

NATIONAL WEATHER SERVICE INSTRUCTION 30-2107

August 8, 2013

Maintenance, Logistics, and Facilities

Systems/Equipment Maintenance, NWSPD 30-21

NOAA WEATHER RADIO ALL HAZARDS MAINTENANCE

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

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SUMMARY OF REVISIONS: This instruction supersedes NWSI 30-2107, *NOAA Weather Radio (NWR) Maintenance*, dated June 3, 2010.

The following changes were made to the document:

- Roles within this document were tied more directly to their definitions in [NWS Instruction 10-1711](#). Specific tasks in that directive were NOT repeated in this one.
- Incorporated procedures into specific roles who would be performing them instead of listing them separately. Section 7 is thus removed.
- *Appendix C: NWR All Hazards Local Maintenance Statement of Work (sample)* was removed and will be managed as a template available from OPS17 staff. This was done so changes could be made to accommodate the evolving technology being implemented into the field and to allow for a quicker turn-around time for improvements to the document.
- Appendix D (now Appendix C) Emergency Contact Numbers were updated with the current contacts.
- Added acronym list.
- Other changes were made to the text to clarify the topic discussed.

Signed _____ July 25, 2013

Mark S. Paese Date

Director, Office of Operational Systems

NOAA Weather Radio (NWR) Service Maintenance

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1 Acronyms

| Acronym | Definition |
|----------------|---|
| ACOR | Alternate Contracting Officer's Representative |
| CEC | Continental Electronics Corporation |
| CLIN | Contract Line Item Number |
| CM | Corrective maintenance |
| CO | Contracting Officer |
| COR | Contracting Officer's Representative |
| CWA | County Warning Area |
| EMRS | Engineering Management Reporting System |
| EPM | Electronics Program Manager |
| ET | Electronic Technician |
| FM | Frequency Modulation |
| GE | General Electric |
| JPA | Joint Project Agreement |
| MOA | memorandum of agreement |
| NEPA | National Environmental Policy Act of 1969 |
| NMC | National Maintenance Contract |
| NOAA | National Oceanic and Atmospheric Administration |
| NWR | NOAA Weather Radio All Hazards |
| NWS | National Weather Service |
| NWSI | NWS Instruction |
| NWSM | National Weather Service Manual |
| NWSPD | National Weather Service Policy Directive |
| 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 |
| SRS | Scientific Radio Systems |
| USOS | Unscheduled Outage System |
| VHF | very high frequency |
| WFO | Weather Forecast Office |
| WSH | National Weather Service Headquarters |
| WSO | Weather Service Office |

2 Purpose

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

2.1 Policy

Ensure all NWR stations are properly managed and maintained to meet NWS operational requirements. Seek cost-effective, quality means for maintaining NWR equipment and systems to established standards and requirements through the use of NWS maintenance personnel, state/federal agencies, cooperators, national and/or local maintenance contractors. Allow for the acceptance and use of donated or loaned equipment, sites, and/or stations within the NWR network.

2.2 Government Owned NWR Stations

The equipment at these stations is owned by the Government. The stations are maintained by NWS or contractor personnel. National and local contracts are implemented to maintain specific stations within the NWR network. Local NWS Weather Forecast Offices (WFO) are responsible for ensuring proper system maintenance for these stations is provided. NWR station, equipment, and broadcast coverage are routinely monitored for quality assurance.

2.3 Cooperator Owned NWR Stations

The equipment at these stations is not owned by the Government. These stations are maintained by state agencies, cooperator, or contractor personnel under separate contracts and agreements managed by the cooperator. In some instances, NWS personnel perform this maintenance under a Joint Project Agreement (JPA). Local NWS WFOs are responsible for ensuring proper system maintenance for these stations is provided. Broadcast coverage for these stations is routinely monitored for quality assurance.

3 Implementation

NWS seeks the most cost-effective means for maintenance of NWR network equipment and systems. Station maintenance may involve a mix of NWS personnel and national, state, or local service contractors. Each region implements this NWR instruction and designates NWR focal points for maintenance and contract compliance. This instruction may be supplemented at the regional level following guidance provided in NWS Instruction 1-101, *NWS Directives System - Structure and Management*. (General maintenance guidance is provided in NWS Instruction 30-2101, *Systems Maintenance Management*.)

4 Organizational Responsibilities

The organizational roles and responsibilities for WSH, Region, and field personnel concerning NWR are identified in NWS Instruction 10-1711, *NOAA Weather Radio All Hazards (NWR) Systems Management*. Maintenance responsibilities include the following subsections:

4.1 Weather Service Headquarters (WSH)

WSH, through the Dissemination Systems Branch (OPS17), is responsible for designating a NWR Focal Point who may also serve as the manager for the NWR National Maintenance Contract (NMC).

