hours.

**26.4 Responsibilities**

26.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

26.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and refresher training of competent person is provided.
- c. Will ensure that initial and periodic inventory of emergency rescue equipment, PPE, shields, protective systems is accomplished and adequate stock is maintained.
- d. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

26.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

26.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

26.4.5 Competent Person

- a. Will understand the requirements of this procedure and be able to recognize potential hazards associated with excavation and trenching work.
- b. Will provide requirements for the use of protective shielding and shoring systems in excavations.
- c. Will inspect excavations, at a minimum, once a day for the purpose of identifying and abating potential hazards associated with the excavation.
- d. Will have the authority to stop all work being performed in an excavation by NWS personnel or contract personnel working for the NWS due to a hazardous situation or hazardous practices.
- e. Will approve all hazard controls used at excavation sites at the facility.
- f. Will approve adequate measures to ensure underground utilities do not pose a safety or health hazard to personnel while the excavation is open.
- g. Will design structural ramps that are used solely by employees as a means of access or egress from excavations.
- h. Will determine, in all excavations greater than 4 feet deep, if the possibility of a flammable or oxygen deficient atmosphere exists. If the possibility of any one or more of those hazardous atmospheres exists, the Competent Person shall ensure that air monitoring is conducted before the start of work by either government or contractor employees (no exception).

26.4.6 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.weather.gov/directives/050/pd05011c.pdf>

## **26.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 26.5.1 American Conference of Governmental Industrial Hygienists, TLV's and BEI's, Threshold Limit Values for Chemical Substances and Physical Agents, Current Edition.
- 26.5.2 National Weather Service Occupational Safety and Health Procedure 8, "Personal Protective Equipment."
- 26.5.3 National Weather Service Occupational Safety and Health Procedure 12, "Confined Space Entry."
- 26.5.4 National Weather Service Occupational Safety and Health Procedure 10, "Respiratory Protection."
- 26.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926, Subpart P, "Excavations."
- 26.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926, Subpart M, "Fall Protection."

## **26.6 Attachments**

None

**PROCEDURE 27 - Forklift**

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## Synopsis

The purpose of this procedure is to establish requirements relative to the hazards associated with the use of forklifts in the workplace. The procedure applies to all NWS facilities and work locations where forklifts are used.

### Initial Implementation Requirements:

- **Analyze Site Operations versus Procedure Requirements**
  - Evaluate areas where Forklifts operate. (27.3.6)
  - Evaluate Fueling Operations. (27.3.2)
  - Evaluate Battery Charging and Changing Operations. (27.3.3)
- **Develop/Obtain Documentation/Information required for Site**
  - Obtain Label/Identification Marks for Approved Truck or Approved Industrial Trucks
  - Develop Forklift-specific hands-on Training Program. (27.3.5b)
  - Develop a License Card/Equivalent Documentation for Qualified Operators. (27.3.5c)
  - Develop Pre-Operational Safety Inspection Checklist. (27.3.4a)
  - Obtain written approval by manufacturer of all Forklift attachments. (27.3.1s), as required.
- **Designate Person to Administer Forklift Safety Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Training of Forklift Operators. (27.3.5)
- **Inventory Material/Equipment (Procure as required)**
  - Carbon Monoxide Monitors (If applicable) (27.4.2b, 27.3.6c.1)
  - Eyewash & Drenching Facilities. (27.4.2b, 27.3.3c)
  - Overhead Guards. (27.4.2b, 27.3.1l)
  - Load Backrest Extension. (27.4.2b, 27.3.1m)
  - Personal Protective Equipment (PPE). (27.4.2b, 27.3.1t & 27.3.3b)
  - Fire Protection Equipment. (27.4.2b, 27.3.3f.2)
  - Carbon Filter/Siphon (27.4.2b, 27.3.3h)

### Recurring and Annual Task Requirements:

- **Perform Inspection/Assessment/Testing**
  - Perform pre-operational safety inspections of forklifts. (27.3.4)

### **Review/Update Documentation/Information required for Site**

- Maintain Forklift-specific hands-on Training Program. (27.3.5a), as required
- Maintain License Cards/Equivalent Documentation for Qualified Operators. (27.3.5c)
- Maintain Pre-Operational Safety Inspection Checklist. (27.3.4a)
- **Provide Refresher Training of Site Personnel (If required)**
  - Training of Forklift Operators. (27.3.7)
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment (As required)**
  - Carbon Monoxide monitors (If applicable) (27.4.2b, 27.3.6c.1)
  - Eye/Face/Body Flushing Drenching Facilities (27.4.2b, 27.3.3c)
  - Overhead Guards. (27.4.2b, 27.3.1l)
  - Load Backrest Extension. (27.4.2b, 27.3.1m)

- Wheel Chocks. *(27.4.2b, 27.3.1i)*
- Personal Protective Equipment (PPE). *(27.4.2b, 27.3.1t & 27.3.3b)*
- Fire Protection Equipment. *(27.4.2b, 27.3.3f.2)*
- Carbon Filter/Siphon *(27.4.2b, 27.3.3h)*



**Forklift Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	27.4.2				
Are forklifts being used for their intended purposes in the appropriate environment according to this procedure?	27.3.1a				
Are only trained and qualified personnel permitted to operate forklifts?	27.3.5				
Has a forklift-specific hands-on training program been developed to qualify new operators and re-qualify existing Operators?	27.3.5a				
Have a License Card and/or Documentation Program for qualified operators been implemented and maintained?	27.3.5c				
Are Pre-Operational Inspections of Forklifts being conducted at the beginning of each shift?	27.3.4 Attachments A & B				
Has Pre-Operational Safety Inspection Checklist, applicable to the Forklifts been developed and being used?	27.3.4a				
Are all powered industrial trucks that are defective, unsafe or require repair taken out of service until repair is done?	27.3.1o				
Are general requirements for operation, maintenance and use of forklifts being followed?	27.3.1				
Is there sufficient headroom under overhead installations, lights, etc., to avoid collisions during Forklift operations?	27.3.6a				
Is there adequate lighting provided where Forklifts are being operated?	27.3.6b				
Is Carbon Monoxide monitoring/recording being conducted, if	27.3.6c				

Requirements	Reference	YES	NO	N/A	Comments
applicable?					
Are requirements for the storage and handling of liquid fuel being followed?	27.3.2, Procedure 16				
Are guidelines for battery changing and charging being followed?	27.3.3				
Are refueling/battery charging being done in designated areas?	27.3.3a				
Is Personal Protective Equipment (PPE) being used during battery charging and installation activities?	27.3.3b				
Are there adequate flushing/rinsing facilities for eyes, face and body during Battery Charging Operations?	27.3.3c				
Are Fire Extinguishers readily available on site?	27.3.3f.2				

## 27 FORKLIFT

### 27.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with the use of forklifts in the workplace. This procedure applies to all NWS facilities and work locations where forklifts are used.

### 27.2 Definitions

Approved Truck or Approved Industrial Truck. A truck that is listed or approved for fire safety purposes for the intended use by a nationally recognized testing laboratory.

Approved trucks shall have a label or other identifying mark indicating approval by a nationally recognized testing laboratory.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Forklift/Powered Industrial Truck. A mobile, power-driven vehicle used to carry, push, pull, lift, stack or tier material that is usually palletized. It may be known by several different names such as but not limited to high lift truck, counterbalanced truck, rider truck, side loader, pallet truck and tow motor. Excluded are earth moving and over-the-road haulage vehicles. For the purpose of this procedure Forklift, Powered Industrial Truck, Truck or Industrial Truck shall all mean the same thing.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 27.3 Procedure

27.3.1 General Requirements. The following general requirements apply to the operation, maintenance and use of forklifts at NWS facilities by NWS or contractor personnel.

- a. Individuals shall only use forklifts appropriate for the intended environment in which they will be operating. 29 CFR 1910.178, "Powered Industrial Trucks," provides guidance for the type of forklift to be used.
- b. Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.

- c. No person shall be allowed to stand or pass under the elevated portion of any truck whether loaded or empty.
- d. Personnel other than the driver shall not be permitted to ride on forklifts.
- e. Employees shall not place their arms and/or legs between the uprights of the mast or outside the running lines of the truck.
- f. When a powered industrial truck is left unattended, the load shall be fully lowered, controls neutralized, power shut off and brakes set. The wheels shall be blocked if the truck is parked on an incline. (A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle which remains in view or whenever the operator leaves the vehicle and it is not in view.)
- g. When the operator of an industrial truck is dismounted and within 25 feet of the truck still in view, the load shall be fully lowered, controls neutralized and the brakes set to prevent movement.
- h. A safe distance shall be maintained from the edge of ramps or platforms while on an elevated dock, or platform or freight car. Trucks shall not be used for opening or closing freight doors.
- i. The brakes of highway trucks shall be set and wheel chocks placed under the rear wheels to prevent the movement of trucks, trailers or railroad cars while loading or unloading.
- j. Fixed jacks shall be necessary to support a semitrailer during loading or unloading when the trailer is not coupled to a tractor.
- k. The flooring of trucks, trailers and railroad cars shall be checked for breaks and weakness before they are driven onto.
- l. An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
- m. A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.
- n. Whenever a truck is equipped with vertical only or vertical and horizontal controls that elevate with the lifting carriage or forks for lifting personnel, the following additional precautions shall be taken for the protection of personnel being elevated:
  - (1) A safety platform firmly secured to the lifting carriage and/or forks shall be used.
  - (2) A means shall be provided whereby personnel on the platform can shut off power to the truck.
  - (3) Protection from falling objects shall be provided as indicated by the

operating conditions.

- (4) Fire aisles, access to stairways and fire equipment shall be kept clear.
- (5) If at any time a powered industrial truck is found to be in need of repair, defective or in any way unsafe, it shall be taken out of service until restored to safe operating condition.
- (6) If the load being carried obstructs the drivers view the forklift will be driven in reverse.
- (7) Forklift drivers shall keep the load upgrade when traveling on grades in excess of 10 percent.
- (8) The rated capacity of the forklift shall never be exceeded.
- (9) Forklift attachments shall be approved in writing by the forklift manufacturer and forklift capacity plate shall be updated accordingly.
- (10) All NWS personnel operating a forklift shall wear a hard hat.

27.3.2 Fueling. The storage and handling of liquid fuels shall be done in accordance with the NWS Occupational Safety and Health Procedure 16, “Flammable and Combustible Liquid Storage.”

- a. No forklift may be operated with a leak in the fuel system until the leak has been corrected.
- b. Spillage shall be avoided.
- c. Spillage of oil or fuel shall be contained or completely evaporated and the fuel tank cap replaced before restarting the engine.
- d. Open flames shall not be used for checking the electrolyte level in storage batteries or the gasoline level in fuel tanks.
- e. Forklifts shall not have their engine running during the fueling process.
- f. Forklifts using LP-Gas as a fuel shall only use DOT-approved containers having a minimum pressure of 240 psi or minimum Container Type 250, which has a 312.5 psi design pressure.

27.3.3 Batteries. Forklift batteries pose a hazard often overlooked by many operators. The following guidelines shall be followed regarding battery changing and charging:

- a. Battery charging installations shall be located in areas designated for that purpose.
- b. Appropriate personal protective equipment shall be used during battery charging and installation activities. This shall include, but not be limited to eye and face protection and acid resistant gloves and apron.
- c. Facilities for flushing/rinsing the eyes, face, body and the work area with water shall be provided wherever electrolyte is handled, except that this requirement

does not apply when employees are only checking battery electrolyte levels or adding water to batteries with gel cells (When water supply is not available, e.g., at RDA sites, portable eyewash unit shall be provided). These facilities shall be available within 10 seconds of unobstructed travel-time distance from the charging station. These facilities shall be well marked and in locations free from obstructions. Care shall be taken when locating the units so as not to create a potential electrocution or shock hazard to personnel.

- d. Batteries shall be properly positioned and secured in the forklift.
- e. When charging batteries, acid shall be poured into water. If water is added to acid, a violent reaction will occur.
- f. The following facilities shall be provided during battery charging operations:
  - (1) Acid neutralizing material that can be poured onto a spill to flush and neutralize spilled electrolyte shall be provided.
  - (2) A fire extinguisher shall be readily available.
  - (3) Posts or substantial barricading shall be installed for the charging mechanism to protect the charging apparatus from damage by forklifts.
  - (4) Adequate ventilation for the dispersal of vapors from off-gassing batteries shall be provided.
- g. A conveyor, overhead hoist or equivalent material handling equipment shall be provided for handling batteries.
- h. A carbon filter or siphon shall be provided for handling electrolyte.
- i. Forklifts shall be properly positioned and brakes applied before attempting to change or charge batteries.
- j. Care shall be taken to assure that vent caps are functioning and the battery (or compartment) cover(s) shall be open to dissipate heat generated during the charging process.
- k. Smoking shall be prohibited in the charging area.
- l. Steps shall be taken to prevent open flames, sparks or electric arcs in battery-charging areas.
- m. Tools and other metallic objects shall be kept away from the top of uncovered batteries.

27.3.4 Pre-Operational Checks. The operator shall perform a pre-operational check on the forklift at the beginning of each shift.

- a. A pre-operational safety inspection checklist that is applicable to the forklifts and their use shall be developed and maintained. The information included on the checklist can be found in the operator's manual for the individual forklift.

- b. Two types of sample checklists can be found in Attachment A of this procedure.

<b>NOTE:</b> These formats may be used for the checklist; however, the items shall be tailored to the specific forklift. The inspection items can be found in the operator's manual(s).
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27.3.5 Operator Training. Only trained and authorized personnel shall be permitted to operate a forklift.

- a. A forklift-specific, hands-on training program shall be implemented and maintained to qualify new operators and periodically re-qualify existing operators in the proper use of each forklift that they will operate.
- b. The training shall include both written and practical safe work activities that are representative of actual work-site conditions and associated forklift maneuvers.
- c. A license card and/or equivalent training documentation for qualified operators shall be maintained.

27.3.6 Work-Site Controls. The following requirements shall be followed in areas in which forklifts are operating.

- a. There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc., below which forklifts will be operating to prevent them from being struck by the forklift or the load being carried.
- b. General lighting of two lumens per square foot or more shall be provided where forklifts will be operating. If general lighting does not meet this requirement, auxiliary directional lighting shall be provided on the forklift.
- c. The levels of carbon monoxide gas created by forklift operations shall not exceed 50 ppm in any portion of the work area at any time. Monitoring of carbon monoxide (CO) can be performed by fixed or portable monitors. Representative sampling may be performed to ensure CO levels are not above the allowable level. However, if there is a change in the equipment used, such as a new forklift or a forklift that is putting out more CO than usual, monitoring shall be repeated to ensure the maximum level of 50 ppm is not being exceeded.

27.3.7 Refresher Training and Evaluation. Refresher training shall be conducted to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely. Refresher training in relevant topics shall be provided to the operator when:

- a. The operator has been observed to operate the vehicle in an unsafe manner.
- b. The operator has been involved in an accident or near-miss accident.
- c. The operator has received an evaluation that reveals that the operator is not operating the truck safely.
- d. The operator is assigned to drive a different type truck.
- e. A condition in the workplace changes in a manner that could affect safe operation of the truck.

- f. An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.

## **27.4 Responsibilities**

### **27.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **27.4.2 Station Manager**

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that forklifts are only used in areas appropriate for their designation.
- c. Will ensure that personnel operate forklifts in accordance with the requirements of this procedure.
- d. Will ensure only trained and authorized personnel are allowed to operate a forklift.
- e. Will ensure forklift operators receive adequate initial training and refresher training as needed.
- f. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- g. Will ensure that initial and periodic inventory of PPE, eyewash and face/body rinsing facilities, fire protection equipment and other safety equipment/instrumentation is accomplished and adequate stock is maintained.

### **27.4.3 NWS Headquarters (NWSH)**

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.



27.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

27.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/050/pd05011a.pdf">http://www.nws.noaa.gov/directives/050/pd05011a.pdf</a>
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**27.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

27.5.1 American National Standards Institute B56.1, "Safety Standard for Low Lift and High Lift Trucks," current version.

27.5.2 National Weather Service Occupational Safety and Health Procedure 16, "Flammable and Combustible Liquid Storage."

27.5.3 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.178, "Powered Industrial Trucks."

**27.6 Attachments**

Attachment A: Sample Pre-Operational Checklist

Attachment A-1: Sample Pre-Operational Checklist

**ATTACHMENT A**  
**Sample Pre-operational Checklist**

Date:	Forklift		Shift	Time			
	#	Items to Check	√	#	Items to Check	√	
Walk-around inspection	1	Oil, fuel or coolant leaks		Lower the hood and floor plate- and sit securely	18	Brake pedal	
	2	Tires and rims			19	Inching pedal	
	3	Wheel nuts			20	Parking brake lever	
	4	Tire pressure			21	Horn	
	5	Lights			22	Lights	
	6	Backrest extension		Turn the key to ON position	23	Amount of fuel	
	7	Forks			24	Stop lights	
	8	Tilt cylinder lock nuts			25	Backup lights and alarm	
	9	Overhead guard			26	OK monitor	
Raise the hood and seat assembly	10	Engine coolant level		Turn the key to START position	27	OK monitor	
	11	Battery electrolyte level (Use eye protection)			28	Steering wheel	
	12	Brake fluid level		Test operation	29	Lift chains	
	13	Hydraulic oil level			30	Engine	
	14	Engine oil level			31	Mast	
Lower the hood and floor plate-	15	Seat adjustment			32	Inching	

and sit securely	16	Seat Belt		33	Service brakes	
	17	Accelerator pedal		34	Steering wheel	
Other deficiencies noted:						

Report all deficiencies to supervisor or maintenance immediately.

**ATTACHMENT A-1**  
**Sample Pre-operational Checklist**

<b>SAFETY AND OPERATIONS CHECKS (Prior to Each Shift)</b>	<b>Shift 1,2,3</b>		
Fuel Odor Present (DO NOT START TRUCK - Report to your Supervisor)			
Fuel Level - Leaks			
Tires - Condition and Pressure			
Overhead Guard			
Load Backrest Extension			
Finger Guards			
Capacity Plate - Attached (Including Attachment Data)			
Safety Warnings - Attached (refer to Parts Manual for Location)			
Hour Meter Functioning			
Horn			
Lights			
Shift Linkage			
Accelerator Linkage			
Service Brake			
Parking Brake			
Steering Operation			
Hoist and Lowering Control			
Tilt Control - Forward and Back			
Attachment Control			
Mast Operation			
Main Hydraulic Tank Level			
Hydraulic Leaks - Valves, Hoses, Fittings, Cylinders, Etc..			
Forks, Top Clip Retaining Pin and Heel Condition			
Unusual Noise (Must be Investigated Immediately)			
Battery - Water Level			
Propane Tank, Rust, Corrosion, Damage			
Engine Oil Level - Leaks			
Engine Oil Pressure			
Engine Air Filter - Squeeze Rubber Dirt Trap or Check the Restriction Alarm/			
Ammeter Operating			
Water or Anti-Freeze Level - Leaks			
All Belts			
Transmission Fluid Level			
Cab - Heater, Defroster, Wipers (If Equipped)			
Other Deficiencies Noted			

**Report all deficiencies to maintenance immediately:    √ - Item OK    X - Item Deficient**

1<sup>st</sup> Shift Operator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Shift Operator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Shift Operator Signature: \_\_\_\_\_ Date: \_\_\_\_\_



**PROCEDURE 28 - Welding/Hot Work**

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## Synopsis

The purpose of this procedure is to provide requirements relative to the hazards in the workplace associated with hot work. The procedure applies to all NWS facilities, welding work locations, and employees. The requirements of this procedure do not apply to soldering operations.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Establish/Evaluate Welding Areas. (28.3.1)
  - Inspect Established Welding Areas and implement Corrective Actions.(28.5.3c, 28.3.Ii, 28.5.2c)
- **Develop/Obtain Documentation/Information required for Site**
  - Complete Hot Work Permit Form.(28.3.2)
- **Designate Person to Administer Welding/Hot Work Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Training of personnel performing hot work. (28.3.14c)
  - Fire Watch Training. (28.3.14b, 28.3.3c.2)
- **Designate Person for Contractor oversight (If applicable)**
- **Inventory Material/Equipment (Procure as required)**
  - Fire Extinguishers. (28.4.2b, 28.3.1c)
  - Mechanical Ventilation Systems. (28.4.2b, 28.3.1g)
  - Guards, Shields, Fire Blankets. (28.4.2b, 28.3.3a.2)
  - Flash Protection. (28.4.2b, 28.3.11d)

