

**NATIONAL WEATHER SERVICE INSTRUCTION 30-2101
AUGUST 5, 2002**

***Maintenance, Logistics, and Facilities
Systems Maintenance, NWSPD 30-21***

SYSTEMS MAINTENANCE MANAGEMENT

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Signed by John McNulty _____ August 5, 2002

John McNulty

Date

Director, Office of Operational

Systems

Systems Maintenance Management

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1 Introduction. This instruction outlines operating procedures for systems and equipment maintenance to achieve maximum responsiveness to the missions of the National Weather Service (NWS). Field maintenance organizational boundaries normally coincide with Weather Forecast Office (WFO) and County Warning Area (CWA) operations. Maintenance effectiveness may require variations in work loads, equipment distribution, or geographic constraints. The Regional Director (RD) may authorize deviations on a case-by-case basis.

2 Scope. Maintenance requirements apply to NWS operational, administrative, and telecommunications systems and equipment. Operational systems and equipment include nationally supported computer-based [e.g., Advanced Weather Interactive Processing System (AWIPS)], electronic/electrical, electro-mechanical, and instrumental systems and equipment,

and encompass systems administration and operational administrative software support. Administrative and telecommunications systems and equipment, including local and wide area networks, and regional-specific equipment are regionally supported.

3 General Instructions. The wide dispersion of NWS operations and maintenance activities requires the following established policy and procedural directives. However, when an emergency exists, it may be necessary to take temporary actions deviating from normal operating procedures. In those instances, the Chief, Systems Operations Division (SOD), or his/her designated individuals, will be notified as soon as possible of any deviations. The system or equipment will be restored to official configuration as soon as possible after normal operations are restored. General instructions are found in the following paragraphs. These general instructions are supplemented by program specific instructions.

3.1 Work Assignment Plans. The Electronics Systems Analyst (ESA) will prepare plans covering maintenance responsibilities for each electronics maintenance staff [hereinafter Electronics Technician (ET) staff] member in offices with more than one ET staff. The ESA will provide a copy of the current work assignment plan to the Meteorologist-In-Charge (MIC). Each plan will indicate the ET staff maintenance assignments at local and remote locations including monitoring sites maintained by contract.

3.2 Maintenance Priorities.

- a. The MIC, in consultation with the ESA, will assign priorities for corrective and emergency maintenance within the CWA. Coordination with the Hydrologist In Charge (HIC) is required at collocated WFO/River Forecast Center (RFC) offices.
- b. If corrective or emergency maintenance within the CWA cannot be completed within a reasonable time, the ESA will notify the Regional Headquarters (RH) Regional Maintenance Specialist (RMS) and/or Electronics Program Manager (EPM) of the status. Decisions regarding further activity assistance will be made as required.
- c. If a critical system or equipment becomes inoperative or partially inoperative, and remedial action will be delayed, the ESA will promptly report the outage and its extent to the EPM and/or other SOD staff. This is also important where extended outage time will result from a lack of spare parts or other resources.

3.3 Call-Back Procedure. When critical operational equipment becomes inoperative as determined by the MIC/HIC/Official-In-Charge (OIC), emergency repairs and overtime pay may be requested or authorized, as necessary, to restore the equipment to service. If an ESA/ET staff is unavailable for call-back, or the ESA/ET staff cannot restore the equipment to service, the MIC, ESA, or designee, will request assistance through the RMS and/or EPM. The MIC, ESA, or designee, may also directly request assistance from a neighboring office.

3.4 Remote Assistance. Occasionally, field ET staff may require assistance to resolve equipment problems such as persistent or intermittent malfunctions. In such instances, the ET staff will request help through the ESA or designee. Refer to regional directives for specific procedures.

3.5 Frequency of Preventive Maintenance. The frequency of preventive maintenance will be as specified in maintenance schedules or other policy issuances. ET staff will report systems or equipment requiring excessive maintenance to RH through the ESA.

