Radiosonde Replacement System (RRS)
Deployment Plan

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1.0 Purpose/Introduction

The purpose of the Radiosonde Replacement System (RRS) Deployment Plan is to describe and document the strategy for the installation and deployment of the RRS and its transition into operations. It provides a means to inform RRS program participants of this strategy and to obtain their coordination and approval of the key activities required to implement the RRS into NWS operations.

1.1 Scope

This plan addresses the activities and organizational responsibilities required to successfully implement the RRS at NWS field sites. This includes site/facility preparation; legacy system decommissioning, removal and disposal; RRS equipment installation and checkout (INCO) and commissioning; operations and maintenance training; and follow-on operations, maintenance, and logistics support. More detailed information and procedures will be provided in the Site Installation Plans discussed later in paragraph 2.1.2.

RRS implementation at the various NWS support centers (Sterling Test Center, National Reconditioning Center, and the NWS Training Center) will be accomplished directly with these centers. The effort to implement RRS at these locations is not included in this plan.

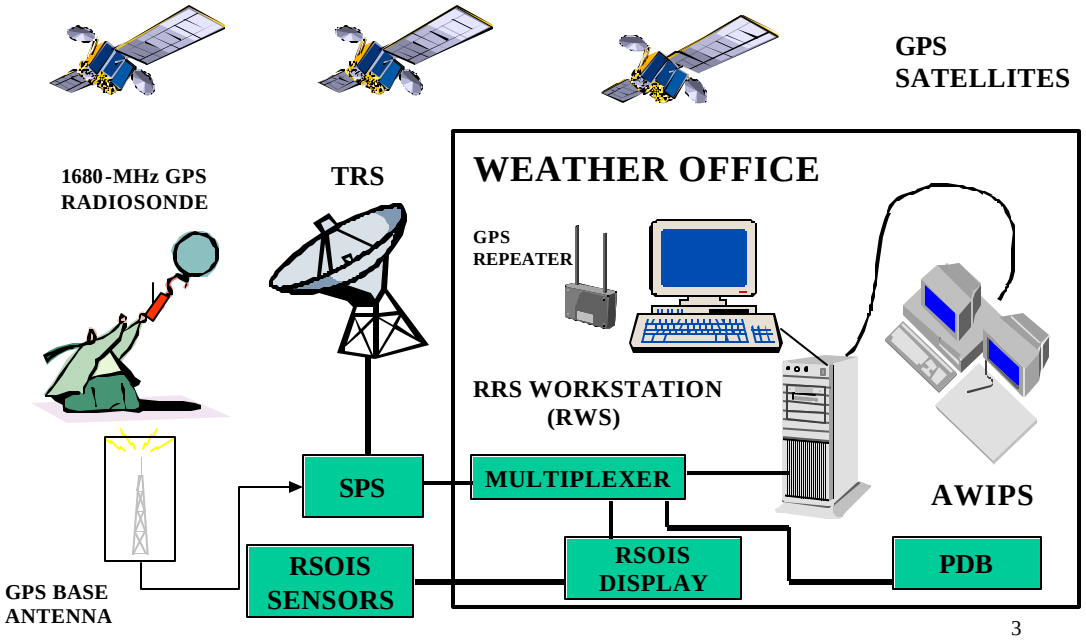
1.2 RRS System Description

The National Weather Service (NWS) operates a network of upper air weather observing stations in the contiguous United States, Alaska, and the Pacific Islands. At each station, a balloon borne instrument called a radiosonde is sent aloft twice daily to measure atmospheric profiles of the temperature, pressure, humidity, and winds. These radiosonde flights form the backbone of weather forecasts and research for a variety of consumers including domestic and international aviation, and the general population through national and local weather forecasts and warnings. The NWS will replace its current, aging network of upper air observing systems with modern, more reliable systems that will provide soundings with increased resolution and accuracy. The RRS is a leap forward from previous sounding systems. It will introduce a state-of-the-art ground tracking system and a Global Positioning System (GPS) based radiosonde in response to validated system obsolescence and a reduced operating frequency allocations.

