

NATIONAL WEATHER SERVICE INSTRUCTION 30-2104

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**Maintenance, Logistics, and Facilities
Systems/Equipment Maintenance, NWSPD 30-21
MAINTENANCE DATA DOCUMENTATION**

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Signed

10/3/2017

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Date

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1. Introduction

This instruction describes the Engineering Management Reporting System (EMRS) and the procedures necessary for collecting data used to assess the reliability and maintainability (R&M) of weather surveillance systems, facilities and infrastructure. These systems and facilities are operated, owned and/or maintained by the National Weather Service (NWS). The data collected by EMRS is vital to achieving maximum responsiveness to NWS missions.

EMRS is the primary field level maintenance data collection, analysis and maintenance workflow management tool used by NWS. EMRS data allows NWS to:

1. Determine systems R&M.
2. Anticipate systems and facilities maintenance requirements.
3. Measure the effectiveness of systems and facilities upgrades and modifications.
4. Provide configuration data for specific systems and facilities.
5. Provide evidence of a systems' operational status for use in legal matters.
6. Monitor engineering resources expended on designated systems and facilities.
7. Provide program performance data.
8. Manage maintenance workflow at the weather forecast and field office.
9. Assess systems and facilities maintenance requirements, and assist in planning for future staffing levels.

1.1 EMRS Data

The systems and facilities tracked by EMRS vary in nature. Systems such as weather surveillance radar are large, stationary, and composed of many subsystems and communication links. Other systems tracked in EMRS are small and portable. Some systems are located at remote locations, such as on mountain tops or on offshore oil platforms. Other systems are located at the WFO/Office. Facilities tracked by EMRS also vary in size, complexity and location. Complex facilities such as the Weather Forecast Office include the physical building, heating/ventilation/air conditioning (HVAC), electrical, emergency power, and plumbing systems. Other less complex facilities are co-located with remote weather surveillance systems. These facilities may only include the physical building and electrical power.

There are three general classes of data in EMRS.

1. Equipment and facilities inventory.
2. Equipment, facilities, and infrastructure maintenance data.
3. Equipment maintenance activity information.

Data collected, via EMRS, is used to perform periodic and ad hoc maintenance data analyses. These analyses are conducted by NWS Program Managers, Regional Officials, field offices, other agencies, and the private sector. Typical analytical studies include equipment reliability,

maintainability, and operational availability. Equipment maintainability analyses are the primary method for assessing maintenance requirements and planning for future electronics staffing levels.

The information entered into EMRS is accessible four different ways.

1. EMRS Data Entry System.
2. EMRS Web page at http://ops13web.nws.noaa.gov/pls/emrsuser/emrs_main.home
3. End-User ad hoc query and analysis tools.
4. Standardized or ad hoc reports.

2. Scope

The maintenance reporting requirements of this document apply to equipment designated by the Directors of Office of Observations, Office of Dissemination, Office of Central Processing, Office of Facilities, Office of Science and Technology and Integration, and the NWS Regional Directors. Equipment codes for maintenance reporting are listed in Engineering Handbook 4 (EHB-4), Appendix C. Maintenance reporting begins with the activation of a system or site, and continues through deactivation. All maintenance events, including site preparation work, are reported using EMRS. In addition, all Field Staff activities associated with contract maintenance, including contract maintenance oversight, is documented in the EMRS.

2.1 Filing Requirements

Once the Weather Service Form A-26, EMRS Maintenance Record is completed and has been entered into the system, it can only be modified by contacting National Weather Service Headquarters (WSH). There are no requirements to retain paper copies of the A-26 after data has been committed into the EMRS Data Entry System.

2.2 Point of Contact

Contact the WSH Surface and Upper Air Division, Services Branch, Configuration Management (W/OBS32-3) at (301) 427-9215, for information or assistance regarding EMRS.

2.3 Responsibilities

The sections below establish the following authorities and responsibilities.

2.3.1 Director, Office of Planning and Programming for Service Delivery (OPPSD)

The Director has overall responsibility for ensuring NWS-wide implementation of maintenance policy and oversees maintenance; systems development; logistics; repair; acquisitions; engineering; configuration management; the research to operations process; construction; and safety/environmental compliances policies, procedures, and directives.

2.3.2 Directors, Office of Observations, Office of Dissemination, Office of Central Processing, Office of Facilities, Office of Science and Technology Integration, and NWS Regional Directors

The Directors are responsible for providing information essential to acquisition, operation, and support management. Their responsibilities include:

1. Recommendation of equipment designated for tracking within EMRS.
2. Defining requirements for reliability and maintainability, standards and goals.
3. Compliance with NWS maintenance policy and EMRS procedures.
4. Assurance that personnel understand and carry out EMRS responsibilities.