4.1.1 WSH NWR National Maintenance Contract (NMC) Contracting Officer (CO)

The WSH CO coordinates with OPS17 to develop a NWR NMC to maintain specific NWR stations according to NWS standards and procedures. The CO will identify the OPS17 NWR NMC Contracting Officer's Representative (COR) and Alternate COR (ACOR) or the NMC Manager by way of a designation letter.

4.1.2 NWR NMC Manager

The COR and ACOR serve as the NMC Manager who is responsible for all implementation and observance of NMC requirements, modifications, and addendums. The NMC Manager will monitor and provide technical management of the NMC, including any regional logistic support for regionally maintained stations, and contact the NMC contractor to schedule emergency equipment deliveries as necessary. The NMC Manager will coordinate with regional NWR focal points to monitor NMC contractor performance and resolve any issues.

The NWR NMC Manager will monitor the equipment logistics and contractor maintenance provided by the NMC contractor. The NMC COR will coordinate with regional NWR focal points to monitor contractor performance.

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 detailed in the NMC though covered under an "Emergency Task Order" clause.

4.1.3 NWR National Focal Point

The National NWR focal point is the OPS17 NWR program representative. The National focal point is responsible for the NWR network; communicating with the regions, cooperators, partners, state and local governments; and resolving programmatic issues. The National focal point is also responsible for:

- Maintaining the NWR station database.
- Coordinating all aspects of NWR station inspections, testing, corrective maintenance, and acceptance.
- Coordinate a monthly teleconference with regional NWR focal points to discuss problems, issues and resolutions concerning all respective NWR network stations (federal, state, local, cooperative, and joint) as necessary.
- Monitoring NWR operational performance status of all stations not covered under the NMC.

- Maintaining the NWR network operational performance through coordination (teleconferencing and e-mail) with regional NWR focal points and addressing federal, state, and local NWR issues when appropriate.
- Maintain NWR contractor maintenance at acceptable levels. Validating these requirements may be accomplished via random station inspections. The National NWR focal point may accompany the regional NWR focal point on inspections should the opportunity arise (see section 3.2.1).
- The National NWR Focal Point will 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 Headquarters

Each regional headquarters is responsible for ensuring all NWR equipment within their region is maintained according to NWR operational requirements (see Appendix A). Each regional headquarters may choose to accomplish NWR maintenance using Government staff, the NMC, or contracts through regional, state, and/or local providers. The regional headquarters will provide WSH OPS1 (via memorandum with a copy sent to OPS17) the information concerning the designated focal point(s) for the region, local NWR contract Points of Contact (POCs), WFOs, and non-NWS stations (station managers and any other personnel may be designated as NWR focal points for those stations to whom service calls may be initiated on a normal and emergency basis). The information contained in the memorandum should include the focal point's name, e-mail address, and telephone number(s).

4.2.1 Regional Focal Points

The regional NWR focal point will monitor the broadcast status of all NWR network stations within their region. They will use the Engineering Management Reporting System (EMRS) to review and monitor station maintenance.

The regional Focal Point also is responsible for:

- Coordinating emergency outage resolution and logistic supply requirements with the National NWR focal point (and NMC Manager on a case-by-case basis).
- Participating in the monthly NWR focal point teleconference chaired by the National NWR focal point.
- Randomly inspecting 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. Their inspection findings (and resolutions, if any) will be forwarded to the National NWR Focal Point.
- Coordinating resolutions with the respective WFO NWR focal point concerning equipment supplies, logistics, maintenance, safety, and performance issues. They will also address issues and resolutions concerning partnerships, agreements, and cooperator contracts as necessary.
- Providing or coordinating assistance to federal, state, and local NWR network partners as authorized by approved contracts, memoranda of agreement (MOAs), JPAs, or as directed from WSH and OPS. The National NWR Focal Point will coordinate for all such assistance. Action begins after OPS or WSH receives notification that a NWR station will be

maintained.

- Verifying sufficient funds are available to support any additional maintenance requirements requested. Discuss what can and cannot be accomplished with possible remedies when communicating with the National NWR Focal Point.
- Coordinating with the regional CO and national COR.
- When adding a station to regional maintenance, and a logistic shortfall is predicted, the regional NWR focal point should:
 - Exercise an addition within an active Contract Line Item Number (CLIN),
 - Exercise an option and activate a new CLIN,
 - Modify the contract to add another CLIN, or
 - Seek alternative funding sources. After funding is confirmed, contact the regional/local NWR maintenance contractor and provide station information per the specified Statement of Objectives (SOO) and CLIN.
- Provide NWR station inspection, contractor evaluations, and supplemental reports to the National NWR Focal Point as requested.
- Maintain copies of all active NWR-related lease agreements and terms. Providing the National NWR focal point semi-annual updates and copies of any changes.