The RRS hardware consists of the following:

- A new GPS-based radiosonde to aid in wind data calculation
- A new ground tracking system, the Telemetry Receiver System (TRS), to acquire and track the radiosonde signal
- A Signal Processing System (SPS) that uses differential GPS data to pre-process and format pressure, temperature, and humidity values, wind, and position data for the workstation.
- A Radiosonde Surface Observation Instrumentation System (RSOIS) that contains a suite of equipment for providing surface readings during pre-flight.
- A Precision Digital Barometer (PDB) that provides surface pressure during pre-flight.
- A RRS Work Station (RWS) computer to run the flight application, control flight operations, support limited telemetry analysis, provide local and NCDC archival, and transmit messages to AWIPS.

System Description



- A GPS repeater system to facilitate indoor radiosonde instrument baseline activity.

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Figure 1

The RRS System is depicted in Figure 1.

1.3 RRS Deployment Strategy

The RRS program deployment strategy is driven by the system's acquisition strategy, the urgent need to replace the MicroART system, and the desire to minimize the time each upper air site is out of operation. The RRS acquisition strategy called for a modular system design that allowed the various RRS subsystems to be procured separately, maximizing the competition potential for each subsystem. Due to development issues with several of the subsystems, it was not possible to keep all subsystem schedules synchronized such that their deliveries occurred simultaneously. During the course of the program, several subsystems became (or will become) available for installation prior to the availability of the remaining subsystems. This creates the possibility of an incremental (early) installation and, more importantly, the opportunity to significantly reduce the installation schedule and risks when the remaining subsystems are installed. This incremental installation has, in fact, begun with the deployment of the RSOIS. Another subsystem that will be subject to early installation is the GPS repeater. This will be discussed in more detail later.

The RRS deployment will require the close coordination and cooperation of a number of NWS organizations. Overall management and oversight for final subsystem installation and RRS system-level acceptance will be provided by the government's RRS Deployment Manager. The RRS Deployment Manager is a government employee from the Office of Operational Systems (OPS). The RRS Deployment Team will be responsible for installing the workstation and connecting it to the RSOIS and PDB, and providing connectivity to AWIPS. International MET Systems, Inc. (IMS), the TRS contractor, will remove the legacy upper air system from the radome; perform the TRS INCO, including the installation of the Digital Communications Equipment (DCE) in the office and radome, install the fiber optic cable in the conduit, install the Government furnished Signal Processing System (SPS) into the TRS pedestal, and install the Government furnished GPS base antenna in the radome. Specific IMS and Government roles and responsibilities for the final RRS subsystem installations and system-level acceptance are shown in the following table.

Activity	IMS	OPS	Region	Site	Comments
Prepare Site Installation Plan (SIP)	S	P	S	S	Distribute 90 days prior to install
Site Preparation				P	Complete facility readiness checklist
Site access permits		P		S	Prepare and submit FAA Form 7460
Ship TRS to site (from IMS)	P				Ship 1 week prior to TRS install
Ship installation kits (from NLSC)		P		S	Ship 1 week prior to TRS install
ART decommissioning		P		S	Conducted by OPS22
Cannibalization of ART LRUs				P	Guidance from OPS12
ART removal	P			S	Under contract with OPS
ART disposal				P	IAW approved procedures
WL9000 removal and disposal		S		P	IAW guidance from OPS22
Survey GPS related locations	P	S		S	Includes TRS & PDB positions
Install RSOIS (prior to TRS install)				P	Mod note from OPS12
Install GPS repeater (prior to TRS)				P	Mod note from OPS12
Install workstation/software		P		S	OPS12 to provide procedures
Install site data (into workstations)		P		S	Details in SIP
Install TRS	P	S		S	Under contract with OST
Install GFE SPS into TRS	P			S	RRS Technical Manual
Install GPS antenna (in radome)	P			S	RRS Technical Manual
Install RWS DCE	P				RRS Technical Manual
Connect TRS to serial port card	P			S	RRS Technical Manual
Connect RWS to RWS DCE	P				RRS Technical Manual
Connect RSOIS to serial port card		P		S	RRS Technical Manual
Connect PDB to serial port card		P		S	RRS Technical Manual
Connect GPS antenna to SPS	P			S	RRS Technical Manual
Connect RRS to LDAD/AWIPS		S		P	Mod note from OPS1
Prepare Acceptance Test Procedures		P			Procedures from OPS1
- Accept IMS TRS installation	S	P			Gov't DD-250s TRS installation
- Verify RRS/AWIPS interface		P		S	Procedures in SIP
- Perform RRS system checkout		P		S	Procedures from OPS1
- Supplemental operator training		P		S	Procedures from OPS1
Conduct system turnover		P	S	S	Complete Site Acceptance Form
NCEP coordination		S		P	Procedure in SIP
RRS commissioning		P	S	S	Conducted by OPS22