2.3.3 Director, Surface and Upper Air Division (OBS3)

The Director has responsibility for implementing EMRS procedures and designating equipment for tracking via EMRS. These responsibilities include:

1. Developing and maintaining EMRS software and infrastructure.
2. Developing and maintaining EMRS processes and procedures that are planned, integrated, and developed in conjunction with maintenance, logistics, acquisition, engineering, configuration management, and safety/environmental directives.
3. Ensuring NWS employees have access to EMRS.

2.3.4 Meteorologist-In-Charge (MIC), Hydrologist-In-Charge (HIC), Official-In-Charge (OIC)/Station Manager

The MIC, HIC, OIC and Station Manager are responsible for the day-to-day administration of EMRS procedures within their offices. They will ensure that:

1. Office staff comply with EMRS procedures.
2. Site-specific EMRS procedures and guidance are developed and implemented.
3. NWS staff responsible for EMRS reporting carry out their responsibilities.
4. Site personnel are aware of EMRS reporting requirements.

2.3.5 NWS Staff Reporting Equipment Malfunctions

Staff will comply with maintenance policy and EMRS procedures, initiating maintenance requests using the EMRS Data Entry System. If there is no access to the data entry system, staff will follow locally established procedures to ensure proper notification and routing of the maintenance request.

2.3.6 NWS Staff Performing Maintenance Activities

Staff performing maintenance and maintenance-related system administration on NWS equipment are responsible for documenting their maintenance activities using the EMRS Data Entry System. They are also responsible for completing all A-26s originated by other employees to request maintenance.

2.3.7 All Levels of Authority

All levels of authority will measure how effectively they have satisfied EMRS reporting requirements. All operating units will review EMRS maintenance activity, Operational Availability (A_o) and R&M reports provided by EMRS to ensure compliance.

3. General Instructions

The EMRS Data Entry System is a web-based data collection and maintenance workflow management tool. The system requires internet connectivity and a web browser to transmit and receive data from a centralized database located at WSH, in Silver Spring, MD. The EMRS combines multiple phases of maintenance data collection, report generation, and maintenance workflow management into a single web-based application.

3.1 Accessing the EMRS

The EMRS is for official NWS use only. A valid username and password are required to access the system. Contact WSH Surface and Upper Air Division, Services Branch Configuration Management (W/OBS32-3) at (301) 427-9215 for information or assistance regarding access to EMRS.

3.2 Maintenance Record, A-26

Use the Maintenance Record, or A-26, to report maintenance activity on all equipment, facilities and infrastructure designated for tracking in EMRS. Reportable maintenance activities include equipment outages, routine maintenance, maintenance related system administration, activations, deactivations, and engineering modification implementation. For a complete listing of designated equipment, see document EHB-4, Appendix C.

3.3 Maintenance Data Reporting

Initiate an A-26 when a maintenance event occurs. A maintenance event is defined as any routine or non-routine maintenance activity associated with preventive maintenance, equipment failure, activation, deactivation, modification or when special sampling is conducted. If more than one maintenance event is associated with a system or facility, an A-26 for each maintenance event is required. For example, if an electronics technician (ET) investigates a

failure of a Radar Data Acquisition (RDA) equipment group, and a second ET investigates another non-related failure within the same RDA, each of these non-related maintenance events requires a separate A-26.

Enter all information regarding the maintenance event. Incomplete data may lead to confusion about the maintenance performed or the outage that occurred. Use the EMRS Data Entry System to request maintenance, manage maintenance workflow, and to document completed maintenance activities. If there is no access to the data entry system, NWS staff will follow locally established procedures to ensure proper notification of maintenance requests and documentation of maintenance activities.

NOTE: NWS Staff performing, documenting or assisting with maintenance on contract maintained equipment are required to report the maintenance activity they accomplish. This includes contract monitoring, coordination, and oversight.

3.3.1 Reportable Maintenance Events

There are five types of reportable maintenance events:

1. Corrective Maintenance - The remedial action to correct failures and restore system/equipment or facility operation to prescribed capabilities and tolerances. This includes unplanned and non-periodic repairs, as well as systems administration performed as a result of evidence indicating a failure has occurred or is imminent.
2. Equipment Management - The accomplishment of system/equipment or facilities activation, deactivation, relocation, and other similar activity.
3. Modification - The authorized hardware and/or software configuration changes required to improve/extend system/equipment or facility operations/life or to satisfy new requirements.
4. Special Activity - The authorized short-term or limited collection of data (special sampling), system/equipment installation, equipment relocation, equipment modification system test, and other similar activity for a specific purpose.
5. Preventive/Routine Maintenance - Maintenance actions performed on system/equipment or facilities to ensure continued operation within the prescribed capabilities or to minimize failure probability. Routine maintenance includes scheduled, planned or periodic preventive maintenance actions.