4.2.2 Government Maintenance Staff

NWS or other Government staff selected to maintain NWR stations will meet all NWS (or equivalent) training and safety certification standards (see Appendix B) prior to any maintenance task being assigned. They will also 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 OPS1.

4.2.3 NMC Support

The regional NWR focal point coordinates with each WFO/ Weather Service Office (WSO) or local NWR focal point. The regional NWR focal point is the link between the field and the National NWR focal point. All NMC work within the Region will be coordinated with and/or through the Region and their NWR focal point.

4.2.4 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 (OPS17). The respective contract CORs keep the Region NWR focal point aware of all logistics and maintenance issues. The Regional NWR focal point assists the responsible COR to resolve any emergency or issue concerning NWR operation or maintenance within their region.

4.2.5 Non-NWS 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. The regional NWR focal point should annually update this contact list and submit a copy to OPS17.

4.2.6 Joint Project Agreement (JPA) Maintenance Support

Those NWR stations covered by a JPA with NWS will work through the regional NWR focal point regarding their respective NWR network station. Information and issue resolution are described in Section 3.2.4.

4.3 Weather Forecast Office (WFO)

Each WFO is responsible for designating its own NWR focal point. The WFO NWR focal point is responsible for ensuring all NWR network equipment assigned to their office, by their respective regional headquarters, is maintained in operational readiness according to established NWS policy, standards, and NWR operational requirements as specified in Appendix A. NWR station, equipment, broadcast coverage, and contractor performance are routinely monitored by WFO focal points for quality assurance.

Each WFO is technically responsible for each NWR network station in their County Warning Area (CWA). WFO management will designate a NWR focal point to observe and report to the regional NWR focal point on station maintenance and contractor performance. The selected focal point will monitor and report contractor performance under the NMC.

4.3.1 NMC Support

The local NWR focal point is the technical POC for all NMC related inquiries from Regions or WSH. The local NWR focal point will coordinate and observe NMC work as directed by the regional and National NWR focal points including the NWR Manager. The local NWR focal point will report any discrepancies or issues because of NMC maintenance or emergency response.

4.3.2 Other NWR Support

The local NWR focal point will monitor and assist as necessary all state and local NWR sites and the respective contractors (if any) to ensure proper operation and maintenance of the NWR network and compliance with respective contracts or memoranda of agreement (MOA). Monitoring may be remote using operational systems, random or scheduled site inspections, or in conjunction with contractor follow-up during corrective/preventive maintenance. The local NWR focal point will report all findings and issues to the regional NWR focal point. If a critical NWR station goes offline, the local NWR focal point is responsible for communication,

coordination of assistance (if any), and reporting to the respective NWR focal points and the National Focal Point as to contractor performance to resolve the problem.

4.3.3 Electronic Reporting

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

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

4.3.4 Site Inspections

Local NWR focal points will maintain their NWR contracted maintenance stations and cooperator/local maintained stations within NWR operational requirements. Station inspection will be completed on an annual basis. Specific site inspection criteria will be provided by the regional NWR focal point. Inspections consist of site verification and operational testing of equipment. There are two types of inspections: routine and validation.

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

The selection and authorization of climbing personnel are at the discretion of the respective regional headquarters. All persons thus selected or employed via contract or MOA will be properly certified to work on the broadcast equipment, and meet NWS Occupational Health and Safety requirements and OSHA standards.

4.3.5 Inspection Reports

Inspection reports documenting findings and issues will be submitted to the regional NWR focal point, the respective contract CO, COTR, station manager as necessary, and the maintenance contractor for the inspected NWR station.

5 Authority

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

6 Emergency Measures

When a NWR system is maintained under Government contract, the contractor is responsible for routine and emergency maintenance of the equipment under the terms and conditions of the

contract, and any accepted/approved and 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 or WSH Dissemination Systems Branch (OPS17). The Government reserves the right to return equipment to operating condition when circumstances dictate. When the Government does so, it will notify the proper CO of the action(s) taken as soon as practical after the occurrence, especially if obtaining prior CO approval was determined unreasonable. When a NWR system is not maintained by the Government or its contractor(s), the station owner or cooperator is responsible for routine and emergency maintenance of the equipment. Infringement by Government employees is not permitted except in emergencies when station maintenance cannot meet operational restore time requirements. 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 respective COTR.

