



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
11325 East-West Highway
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September 9, 2010

MEMORANDUM FOR: DISTRIBUTION

FROM: Neal DiPasquale, Acting Director, Field Systems Operations Center /s/

SUBJECT: Operational Test and Evaluation Plan for Radiosonde Replacement
System Workstation Software Build 2.0

The subject plan is attached for your information. Operational Test and Evaluation (OT&E) Plan describes tests of the Radiosonde Replacement System Workstation Software Build 2.0 undertaken to evaluate the readiness of the system prior to national deployment.

Field tests of the RWS Build 2 Software will be conducted between September 14, 2010 and October 29, 2010 at the Morehead City/Newport WFO (MHX), Reno WFO (REV), Fairbanks WFO (AFG), Central Illinois WFO (ILX), Springfield WFO (SGF), Shreveport WFO (SHV), and the San Diego WFO (SGX). Field tests will be conducted in collaboration with the National Climate Data Center (NCDC) and the National Center for Environmental Prediction (NCEP).

Comments and questions concerning this Plan should be directed to Ken Stricklett (W/OPS24) at 301-713-0326 x113, e-mail: ken.stricklett@noaa.gov, or Rich Thomas (W/OPS23) at 301-713-0191 x108, e-mail: richard.thomas@noaa.gov.

Attachment



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Operational Test and Evaluation Plan

for

Radiosonde Replacement System Workstation Software Build 2.0

Version 1.1

September, 2010

**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service/Office of Operational Systems
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Executive Summary

This Plan describes the Operational Test and Evaluation of Radiosonde Replacement System Workstation Software Build 2.0, herein referred to as OT&E. The objectives, methods, management, resource requirements, and schedule for OT&E are presented.

OT&E is an independent evaluation of Radiosonde Replacement System (RRS) Workstation Software Build 2.0 conducted by the National Weather Service (NWS), Office of Operational Systems, Field Systems Operations Center, Test and Evaluation Branch (OPS24) to verify the Build 2.0 software is ready for national deployment in support of NWS operations.

Build 2.0 is a maintenance release of the RRS Workstation Subsystem (RWS) software. The Build 2.0 software corrects numerous user interface, data processing, and architectural issues found in the Build 1.2 software and implements:

- Microsoft SQL Server Express 2008;
- New plot functionalities; and
- Active Directory for user authentication.

OT&E is overseen by a Test Review Group (TRG) comprised of Weather Service Headquarters personnel, Regional Upper Air Program Managers, and an NWS Employees Organization (NWSEO) representative. The TRG will meet weekly to review OT&E activities and adjudicate System Issue Reports (SIRs).

OT&E will begin with a Test Readiness Review on or about Sept. 7, 2010 to confirm the test prerequisites have been met. Field tests will be conducted at the sites listed below. Field tests will include 30 days of operational use of the software and will conclude on or about Oct. 29, 2010.

Site ID	Location	2010 Install Date
KMHX	Newport, NC	Sept. 14
KREV	Reno, NV	Sept. 21
PAFG	Fairbanks, AK	Sept. 21
KILX	Lincoln, IL	Sept. 27
KSHV	Shreveport, LA	Sept. 29
KSGF	Springfield, MO	Sept. 30
KNKX	San Diego, CA	Oct. 18–Oct. 22

Weather Service Headquarters personnel will visit field sites KMHX, KREV, and PAFG to witness installation and initial operation of the software. Site personnel will install and use RWS Build 2.0 software for upper air operations for the balance of the OT&E. Issues found during the OT&E will be documented and tracked by SIRs. The National Centers for Environmental Prediction (NCEP); and the National Climatic Data Center (NCDC), will support end-to-end tests of upper air products.

A Wrap-up meeting will be held on or about Nov. 3, 2010 to review test results and to recommend whether to proceed with national deployment of the Build 2.0 software.

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Acronyms and Abbreviations

ART	Automated Radio Theodolite
ATO	Authority to Operate
AWIPS	Automated Weather Interactive Processing System
CCB	Configuration Control Board
CD	Compact Disc
CONUS	Contiguous United States
EHB	Engineering Handbook
EMRS	Engineering Management Reporting System
GPO	Group Policy Object
GPS	Global Positioning System
hPa	hecto Pascal
NADS	NOAA Active Directory Service
NCDC	National Climatic Data Center
NCEP	National Centers for Environment Protection
NOAA	National Oceanic and Atmospheric Administration
NOAAnet	National Oceanic and Atmospheric Administration Network
NWS	National Weather Service
NWSEO	National Weather Service Employees Organization
OCWWS	Office of Climate, Water and Weather Services
OPS11	Office of Operational Systems, Engineering and Acquisition Branch
OPS12	Office of Operational Systems, Maintenance Branch
OPS22	Office of Operational Systems, Observing Systems Branch
OPS23	Office of Operational Systems, Software Branch
OPS24	Office of Operational Systems, Test and Evaluation Branch
OS	Operating System
OS7	Observing Services Division
OT&E	Operational Test and Evaluation
OU	Organizational Unit
PC	Personal Computer
PDB	Precision Digital Barometer
PM	Program Manager
PNS	Public Information Statement
RRS	Radiosonde Replacement System
RSOIS	Radiosonde Surface Observation Instrumentation System
RWS	RRS Workstation Subsystem
SIR	System Issue Report
SPS	Signal Processing System
ST	System Test
TRG	Test Review Group
TRR	Test Readiness Review
TRS	Telemetry Receiver System
UA	Upper Air
WFO	Weather Forecast Office
WMO	World Meteorological Organization
WSH	Weather Service Headquarters

1. Introduction

This Plan describes the Operational Test and Evaluation of Radiosonde Replacement System Workstation Software Build 2.0, herein referred to as OT&E. The objectives, methods, management, resource requirements, and schedule for OT&E are presented.

OT&E is an independent evaluation of Radiosonde Replacement System (RRS) Workstation Software Build 2.0 (Build 2) conducted by the National Weather Service (NWS), Office of Operational Systems, Field Systems Operations Center, Test and Evaluation Branch (OPS24) to verify the system requirements have been met and the Build 2.0 software is ready for national deployment in support of NWS operations.

OT&E is the final test of the software prior to national deployment.

1.1 Test Plan Organization

This Plan is comprised of five sections:

- Section 1 contains introductory materials describing the purpose of the test, the testing strategy, and the test objectives.
- Section 2 contains background information on RRS.
- Section 3 discusses the management of the OT&E including the roles and responsibilities of the personnel participating in the OT&E.
- Section 4 describes the process employed during OT&E including the schedule and test related activities performed at Weather Service Headquarters (WSH) and NWS field sites.
- Section 5 describes the final recommendation and test report.

Eight attachments are provided with this OT&E plan:

- Appendix A lists the changes in the RWS software.
- Appendix B lists the personnel supporting OT&E and their roles.
- Appendix C lists the OT&E resource requirements.
- Appendix D lists the site visit agenda.
- Appendix E displays the schedule.
- Appendix F lists the Test Case Procedures planned for OT&E.