### **Annual Review and Recurring Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Conduct annual inspections of Established Welding Areas. (28.3.1i)
- **Review/Update Documentation/Information required for Site**
  - Maintain Training Records. (28.5.2b, 28.3.14)
- **Provide Refresher Training of Site Personnel (As required)**
  - Training of site personnel on Hot Work Hazards and Protective Measures. (28.3.14)
  - Fire Extinguisher Training. (28.3.14c)
  - Training on Equipment Use. (28.3.14c)
  - Fire Watch Training. (28.3.3c.2)
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment (As required)**
  - Fire Extinguishers. (28.4.2b, 28.3.1c)
  - Mechanical Ventilation Systems. (28.4.2b, 28.3.1g)
  - Guards, Shields, Blankets. (28.4.2b, 28.3.3a.2)
  - Flash Protection. (28.4.2b, 28.3.11d)

**Welding/Hot Work Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	28.4.2				
Have all employees affected by this procedure, read, understood, and complied with the requirements of this procedure?	28.5.4a				
Are annual assessments of Established Welding Areas performed to ensure compliance with this procedure?	28.3.1i 28.4.3				
Are Fire Watch and other NWS personnel affected by this procedure trained?	28.5.2b & 28.3.14				
Are all Established Welding Areas approved and meet the requirements of this procedure?	28.3.1a & 28.5.2c				
Are there Class ABC Fire Extinguishers installed in welding areas where there is no sprinkler system?	28.3.1c				
Are the travel distances to the Fire Extinguishers less than 20 feet?	28.3.1c				
Is a Fire Watch present when all hot work is being performed?	28.3.3c & 28.5.5a				
Is a Fire Watch present for at least a half-hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires?	28.3.3c				
Are all Fire Watches trained in the proper use of a Fire Extinguisher?	28.3.3c.2 & 28.5.5b 28.3.14				



Requirements	Reference	YES	NO	N/A	Comments
Is ventilation available if the welding area does not have ceilings of at least 16 feet with no obstructions or the room does not provide at least 10,000 cubic feet of room volume per welder?	28.3.1e				
Are requirements listed in this procedure for welding specific materials being followed?	28.3.1e,f				
Does the Safety or Environmental/Safety Focal Point provide Hot Work Permits for work being performed in Non-Established Areas prior to commencement?	28.3.2 & 28.3.12				
Is the Hot Work Permit read and signed by the person performing the hot work and the Fire Watch prior to commencement of the work?	28.3.13				
When work cannot be moved, is the area made safe by removing combustibles or protecting combustibles from ignition sources?	28.3.3a				
Are special hazards or precautions noted on the Hot Work Permit, specific to the area in which the hot work is being performed?	28.3.6				
Are combustible floors kept wet, covered with damp sand, or protected by fire resistant shields?	28.3.3a.1 & 28.3.3e				
Are guards, shields and/or fire blankets being used on all combustible materials within 35 feet of the hot work?	28.3.3a.2				
Does all Hot Work in confined spaces meet the minimum requirements of this procedure and also NWS Occupational Safety and Health Procedure # 12, "Confined Space"?	28.3.10				
Does management ensure that welders and supervisors are suitably	28.3.14				

Requirements	Reference	YES	NO	N/A	Comments
trained in the safe operation of their equipment and the safe use of the process?					
Are requirements of the NWS Occupational Safety and Health Procedure # 1, “Fall Protection” followed, if applicable?	28.3.11a				
Are welding leads and torch hoses and associated equipment being placed away from passageways, ladders and stairwells?	28.3.11b				
Is appropriate PPE being used in accordance with NWS Occupational Safety and Health Procedure # 8, “Personal Protective Equipment”?	28.3.11c				
Is flash protection provided in areas where pedestrian traffic may be exposed to the welding flash?	28.3.11d				
After open flame sweating takes place, does quenching of the pipe with a damp rag take place to reduce possible physical injury or fire by conduction?	28.3.11e				

## 28 WELDING/HOT WORK

### 28.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards in the workplace associated with hot work. This procedure applies to all employees at NWS facilities where welding is performed. The requirements of this procedure do not apply to soldering operations except as referenced in 28.3.7.

### 28.2 Definitions

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Fire Watch. Individual dedicated to continuous surveillance of any hot work.

Hot Work. Any open flame/open arc activity such as, but not limited to, electric arc-welding, oxy-acetylene operations, air arc, plasma arc, and brazing.

**NOTE:** For the purpose of this procedure, hot work and welding shall be used interchangeably to designate welding, oxy-acetylene operations, air arc, plasma arc and brazing activities.

Hot Work Permit. A standardized form that certifies an evaluation of a planned hot work activity has been performed and specifies what precautions must be taken for the work to be performed safely.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### 28.3 Procedure

28.3.1 All hot work shall be performed in an Established Welding Area, if possible. Hot work performed in this area does not require a Hot Work Permit. Established Welding Areas shall meet the following criteria:

- a. The Established Welding Area shall be a discrete area, sectioned off by walls, curtains, or at a minimum, by lines on the floor. If lines on the floor are used, two areas shall be marked off with the lines:
  - (1) The Established Welding Area within which all welding must occur.

- (2) At least a 35-foot buffer area around the Established Welding Area which shall contain no combustible or flammable material.
- b. There shall be no exposed, readily combustible material such as paper, rags, wood, etc., within the Established Welding Area during welding. Walls, curtains and floors shall be made of combustion-resistant materials and shall have no cracks or openings into which sparks may fall and smolder.
- c. If possible, there shall be a fully operational, automatic fire protection system in the Established Welding Area. If a sprinkler system is not feasible, then there shall be a Class ABC fire extinguisher(s) installed in the welding area that is capable of extinguishing the largest fire reasonably expected to occur in the welding area. The travel distance to the extinguisher shall not exceed 20 feet.
- d. The area shall have at least one of the following as a permanent feature:
  - (1) A ceiling height of at least 16 feet with no obstructions to cross ventilation.
  - (2) At least 10,000 cubic feet of room volume per welder.
- e. Ventilation is required if the welding area does not have one of the features specified in “d” above or if hot work is performed which involves one of the following materials that may be present in the welding rods, welding gases, or on the base metal being worked: fluorine, zinc, beryllium, cadmium, mercury, lead, or stainless steel.
- f. If welding involves any of the materials listed in paragraph “3.e” above, the requirements listed in 29 CFR 1910.252, section (c) shall be adhered to. These requirements focus on ventilation and personal protective equipment usage.
- g. Mechanical ventilation shall take the form of local exhaust hoods or ventilation booths.
  - (1) Local exhaust hoods shall be placed as close to the work being performed as possible and shall maintain a minimum flow rate of 100 linear feet per minute at the point where the work is being performed.
  - (2) Ventilated welding booths shall have a top and at least two sides and maintain a face velocity of no less than 100 linear feet per minute away from the welder.
- h. Established Welding Area shall be a sufficient distance from, or separated from, flammable materials and/or duct work that may carry flammable materials or may carry sparks or hot slag to areas containing flammable or combustible material.
- i. The Established Welding Area shall be evaluated at least annually for adequacy and the evaluation shall be documented.

28.3.2 If hot work cannot be performed in an Established Welding Area, then a Hot Work Permit shall be issued by the Safety or Environmental/Safety Focal Point before the work may commence. A copy of the Hot Work Permit can be found in attachment A.

28.3.3 Fire Hazards. All potential fire hazards shall be removed from the area. Potential fire hazards include all flammable and readily combustible materials.

- a. If all potential fire hazards cannot be removed, then the following requirements shall be met:
  - (1) If flammable materials cannot be removed from the area or adequately covered/guarded, the hot work shall not be permitted.
  - (2) Guards, shields, and or fire-blankets shall be used to confine the heat, sparks and or slag from coming into contact with the combustible material within 35 feet of the hot work.
  - (3) All floor openings and cracks shall be closed, sealed and/or covered to ensure that sparks cannot drop into the openings and come into contact with combustible materials.
- b. Suitable fire extinguishing equipment shall be maintained in a state of readiness at all times for instant use. This may include fire extinguishers, water hoses or buckets of sand, depending on the nature of the combustible material exposed. This equipment shall be used in areas that have fixed suppression systems as well as areas without such systems.
- c. A Fire Watch shall be present to ensure that sparks, slag and heat generated by the hot work do not start a fire while the welder is working.
  - (1) The Fire Watch shall remain at the work location for at least a half hour after the hot work has been completed to ensure that no sparks or slag are smoldering and that the heat generated by the hot work did not cause some other material to smolder thus creating a potential fire hazard.
  - (2) The Fire Watch shall be trained in the proper use of fire extinguishing equipment and be prepared to use it.
  - (3) The Fire Watch shall also be aware of other potential hazards associated with the hot work activity such as exposure to welding fumes, welding flash and any other potential hazards unique to the area in which the work is being performed.
- d. Cutting or welding on materials that are in contact with combustible walls, partitions, ceilings or roofs shall not be done if the work is close enough to ignite these surfaces by means of conduction.
- e. If feasible, floors shall be wet down to prevent ignition.

28.3.4 Equipment shall be arranged so that it does not pose any additional hazards. Examples of such hazards would include placing a gasoline-powered welder near a ventilation intake, or placing an oxy-acetylene unit in an exit way.

28.3.5 Ventilation may be required when hot work is being performed due to the material on which work is being performed or due to fume build-up in small areas. The ventilation shall be equivalent to that required for Established Welding Areas to ensure the person performing the hot work and those working around them are not potentially exposed to the harmful materials.

28.3.6 Any special hazards or precautions specific to the area in which the hot work is being performed shall also be evaluated and noted on the permit.

28.3.7 Any open flame soldering, such as at the towers, shall follow the guidelines for Hot Work Activities. Depending on the type of solder used, respiratory protection may be needed, i.e. solder with lead present.

28.3.8 Hot work is prohibited from being performed in the following areas:

- a. Any area not authorized by the Station Manager.
- b. In buildings where the sprinkler system is impaired.
- c. In the presence of explosive atmospheres or areas in which an explosive atmosphere may develop due to improper cleaning of tanks or equipment that previously contained flammable materials or combustible dusts.

28.3.9 Ducts or conveyors that may carry sparks or slag to combustible materials shall be protected or shut down during hot work activities.

28.3.10 Hot work in confined spaces shall at a minimum meet the following requirements in addition to the requirements of the NWS Occupational Safety and Health Procedure 12, "Confined Space Entry."

- a. When the persons performing the hot work leave the confined space for lunch, breaks, etc., the welder shall be disconnected from its power source, the electrodes shall be removed from the leads, and the leads will be located so that accidental contact cannot occur.
- b. The valves of any torches used in the confined space as well as the valves on the cylinders supplying the torch shall be closed when not in use for a substantial period of time, such as during lunch or overnight. Where practical, the torch and hose shall be removed from the confined space when not in use.
- c. Gas cylinders and welders shall not be taken into the confined space. They shall be left outside of the space and the leads or hoses run into the confined space.
- d. Ventilation is required in confined spaces to prevent the accumulation of toxic materials or possible oxygen deficiency. The air replacing the air withdrawn shall be clean and breathable. No employee shall be exposed to a contaminant in excess of its OSHA Permissible Exposure Limit, Short Term Exposure Limit or American Conference of Industrial Hygienists Threshold Limit Value.

Additionally, no employee shall enter or work in environments with less than 19.5 percent oxygen by volume without a supplied air respirator or a self-contained breathing apparatus.

- e. Oxygen shall never be used for ventilation.
- f. Additional requirements shall be added depending on the nature of the confined space.

28.3.11 During hot-work activities the following requirements shall be met to provide minimal protection to personnel. Additional requirements shall be made depending on the nature of the work.

- a. All personnel performing hot work shall follow the requirements of NWS Occupational Safety and Health Procedure 1, "Fall Protection", if applicable. An example would be an unguarded elevated work surface.
- b. Welding leads and torch hoses and associated equipment shall be placed so that they are clear of passageways, ladders and stairwells.
- c. Personnel protective equipment shall be used in accordance with NWS Occupational Safety and Health Procedure 8, "Personal Protective Equipment."
- d. Flash protection shall be provided in areas where pedestrian traffic may be exposed to the welding flash.

28.3.12 The Safety or Environmental/Safety Focal Point shall issue Hot Work Permits when work shall be performed outside of Established Welding Areas.

- a. Prior to issuing the permit, the Safety or Environmental/Safety Focal Point shall evaluate the area in which the work is to be performed using the criteria in this procedure and shall specify the applicable requirements on the Hot Work Permit.
- b. If the Safety or Environmental/Safety Focal Point determines that adequate protection cannot be afforded to the personnel performing the work and other personnel working in the area or the facility, he/she shall not issue the permit until adequate protection can be provided.
- c. Each Hot Work Permit shall be specific for the area and type of work. At no time shall the location of the work or the work described on the Hot Work Permit change without obtaining another valid Hot Work Permit or an initialed modification of the original permit. Only the Safety or Environmental/Safety Focal Point may modify the original permit.
- d. Once the area has been evaluated and the permit is completed, the Safety or Environmental/Safety Focal Point shall sign the permit.

28.3.13 Persons performing hot work activities shall be aware of potential hazards in the area in which they are working and the requirements specified on the Hot Work Permit designed to mitigate these hazards.

- a. The person performing the hot work and the Fire Watch shall be required to read the Hot Work Permit and sign the permit acknowledging the fact that they understand the potential hazards and will follow the requirements of the permit. The person(s) performing the hot work and the Fire Watch shall sign the permit themselves. No one else may sign the permit for them.
- b. Once the hot work has been completed, the permit shall be returned to the Safety or Environmental/Safety Focal Point as soon as possible.

28.3.14 Training shall be provided initially to all personnel affected by this procedure and at any time there is a modification to this procedure that will affect work practices.

- a. The Safety or Environmental/Safety Focal Point shall be given training that will ensure that he/she has adequate knowledge to evaluate an area using the criteria in this procedure and is able to specify the requirements necessary to perform the work safely.
- b. The Fire Watch shall be trained in the proper use of the fire extinguishing equipment that he/she is expected to use as a Fire Watch. The Fire Watch shall also be trained in the use of any protective equipment or procedures necessary to protect himself/herself and other personnel in the area and the facility.
- c. Persons performing the hot work shall be trained in the proper use of the equipment they will be using to perform the hot work.
  - (1) They shall also be trained in the proper use of the fire extinguishing equipment that is provided for the use of the Fire Watch.
  - (2) They shall also be properly trained in the use of any protective equipment or procedures necessary to protect themselves or other personnel in the area and the facility.

## **28.4 Responsibilities**

### **28.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### **28.4.2 Station Manager**

- a. Will have oversight over the implementation of this procedure and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that the Fire Watch and other NWS personnel affected by this procedure are trained in accordance with the requirements of this procedure and training records are maintained.



- c. Will ensure any designated welding areas meet the requirements of this procedure and approve the area for use as such and shall ensure that corrective actions are implemented.
- d. Will designate any areas in which hot work is prohibited.
- e. Will review or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/ Safety Coordinator. This review shall include a spot check of the Hot Work Permits issued over the past year to ensure that they have been properly completed.
- f. Will ensure that initial and periodic inventory of fire extinguishers, guards, shields, fire blankets, flash protection and other safety equipment is accomplished and adequate stock is maintained.

#### 28.4.3 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will issue hot work permits (if designated) in accordance with the requirements of this procedure and keep copies of issued Hot Work Permits for 18 months.
- c. Will perform an annual assessment of Established Welding Areas to ensure these areas are maintained in compliance with this procedure. These inspections shall be documented and kept on file for a minimum of 3 years.

#### 28.4.4 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

#### 28.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

#### 28.4.6 Fire Watch

- a. Will be present when all hot work is performed to ensure a fire is not started due to the hot work and shall remain at the location for a minimum of one-half hour after the work has been completed.
- b. Will be trained in the proper use of a fire extinguisher and be expected to use the fire extinguisher in the event of a fire.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/050/pd05011a.pdf">http://www.nws.noaa.gov/directives/050/pd05011a.pdf</a>
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## 28.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 28.5.1 National Fire Protection Association, NFPA 51B, “Fire Prevention in Use of Cutting and Welding Processes.”
- 28.5.2 National Weather Service, NWS Occupational Safety and Health Procedure 12, “Confined Space Entry.”
- 28.5.3 National Weather Service, NWS Occupational Safety and Health Procedure 1, “Fall Protection.”
- 28.5.4 National Weather Service, NWS Occupational Safety and Health Procedure 8, “Personal Protective Equipment.”
- 28.5.5 National Weather Service, NWS Occupational Safety and Health Procedure 6, “Fire Protection.”
- 28.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910 Sub-part Q “Welding, Cutting, and Brazing.”

## 28.6 Attachments

Attachment A. Hot Work Permit (template)

**ATTACHMENT A  
Hot Work Permit (Template)**

**Hot Work Permit Number** \_\_\_\_\_

**VALID FROM** \_\_\_\_\_ **EXPIRES** \_\_\_\_\_  
Date Time Date Time

**LOCATION OF WORK:** \_\_\_\_\_

**This Hot Work Permit is VALID.**

\_\_\_\_\_  
Safety or Environmental/Safety Focal Point Signature

**WORK REQUIREMENTS**

Check  All That Apply and Add Specifics

Fire Ext. \_\_\_\_\_

Cover Openings \_\_\_\_\_

Equipment Arrangement \_\_\_\_\_

Fire Suppression Equipment \_\_\_\_\_

\_\_\_\_\_

Fire Watch \_\_\_\_\_

\_\_\_\_\_

Relocate Combustible Materials \_\_\_\_\_

Ventilation \_\_\_\_\_

Wet Floors \_\_\_\_\_

Other Requirements \_\_\_\_\_

**DESCRIPTION OF WORK:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I understand and will comply with all requirements on this permit.

Signature

Printed Name

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Return this permit to the Safety or Environmental/Safety Focal Point immediately upon completion of work or permit expiration.

**PROCEDURE 29 - Small Boat Safety**

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## Synopsis

The purpose of this procedure is to establish requirements relative to safe operation of small boats. This procedure applies to all NWS work locations and employees where small boats are owned/operated, leased or rented by an NWS personnel.

### Initial Implementation Requirements:

- **Analyze Site Operations versus Procedure Requirements**
- **Develop/Obtain Documentation/Information required for Site**
  - Complete small boat registration with NOAA Small Boat Program Manager (29.3.8)
  - Obtain copies of Small Boat Operator(s) training certificates and Operator Qualification Checklist(s) (29.3.1c(4))
  - Prepare written checklists of start up and shutdown procedures (29.3.2b, d)
- **Designate Person to Administer Small Boat Safety Procedure Requirements**
- **Provide Local Training for Site Personnel**
  - USCG or Equivalent Training of Small Boat Operator (SBO) (29.3.11c(2)i)
  - NOAA Component Course (29.3.1c(1)ii)
  - Training for Crewmembers (if applicable) (29.3.1c(5))
  - CPR/First Aid Training (29.3.1c(2))
- **Inventory Material/Equipment (Procure as needed)**
  - Minimum Equipment as specified in 29.3.3

### Recurring and Annual Task Requirements:

- **Perform Inspection/Assessment/Testing**
  - Perform annual risk assessment and operation risk assessments prior getting underway (29.3.2a(3))
  - Conduct routine and annual Small Boat inspections/evaluations (29.3.5)
  - Testing of survival equipment monthly (29.3.5a)
  - Perform Preventive Maintenance of all required equipment (29.3.10)
- **Review/Update Documentation/Information required for Site**
  - File Float Plans prior to departure (29.3.2a(5))
  - Maintain logbooks (as applicable) (29.3.2b(2))
- **Provide Refresher Training for Site Personnel**
  - NOAA Component Refresher course (29.3.1c(1)ii)
  - Operator Qualifications Letters validated by VOC annually to ensure currency of training requirements (29.3.1c(6))
  - Refresher CPR/First Aid Training
- **Inspect/Replace/Maintain Material/Equipment**
  - Minimum Equipment as specified in 29.3.3

**Small Boat Safety Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Are provisions of NOAA Small Boat Standards and Procedures Manual being met?	29.3.1a				
Do only personnel who meet NOAA training and certification requirements operate small boats?	29.3.1c				
Are all Small Boat Operators Qualification Letters validated annually by VOC?	29.3.1c(5)				
Are annual Small Boat Risk Assessments and re-departure operational risk assessments being performed?	29.3.2a(3)				
Are Float Plans being completed and filed with the field office prior to departure?	29.3.2a(5)				
Are proper start up and shutdown procedures being followed?	29.3.2 b, d				
Are appropriate personal flotation devices (Type I, II or III) being worn by boat personnel?	29.3.3a(4)				
Are all boats, equipped with the minimum equipment requirements as stated in this procedure?	29.3.3				
Are boat accidents being reported using NOAA web based Accident/Illness Reporting System?	29.3.4				
Are annual and routine boat inspections conducted?	29.3.5				
Are emergency procedures developed for applicable emergency situations?	29.3.9				
Are periodic maintenance checks of each boat being conducted and recorded?	29.3.10a				
Is scheduled preventative maintenance conducted					

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
regularly on boats, trailers and engines?	29.3.10b				
Is initial and annual review of this procedure conducted and documented?	29.4.2				



## 29 SMALL BOAT SAFETY

### 29.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to hazards associated with the operation of small boats. This procedure applies to all NWS work locations and employees where small boats are owned/operated, leased/rented or chartered by an NWS personnel.

