

***NATIONAL WEATHER SERVICE SOUTHERN REGION SUPPLEMENT 01-2004
APPLICABLE TO NWSI 10-2201
September 28, 2016***

***Operations and Services
Readiness, NWSPD 10-22
Backup Operations, NWSI 10-2201***

SOUTHERN REGION BACKUP OPERATIONS

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SUMMARY OF REVISIONS: This supplement supersedes Southern Region Supplement 01-2004 dated March 27, 2014.

The following changes were made to this issuance:

1. Emphasizes that offices are to fill out online form after EVERY backup.
2. Testing satellite phones are now required during a backup drill.
3. Verifying non-routine products are now required during a backup drill.
4. Backups for AWIPS builds and no-notice outages can be counted as a drill IF they meet all the backup drill requirements.
5. Backup requirements checklist was created.
6. CWSUs are to issue an MIS product in lieu of an ADA product for backup notifications.
7. Updated wording of “disabled” office to “requesting” offices.
8. Corrected Appendix I examples.
9. Changed SR ROC phone number.
10. Contact SR ROC for prolonged outages over 6 hours.

<signed>

September 14, 2016

Steven Cooper
Regional Director

Date

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1. Purpose

Service backup is a way to ensure the NWS maintains continuity of services and essential support for our partners and the public. This document provides instructions for the transfer of essential operational responsibilities from one Weather Forecast Office (WFO), Center Weather Service Unit (CWSU), or River Forecast Center (RFC) to another during backup situations.

Offices and their backups will:

- a. Put forth a robust effort to share tools/info that facilitate good backup service,
- b. Conduct meaningful training that maximizes backup readiness, and
- c. Actively accept backup responsibility from each other, unless compelling operational reasons exist that prevent the backup office from doing so.

Please visit the SR backup Google Site that lists all the documents mentioned in this Supplement: <https://sites.google.com/a/noaa.gov/nws-sr-osd/backup-operations>

Written instructions cannot cover every situation and personnel must use initiative and good judgment to ensure a continuation of essential services. If there are questions about backup, contact Southern Region (SR) Regional Operations Center (ROC) at 682-703-3747 and leave a call back number on the message.

2. Definitions

- a. Full Backup - All of the requesting WFO's critical products, services, and responsibilities (e.g., warnings, grids, data collection, etc.) will be backed up by a designated Backup Office (see Appendix A). A list of critical products is included in Appendix A of [NWSI 10-2201](#).
- b. Partial Backup - Some of the requesting WFO's products, services, and responsibilities (e.g., warnings, grids, data collection, etc.) need to be backed up by their Backup Office. For example, if only RiverPro is down, a Backup Office may only need to backup some hydrological products.
- c. Primary Backup Office - If an office is rendered inoperative or is requesting backup services, the Primary Backup Office will assume the inoperative office's designated duties, as defined in either Section 2a and 2b above (Full or Partial Backup).
- d. Secondary Backup Office - The Secondary Backup Office will typically assume the designated duties, as defined in either Section 2a or 2b above, when: (1) Both an office and its Primary Backup Office are rendered inoperative, (2) The Primary Backup Office is unable to assume backup responsibility due to circumstances beyond their control, or (3) It is not feasible for the Primary Backup Office to assume control due to current or anticipated workload.

- e. Tertiary Backup Office - The Tertiary Backup Office will typically assume the designated duties, as defined in either Section 2a or 2b above, when: (1) An office's Primary and Secondary Backup Offices are rendered inoperative, (2) Both the Primary and Secondary Offices are unable to assume backup responsibility due to circumstances beyond their control, or (3) It is not feasible for the Primary and Secondary Backup Offices to assume control due to current or anticipated workload.

Note that tertiary backup for WFO hydrologic operations is generally not supported. The AWIPS hydrologic applications were designed to only support primary and secondary backup. During exceptional events, WFOs can contact the Office of Central Processing (OCP) Hydrology Support group for assistance in setting up a limited tertiary backup capability that includes product issuance capabilities. This can be done by contacting the NCF, which can contact the OCP group, or by contacting the OCP group directly.

- f. Multiple Backup Responsibility - In some situations, the Primary, Secondary, and Tertiary Backup Offices may share partial backup responsibilities of the requesting office.

3. Service Backup Process

The Meteorologist-In-Charge (MIC), Hydrologist-In-Charge (HIC), or designee is authorized to invoke backup operations. The office should communicate their consideration of service backup with the supporting office as far in advance of the actual transfer of services as possible.

Staff at the requesting WFO remain the best authorities on local hydrometeorology information and as such know best the needs of their partners, customers, and the local public. To the extent possible, the staff at the requesting WFO should retain as much responsibility as possible during backup situations.