P = Primary responsibility, S = Supporting office(s)

2.0 Deployment Activities

This section describes the activities to be accomplished in support of the RRS installation and deployment.

2.1 Prior to TRS Installation

The RRS consists of a number of subsystems procured under separate contracts. Production lead-times for several of these subsystems are such that they are available for installation prior to the longer lead-time subsystems like the TRS and GPS radiosondes. Early installation of these subsystems by the field will lessen the time and effort required for the installation of the TRS allowing the site to resume operations in less time. In addition, there are a number of administrative and site preparation activities that must be completed ahead of time, prior to the installation of the TRS. All agreed to and approved costs associated with early installation of any RRS subsystems will be funded by the RRS program.

2.1.1 Points of Contact (POC)

Close coordination is essential in the implementation process. The Regions will designate primary and secondary POCs at the Regional HQ and for each field site to coordinate the deployment with NWSH and IMS. NWSH will also designate POCs for each of its participating offices/organizations. NWSH will obtain POCs for IMS. Each POC should have a name, phone number, government/corporate e-mail address, and government mailing address. POC changes must be identified to the RRS Deployment Manager as soon as they are known.

2.1.2 Site Installation Plans (SIP)

A SIP will be developed by the RRS Deployment Manager for each operational site. The SIP will include POCs and contact information, site drawings, equipment schematics, legacy system removal procedures, RRS equipment installation procedures, acceptance test procedures, and other common and site specific installation information. Initial SIPs will be provided to the Regional and site POCs and to IMS at least 100 days prior to the scheduled RRS installation. Comments and/or changes are to be provided to the RRS Deployment Manager within 20 days of receipt of the initial SIP. SIP updates will be disseminated in response to comments and changes.

2.1.3 NCEP/RRS Operations Transition

NWSH will coordinate with NCEP and the Regions to develop a plan and procedures to transition RRS into operations. It is anticipated that the observations from the initial GPS radiosonde launches from a given site will not be assimilated into the operational models until system-level operations are verified and the site accepts system turnover (see paragraph 2.2.8). Upper-air observations may not be available from a site in transition for up to 3 weeks (nominal).

Until RRS installation and system turnover are completed, observations transmitted from the site over AWIPS will be identified by a method to be defined as test messages so these messages can be flagged at NCEP for exclusion from the models. This plan and procedures will be included in the SIP.

2.1.4 Site Access/Equipment Permits

Various site-specific permits and/or access clearances may be required to accomplish installation of the RRS.

- Upper air sites located on or adjacent to an operational airdrome may require a temporary FAA Form 7460 clearance for the equipment IMS will use to remove the ART and/or install the TRS.
- At those sites having an ART-2 legacy system which must be cut up for removal, a NWS "burning / hot work" permit is required to be issued by the office MIC.
- Local building permits may be required at some locations.
- Local electrical permits may be required at some locations.
- Local permits may be required to access or to perform work at some locations.

IMS will be required to provide the government with appropriate and timely information regarding the proposed installation equipment (crane) so a determination can be made as to whether or not the FAA Form 7460 is required. This clearance may require up to 100 days to process. Development and submission of FAA Form 7460 will be the responsibility of the RRS Deployment Manager. It is anticipated that close and continuous coordination with the site POC will be required and that the site POC will be the primary focal point for interactions with the local FAA office. Once the permits are obtained, a copy will be provided to IMS. Their responsibility is to comply with the terms of permit, to include FAA airspace notifications and any required marking or lighting.

At sites having an ART-2, the RRS Deployment Manager will obtain a "burning/hot work" permit from the forecast office. A copy of this permit will be provided to IMS. Their responsibility is to comply with their responsibility is to comply with the terms of the permit.