### 29.2 Definitions

Crewmember. An individual designated in writing and capable of assisting in operation of the small boat.

Demise (bareboat) Chartered Boat. A lease of a vessel in which all control is relinquished by the owner to the charterer, and the charterer bears all the expenses of operation.

EPIRB. Emergency position indicating radio beacon.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

NOAA Small Boat Program Manager (SBPM). The NOAA manager who is the functional head and communications focal point of the NOAA Small Boat Program (SBP). SBPM is Chair of an appointed board (Small Boat Safety Board) of representatives from the NOAA Line and Staff Offices.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Operational Risk Assessment. A process involving identification of risks associated with a NOAA small boat's operations and consideration of actions to reduce those risks. Supervision, communication, and overall support, operating area, operator experience level, personnel physical and mental fitness, weather, and complexity of mission may be factors in the assessment.

Operator-in-Charge. An NWS qualified employee responsible for safe operation of a small boat.

Personal Floatation Device (PFD). Life preservers, buoyant vests, special purpose water safety devices, buoyant cushions, or ring buoys and work vests, each of which must be United States Coast Guard (USGC) approved.

Program Director. An NWS management personnel responsible for ensuring implementation and compliance with all policies and for the safe use and management of small boats within a Program (e.g., Station manager would be a Program Director for NWS-owned small boat operations).

NOAA SECO. NOAA Safety and Environmental Compliance Office.

Small Boat Safety Board (SBSB). The SBSB is the final technical authority within NOAA on matters relating to interpretation and application of NOAA Administrative Order 2 NAO 209-125, NOAA Small Boat Program; the NOAA Small Boat Standards and Procedures Manual; and all small-boat matters raised to the SBSB for an opinion or interpretation. NWS is currently represented by OAR/NWS Vessel Operations Coordinator (VOC) on SBSB.

Small Boat Operator (SBO). A National Weather Service (NWS) employee who meets certification requirements per NOAA Small Boat Standards and Procedures Manual.

Station Manager. For the purpose of this procedure, the Station Manager will be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Small Boat. Watercraft less than 300 gross tons capable of being used as a means of transportation of persons on water including boats owned, operated or maintained by NWS. The term includes boats leased, loaned, demise (bareboat) chartered, or operated under cooperative agreement with other government agencies, universities or scientific organizations. It does not include boats time chartered by NWS personnel.

Small Boat Inspections. Documented, formal evaluations of a small boat's material condition, inventory, and compliance for which inspection criteria, frequency, and format are defined in the NOAA Small Boat Standards and Procedures (SBSP) Manual.

Time-Chartered Boats. A time charter is when NWS facility hires someone to provide and operate a boat for a given period of time at a given "rate," usually a daily rate. The boat is owned and operated by someone other than NWS.

Vessel Operations Coordinator (VOC). An individual responsible for implementing all requirements in accordance with NOAA SBSP Manual. Each VOC shall ensure that personnel are trained to achieve the stated qualifications and to maintain the level of proficiency and currency necessary to safely and effectively accomplish their assigned duties.

**NOTE:** NWS VOC contact information can be found on the following web site:

<http://www.oma.noaa.gov/learn/small-boat-program/about/personnel>

## **29.3 Procedure**

### **29.3.1 Operating Boats**

- a. The provisions of the NOAA Small Boat Standards and Procedures (SBSP) Manual found on NOAA Small Boat Program web site (<http://www.oma.noaa.gov/sites/default/files/documents/NSBSPManual%20v3%20final.pdf>) are the basis for all safety and health procedures involving the

operation of NWS-owned or leased/rented small boats. Compliance with these standards and all other applicable regulations is required.

**NOTE:** Although the SBSP Manual does not specifically address procedures for rental boats, all relevant requirements for personnel training, boat inspections, Float Plan, and use of emergency equipment should be followed to ensure safety of NWS personnel involved in boats operation. NWS VOC can be contacted to address any specific questions or concerns.

b. Small Boat Categories

Small Boat Category	Definition
Class A	less than 16 feet length overall
Class I	16 to less than 26 feet length overall
Class II	26 to less than 40 feet length overall
Class III	40 to 65 feet length overall
Small Research Vessel (SRV)	greater than 65 feet length overall but less than 300 gross tons

c. Personnel Authorized to Operate NWS Small Boats

Only NWS personnel whose credentials meet training and certification requirements as per NOAA SBSP Manual will be authorized to operate NWS small boats. A NOAA Boat Operator Qualification Letter (Appendix E of NOAA SBSP Manual) must be completed by VOC for each qualified NWS Small Boat Operator, identifying the specific operations and small boats, or class of boats, for which that operator is qualified. The authorization certificate must be signed and maintained on file by the VOC.

(1) *Small Boat Operator Training:*

i The *USCG Auxiliary Boating Skills and Seamanship (BS&S)* or equivalent. An equivalent course must cover all of the significant topics of the USCG Auxiliary’s BS&S curriculum and must be, at minimum, of equivalent duration (approximately 24 hours dependent on location). The topics are available at:

[http://a0920408.uscgaux.info/Boating\\_Skills\\_And\\_Seamanship.htm](http://a0920408.uscgaux.info/Boating_Skills_And_Seamanship.htm)

<http://www.oma.noaa.gov/learn/small-boat-program/resources/training>

*NOAA Component Course.* The NOAA Component Course is developed by the SBSB and updated as policies, procedures and standards change. It consists of three sections with accompanying exercises and a test. The NOAA Component Refresher Course will be required. It will be taught by regional instructors or posted on DOC e-learning web site. The course may be customized by location. Section topics include:

- NOAA small-boat policy, procedures and standards

- Operational Risk Assessment
- Team Leadership

(2) *CPR and First Aid Training*

All Small Boat Operators shall have current Red Cross or equivalent certification in cardiopulmonary resuscitation (CPR), including the use of Automated External Defibrillators (AED) instruction, when available, and First Aid training.

(3) *Personnel Qualification Standards Checklist*

- i Small Boat Operators must successfully complete a checkout process with VOC (or designee) for each type of mission and for each specific small boat on which the personnel will be employed.
- ii Upon completion of the checkout process, the VOC must complete an Operator Qualifications Checklist form (Appendix F of NOAA SBSP Manual) for each person who will be operating any NWS small boat(s).

(4) *Documentation*

Copies of all training certificates and operator qualification checklists for all NWS Small Boat Operators will be maintained by the VOC and at the specific field office.

(5) *Training for Crewmembers (if applicable)*

All crewmembers are required to meet the training requirements defined in NOAA SBSP Manual. Crewmembers are required to receive small boat-specific training and must demonstrate knowledge of the procedures and equipment carried aboard the small boat(s) on which they will be employed.

(6) *Currency Requirements*

All NWS Small Boat Operator Qualification Letters shall be validated annually by the VOC to ensure currency of certifications, training requirements, and a measure of proficiency.

d. Minimum Safe Manning Levels

For all Class A, Class I, and Class II manning-level baselines (minimum safe-manning-level requirements) are set by the NWS VOC based on, but not limited to, the minimum manning levels as determined by the small boat's Pre-departure Risk Assessment and as approved by the Station Manager or designee.

29.3.2 General Safety Procedures

All NWS facilities that own and operate small boats or intend to acquire a small boat to support the mission, shall inform the NWS VOC. According to NOAA SBSP Manual, compliance with each of the following procedures for motorized small boats is mandatory for all trips, whether planned or unplanned.

- a. Prior to Engine Start-Up
  - (1) *Crew Reporting (if applicable)*

Crewmembers for each mission shall report to the Operator in Charge at a specific, pre-determined time and place prior to departure.

**NOTE:** Small Boat Operators are considered Operators in Charge if they are the only qualified operators aboard.

(2) *Pre-departure and Safety Briefings*

i The Operator in Charge shall conduct a pre-departure briefing that should review any prior mission planning and preparation and cover any updates. This briefing shall be conducted far enough in advance to enable the crew to prepare adequately for any last-minute adjustments.

ii The next most senior Small Boat Operator or crewmember must be identified during this briefing, and must be prepared to take command of the small boat in case of Operator in Charge incapacitation.

iii The Operator in Charge, Small Boat Operator, or crewmember must also conduct a thorough safety briefing with all embarked personnel prior to getting underway. The briefing shall include general small boat familiarity and the locations of all safety systems and equipment carried aboard (fire extinguishers, life rafts, life rings, personal floatation devices, immersion suits, EPIRBs, etc.).

iv The embarked personnel shall be apprised of the procedures to follow during fire, abandon ship, man overboard, and other emergencies.

v The use of a formal, written checklist detailing all of the topics to be covered during each safety briefing is strongly encouraged. (See Appendix G of NOAA SBSP Manual for an example).

(3) *Operational Risk Assessment*

i Annual Risk Assessment

Every NWS office that operates small boats shall conduct, document, and review an Annual Risk Assessment for small boats. The assessment shall be based on an evaluation of operational risks to personnel, small boat, environment, mission, and public relations. Guidelines for performing an Annual Risk Assessment can be found in Appendix B of NOAA SBSP Manual.

ii Prior to getting underway, the Operator in Charge and crewmember(s) shall conduct an Operational Risk Assessment (See Appendix H of NOAA SBSP Manual) and confirm that the mission, personnel, and small boat all meet the assumptions made within the Annual Risk Assessment. If there is any indication that an unacceptable level of risk exists, the Operator in Charge shall take actions to reduce existing risks to an acceptable level.

iii Actions taken might include requiring additional crewmembers, reducing the scope of the mission, or carrying additional equipment

aboard. Any modifications to the mission, personnel, or small boat completed in an effort to mitigate risks shall be documented in both the Float Plan and the small boat's log and provided verbally to the Vessel Operations Coordinator prior to departure.

iv The total score of the Operational Risk Assessment shall be recorded in the Float Plan or the small boat's log. The Operator in Charge has the authority to cancel the operations in question if risks cannot be reduced to a level that will ensure the safe, successful outcome of the mission.

(4) *Weather Briefing*

i The Operator in Charge is responsible for reviewing and being familiar with both prevailing and anticipated weather conditions for the area in which the mission is planned.

ii The Operator in Charge shall obtain a briefing by NOAA weather radio, National Weather Service office personnel, web site, local USCG reports, etc.). The briefing information shall consist of, at a minimum, current weather, sea state, trends, and forecasts for the departure location, proposed route, destination, and any alternate working areas.

iii Based on weather and sea-state forecasts, the Operator in Charge will determine if conditions are suitable for operations.

iv The Operator in Charge has the authority to cancel operations if it is determined that personnel safety or the safety of the small boat will be subject to unnecessary risk.

(5) *Float Plan*

i All use of NWS small boats shall be documented in a Float Plan. All Float Plans must be filed prior to departure, and shall conform, at a minimum, to the standardized Float Plan. A sample of the plan is contained in **Attachment A** of this procedure.

ii In addition, the Operator in Charge shall ensure that the name and contact number of a family member, significant other, or legal guardian is available for all embarked personnel prior to the small boat's departure.

iii All Float Plans must be submitted in writing or electronically, regardless of voyage duration. The Operator in Charge shall tender the Float Plan, prior to departure, with the Vessel Operations Coordinator or designee as follows:

a. The Plan shall establish a specific tracking and communications procedure that requires the Operator in Charge to report the small boat's position and an operations update at least once daily on multi-day trips;

b. The contact person shall be responsible for determining whether a small boat is overdue for arrival or check-in, and shall take

appropriate action to either determine the location of the small boat or initiate emergency response.

**NOTE:** If the Operator in Charge cannot prepare a written Float Plan prior to departure, the Vessel Operations Coordinator or designee shall be notified to communicate the Float Plan over the phone. The Vessel Operations Coordinator or designee shall then put the information in writing and manage the Float Plan as required by this Manual.

(6) *Communication Plan*

- i A specific Point of Contact (POC) must be identified and established prior to departure, whether that departure is planned or unplanned. The POC must be available by phone or radio throughout the duration of the mission.
- ii The communication plan shall be incorporated into the Float Plan, and must identify specific times at which the Operator in Charge will check in and the means of communication to be used.
- iii A back-up emergency phone number(s) shall be included in the event the primary means of communication fails.

(7) *Fuel Planning*

Fuel planning for each voyage should be based on efficiency and economy, but shall not compromise safety. Careful considerations must be given to the weather conditions at the planned destination, and distances to alternate ports shall be taken into account.

(8) *Boat Inspection*

The Operator in Charge shall ensure that a pre-mission inspection of the boat is completed in accordance with the applicable start-up procedures. In addition to the start-up procedures, the Operator in Charge shall also:

- i Inspect the log for maintenance discrepancies that have not been addressed;
- ii Not accept the boat if it has been identified as not operational in the logbook or during the inspection until the mechanical or structural problem has been corrected;
- iii Ensure that all required safety, survival, and communication/navigation equipment specified in Appendix J and Appendix K of NOAA SBSP Manual are aboard and in good working order;
- iv Ensure that the boat is properly fueled for the mission;
- v Ensure all fluid levels are normal (e.g. oil, coolant, steering, etc.) and that adequate reserves are onboard;

- vi When applicable, ensure that the back-up motor or secondary means of propulsion is operational.

b. Start-Up Procedures

(1) *Start-Up Procedures Checklist*

All NOAA small boats are required to have a written checklist of start-up procedures, specific to each small boat, to ensure safe operations. The Operator in Charge is responsible for ensuring the use of the checklist prior to each and every voyage.

(2) *Start Logbook Entries*

For all small boats except small boats without enclosed cabins, the Operator in Charge shall ensure that all start-up procedures are appropriately entered in the official logbook, and shall identify the information to be logged while underway. Logbook entries should include but are not limited to:

- i Operator in Charge, Small Boat Operators, and Crewmembers;
- ii Name/description of the mission;
- iii Date and Time Underway;
- iv Date and Time of Arrival;
- v Items of Operational Interest;
- vi Problems or Incidents;
- vii Operational Area and/or Destination;

The Operator in Charge of a small boat without enclosed cabins may prepare a trip report instead of maintaining a vessel logbook.

c. Underway Operations

(1) *Weather Updates*

The Operator in Charge shall ensure that destination and en-route weather forecasts are obtained prior to departure from the pier. Detailed weather updates shall be obtained at appropriate intervals, as well as any time the weather conditions appear threatening or conflict with forecasted conditions, and/or any time that en-route plans change.

(2) *Operations Under Adverse Conditions*

- i Adverse weather conditions include, but are not limited to, low visibility, high winds, and/or high sea state, which could cause equipment or personnel emergencies or system malfunctions. NOAA small boats shall not be operated in known or forecasted conditions that exceed small boat or personnel limitations.
- ii The Operator in Charge has the authority and responsibility to cease operations, return to port, or not depart from port if it is determined there is unnecessary risk to either personnel or the safety of the small boat. Any such decision should be based upon the results of the Operational Risk Assessment Form.



(3) *Float Plan Updates*

- (4) The filed Float Plan shall be updated whenever the small boat will exceed the estimated time of arrival by more than 60 minutes, or whenever en-route plans or operations change substantially. *Radio Transmissions*

Use of the small boat radios shall be professional and limited to the conduct of normal marine radio traffic and government business.

d. Shut-Down Procedures

(1) *Use of Checklists*

All NOAA boats are required to have a written checklist of shut-down procedures specific to each small boat. The Operator in Charge is responsible for ensuring the use of the checklist at the conclusion of each and every voyage.

(2) *Logbook Completion*

i The Operator in Charge shall ensure that all logbook entries are completed in a timely manner after the boat has been shut down. Entries shall include, at a minimum, actual time of arrival, final fuel information, ending engine hours, and any changes to the original Float Plan.

ii If a Trip Report is to be filed, it shall be prepared and sent to the VOC or his designee in a timely fashion upon completion of the voyage or operation.

(3) *Equipment Malfunction Reporting*

All equipment malfunctions shall be logged in the small-boat logbook (or Trip Report) on the day of discovery. The Operator in Charge shall report the malfunction to the VOC on the day of discovery.

(4) *Float Plan Closure Procedures*

Float Plans must be closed and notification of arrival must be made with the shore based designee within thirty minutes of arrival.

e. Small Boat Clean-Up Procedures

A post-mission inspection shall be made in accordance with the Shut-Down Procedures Checklist in a timely manner after the boat is docked. The small boat shall be left in a state in which it could be immediately used if necessary.

f. Office Float Plan Maintenance

Station Manager is responsible for maintaining and monitoring active Float Plans within NWS. The Operator in Charge shall communicate directly with the Station Manager or designee to amend or close a Float Plan.

g. Float Plan Delinquency

If a small boat is delinquent (has not returned within 60 minutes of estimated time of arrival), the Station Manager or designee shall:

- (1) Attempt to contact the small boat by satellite/cell phone or HF/VHF radio;
- (2) Check the boat slip personally or ask the local marina manager, Coast Guard, or any on-site personnel to do so, if practicable;

- (3) If no contact is made after 2 hours of delinquency or if sunset is near, notify the appropriate Program Director;
- (4) When appropriate, notify the USCG of delinquency and be prepared to provide Float Plan information;
- (5) Remain in the office or at the station until the boat has been contacted and either returns to the dock or has reached an alternate safe location;
- (6) If the boat is delinquent 4 hours or more and communications cannot be established with the small boat by the USCG, the NWS VOC should be contacted.

### 29.3.3 Minimum Equipment

The safety, survival, and communication/navigation equipment specified in Appendix J and Appendix K of NOAA SBSP Manual are the minimum required for safe operations. All survival equipment shall be maintained and, at a minimum, inspected or tested monthly in accordance with best-management practices and guidance in Appendix M of NOAA SBSP Manual (Drills and Frequencies). Additions and changes to these requirements may be necessitated by such considerations as small boat configuration, type and duration of missions, area of operations, and proximity to search and rescue assets. Individual survival gear shall be placed in areas accessible to all Small Boat Operators and crewmembers personnel so as to be readily available in an emergency.

#### a. Emergency Equipment

- (1) See Appendix J of NOAA SBSP Manual for the minimum required safety, firefighting, and lifesaving equipment that must be on board and maintained in a ready and serviceable condition before any NOAA small boat is operated. All lifesaving and firefighting equipment shall be USCG or Safety of Life at Sea (SOLAS) approved, or conform to military specification (with SBSB approval), or otherwise be approved by the SBSB, when applicable.
- (2) Emergency Position-Indicating Radio Beacon (EPIRB)  
All EPIRBs must be properly registered with the NOAA Search and Rescue Satellite (SARSAT) program, and registrations must be current. Prior to departure, the Operator in Charge should ensure that the EPIRB battery has not expired and that the monthly test has been completed. In addition, EPIRB beacon identification registration information shall be reviewed at least annually to ensure that it contains valid emergency contact information.
- (3) Life Rafts/Floats  
Life rafts/floats of sufficient capacity to accommodate all embarked personnel shall be carried onboard all NOAA small boats in accordance with Appendix J of NOAA SBSP Manual.
- (4) Personal Flotation Devices (PFDs) and Immersion Suits  
All personnel must have a PFD and or an Immersion Suit available in accordance with the NOAA PFD Policy (Appendix L of NOAA SBSP Manual). All

personnel on board and operating NWS small boat shall wear a Type I, II or III PFD.

- b. Communications and Navigation Electronics
  - (1) The minimum communication and navigation equipment requirements for small boats are generally based on the distance from shore, support vessel or inhabited land that the small boat will operate from. (See Appendix K of NOAA SBSP Manual)
  - (2) It is NOAA's intention that no NOAA small boat will be without a method of direct verbal communications with a shore facility or support vessel.
  - (3) Before any NOAA small boat gets underway, communication and navigation equipment must be maintained in a ready and serviceable condition.
- c. Other Equipment.
  - (1) Personal Protective Clothing and Footwear. All persons aboard NOAA small boats shall, at all times, wear protective footwear that is appropriate to the work that is being conducted (e.g., substantial footwear or reinforced toe shoes). It is recommended that all personnel have appropriate foul-weather gear, including long-sleeve shirts, long pants, and a hat onboard the small boat for use in unexpected weather conditions or emergencies.
  - (2) Special operations may require use of other safety equipment such as safety glasses, gloves, hard hats, safety harnesses, steel-toed shoes, etc., based on the operational risk assessment.

