U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE

AUG 30 2006

MEMORANDUM FOR: Distribution
FROM: W/OPS24 - /s/ Jerald Dinges

SUBJECT: RRS Maintenance Release 1.2 Field Evaluation (FE) Report

The attached report describes the results for the Field Evaluation (FE) of the Radiosonde Replacement System (RRS) Maintenance Release 1.2 which took place between August 1 and 11, 2006.

The RRS Maintenance Release 1.2 corrects a backlog of 19 software issues (mostly transparent to the user); improves the interpolation routine for less than one minute of missing data; and provides an enhanced method of selecting significant RH levels. One of the main fixes corrected the potential for the software to "crash" if a date before 1997 was entered for the date of balloon manufacturer.

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RRS Maintenance Release 1.2
Field Evaluation (FE)
Test Report

August 2006

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service/Office of Operational Systems
Field Systems Operations Center/Test and Evaluation Branch

Field Evaluation (FE) Test Report for the RRS Maintenance Release 1.2

1. Introduction 1
2. Recommendations 1
3. Purpose 2
4. OAT Objectives and Results . . …….. 2
5. Conclusions . . … 3

1. Introduction

A Field Evaluation (FE) Test of the Radiosonde Replacement System (RRS) Maintenance Release 1.2 was conducted between August 1 and August 11, 2006. Refer to the *July 13, 2006, minutes of the RRS Maintenance Release 1.2 Test Review Group* for details on how the test was conducted.

The FE:

a) monitored the RRS Maintenance Release 1.2 installation process at 4 FE sites within the Continental United States (CONUS)—one per CONUS region. The four FE Weather Forecast Office (WFO) sites were:

1) Baltimore, MD/Washington, DC located at Sterling, VA
2) Twin Cities located at Chanhassen, MN
3) Shreveport, LA
4) Reno, NV

b) evaluated and revised the installation procedures documented in the draft RRS Software Installation Modification Note (mod note); and

c) evaluated the performance and reliability of the RRS Maintenance Release 1.2 in support of National Weather Service (NWS) operations.

2. Recommendations

Deploy the RRS Maintenance Release 1.2 software at all RRS sites with the recommended modifications to the RRS Software Installation Modification Note.

W/OS7 and the upper air user community evaluate and report if the RRS data meets the forecast needs of NOAA's NWS.

3. Purpose

The purpose for the Field Evaluation was to verify the installation process, operational performance, and reliability of the new RRS software was adequate for deployment to all RRS sites.

4. FE Objectives and Results

The following are the objectives of the FE and the results of testing:

a. **Verify the RRS Maintenance Release 1.2 Modification Note allowed site personnel to install the new RRS Workstation Subsystem (RWS) software and reconfigure the system with a minimum of disruption to the site data flow and operations.**

OAT RESULT: This objective was met.

Discussion: Using only the modification note and the Engineering Handbook (EHB) 9-904, all four FE sites were able to successfully install the RRS Maintenance Release 1.2 software in the RWS in two hours or less.

b. **Verify the RRS Maintenance Release 1.2 software operated reliably during site operations in a 10-day demonstration at 4 sites.**

OAT RESULT: This objective was met.

Discussion: On Friday, July 28, 2006, (WFO-REV installed uneventfully the RRS Maintenance Release 1.2 software following the 12 UTC upper air flight. A test sounding was then flown to ensure the RRS was ready for the 0 UTC synoptic sounding. On July 28, 2006, the remaining FE sites installed the software following the 12 UTC sounding and flew a test flight. The RRS Maintenance Release 1.2 software was used for special and synoptic soundings during the test period. On August 10, 2006, all four FE sites reported they could not distinguish any major differences between the older RWS software (version 1.1.3.0) and the RRS Maintenance Release 1.2 software. The sites unanimously agreed the software was stable, reliable, and ready for deployment to the remaining RRS sites.

c. **Verify the RRS Maintenance Release 1.2 software does not adversely affect the AWIPS network.**

OAT RESULT: This objective was met.

Discussion: All products arrived at their destination within two minutes. Using the Product Availability Monitoring System (PAMS) to examine daily products reports from each FE site showed the end-to-end transmission times were comparable with the times exhibited by the remaining RRS sites using the previous version of software. According

to PAMS, the RRS transmission times varied from 4 -18 seconds, depending on length of product and additional loading from other WFO products.

5. Conclusions

RRS Maintenance Release 1.2 corrected a backlog of 19 (mostly transparent to the user) software issues; improved the interpolation routine for less than one minute of missing data; and provided an enhanced method of selecting significant Relative Humidity (RH) levels. While problems are still being experienced with the radiosonde losing GPS lock-on, the RWS software is performing at least as good as if not better than the previous RRS software load.

The products and data produced during the FE passed NCEP and NCDC quality assurance checks. OS7 and the upper air user community have yet to evaluate and report if the data meets the forecast needs of NOAA's National Weather Service.