IMS will be responsible for obtaining any and all local permits required at a particular site. The forecast office personnel will identify the need for special local permits on the operations immediate form. IMS will be responsible for complying with the terms of any required permits.

If special permits are required to access the upper air facility, it will be the responsibility of the NWS Forecast Office to obtain (wherever possible) or to assist IMS in obtaining such permits and to oversee access by contractor and/or Government personnel. IMS may be required to take actions to obtain such permits (e.g., obtain training, mark vehicles, take tests, etc.). The forecast office personnel will identify the need for access permits on the operations immediate form found in the SIP.

2.1.5 Site Preparation

The sites will perform site preparation activities and accomplish the Facility Readiness Checklist found in the SIP for each site. In addition, general scheduling of site preparation activities must be planned around the installation schedule. IMS and NWS must ensure that performance of any preparation work is properly coordinated and timing does not interfere with any other site operations. A completed Facility Readiness Checklist certification will be required of each NWS site. Critical open items on the site questionnaire (i.e., conduit clearance) may preclude the scheduled installation of RRS at a given NWS site. Therefore, each NWS site must ensure that all open items and/or other factors that could affect IMS's ability to perform on site are fully documented and addressed, well in advance of any planned or scheduled site installation activity.

Note that there are two primary facilities requirements which must be met in order to allow installation of the RRS system. The first requirement is that the facility in which the TRS is to be installed have adequate lightning protection and a ground point to which the TRS ground can be connected, and the second requirement is that the facility have a 115 VAC 60 HZ 20 amp service panel to which the TRS can be safely connected.

2.1.5.1 Removal of Hydrogen

Prior to activities which will take place in the radome, it will be necessary for all hydrogen tanks to be removed from the vicinity of the inflation building. The NWSFO will arrange for the removal of all hydrogen bottles from the work site area, and the return of the hydrogen bottles to the area following RRS installation and check out. It is not necessary to remove helium tanks at those facilities where hydrogen gas is not used.

2.1.6 RSOIS Installation

Because the RSOIS can be used with the current upper air system operations, it will be installed and commissioned as it becomes available. RSOIS will be installed only at sites meeting the siting requirements. At this time, approximately 6 to 9 sites will use ASOS. OPS22 will coordinate and manage the installation process and ensure RSOIS is operational prior to the TRS installation. This early installation allows the site to take advantage of this valuable equipment in its current upper air operations and it will lessen the installation time when the remainder of the system is installed. When delivered by the vendor, RSOISs will be placed in the NLSC and shipped to the site for installation.

2.1.7 GPS Equipment Installation

The GPS equipment consists of two separate antenna systems. The Signal Processing System embedded in the TRS pedestal requires a GPS signal source for differential calculations. This GPS signal source is provided by the GPS base antenna located in the apex of the radome. To allow the GPS-based radiosonde to report GPS availability during pre-flight radiosonde prep, a

GPS repeater system is installed at the WFO to receive GPS signals from an unobstructed location above the WFO roof, and allow the signal to be re-radiated in the radiosonde preparation area.

It is necessary to install the GPS repeater prior to TRS installation, as it requires modification to the WFO in order to connect the externally (roof) mounted receiver antenna with the internally mounted transmitter and antenna. This may require facility perforations to allow a 150 foot nominal length coaxial cable to be installed connecting the transmit and receive antennas.

Installation of the GPS base antenna in the radome will be accomplished by IMS during TRS installation. As with the RSOIS, the GPS repeater will be stocked in NLSC and shipped to the site approximately 90 days prior to the scheduled TRS installation. RRS Modification Note 9 found in Engineering Handbook 9 has been provided by OPS12 for the installation of the GPS repeater system.