#### 29.3.4 Reporting Boat Accidents

- a. The Station Manager or his/her designee shall notify the NWS VOC and NOAA SECO about small boat accident or incident using NOAA Accident/Illness Reporting System web site. The web site can be accessed via Internet Explorer at:

[https://docs.google.com/a/noaa.gov/forms/d/e/1FAIpQLSet4\\_rylOnUb2Q6isEROIvpkQI1EZtwLb7RuDzQyaGctz2dsQ/viewform](https://docs.google.com/a/noaa.gov/forms/d/e/1FAIpQLSet4_rylOnUb2Q6isEROIvpkQI1EZtwLb7RuDzQyaGctz2dsQ/viewform)

The following accidents shall be reported:

- (1) Unintentional grounding for greater than 24 hours;
- (2) Explosions;
- (3) Sinking;
- (4) Fire;
- (5) Collisions involving breach of hull integrity;
- (6) Any injury, including incapacitating injury requiring professional medical attention or hospitalization, or loss of life of any person;
- (7) Unintentional and extensive flooding (self-bailing boats excluded);

- (8) Discharge of oil or any substance violating local, State, or Federal regulations;
  - (9) Failure of gear and equipment and any other damage that may affect or impair a small boat's seaworthiness; or
  - (10) Damage/harm to a protected or endangered natural resource or species.
- b. When the cause of the accident is not clearly evident, the Station Manager shall initiate an investigation. Findings and recommendations resulting from the investigation shall be made available to NWS VOC, NWS Regional Environmental/Safety Coordinator, NWSH Environmental and Safety staff, OMAO Small Boat Engineer(s), and the OMAO Director.
  - c. Findings and lessons learned from an accident or accident investigation shall be distributed by the NWS VOC to the NOAA small boat-user community. The identity of the small boat, personnel, and program or facility associated with the accident will remain anonymous.
  - d. SBSB requests minor incidents of equipment damage and near misses to be reported for the purposes of lessons learned and safety metrics. Minor incidents and close calls may be reported using the reporting forms available on the SBP web site ([www.sbp.noaa.gov](http://www.sbp.noaa.gov)) and via NOAA online Accident/Illness Reporting System.

#### 29.3.5 Boat Inspections

- a. All survival equipment shall be maintained, inspected or tested monthly, at a minimum, in accordance with best management practices and guidance in Appendix M of NOAA SBSP Manual.
- b. Station Managers or their designee(s), in cooperation with the NOAA Small Boat Program, are responsible for ensuring that small boats are inspected in accordance with the provisions of NOAA SBSP Manual.
- c. The NWS VOC shall ensure appropriate routine inspections are conducted by Operator in Charge. The NWS VOC will also ensure that all annual inspections are reported to the NOAA Small Boat Program Manager in a timely manner.
- d. Inspection Procedures for Class A, Class I and Class III boats and all boat trailers are as follows:
  - (1) NOAA Inspection policy is Appendix N of NOAA SBSP Manual.
  - (2) Annual Small Boat Evaluation (ASBE) checklists are available on the web site: <http://www.oma.noaa.gov/learn/small-boat-program/resources/inspection>
  - (3) Small boat examinations shall be conducted for Class I, II and III Boats in accordance with NOAA Inspection Policy. Description of Qualified Personnel to conduct Small Boat Examinations (SBEX) is available on the

website: <http://www.omaο.noaa.gov/learn/small-boat-program/resources/inspection>

#### 29.3.6 Small Boat Acquisition

- a. Station Managers or their designees, shall assess the suitability of a new or used small boat, or a small boat design, in relation to cost, mission requirements, operational risk, safety, and environmental compliance prior to initiating a small boat purchase. The cost assessment and any required marine survey shall be forwarded to the respective senior management and budget official prior to any commitment.
- b. Station Managers or their designees, shall notify the NOAA Small Boat Program Manager:
  - (1) Prior to a planned small boat acquisition that would require significant alteration or modification to the small boat after its delivery in order to meet mission requirements; or
  - (2) Prior to any commitment to build a small boat to Government-furnished technical specifications.

#### 29.3.7 Alteration and Repair of Small Boats

- a. All proposed alterations to NOAA small boats shall be reviewed by the Station Manager or VOC to assess their potential impact on safety and mission of the boat.
- b. Alterations and repairs shall be performed in accordance with applicable marine-engineering standards, rules, instructions, and regulations. A listing of current and potentially applicable standards, rules, instructions, and regulations is provided on the NOAA Small Boat Program web site.
- c. For all significant alterations, Station Manager or NWS VOC shall seek marine engineering services through OMAO or a professional marine engineer
- d. Records, such as drawings or weight and moment reports, resulting from the alteration of boats shall be maintained at the appropriate program office.

#### 29.3.8 Small Boat Visual Identification and Registration

- a. NOAA facilities that own small boats are responsible for:
  - (1) Complying as closely as practicable with the visual identification guidelines listed in NOAA SBSP Manual.
  - (2) Registering any new small boat or existing small boat not already registered with the NOAA Small Boat Program Manager.
- b. The NOAA Small Boat Program Manager shall be responsible for issuing hull-registration numbers.
- c. Display of the NOAA emblem is intended to promote public awareness of NOAA programs. Questions relating to the placement of the NOAA emblem shall be directed to the NOAA Small Boat Program Manager.

**NOTE:** Additional information related to small boat visual identification and registration can be found in NOAA SBSP Manual. NWS VOC can be consulted if necessary.

### 29.3.9 Emergency Procedures

NWS office that owns and operated small boat shall develop small boat-specific emergency procedures for applicable emergency situations.

- a. Abandon Ship
- b. Fire
- c. Man Overboard
- d. Flooding
- e. Launching a Raft
- f. Donning Immersion Suits and PFDs
- g. Donning SCBA and Fire Suits (if so equipped)
- h. Making Distress Calls and Using Distress Signals
- i. Activating the General Alarm
- j. Reporting Inoperative Alarms

### 29.3.10 Maintenance and Repair

- a. Periodically check the condition of the following items as applicable: ropes, anchor chain, wiring and electrical connections, hull, nuts and bolts, prop, the trailer tongue, tires, lights, structural members, rollers and guides, bearings, and winch lubrication. An entry shall be made into the boat record after each periodic check, even when the check was unscheduled.
- b. Preventive maintenance (PM) to the boat, trailer (if applicable), and engines shall be conducted regularly with the schedule based on engine run time and/or calendar days (monthly, quarterly, semi-annually, annually, etc.).
- c. Routine repairs to the boat, trailer, and engines shall be performed based in part on the information gathered from the periodic checks and from PM inspections.

## 29.4 Responsibilities

### 29.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 29.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will provide and maintain, as necessary, equipment listed in 29.3.3a-n.

- c. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

29.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO and/or NOAA VOC, as necessary, regarding compliance issues related to this procedure.

29.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

29.4.5 Employees

- a. Employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/050/pd05011a.pdf">http://www.nws.noaa.gov/directives/050/pd05011a.pdf</a>
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**29.1 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 29.1.1 Navigation and Navigable Waters, Title 33 of the Code of Federal Regulations.
- 29.1.2 NAO 209-125, NOAA Small Boat Program.
- 29.1.3 The NOAA Small Boat Standards and Procedures Manual
- 29.1.4 NAO 209-115, NOAA Employees Aboard Non-NOAA Vessels.
- 29.1.5 NWS Occupational Safety and Health Procedure #18, “Accident/Illness Reporting and Recording.”

**29.2 Attachments**

Attachment A. Sample Float Plan

**ATTACHMENT A**  
**Sample Float Plan**



Date: \_\_\_\_\_

Vessel Name: \_\_\_\_\_

<b>FLOAT PLAN</b>				
<b>Small Boat Operator (Operator in Charge)</b>				
Name:				
Telephone Number:				
Registration/Certificate #:				
<b>Small Boat Description</b>				
Type:				
Make:				
Hull Material:				
Color of Hull:				
Color of Trim:				
Most distinguishing identifiable feature:				
Engine Type:				
H.P.:				
Normal Fuel Supply:				
<b>Rafts/Dinghies:</b>	Number _____	Size _____	Color _____	
<b>Persons Aboard (List additional passengers on back)</b>				
Name	Age	Address & Telephone	Swim (Yes/No)	Emergency Contact #
<b>Survival Equipment Checklist: (check as appropriate)</b>				
<input type="checkbox"/> PFDs	<input type="checkbox"/> Flares	<input type="checkbox"/> Smoke Signals		
<input type="checkbox"/> First Aid Kit	<input type="checkbox"/> EPIRB	<input type="checkbox"/> Paddles		
<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Boat Hook	<input type="checkbox"/> Knife		

<b>FLOAT PLAN</b>		
<input type="checkbox"/> Bow Line	<input type="checkbox"/> VHF Radio/Cell Phone	<input type="checkbox"/> Bell, Whistle or Horn
<input type="checkbox"/> Anchor	<input type="checkbox"/> Loran/GPS	<input type="checkbox"/> _____
Cell Phone # _____		Radio Type: _____
Food for _____ days	Water for _____ days	
<b>Itinerary</b>		
Date and time of departure:		
Departure from:		
Departure to:		
Weather condition by shore:		
Purpose for the trip:		
How far out are you going?		
Expected time of arrival: _____		In no case later than: _____
Return Time:		
Additional information:		

**PROCEDURE 30 - Office Safety**

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## Synopsis

The purpose of this procedure is to provide guidance relative to the potential hazards associated with working in the office facilities. This procedure applies to all National Weather Service (NWS) office facilities and employees.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Office Security (30.3.17)
  - Evaluate office environment. (30.5.2b, 30.3.1)
    - Housekeeping (30.3.3)
    - Storage Procedures (30.3.4)
    - Filing Cabinets and Bookcases (30.3.5)
    - Ladders and step stools (30.3.6a)
    - Lighting (30.3.9)
    - Noise (30.3.10)
- **Develop/Obtain Documentation/Information required for Site**
- **Designate Person to Administer the Office Safety Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - Training on safe office environment. (30.3.1)
- **Inventory Material/Equipment (Procure as required)**
  - Hazard Warning Signs. (30.4.2b, 30.3.2d)
  - Ladders, Step Stools. (30.4.2b, 30.3.6a)
  - Lighting. (30.4.2b, 30.3.9)
  - Biohazard Containers. (30.4.2b, 30.3.13)

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Evaluate office environment (30.5.2b, 30.3.1)
- **Review/Update Documentation/Information required for Site**
- **Provide Refresher Training of Site Personnel (If Applicable)**
- **Inspect/Replace/Maintain Material/Equipment**
  - “Hazard Warning” Signs. (30.4.2b, 30.3.2c)
  - Office Furniture. (30.4.2b, 30.3.3b)
  - Ladder or Step Stool. (30.4.2b, 30.3.6a)
  - Lighting. (30.4.2b, 30.3.9)
  - “Biohazard” Containers. (30.4.2b, 30.3.13)

**Office Safety Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	30.4.2				
Have all individuals affected by this procedure read, understood and followed the procedure?	30.5.4				
Do all personnel at this facility comply with general safety guidelines related to working and walking surfaces?	30.3.2a-g				
Are all aisles and passageways free and clear of obstructions?	30.3.3a				
Has office furniture been inspected/repaired/replaced when damaged?	30.3.3b				
Are all office supplies and materials stored neatly and are easily accessed from the aisles?	30.3.4				
Are the guidelines concerning filing cabinets and bookcases followed?	30.3.5a-e				
Are ladders and step stools being used when retrieving objects above shoulder level?	30.3.6a				
Have “Layout and Furniture Placement Guidelines” been followed?	30.3.7a-d				
Are adequate devices provided to employees who work at computer stations, to prevent neck, shoulder, back, and leg injuries?	30.3.8				
Is adequate lighting provided to all affected personnel?	30.3.9				
Has this facility implemented guidelines stated in this procedure and NWS Occupational Safety and Health Procedure # 11, “Hearing Conservation,” to alleviate noise pollution in the workplace?	30.3.10a-g				

Requirements	Reference	YES	NO	N/A	Comments
Does this facility comply with the requirements stated in NWS Occupational Safety and Health Procedure # 13, “Indoor Air Quality”?	30.3.11				
Is waste properly disposed of and containers properly labeled at this facility?	30.3.12				
Are all contaminated “Sharps” (syringes, blood sampling devices, etc.) discarded appropriately?	30.3.13				
Does this facility comply with the requirements stated in NWS Occupational Safety and Health Procedure # 5, “Occupant Emergency Plan” & Procedure # 6, “Fire Protection”?	30.3.15				
Are electrical safety precautions stated in this procedure implemented at this facility?	30.3.16				
Is office security practiced by all employees?	30.3.17				
Are office personnel familiar with the purpose and operation of office safety alarms?	30.3.18				

## **30 OFFICE SAFETY**

### **30.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to the potential hazards associated with working in office facilities. This procedure applies to all NWS office facilities and employees.

### **30.2 Definitions**

Ergonomics. Ergonomics is the science of fitting the jobs to the people who work in them. The goal of an ergonomics program is to reduce work-related musculoskeletal disorders (MSDs).

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Housekeeping. Refers to the maintenance of an area in a clean, orderly and sanitary condition.

Noise. Any unwanted sound.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

### **30.3 Procedure**

30.3.1 The NWS offices may harbor potential safety and health hazards. These hazards may be minimized or eliminated by designing jobs and offices properly. NWS supervisors shall actively support office hazard prevention and control. Education regarding potential injuries, their causes, symptoms and treatments shall be provided as a method that assists both supervisors and personnel in creating a safe office environment.

Inadequate environmental conditions, such as noise, temperature and humidity, environmental pollutants (e.g., vapors from new carpeting, paint fumes) may cause discomfort that may affect employees' productivity. Measures shall be taken to reduce these discomforts to the maximum extent possible.

30.3.2 General Safety Procedures. All facilities shall comply with the requirements listed in NWS Occupational Safety and Health Procedures 14, "Walking and Working Surfaces." Guidelines to follow include:

- a. Avoid carrying objects that might obstruct view.
- b. Walk with special care over wet floors or with wet shoes.
- c. Wipe shoe soles on rainy or snowy days upon entering the workplace.
- d. Implement use of “hazard warning signs” to avoid potential slips and falls.
- e. Securely fasten floor coverings to prevent possible falls.
- f. Utilize handrails when going up and down stairways in order to lower the risk of possible falls.
- g. Walk with caution over icy, oily or snow covered surfaces outside the buildings. Report dangerous conditions to management personnel to ensure that a proper treatment of walking surfaces is performed.

30.3.3 Housekeeping. Poor housekeeping may lead to fires, injuries to personnel, or unhealthful working conditions. The following good housekeeping practices shall be employed at all NWS offices:

- a. All aisles and passageways shall be free and clear of obstructions. The width of the aisles must be as outlined in paragraphs 6.3.5j-m of Section 6, "Fire Protection." Proper layout, spacing, and arrangement of equipment, furniture, and machinery are essential.
- b. Chairs, files, bookcases and desks shall be replaced or repaired when they pose a hazard to personnel safety.
- c. Materials stored within supply rooms shall be neatly stacked and easily accessed by adequate aisles.
- d. Materials shall not be stored so that they project into aisles and passageways.
- a. The minimum vertical clearance between sprinklers, where installed, and material below shall be 18 inches (45.7 cm)

30.3.4 Storage Procedures. Guidelines to follow for safe storage include:

- a. Stack boxes in straight columns, with the largest on the bottom. When stocking shelves, keep the heaviest items at waist level to minimize lifting effort.
- b. Keep all aisles clear.
- c. Place wastebaskets and boxes where they do not present a tripping hazard.

30.3.5 Filing Cabinets and Bookcases. Filing cabinets and bookcases can be dangerous if arranged or used incorrectly. Guidelines to follow for their safe use are:

- d. Return drawers and doors to the closed position when not in use so as to prevent bumping and tripping. Do not open more than one drawer or door at the same time.
- e. Place file cabinets and/or bookcases where their use will not interfere with office traffic patterns.



- f. Secure or anchor file cabinets or bookcases taller than 64 inches to the wall to prevent toppling over.
- g. In the case of four-drawer filing cabinets fill the second drawer from the bottom before the others to weight the bottom and to prevent it from tilting or tipping.
- h. Keep filing cabinet drawers closed when not in use.

30.3.6 Falls. Falling while attempting to retrieve items from high shelves is a common occurrence. When removing items from shelves, the following guidelines are recommended:

- a. Use a ladder or step stool to retrieve an object located above shoulder level, if it is too heavy to retrieve. If required have a person hold the ladder or secure the ladder when retrieving the object.
- b. Desks, chairs, boxes, and upturned trash cans are not acceptable substitutes for ladders or step stools.
- c. Ladders or step-stools shall be sturdy and conform to requirements of NWS Occupational Safety and Health Procedure 14, "Walking and Working Surfaces."

30.3.7 Layout and Furniture Placement. The physical layout of a workplace and the furniture is another factor that should be considered when maximizing office safety. This includes the following:

- a. Position office computers and equipment near electrical outlets to minimize the use of extension cords and to avoid stretching cords across aisles.
- b. Maintain enough room in front of drawers to open fully without obstructing aisles and passageways.
- c. Place desks and counter tops near primary light sources to avoid eyestrain caused by poor lighting.
- d. Position desks and file cabinets so their drawers do not open into a doorway.

30.3.8 Workstation Ergonomics. Musculoskeletal problems may be encountered by NWS personnel involved in computer operations. Most affected are the neck, shoulders and the back. Other affected parts of the body are the arms and hands and, occasionally, the legs. The degree of impact on personnel can be reduced by following the requirements listed in NWS Occupational Safety and Health Procedure 25, "Ergonomics."

30.3.9 Lighting. Different tasks require different levels of lighting. Lighting needs vary from time to time and person to person. One approach is to use adjustable lighting that can provide needed illumination without increased general lighting.

Task lamps can be used to supplement the general office light levels for those who require or prefer additional light. Some task lamps permit several light levels. Since task lamps are controlled by the individual, they can accommodate personal preferences.

30.3.10 Noise. The most common types of noise pollution in an office are generated from the operation of equipment and verbal communication. Noise pollution can decrease performance or increase errors when performing some tasks. Also, there is some indication that unexpected or unpredictable noise may have more of an effect than continuous or periodic noise. To alleviate noise pollution in the workplace, the following guidelines shall be implemented:

- a. Noise levels in all work areas shall comply with the requirements listed in NWS Occupational Safety and Health Procedures 11, "Hearing Conservation."
- b. Select the least noisy equipment possible when purchasing office equipment. When the choice is between two or more products of equal specifications, sound levels shall be included as a consideration for purchase and use.
- c. Properly maintain equipment, lubricate and tighten loose parts that can cause noise.
- d. Locate loud equipment in areas where its effect is less detrimental. For example, place impact printers away from areas where people must use the phone.
- e. Use barrier walls or dividers to isolate noise sources. Use of buffers or acoustically treated materials can absorb noise that might otherwise travel further. Rubber pads to insulate vibrating equipment can also help to reduce noise.
- f. Enclose noisy equipment, such as printers, with acoustical covers or housings.
- g. When possible, schedule noisy tasks at times when they will have less of an effect on the other tasks in the office.

30.3.11 Indoor air quality. Air quality in all work areas shall comply with the requirements listed in NWS Occupational Safety and Health Procedures 13, "Indoor Air Quality."

30.3.12 Waste Disposal. NWS personnel shall carefully handle and properly dispose of waste. For example, a waste receptacle containing broken glass shall be labeled to warn personnel of the potential laceration/puncture hazard. In addition, if any hazardous material is improperly placed in the trash container, the Safety or Environmental/Safety Focal Point, supervisor and other office personnel shall be immediately informed. Further directions regarding the disposal of trash contaminated with hazardous materials shall be obtained from the Regional or Operating Unit Environmental/Safety Coordinator or directly from the local hazardous waste disposal company.

30.3.13 Sharps Program. Sharps (e.g., syringes/blood sampling devices used by diabetics) contaminated with blood or other body fluids shall be discarded in containers immediately or as soon as feasible. The requirements for these containers are that they should be:

- a. Closable.
- b. Puncture resistant.
- c. Leak-proof on sides and bottom.

- d. Labeled or color-coded with the appropriate BIOHAZARD labeling requirements.
- e. Easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found.
- f. Maintained upright throughout use.
- g. Replaced routinely and not be allowed to overflow.
- h. Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
- i. Placed in a secondary container if leakage is possible. The second container shall be also closable, constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping, and must be labeled or color-coded appropriately.
- j. Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of injury.

30.3.14 Machine Safety

- a. All appropriate personnel shall comply with the requirements listed in NWS Occupational Safety and Health Procedure 19, "Hand and Power Tool Safety" and Procedure 20, "Machine Guarding."
- b. In addition, employees shall keep fingers and body parts away from moving and/or sharp parts when using tools such as the following:
  - (1) Staplers
  - (2) Staple removers
  - (3) Scissors
  - (4) Hole punchers
  - (5) Paper cutters

30.3.15 Emergencies. All personnel shall comply with the requirements listed in NWS Occupational Safety and Health Procedure 5, "Occupant Emergency Plan" and Procedure 6, "Fire Protection."

30.3.16 Electrical Safety. Electrical equipment used in the office (e.g., electric cords, extension cords) may present an electric-shock hazard.