3.6 Supply Support. The National Logistics Support Center (NLSC) provides supply support for NWS nationally supported systems and equipment. The NLSC also maintains supplies of technical items, technical forms, and publications. Items not unique to NWS are available from General Services Administration supply service and other sources. The NWS has been designated as the primary inventory control authority for some programs (e.g., WSR-88D). Field offices maintain other stocks of certain items. NWS Manual 30-3101, Supply Manual (formerly Engineering Handbook No. 1 (EHB-1), Instrumental Equipment Catalog) lists items stocked at NLSC. Items in NWSM 30-3101 are requisitioned through the Consolidated Logistics System. Many stock items are designated as repairable. The timely return of defective repairable items to the National Reconditioning Center (NRC) ensures continued availability of these items. Detailed instructions on the use of the logistics system are found in NWSM 30-3101, and may be supplemented by regional instructions. The following principles will be observed:

- a. Use Government supply sources in preference to commercial sources.
- b. Realistically set priorities of orders. Unwarranted setting of high priorities degrades the response of the supply support system for all users and unnecessarily increases costs.
- c. Control ordering to ensure compliance with agency instructions. Supply organizations cannot exercise this control; user personnel within the NWS organization must.
- d. In emergencies, when restoration of equipment is paramount, responsible individuals will obtain essential supplies through the EPM/RMS when authorized purchase/order limits are exceeded.
- e. Promptly return defective repairable parts to the NRC or elsewhere as directed by Weather Service Headquarters (WSH) or RH managers.
- f. ESAs will exercise control over the supply functions of ET staff. This includes review of on-site spares, prompt return of repairable items, and compliance with prescribed ordering procedures.

3.7 Maintenance Reporting. Maintenance reporting is accomplished through the Engineering Management Reporting System (EMRS). EMRS is the primary source for reliability and maintainability data for NWS systems and equipment. All field offices will use EMRS to document maintenance activities following NWS Instruction 30-2104, Maintenance Data

Documentation (formerly EHB-4, Engineering Management Reporting Systems, and WSOM Chapter A-14, Maintenance Record) guidance.

3.8 Hydrological Equipment. Maintenance of hydrological equipment may present unusual conditions (e.g., remote or relatively inaccessible installations, shared maintenance responsibility with other agencies, contractual maintenance agreements). ET staff are responsible for maintaining all authorized NWS electronic and electro-mechanical hydrological equipment having NWS telemetry adjuncts. Operations personnel with cooperative program management functions are responsible for the maintenance of precipitation recorders without telemetry adjuncts.

3.9 Split Responsibility. When maintenance is split between the NWS and other agencies or contractors, NWS ET staff are responsible for all NWS-owned equipment or adjuncts. Appropriate NWS Policy Directives and Instructions (formerly WSOM Chapters and Engineering Handbooks (EHB)) or contractual agreements define the point of demarcation for interface activities. Maintenance and/or contract maintenance coordination activities performed by the maintenance staff will be reported through EMRS following NWS Instruction 30-2104 guidance.

3.10 Contract Maintenance Monitoring. In addition to performance of maintenance and systems administration duties, ESAs and ET staff will monitor and report, as required, maintenance performed by contractors. Examples of contract maintenance include AWIPS and NOAA Weather Radio (NWR) maintenance.

3.11 Unauthorized Maintenance and Modification. Before an ESA assigns maintenance responsibilities for equipment to an ET staff, the ET staff must be qualified through on-the-job training or other evaluation procedures giving the ESA an expectation of safe and effective work. WFO operations personnel will not attempt repairs or adjustments unless they have received instructions from an authorized NWS representative. NWS ET staff will not maintain equipment or systems not officially assigned unless approved by the RH. This includes equipment provided by other agencies for special purposes and equipment from Government surplus. Unauthorized modifications (electronic or structural) or "field engineering" will not be attempted on WSH-supported equipment.

A change request must be approved before any change can be made to systems under NWS configuration management. However, ESAs and RH may authorize temporary modifications to restore critical system(s) operation in an emergency. After the emergency, the system(s) will be restored to original configuration. Each ESA will ensure all systems remain standardized under NWS policy and prescribed configuration.