3.3.2 When to Originate an A-26

NWS Field Staff are required to submit an A-26 when:

1. A system/equipment, facility or infrastructure failure occurs.
2. System/equipment or facility undergoes routine maintenance.
3. System/equipment or facility is relocated.

4. System/equipment or facility is activated, deactivated, or modified.
5. Special activity or sampling occurs.
6. Maintenance related system administration is accomplished.

3.3.3 When to Commit an A-26

The A-26 is committed when all activities associated with the maintenance event are concluded. The EMRS Data Entry System will not permit a maintenance record to be committed unless all mandatory data fields are entered and the data meets validation requirements for consistency and logic. If data types and logic do not match, (e.g., the Close Date is later than the Current Date) a warning will be displayed on the computer screen. When data validation is complete, the A-26 may be saved to the EMRS database.

NWS staff should complete an A-26 when:

1. An outage is cleared and the system/equipment or facility is returned to service.
2. An activation, deactivation, modification, or relocation is completed.
3. Regularly scheduled maintenance is completed.
4. Other maintenance activities are completed.

3.4 Disposition of A-26s

Once an A-26 has been saved to the EMRS database, there is no requirement to retain or forward hard-copies to WSH.

3.5 Maintenance Data Quality Control

Automated processes provide primary quality control of EMRS data. EMRS Data Analysts, NWS Portfolio Managers, and Regional Electronic Program Managers review and monitor EMRS data to provide additional measures of quality control. Equipment performance measurements and maintenance data trends are computed and analyzed. Staff-hour information accumulates and is monitored to assess maintenance staff requirements. Failure rates and trends are monitored. Configuration management data is loaded and reviewed. Maintenance goals, processes, and directives are then modified to achieve maximum responsiveness to the missions of the NWS. All levels of authority will provide final measure of data quality control. All operating units review EMRS maintenance activity, Operational Availability (A_o), and other R&M reports provided by EMRS to ensure accuracy.

4. Engineering Handbook 4 (EHB-4)

This document, updated regularly, outlines in greater detail the EMRS procedures necessary for collecting data used to assess the reliability and maintainability (R&M) of NWS weather surveillance systems.

The handbook can be found at: http://ops13web.nws.noaa.gov/pls/emrsuser/emrs_main.home.

5. References

The following references also contain greater detail.

NWSPD 30-3, Operational Test and Evaluation
NWSI 30-302, Operational Test and Evaluation Process
NWSPD 30-11, Engineering Modifications
NWSPD 30-12, Configuration and Data Management
NWSI 30-1201, Data Management
NWSI 30-1202, Engineering Drawings
NWSI 30-1203, Configuration Management for Operational Systems
NWSI 30-1204, Site Identifiers
NWSPD 30-13, Quality Assurance
NWSI 30-1301, Quality Assurance Program
NWSPD 30-21, System Maintenance
NWSI 30-2101, System Maintenance Management
NWSI 30-2106, Radar Maintenance
NWSI 30-2107, NOAA Weather Radio Maintenance
NWSI 30-2111, ASOS Maintenance
NWSI 30-2122, Reporting Systems, Equipment, and Communication Outages
NWSI 30-2113, AWIPS Maintenance
NWSPD 30-22, Technical Orders
NWSI 30-2201, Engineering Documentation
NWSPD 30-31, Logistics Planning and Operations
NWSI 30-3101, Supply Manual and Catalog
NWSPD 30-41, Facilities Management
NWSI 30-4104, Operations and Maintenance

APPENDIX A. - ACRONYMS

Acronym	Description
A _o	Operational Availability
A-26	WS Form A-26, EMRS Maintenance Record
ACT	Activation(s)
CM	Configuration Management
DEACT	Deactivation(s)
EHB	Engineering Handbook
EMRS	Engineering Management Reporting System
ET	Electronics Technician
HIC	Hydrologist-In-Charge
MIC	Meteorologist-In-Charge
MOD	Modification(s)
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
NWSI	National Weather Service Instruction
NWSLI	NWS Location Identifier
OIC	Official-In-Charge
OBS	Office of Observations
R&M	Reliability and Maintainability
WFO	Weather Forecast Office
WS Form A-26	Weather Service Form A-26
WSH	National Weather Service Headquarters, Silver Spring, Maryland