- a. All personnel shall comply with the requirements listed in NWS Occupational Safety and Health Procedure 3, "Safe Electrical Work Practices" and Procedure 4, "Control of Hazardous Energy Sources."
- b. Electric cords shall be routinely examined for fraying and exposed wiring. Particular attention shall be given to connections behind furniture, since files and bookcases may be pushed tightly against electric outlets, severely bending the cord at the plug.
- c. Extension cords:

- (1) Shall only be used in situations where fixed wiring is not feasible.
  - (2) Shall be placed so they do not present a tripping or slipping hazard.
  - (3) Shall not be placed through doorways to prevent the damage of the cord when doors must be closed.
  - (4) Shall be used only when properly sized for the job.
  - (5) Shall be taped down to reduce the risk of tripping.
  - (6) Shall be used for a period of time not to exceed 90 days such as for Christmas decorative lighting and similar purposes.
- d. Multi-outlet surge protectors:
- (1) Must not exceed their rated capacity.
  - (2) Shall not be connected to one another, or “daisy chained.”
  - (3) Shall not be used in combination with extension cords, even temporarily.
- e. When operating any electrical appliance or machine within ten feet of running water, a Ground Fault Circuit Interrupter (GFCI) shall be installed and the appliance plug shall be grounded.
- f. The operation of portable appliances such as heaters, fans, microwave ovens and other small appliances within personnel workstations in Government-controlled space is prohibited unless authorized by the General Services Administration building manager, NOAA/NWS management or by agencies that have been given delegated authority to perform building management. If approved, building circuits must be sufficient to carry extra load and appliances must not create a tripping hazard.

<p><b>NOTE:</b> Portable electric heaters shall be in good physical condition and shall be UL listed. Heaters <u>shall</u> be equipped with tip-over switch and <u>will</u> have thermostat automatic shut-off switch for overheating protection in case if heater tips over. The manufacturer’s recommendations for clearances shall be followed when these devices are in use.</p>
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- g. To avoid short circuits and fires, do not plug more than two appliances into one electrical socket.

30.3.17 Office Security. All personnel must be alert to the preservation of office security which includes prevention of unauthorized entry into the building and protection of outside facilities. The following practices should be followed:

- a. Keep unmonitored doors locked at all times.
- b. Keep all doors locked during night-time hours.
- c. View electronic monitors (if available) for activity outside the office.
- d. Be alert to strange noises or activities.

30.3.18 Safety Alarms. Office personnel should be aware with the purpose and operation of safety alarms such as:

- a. Fire alarms.
- b. Smoke detector alarms.
- c. Generator fuel leak alarms.
- d. Power failure and generator operating alarm (light).
- e. UPS failure alarm.
- f. HVAC alarms.

### **30.2 Responsibilities**

30.3.19 Regional and Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

30.3.20 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that office work environment is evaluated initially and periodically for potential safety and health hazards.
- c. Will ensure that NOAA-mandated monthly safety inspections are conducted. The inspection records must be kept on site. The suggested checklists to be used are published on the following web site:

[https://www.ops1.nws.noaa.gov/Secure/SAFETY/Safety\\_Inspections.htm](https://www.ops1.nws.noaa.gov/Secure/SAFETY/Safety_Inspections.htm)

Checklists can be modified to include site-specific requirements.

- d. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- e. Will ensure that initial and periodic inventory of safety signs, ladders, step stools and other safety equipment is accomplished and adequate stock is maintained.

30.3.21 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.

- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

30.3.22 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

30.3.23 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/sym/pd05011curr.pdf">www.nws.noaa.gov/directives/sym/pd05011curr.pdf</a>
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### 30.4 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 30.4.1 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.1030, "Bloodborne Pathogens."
- 30.4.2 NWS Occupational Safety and Health Procedure 25, "Ergonomics."
- 30.4.3 NWS Occupational Safety and Health Procedure 13, "Indoor Air Quality."
- 30.4.4 NWS Occupational Safety and Health Procedure 14, "Walking and Working Surfaces."
- 30.4.5 NWS Occupational Safety and Health Procedure 11, "Hearing Conservation."
- 30.4.6 NWS Occupational Safety and Health Procedure 3, "Safe Electrical Work Practices."
- 30.4.7 NWS Occupational Safety and Health Procedure 4, "Control of Hazardous Energy Sources."
- 30.4.8 NWS Occupational Safety and Health Procedure 20, "Machine Guarding."
- 30.4.9 NWS Occupational Safety and Health Procedure 19, "Hand and Power Tool Safety."
- 30.4.10 NWS Occupational Safety and Health Procedure 5, "Occupant Emergency Plan."
- 30.4.11 NWS Occupational Safety and Health Procedure 6, "Fire Protection."
- 30.4.12 U.S. General Service Administration 41 CFR 101 20.107 "Energy conservation."

### 30.5 Attachments

None

**PROCEDURE 31 - Asbestos Safety**

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## **Synopsis**

The purpose of this procedure is to establish requirements relative to the potential hazards that could result from exposure to asbestos or asbestos-containing materials. This procedure applies to all National Weather Service (NWS) facilities, work locations, and employees where asbestos or asbestos-containing materials are known or assumed to be present.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Perform Visual Inspection and Instrumental Testing of “suspect” ACMs. (31.3.2)
  - Identify all sites where asbestos hazard may be present. (31.3.3)
- **Develop/Obtain Documentation/Information required for Site**
  - Develop an Asbestos Control Program. (31.3.2), if applicable
- **Designate Person to Administer the Asbestos Safety Procedure Requirements** (if required)
- **Provide Local Training of Site Personnel** (if required)

### **Recurring and Annual Task Requirements:**

- **Perform Inspection/Assessment/Testing**
  - Visual Inspections and Instrumental Testing of “suspect” ACM. (31.3.2), as necessary
- **Review/Update Documentation/Information required for Site**
  - Maintain Asbestos Control Program. (31.3.2), if applicable
- **Provide Refresher Training of Site Personnel** (if required)



**Asbestos Safety Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	31.4.2				
Have all sites where asbestos hazard may be present been identified?	31.3.3				
Have all individuals affected by this procedure, read, understood and follow the procedure?	31.5.4b				
Are all “suspect” ACMs visually inspected and instrumentally tested?	31.3.2, Attachment A				
Has the Asbestos Control Program been developed at the facility where the potential for asbestos exposure is present?	31.3.2				

## **31 ASBESTOS SAFETY**

### **31.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to the potential hazards that could result from exposure to asbestos or asbestos-containing materials. This procedure applies to all NWS facilities, work locations, and employees where asbestos or asbestos-containing materials are used.

### **31.2 Definitions**

Asbestos. A generic term applied to a number of naturally occurring hydrated mineral silicate fibers, including chrysotile, amosite, crocidolite, tremolite, anthophyllite and actinolite. These materials are heat and/or acid resistant in nature and until the early 1970's were widely used throughout the textile, automotive, and construction industries where fireproofing or thermal or acoustical insulation was required.

Asbestos-Containing Material (ACM). Any material containing more than one percent of asbestos.

Fiber. A particulate form of asbestos, five micrometers or longer, with a length-to-diameter ratio of at least three to one.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

Permissible Exposure Level (PEL): OSHA PEL for asbestos is an eight-hour Time-Weighted Average (TWA) limit of 0.1 fiber per cubic centimeter.

Presumed Asbestos Containing Material (PACM). "Presumed asbestos containing material" means thermal system insulation and surfacing material found in buildings constructed before 1981.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Thermal System Insulation (TSI). TSI means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

### 31.3 Procedure

31.3.1 Asbestos Regulations and Controls. Occupational Safety and Health Administration (OSHA) General Industry standard 29 CFR 1910.1001 applies to occupational exposures to asbestos in all industries, with exception to construction and ship repairing and ship building industries. According to the standard, installed Thermal System Insulation (ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain) and sprayed on and troweled-on surfacing materials (e.g., acoustic plaster on ceilings and fireproofing materials on structural members), as well as asphalt and vinyl flooring shall be treated as asbestos-containing material in buildings constructed before 1981.

In 1991, EPA's mandates under the "Asbestos Ban and Phase Out Rule (ABPO)" were vacated and remanded pursuant to a decision of the Fifth Circuit Court of Appeals (*Corrosion Proof Fittings v. Environmental Protection Agency*, 947 F.2d 1201 (5th Cir. 1991)). The Court held that the EPA failed to meet its burden under the language of the Toxic Substances Control Act (TSCA) to promulgate a reasonable rule that would adequately reduce the risk. EPA has not been able to enact another asbestos rule addressing the manufacturing, processing, importation and distribution of asbestos containing product. Nevertheless, Thermal System Insulation, sprayed-on application of materials, wet-applied and pre-formed pipe insulation and specialty papers are still banned for use. Numerous materials are now being manufactured with asbestos materials again. Many other products containing asbestos such as roof felts and mastic, vinyl floor tiles, ceiling tiles and asbestos-cement flat sheets may be found at local building supply stores. Presence of asbestos in these materials should be verified by Safety Data Sheets or manufacturer documentation.

Any construction activity shall comply with the provisions of the OSHA standard set forth in 29 CFR 1926.1101. For the purpose of this procedure, construction activities include:

- a. Demolition or salvage of structures with asbestos present.
- b. Removal or encapsulation of ACMs.
- c. Construction, alteration, repair, maintenance, or renovation of structures containing asbestos.
- d. Installation of products containing asbestos.
- e. Emergency cleanup of spills of asbestos materials.
- f. Transportation, disposal, storage or containment of ACMs on or at a site where construction activities take place.

31.3.2 The Environmental Protection Agency (EPA) has summarized five basic facts concerning asbestos exposure:

- a. The health risk associated with asbestos-causing diseases depends on the human exposure to asbestos-containing materials.

- b. Prevailing asbestos levels in buildings and levels of employees' exposure as building occupants seem to be very low based upon available data.
- c. Removal of asbestos-containing materials is often not a building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed.
- d. EPA only requires asbestos removal in order to prevent significant public exposure to asbestos, such as during building renovation or demolition.
- e. EPA recommends in-place management whenever asbestos is discovered. Instead of removal, a conscientious in-place management program will usually control fiber releases, particularly when the materials are not significantly damaged and are not likely to be disturbed.

While it is often possible to "suspect" that a material or product contains asbestos by visual determination, actual determinations can only be made by instrumental analysis. Until a material or product is tested, it is best to assume that it contains asbestos, unless the label or the manufacturer verifies that it does not. A listing of typical "suspect" ACMs can be found in Attachment A.

31.3.3 Asbestos Control Program. The NWS facilities where asbestos or ACMs are potentially present (e.g., buildings and structures built before 1981), shall arrange visual inspections and testing of "suspect" materials by an accredited inspector who has completed an EPA-approved asbestos training course. This effort should be coordinated with NOAA SECO personnel and NWS Regional Environmental/Safety Coordinators. When presence of asbestos or ACMs is confirmed, an Asbestos Control Program shall be established and maintained in coordination with NWS Headquarters Environmental and Safety staff.

All NWS employees that work in facilities where presence of friable asbestos is confirmed must receive the asbestos awareness course, at least 2 hours long, per Asbestos Hazard Emergency Response Act (AHERA) requirements set forth in 40 CFR 763.92. NWS employees who provide housekeeping or maintenance activities in a building that contains ACM must also complete awareness level training. If housekeeping and maintenance staff conduct any activities that will result in disturbance of ACM, awareness training and 14 hours of additional training shall be completed per 40 CFR 763.92. Additional information related can be found in the NWSM 50-5116, Environmental Management Manual, section 17.6.5.

**NOTE:** Asbestos containing materials (ACM) may be present in some older facilities, including residences (e.g., siding, floors, etc.). Drilling through the structure/materials containing ACM is NOT permitted. Only an EPA certified and licensed contractor can do the work that involves disturbance of asbestos. Use an alternative location for drilling if ACM presence is suspected or confirmed.

## 31.4 Responsibilities

### 31.4.1 Regional and Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 31.4.2 Station Manager

- a. Will ensure compliance with and promote all federal, state and local regulations and policies associated with asbestos located at NWS facilities.
- b. Will have oversight of the asbestos control program (if applicable) and ensure that the requirements of this procedure are followed.
- c. Will review this procedure on an annual basis to ensure that the facility is complying with its requirements. A written record of this review will be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 31.4.3 NWS Headquarters (NWSH)

- a. The NWSH Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 31.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

### 31.4.5 Employees

- a. Will be responsible for their own safety and, to some degree, for that of their co-workers. All unsafe practices and conditions shall be brought to the attention of the worker(s) involved and their supervisor.
- b. Employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.

<p><b>NOTE:</b> Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/050/pd05011a.pdf">http://www.nws.noaa.gov/directives/050/pd05011a.pdf</a></p>
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## 31.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

31.5.1 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1926.1101, Asbestos.

31.5.2 U.S. Environmental Protection Agency (EPA), Region 4 - Air, Pesticides and Toxics, The Asbestos Informer.

**31.6 Attachments**

Attachment A: Sample List of Suspect Asbestos-Containing Materials

**ATTACHMENT A**  
**Sample List of Suspect Asbestos-Containing Materials**

Cement pipes	Elevator brake shoes
Cement wallboard	HVAC duct insulation
Cement siding	Boiler insulation
Asphalt floor tile	Breaching insulation
Vinyl floor tile	Ductwork flexible fabric connections
Vinyl sheet flooring	Cooling towers
Flooring backing	Pipe insulation
Construction mastics (floor tile, carpet, etc.)	Heating and electrical ducts
Acoustical plaster	Electrical panel partitions
Decorative plaster	Electrical cloth
Textured paints/coatings	Electrical wiring insulation
Ceiling tiles and lay-in panels	Chalkboards
Spray-applied insulation	Roofing shingles
Blown-in insulation	Roofing felt
Fireproofing materials	Base flashing
Taping compounds (thermal)	Thermal paper products
High temperature gaskets	Caulking/Putties
Laboratory hoods/table tops	Adhesives
Laboratory gloves	Wallboard
Fire blankets	Joint compounds
Fire curtains	Vinyl wall coverings
Elevator equipment panels	Spackling compounds

**PROCEDURE 32 - Motor Vehicle Safety**

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## Synopsis

The purpose of this procedure is to provide guidelines related to potential hazards associated with on- and off-road motor vehicle operation. This procedure applies to all National Weather Service (NWS) facilities and employees that operate motor vehicles in the performance of their job duties.

### Initial Implementation Requirements:

- **Analyze Site Operations versus Requirements of the Procedure**
- **Designate Person to Administer the Motor Vehicle Safety Procedure Requirements**
- **Provide Local Training of Site Personnel (If Applicable)**
  - Initial Training for Snowmobile/Snow Cat Users, if applicable (32.3.4k)Initial Training for ATV Users, if applicable (32.3.5k)
- **Inventory Material/Equipment (Procure as required)**
  - Safety Warning Devices (e.g., Reflective Triangles, etc.). (32.4.2b, 32.3.2c)
  - Emergency Equipment. (e.g., Flashlight, Jumper Cables, etc.) (32.4.2b, 32.3.3c)
  - Communication Devices. (32.4.2b, 32.3.1e, 32.3.4j)
  - Personal Protective Equipment. (32.4.2b, 32.3.4j)

### Recurring and Annual Task Requirements:

- **Perform Inspection/Assessment/Testing**
  - Conduct monthly inspections of all vehicles (32.3.1c & Attachment A)
  - Conduct inspections of all vehicles prior to the long distance trips and driving off the road (32.3.1c & Attachment A)
  - Conduct pre-trip inspections of Snowmobiles and Snow Cats (32.3.4, Attachment B)
  - Conduct pre-trip inspections of All Terrain Vehicles (ATVs) (32.3.5, Attachment E)
  - Conduct routine inspections of vehicles during winter conditions (32.3.3)
  - Conduct routine inspections of vehicles during hot weather conditions (32.3.6)
- **Review/Update Documentation/Information required for Site**
  - Monthly Vehicle Safety Inspection checklists (Attachment A)
  - Snowmobile and Snow Cats pre-trip checklists (Attachment B)
  - Snow Travel Logs (32.3.6d)
- **Provide Refresher Training of Site Personnel (If Applicable)**
  - Refresher Training for Snowmobile/Snow Cat Users, if applicable (32.3.4k)
  - Refresher Training for ATV Users, if applicable (32.3.5k)
- **Inspect/Replace/Recalibrate/Maintain Material/Equipment**
  - Safety Warning Devices (e.g., Reflective Triangles, etc.). (32.4.2b, 32.3.2c)
  - Emergency Equipment. (e.g., Flashlight, Jumper Cables, etc.) (32.4.2b, 32.3.3c)
  - Communication Devices. (32.4.2b, 32.3.1e, 32.3.4j)
  - Personal Protective Equipment. (32.4.2b, 32.3.4j)

**Motor Vehicle Safety Checklist**

Requirements	Reference	YES	NO	N/A	Comments
Is initial and annual review of this procedure conducted and documented?	32.4.2				
Have all individuals affected by this procedure read, understood and followed the procedure?	32.5.4				
Are all drivers familiar with general safe driving guidelines?	Attachment C				
Do all drivers have a valid driver's license?	32.3.1a				
Are all vehicles inspected monthly and prior to making a long distance trip?	32.3.1c, Attachment A				
Do employees follow motor vehicle accident reporting procedures?	32.3.2d				
Are drivers familiar with guidelines when driving at night and in rainy, foggy conditions?	Attachment C				
Are drivers familiar with guidelines when driving in winter conditions?	32.3.3a-c				
Are FAA safety driving rules followed when driving on airport grounds?	32.3.8				
Are drivers familiar with guidelines when driving in hot weather conditions?	32.3.5				
Are all vehicles equipped with the necessary emergency equipment?	32.3.3c. 1-7				

Requirements	Reference	YES	NO	N/A	Comments
Do all Drivers of Snowmobiles, Snow Cats, and All Terrain Vehicles (ATVs) comply with the requirements of this procedure?	32.3.4a-k, 32.3.5				
Are Snow Travel Plans filed with the Station Manager prior to initiating a trip?	32.3.4d				
Do all drivers comply with procedure when crossing railroads?	32.3.7				
Do all drivers check the vehicle and inform the supervisor regarding the travel plans prior to driving off the road?	32.3.8, d Attachment A				
Do all drivers follow safety guidelines while driving off the road?	32.3.8				
Are all drivers aware of safety precautions relevant to car jacking and tailgating?	32.3.12a,b				
Do all personnel follow the guidelines concerning the use of Cellular Phones while driving including use of handheld devices and a ban for texting while driving per new Executive Order 13513?	32.3.13, Attachment D				
Are Safety Cages installed in work vans to reduce risk of flying equipment, parts and tools during sudden vehicle breaking or stopping?	32.3 14				

## **32 MOTOR VEHICLE SAFETY**

### **32.1 Purpose and Scope**

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure related to potential hazards associated with on- and off-road motor vehicle operation. This procedure applies to all NWS facilities and to all employees who operate motor vehicles in the performance of their job duties.

### **32.2 Definitions**

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Hydroplaning. The result of tires moving quickly across a wet surface, causing the tire(s) to be lifted off the road; most or all traction is lost.

Motor Vehicle. Any self-propelled mechanically or electrically powered vehicle designed to be operated for the transportation of property or passengers.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations (ROC), or the Sterling Field Support Center (SFSC).

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Stopping Distance. Reaction distance plus braking distance. At 55 MPH, reaction distance is 60 feet. At 55 MPH, the stopping distance is 225 feet for passenger cars and 335 feet for tractor trailers.

Driver. A NWS employee who holds a valid driver's license issued by a state or territory of the United States of America.

Snowmobile or Snow Cat. An off-road vehicle used to access remote areas in the winter.

### **32.3 Procedure**

#### **32.3.1 General Rules.** All drivers shall:

- a. Have a valid drivers' license.
- b. Obey the laws and regulations of the state/territory in which the vehicle is operated.

- c. Ensure that vehicles they drive are inspected by designated office personnel (at least monthly) in accordance with operator's manual and manufacturer's recommendations (see also Attachment A, NWS Vehicle Inspection Checklist). Additionally, it is recommended vehicles to be inspected prior to making a long trip or driving off-road.
- d. Have seat belts fastened when driving and ensure that passengers also fasten their seat belts.
- e. Carry a two-way radio or cellular phone, if available.
- f. Be prepared with the following emergency equipment in case the vehicle breaks down:
  - (1) Flashlight
  - (2) Jumper cables
  - (3) Flares or reflective triangles
- g. Inform management personnel and make a note in the station log if cell phone service is not available en route to and at the remote work location. Satellite phone should be carried (if available) in the areas where cell phone coverage does not exist.

32.3.2 Motor Vehicle Accidents. When an accident occurs, all drivers shall:

- a. Get vehicle to the side of the road, if possible.
- b. Put on flashers.
- c. Set out reflective triangles or road flares to warn other drivers.
- d. Notify authorities as soon as possible if an accident occurs and follow reporting procedures outlined in Procedure 18, "Accident/Illness Reporting and Recording."

