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Maintenance, Logistics, and Facilities
Quality Assurance, NWSPD 30-13

Quality Assurance Program, NWSI 30-1301

QUALITY ASSURANCE PROGRAM

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OPR: W/SR42X52 (K. Richardson) **Certified by:** W/SR42 (M. DeGeorge)
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SUMMARY OF REVISIONS: Line item 2.2, revised ASOS system count; line item 2.3, add availability baseline; line item 2.5 revised, NWR maintenance. responsibility; line item 2.6 revised, Wind Profiler information removed; line item 4, changed PM completion durations; and removed appendix A-8 thru A-10 FET checklist procedures.

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Quality Assurance Program

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1. Introduction. This supplement establishes Southern Region (SR) procedures for the management of the Quality Assurance (QA) of a Weather Forecast Office's (WFO) electronics and facilities maintenance program; quantifying a WFO's electronics and facilities maintenance program; and describing procedures for planning and conducting program reviews.

2. Quantifying a WFO's Electronics and Facilities Maintenance Program. The goal of the SR's maintenance program is for each WFO to meet or exceed the established system availability performance measures. All planned maintenance actions should be loaded onto the EMRS maintenance calendar. The availability statistics for all NWS data acquisition equipment listed on the Engineering Maintenance Report System (EMRS) web page is based on all corrective actions that have been performed. All Preventative/Routine Maintenance (PM) and Modification (MOD) hours shall be factored out of the data. Annual statistics will be based on a prior 12 month period updated monthly.

2.1 WSR-88D. The EMRS group at National Weather Service Headquarters (WSH) is responsible for the monitoring and reporting the availability of the nation's WSR-88D radars. They compile monthly reports based on all EMRS entries submitted by local WFO electronics staff. This information is used as the basis of the availability of all 88D equipment reported for SR data. SR will use the nationally established 96% availability baseline to gauge the individual WFO's system availability.

2.2 ASOS. In addition to the national statistics available through EMRS, data used to determine the availability of SR's Automated Surface Observing Systems (ASOS) will be derived from the non-routine maintenance hours entered in EMRS per site outage. SR will use the regionally established 98% routine to non-routine hours as the availability baseline to gauge the annual availability of individual ASOS systems.

2.3 Upper Air/Radiosonde Replacement System. The EMRS group at National Weather Service Headquarters (WSH) is responsible for the monitoring and reporting the availability of the Upper Air (UA) and Radiosonde Replacement Systems (RRS). They compile monthly reports based on all EMRS entries submitted by local WFO electronics staff. This information is used as the basis of system availability and equipment failures of all UA/RRS equipment reported for SR systems. SR will use the nationally established 96% availability baseline to gauge the individual WFO's system availability.

2.4 AWIPS. While there is no EMRS data used to track the availability of the AWIPS system at each WFO, there is a nationwide monitoring system in place through the Network Control Facility (NCF). The NCF provides operational support for the AWIPS Network, as well as maintaining system software and designing/building software enhancements. The WFO is responsible for routine system administration This includes installing and maintaining the latest software, retaining data backups as well as keeping all equipment operational and clean.

2.5 NWR. A portion of the SR NWRs are maintained by the National Maintenance Contract (NMC) or contractors who like SR Electronics staff also have the responsibility for submitting data to EMRS upon completion of PMs and corrective actions. The

EMRS content will be reviewed by SRH personnel (RMS) for accuracy and timeliness. The contractors will coordinate maintenance activities with the responsible WFO ESA and/or Station Electronic Technicians.

2.6 Emergency Power Generator. The PM schedule for WFO & remote EPGs are to be maintained per NWS SRS 04-2005. ASOS EPGs will be maintained per Maintenance Note #67.

3. Data Quality. Data Quality is critical. Our data systems must be periodically calibrated per established standards, procedures and schedules to ensure accurate data. Maintenance programs must meet or exceed data quality performance targets to be considered satisfactory.