1.2 Purpose

In general, Operational Test and Evaluation considers all aspects of life cycle management of the system including: installation, documentation, performance, training, reliability, communications, information technology security, logistics, and maintenance support. Operational Test and Evaluation verifies system performance, operational effectiveness, operational suitability, sustainability, and security; and provides essential information to support decisions regarding the disposition of the system-under-test.

The Build 2 OT&E will specifically:

- verify the instructions provided for installation of the RRS Workstation Subsystem

(RWS) Build 2 software are complete and accurate and enable site personnel to efficiently install the software;

- verify system documentation provides a complete and accurate description of the Build 2 software;
- verify the Build 2 software supports NWS operational requirements; and
- verify RRS Helpline support for the Build 2 software.

The results of OT&E will inform the RRS System Owner on the readiness of the system for use in support of NWS operations.

1.3 Testing Strategy

The Build 2 software has undergone extensive testing both during development and during a System Test (ST) conducted at Weather Service Headquarters (WSH), Silver Spring, MD and the NWS Test and Evaluation Facility, Sterling, VA. The ST was undertaken to verify the Build 2 software is fully functional, reliable, and ready for use at operational NWS sites. Information on the ST is available at:

http://www.nws.noaa.gov/ops2/ops24/documents/rrs_B20.htm

OT&E will be overseen by a Test Review Group (TRG) comprised of Weather Service Headquarters personnel, Regional Upper Air Program Managers, and an NWS Employees Organization (NWSEO) representative. The TRG will hold weekly meetings while field tests are ongoing.

OT&E will begin with a Test Readiness Review, on or about Sept. 7, 2010, to verify the test prerequisites have been met. At the recommendation of the TRG, the Build 2 software will be deployed to the RRS field sites listed in Table 1. Weather Service Headquarters (WSH) personnel will visit the KMHX, KREV, and PAFG field sites to witness the installation and operation of the Build 2 software. The installation instructions will be reviewed by site personnel and revised as required to ensure timely and efficient installation. Site personnel at the remaining sites will install the Build 2 software as directed by the OT&E Director.

OT&E sites will use the Build 2 software for all synoptic and special flights for a period of not less than 30 days. Issues found during the OT&E will be documented and tracked as System Issue Reports (SIRs), which will be adjudicated by the TRG. SIRs will be forwarded to the appropriate office for resolution.

A Wrap-up meeting will be held on or about Nov. 3, 2010, following the conclusion of field tests, to review test activities and to recommend whether the Build 2 software should be deployed nationally.

1.3.1 Field Sites

The RRS field sites participating in OT&E are listed in Table 1. The sites were selected in coordination with the NWS Regional Upper Air Program Managers.

Table 1. OT&E field sites and install dates.

Site ID	Location	NADS	2010 Install Date
KMHX	Newport, NC	✓	Sept. 14
KREV	Reno, NV	✓	Sept. 21
PAFG	Fairbanks, AK		Sept. 21
KILX	Lincoln, IL	✓	Sept. 27
KSHV	Shreveport, LA	*	Sept. 29
KSGF	Springfield, MO	✓	Sept. 30
KNKX	San Diego, CA		Oct. 18–Oct. 22

*NADS is slated for deployment in the Southern Region in December 2010.

1.3.1.1 Field Site Selection Criteria

The OT&E field sites were selected according to the following criteria:

- Sites must be commissioned RRS sites operating with the Build 1.2 software;
- There must be at least one site in each of the NWS Central, Southern, Eastern, Western, and Alaska Regions;
- There must be at least four NOAA Active Directory Service (NADS) sites; and
- There must be at least one non-NADS site located in the lower 48 states.

1.4 Test Objectives and Evaluation Criteria

1.4.1 Installation

Objective:

Field site personnel can install the Build 2 software using the materials provided in the Field Modification Kit, i.e., the required software and *RRS Software Note 10*.

Evaluation Criteria:

- The Field Modification Kit is complete.
- The Build 2 software is successfully installed by site personnel and is ready for operational use.
- *RRS Software Note 10* provides complete and accurate instructions for system preparation, software installation, and system configuration.
- The Build 2 software is installed in less than 4 hours.

1.4.2 Documentation

Objective:

The Build 2 software documentation is complete and the information supporting RRS operations, system administration, and system maintenance is clearly presented and well organized.

Evaluation Criteria:

- *Radiosonde Replacement System (RRS) Workstation User Guide for RWS version 2.0* is complete and accurate.
- *RRS System Administration Manual*, EHB 9-730, is complete and accurate.
- *RWS Build 2 Version Release Notes* is complete and accurate.

1.4.3 Training

Objective:

Training needs are met through Build 2 documentation.

Evaluation Criteria:

- The “Quick Start” and “What’s New” sections of *Radiosonde Replacement System (RRS) Workstation User Guide for RWS version 2.0* fully satisfy the training needs of experienced RRS operators.

1.4.4 Operations and Maintenance

Objective:

The Build 2 software is operationally effective and suitable to support NWS upper air observations.

Evaluation Criteria:

- Live flights performed at OT&E test sites by authorized personnel are successfully completed.
- There is no degradation of site operations from the Build 1.2 software, i.e., there is no degradation in the site performance metrics directly attributed to the Build 2 software.
- Build 2 software user interface functions are rated satisfactory, or higher, on the RWS User Questionnaire.

1.4.5 Helpline Support

Objective:

Provide accurate and timely guidance to RRS field sites to support installation, operations, and maintenance of the Build 2 software.

Evaluation Criteria:

- Helpline support is rated satisfactory, or higher, on the RRS Questionnaire.

Objective:

Provide RRS Helpline services for operation sites between the hours of 2200 UTC and 0200UTC and 1000UTC and 1400UTC, and a total of 8 hours support per day, 365 days per year.

Evaluation Criteria:

- RRS Helpline is staffed during the prescribed hours.

Objective:

RRS Helpline services are responsive.

Evaluation Criteria:

- During the required RRS Helpline hours of operation, 95% of all calls are acknowledged and entered into the RRS Trouble Ticket database within 5 minutes of the request.

Objective:

The RRS Helpline maintains a database to track RRS Trouble Tickets.

Evaluation Criteria:

- RRS Helpline enters requests into a database.
- The RRS Helpline tracks the disposition of requests.

1.4.6 IT Security

Objective:

RRS account management and system security policies for NADS and non-NADS sites complies with NWS IT security requirements.

Evaluation Criteria:

- IT security SOP are implemented without adverse operational impact.
-

1.4.7 Data Quality

Objective:

Upper air products generated using the Build 2 software must conform to user requirements.

Evaluation Criteria:

- Upper air products generated using the Build 2 software conform to NWS requirements.
- Upper air products generated using the Build 2 software conform to NCDC requirements.
- Upper air products generated using the Build 2 software conform to NCEP requirements.
- There is no degradation of data quality from the Build 1.2 software, i.e., there is no degradation in the site data quality metrics directly attributed to the Build 2 software.
- The processed 1 second data faithfully reproduce meteorological observations, i.e., Build 2 software data processing and numerical algorithms must not introduce bias or artifacts greater in magnitude than 10% of the accuracy of measurement listed in Table 2.

Table 2. Accuracy of RRS measurements.

