

**NATIONAL WEATHER SERVICE INSTRUCTION 30-2107**

**MAY 22, 2020**

***Maintenance, Logistics, and Facilities***

***Systems Maintenance, NWSPD 30-21***

***NOAA WEATHER RADIO ALL HAZARDS (NWR) MAINTENANCE***

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**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

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***SUMMARY OF REVISIONS:*** This directive supersedes NWSI 30-2107, *NOAA Weather Radio (NWR) Maintenance*, dated January 2, 2018.

Other changes were made to:

- Update the definitions of “Government owned” and “Cooperator Owned”
- Clarified specific statements
- Added revocation of a license (Section 13)
- Updated the Acronyms list (Section 15)
- Updated the emergency contact telephone numbers (Appendix C)

/signed/

5/8/2020

Michelle Mainelli-McInerney  
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Date

**NOAA Weather Radio (NWR) Maintenance**

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## **1.0 Purpose**

This instruction establishes specific NOAA Weather Radio All Hazards (NWR) maintenance responsibilities, procedures, and reporting guidelines; defines National Weather Service (NWS) Headquarters (WSH), regional office, and weather field office roles; and documents methods to ensure government and contractor compliance with NWR performance and maintenance standards/requirements.

### **1.1 Policy**

The NWS policy is to ensure that all NWR stations are properly managed and maintained to meet NWS operational requirements.

Responsible NWS offices, state/federal government personnel, cooperators, and contractors should seek cost-effective, quality means for maintaining NWR equipment and systems to established performance and maintenance standards/requirements.

### **1.2 NWR Station Status**

NWR stations are either owned outright by the federal government or are owned by the site provider (aka cooperator).

#### **1.2.1 Government Owned**

The transmitter equipment at these NWR stations is owned by the federal government. These stations are maintained by NWS or contractor personnel. National, state, or local contracts are required to maintain specific stations within the NWR network. Each local NWS weather forecast office (WFO) is responsible for ensuring proper system maintenance for stations under their control. NWR equipment and broadcast coverage are routinely monitored for quality assurance.

#### **1.2.2 Cooperator Owned**

The federal government does not own the transmitter equipment at these NWR stations. These stations are maintained by the owner of the equipment. This may or may not be the site owner or cooperator. In some instances, NWS personnel may perform the maintenance under a Joint Project Agreement (JPA) or as an emergency response under the National Maintenance Contract (NMC). Local NWS WFOs are still responsible for ensuring that proper system maintenance for these stations is performed. Broadcast coverage for these stations is routinely monitored for quality assurance.

## **2.0 Implementation**

NWS strives for the most cost-effective means to maintain NWR network equipment and systems. Station maintenance may involve a mix of maintenance groups, depending on cost effectiveness. The available maintenance groups include NWS technical personnel, the national maintenance contractors, state maintenance contractors, or local service contractors. Each region implements this NWR instruction and designates NWR focal points for maintenance at the regions and the WFOs, and are required to follow this instruction.

This instruction may be supplemented at the regional level following guidance provided in NWS Instruction (NWSI) 1-101, *NWS Directives System - Structure and Management*. General

NWS maintenance guidance is provided in NWSI 30-2101, *Systems Maintenance Management*.

### **3.0 Organizational Responsibilities**

NWSI 10-1711, *NOAA Weather Radio All Hazards (NWR) Systems Management*, identifies the organizational roles and responsibilities for Weather Service Headquarters (WSH), Region Headquarters, and field personnel concerning NWR.

### **4.0 Maintenance Responsibilities**

NWS employs a multi-tiered and multi-variant approach to monitoring, analyzing, and effecting emergency, preventative, and corrective maintenance of the NWR equipment and network. The required maintenance may be performed by NWS or contractor employees under local, regional or national contracts, as well as local, county, state, or other federal agency site owners or cooperators depending on Memoranda of Agreements (MOAs), Memoranda of Understanding (MOU), and JPAs as appropriate.