32.3.3 Driving in Winter Conditions. The following guidelines are recommended for safe driving in winter conditions or where employees may drive on higher elevation roads having similar conditions:

- a. Ensure that the vehicle is in proper operating condition prior to each trip:
  - (1) Cooling system is full.
  - (2) Tires are inflated and have sufficient tread to handle slippery conditions.
  - (3) Heater and defrosters work.
  - (4) Wiper blades are in good condition, the windshield washer works and washer fluid reservoir is full.
  - (5) The battery is fully charged (e.g., by checking dashboard dial or indicator light).
- b. Follow safe-driving tips:
  - (1) Do not let ice and snow accumulate on the windshield, windows and mirrors.

- (2) Check tire chains for broken hooks, worn or broken cross links, and bent or broken side chains. Carry the right number of chains and extra cross links.
- (3) Start slowly in slippery conditions.
- (4) Avoid making any sudden changes in direction or speed.
- (5) Keep the headlights on.
- (6) Avoid using cruise control when the road conditions are wet or slick.
- c. Be prepared with the following emergency equipment in case the vehicle breaks down or becomes stuck in snow or ice:
  - (1) Flashlight
  - (2) Jumper cables
  - (3) Ice scraper
  - (4) Shovel
  - (5) Flares or reflective triangles
  - (6) Blanket
  - (7) Sand or other material to provide friction

32.3.4 Snowmobile and Snow Cat safety. Each snowmobile or snow cat operator will follow the following safety requirements:

- a. Possess a valid driver's license when required by State law.
- b. Be formally trained on snowmobile and/or snow cat operations and survival.
- c. Check the weather forecast and avalanche conditions for areas of planned travel. The operator has the final decision on whether to proceed with the trip based on the forecast and avalanche outlook.
- d. Enter route, name of passengers, time of departure and estimated time of return information into station log. Inform the WFO management or other personnel when you leave, expected time of travel, and when you reached your destination. This is to be repeated for the return trip. Note in the station log if cell phone service is not available en route to and at the remote work location. Satellite phone should be carried (if available) in the areas where cell phone coverage does not exist.
- e. Perform a pre-trip inspection of the snow cat and snowmobile using the owner's manual guidelines or checklist included in Attachment B of this procedure (whichever is more comprehensive).
- f. Perform a safety inspection of the snow cat and snowmobile after each use.
- g. Use snow cats and snowmobiles for official government duties only.
- h. Always drive snowmobiles and snow cats at a safe speed for the general weather conditions and the condition of the road/hill and terrain.
- i. Do not drive snowmobile and snow cat over the ice covered bodies of water.

- j. Use the following mandatory safety equipment provided by the NWS at no cost to employees:
  - (1) Snowmobile
    - i Approved helmet
    - ii Face shield or goggles
    - iii Winter pants and jacket
    - iv Boots
    - v Snow Gloves
    - vi Personal Locator Beacon (PLB), Satellite phone or cellular phone
    - vii 72 hour survival kit or like
  - (2) Snow cat
    - i Winter pants and jacket
    - ii Boots
    - iii Snow Gloves
    - iv Personal Locator Beacon (PLB), Satellite phone or cellular phone. It is encouraged to install a two- way radio system for snow cat operations.
    - v 72 hour survival kit
- k. Training. Personnel are prohibited from operating a snowmobile or snow cat until they have completed formal training. Initial training for new drivers is required. Personnel will need to be retrained if new equipment is purchased. All training will be approved by Regional Headquarters.

32.3.5 All Terrain Vehicle Safety (ATV). To avoid serious ATV injuries (e.g. skull and facial fractures: spinal cord injuries, paralysis etc ) ATV operators must follow requirements below when operating an ATV:

- a. Have a valid driver's license.
- b. Have been trained on ATV operations and safety.
- c. Operate at a speed which is correct for the terrain, visibility and operating conditions and operator's experience.
- d. Check with local traffic laws, before riding on paved surfaces, to make sure it is legal.
- e. Perform a pre-trip inspection of the equipment using the owner's manual guidelines or Attachment E (ATV Safety Checklist) can be used to perform safety inspections of ATV (whichever is more comprehensive).
- f. Know speed limits for area of travel. Some counties have speed limits different from ATV speed limits established by the State.
- g. For specific ATV State laws visit <http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/ATV-Safety-Information-Center/State-ATV-Information> .
- h. Use ATVs only for valid work related purposes with supervisor's approval.

- i. Ensure ATV maintenance is performed in accordance with manufacturer's recommendations.
- j. The following safety equipment, as a minimum, is required when operating an ATV. Equipment should be obtained using the standard regional procurement process.
  - (1) Approved helmet (ANSI Z90.1, DOT Standard No. 218, or Snell Safety Standards for headgear in accordance with state regulations)
  - (2) Eye Protection
  - (3) Long sleeve shirt or jacket
  - (4) Boots
  - (5) Gloves
  - (6) Cell Phone and either a PLB or Satellite Phone
  - (7) First Aid Kit
- k. A person is not permitted to operate an ATV until he/she has completed an approved ATV training class. Training is required initially and whenever new equipment is purchased. All training will be approved by regional headquarters.

32.3.6 Driving in Hot Weather. When driving in hot weather conditions all drivers should:

- a. Check the tire mounting and air pressure.
- b. Check to determine if air conditioning system is in operating condition.
- c. Periodically check the water temperature or coolant temperature gauge.

32.3.7 Railroad Crossings. Railroad crossings, especially unprotected crossings in remote areas, can pose a hazard to drivers. At railroad crossings all drivers shall:

- a. Slow the vehicle to allow time to look in both directions of the crossing for an oncoming train.
- b. Listen for the sound of a train whistle. This may require turning down or turning off the vehicle's radio and/or interior fan.
- c. Proceed through the crossing with caution.

32.3.8 Driving off the Road. The following guidelines are for drivers when driving off-road:

- a. Inspect vehicles in accordance with operator's manual and manufacturer's specifications prior to the trip (see attachment A).
- b. If carrying a load, be sure that the load is properly balanced. Heavy items should be placed forward of the rear axle for better traction. Avoid using roof racks as this could lead to vehicle instability in steep terrain.
- c. If available, acquire a map of the area in which you will be traveling.
- d. Alert the supervisor about the travel plans including time of departure, estimated time of arrival and planned route.
- e. When conditions appear difficult, stop and park the vehicle. Get out and survey the area on foot to help in determining the safest route.



- f. When negotiating slopes, keep the use of the clutch (if applicable) and brake to a minimum. This reduces chances of sliding and losing control of the vehicle.
- g. When descending steep slopes, use first gear. Braking should be provided by the engine. Apply the accelerator carefully so that you do not cause the wheels to spin.
- h. Avoid any existing wheel ruts and obstacles which may not be cleared by the chassis. Be aware of the need to maintain ground clearance.
- i. If the ground is soft, you may reduce the tire pressure to a minimum and clear clogged tire treads to improve traction.
- j. As a rule, do not take chances in dangerous terrain. Choose another route or turn back.

32.3.9 Driving on Airport Grounds. While driving on airport grounds, the FAA Guide entitled “The Airport Ground Vehicle Operation” must be followed. (e.g., at airports with a traffic control tower, a driver of the vehicle must get controller’s permission before going onto a runway or taxiway).

32.3.10 Emergency Flashers, Horns, and Signaling. To ensure proper communication of actions to other drivers or pedestrians, follow the guidelines below:

- a. Signal before making a turn.
- b. Signal before changing lanes.
- c. Use emergency flashers when parked at the side of the road.
- d. Use headlights when driving during daylight and night-time hours.
- e. Use horn to warn other drivers of the dangerous situation.

32.3.11 Leaving the Road. When leaving the road all drivers should follow these guidelines where possible:

- a. Avoid braking. If possible, avoid using the brakes until speed has dropped to about 20 mph.
- b. Keep one set of wheels on pavement if possible.
- c. Stay on the shoulder.
- d. Signal and check your mirrors before pulling back onto the road.

32.3.12 Personal Safety.

- a. The following precautions are recommended to reduce the risk of *carjacking*:
  - (1) Do not stop to help a disabled motorist unless involved in a vehicle accident. A safer alternative is to contact a service station or the police.
  - (2) Keep your doors locked and windows rolled up (at least part-way, if it is hot and you do not have air conditioning), no matter how short the distance or how safe the neighborhood that you are traveling in may appear.
  - (3) When stopped at a red light, leave enough room between you and the car in front so that you will not be blocked in and can get away if necessary.

- (4) Be suspicious of anyone approaching the car with brochures/papers, etc., asking for change or directions. Be ready to leave, even if it means running a red light or a stop sign.
  - (5) While driving, if struck from behind or in any suspicious way, stay in your vehicle with the doors locked and windows closed until the police arrive. Activate your vehicle's emergency flashers. Be aware of "road rage" and its implications. Make every attempt to be a courteous driver and do not stop or leave the vehicle to confront an angry driver.
  - (6) If you think you are being followed, drive immediately to an area with good lighting and people. If possible, drive to the nearest police station.
  - (7) If you have one, use your cellular phone to call for help.
- b. To help ensure personal safety when being *tailgated* follow these guidelines:
- (1) Avoid quick changes.
  - (2) Never speed up.
  - (3) Avoid tricks such as braking quickly to "signal" the tailgater to back off.
  - (4) When possible, give appropriate signal and pull off the road at a safe area to allow the tailgating driver to pass.

32.3.13 Cellular Phone Use. Cellular phones can be a lifesaver in case of automobile accidents, vehicle breakdown or when personal safety is in danger. However, unsafe operation of a cellular phone in a non-emergency situation may become a cause of an accident. To ensure safety while operating the phone, practice the following guidelines:

- a. Avoid using the phone while driving, unless an emergency call must be made. Do not use the phone when driving under hazardous conditions.
- b. Do not take notes or look up numbers while driving. If necessary, pull off to a safe area and make the necessary notes or check needed numbers.
- c. Do not engage in stressful or distracting conversations while driving. Let the other party know you are driving and, if necessary, suspend the conversation until later time.
- d. Become familiar with all the features and operations of the phone. Read the instruction manual and learn the use of valuable features such as one-touch dialing, auto re-dial and memory dial. Work to memorize the keypad so that you can dial without taking your eyes off of the road.
- e. Keep your phone within easy reach. Keep it where you can reach it without taking your eyes off the road.
- f. When available, use hands-free devices. A number of hands-free phone accessories are readily available.
- g. Dial 911 if assistance is needed in an emergency.
- h. FMR GSA Bulletin B-2, Wireless Phone Use in U.S. Government Vehicles, (Attachment D) provides guidance to Federal agencies concerning the use of hand-held wireless phones while driving motor vehicles owned or leased by the

Federal government. However, if there are local restrictions on the cell phone use, personnel should adhere to them as required.

- i. To comply with Federal Executive Order 13513 of October 1, 2009, Federal Leadership on Reducing Text Messaging While Driving, NWS employees will not engage in text messaging (a) when driving GOV, or when driving POV while on official Government business, or (b) when using electronic equipment supplied by the Government while driving. This requirement also applies to NWS contractors traveling on official government business. It is recommended to reference Executive Order 13513 in the contracts.

32.3.14 Safety Cages Use. Potential risk for equipment, tools, and parts shifting or flying during sudden vehicle breaking and stopping exists and presents a significant risk for personnel injuries and/or equipment damage. Based on risk analysis performed during NWS Environmental and Safety Coordinators workshop, conclusion was made that use of safety partitions/cages/safety nets in utility vehicles used to transport parts, equipment and tools will improve employee safety and reduce the likelihood of employee injuries/permanent disabilities and associated workers' compensation costs. This can be achieved by taking the following actions:

- a. Requirement to use safety partitions/cages/safety nets in all utility vehicles leased from GSA will be implemented at all NWS Regions and Operating Units.
- b. NWS Field Office Managers will:
  - (1) Ensure that safety partitions/cages/safety nets are used at all GSA leased utility vehicles.
  - (2) Identify currently leased GSA vehicles that lack safety partitions/cages/safety nets and procure contract services for installation. Coordination with GSA may be required to get approval for installation.
  - (3) For all new GSA vehicle lease contracts, ensure that only vehicles with safety partitions/cages are obtained. If not possible, partitions/safety cages will be installed within 30 days of receiving vehicle from GSA.
- c. Employees will:
  - (1) Avoid sudden breaking and stopping as much as possible especially if safety partitions/cages/safety nets are not installed in utility vehicles.
  - (2) Report lack of safety partitions/cages/safety nets to their supervisors.

## **32.4 Responsibilities**

### **32.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

32.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and refresher Snowmobile/Snow Cat and ATV training are provided, if required.
- c. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.
- d. Will ensure that initial and periodic inventory of safety warning devices, emergency equipment, PPE and other safety equipment is accomplished and adequate stock is maintained.

32.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

32.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

32.4.5 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.weather.gov/directives/050/pd05011c.pdf>

**32.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

32.5.1 NWS Occupational Safety and Health Procedure 18, “Accident/Illness Reporting and Recording.”

32.5.2 FAA Guide, The Airport Ground Vehicle Operation.

32.5.3 Federal Executive Order 13513 of October 1, 2009, “Leadership On Reducing Text Messaging While Driving.”

**32.6 Attachments**

Attachment A: NWS Vehicle Inspection Checklist

Attachment B: NWS Snowmobile/Snow Cat Pre-Trip Checklist

Attachment C: Safe Driving Guidelines

Attachment D: FMR Bulletin B-2 (Wireless Phone Use in U.S. Government Vehicles)

Attachment E: ATV Safety Checklist

**ATTACHMENT A  
NWS Vehicle Inspection Checklist**

**Directions:** Complete this checklist by checking the “OK” or “Deficient” column for each item. All NWS vehicles must be inspected at least monthly. It is recommended that NWS vehicles also be inspected prior to any long trip or trip off the road. (**Note: Prior to inspection, set the parking brake and release the hood.**)

<b>Item</b>	<b>OK</b>	<b>Deficient</b>
<b>Outside of Vehicle</b>		
No mysterious puddles or leaks underneath vehicle		
No unreported body damage		
Windshields, windows and mirrors are clean and undamaged		
Windshield wiper are in good condition		
All four tires are properly inflated		
Spare tire is available and properly inflated		
<b>Engine Compartment</b>		
Power Steering and automatic transmission fluid level check		
Oil is within one (1) quart of full		
Coolant level in expansion bottle is “full” or “max”*		
<b>Horn, Lights, and Emergency Flashers</b>		
Horn is functioning properly		
Lights and emergency flashers are working properly		
<b>Belts and Batteries</b>		
Belts and hoses are in good condition (proper adjustment to be checked routinely by servicing facility)		
No excessive corrosion around battery terminals		
<b>Emergency Equipment</b>		
First aid kit is fully stocked and ready for use		
Flares, road reflectors, or roadside triangles are available for use		
Winter or summer emergency equipment/supplies		

Item	OK	Deficient
<b>Optional Equipment</b>		
Tire chains (if needed for winter driving)		
Cellular telephone (for emergency use)		
Fire extinguisher is properly secured and ready for quick use		

\* Recommend to have a specific gravity test done before winter and summer season driving.

\_\_\_\_\_  
Name of Inspector

\_\_\_\_\_  
Date

\_\_\_\_\_  
Vehicle Odometer Reading

**ATTACHMENT B**

**NWS Snowmobile/Snow Cat Pre-Trip Checklist**

**Directions:** Complete the below checklist by answering the “OK” or “Deficient” column before starting of trip. All must be OK before trip may begin.

Item	OK	Deficient
2 sets of screw drivers		
Rags and Litter Bags		
Adjustable wrench		
Black electrical tape		
Split and open end wrenches		
Starter cord		
Vise grips		
Mechanics wire		
Extra key		
First aid kit		
Pocket knife		
Trail map		
Compass		
Waterproof matches		
Candy bars or other high energy food		
Flashlight		
Flares		
50 feet nylon rope		
Emergency blanket		
Emergency shelter		
Fuel		
Oil		
Cell phone/CB		

\_\_\_\_\_  
Name of Inspector

\_\_\_\_\_  
Date



**ATTACHMENT C**  
**Safe Driving Guidelines**

**1. General**

- a. Look ahead of the vehicle and be aware of the following:
  - i. Vehicles entering the highway or into your lane
  - ii. Brake lights from slowing vehicles
  - iii. Road conditions
  - iv. Traffic signs and signals
  - v. Vehicles on either side and in back of the vehicle
- b. Apply the parking brake when leaving vehicle
- c. Never attempt to pass a vehicle indicating a left turn
- d. Slow down and take precautions when:
  - i. Driving through a work and/or school zones
  - ii. Doing drop offs
  - iii. Entering off-ramps and on-ramps.
  - iv. Approaching pedestrians.
  - v. Driving through a wildlife area.
- e. Schedule trips during daylight hours, if possible; and
- f. Do not take medications that may cause drowsiness before a trip.

**2. Driving at Night.**

- a. Avoid looking directly at bright lights when driving.
- b. Get off the road and rest if tired and sleepy.
- c. Reduce speed when lighting is poor or confusing.
- d. Use headlight high beams when not in view of other vehicles (unless foggy conditions are present). Drivers shall dim lights within 500 feet of an oncoming vehicle and when following another vehicle within 500 feet.

**3. Driving in the Rain.**

- a. Reduce normal speed of driving.
- b. Test brakes periodically.
- c. Allow more distance than normal between your vehicle and the vehicle ahead.

- d. If hydroplaning occurs, do not apply brakes and avoid steering in any direction but straight ahead.
- e. Do not drive through standing water unless it can be verified that it is shallow enough to cross safely and alternate route is not available.

**4. Driving in Foggy Conditions.**

- a. Use low beam lights.
- b. Use wipers to clear condensation from the windshield.
- c. Use the right side of the road for guidance.

**ATTACHMENT D**  
**FMR Bulletin B-2 (Wireless Phone Use in U.S. Government Vehicles)**

**FMR Bulletin B-2**

**Motor Vehicle Management**

To: Heads of Federal Agencies.

Subject: Use of Hand-held Wireless Phones while Driving Motor Vehicles Owned or Leased by the Federal Government.

*1. What Is the Purpose of This Bulletin?*

This bulletin provides guidance to Federal agencies concerning the use of hand-held wireless phones while driving motor vehicles owned or leased by the Federal government.

*2. What Is the Effective Date of This Bulletin?*

This bulletin is effective March 1, 2002.

*3. When Does This Bulletin Expire?*

This bulletin will remain in effect until specifically cancelled.

*4. What Is the Background?*

- a. Over 110 million people use wireless phones in the United States. A recent National Highway Traffic Safety Administration (NHTSA) survey found that 54 percent of motor vehicle drivers in the United States usually have a wireless phone in their vehicle. Federal and State policymakers have been weighing the benefits of wireless phone use in vehicles against the growing evidence of their potential to increase driver distraction and the risks to safety. The recent ban of hand-held wireless phones while driving in New York State and pending legislation in at least 27 other states has received significant publicity in 2001. In addition, 23 countries now restrict or prohibit wireless phones in motor vehicles.
- b. It is appropriate that the Federal government assume a leadership role in promoting the safe use of wireless telephones by its employees when they are engaged in official Government business. Accordingly, Federal agencies should address the issue of wireless phone use in their internal policies. Additionally, many agencies have requested guidance from the General Services Administration's Office of Government-wide Policy (OGP), Federal Vehicle Policy Division on wireless phone use in government owned and leased vehicles.

*5. What Is the Recommended Policy We Should Follow When Issuing Guidance on the Use of Wireless Phones While Driving Motor Vehicles Owned or Leased by the Federal Government?*

Federal agencies should:

- a. Discourage the use of hand-held wireless phones by a driver while operating motor vehicles owned or leased by the Federal government.
- b. Provide a portable hands-free accessory and/or a hands-free car kit for government owned wireless phones.

c. Educate employees on driving safely while using hands-free wireless phones. See [Appendix A](#) for "Cellular Phone Driving Tips" published by the National Highway Traffic Safety Administration (NHTSA).

*6. Are Federal Employees Exempt from Local or State Laws Prohibiting or Limiting the Use of Wireless Phones While Driving?*

Generally, Federal employees are not exempt from state and local laws governing operation of a motor vehicle. If adhering to state and local laws would impede your agency's mission, consult your General Counsel for advice.

*7. Could Federal Agencies be Held Liable for Injuries or Damages Caused by Employees Who Use Wireless Phones While Driving Motor Vehicles Owned or Leased by the Federal Government?*

Federal agencies should be aware of the potential for increased liability from accidents that occur if directly caused by the use of wireless phones while driving motor vehicles owned or leased by the Federal government.

*8. What Future Actions Should We Expect?*

NHTSA has over a dozen new studies planned during the next two years regarding driver distractions such as wireless phone use. As these reports are published, the General Services Administration's Federal Vehicle Policy Division will keep agencies abreast of the current research and recommendations on whether wireless phones, or any other device, should be used while driving.