4. Preventative Maintenance (PM). Timely performance and reporting of preventative maintenance activities on all equipment is essential to our mission. PMs will be performed in accordance with all rules and instructions germane to the equipment – ASOS Site Technical Manual S100 for ASOS, PMI Work Cards for WSR88D, etc. Optimally, PMs will be performed within the following time frames

PM Increment	Earliest Begin Date	Latest Completion Date
Weekly	**3 days prior to due date**	**3 days after due date**
Semi-Monthly	**5 days "**	**5 days "**
Monthly	**7 days "**	**7 days "**
Bi-Monthly	**10 days "**	**10 days "**
Quarterly	**10 days "**	**14 days "**
Semi-Annual	**10 days "**	**21 days "**
Annual	**10 days "**	**28 days "**

5. Cost Minimization. While system availability and data quality are the primary objectives of our operations and maintenance program to be met, we must also strive to minimize costs for required labor and supplies. Our goal is to minimize the costs while we meet or exceed all system availability and data quality requirements. As such, cost targets will not be established for evaluating the "quality" of the maintenance program. Instead, field and regional offices will collaborate to analyze information for identification of best practices, optimum local maintenance program procedures, facility and infrastructure needs, training and other factors in order to achieve minimal costs.

6. Planning and Conducting Program Reviews. Quality Assurance of the Regional

Maintenance Program is of paramount importance to the Regional Headquarters and also the WFO Station Managers. Program Reviews will be the mechanism used to monitor Quality Assurance and will be performed annually with a prior office review overall rating of three or more and every two years with a prior office review overall rating of one or two. Ninety day follow ups will be conducted by the RMSs to ensure compliance of electronic maintenance remedial action items. Facility remedial action items will be scheduled and/or accomplished by the FETs in ninety days.

6.1 Regional Headquarters. The Chief of the Systems Operations Division (SOD) has delegated the QA program responsibility to the Electronics Program Manager. Periodic reviews are conducted throughout the year by SOD personnel to ensure WFOs are complying with NWS directives (timely Lowest Replaceable Unit "LRU" returns, timely MOD completions, timely PM completions, etc.). Audits are performed prior to annual station visits and/or WFO self evaluations. These audits give an indication of the overall health of a WFO's electronics and facilities program.

6.2 Station Managers. The WFO Station Managers (MIC & ESA) will encourage the electronics staff to efficiently perform timely maintenance actions and activities, including the timely reporting of all maintenance hours and actions in EMRS. The average A-26 turnaround time will be used to monitor the timeliness of A-26 entries. Office's average A-26 turnaround time is expected to be kept at or under the National Average.

6.3 Station Electronic Technicians. The WFO Electronic Technicians are responsible for performing quality work and reporting electronic maintenance activities in EMRS in a timely manner. Optimally all EMRS entries should be committed within 5 calendar days of the completion of the job. ETs should also inform the ESA of any QA discrepancies in the work place.

APPENDIX A -1

Southern Region Headquarters **Quality Assurance Program Checklist**	**RATING** **1 – Excellent** **2 – Good** **3 – Satisfactory** **4 – Needs Improvement** **5 – Immediate Action Required**
RMS Name _____	**Station Identifier Code** _____ **Date(s)** _____
CANDIDATE ITEMS	**REMARKS**
#1. EMRS Maintenance Data	
#2. NLSC/CLS Orders & Rcvd Defectives	
#3. NRC Returns	
#4. AOMC Reports	
#5. ROC WSR-88D Reports	
#6. System Monitoring (ASOS, 88D, etc.)	
#7. Test Equipment Calibrations	
#8. Training (Technical & Safety)	
#9. ET compliance - 2 person work rule	
#10. ET Shop (Overall)	
#11. Equipment Room	
#12. BMH	
#13. WFO/RFC EPG	
#14. WSR-88D Site	
#15. ASOS Site	
#16. NWR Site	
#17. Safety Concerns	
#18. Other:	
#19. Overall WFO Walkthrough (Concerns/Comments)	

IMMEDIATE ACTION REQUIRED ITEMS NOTED IN REMARKS COLUMN MUST BE COMPLETED 90 DAYS FROM INSPECTION DATE.