2.1.8 Workstation Installation/Operator Training

Operator training will be accomplished using distance training material in conjunction with the production RWS system and associated RRS software. The RWS uses an RRS program-specific version of the Microsoft Windows XP operating system which has been heavily tailored for RRS use. This tailoring is necessary to eliminate many of the routine tasks which the commercially released XP operating system automatically schedules for execution to eliminate the possibility of interference with the RRS application program. Because of this, the commercial Windows operating system is removed from the RWS hard disk prior to issue from NLSC. The RWS operating system software is supplied to each site on a set of bootable Ghost CDs installed on site. The RWS hardware, RWS operating system, and RRS operational software (actual application program suite) will be delivered to the site approximately 90 days prior to the scheduled TRS installation. For training purposes, the workstation must be installed in an environment/location conducive for the operations staff to study the training materials and learn the system operations. (Note that during installation of the RRS, the RWS will be re-located to its operational location.) The following training material will be provided concurrently with the RWS:

- Handbook 10 update (sonde prep instructions, operators instruction)
- RRS User Guide
- RRS Operators DVD training video
- RRS After-action survey
- RRS Operator's certification test
- B48 checklist
- RRS MIC Readiness Certification Statement
- RRS Program Points of Contact for troubleshooting
- RRS Training flights CD

The RRS training flights CD will contain actual flight profiles that will allow the operator to exercise the application software, edit data, and generate coded messages.

Assistance will be available from NWSH (OPS22) to answer site questions concerning the application software and system operation. **It is critical and essential that the operations staff utilize this opportunity to learn the system.**

2.1.9 Maintenance and Maintenance Training

Maintenance documentation, will be developed by OPS12 in coordination with the NWSTC and the development of the RRS maintenance training course. Technical documentation includes the following (in addition to modification and maintenance notes routinely issued):

- RSOIS O & M Manual (NWS EHB 9-201)
- TRS O & M Manual (NWS EHB 9-753)
- SIPPICAN SPS & Radiosonde O & M Manual (NWS EHB 9-801)
- RRS Workstation (RWS) & M Manual (NWS EHB 9-901)
- RRS Fault Analysis Manual (NWS EHB 9-903)
- RRS Systems Administration Manual (NWS EHB 9-904)

Maintenance training will be accomplished during a eight-day residence training course at the NWSTC. OPS12 (Maintenance Branch), using the RRS program deployment schedule as a guideline, will coordinate directly with the Region HQ, with individual forecast offices, and with the NWSTC to schedule students to attend this training such that a minimum of one person at each site successfully completes the course in advance of the scheduled TRS installation. Trained site maintenance staff are encouraged to observe the installation and setup of the TRS.

2.1.10 Supply Support

The RRS will be supportable by the existing logistics support system. Spares for all subsystems will be in stock at NLSC. The National Reconditioning Center (NRC) will have all required test equipment in place to perform their maintenance functions prior to the beginning of deployment. The NRC will also have initiated the process to identify and track RRS parts obsolescence via the Technology Obsolescence Risk Assessment (TORA) program. The Engineering Management and Reporting System (EMRS) will be updated by OPS13 to provide the capability to enter RRS maintenance actions.

2.1.11 Hazardous Material Removal and Condition of the Radome

Engineering Handbook 9 ART Modification Note 19 has been previously provided to address removal and disposal of hazardous materials contained in the legacy ART-1 and ART-2 system. At this time, it has been reported that ALL ART systems have had this modification note performed. Site personnel will inspect the legacy system to ensure that this modification note has been performed. If this modification note has not yet been performed, it will be necessary

for site personnel to coordinate with OPS11 arrange for removal of remaining hazardous material in the ART ground station equipment.

The Government is required to identify any and all hazardous materials present in the work area to all contractors. Site personnel will perform an inspection of the radome and will identify hazardous materials and/or other materials of concern via the operations immediate data form found in the SIP. At ART-2 sites, this will include any insulation which has been applied to the interior of the radome because a torch will be used in the removal process.

2.2 During TRS Installation

The activities described in this section are those that will be accomplished beginning the day the TRS installation is scheduled to begin.

2.2.1 Legacy System Decommissioning

OPS22 will develop MicroART and WL9000 decommissioning procedures and oversee the decommissioning process. Upon decommissioning, the site's upper air operations will cease and all MicroART and WL9000 related equipment will be powered down and disconnected by site staff. The NWSFO Meteorologist in Charge (MIC) will be responsible for recommending an appropriate date for decommissioning of the site's legacy upper air equipment. The primary consideration in recommending this date will be the effort required by NWSFO personnel to complete the in dome activities by the end of "day one" of the on site activities. Thee activities include removal of certain ART LRUs to be returned to NLSC, and removal of legacy equipment wiring from underground conduits to ensure that the conduits are clear and serviceable. The proposed decommissioning data must be provided to OPS22 30 days before the target installation date.