	Range of Measurement	Accuracy of Measurement
Air Temperature	50 to -90 C	0.5 C
Relative Humidity	1 to 100%	5%
Wind Speed	0 to 225 knots	3 knots
Wind Direction	360 degrees	5 degrees
Atmospheric Pressure	1070 to 2 hPa	2 hPa P > 300 hPa 1.5 hPa 300 ≥ P ≥ 50 hPa 1.0 hPa P < 50 hPa

1.5 Assumptions, Constraints, and Risks

1.5.1 Assumptions

The assumptions for the OT&E include:

- RWS Site Administrators participating in the OT&E have completed RRS maintenance training for the Build 1.2 software;
- Field tests will be performed using radiosondes available for normal site operations;
- Use of the Build 2 software does not require modification of the RRS hardware; and
- Site personnel participating in the OT&E are fully trained in the operation of the Build 1.2 software.

1.5.2 Constraints

Resources, i.e., funding and staff, for OT&E are limited. Field Systems Operations Center (FSOC) conducted a risk analysis to determine the level of operational testing required to provide reasonable confidence the RWS Build 2 software is operationally effective and suitable. The results of the analysis were used to develop the OT&E testing strategy and to recommend specific test case procedures.

1.5.3 Risks

Risks associated with the Build 2 software are listed in order of priority.

Risk 1:

The Build 2 software could fail during OT&E and degrade site operations.

Response:

The Build 2 software has undergone extensive testing during its development and during the System Test.

The Meteorologist-in-Charge (MIC) retains full authority for site operations including all OT&E activities conducted at the site. The MIC must approve actions that might impact site operations, including the schedule for installation of the Build 2 software, RRS operations, and site personnel assignments. The MIC may reschedule, postpone, or terminate OT&E activities at the site at any time to accommodate the operational requirements of the site.

The OT&E field sites are authorized to reinstall the Build 1.2 software if a critical defect is discovered in the Build 2 software.

Risk 2:

The Build 2 software may fail under specific weather conditions.

Description:

Field tests during OT&E are conducted at a limited number of sites over a relatively short time period and cannot examine all weather conditions and data scenarios.

Response:

The software was tested during System Test using data sets selected to simulate a broad range of weather conditions.

Risk 3:

Results obtained using the Build 2 software will differ from those obtained using the Build 1.2 software, which precludes direct, one-to-one, comparison of the processed data.

Description:

The algorithms implemented in the Build 2 software differ from those in the Build 1.2 software.

Response:

The processed data will be evaluated for conformance with NWS requirements.

Risk 4:

Active Directory could allow unauthorized changes to RRS Operating System configuration baseline.

Description:

NWS Domain Administrators can change the RRS Organizational Unit (OU) Group Policy Object (GPO) without informing the RRS OU Administrator and RRS System Owner. Thus, RWS configuration settings could differ from the approved baseline. Since the full function of the RRS application depends on the system configuration, the RWS application could be inadvertently compromised. All RRS supported by NADS are at risk.

Response:

A draft Interconnection Agreement documenting agreement between NADS and Upper Air Observing System (NOAA8106) must be available prior to entering OT&E. The RRS System Owner will ensure the Interconnection Agreement is in place prior to national deployment of the Build 2 software.

Risk 5:

Non-NADS RWS will not have the same configuration settings as RWS on NADS.

Description:

Maintenance of multiple system configurations increases system complexity and hence IT security risks.

Response:

SOP for RWS configuration control consistent with NWS IT security policies will be developed by the RRS ISSO. The RRS System Owner will ensure SOP are implemented prior to national deployment.

2. Background

The Radiosonde Replacement System (RRS) provides environmental measurements from balloon-borne radiosondes launched twice daily at NWS-managed locations across the United States and its territories. Radiosondes contain temperature, humidity, and pressure sensors, as well as GPS receivers. Data are transmitted back to the ground system for processing into observational products. The movement of the radiosonde is tracked to calculate wind speed and direction using differential GPS.

Over 70 of the NWS upper air sites have received RRS. The RRS, which is shown schematically in Figure1, includes: RRS Workstation (RWS), external hard drive, printer, fiber optic modem, radiosonde, GPS Antennas, GPS Repeater, Telemetry Receiving System (TRS), Control Display Unit (CDU), Multiplexor, Precision Digital Barometer (PDB), and the Radiosonde Surface Observing Instrumentation System (RSOIS).

The RWS is a desktop computer installed with its associated peripherals on the NWS office local area network (LAN). The RRS application receives and processes radiosonde data, to provide radiosonde sensor and position data, and surface observation data from the PDB and RSOIS interfaces. The RRS application then generates World Meteorological Organization (WMO)

coded messages and archive files for transmission. The WMO coded messages are distributed to the NWS Telecommunications Gateway (NWSTG) via the Advanced Weather Interactive Processing System (AWIPS) Local Data Acquisition and Dissemination (LDAD) interface and the archive files are transmitted to NOAA's National Climatic Data Center (NCDC) via file transfer protocol (FTP) over the LAN. At sites where contractors conduct upper air observations, the RRS is a standalone installation using a dial-up or Digital Subscriber Line (DSL) connection for Internet connectivity.

RRS tracks radiosonde position and collects and processes instrument signals. The signals are received by the Telemetry Receiving System (TRS) and Global Positioning System (GPS) and are transmitted via the Signal Processing System (SPS) to the workstation. The Signal Processing System, which is within the TRS, converts these signals to a digital form that can be used by the RRS software. The RRS application provides a user interface that allows operators to display and edit upper air data during the flight.

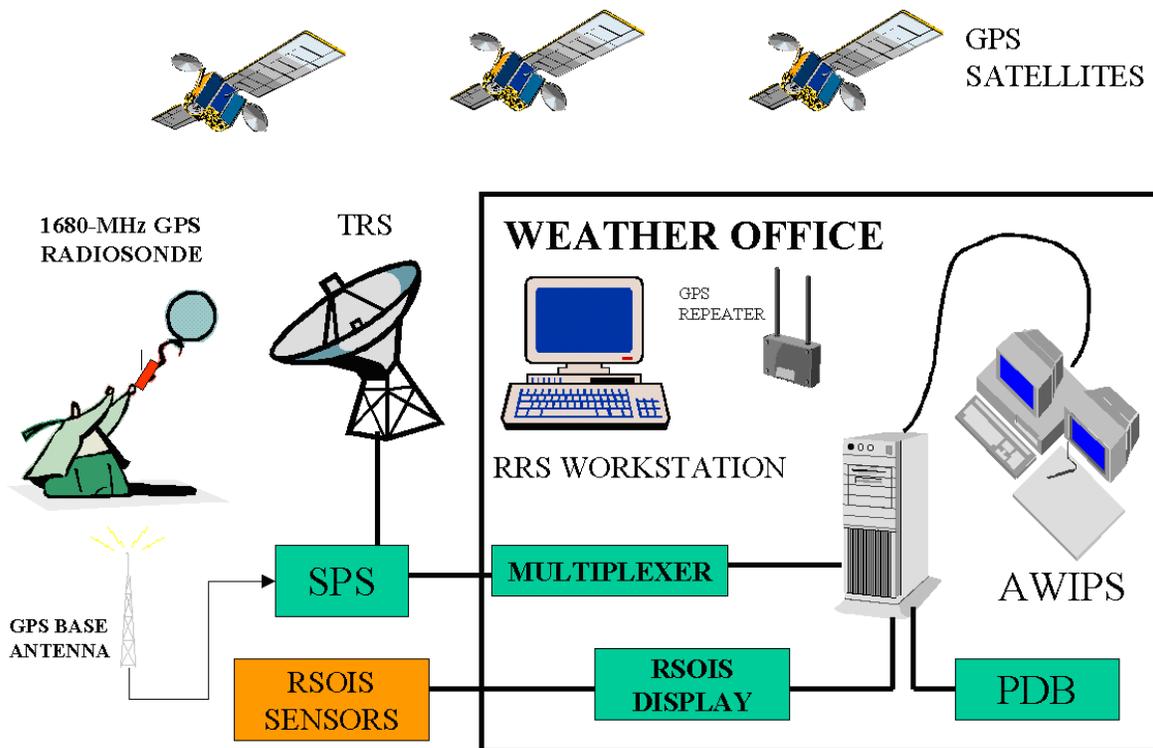


Figure 1. The Radiosonde Replacement System.