#### **4.1 WSH NWR Maintenance Responsibilities**

WSH Office of Dissemination (DIS), Dissemination Systems Branch (DSB) will:

- a. Work with the designated NWR Program Manager, NWR national focal point, NWR regional focal points, and designated Contracting Officer (CO), Contracting Officer's Representative (COR), and Alternate CORs (ACORs) for all NWR network maintenance monitoring, cost, technical analysis, and implementation to keep the NWR system and network operating within established NWR equipment, system, and network performance requirements and NWS standards.
- b. Coordinate, develop, monitor, maintain, enforce, and adjust the NMC to effectively support the NWR network.
- c. Evaluate the network on an ongoing basis to identify performance deficiencies.
- d. Maintain the NWR station database.
- e. Coordinate all aspects of NWR station inspections, testing, maintenance (planned, preventative, corrective and emergency), and acceptance.
- f. Coordinate a monthly teleconference with regional NWR Focal Points to discuss problems, issues, and resolutions concerning all respective NWR network stations, as necessary. NWR National Focal Point will also address issues and resolutions concerning partnerships, agreements, and cooperator contracts as necessary.
- g. Monitor NWR operational performance status of all stations that do not have full maintenance coverage under the NMC.
- h. Maintain NWR network operational performance through coordination (teleconferencing and e-mail) with regional NWR Focal Points and address federal, state, and local NWR issues when appropriate.
- i. Assure NWR contractor maintenance is performed at acceptable levels. Validating these requirements may be accomplished via station inspections.
- j. Provide assistance and recommendations to WFO NWR technical representatives, in

the event the respective regional NWR focal point is unavailable and a critical NWR station outage or emergency exists.

#### **4.2 Regional NWR Maintenance Responsibilities**

The NWS Region Headquarters via the respective region NWR focal point will:

- a. Work with the designated WSH NWR Program Manager, the NWR national focal point, WFOs, and regional contractors (as appropriate) to ensure that the NWR network operates and is maintained and conforms to NWR performance requirements/standards.
- b. Evaluate the region NWR network components on an ongoing basis to determine deficiencies and coordinate with WSH.
- c. Monitor the broadcast status of all NWR network stations within their region.
- d. Review and monitor reporting for station maintenance within the region (see Section 9.0).
- e. Coordinate emergency outage resolution and logistic supply requirements with the national NWR focal point (and NMC manager on a case-by-case basis).
- f. Participate in the monthly NWR focal point teleconference chaired by the national NWR focal point.
- g. Randomly inspect NWR network stations within their respective region to ensure proper maintenance, contractor compliance, and equipment operation according to NWS standard operating procedures, contracts, and agreements; forwarding inspection findings (and resolutions, if any) to the national NWR focal point.
- h. Coordinate resolutions with the respective WFO NWR focal point concerning equipment supplies, logistics, maintenance safety, and performance issues.
- i. Provide or coordinate assistance to federal, state, and local NWR network partners as authorized by approved contracts, MOAs, JPAs, or as directed from WSH. Action begins after WSH receives notification that a NWR station requires maintenance.
- j. Verify sufficient funds are available to support any additional maintenance requirements requested. Discuss what can and cannot be accomplished; identifying any possible remedies, when communicating with the national NWR focal point.
- k. Coordinate with the regional CO and NMC COR for maintenance actions involving regional maintenance contracts or the NMC.
- l. Provide NWR station inspection, contractor evaluations, and supplemental reports to the national NWR focal point when requested.
- m. Maintain copies of all active NWR-related lease agreements and terms. Provide the national NWR focal point semi-annual updates and copies of any changes.
- n. Comply with the NWR Configuration Management Plan process when adding, modifying, or removing a station.

#### **4.3 Field Personnel Responsibilities**

Field Personnel are defined as NWS Electronic System Analysts (ESA), Electronic Technicians and Regional Maintenance Specialists (RMS). Their responsibilities are:

- a. Establish and schedule planned, preventative and corrective maintenance for NWR

equipment and systems, as appropriate.

- b. Work with WSH and the regional focal points and contractors (as appropriate) to ensure that the NWR systems are operated, maintained, and conform to NWR performance requirements/standards.
- c. Monitor all maintenance work performed.
- d. Ensure work performed on the NWR equipment, systems, and telecommunication networks are entered into the appropriate reporting and notification systems for region and WSH/DIS/DSB review.
- e. Keep the regional NWR focal point informed as to NWR site equipment, systems, and telecommunication configuration and status.

### 5.0 National Maintenance Contract (NMC)

The National Maintenance Contract (NMC) is the nationally managed maintenance vehicle for some NWR network sites. The NMC is maintained and refreshed by the NWS organizational team identified in NWSI 10-1711, *NWR System Management*.

Government owned NWR sites not covered under the NMC may be added to the contract through coordination with the NMC COR or ACOR, and the NWR Program Manager.