Regions are responsible for equipment they purchase (with the approval of WSH) for special programs, and will cover it by specific regional supplemental directives. Each ESA will ensure all equipment approved for maintenance are added to the site's equipment inventory listing. The

RD, who implements regional initiatives, is responsible for providing maintenance resources including funding for augmented staffing needs.

3.12 Non-Government Equipment. NWS employees will not assume electronic maintenance of leased equipment unless approved by the region. Where such maintenance is authorized, it will be as described in the equipment lease. If there are parts or assemblies in leased systems identical to those owned by the NWS, ET staff will not use the NWS-owned parts in leased equipment unless explicitly authorized by the Maintenance, Logistics, and Acquisition Division. Non-government entities may install equipment on NWS premises and/or connect to NWS systems or equipment only under the following conditions:

- a. The region has approved a written agreement between the non-government entity and the region or the affected site including an approved detailed installation plan or Installation Control Document (ICD).
- b. The non-government entity installs/connects such equipment under the overview of the responsible NWS ESA/ET staff on a non-interference basis.
- c. NWS ET staff will not maintain or adjust such equipment except upon written authorization by the RD.

3.13 Non-Government Maintenance. Local site personnel will enter NWS equipment maintained by contractor(s) in the site's EMRS equipment inventory listing. The MIC will ensure appropriate use of WS Form A-26, Maintenance Record.

3.14 Facilities Maintenance. Some facilities related work is performed by electronics staff as a normal part of their duties. The electronics staff will timely and accurately report through EMRS facilities maintenance work performed.

4 References. The following references contain greater detail:

NWS Instruction 30-2104, Maintenance Data Documentation (formerly EHB-4, Engineering Management Reporting Systems and WSOM Chapter A-14, Maintenance Record), defines and assigns responsibility for the origination, completion, distribution, and retention of WS Form A-26, Maintenance Record.

NWS Policy Directive 50-11, Occupational Safety and Health (formerly WSOM Chapter A-45, Occupational Safety and Health Policy) contains safety and health policy and guidance.

NWS Policy Directive 30-22, Technical Orders (TO) (formerly WSOM Chapter H-98, Engineering Directives System), technical policy and procedures documentation.

APPENDIX A - Maintenance Definitions

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1 Computer-Based Systems and Equipment. Any system or equipment incorporating one or more microprocessors in the design and utilizing software/firmware algorithms to perform required tasks. Examples include operational, administrative management, and communications systems and equipment.

2 Electronic System. Any system or device using the principles of physical electronics to acquire/process information (e.g., sensing, sampling and applying estimates to atmospheric parameters, digital processing, and communication/transmission of information).

3 Electro-mechanical and Mechanical Equipment. Any device using electrical energy to produce mechanical movement or any device using mechanical movement to produce an electrical signal. They include non-electronic instruments and recorders.

4 Data Collection Equipment. Any system or device directly sensing, measuring, telemetering, or recording environmental data.

5 Maintenance. The installation, activation, calibration, prevention, correction, modification, deactivation, or disposal work, including reporting, necessary to keep systems or equipment in proper working condition. There are two types of maintenance: routine (preventive) and non-routine. The reporting of maintenance activities will follow the guidance provided in NWS Instruction 30-2104, Maintenance Data Documentation (formerly Engineering Handbook No. 4, Engineering Management Reporting System (EMRS)).

5.1 Routine (Preventive) Maintenance. Maintenance actions performed on equipment to ensure continued operation within the prescribed capabilities or to minimize failure probability. Routine maintenance is scheduled, planned, or periodic preventive maintenance actions. Examples include, the inspection of equipment, systems administration, lubrication, interchanging spare subassemblies, calibration, testing to assure specific performance, and condition monitoring.

5.2 Non-routine Maintenance. Non-routine maintenance includes system or equipment corrective and emergency maintenance, system/equipment modification, pre-planned improvements (P²I), and system/equipment activation, deactivation, and disposal tasks.