2.1 Software Changes

Build 2 is a maintenance release of the RRS software implemented to correct numerous user interface, data processing, and architectural issues in the Build 1.2 software.

The most significant changes in the Build 2 software include:

- Improved software compatibility and sustainability by migrating to the C# language;

- Added Microsoft SQL Server Express 2008;
- Improved plot functionality with user configurable plots;
- Improved account management with use of Active Directory and connectivity to NADS;
- Support for new radiosondes and SPS types;
- Added Help function; and
- Added information for hardware status reporting.

A full description of the changes in the Build 2 software is provided in Appendix A.

3. Test Management

This section describes the roles and responsibilities of personnel participating in OT&E.

3.1 Test Personnel Roles and Responsibilities

3.1.1 Test Review Group

OT&E is overseen by a Test Review Group (TRG) comprised of subject-matter experts selected from WSH, NWS Regions, and the NWS Employees Organization (NWSEO). The members of the TRG are listed in Appendix B.

The TRG will meet weekly during the OT&E and may also meet on an emergency basis to address urgent business. Meetings of the TRG are conducted to review, clarify, and validate issues documented by SIRs. The TRG will evaluate each SIR and assign an Impact and Priority according to the criteria provided in Section 4.5.2.

The TRG may suspend OT&E at any time, if the performance of the Build 2 software is unacceptable. If OT&E is suspended, the TRG will authorize the resumption of tests when appropriate corrective actions have been taken. The TRG may recommend additional tests prior to the resumption of OT&E, at its discretion.

3.1.1.1 Test Review Group Chair

The TRG Chair:

- Convenes the meetings of the TRG;
- Works with the OT&E Director to ensure tests are conducted efficiently; and
- Resolves issues that arise during the OT&E.

3.1.1.2 OT&E Director

The OT&E Director:

- Prepares the OT&E Plan and Report;
- Coordinates site visits;
- Coordinates the meetings of the TRG;

- Maintains the SIR database, i.e., enters, updates, and tracks the disposition of SIRs;
- Presents SIRs to the TRG for adjudication;
- Forwards SIRs to the proper organization for resolution;
- Reports the status of SIRs, operational issues, and tests;
- Develops Test Case Procedures, surveys, and evaluation forms;
- Analyzes test results and evaluations; and
- Reports the results of tests and evaluations.

Status reports are prepared and distributed to the members of the TRG prior to weekly meetings. Daily status reports are prepared and distributed to the members of the TRG while site visits are ongoing.

3.1.1.3 RRS ISSO

The RRS Information System Security Officer (ISSO):

- Reviews the OT&E Plan and Report;
- Prepares SOP for RRS IT security contingencies;
- Prepares Test Case Procedures to demonstrate compliance with NWS IT security policies; and
- Reports the status of system Certification and Accreditation to the TRG prior to commencement of field tests.

3.1.1.4 NWSEO Representative

The National Weather Service Employee Organization (NWSEO) Representative:

- Reviews the OT&E Plan and Report;
- Reviews Build 2 software documentation;
- Interviews OT&E site personnel as required to assess the impact of the Build 2 software on site working conditions; and
- Reports findings to the TRG.

3.1.1.5 OCWWS Representative

The Office of Climate Weather and Water Services (OCWWS) Representative:

- Reviews the OT&E Plan and Report;
- Reviews the Build 2 software documentation for conformance with NWS operational requirements;
- Reviews RRS data and products for conformance with NWS operational requirements; and
- Reports findings to the TRG.

3.1.1.6 NCEP Representative

The National Center for Environmental Prediction (NCEP) Representative:

- Reviews the OT&E Plan and Report;

- Examines upper air products for conformance with NCEP requirements; and
- Provides weekly reports of RRS data quality to the TRG.

3.1.1.7 NCDC Representative

The National Climate Data Center (NCDC) Representative:

- Reviews the OT&E Plan and Report;
- Examines upper air products for conformance with NCDC requirements; and
- Provides weekly reports of RRS data quality to the TRG.

3.1.1.8 Upper Air Technical Support

Upper Air Technical Support:

- Reviews the OT&E Plan and Report;
- Examines received, processed, and coded upper air data for conformance with NWS requirements; and
- Provides weekly reports of RRS data quality to the TRG.

3.1.1.9 RRS Technical Support

RRS Technical Support:

- Reviews the OT&E Plan and Report;
- Reviews Build 2 documentation for conformance with NWS operational requirements; and
- Revises Build 2 documentation as required.

3.1.1.10 Upper Air Operations Liaison

The Upper Air Operations Liaison:

- Reviews the OT&E Plan and Report; and
- Reviews Build 2 software algorithms for conformance with NWS requirements.

3.1.1.11 Regional Upper Air Program Managers

Regional Upper Air Program Managers:

- Review the OT&E Plan and Report;
- Recommend RRS field sites for OT&E;
- Represent the interests of the NWS regions and RRS field sites in evaluating Build 2;
- Attend and provide input at TRG meetings; and
- Resolve issues discovered during OT&E.

3.1.2 NWS Headquarters Support

3.1.2.1 Test Team

Test Team members:

- Review the OT&E Plan and Report;
- Perform assigned test procedures;
- Conduct site visits to observe the Build 2 software installation and operation;
- Document test results and generate SIRs when issues are found; and
- Advise and support the OT&E Director and the TRG.

3.1.3 NWS Field Office Support

3.1.3.1 OT&E Site MIC

The OT&E Site Meteorologist-in-Charge (MIC):

- Authorizes the installation of the Build 2 software at the site; and
- Maintains full authority for site operations during the OT&E.

3.1.3.2 Site Focal Points

OT&E Site Focal Points:

- Review the OT&E Plan and Report;
- Work with their Regional Upper Air Program Managers, Meteorologist-in-Charge, and site staff to prepare the field office for OT&E;
- Review system documentation before the Build 2 software is installed;
- Coordinate installation of the Build 2 software;
- Provide feedback to the OT&E Director on Build 2 installation;
- Verify the operation of the Build 2 software;
- Report issues to the OT&E Director;
- Attend and provide input at TRG meetings;
- Complete the RRS Questionnaire and
- Complete the RRS User Questionnaire.