*9. Who Should We Contact for Further Information and/or To Direct Comments to on the Issue of Limiting the Use of Wireless Phones While Driving Motor Vehicles Owned or Leased by the Federal Government?*

General Services Administration  
Office of Government-wide Policy  
Federal Vehicle Policy Division (MTV)  
Washington, DC 20405  
Telephone Number: 202-501-1777  
E-mail Address: [vehicle.policy@gsa.gov](mailto:vehicle.policy@gsa.gov)

Dated: February 25, 2002.

G. Martin Wagner,  
Associate Administrator,  
Office of Government-wide Policy.

**Appendix A (to Attachment D)**

**Cellular Phone Safe Driving Tips**

Safe driving is your first priority. Always buckle up, keep your hands on the wheel and your eyes on the road.

Make sure that your phone is positioned where it is easy to see and easy to reach. Be familiar with the operation of your phone, so that you're comfortable using it on the road.

Use a hands-free microphone while driving. Make sure your phone is dealer-installed to get the best possible sound quality.

Use the speed dialing feature to program in frequently called numbers. Then you can make a call by touching only two or three buttons. Most phones will store up to 99 numbers.

When dialing manually without the speed dialing feature, dial only when stopped. If you cannot stop, or pull over, dial a few digits, and then survey traffic before completing the call. (Better yet, have a passenger dial.)

Never take notes while driving. Pull off the road to jot something down; if it's a phone number, many mobile phones have an electronic scratchpad that allows you to key in a new number while having a conversation.

Let your wireless network's voice mail pick up your calls when it's inconvenient or unsafe to answer the car phone. You can even use your voice mail to leave yourself reminders.

Be a cellular Samaritan. Dialing 9-1-1 is a free call for cellular subscribers; use it to report crimes in progress or other potential life-threatening emergencies, accidents or drunk driving.

*Source:* Department of Transportation, National Highway Traffic Safety Administration: An Investigation of the Safety Implications of Wireless Communications in Vehicles November 1997.

**ATTACHMENT E**

**ATV SAFETY CHECKLIST**

NFC ID# \_\_\_\_\_  
 AG000 \_\_\_\_\_ LICENSE # \_\_\_\_\_ LOCATION \_\_\_\_\_  
 MAKE \_\_\_\_\_ MODEL \_\_\_\_\_ YEAR \_\_\_\_\_

**OK**  
 Yes ✓      No ✓

Brakes operational		
Clutch operational		
Accelerator/throttle operating properly		
Kill switch operating properly		
Head lights work		
Tail lights work		
Steering – sway or drifting		
Horn operational		
Tires and wheels		
Instrument panel and controls		
Fuel and oil tanks checked		
Drive chain		
Check Helmets, Visors, or Goggles for Lost or Damage		
<b>Current Odometer – Hours/miles (if available)</b>		

Assigned Driver \_\_\_\_\_ Date Completed \_\_\_\_\_  
 Signature of Person Conducting Inspection \_\_\_\_\_  
 Remarks - (include overall condition of the ATV)  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PROCEDURE 33 - Bloodborne Pathogens**

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## **Synopsis**

The purpose of this procedure is to establish requirements relative to the potential hazards which could result from exposure to Bloodborne Pathogens. This procedure applies to all National Weather Service (NWS) facilities, work locations, and employees where potential for exposure to Bloodborne Pathogens is present.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Requirements of the Procedure**
  - Identify operations that present a risk of exposure to Bloodborne Pathogens. (31.3.1).
- **Develop/Obtain Documentation/Information required for Site**
  - Develop an Exposure Control Program. (31.3.1), if applicable.
- **Designate Person to Administer the Bloodborne Pathogens Safety Procedure Requirements, (if required).**
- **Provide Local Training of Site Personnel, (if required).**

### **Recurring and Annual Task Requirements:**

- **Review/Update Documentation/Information required for Site**
  - Maintain Exposure Control Plan (33.4.2), if applicable.
- **Provide Refresher Training of Site Personnel, (if required).**



**Bloodborne Pathogens Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is annual review of this procedure conducted and documented?	33.4.2				
Has Exposure Control Plan been prepared for the site where potential for exposure to Bloodborne Pathogens exists (e.g., safety observers are trained in First Aid/CPR)?	33.3.1				
Is Exposure Control Plan accessible to employees?	33.3.1f				
Is Exposure Control Plan being reviewed and updated at least annually?	33.3.1f				
Are employees trained in reporting procedures for first aid incidents involving the presence of blood or Other Potentially Infectious Materials (OPIM)?	33.3.1b 33.3.6				
Are all first aid incidents being reported by the supervisor via NOAA web-based Accident/Illness Reporting System within the required timeframe?	33.3.1g				
Have procedures for the post-exposure evaluation been established as part of the Exposure Control Plan?	33.3.2a				
Have all employees impacted by this procedure reviewed its content?	33.5.4b				
Are Bloodborne Pathogens spill clean-up kits readily available?	33.3.5				
Have all employees responsible for spill clean-up received training?	33.3.6 Appendix B				

### 33 Bloodborne Pathogens

#### 33.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the NWS is promulgating this procedure related to the potential hazards that could result from exposure to Bloodborne Pathogens (BBP). This procedure applies to all NWS facilities, work locations, and operations where there is a potential for exposure to BBP.

#### 33.2 Definitions

Blood. Human blood, human blood components and products made from human blood.

Bloodborne Pathogens. Pathogenic microorganisms that are present in human blood and can cause diseases in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV).

First Aid/CPR Safety Observer. The NWS employee responsible for providing First Aid/CPR assistance to another employee performing a task which involves risk of serious injury at the location where medical emergency services are not readily available.

Contaminated. Means the presence or reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Sharps. Any contaminated object that can penetrate the skin including, but not limited to needles, knives, broken glass, exposed ends of electrical wires, wood or metal splinters, etc.

Decontamination. The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Engineering Controls. Controls (e.g., sharps disposal containers) that isolate or remove the BBP hazard from the workplace.

Exposure Incident. Specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact (a route of administration that involves piercing the skin or mucous membrane) with blood or Other Potentially Infectious Materials (OPIM) resulting from an employees' collateral first aid duties or while rendering voluntary assistance during a medical emergency.

Exposed Individual. Any individual who provided First Aid/CPR (rescuer) and has experienced an exposure incident as described above.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), or a Data Collection Office (DCO).

Good Samaritan. A NWS employee who renders aid during an emergency to an injured employee on a voluntary basis.

Handwashing Facilities. A facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.

HBV. Hepatitis B Virus.

HIV. Human Immunodeficiency Virus.

Occupational Exposure. Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that result from the performance of an employee's duties.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC), and Sterling Field Support Center (SFSC).

Other Potentially Infectious Materials (OPIM) means:

1. The human body fluids such as semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.
2. Any unfixed tissue or organ (other than intact skin) from a human (living or dead).
3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral. Piercing mucous membranes or the skin barrier through events such as needle sticks, cuts, and abrasions.

Regulated Waste. Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood, or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials. All regulated waste must be decontaminated or removed by a licensed outside vendor.

Sharps. Any needles, scalpels, syringes/blood sampling devices used by diabetics, or other articles that could cause wounds or punctures to personnel handling them.

Source Individual. Any individual living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure and may come in contact with a rescuer providing First Aid/CPR assistance.

Spill Clean-Up. The use of an approved BBP Spill Clean-Up Kit or other chemical means to remove, inactivate, or destroy BBP on a surface or item, to the point where they are no longer capable of transmitting infectious particles and the surface or item are rendered safe for handling.

Station Manager. For the purpose of this procedure, the Station Manager will be either the NWS Regional Director; NWS NCEP Director; and Directors of Centers under NCEP

(Aviation Weather Center, NP6; Storm Prediction Center, NP7; Tropical Prediction Center, NP8; and Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC; Chiefs of NRC, NLSC, and ROC; Site Manager of SFSC; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Universal Precautions (UP). An approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls. Controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique, use of Personal Protective Equipment (PPE), etc.).

### 33.3 Procedure

33.3.1 Exposure Control Plan. The Occupational Safety and Health Administration (OSHA) General Industry standard [29 CFR 1910.1030](#) applies to occupational exposures to blood or OPIM. Each NWS Field Office or Operating Unit where NWS employees (e.g., safety observers who render first aid assistance) can be involved in work-related duties with potential for exposure to BBP will establish a written Exposure Control Plan (a template is located in Attachment A) designed to eliminate or minimize employee exposure. The Plan will identify job classifications of employees with potential for occupational exposure to BBP and a list of tasks in which occupational exposure may occur.

The Exposure Control Plan, located in Attachment A, must include the following:

- a. The provision for a reporting procedure that ensures that first aid incidents involving the presence of blood or OPIM, will be reported to the Station Manager/Supervisor before the end of work shift during which the incident occurred (see report template in Appendix A-1, Exposure Incident Report). The report must include:
  - (1) Names of first aid providers/on scene volunteers who rendered assistance.
  - (2) Detailed description of accident/incident/near misses, including time and date, etc.
  - (3) Determination that an exposure incident has occurred. This determination is important to ensure that the post-exposure evaluation and follow up procedures required by OSHA (see paragraph 33.3.2) are available immediately.

NOTE: "Privacy Case" instead of name shall be entered in the web based Accident/Illness Reporting System. Exposure Incident reports must be kept as confidential files (under lock and key). Web based report number should be referenced on the paper Exposure Report. Additionally, employee's name shall not be entered on the OSHA 300 Log.

The list of all first aid incidents should be readily available upon request to all employees.

**Note:** An employee is considered potentially exposed while he/she is wearing personal protective equipment (PPE), if the PPE is damaged and the skin is non-intact. First Aid kits include PPE items used to reduce exposure to bloodborne pathogens.

- b. The provision for the bloodborne pathogens training for designated First Aid, Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED) collateral duty providers. Training presentation slides and quiz are available on the Office of Operational Systems, Operations Division (OPS1) web site: [https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)

**Note:** Training should also be offered for general awareness to site employees, other than designated collateral duty First Aid/CPR/AED providers.

- c. The provision for the bloodborne pathogens or OPIM spill clean-up that includes roping off spill area with caution tape until decontamination and cleanup have been completed. This will prevent exposure to potentially infectious spills and will reduce employee exposure to infectious waste and cross-contamination of co-workers (See Appendix B, Bloodborne Pathogens Spill Cleanup and Waste Disposal Procedures).
- d. The provision for the full Hepatitis B vaccination series, to be made available as soon as possible, but no event later than 24 hours, to all unvaccinated collateral duty First Aid/CPR/AED providers who rendered assistance in any situation involving the presence of blood and/or OPIM.

**Note:** OSHA allows for an exception to offering an initial hepatitis B vaccine to First Aid/CPR/AED providers after exposure incident occurred when:

- (1) The primary job assignment of the First Aid/CPR/AED provider is not the rendering of first aid or other medical assistance, and
- (2) Any first aid rendered is rendered only as a collateral duty responding solely to injuries resulting from workplace incidents, generally at the location where the incident occurred (OSHA Compliance Directive CP 2-2.69, Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens, Section XIII, F.8.).

(The NWS does not have any employees whose primary job function is to render first aid or medical assistance).

**Note:** Per Department of Labor Publication CA-810, Station Manager/Supervisor will not be able to submit Forms CA-1 (Federal Employee Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation) and CA-16 (Authorization for Examination and/or Treatment to Office of Worker's Compensation) for HBV shots and diagnostic testing, unless rescuer experienced traumatic injury while providing first aid to another employee who is known to be infected with HIV and/or HBV. An alternative method of payment (e.g., government credit card) should be available for diagnostic blood testing and HBV immunizations to fulfill OSHA requirement. Per OSHA CPL 02-02-69-CPL 2-2.69 (Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens), the rescuer's health insurance cannot be used unless the employer pays all of the cost of health insurance and there is no cost to the employee in the form of deductibles, copayments, or other expenses.

Good Samaritans (Federal employees who render first aid in an emergency to an injured person on a voluntary basis) are not covered by provisions of 29 CFR 1910.1030 and CPL 2-2.69. They will be informed by the Station Manager/Supervisor about OSHA requirements for HBV immunizations and diagnostic blood testing. Health insurance can be used to cover these expenses.

If an illness resulting from a documented BBP exposure is diagnosed later for either collateral duty First Aid/CPR/AED providers or Good Samaritans, Form CA-2 (Notice of Occupational Disease, United States Department of Labor and Claim for Compensation) will have to be filed. All first aid incidents will be reported by the supervisor via the NOAA web-based Accident/Illness Reporting System ([NOAA Incident Reporting System](#)). An incident involving the potential exposure to blood and/OPIM should be considered “serious” and reported within 8 hours of the incident. In order to create a record that will support a future compensation claim - e.g., should a collateral duty or Good Samaritan employee illness occur from a previous rescue exposure - Exposure Incident Reports documenting each potential occurrence/incident should be filed by the Station Manager as part of employee records.

- e. The provision for the post exposure evaluation of collateral duty First Aid/CPR/AED providers who experienced the exposure incident.

A copy of the Exposure Control Plan will be accessible to all NWS employees. The Plan must be reviewed and updated annually. All incident reports and records should be maintained on site by the Station Manager as part of employee’s files.

### 33.3.2 Post-Exposure Evaluation and Hepatitis B Vaccinations

- a. The post-exposure evaluation will be performed by or under supervision of a licensed medical professional. Hepatitis B vaccinations will be made available to all unvaccinated collateral First Aid/CPR/AED providers free of charge (see Note above), as soon as possible, but no later than 24 hours after the potential exposure.
- b. All initial required laboratory tests will be performed by an accredited laboratory at no cost to the employee (See Note Above). Follow up laboratory tests will be handled in accordance with the initial testing results.
- c. The medical evaluation will include the following:
  - (1) Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred.
  - (2) Identification and documentation of the source individual, unless the Station Manager/Supervisor can establish that identification is not feasible or prohibited by state or local law:
    - i. The source individual's blood will be tested as soon as feasible and after consent (using form in Appendix D) is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the Station Manager/Supervisor will establish that legally required consent cannot be obtained by indicating declination on the form in Appendix D.
    - ii. When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.
    - iii. Results of the source individual's testing will be made available to the exposed employee, and the employee will be informed of

applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

**Note:** A third party physician or Health Clinic where the source individual has voluntarily provided his/her blood for testing, will handle informing the exposed employee's (rescuer's) medical provider about the results of blood testing from the source individual. The rescuer knows who the source individual is, and if the source individual refuses to be tested, the rescuer will be tested. Result of this testing will be used as a baseline. The rescuer is then tested every six months for an additional 12 to 18 months after initial exposure.

- (3) Collection and testing of rescuer blood: The exposed employee's blood will be collected and tested as soon as feasible.
- (4) Post-exposure prophylaxis (measures to preserve health and prevent spread of disease), when medically indicated and as recommended by the [U.S. Public Health Service](#).
- (5) The employee will be given appropriate counseling concerning precautions to take after the exposure incident and will be informed of possible symptoms that may result from exposure.

### 33.3.3 Information Provided to Healthcare Professional

- a. The Station Manager/Supervisor will ensure the healthcare professional evaluating an employee, after an exposure incident, is provided the following information:
  - (1) A copy of the Exposure Incident Report (Appendix A-1) which contains:
    - i. A description of the exposed employee's duties as they relate to the exposure incident;
    - ii. Documentation of the route(s) of exposure and circumstances under which exposure occurred;
  - (2) Results of the source individual's blood testing, if available.

**Note:** All medical records relevant to the appropriate treatment of the exposed employee, including vaccination status will be maintained by the Station Manager. The Station Manager will maintain a file on all of his/her employees with copies of the return to work slip and duty status, for both lost time and non-lost time. This information is also used to update (issue a supplemental report) the initial accident/illness report online, and will be held as confidential In-Accordance-With (IAW) [Health Insurance Portability and Accountability Act \(HIPAA\)](#) of 1996 (P.L.104-191).

### 33.3.4 Healthcare Professional's Written Opinion

- a. The Station Manager will obtain and provide the exposed person (rescuer) with a copy of the healthcare professional's written opinion within 15 days of the completion of the evaluation.
- b. The healthcare professional's written opinion for Hepatitis B vaccination will be limited to whether Hepatitis B vaccination is indicated for an employee, and if the employee has received such vaccination.



- c. The healthcare professional's written opinion for post-exposure evaluation and follow-up will state that the employee has been informed of the results of the evaluation; and that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials requiring further evaluation or treatment.
- d. All other findings or diagnoses will remain confidential and will not be included in the written report. A copy of the written report will be retained by the Station Manager as part of the confidential filing system maintained for all Station employees.

#### 33.3.5 Spill Clean-Up and Biohazard Waste Disposal

- a. BBP spill clean-up and waste disposal procedures will be followed in accordance with Appendix B.
- b. NWS personnel will only handle manageable spills. Clean-up efforts that cannot be managed by employees will be handled by a licensed medical spill clean-up contractor.
- c. Any infectious waste placed in a biohazard "red bag" or sharps container must be transported by a licensed medical waste transporter.
- d. Material which were treated/decontaminated with bleach solution, expendable PPE, etc., can be placed into on site trash bins or dumpsters for removal by municipal, contract trash disposal services, or by other means of disposal.
- e. Spill kits will be available and replenished at NWS facilities where the Exposure Control Plan is developed and implemented.

#### 33.3.6 Training

- a. Training for collateral duty First Aid/CPR/AED providers who are at risk of occupational exposure to bloodborne pathogens will include the following:
  - (1) Epidemiology and symptomatology of bloodborne diseases;
  - (2) Modes of transmission of BBP;
  - (3) Methods of protection from exposure;
  - (4) Procedures to follow after the exposure incident has occurred, including the method of reporting the incident, the medical post exposure evaluation, and Hepatitis B vaccinations; and
  - (5) BBP spill clean-up, decontamination and biohazard waste disposal procedures.
- b. The training records will be kept at the facility by the Station Manager or designated personnel (e.g., site environmental/safety or safety focal point) for at least five years. The records will include:
  - (1) Dates of training sessions;
  - (2) Name of personnel conducting the training (if applicable); and
  - (3) Name and job title for every person attending the training session.

**Note:** Some of the topics listed above are covered in First Aid/CPR/AED training courses. The Power Point presentation and Quiz posted on OPS1 web site can be used to aid the training of personnel ([https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)).

### 33.3.7 Medical Records

- a. Medical records will be maintained for each employee with an occupational exposure in accordance with 29 CFR 1910.1020, “Access to Employee Exposure and Medical Records.”
- b. The Station Manager will be responsible for the confidential maintenance of medical record for the duration of employee employment plus 30 years.

## 33.4 **Responsibilities**

### 33.4.1 Regional and Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

### 33.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure the employee(s) covered by the Exposure Control Plan receive initial training, annual refresher training, understands their rights and responsibilities, and has the appropriate personal protective equipment available.
- c. Will ensure, if exposure occurred, required vaccination is offered to employee and that the post-exposure evaluation is conducted.
- d. Will review this procedure and the site specific Exposure Control Plan on an annual basis to ensure the facility is complying with its requirements. A written record of this review will be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### 33.4.3 NWS Headquarters (NWSH)

- a. The NWSH Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

### 33.4.4 Safety or Environmental/Safety Focal Point

Will ensure any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

33.4.5 Employees

- a. Employees affected by this procedure are required to read, understand, and comply with the requirements and will report any and all unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

**NOTE:** Reference NWS PD 50-11 for complete list of responsibilities  
<http://www.nws.noaa.gov/directives/050/pd05011a.pdf>

**33.5 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references provide additional explanation and guidance for the implementation of this procedure.

33.5.1 United States Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.1030, Bloodborne Pathogens.

33.5.2 United States Department of Labor, Occupational Safety and Health Administration, Compliance Directive (CPL 2-2.69), *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens*.

**33.6 Attachments**

Attachment A: Sample Exposure Control Plan

Appendix A-1: Exposure Incident Report

Appendix A-2: NOAA Accident Reporting

Appendix B: Spill Cleanup and Waste Disposal Procedures

Appendix C-1: Sample Consent Form for Hepatitis B Vaccination

Appendix C-2: Sample Declination Form for Hepatitis B Vaccination

Appendix D: Sample Consent for Testing of Source Individual's Blood

**ATTACHMENT A**  
**SAMPLE EXPOSURE CONTROL PLAN**

## EXPOSURE CONTROL PLAN

Facility Name: \_\_\_\_\_

Facility Location: \_\_\_\_\_

Date of Plan Preparation: \_\_\_\_\_

### **Purpose:**

This Exposure Control Plan (ECP) provides written procedures for the implementation of the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens (BPP) Standard as set forth in [29 CFR 1910.1030](#). The Plan is developed to eliminate or minimize occupational exposure of employees to BBP or other potentially infectious materials (OPIM).