In addition, NWR sites not on the NMC may be temporarily covered through an emergency services order authorized by the NMC COR or ACOR if “emergency” conditions exist, such as:

- a. Loss of transmitter broadcast, which has an imminent effect on public safety;
- b. Inability of local, regional, cooperator, or contractor to make timely repairs; or
- c. Degraded transmitter performance with impending hazardous weather.

**NOTE:** Only the CO or NWR NMC COR or ACOR can direct the National Maintenance Contractor to ship or deliver NWR parts and spares, or provide services to NWR station locations not covered by the NMC, by issuing an “Emergency Services Order”.

### 6.0 Government Maintenance Staff

NWS or other government staff selected to maintain NWR stations must satisfy NWS (or equivalent) training and safety certification standards (see Appendix B) prior to any maintenance task being assigned. Selected staff must meet and follow all Occupational Safety and Health Administration (OSHA) requirements. A list of the selected government staff with the respective contact information should be sent to the NWR Program Manager and the national NWR focal point. Updates to this list shall be provided on an annual basis.

### 7.0 Regional, State, and Local NWR Maintenance Contracts

Specific requirements for regional, state, and local contractors should be detailed within the respective contracts (see Appendix B). One copy of each current regional, state, and/or local NWR maintenance contract (including any subsequent updates, changes, addendums, and modifications) should be sent to the national NWR focal point. The respective contract CORs keep the region NWR focal point aware of all logistics and maintenance issues. The regional NWR focal point helps the responsible COR to resolve any emergency or issue concerning

NWR operation or maintenance within their region.

### **8.0 Cooperator Owned, Operated, and Maintained NWR Station Support**

This sub-section relates to NWR stations not owned, operated, or maintained by NWS or covered by the NMC. The technical point of contact (POC) for these sites will work through the regional NWR focal point for all NWR network, station, and equipment related issues, including testing and logistic support. POC information for the respective maintenance personnel (reference NWR station/site name, POC first and last name, e-mail, telephone number, emergency contact number, etc.) should be collected and maintained at regional headquarters.

Regional NWR focal point should annually update this contact list and submit a copy to the national NWR focal point.

### **8.1 Joint Project Agreement (JPA) Maintenance Support**

For NWR stations covered by a JPA with NWS, the designated POC will work through the regional NWR focal point regarding their respective NWR network station.

### **8.2 Memoranda of Agreement (MOA) Maintenance Support**

Those NWR stations covered by an agency MOA with NWS, the designated POC will work through the national NWR focal point regarding their respective NWR network station.

### **9.0 Electronic Reporting**

NWR focal points, NWS technicians, maintenance personnel, contractors, and cooperators will use an authorized/approved electronic reporting system to document and track planned/scheduled, preventative, corrective and emergency maintenance.

### **9.1 Maintenance Reporting**

WFO NWR focal points will document all preventive, corrective, and emergency maintenance in accordance with NWSI 30-2104, *Maintenance Data Documentation*. All maintenance contractors will be required to provide data, either submitted to the responsible WFO or entered directly into the designated reporting database.

### **9.2 Outage reporting**

NWR station/equipment outage reports will be submitted using the Unscheduled Outage System (USOS) reporting criteria in NWSI 30-2112, *Reporting Systems, Equipment, and Communication Outages*.

DSB collects outage information twice daily and reports to WSH management as required.

### **10.0 Site Inspections**

Local NWR focal points maintain or verify that the maintenance of the NWR stations under their responsibility is within NWR operational requirements. Station inspections will be completed on an annual basis. The regional NWR focal point will provide specific site inspection criteria. Inspections include site verification and operational testing of equipment. There are two types of inspections:

- **Routine Inspections:** periodic and completed in a set time.
- **Validation Inspections:** following the completion of a maintenance contractor's work on a NWR system. These inspections may follow or be conducted concurrent with completion of a maintenance action. Authority to accept or decline a contractor's work is provided in Section 4 of this document.

The respective regional headquarters select and authorize the climbing personnel. All persons selected or employed via contract or MOA will be properly certified to work on the broadcast equipment and will meet NWS Occupational Health and Safety requirements and OSHA standards.