3.1.3.3 RRS Operators

RRS Operators:

- Work with the Site Focal Point to prepare the field office for OT&E;
- Review system documentation before using the Build 2 software;
- Verify the operation of the Build 2 software;
- Complete the RRS Questionnaire; and
- Complete the RRS User Questionnaire.

4. Test Conduct

4.1 Resource Requirements

The resources required for OT&E are listed in Appendix C.

4.2 Test Readiness Review

A Test Readiness Review will be held on or about Sept. 7, 2010 to verify the test entrance requirements have been met. The System Test Director will brief the TRG on System Test results, including issues, fixes, and the stability of the system. The OT&E Director will coordinate additional presentations to verify the status of the Build 2 software, as required.

4.2.1 Test Readiness Review Entrance Criteria

4.2.1.1 System Test

The System Test of the Build 2 software must be successfully completed.

Entrance Requirements:

- All Follow-on System Test activities must be successfully completed. (OPS24)
- SIRs assigned Impact 1 or 2 must be closed and any recommended workarounds documented. (OPS23)
- Successful fall back of RRS operations to the Build 1.2 software using RWS Operating System Configuration 1.09 must be demonstrated. (OPS24)
- An application to load RRS Active Directory Group Policy Object security settings at non-NADS sites must be successfully demonstrated. (OPS23)

4.2.1.2 OT&E Documentation

The OT&E Plan, Test Case Procedures, and evaluation tools are complete.

Entrance Requirements:

- The OT&E Plan has been approved by the Director, Field Systems Operations Center. (OPS24)
- The Test Case Procedures are in final form. (OPS24)
- Evaluation forms are complete, i.e., RRS User Questionnaire, RRS Questionnaire, and OT&E Conduct Survey. (OPS24)

4.2.1.3 Active Directory Services

Active Directory services must be available at NADS sites.

Entrance Requirement:

- The Active Directory Group Policy Object (GPO) settings are established and documented. (RRS ISSO/NOAA Active Directory Domain Administrator)
- Test Case Procedure, “Active Directory Connectivity” is successfully completed at NADS sites. (Field Office System Administrators)

4.2.1.4 Field Modification Kit

The RWS Build 2 Field Modification Kit is complete.

Entrance Requirements:

- *RRS Software Note 10* is available in draft form and ready for shipment. (OPS12)
- RWS Operational Application Software Build 2 is ready for shipment. (OPS23)
- RWS Operating System Configuration 1.09 is ready for shipment. (OPS23)
- Offline Maintenance Suite (OMS) Software, Version 1.6, is ready of shipment. (OPS23)

4.2.1.5 RRS Documentation

RRS documentation is complete.

Entrance Requirements:

- *Radiosonde Replacement System (RRS) Workstation Users Guide for RWS Build 2.0*, including “RWS Quick Guides” and “New in RWS Version 2.0” sections, is available in draft form. (OPS11)
- *RWS System Administration*, NWS EHB 9-730, is available in draft form. (OPS11)
- *RWS Build 2 Version Release Notes* are in draft form. (OPS23)

4.2.1.6 IT Security

The Build 2 software must be authorized and ready for in support of NWS operations.

Entrance Requirements:

- The authority-to-operate (ATO) the RWS software has been issued. (RRS ISSO)
- SOP for RRS IT security contingencies have been approved by the RRS System Owner. (RRS ISSO)
- An Interconnection Agreement between NADS and Upper Air Observing System (NOAA8106) documenting the policies and procedures for configuration management of the RWS operating system must be available in draft form. (RRS ISSO)

4.2.1.7 RRS Helpline Support

The RRS Helpline is ready to support Build 2.

Entrance Requirements:

- The RRS Helpline is fully staffed. (RRS System Owner)
- RRS Helpline staff members are proficient in the use of Build 2 software and are ready to support the installation and operational use of the software. (RRS System Owner)

4.2.2 Test Readiness Review Exit Criteria

The members of the TRG must affirm the TRR entrance requirements have been met and the Build 2 software is ready for use at operational sites.

4.3 Pre-OT&E Activities

WSH and OT&E site personnel will perform specified activities before the start of field tests to ensure efficient and orderly conduct of the OT&E.

4.3.1 Weather Service Headquarters

WSH staff will:

- Deliver the Field Modification Kit to the sites. (OPS22)
- Provide local site domain administrators the right to join a computer to the NWS/RRS/Computers group. (Add site/Admins group as a member of the NWS/RRS/Local-Admins group.) (OPS23)

4.3.2 OT&E Sites

Site staff will:

- Broadcast the local public information statement (PNS) message not less than 48 hours before the beginning of field tests to notify the public of upcoming test activities;
- Ensure the RRS is aligned and in good working condition;
- Ensure the NWS Domain is accessible as demonstrated by successful completion of Test Case Procedure “NADS Connectivity” (NADS sites only);
- Ensure all RWS Site Administrators and RWS Users have active NWS Domain accounts;
- Ensure the Build 1.2 software installation CD is available;
- Inspect the Field Modification Kit to ensure *RRS Software Note 10* and all required Build 2 software is available to proceed with installation;
- Review *RRS Software Note 10*; and
- Review the Build 2 software documentation.

4.4 Field Tests

4.4.1 Installation

The schedule for Build 2 software installations is provided in Appendix E. The MIC or Site Focal Point should notify the OT&E Director at the earliest opportunity if operational concerns require changes in the dates shown.

Site personnel will install the Build 2 software using *RRS Software Note 10*. Any issues (procedural problems, errors or omissions, etc.) found during installation should be reported to the OT&E Director. Additionally, any help provided to the site by Test Team members, RRS Helpline, or other NWS organizations should be noted. Problems discovered during the Build 2 software installation, including any corrections or additions to the installation instructions, will be documented by SIRs.

The Build 2 software installation takes approximately 3 hours to complete. Site personnel

should schedule the Build 2 software installation between synoptic flights so as not to conflict with site operations. Sites should contact the Sterling Field Support Center, (703) 661-1268 or (703) 661-1293, during normal business hours, i.e., Monday through Friday, 8:00 AM to 5:00 PM Eastern Time, for software installation support.

RRS Software Note 10 and/or the system software may require revision. The OT&E Director will approve the Field Modification Kit prior to installation at each site. OT&E sites should not install the software without receiving notification to proceed from the OT&E Director.

Site personnel will complete Engineering Management Reporting System (EMRS) in accordance with EMRS Instructions:

https://ops13web.nws.noaa.gov/pls/emrsuser/emrs_main.home

4.4.1.1 Site Visits

Test Team members will visit at least one NADS site and at least one non-NADS site. Visiting team members will meet with site personnel upon arrival at the site to discuss the planned activities (see Appendix D). Test Team members will first observe RRS flight operations with the Build 1.2 software to confirm the system is fully functional and will then observe the installation and initial operation of the Build 2 software.

4.4.2 OT&E Suspension

The MIC maintains full responsibility for site operations during OT&E and must approve actions that impact site operations, including the schedule for installation of the Build 2 software, RRS operations, and site personnel assignments. The MIC may reschedule, postpone, or terminate OT&E activities at any time to accommodate site operations.