7 Reference Documents

The following documents are to be maintained by the regional and national NWR focal points and as necessary by the local NWR focal points:

- *General Electric (GE) Transmitter Maintenance Manual*
- *Scientific Radio Systems (SRS), Inc. Transmitter Maintenance Manual*
- *Crown Transmitter Maintenance Manual*
- *Armstrong Transmitter Maintenance Manual*
- *Nautel Transmitter Maintenance Manual*
- *Continental Electronics Corporation (CEC) Transmitter Maintenance Manual*
- *National Maintenance Contract (copy)*
- Local Maintenance Contract(s): copies of all (as necessary)
- List of local NWR focal points and POCs
- [NWSM 50-1115, Occupational Safety and Health](#)
- Current Site Survey (copy)
- Current leases and agreements (Joint Project Agreements, MOAs, memorandum of understanding [MOUs], etc.)
- NWS Maintenance Directives, <http://www.nws.noaa.gov/directives>:
 - [NWSI 1-101, NWS Directives System - Structure and Management](#)
 - [NWSI 10-1711, NOAA Weather Radio All Hazards \(NWR\) Systems Management](#)
 - [NWSI 30-2101, Systems Maintenance Management](#)
 - [NWSI 30-2104, Maintenance Data Documentation](#)
 - [NWSI 30-2107, NOAA Weather Radio All Hazards \(NWR\) Maintenance](#)
 - [NWSI 30-2112, Reporting systems, Equipment, and Communication Outages](#)
 - [NWSPD 30-61, Acceptance and Use of Loaned or Donated Equipment](#)

- NWR Transmitter Preventive Maintenance Schedules (SRS, Crown, Armstrong, Nautel, CEC, GE)
- NWR Modification, Maintenance, and Software Notes

APPENDIX A - NOAA Weather Radio All Hazards Operating Procedures

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1 General

NWR operating procedures, except as noted, are according to manufacturer’s recommendations, and are documented in the respective instruction manuals.

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

2 Procedures for Station Inspection (sample)

1. Contact the respective regional NWR focal point for a potential station list.
2. Coordinate with Region, 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)

1. If the station is considered critical, start the response time clock for station outage.
2. Report the outage in USOS in accordance with [NWSI 30-2112, Reporting Systems, Equipment, and Communications Outages](#).
3. Contact the NWR station manager/maintenance technician to inform of outage.
4. If the initial station report is within four hours from the initial contact, stop the response clock.
5. Once notification is received, stop response clock.
6. If equipment shipment is not necessary, start time to repair clock.
7. If the site is covered under the NMC, regions should call the NMC contractor directly for spare parts.
8. Note shipment arrival time(s) upon receipt. Start time to repair clock.
9. Stop repair clock when system is returned to standard operation.
10. Report maintenance activity accomplished including the time spent monitoring and coordinating contract maintenance using EMRS.

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

1 Personnel Requirements.....B-5
 2 Tower Inspection CriteriaB-5
 3 Maintenance TrainingB-5

1 Personnel Requirements

All Government personnel performing routine preventive, corrective, or emergency maintenance on any NWR transmitter system will 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 NWS Directive 50-1115, *Occupational Safety and Health*. Only those persons identified by the Regions (within a position listed below) 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 in order 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]). This manual may be found on the National Weather Service Directives Web page: <http://www.nws.noaa.gov/directives>.

3 Maintenance Training

The following is a list of training courses offered at the NWS Training Center to enable a technician to possess the necessary skills to work on a transmitter from a specific manufacturer:

- [B2201: NOAA Weather Radio Transmitter – Armstrong.](#)
- [B2301: NOAA Weather Radio Transmitter – Armstrong 2010.](#)
- [B1901: NOAA Weather Radio Transmitter – Crown.](#)
- [B2701: NOAA Weather Radio Transmitter – CEC.](#)
- [B2401: NOAA Weather Radio Transmitter – Nautel.](#)
- [B1602: NOAA Weather Radio Transmitter – SRS.](#)

APPENDIX C - Emergency Contact Telephone Numbers for 2013 – 2014

| Weather Service Headquarters | Telephone Numbers |
|-------------------------------------|---|
| OPS12 Al Wissman | Office: (301) 713-1824 x133 |
| OPS17 Craig Hodan | Office: (301) 713-9480 x187 Cell: (240) 676-7197 |
| NMC CO Catherine Perren | Office: (301) 628-1398 |
| NMC COR Ronald DeWaters | Office: (301) 713-9478 x173 Cell: (301) 832-8684 |
| ACOR Ronald Vaillant | Office: (301) 713-9478 x171 |

APPENDIX D - Regional Contractor Maintenance Summary Report

Regional Contractor Maintenance summary reports (in *Microsoft Excel*) are to be submitted every two months to the National Maintenance Contract Manager.

| SITE ID | LOCATION (City, State) | ISSUE (1,2, 3 or 4) | EXPLANATION |
|---------|---------------------------|------------------------|---|
| | | | What was wrong? Corrective Action. Duration of Problem. |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

- Issue 1 Site
- Issue 2 Antenna
- Issue 3 Transmitter
- Issue 4 Other