5.2.1 Corrective and Emergency Maintenance. Corrective maintenance is remedial action to correct failure(s) and restore system/equipment operation to prescribed capabilities and tolerances. This includes unplanned or non-periodic repairs or systems administration performed as a result of evidence indicating a failure has occurred or is imminent (e.g., abnormal bearing noises, equipment overheating, and unusual odors). Emergency maintenance is necessary or crisis actions required to restore systems or equipment operation when failure to do so can have a negative effect upon NWS operations, endanger life, the environment, or property.

5.2.2 Modification and Pre-Planned Improvements (P²I). Modifications and P²I actions are approved hardware and/or software changes required to improve/extend systems or equipment operations/life or to satisfy new requirements.

5.2.3 Activation, Deactivation, and Disposal. These are approved actions taken to place the system or equipment into a state of activation or deactivation, respectively.

System/equipment disposal is an action taken to facilitate the removal of a decommissioned system/equipment component from the NWS property inventory. This action may require restoration of the site to a condition agreed to by all appropriate parties. Activation and deactivation tasks will be performed using national and regional policies and plans. Disposal tasks will be completed in accordance with General Services Administration, Department of Commerce, National Oceanic and Atmospheric Administration, Office of Finance/Administrative Service Center, national, and regional guidance.

6 Systems Administration. Activities related to managing software operating systems and overseeing systems performance including managing user access and privileges, configuring devices, making backups, training users, managing system security, installing approved operating system software changes, and resolving fault isolation issues (e.g., software vs. hardware failures).

APPENDIX B - Systems Maintenance Organization

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1 Systems Maintenance Organization and Responsibilities. National and regional headquarters (RH), WFO Meteorologists In Charge (MIC) and Electronic Systems Analysts (ESA) manage the maintenance program. Coordination, guidance, and uniformity are important to ensure data compatibility in observational networks; reduce cost and equipment downtime; and ensure an effective, safe, and secure maintenance program. Regional headquarters through the Systems Operations Division (SOD) assure maintenance programs are carried out and reported through EMRS, and maintenance activities are accomplished by performing periodic engineering quality program reviews of assigned sites following the guidance in NWS Policy Directive 30-13, Quality Assurance/Control [formerly Engineering Handbook No. 12 (EHB-12), Engineering Quality Program].

1.1 National Weather Service Headquarters (WSH), Maintenance, Logistics, and Acquisition Division. The division:

- a. Determines national engineering policies and standards; prepares and monitors staffing plans and budgets; provides systems life-cycle Integrated Logistic Support (ILS) planning including the following elements: field- and depot-level maintenance, maintenance training, supply support, facilities engineering, technical data including documentation, transition planning, support and test equipment (including calibration); performs system analyses, and recommends replacements for all nationally supported systems and equipment. For more complete information, see NWS Instruction 30-3102, Logistics Strategic Planning Procedures (formerly WSOM Chapter A-31, Integrated Maintenance and Logistics Support Planning).
- b. Provides guidance to the maintenance management team consisting of senior WSH and regional managers.
- c. Prepares specifications and procurement documentation; evaluates technical proposals, and monitors national contracts for equipment, systems, and support services.
- d. Establishes standards and procedures for installation, systems administration, maintenance, repair, calibration, modification, quality control, and reporting on equipment and systems; and ensures agreement of documentation with interagency/organizational memorandum of agreement/understanding.
- e. Manages engineering modification development and implementation processes to maintain or improve systems operations, or to satisfy new requirements.
- f. Establishes technical training goals, policies, and requirements.
- g. Coordinates remote centralized systems and equipment depot repair planning.
- h. Provides assistance for complex technical problems.
- i. Develops and promulgates maintenance reporting policy through NWS Policy Directive 30-21.
- j. Manages and operates the National Reconditioning Center (NRC) located in Kansas City, Missouri.
- k. Develops and maintains electronics maintenance work load models and forecasts end-state electronics maintenance program resource needs.
- l. Develops, maintains and administers the EMRS as the primary data source for systems/equipment reliability analyses and maintenance work load forecasting.

1.2 Regional Headquarters (RH)

1.2.1 Regional Director (RD). Within each NWS region, the RD is responsible for the systems maintenance program. The RD may delegate management authority of this program to the Chief, Systems Operations Division (SOD).