Field sites are authorized to suspend the OT&E and reinstall the Build 1.2 software using the instructions provided in *RRS Software Note 10* if a critical defect is discovered in the Build 2 software, i.e., a defect that poses significant risk to site operations. The MIC or Site Focal Point should notify the OT&E Director at the earliest opportunity if OT&E is suspended.

The TRG can suspend OT&E if a critical defect is discovered in the Build 2 software. The OT&E Director will notify sites at the earliest opportunity if the OT&E is suspended by the TRG.

4.4.3 Test Case Procedures

The OT&E Director will assign the Test Case Procedures listed in Appendix F (additional Test Case Procedures may be developed as required). Site personnel will complete assigned Test Case Procedures and report test results to the OT&E Director.

4.4.4 Upper Air Operations

The Build 2 software will be used for all upper air operations for the duration of the OT&E.

In addition to completing synoptic and special flights, RRS operators will:

- Evaluate the Build 2 software for reworking flight data obtained using the Build 1.2 and Build 2 software;
- Evaluate the new Build 2 plot functionalities for flight data obtained using the Build 1.2 and Build 2 software;
- Evaluate *Radiosonde Replacement System (RRS) Workstation Users Guide for RWS Build 2.0*;
- Evaluate the Build 2 user interface (preflight base lining, flight operations, user workspaces, etc.);
- Confirm scheduled coded messages are properly generated, i.e., confirm message content and delivery; and
- Verify flight archives and post flight processing.

RSS Site Administrators will:

- Evaluate Build 2 utilities for user administration; and
- Evaluate Build 2 utilities for flight database management, i.e., archive, delete, backup/recovery, import, and export.

4.4.5 Data Quality Evaluation

Upper air products will be routed to NCEP for use in upper air models. NCEP, Environmental Modeling Center staff will inspect upper air products for quality and compare Build 2 products to model predictions.

Following standard operating procedures, flight data will also be forwarded to NCDC. NCDC staff will verify flight data meet NCDC requirements.

Coded Messages, Skew-T, and other RRS products will be evaluated by the Upper Air Technical Support (OPS22) and OCWWS Representative (OS7).

The NCEP Representative, NCDC Representative, OCWWS Representative, and Upper Air Technical Support will submit weekly reports of their analysis to the TRG.

4.4.6 RRS User Questionnaire

The RRS User Questionnaire is designed to gather user input on the design and functionality of the Build 2 software. RRS Operators should complete of the RRS User Questionnaire during OT&E.

The RRS User Questionnaire is available at

http://www.surveymonkey.com/s/RRS_User_Questionnaire

4.4.7 RRS Questionnaire

The RRS Questionnaire is designed to gather general programmatic input on RRS. The Site Focal Points, management, and staff should complete of the RRS Questionnaire during OT&E.

The RRS Questionnaire is available at

http://www.surveymonkey.com/s/RRS_Questionnaire

4.5 Reporting and Analysis

4.5.1 Reporting

Site personnel will follow standard operating procedures during OT&E and report problems to the RRS Helpline. Problems observed during the OT&E should be called to the immediate attention of the OT&E Director and documented by SIRs. Site personnel should complete and submit a SIR form for each issue discovered during OT&E. The SIR form is available online at

http://www.surveymonkey.com/s/RRS_System_Issue_Report

SIRs will be entered in the “RRS Build 2 Database.” The database can be accessed over the internet and is open for viewing by all RRS stakeholders and OT&E participants. Interested parties should contact the OT&E Director for a user account. The OT&E Director will maintain the RRS Build 2 Database by entering and updating SIRs, monitoring activity, and administrating user accounts.

The RRS Information Systems Security Office (ISSO) will be notified of any IT security issues.

4.5.2 Analysis

The OT&E Director will present SIRs to the TRG for adjudication, and each SIR is assigned an Impact and Priority by the TRG.

The Impact ranks the severity of the problem:

- Impact 1 – Prevents successful observations, no workaround;
- Impact 2 – Prevents successful observations, reasonable workaround;
- Impact 3 – Non critical degradation of data;
- Impact 4 – Degradation of system capabilities, no data effect;
- Impact 5 – Minimal to no impact, nice to have; and
- Impact 6 – Undetermined.

The Priority addresses how the problem is resolved:

- Priority 1 – Needs immediate fix;
- Priority 2 – Include in next maintenance release;
- Priority 3 – Include in a future maintenance release;
- Priority 4 – Include in the next major build; and
- Priority 5 – Undetermined.

SIRs assigned Impact 1 mandate immediate suspension of OT&E.

OT&E may continue while SIRs assigned Impact 2 through 6 are resolved.

4.6 Schedule

The OT&E will be conducted according to the schedule provided in Appendix E. Required schedule changes should be brought to the immediate attention of the OT&E Director. The OT&E Director will notify TRG members of schedule changes and coordinate timely completion of the OT&E.

4.7 Help during OT&E

Questions about Build 2 software installation and operations should be directed to:

Sterling Field Support Center
Phone: (703) 661-1268 or (703) 661-1293 during business hours
For after hours and synoptic support contact:
Ashby Hawse, Upper Air Test Program Manager
Phone: (301) 351-1270
Email: ashby.hawse@noaa.gov

Questions regarding the OT&E should be directed to:

Ken Stricklett, OT&E Director
Phone: (301) 713-0326 x113
Email: ken.stricklett@noaa.gov

Questions regarding RRS operational policies should be directed to:

Joe Facundo, RRS System Owner
Phone: (301) 713-2093 x101
Email: joseph.facundo@noaa.gov

5. Post-OT&E Activities

Build 2 field tests are scheduled to end on or about Oct. 29, 2010.

5.1 OT&E Conduct Survey

The OT&E Conduct Survey allows participants the opportunity to rate the performance of OPS24 and to provide recommendations on the OT&E process. The survey is open to all OT&E participants and is available at

http://www.surveymonkey.com/s/RRS_OT&E_Conduct

5.2 Final Recommendation and Report

The TRG Chair will convene a Wrap-up meeting on or about Nov. 3, 2010, following the

conclusion of field tests. At the meeting, the OT&E Director will review the test activities completed and summarize SIRs, findings, and recommendations. The TRG will review the materials presented and recommend whether to proceed with national deployment of the Build 2 software. The recommendations of the TRG are based on a simple majority vote. The TRG Chair casts the deciding vote in the event of a tie. Dissenting opinions will be reported in the OT&E Report.

The Build 2 software must satisfy the evaluation criteria listed in section 1.4 and the following criteria to be recommended for national deployment:

- SIRs assigned Impact 1 or 2 must be resolved and closed; and
- SIRs resolved by a workaround must be properly documented.

The OT&E Director will prepare an OT&E Report upon the conclusion of tests. The Report provides a record of the OT&E including the details and status of SIRs submitted during OT&E and any other findings or recommendations. The OT&E Report will be posted on the OPS24 website.