2.2.2 Legacy System Removal and Disposal

MicroART and WL9000 equipment will be removed and disposed of as described below. The RRS program will fund all costs associated with removal and disposal of this equipment.
NOTE: All hazardous materials (transformers containing PCBs) must be removed prior to IMS beginning the system removal.

Radiosondes - All legacy system radiosondes remaining after decommissioning will be distributed within the region for use by sites in the remaining network. OPS22 will assist in coordination of this effort if requested.

WL9000 Loran System Removal and Disposal - The site will be responsible for removing this equipment, packaging it, and shipping it to the Sterling test center in Sterling, VA.

Cannibalization – The SIP will identify the specific MicroART LRUs that must be removed and shipped to NLSC. Immediately following decommissioning, the site electronic technician will remove those parts, along with ancillary cables, connectors, etc., and provide access to IMS to the remaining equipment. Authority to cannibalize the MicroART has been provided by NOAA Property. Un-cannibalized (remaining) equipment will be disposed of in accordance with existing Commerce and GSA regulations. Shipping containers will be available from NLSC for return of LRUs. The RRS Deployment Manager will coordinate delivery of these containers with NLSC.

Legacy equipment disposal – Removal and disposal of all legacy equipment not cannibalized (i.e., returned to NLSC) will be disposed of locally in accordance with existing Commerce and GSA regulations through GSA. The RRS Commissioning manager will prepare a (paper) form CD-50 and forward that form to the NOAA Warehouse manager with a copy of the site property custodian. The NOAA Warehouse manager will be responsible for disposal of all legacy equipment. This includes the following:

- Arrange to have a local scrap dealer to provide a container to receive the scrap legacy equipment
- Arrange to have the scrap removed from the site
- Process the paper CD-50 through the NOAA property Sunflower system to document disposal of the equipment and to remove the legacy system from the NOAA property system.

At the first deployment site, which is LWX (Baltimore Washington WFO), the MicroART computer system will be removed intact and relocated to the Sterling Research and Development Center building for possible use as a back up system. At all other sites, the MicroART computer system will be disposed of in accordance with the above paragraph.

2.2.3 TRS Shipment to Site

TRS shipment to the site will be accomplished by IMS in coordination with the RRS Program Office and the site. IMS will be responsible for packing all equipment for shipment to each field site. Equipment will be packaged by IMS for limited-time, outside storage. The responsibility for the condition of all equipment will remain at all times with IMS.

2.2.4 TRS Installation and Checkout (INCO)

TRS INCO will be accomplished by IMS in accordance with TRS installation procedures developed under the TRS contract by IMS and approved by the government. TRS INCO includes the following:

- Performing geo-location survey for the TRS, SPS GPS antenna, release points, and PDB location (elevation only)

- Collecting and reporting site specific TRS information including coefficients and configuration.
- Installation of the GPS antenna in the radome in accordance with EHB-9
- Installation of the TRS in the radome
- Installation of the SPS (provided as GFE through NLSC) into the TRS pedestal
- Cabling of the GPS antenna and SPS with the TRS
- Installation and cabling of remote CDU/intercom panel
- Cabling and connection of TRS to AC power in the inflation building
- Cabling and connection of the TRS to inflation building ground grid
- Installation of fiber optic junction box in the radome
- Installation/connection of fiber optic cable between the junction box and the TRS
- Installation of the fiber optic cable in the conduit and connection to junction boxes
- Installation of the RWS DCE in the GFE RWS DCE enclosure
- Installation of fiber optic junction box in the office
- Installation/connection of fiber optic cable between the fiber optic junction box and the RWS DCE
- Connection of RWS RS-232 cables to RWS DCE (TRS, SPS, SPS Maintenance, UPS)
- Installation/connection of RWS intercom
- Successful execution of government approved TRS INCO procedures

Government acceptance of IMS's installation will be accomplished by the RRS Deployment Manager and documented on a Form DD-250. The TRS INCO will require nominally two radiosonde flights to accomplish the electrical boresight offset of the antenna. These flights must be performed by certified personnel. It is anticipated that NWSFO personnel will be required to perform these two flights. The RRS program office will provide an adequate number of radiosondes for this effort.