### **10.1 Inspection Reports**

Inspection reports documenting findings and issues must be made upon completion of any NWR station inspection. Reports are submitted to the regional NWR focal point, the respective contract CO, NMC COR, station manager (as necessary), and the maintenance contractor for the inspected NWR station. The Engineering Handbook 7, *Preventive Maintenance Schedule and Performance Measurements*, defines the reporting requirement and format for each brand of transmitter, including:

- a. Crown Broadcast International Radio and Electronics Corporation (IREC)
- b. Armstrong Transmitter Corporation
- c. Nautel Ltd.
- d. Continental Electronics Corporation (CEC)

### **11.0 Monitoring**

NWR focal points will monitor site configuration, maintenance (via electronic reporting), and transmitter operation to meet NWS performance requirements. Local NWR focal points (and regional NWR focal points as needed) will monitor contractors and perform site inspections to assure quality standards.

### **12.0 Authority**

Any government staff, as delegated by the CO per contract vehicle, has the authority to accept systems that meet established NWR technical or operational requirements. These designated government staff also have authority within the scope of the respective national, state, or local NWR maintenance contracts to authorize corrective adjustments required to ensure proper system operation and contractor compliance for NWR stations, systems, and equipment within their scope of responsibility.

### **13.0 Emergency Measures**

When a NWR system is maintained under government contract, the contractor is responsible for routine preventative, corrective, and emergency maintenance of the equipment under the terms and conditions of the contract, and any signed amendments.

Infringement on the scope, terms, and conditions of the agreements or maintenance contracts by government employees is not permitted except in emergencies and ONLY when directed by regional headquarters or WSH. The government reserves the right to return equipment to operating condition when circumstances dictate. When the government does so, it will notify



the proper COR/ACOR of the action(s) taken as soon as practical after the occurrence, especially if obtaining prior regional headquarters or WSH approval was determined unreasonable.

When a NWR system is not maintained by the government or authorized contractor(s), the station owner or cooperator is responsible for routine preventative, corrective, and emergency maintenance of the equipment. Infringement by government employees is not permitted except in extreme cases when station maintenance cannot meet operational restore time requirements. In such extreme cases, authorization for government employees to provide maintenance services must be authorized by the NWR Program Manager.

Implementation of emergency maintenance under established contracts (i.e., activation of 'emergency' maintenance contract line item numbers and provisions under the Statement of Objectives [SOO]) is at the discretion of the regional and national NWR focal points and the respective COTR. In an extreme case, WSH could have the site's license to broadcast on the NWR frequencies revoked, as all such licenses are held by the NWS.

#### 14.1 Reference Documents

The following documents will be maintained by the regional and national NWR focal points and, as needed, by the local NWR focal points:

- Maintenance Manuals for the approved 100Watt (W), 300W, and 1000W transmitter systems within the respective area of responsibility
  - a. Crown IREC
  - b. Armstrong Corporation.
  - c. Nautel, Ltd.
  - d. Continental Electronics Corporation (CEC)
- A copy of the current NMC;
- Other maintenance contract(s) that pertain to sites within the area of responsibility;
- List of NWR focal points and POCs germane to the position held;
- Current Site Survey (copy) for each site within area of responsibility;
- Current leases and agreements (JPAs, MOAs, memorandum of understanding [MOUs], etc.);
- NWS Policy and Procedure Directives;
  - a. [NWSI 1-101, NWS Directives System - Structure and Management](#)
  - b. [NWSI 10-1711, NOAA Weather Radio All Hazards \(NWR\) Systems Management](#)
  - c. [NWSI 30-2101, Systems Maintenance Management](#)
  - d. [NWS 30-2104, Maintenance Data Documentation](#)
  - e. [NWS 30-2107, NOAA Weather Radio All Hazards \(NWR\) Maintenance \(This document\)](#)
  - f. [NWS 30-2112, Reporting systems, Equipment, and Communication Outages](#)
  - g. [NWSM 50-1115, Occupational Safety and Health](#)
- NWR Transmitter Preventive Maintenance Schedules and Performance Measurements;
- NWR Modification Notes, Maintenance Notes, and Transmitter Remote Interface Software;
- NWR Configuration Management Plan.

## 15.0 Acronyms

ACOR	Alternate Contracting Officer's Representative
CEC	Continental Electronics Corporation
CM	Corrective Maintenance
CO	Contracting Officer
COR	Contracting Officer's Representative
DSB	Dissemination Systems Branch
EPM	Electronics Program Manager
ET	Electronic Technician
FM	Frequency Modulation
IREC	International Radio and Electronics Corporation
JPA	Joint Project Agreement
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act (1969)
NMC	National Maintenance Contract
NOAA	National Oceanic and Atmospheric Administration
NWR	NOAA Weather Radio All Hazards
NWS	National Weather Service
NWSI	National Weather Service Instruction
NWSM	National Weather Service Manual
OPM	Office of Personnel Management
OPR	Office of Primary Responsibility
OSHA	Occupational Safety and Health Administration
PM	Preventive maintenance
POC	Point of contact
RF	Radio frequency
RES	Regional Equipment Specialist
RMS	Regional Maintenance Specialist
SOO	Statement of Objectives
USOS	Unscheduled Outage System
VHF	Very High Frequency
WFO	Weather Forecast Office
WSH	National Weather Service Headquarters