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Appendix A. – Changes in RWS Software

Summary of RRS Workstation Software (RWS) Build 2 Changes

1. **Sustainability improvement.** Migrated most of the program to the C# language, and it now uses the Microsoft .NET 3.5 Framework. This improves software compatibility with future versions of the Windows operating system, and also gives a Windows XP look and feel to the user interface. A new, more efficient third-party grid library (SynCFusion) is now being used.
 2. **The Microsoft Jet database engine (Access format) was replaced by Microsoft SQL Server Express 2008,** providing more robust database functionality. This should result in successful data recovery following catastrophic events such as power failures. Older database formats are automatically upgraded when imported into RWS.
 3. **New Plot Functionality:**
 - User configurable plots (parameters, colors, line thickness, scales)
 - Shared (all users of system) and Private (individual) Plot configurations in addition to the predefined plot set
 - Graphical editing of processed data (marking data and applying user edits, which are then reflected in the processed tabular data and coded messages)
 - Skewing of temperature supported
 - Log P supported as vertical axis (time and geo-potential height are the other options for vertical axes)
 - Trajectory plots have 3-D viewing function
 - Winds appear as shaft/barb display in an optional wind column
 - Save as graphic image file
 - Update dynamically during live flights
- **Implements domain accounts and use of Active Directory to control user authentication and enforce a nationally standardized security configuration.**
 - **Archive Utility now automatically transmits files to NCDC.**
 - **RWS is ready to support transmission of high resolution data sets (BUFR format).**
 - **Supports new radiosonde and SPS types.**
 - **User-definable workspaces now include all window types and also include the column configuration in the processed data grid.**
 - **The Flight Summary now contains additional parameters such as release time, freezing level crossings, -20 C height, geo-potential height for the maximum wind, and tropopause level details.**
 - **Help function added (online version of user's manual).**

- **Hardware status reporting improvements:**
 - Provides additional status information (English explanation versus only the code or bit values)
 - LAN status changes reported as they occur, not just when starting RWS

- **Section 508 compliance changes:**
 - Supports keyboard-only operation, provides special Section 508 mode on a per user basis to display additional symbols in tables to supplement color coding.

- **User Interface Changes:**
 - Preflight / baseline windows now use standard windows components versus being in a grid format.
 - Limit of surface relative humidity entry by observer lowered from 5% to 0.5%.
 - Flight startup assortment of windows has been reorganized and resized to all viewing of each without any overlaps.
 - Flight Processed Data tool bar shows TRS and SPS status in flight modes, including status of incoming SPS winds (to clarify cases where GPS satellite receipt appears satisfactory, but SPS is rejecting winds). The release number for the flight was also added.
 - Coded product selection and transmission features have been streamlined for simpler operation and adherence to windows standards.
 - Tabular grids, plots, and message lists provide consistent print functionality options through the context menu (right-click). This includes the Print, Page Setup, and Print Preview functions. Warning provided if printed page count is expected to be over 10 pages.
 - Quality indicator values have been eliminated from the Processed Data grid.
 - Hardware status has condensed display capability utilizing less screen space, while displaying a summary of entire system status (tabbed view).
 - Windows previously opened and closed during a work session (flight) will reappear in their last position when reopened.
 - General reduction in number of routine popup message boxes by combining into a single termination dialog window, and elimination of status alerts not intended to force specific observer actions or confirmation.
 - Station data display value formats have been set to eliminate floating point values showing many decimal places.
 - TRS Status Display:
 - Clicking with the mouse on the Azimuth/Elevation dial of the TRS status display results in the antenna moving to that position.
 - TRS tracking errors were added to the TRS display.
 - Signal strength units changed to match CDU (0 to -132 dBm)
 - Audible alert turned on when release is detected.
 - Audible alert and popup message generated when GPS data has been lost for 2 minutes.

- Audible alert and popup message is generated when temperature and pressure data are missing for more than 1 minute and again (if previously cleared) at 2 minutes. Flight terminates at 3 minutes.
- Audible alert is silenced if mouse or keyboard activity is detected.
- **Data Processing Changes:**
 - Pressure outlier routine will only resume acceptance of pressure data (following three bad pressures) when a pair of incoming points are within tolerance of each other (i.e., missing data points result in continued rejection of data).
 - Unsmoothed winds and position from SPS now used, and smoothed in RWS. First few seconds of winds off surface are excluded (currently 5 seconds), and replaced by interpolated values based on the surface wind observation.
 - Flight termination processing will continue to collect wind data until any lagging wind data is received up through the termination pressure level.
 - Relative humidity is now smoothed using a 9 second average.
 - Temperature, pressure and wind values at release and termination are properly limited such that values outside the actual flight range are not included in the smoothing of the data (averaging).
 - Isolated values of temperature surrounded by missing data are now used in RWS interpolations and smoothing (subject to 60 second missing data limit).
 - Data in descending / reascending layers is not used in levels generation regardless of the depth of the layer (had allowed such when layer was less than 30 seconds of data).
 - No extra level is added to the levels table at 20 hPa to ensure a level exists between surface and 20 hPa above surface.
 - Miscellaneous minor WMO message coding issues were fixed.
 - Miscellaneous NCDC archive issues were fixed, such as the wind heights occasionally being recorded out of sequence.
- **Status message changes:**
 - A status message will be generated if the pressure was manually overridden by the observer ["Surface pressure manually changed from xxxx.xx hPa to xxxx.xx hPa."]
 - Recognizes when large jump in radiosonde position occurs, resulting from switch to another site's radiosonde.
 - Records TRS resets by user
 - Issue of observer's post-flight status message comments becoming jumbled when the flight is reworked has been fixed.
 - A status message will indicate how release was determined (auto-detect or manually by observer).
 - Various message rewording to clarify event descriptions and actions required.
- **Check message changes:**
 - Check message generated when amount of data marked by observer as rejected exceeds normal criteria for flight termination
 - The "no level was selected with 20 hPa of the surface" message has been eliminated (level no longer generated).

- Various message rewording to clarify intent of message.
- **Other Changes:**
 - Initiation of edit mode in the processed data grid is now by explicit command (context menu item).
 - PDB pressure will no longer be editable on the baseline form. If more than 2 minutes elapses between acceptance of surface data to calculation of radiosonde pressure correction, the PDB pressure is automatically updated to the current value, or the operator is alerted to check a manually entered station pressure (when Calculate button is pressed)

Appendix B. – OT&E Personnel

Test Review Group Members		
Name/Organization	Function	Phone
Weather Service Headquarters, Silver Spring, MD (WSH)		
Rich Thomas (OPS23)	TRG Chair*	(301) 713-0191 x108
Ken Stricklett (OPS24)	OT&E Director	(301) 713-0326 x113
Carl Bower (OPS22)	Upper Air Operations Liaison	(301) 713-2093 x115
Jim McNitt (OPS22)	RRS ISSO	(301) 713-2093 x102
Sergio Marsh (OS7)	OCWWS Representative	(301) 713-1792 x124
Bill Blackmore (OPS22)	Upper Air Technical Support	(301) 713-2093 x107
Nick Schmid (OPS11)	RRS Technical Support	(301) 713-1795 x203
NWS Regional Upper Air Program Managers		
Kevin Murray (ER42)	Eastern Region	(631) 244-0146
Mike Asmus (SR4)	Southern Region	(817) 978-7777 x133
Bob Bonack (CR1)	Central Region	(816) 268-3148
Harold Knocke (WR421)	Western Region	(801) 524-5138 x276
Larry Hubble (AR42)	Alaska Region	(907) 271-5135
Derek Leeloy (PR1)	Pacific Region	(808) 532-6439
National Centers		
Bradley Ballish (NP12)	NCEP Representative	(301) 763-8000 x7159
Imke Durre (E/CC11)	NCDC Representative	(828) 271-4870
NWS Employee Organization		
Aaron Stevens	NWSEO Representative	(318) 631-3669 x225

* Casts the deciding vote in the event of a tie.