### **Exposure Determination:**

OSHA requires employers to perform an exposure determination to decide which employees may incur occupational exposure to blood OPIM. The exposure determination is made without regard to the use of personal protective equipment (i.e., employees are considered to be exposed, even if they wear personal protective equipment). This exposure determination is required to list all job classifications in which all employees may be expected to incur such occupational exposure, regardless of frequency. At this facility the following duty assignment is in this category: collateral duty First Aid/CPR/AED providers/responders.

### **Personal Protective Equipment (PPE):**

First Aid Kits will include PPE items to protect collateral duty employees from exposure to BBP and OPIM. Typical items include disposable gloves, protective eye wear, disposable aprons, shield mask, resuscitation devices, antiseptic wipes, etc. The kits will be readily available for use in the office or at remote locations (e.g., stored in work vans, Radar Data Acquisition (RDA) and Upper Air Inflation buildings). Rescuers involved in rendering first aid will observe the following precautions:

- a. Wear appropriate face and eye protection when splashes, sprays, spatters, or droplets of blood or OPIM pose a hazard to the eye, nose, or mouth.
- b. Wear appropriate gloves when you:
  - (1) Can reasonably anticipate hand contact with blood or OPIM
  - (2) Handle or touch contaminated items or surfaces
- c. Replace gloves if torn, punctured, contaminated, or otherwise damaged.
- d. Never wash or decontaminate disposable gloves for reuse.
- e. Wash hands with waterless soap immediately or as soon as feasible after removal of gloves or other PPE, follow-up with soap and water as soon as you are able to.
- f. Remove PPE after it becomes contaminated, and properly dispose of it prior to leaving the work area.
- g. Remove blood or OPIM contaminated garments immediately, or as soon as feasible, in a manner that avoids contact with the contaminated garments surface and prevents further contamination of surrounding non contaminated objects.

- h. Use antibacterial wipes (included in BBP spill clean-up kit) to clean exposed skin.
- i. Employees who provide first aid are responsible to request that the facility manager replenish the first aid kits, and BBP spill clean-up kits after an incident, so that the kit is ready for the next event.

### **Spill Clean-Up and Biohazard Waste Disposal**

- a. BBP spill clean-up and waste disposal procedures will be followed in accordance with Appendix B of this ECP.
- b. NWS personnel will only handle manageable spills. Clean-up efforts that cannot be managed by employees will be handled by a licensed medical spill clean-up contractor.
- c. Any infectious waste placed in a biohazard “red bag” or sharps container must be transported by a licensed medical waste transporter or by local Emergency Medical Services (EMS) staff called to assist injured person.
- d. Material which were treated/decontaminated with bleach solution, expendable PPE, etc., can be placed into on site trash bins or dumpsters for removal by municipal, contract trash disposal service, or transported off site by normal means.
- e. Spill clean-up kits will be available and replenished when necessary.

### **Housekeeping**

Decontamination of areas, which have been contaminated with blood or OPIM, will be accomplished by utilizing the following materials: fresh bleach solutions or EPA registered germicides. All contaminated surfaces will be decontaminated as soon as feasible. Barriers should be put in place to prevent access to the contaminated area until all contaminated areas have been decontaminated.

### **Hepatitis B Virus (HBV) Vaccinations**

An initial HBV vaccination series (prior to initial job assignment) are not required because NWS personnel rendering first aid are collateral duty First Aid/CPR/AED providers/responders. However, should an actual or suspected exposure occur, vaccinations will be made available as soon as possible, but no later than 24 hours to any unvaccinated collateral duty First Aid/CPR/AED providers/responders who rendered assistance in any situation involving the presence of blood or OPIM. The medical follow up will also be offered to these employees. The Consent Form for HBV is found in Appendix C-1 of this Plan. Exposed employees who decline HBV vaccinations will sign a waiver found in Appendix C-2. Employees who decline the vaccine, but later wish to have it, will be vaccinated at no cost. Documentation of refusal of the vaccination will be retained as part of personnel records held by Station Manager.

### **Reporting of Exposure Incidents**

When the NWS employee incurs an exposure incident, it will be reported to his/her immediate supervisor before the end of the work shift during which the incident has occurred. The report must include, as a minimum, the name of the first aid responder who rendered assistance, a description of the incident, and the time and date of the incident. The supervisor will submit an incident report via the NOAA web based Accident/Illness Reporting system (link: [NOAA](#)

[Incident Reporting](#)) in accordance with Chapter 18 of NWSM 50-1115, Occupational Safety and Health. In addition, the supervisor will fill an Exposure Incident Report. A sample of Exposure Incident Report is included in Appendix A-1 of this Plan.

NOTE: "Privacy Case" instead of name shall be entered in the web based Accident/Illness Reporting System. Exposure Incident reports must be kept as confidential files (under lock and key). Web based report number should be referenced on the paper Exposure Report. Additionally, employee's name shall not be entered on the OSHA 300 Log.

### **Post-Exposure Evaluation**

All employees who incur an exposure incident will be offered a post-exposure evaluation and follow-up in accordance with the OSHA standard [29 CFR 1910.1030](#).

- a. The post-exposure evaluation will be performed by or under supervision of a licensed medical professional. Hepatitis B vaccinations will be available to all unvaccinated collateral duty first aid providers free of charge, as soon as possible, but no later than 24 hours after the potential exposure.
- b. All initial required laboratory tests will be performed by an accredited laboratory at no cost to the employee. Follow up laboratory tests, etc., will be handled in accordance with the results of initial testing and direction received from a licensed medical professional.

**Note:** Per [Department of Labor Publication CA-810](#), Station Manager/Supervisor will not be able to submit Forms CA-1 (Federal Employee Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation) and CA-16 (Authorization for Examination and/or Treatment to Office of Worker's Compensation) for HBV shots and diagnostic testing, unless the rescuer experienced traumatic injury while providing first aid to another employee who is known to be infected with HIV and/or HBV. An alternative method of payment (e.g., government credit card) should be available for diagnostic blood testing and HBV immunizations to fulfill the OSHA requirement. Per OSHA CPL 02-02-69-CPL 2-2.69 (Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens), the rescuer's health insurance cannot be used unless the employer pays all of the costs of health insurance and there is no cost to the employee in the form of deductibles, copayments, or other expenses.

Good Samaritans (Federal employees who render aid in an emergency to an injured person on a voluntary basis) are not covered by provisions of 29 CFR 1910.1030 and CPL 2-2.69. They will be informed by the Station Manager/Supervisor about the OSHA requirements for HBV immunizations and diagnostic blood testing. Health insurance can be used to cover these expenses.

If illness resulting from a documented BBP exposure is diagnosed later for either collateral duty First Aid/CPR/AED provider/rescuers or Good Samaritans, Form CA-2 (Notice of Occupational Disease United States Department of Labor and Claim for Compensation) will have to be filed. In order to create a record that will support a future compensation claim - e.g., should a collateral duty or Good Samaritan employee illness occur from a previous rescue exposure - Exposure Incident Reports documenting each potential occurrence/incident should be filed by the Station Manager as part of the employees records.

- c. The medical evaluation will include the following:
- (1) Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred;
  - (2) Identification and documentation of the source individual, unless the Station Manager/Supervisor can establish that identification is not feasible or prohibited by state or local law:
    - i. The source individual's blood will be tested as soon as feasible and after consent (using the form in Appendix D) is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the Station Manager/Supervisor will establish that legally required consent cannot be obtained by indicating declination on the form in Appendix D.
    - ii. When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.
    - iii. Results of the source individual's testing will be made available to the exposed (rescuer) employee, and the rescuer will be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

**Note:** A third party physician or Health Clinic where the source individual has voluntarily provided his/her blood for testing will handle informing the exposed employee's (rescuer's) medical provider about the results of blood testing from the source individual. The rescuer knows who the source individual is, and if the source individual refuses to be tested, the rescuer will be tested. Results of this testing will be used as a baseline. The rescuer is then tested every six months for an additional 12 to 18 months after initial exposure.

- (3) The exposed (rescuer) employee's blood will be collected, and tested as soon as feasible.
- (4) Post-exposure prophylaxis (measures to preserve health and prevent spread of disease), when medically indicated and as recommended by the [U.S. Public Health Service](#).
- (5) The employee will be given appropriate counseling concerning precautions to take during the period after the exposure incident and will be informed of possible symptoms that may result from exposure.

### **Interaction with Health Care Professional**

- a. The Station Manager will ensure the healthcare professional evaluating an employee after an exposure incident is provided the following information:
- (1) A copy of the Incident Report (Appendix A-1) which contains:
    - i. A description of the exposed employee's duties as they relate to the exposure incident;
    - ii. Documentation of the route(s) of exposure and circumstances



under which exposure occurred;

- (2) Results of the source individual's blood testing, if available; and

**Note:** All medical records relevant to the appropriate treatment of the exposed employee, including vaccination status will be maintained by the Station Manager. The Station Manager will maintain a file on all of his/her employees with copies of the return to work slip and duty status, for both loss time and non-loss time. This information is also used to update initial accident/illness reporting online, and will be held as confidential In-Accordance-With (IAW) [Health Insurance Portability and Accountability Act \(HIPAA\)](#) of 1996 (P.L.104-191).

- a. The Station Manager will obtain and provide the exposed person (rescuer) with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation.
- b. The healthcare professional's written opinion for Hepatitis B vaccination will be limited to whether Hepatitis B vaccination is indicated for an employee, and if the employee has received a vaccination.
- c. The healthcare professional's written opinion for post-exposure evaluation and follow-up will state that the employee has been informed of the results of the evaluation; and that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials requiring further evaluation or treatment.
- d. All other findings or diagnoses will remain confidential and will not be included in the written report. A copy of the written report will be retained by the Station Manager as part of the confidential filing system maintained for all Station employees.

### **Employee Training**

- a. Training for collateral duty First Aid/CPR/AED providers/responders that have potential for occupational exposure to BBP will include the following:
  - (1) Epidemiology and symptomatology of bloodborne diseases;
  - (2) Modes of transmission of bloodborne pathogens;
  - (3) Methods of protection from exposure;
  - (4) Procedure to follow if an exposure incident occurs, including the method of reporting the incident, the medical post exposure evaluation, and Hepatitis B vaccinations; and
  - (5) Bloodborne pathogens spill clean-up, decontamination and biohazard waste disposal procedures.
- b. The training records will be kept at the facility by site management or designated personnel (e.g., site environmental/safety or safety focal point) for at least five years. The records will include:
  - (1) Dates of training sessions;

- (2) Names of personnel conducting the training (if applicable); and
- (3) Names and job title of all persons attending training sessions.

**Note:** Some of the topics listed above are covered in First Aid/CPR training courses. Power Point presentation and Quiz posted on Office of Operational Systems, Operations Division (OPS1) web site can be used to aid the training of personnel ([https://www.ops1.nws.noaa.gov/Secure/env\\_new.htm](https://www.ops1.nws.noaa.gov/Secure/env_new.htm)).

**Medical Records**

Medical records are maintained for each employee with occupational exposure in accordance with 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records."

\_\_\_\_\_ (*Name of responsible person at NWS facility*) is responsible for maintenance of the required medical records. These confidential records are kept at \_\_\_\_\_ for at least the duration of employment plus 30 years.

**Exposure Control Plan Review**

The Exposure Control Plan will be reviewed annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure.

**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**APPENDIX A-1  
Exposure Incident Report**

Important: To be prepared and submitted prior to end of shift during which incident occurs.

NWS Office Name and Location: \_\_\_\_\_

Employee Name	Job Title	PPE Used? (Y/N)	Exposure Incident (Y/N)	Hepatitis B Vaccinations (If received specify when)

Supervisor of Effectuated (Exposed) Employee: \_\_\_\_\_

Incident Date: \_\_\_\_\_

Incident Time: \_\_\_\_\_

Location of Incident: \_\_\_\_\_

Exposure Incident and Injury Description: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What body fluid(s) was employee exposed to? \_\_\_\_\_

What was the route of exposure (e.g., mucosal contact, contact with non-intact skin, etc.) \_\_\_\_\_

What PPE was used during the incident? \_\_\_\_\_

Identification of source individual(s) name: \_\_\_\_\_

Other Relevant Information: \_\_\_\_\_

**IMPORTANT:** Within 24 hours of this incident, all of the employees listed above must be offered the opportunity to receive the Hepatitis B vaccination. Employees who have experienced an Exposure Incident will be offered, in addition to the vaccination, post-exposure evaluation by qualified medical personnel. Refer to the site's Exposure Control Plan for specific guidance.

Preparer's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX A-2 NOAA Accident Reporting

NOAA is responsible for providing a safe and healthful working environment for all personnel. The prompt reporting and investigation of any incident involving NOAA employees or property will provide information necessary for the systematic identification and correction of safety and health hazards.

All incidents will be reported by supervisors within 24 hours of the incident occurrence through the NOAA web-based Accident/Illness Reporting System. Any incident deemed to be “serious” in nature (see the definition on the reporting form) will be reported as soon as possible, but no later than eight (8) working hours of occurrence.

**Note:** Any incident involving a potential exposure to bloodborne pathogens will be considered “serious.” It should be reported before the end of the shift during which exposure has occurred. “Privacy Case” instead of name shall be entered in the web based Accident/Illness Reporting System. Exposure Incident reports must be kept as confidential files (under lock and key). Web based report number should be referenced on the paper Exposure Report. Additionally, employee’s name shall not be entered on the OSHA 300 Log.

[NOAA Web-based Accident/Illness Reporting System](#)  
(Internet Explorer 5.5 or higher required)

## **APPENDIX B**

### **Bloodborne Pathogens Spill Clean-Up and Waste Disposal Procedures**

#### **Spill Clean-Up**

- Put on gloves and appropriate Personal Protective Equipment (PPE). Appropriate PPE may include safety glasses or splash goggles, masks, and face shields. If disposable gloves are used, it is suggested that two pair of gloves be donned. The outer glove can then be readily removed if soiled with hand protection still provided by inner glove.
- Remove any broken glass or sharp objects from the spill using mechanical means – forceps, hemostats, needle-nose pliers, broom and dust pan. Never remove sharps/broken glass by hand. Contain the spill by covering with paper towels and carefully pour appropriate disinfectant solution around and on the spill using instructions on the disinfectant bottle. Take care not to splash disinfectant solution by pouring it slowly. Avoid scrubbing the surfaces as it can create aerosols.
- Bleach solutions must be freshly prepared (within 24 hours) to provide acceptable disinfection. (Note: Use 1:10 dilution for rough surfaces and 1:100 for smooth surfaces for freshly prepared dilution of household bleach).
- Remove paper towels and repeat the process until all visual soilage is removed.
- Re-wet cleaned area with disinfectant and air dry or let stand for 10 minutes before wiping dry.
- Remove PPE except gloves, after spill clean-up has been completed.
- Reusable PPE and any other items/tools that are not disposable (e.g. needle-nose pliers, dust pans, etc.) must be decontaminated in sodium hypochlorite (household bleach) solution (1:9) prior to soaping, washing, and rinsing. Allow to air dry after washing is done.
- After removing gloves, and/or after contact with blood and OPIM, hands and other skin surfaces must be washed thoroughly and immediately with soap or other disinfectant in hot water.

<p><b>Note:</b> NWS personnel will only handle manageable spills. Clean-up efforts that cannot be managed by employees will be handled by a licensed medical spill clean-up contractor.</p>
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#### **Waste Disposal**

Medical/Infectious waste, except for sharps (e.g. razor blades, broken glass, copper wire, needles, etc.) capable of puncturing or cutting must be contained in double, disposable, red bags conspicuously labeled with the words, "INFECTIOUS WASTE – BIO HAZARD."

- Infectious sharps must be contained for disposal in leak proof, rigid, puncture resistant containers.
- Liquid biohazard waste may be disposed of in the sewage system following chemical decontamination.
- All contaminated paper towels used for spill cleanup must be placed in a biohazard “red bag” (part of the spill kit) for appropriate disposal.
- Biohazard waste “red bags” and sharps containers should be given to EMS or transported

by a licensed medical waste handler.

- Treated/decontaminated with bleach solution materials, expendable PPE, etc, can be placed into regular trash and transported off site by normal means.

### **Sample Content of Infection Control/Spill Kit**

The kit combines personal protection and clean-up items to assist in the clean-up and disposal of infectious blood or body fluid spills and to contain potentially infectious spills in order to reduce employee exposure to infectious waste and prevent cross-contamination of co-workers.



Kit includes:

- a) 1 pair shoe covers,
- b) 2 pair large vinyl gloves,
- c) 1 large impervious gown,
- d) 1 fluid shield mask,
- e) 4 antimicrobial skin wipes,
- f) 4 biohazard labels,
- g) 1 x 1-liter spill powder,
- h) 2 x 10-15 gallon red biohazard waste bags,
- i) 1 shovel/scrapper,
- j) 4 sani-cloth wipes,
- k) 1 plastic cabinet, 8 1/4" x 5 1/4" x 3 1/8"

**APPENDIX C-1**  
**Sample Consent Form**  
**Hepatitis B Vaccination**

I, \_\_\_\_\_, give a consent to being administered the hepatitis B vaccination for the purpose of immunization against hepatitis B infection. I have been informed and I understand the benefits as well as the side effects of the vaccine and to the best of my knowledge, I have no known allergies to yeast.

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
LAST 4 DIGITS SS#

\_\_\_\_\_  
DATE

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE

**APPENDIX C-2**  
**Sample Declination Form**  
**Hepatitis B Vaccination**

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring the Hepatitis B Virus (HBV). I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline the Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with the Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

\_\_\_\_\_  
NAME

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
LAST 4 DIGITS SS#

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE



**APPENDIX D**

I have been advised of the need to collect a sample of my blood as the result of an exposure incident that occurred in this facility. Permission to have my blood drawn and have it tested for the Hepatitis B Virus (HBV) and the Human Immunodeficiency Virus (HIV), as well as other blood borne diseases, is hereby given.

I understand this testing will be done in a confidential manner and will be made available only to the person who was exposed. I also understand this person was informed of applicable laws and regulations concerning the disclosure of my identity and my infectious status.

\_\_\_\_\_  
NAME

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
LAST 4 DIGITS SS#

\_\_\_\_\_  
DATE

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE

## Acronyms

ACM	Asbestos Containing Material
ADA	Americans with Disabilities Act
ANSI	American National Standards Institute
ART	Automatic Radiotheodolite
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASOS	Automated Surface Observing System
ASTM	American Society for Testing and Materials
BEI	Biological Exposure Index
CBO	Certified Boat Operator
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CPR	Cardiac Pulmonary Resuscitation
DCO	Data Collection Office
DOT	Department of Transportation
DRO	Designated Responsible Official
OEP	Occupant Emergency Plan
EGC	Equipment Grounding Conductor
EHB	Engineering Handbooks
EPIRB	Emergency Position Indicating Beacon
EPA	United States Environmental Protection Agency
ERA	Emergency Response Agreement
FCC	Federal Communications Commission
GEC	Ground Electrode Conductor
GFCI	Ground-Fault Circuit-Interrupter
GFI	Ground-Fault Interrupter
HEPA	High Efficiency Particulate Air
HIC	Hydrologist in Charge
HIRT	Hazardous Incident Response Team
HVAC	Heating, Ventilation and Air Conditioning
IDLH	Immediately Dangerous to Life and Health
IES	Illumination Engineering Society
LPG	Liquified petroleum gases
MIC	Meteorologist in Charge
MPE	Maximum Permissible Exposure
MSDS	Material Safety Data Sheets
NCEP	National Centers for Environmental Prediction
NDBC	National Data Buoy Center
NEC	National Electric Code
NFPA	National Fire Protection Association

NIOSH	National Institute for Occupational Safety and Health
NWR	National Weather Radio
NLSC	National Logistics Support Center
NOAA	National Oceanographic and Atmospheric Administration
NRC	National Reconditioning Center
NRC	Nuclear Regulatory Commission
NWS	National Weather Service
NWSH	NWS Headquarters
NWSTC	NWS Training Center
OEP	Occupant Emergency Plan
OIC	Official in Charge
OSHA	Occupational Safety and Health Administration
PACM	Presumed Asbestos Containing Material
PEL	Permissible Exposure Level
PFD	Personal Floatation Device
PLHCP	Physician or other Licensed Health Care Professional
PPE	Personal Protective Equipment
PUP	Principal User Processor
RDA	Radar Data Acquisition
RFC	River Forecast Center
ROC	Radar Operations Center
RPG	Radar Products Generator
RPIE	Real Property Installed Equipment
RSM	Regional Safety Manager
SAR	Supplied Air Respirator
SCBA	Self Contained Breathing Apparatus
SFSC	Sterling Field Support Center
SDS	Safety Data Sheet
TLV	Threshold Limit Value
TWA	Time Weighted Average
UPS	Uninterrupted Power Supply
USCG	U.S. Coast Guard
UV	Ultra-Violet
WFO	Weather Forecast Office
WSO	Weather Service Office