**APPENDIX A – NOAA Weather Radio All Hazards (NWR) Operating Procedures**

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**1. General**

NWR operating procedures, except as noted, are in accordance with manufacturers’ recommendations, and are documented in the respective instruction manuals.

- A. Login to check system/station status: Monthly or more often, as necessary.
- B. Identification of maintenance issue: 30 minutes.
- C. Corrective maintenance (CM): As needed to continue uninterrupted NWR broadcast service. If service is interrupted, CM should be completed within 48 hours.
- D. On-site preventive maintenance (PM): From one to three times per year, determined by site circumstances.

**2. Procedures for Station Inspection (sample)**

- A. Contact the respective regional NWR Focal Point for a potential station list.
- B. Coordinate with region and respective WFO maintenance technician (and local station manager/maintenance technician if other than federal, state, or local NWR station).

**3. Procedures in Event of NWR Station Outage/Emergency (sample)**

- A. If the station is considered critical, start the response time clock for station outage.
- B. Report the outage in USOS in accordance with [NWSI 30-2112, Reporting Systems, Equipment, and Communications Outages](#).
- C. Contact the NWR station manager/maintenance technician to inform of outage.
- D. If the initial station report is within four hours from the initial contact, stop the response clock.
- E. Once notification is received, stop response clock.
- F. If equipment shipment is not necessary, start time to repair clock.
- G. If the site is covered under the NMC, regions should call the NMC contractor directly for spare parts.
- H. Note shipment arrival time(s) upon receipt. Start time to repair clock.
- I. Stop repair clock when system is returned to standard operation.
- J. Report maintenance activity accomplished including the time spent monitoring and coordinating contract maintenance using approved NWS electronic report system.

**APPENDIX B - NOAA Weather Radio All Hazards (NWR) Maintenance Personnel Requirements**

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**1. Personnel Requirements**

All Government personnel performing routine preventive, corrective, or emergency maintenance on any NWR transmitter system must have appropriate technical qualifications, training, and experience to perform the required work on high power radio frequency (RF) very high frequency (VHF) frequency modulation (FM) transmitter systems, as specified in NWSM 50-1115, *Occupational Safety and Health*. Only those persons identified by the regions (within a position listed below), and who have current status and received all requisite climbing training, will perform a ‘physical climb-on’ tower inspection. Current requirements for the following positions are at the discretion of the regional headquarters to maintain operational requirements and comply with established Office of Personnel Management (OPM) and NWS position descriptions for education and experience:

- Electronics Technician (ET)
- Regional Maintenance Specialist (RMS)
- Electronics Program Manager (EPM)
- Regional Equipment Specialist (RES)

**2. Tower Inspection Criteria**

Personnel are required to meet regional headquarters operational requirements and performance criteria according to NWS directives and applicable laws (OSHA/National Environmental Policy Act [NEPA]). Tower requirements/Fall protection can be found in NWSM 50-1115. <http://www.nws.noaa.gov/directives/sym/pd05011015curr.pdf> . Lightning protection, grounding, bonding, shielding, and surge protection requirements can be found in NWSM 30-4106 <http://www.nws.noaa.gov/directives/sym/pd03041006curr.pdf>.

**3. Maintenance Training**

Training courses are offered at the NWS Training Center to enable a technician to possess the necessary skills to work on a transmitter from a specific manufacturer.

<http://www.nws.noaa.gov/training/CourseListing.php>

APPENDIX C **Emergency Contact Telephone Numbers**

<b>Weather Service Headquarters</b>	<b>Telephone Numbers</b>
DSB Chief Craig Hodan	Office: (301) 427-9678 Cell: (240) 676-7197
NWR Program Manager Giao Pham	Office: (301) 427-9816 Cell: (202) 384-3886
NWR National Focal Point Giao Pham	Office: (301) 427-9816 (202) 384-3886
NMC CO Carrie Perry	Office: (757) 441-6573
NMC COR Ronald DeWaters	Office: 301-427-9696 Cell: (301) 832-8684