1.2.2 Systems Operations Division (SOD). The SOD provides management, strategic planning, and direction for the integration, implementation, operation, support, quality control, and safe operation of national operational and regional administrative and telecommunications systems and equipment. This includes system/equipment installation, system administration, and equipment maintenance. The SOD chief ensures that regional operational procedures and programs are developed, as necessary.

1.2.3 Systems Integration Branch (SIB). The SIB is under the supervision of the Chief, SOD. The SIB chief or SOD chief designee provides management support and recommends policies for integration, use, operation, administration, and maintenance of computer based systems, electronic, electro-mechanical, meteorological, and hydrological weather systems and equipment to staff at field, regional, and national levels. The SIB chief or SOD chief designee ensures that regional operational and safety procedures and programs are implemented.

1.2.4 Electronics Program Manager (EPM). The EPM, under the supervision of the SIB chief or other SOD chief designee, provides management support and recommends policies for integration, use, operation, administration, and maintenance of computer based, electronic, electro-mechanical, meteorological, and hydrological weather systems and equipment to staff at field, regional, and national levels. The EPM also performs the following functions:

- a. Manages the installation, activation, modification, deactivation, maintenance, and systems administration of operational systems and equipment.
- b. Coordinates resource allocation and implementation plans and procedures for maintaining systems on a routine and emergency basis.
- c. Implements and ensures adherence to national and regional maintenance policies and directives.
- d. Oversees the regional engineering quality program for electronic systems, and periodically provides reports to regional and WSH managers.
- e. Determines regional electronics training needs, coordinates with WFO and regional management, and schedules personnel for training; ensures that regional personnel are trained to meet program requirements.
- f. Provides technical and functional direction and support to regional electronics personnel.
- g. Provides technical and programmatic consultation, guidance, and leadership to field staff, regional, and national officials regarding the maintenance program.

- h. Performs as liaison and coordinates programs, plans, and policies with WSH, other Federal agencies, state and local officials, contractors, and suppliers.
- i. Authorizes temporary modifications or deviation from established procedures in emergencies. Recommends to WSH changes to equipment or procedures for increased reliability, improved systems performance, or more efficient use of resources.
- j. Acts as the Contracting Officer's Technical Representative (COTR) for regional maintenance contracts. The EPM may act as assistant COTR on national contracts.

1.2.5 Regional Maintenance Specialist (RMS). The RMS supports field efforts and is responsible for reviewing quality assurance programs of systems or activities as described in NWS Policy Directive 30-13. The RMS is often stationed at a separate location (e.g., WFO). The RMS performs electronics maintenance, quality assurance, systems administration, systems implementation, and contract administration, as assigned. The RMS:

- a. Oversees systems quality assurance program oversight for assigned offices including the National Test Equipment Calibration Program.
- b. Serves as a technical expert, advisor, and consultant to the RH and sites on maintenance problems, issues, change recommendations, and equipment modifications for designated NWS system(s) or equipment.
- c. Performs and reports on quality program reviews as recommended in NWS Policy Directive 30-13; verifies that electronic systems and equipment are regularly calibrated and operate in accordance with established standards; checks to ensure that preventive maintenance is being accomplished and reported.
- d. Coordinates engineering program quality review findings with regional managers (RM) and, in conjunction with RMs, advises MICs and ESAs of these findings.
- e. Coordinates field implementation of complex new systems and modifications to existing equipment within the assigned WFO areas.
- f. Serves, as required, as the COTR and/or technical monitor for assigned contracts [e.g., National Oceanic and Atmospheric Administration (NOAA) Weather Radio Program].
- g. Monitors the condition of NWS equipment/systems and makes recommendations for replacement or major rehabilitation of systems or equipment.
- h. Provides technical and/or management support on complex facilities maintenance tasks when required in a backup support role.