At sites where the conduit is collapsed, or otherwise out of commission, IMS will provide for a temporary, above ground fiber optic cable installation to allow the TRS INCO to proceed while the site makes the necessary conduit repairs. **This temporary installation must be corrected and the operational configuration implemented by site personnel before RRS acceptance testing will be allowed.**

2.2.5 RRS Subsystem Integration and Checkout (INCO)

The government RRS Deployment Team will be responsible for integrating the various RRS subsystems on-site. This includes the following specific activities:

- Placement of the workstation, including printer, monitor, and external hard drive and the enclosure for the workstation DCE, at a location in the WFO identified by the MIC; and preparation of the workstation for integration with the other RRS subsystems.
- Connecting the RSOIS and PDB cables to the serial port card.

- Verifying installation and operation of the GPS repeater (installed earlier by the field).
- Verifying GPS radiosonde interface with the TRS, SPS, and GPS repeater.
- Implementing the AWIPS interface with the workstation.
- Reporting all site specific data to EMRS.

Note that it is expected that the RWS will be provided with UPS conditioned AC power by the site. It is the responsibility of the office to provide a UPS if the normal office AC power is not UPS protected.

2.2.6 RRS System-Level Verification and Acceptance

Upon completion of the RRS subsystem INCO, the government RRS Deployment Team will conduct system-level verification testing of all RRS subsystems, interfaces and operations to ensure the system is functioning as required. System-level acceptance testing will be conducted in accordance with a formal set of Acceptance Test Procedures (ATPs) to be developed by the RRS Program office. This testing will include radiosonde preparation, base-lining, and flight operations from release to termination. Successful completion of the ATPs will be documented on a "Site Acceptance Form" which will later be used to document RRS System Turnover.

The RRS Acceptance test require nominally three radiosonde flights to accomplish demonstration of RRS system performance. These flights must be performed by certified personnel. It is anticipated that NWSFO personnel will be required to assist with these flights. The RRS program office will provide an adequate number of radiosondes for this effort.

2.2.7 Supplemental Operator Training

After completion of the ATPs, the RRS Deployment Team will depart for the next installation site. A member of the Deployment Team will remain on-site to provide nominally up to three days of supplemental operator training. The individual providing this training will conduct radiosonde flight operations with site staff assistance, focusing primarily on base-lining the GPS radiosonde and performance/operation of the application software. The RRS program office will provide an adequate number of radiosondes for this effort. The goal is to have each upper air observer present for at least three flights. Presumably more than one person will be present for each flight. To accommodate office staff in meeting this goal, the number of training days can be extended if necessary. As discussed in paragraph 2.1.8 above, it is critical that the operations staff complete the distance learning training during the 90 day period that precedes the TRS installation. **The three days of supplemental operator training assumes this and will not be a sufficient substitution for this training.**

2.2.8 RRS System Turnover

Upon successful completion of the RRS Acceptance Test Procedure, witnessed by the MIC (or designated representative) and the Region, the RRS system will be formally turned over to the operational control of the site and the Region, and will be transferred to the NWSFO property custodian. At this time, NCEP will be notified and procedures implemented to begin the formal use of RRS observations in the NCEP models. The deployment team will begin on-site familiarization training of office personnel. During this period, the site will resume upper air operations and will begin issuance of upper air soundings and products via the AWIPS.

2.3 After TRS Installation

Following the TRS installation and RRS system turnover, RRS Deployment Team members will depart the site and move to the next site on the installation schedule. Several key activities will begin at this time.

2.3.1 RRS Commissioning

OPS22 will provide commissioning procedures and oversee the commissioning process.

3.0 Other Information

3.1 Documentation.

System-level RRS documentation is the responsibility of the government. The NWSHQ RRS Program will develop and provide to the sites all required documentation for the operation and maintenance of the RRS. Vendor supplied documentation may be used to supplement or augment the government developed system-level documentation as required.