NWS Headquarters Support		
Name/Organization	Function	Phone
Joseph Facundo (OPS22)	RRS System Owner	(301) 713-2093 x101
Ivan Navarro (OPS11)	Engineering and Acquisition Branch Chief	(301) 713-1841 x123
Jeff Paul (OPS11)	RRS Deployment Manager	(301) 713-1842 x109
Chad Hill (CR41)	NADS Focal Point	(816) 268-3136
Aaron Poyer (OPS24)	Test Team Member	(301) 713-0326 x112
Bert Vilorio (OPS24)	Test Team Member	(301) 713-0326 x131
Harry Tran (OPS24)	Test Team Member	(301) 713-0326 x105
Edward Roberts (OPS23)	Software Engineer	(301) 713-0191 x161
Kevin Kay (OPS23)	Software Engineer	(301) 713-0191 x171
Claudina Castro (OPS23)	Software Engineer	(301) 713-0985 x178
Donald Johnson (OPS22)	Test Team Member	(301) 713-0191 x172
Ashby Hawse (OPS22)	RRS Helpline Support	(301) 351-1270

Alaska Region Headquarters Support		
Name/Organization	Function	Phone
John Snell (AR41)	Alaska Region ISSO	(907) 271-3508

Field Site Support		
Name	Function	Phone
Morehead City/Newport WFO, Newport, NC (KMHX)		
Rich Bandy	MIC	(252) 223-5122 x222
Central Wills	Site Focal Point	(252) 223-5122 x225
Terry Lowe	Site NADS Administrator	(252) 223-5007 x228
Terry Lowe	RWS Site Administrator	(252) 223-5007 x228
Shreveport WFO, Shreveport, LA (KSHV)		
Armando Garza	MIC	(318) 631-3669
Aaron Stevens	Site Focal Point	(318) 631-3669 x225
Mike Waddell	Site NADS Administrator	(318) 636-4068 x260
Mathew Duplantis	RWS Site Administrator	(318) 635-9398 x237
Springfield WFO, Springfield, MO (KSGF)		
William Davis	MIC	(417) 863-8028 x642
Ryan Kardell	Site Focal Point	(417) 863-8028
Don Parkerson	Site NADS Administrator	(417) 863-2247
Don Parkerson	RWS Site Administrator	(417) 863-2247
Central Illinois WFO, Lincoln, IL (KILX)		
Ernest Goetsch	MIC	(217) 732-4029 x642
Dan Kelly	Site Focal Point	(217) 732-4029 x511
Tom Raineri	Site NADS Administrator	(217) 732-4029 x486
Ed Martin	RWS Site Administrator	(217) 732-4029 x372

Bill Ousley	DAPM	(217) 732-4029 x327
Reno WFO, Reno, NV (KREV)		
Jane Hollingsworth	MIC	(775) 673-8100 x222
Scott McGuire	Site Focal Point	(775) 673-8107
Kris Johnson	Site NADS Administrator	(775) 673-8100 x260
Bruce Baird	RWS Site Administrator	(775) 673-8100
Fairbanks WFO, Fairbanks, AK (PAFG)		
John Dragomir	MIC	(907) 458-3704
Tracy Magill	Site Focal Point	(907) 458-3727
Randy Davis	Site NADS Administrator	(907) 458-3715
Tracy Magill	RWS Site Administrator	(907) 458-3727
San Diego WFO, San Diego, CA (KNKS)		
James Purpura	MIC	(858) 675-8700 x 222
Phil Gonsalves	Site Focal Point	(858) 675-8700
Michael Khuat	Site NADS Administrator	(858) 675-8700 x235
Mike Lauderdale	RWS Site Administrator	(858) 675-8700 x260

Appendix C. – OT&E Resource Requirements

Resource	Description
Hardware	A fully configured RRS will be used at each test site.
Software	<p>RWS Operational Application Software Build 2 (one CD, includes OMS Software Program)</p> <p>RWS Operating System Configuration 1.09 (<i>Windows XP Pro Gateway E6300</i>, six CDs)</p> <p>Offline Maintenance Suite (OMS) Software, Version 1.6</p>
Documentation	<p><i>RWS Build 2 System Test Report*</i></p> <p><i>Operational Test and Evaluation Plan for Radiosonde Replacement System Workstation Software Build 2.0*</i></p> <p><i>RWS Build 2 Release Notes**</i></p> <p><i>RRS System Administration Manual, EHB 9-730**</i></p> <p><i>Radiosonde Replacement System (RRS) Workstation User Guide for RWS version 2.0**</i></p> <p><i>RRS Software Note 10**</i></p> <p>*Available at: http://www.nws.noaa.gov/ops2/ops24/documents/rrs_B20.htm</p> <p>**Shipped to field tests and/or available at: http://www.ua.nws.noaa.gov/RRS.htm</p>

Appendix D. – OT&E Site Visit

Orientation Meeting Agenda

- | | |
|--|----------------------|
| 1. Introduction of test team | Test Coordinator |
| 2. The Test Structure <ul style="list-style-type: none">- Overview of RRS Build 2.0- Test schedule | Test Coordinator |
| 3. Test Team Responsibilities <ul style="list-style-type: none">- Hours working on-site- Activities | Test Coordinator |
| 4. Site Management and Staff Responsibilities <ul style="list-style-type: none">- Site Focal Point Responsibilities- Reporting/documenting problems | Test Coordinator/MIC |
| 5. Test Team Office Needs <ul style="list-style-type: none">E-mail, PC with Internet connection, copying, phones, work space, etc. | Test Coordinator |
| 6. Discussion | Site Management |

Site Visit Schedule	
Monday	
	Travel
Day 1 (Tuesday)	
	Witness the 1200Z synoptic flight
	Orientation Meeting
	Install the Build 2 software
	Witness the 0000Z synoptic flight
Day 2 (Wednesday)	
	Witness the 1200Z synoptic flight
	Test Review Group Meeting
	Exit Meeting
Thursday	
	Travel

Appendix E. – OT&E Schedule

Activity	Date (2010)
Test Readiness Review	Sept. 7
Newport, NC (KMHX) Install	Sept. 14
KMHX Site Visit	Sept. 14–15
Reno, NV (KREV) Install	Sept. 21
KREV Site Visit	Sept. 21–22
Fairbanks, AK (PAFG) Install	Sept. 21
PAFG Site Visit	Sept. 21–22
Lincoln, IL (KILX) Install	Sept. 27
Shreveport, LA (KSHV) Install	Sept. 29
Springfield, MO (KSGF) Install	Sept. 30
San Diego, CA (KNKX) Install	Oct. 18–Oct. 22
Field Tests Complete	Oct. 29
Wrap-up	Nov. 3

Appendix F. – Test Case Procedures

Test Case Procedure, “NADS Connectivity.”