1.2.6 Area Electronics Supervisor (AES). The Alaska and Pacific Regions continue to have AES positions. Under the supervision of the SIB chief or other SOD chief designee, the AES:

- a. Manages assigned maintenance program day-to-day activities; provides routine supervision, technical direction, and safety assurance to assigned ET staff.
- b. Coordinates and participates in maintenance activities on assigned systems and equipment.
- c. Ensures WSH and regional electronics maintenance program policies, procedures, and programs are followed.
- d. Conducts quality reviews and reviews ET staff effectiveness in meeting established performance standards; ensures quality assurance reviews are conducted following NWS Policy Directive 30-13 guidance and reviews findings are reported to regional managers.
- e. Prepares and updates work assignment plans for each assigned staff following national and regional directives; ensures that each ET staff has a current performance plan.
- f. Develops and maintains training plans for assigned ET staff; recommends ET staff for training; encourages professional development; ensures that each ET staff completes mandatory training courses.
- g. Ensures logistics and proper sparing of parts for assigned systems and equipment.
- h. Ensures timely and accurate WS Forms A-26, Maintenance Record, data are entered into EMRS for maintenance work performed as prescribed by NWS Instruction 30-2104, Maintenance Data Documentation (formerly Engineering Handbook No. 4 (EHB-4), Engineering Management Reporting Systems, and WSOM Chapter A-14, Maintenance Record); evaluates and analyzes maintenance reports submitted into EMRS and reports to SIB chief or other SOD chief designee on area deficiencies.
- i. Verifies that all assigned operational systems and equipment are regularly calibrated and are operating within established standards.
- j. Activates, deactivates, and modifies systems and equipment under approved directives.
- k. Supports strategic maintenance planning and direction for the assigned program.

1.3 Weather Forecast Office (WFO)

1.3.1 Meteorologist In Charge (MIC). The MIC is the WFO station manager. In cases of a collocated WFO/River Forecast Centers (RFC), WFO electronics maintenance program management responsibilities and electronics staff oversight lie with the WFO MIC. The setting of maintenance priorities and requirements for the RFC lies with the Hydrologist In Charge (HIC). The maintenance responsibilities of the office are coordinated between the MIC and HIC. Maintenance conflicts between the MIC and the HIC are resolved using established regional procedures. The MIC:

- a. Manages the WFO systems maintenance program, including supervision of the ESA and electronics maintenance staff (hereinafter ET staff), in an effective, safe, and secure manner.
- b. Establishes equipment restoration priorities (in coordination with the HIC at collocated offices) and ensures that subordinate staff are aware of these priorities.
- c. Ensures that an WS Form A-26, Maintenance Record, is originated by the operations staff for each equipment malfunction occurring within the WFO CWA responsibility. In cases of collocated WFO/RFC, the responsibility lies with the MIC at the WFO and the HIC at the RFC.
- d. Ensures timely and accurate completion and submission of WS Form A-26, Maintenance Record, for maintenance work performed following NWS Instruction 30-2104, Maintenance Data Documentation, guidance.
- e. Institutes a local site process that keeps the maintenance staff informed of equipment and system malfunctions. In cases of collocated WFO/RFC, the responsibility lies with the MIC at the WFO and the HIC at the RFC.
- f. Serves as the first level supervisor for the ESA and second level supervisor for the office's ET staff.

1.3.2 Electronic Systems Analyst (ESA). The ESA, under the supervision of the MIC, is the office systems administrator for assigned national, regional, and local operational systems and is also the supervisor of the office's ET staff. The ESA is responsible for effective, safe, and secure maintenance program management of complex Government electronic systems and equipment within the assigned CWA. At collocated offices, the MIC evaluates the ESA's performance with input from the HIC. The ESA:

- a. Performs and oversees systems administration and management functions on assigned computer-based systems [e.g., Advanced Weather Interactive Processing System (AWIPS)]; participates with the appropriate WFO and RFC staff in systems problem solving.
- b. Provides routine supervision and technical direction to ET staff at the assigned WFO and RFC; provides electronics maintenance program strategic planning and direction for the assigned office.
- c. Manages and performs maintenance on electronics systems and equipment; coordinates and participates in the accomplishments of maintenance on assigned systems and equipment; ensures that WSH and regional electronics maintenance program policies, procedures, programs, and safety aspects are followed, including the reporting of maintenance activities prescribed in NWS Policy Directive 30-21; coordinates with agency and contractor personnel in investigating and isolating systems malfunctions.