The specific system-level documentation to be provided to the RRS sites includes:

- NWSO Handbook 10: Developed by OS7. Provides all instructions and procedures for the operation and system management of the RRS.
- RRS Operations Training Guide: Developed by OS7. Provides distance learning material for RRS operations training.
- RRS Technical Manual: Developed by OPS12. Provides preventive and corrective maintenance requirements and procedures for the RRS.
- RRS Implementation Plan: Developed by OPS22. Provides information and guidance concerning the operational use of the RRS and its commissioning.

The RRS system-level documents will be provided to the NLSC for incorporation into the RRS installation kits for delivery to each site. The RRS Technical Manual will be officially released by OPS 12 through a Modification Note to WSOM 30-2109 (EHB-9). Additionally, WSOM 30-2101 (EHB-1) will be updated by OPS14 and WSOM 30-2104 (EHB-4) will be updated by OPS

13 to reflect the RRS equipment. Changes to these documents will be incorporated in the normal update process for these documents and will be provided separately from the RRS installation package.

3.2 Maintenance and Logistics.

RRS maintenance and logistics planning and implementation is a government responsibility. The RRS maintenance philosophy is on-site replacement of selected line replaceable units with equipment repair conducted or coordinated by the NRC. Each subsystem COTR will ensure that required system spares and repair parts are provided to NLSC to support deployment and follow-on field support. Replenishment of spares or repair parts will be through the normal NLSC requisition process. Site maintenance personnel will assume maintenance responsibility for RRS equipment following System Turnover.

3.3 Property and Inventory

All RRS equipment installed at a given site shall be fully documented by the Deployment team (RWS system components, various FMK components, etc.) and IMS (TRS items) with respect to inventory and identification (make, model, serial number, Commerce Department barcode, etc.) such that a Form CD-50 can be properly completed. The Deployment Manager will provide a complete inventory of equipment provided to each site. A property transfer package, consisting of an approved inventory and CD-50 will be provided to each site via the Deployment Manager. Per agreement with NOAA Property, a *single* DOC Property Inventory Tag will be placed on the TRS pedestal during TRS INCO that will also account for all other associated RRS subsystems, including the workstation. At each site, the designated site NWS Property Manager shall formally acknowledge receipt of the TRS and all other associated capitalized property, ensure that all DOC property tags are appropriately affixed to designated equipment, confirm the equipment inventory, and transfer the property from the OPS11 property custodian to the site property custodian through the DOC Sunflower system.

3.4 Installation Schedule

A final, complete RRS installation schedule is not provided herein. Proposed installation dates will be coordinated with the Regions and the installation contractor (IMS) approximately one year in advance to allow the sites to complete facility preparations and the required operations and maintenance training. The RRS Program Office will use a multi-phase/option contracting approach with IMS for TRS installation that provides flexibility to initiate deployment planning and installation activities for those sites where certainty exists. Proposed schedules will be coordinated with the sites in time to develop the next phase (i.e., next option) of sites as they become certain.

3.5 RRS Deployment Program Internet Website

The RRS Program Office Internet website contains general and site-specific information relating to the deployment of RRS systems and related items. The website is currently under development. Information on the website will be informational in nature, although it may reflect contractual information. The website is not in itself a contractual document. All affected and interested parties are encouraged to visit the site for deployment information. The site will include, but not be limited to, the following:

- Geographical depiction of all NWS Regions and sites
- Geographical depiction of specific NWS Regions, showing RRS sites
- General schedule information
- RRS photographs
- Pre-installation database of actions and completion dates. (This database will track all critical actions and completions prior to day-one of the RRS installation. Sites and Regions may use this site for activity planning).
- Maintenance training schedules
- On-site work breakdown and schedule for 2-week installation period
- Links to RRS-associated websites

3.6 Site Configuration Data

During the installation of the TRS, configuration data specific to each installation will be determined. This information includes the GPS survey data for the TRS and the release point, factory set TRS coefficients, TRS site specific coefficients, RWS station data, AWIPS configuration data, etc. A copy of this data, as well as a magnetic copy of all TRS baseline firmware products will be provided to the NWSFO ESA.

All site specific configuration data will be reported to the deployment manager, who will enter the data into the NWS EMRS database. This data will be accessible by site personnel during future RRS activities.