MIC/ESA Comments -

NEEDS IMPROVEMENT ACTION ITEMS NOTED IN REMARKS COLUMN MUST BE COMPLETED OR SCHEDULED FOR CORRECTION WITHIN 90 DAYS FROM INSPECTION DATE:

90 Day Final Assessment Comments (Remedial Action Accomplished)

– ***(i.e. ASOS tower painted, WSR-88D repairs completed, etc.)***

QAP CHECKLIST PROCEDURES (RMS)

LINE #1 - EMRS MAINTENANCE DATA

The EMRS documents are used to report and record WFO maintenance actions. All of the EMRS data concerning routine maintenance, non-routine maintenance and equipment management activities are accessed and used by various functional areas of the NWS. Responsibility falls upon the electronics staff (including the ESA, RMS and FET when they perform maintenance tasks) to ensure that maintenance events are reported in an accurate and timely manner through EMRS. EMRS information is to be periodically reviewed, NWS site summary reports checked, and necessary action taken to resolve quality inconsistencies. Any equipment/system problem areas need to be identified and rectified.

LINE #2 - NLSC/CLS ORDERS

Ensure that there are no online connection/logon issues between the WFO and NLSC. Check the reasonableness of quantity of items being ordered from the NLSC; number that are received defective; and the number returned to NRC and determined to be No Defect Found.

LINE #3 - NRC RETURNS

Check to see if the office has any outstanding parts due (due-ins) to the NRC.

LINE #4 - AOMC REPORTS

Perform spot checks of the AOMC [Automated Surface Observing System (ASOS) Operations and Monitoring Center] data concerning the WFO ASOS site(s) maintenance activities.

LINE #5 - ROC WSR-88D REPORTS

Monthly Retrofit Status Report - Check the monthly status reports for modification installations. Determine any inconsistencies or overdue actions that need to be addressed and pass information on to the ESA and ETs.

LINE #6 - SYSTEM MONITORING

Apply available remote system monitoring software for specific equipment programs (ASOS, 88-D, etc.)

LINE #7 - TEST EQUIPMENT CALIBRATION

Verify that the required calibrations have been performed on WFO assigned test equipment at the prescribed intervals as laid out according to the provisions in the national and/or regional test equipment calibration program.

LINE #8 - TRAINING (TECHNICAL & SAFETY)

Check the station technical staff's training state (technical, environmental and safety); ensure that personnel dealing with contracts and contractors have received the required training (refresher included). Ensure that all documentation required to be signed off is understood and complied with. The RMS should be able to provide guidance and training recommendations regarding the site technical personnel.

LINE #9 - ET COMPLIANCE WITH 2 PERSON WORK RULE

Ensure that ESA and ETs are following the 2-person work rule where it applies to their areas of responsibility; ensure availability of cell phones for travel in remote areas.

LINE #10 - ET SHOP (OVERALL)

Overall inspection of Electronics Section (Work area checked for cleanliness, organization, etc.)

LINE #11 – EQUIPMENT ROOM

Inspection of Equipment Room (Proper use of storage, cleanliness and organization)

LINE #12 – CRS

Check for latest updates installed; alignments performed; output levels verified.

LINE #13 – WFO/RFC EPG

Inspect for corrosion, paint issues, leak detection system operating and log book kept up to date.

LINE #14 – WSR88D SITE

Inspect for corrosion, paint issues, leak detection system operating and log book kept up to date.

LINE #15 – ASOS SITE

Perform inspection of an ASOS site under the WFOs responsibility (Corrosion, upkeep, etc.). Inspect site EPG (if applicable) for corrosion, paint issues, leak detection system operation and log book updates.

LINE #16 – NWR SITE

Perform inspection of an NWR site under the WFOs responsibility (Building, upkeep, etc).

Inspect site EPG (if applicable) for corrosion, paint issues, leak detection system operation and log book updates.

LINE #17 – SAFETY CONCERNS

Overall review of any safety issues at WFO, RDA, etc.

LINE #19 – OVERALL WFO WALKTHROUGH

Overall impression of Forecast Office and surroundings.

For Additional QA Information refer to NWSI 30-1301

IMMEDIATE ACTION REQUIRED ITEMS NOTED IN REMARKS COLUMN MUST BE SCHEDULED AND/OR ACCOMPLISHED IN 90 DAYS -

MIC/ESA Comments –

NEEDS IMPROVEMENT ACTION ITEMS NOTED IN REMARKS COLUMN MUST BE COMPLETED OR SCHEDULED FOR CORRECTION WITHIN 90 DAYS FROM INSPECTION DATE:

90 Day Final Assessment Comments -

(i.e. Tower grounding completed, tile repairs scheduled Dec. 01, etc.)