- d. Verifies that all operational systems and equipment are regularly calibrated and operating within established standards; conducts quality reviews and review ET staff effectiveness in meeting established performance standards and monitoring systems maintained by contractors.
- e. Provides liaison among regional SOD technical staff and adjacent WFO MICs, ESAs, ET staff members, government agencies, contractors, and cooperators within the assigned CWA; supports working relationships with neighboring WFO MICs and ESAs to assist in interoffice maintenance backup plans.
- f. Activates, deactivates, and modifies systems and equipment under approved directives.
- g. Manages and ensures logistics and proper sparing of parts for assigned systems and equipment; ensures that timely and accurate WS Forms A-26, Maintenance Record, data are entered into EMRS as prescribed by NWSI 30-2104; evaluates and analyzes maintenance reports submitted into EMRS; and reports to the MIC/HIC/EPM/RMS on area deficiencies.
- h. Prepares and updates work assignment plans for each assigned employee following national and regional directives; ensures that each assigned employee has current performance and employee development plans.
- i. Develops and maintains training plans for office electronics staff; recommends electronics staff for training to the EPM to improve the performance of official duties; encourages professional development of the electronics staff; and ensures each ET staff member completes mandatory training courses.
- j. Coordinates, manages, validates, and records all configuration changes (e.g., Modifications, Requests for Change, Maintenance Notes) to assigned systems performed by government and/or contractor personnel; ensures accountability for the coordination, management, validation, completion, and EMRS submission of each configuration change.

1.3.3 Electronics Technician (ET) Staff. The ET staff is under the direct supervision of the ESA. The ET staff:

- a. Performs assigned integrated maintenance activities including modification, preventive, corrective, emergency, systems administration, and reporting on an array of systems and equipment [e.g., Weather Surveillance Radar (WSR-88D), Upper Air, Automated Surface Observing System (ASOS), computer-based systems] at the designated station and other specified locations in a safe manner. ESAs assign work of increasing complexity to the ET staff as they gain experience and demonstrate proficiency.
- b. Enters and submits timely and accurate WS Forms A-26, Maintenance Record, into EMRS for maintenance work performed as prescribed by NWSI 30-2104.

- c. The assigned GS-12 staff at a combined WFO/RFC usually performs more complex duties and assignments.

1.3.4 River Forecast Center (RFC). The HIC at an RFC:

- a. Coordinates with the WFO MIC in setting priorities of local and remote (e.g., rain gages in multiple CWAs) corrective and emergency maintenance needs. In emergencies, requests call-back of the ESA/ET staff through the WFO senior forecaster.
- b. Informs the MIC on local and remote equipment operations and on the performance of the electronics staff.
- c. Includes the ESA in team meetings potentially impacting systems administration and maintenance activities.

2 Maintenance Program Functional Relationships. The Maintenance, Logistics, and Acquisition Division performs staff functions within WSH. Acting with authority delegated by the Assistant Administrator for Weather Services, it provides direction, assistance, resources, and other support to the NWS regions. The regional SODs perform a similar staff function for the WFOs, acting with authority delegated by the RDs. At collocated WFO/RFC locations, the MIC ensures RFC systems administration and equipment maintenance requirements are met. The ESA is part of the WFO management team acting with authority delegated from the MIC. The ESA is the first level supervisor of the assigned ET staff. The ET staff carry out the assigned maintenance program responding to the maintenance needs of the operations they support.

RDs document any necessary definitions of working relationships through issuance of regional supplements to procedural directives. One copy of each supplement will be forwarded to the Chief, Maintenance, Logistics, and Acquisition Division and to the Chief, Maintenance Branch.

2.1 RMS to MIC. Following NWS Policy Directive 30-13 guidance, and in coordination with the EPM, the RMS provides guidance and technical assistance to WFO MICs, ESAs, and ET staff in connection with systems and equipment maintenance activities to ensure that they conform to technical standards established by WSH and RH.

2.2 RMS to Chief, SIB. The RMS is typically under the administrative and technical supervision of the Chief, SIB, or other SOD chief designated individual (e.g., EPM), as assigned. Following regional guidance, the RMS is responsible for coordinating work plans and activities with the immediate supervisor. Difficult problems concerning maintenance projects will be reported to the Chief, SOD for assistance and resolution.

2.3 ESA to MIC. The ESA will meet with the MIC to discuss the scope of work to be accomplished, and those activities that affect, or have the potential of affecting, ongoing

programs. The MIC, or designee, will inform the ESA concerning deficiencies in assigned systems or equipment.

Any action by the ESA that could result in degraded systems or equipment operation will be coordinated with the MIC who is responsible for fulfilling the WFO's mission. The MIC/ESA will coordinate with the HIC at collocated offices if there is an RFC impact. It is the responsibility of the ESA and ET staff to advise the MIC, where applicable, on the following:

- a. Operational Limitations. Operational limitations, if any, of systems or equipment in need of maintenance.
- b. Additional Damage. Possible additional damage or failures that could result from continued use of the systems or equipment.
- c. Time Factor. Forecasted downtime to accomplish maintenance and systems administration work.

3 Centralized Assistance.

3.1 ASOS Operations and Monitoring Center (AOMC). The ASOS AOMC provides around-the-clock operations, monitoring, and maintenance support for ASOS. These monitoring and maintenance tasks include acting as the single point-of-contact (POC) for ASOS maintenance status; providing near real-time monitoring of ASOS system products; managing ASOS clock synchronization and site-specific data; initiating corrective maintenance action; providing remote maintenance diagnostic capability; and maintaining a trouble-desk for tracking and documenting ASOS malfunctions. When an ASOS site malfunctions, the AOMC investigates the malfunction by remote dial access to the site. Under certain conditions, the AOMC will remotely clear low priority faults. Otherwise, the AOMC notifies the regionally-designated maintenance POC of the malfunction. The AOMC provides a projected restoration time based on established criteria (site class and type of failure). When the project technician notifies the AOMC that the repair is complete, the AOMC closes the trouble report. When the technician notifies the AOMC that the repair is complete, the AOMC closes the trouble report.

3.2 AWIPS Network Control Facility (NCF). The majority of AWIPS equipment hardware is under contract maintenance. The AWIPS NCF manages and maintains the AWIPS and its communications network. The NCF design incorporates a suite of unique software that enables the NCF operator to remotely monitor and control an AWIPS. The NCF is responsible for ensuring the integrity and reliability of the AWIPS Satellite Broadcast Network data streams. It provides around-the-clock operational support to AWIPS sites using a multi-tiered support approach. This support consists of NCF operators that use software tools to remotely detect, diagnose, and repair system malfunctions. The first tier of NCF support provides a help desk to answer technical questions from AWIPS users, diagnose, and resolve software or hardware malfunctions. More in-depth questions or more sophisticated problems are escalated to a second tier specialist. Problems that cannot be resolved by either the first or the second tiers are

escalated to subject-matter experts. The NCF manages AWIPS hardware failures using a third party maintenance dispatch. It also performs a host of systems administration tasks in conjunction with the sites systems administrators.

3.3 NEXRAD Radar Operations Center (ROC) Hotline. The ROC maintenance hotline provides around-the-clock hardware and software technical support to NEXRAD sites when problems with the WSR-88D cannot be corrected by on-site personnel. If the WSR-88D is inoperative and the malfunction is not identified within five hours with help from the on-duty hotline technician, the ROC Technical Assistance Group (TAG) follows through until the problem is resolved. The TAG is a team consisting of ROC radar maintenance technicians, engineers, and contractors. Their mission is to analyze inoperative systems with complex malfunctions. They remain in continuous contact with the site technician and RH (normally the EPM) until the problem is resolved and the radar returns to an operational state. They provide on-site assistance when required.