An office may invoke full or partial service backup and will coordinate the distribution of workload during significant weather events for a number of situations including:

- Planned outages due to hardware or software updates
- Unanticipated outages due to hardware or software failures
- Extended power outages or prolonged communications failures
- Violent acts of nature or other hazards to an office that might cause a threat to personnel if they did not seek shelter or evacuate the facility
- Distributing workload during significant weather events, allowing an office to focus on the most critical services through the use of partial service backup for other services as deemed appropriate;
- Service backup training and verification of service backup readiness.

3.1 Backup Procedures

- a. For Unplanned Outages
Follow the detailed instruction in Appendix C.
- b. Planned Outages
For planned outages such as an AWIPS upgrade, follow the same procedures in Appendix C (for WFOs), Appendix F (for RFCs), and Appendix G (for CWSUs), but coordinate with the backup office ahead of time (2-3 weeks or more if possible) so appropriate measures can be taken (e.g., providing for adequate staff and/or plans to deploy forecasters to a nearby office).
- c. Evacuations
Ensure the safety of local office personnel first. Then, notify SRH as soon as possible upon departure and upon return. Contact the SR ROC at 682-703-3747 immediately and leave a call back number on the message. If commercial telephone circuits and cellular phone services are out-of-service, the office staff must become resourceful to make contacts, including the use of the satellite phone, if available.
- d. Prolonged Outages
To evaluate the need for deployment of personnel or other options, for prolonged outages (normally 6-12 hours) a member of the office management will contact the SR ROC at 682-703-3747 to discuss with SRH personnel options and plans for support.

3.2 Unable to Invoke Backup

If a primary backup office is unable to back up their paired office, the requesting office should immediately contact the secondary backup office for assistance. If the secondary office is also unable to provide support, the requesting office should call the tertiary office. If no offices can provide support, immediately call the SR ROC for assistance. It is impossible to dictate instructions for every possible situation, and office staff must use initiative and good judgment. However, if the event involves a life-threatening situation, the requesting office should make this point clear to the backup offices. Partner offices should recognize the importance of the NWS warning mission, and do everything at their practical disposal to maintain high impact services in the requesting office's area of responsibility.

Optimally service backup within SR will be WFO-to-WFO for the provision of all services. However, there may be circumstances where it is impossible for one office to effectively provide the complete backup for another office. In such extenuating circumstances, an office requiring backup may need to have its operations divided between the primary, secondary, and/or tertiary offices.

Offices who have experienced a rejection of service backup by their backup offices will notify the SR ROC as soon as possible. The Hydrologic Services Branch (HSB) or

Meteorological Services Branch (MSB) Chief will, in turn, be informed of these events, and will review the reason the office could not assume backup.

3.3 After Backup is Complete

a. Fill Out Online Form After Backup

The Google form is the only method to track completion of a backup. When this form is filled out, SRH receives an email and then fills out the backup spreadsheet that tracks all backups for SR. The form must be filled out after every backup situation (drills, as well as planned/unplanned outages). During mutual backups, EACH office must complete the form. The findings of each backup and suggestions for improvement will be submitted by the office performing the backup via the Google Form located at https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDltSWVrdlE6MA#gid=0

b. SRH Will Track Backups

MSB will keep a record of the backups each office conducts every calendar year and assist the office in resolving any significant issues identified.

4. Backup Assignments for Offices

Appendix A details the backup office pairings for WFOs, RFCs, and CWSUs. The SR ROC will coordinate with the other regions when service backup of ROC Operations is required.

During extreme and/or catastrophic events, the pairings (especially tertiary pairings) may not be feasible due to the event at hand, and SRH will discuss (along with input from the affected WFOs and potential new pairings) plans to potentially alter their backup pairings.

If for any reason backup plans cannot be successfully implemented/invoked, such as all backup offices being down, notify the SR ROC at 682-703-3747 immediately and leave a call back number on the message.

5. Backup Preparations

For service backup to be implemented in an orderly and efficient manner, each office will supply its backup offices with the following items twice a year (at least by January and July or as changes occur):

- Verify Station Duty Manual (SDM) and/or office instructions on your local office Google Site are accurate, current and accessible to others offices.

- Copies of AWIPS configuration files or configuration files for other software or systems needed to create and issue products.
- Contact information for partners and other key customers.

SDM

Each WFO will post a copy of their SDM on their office [Google Site](#). In addition, each WFO will maintain a copy of their SDM on a CD or other electronic media, which will be kept at the office and also be provided to WFOs assigned backup responsibility. This will ensure availability of these resources in the event traditional access points are not available.

Graphical Forecast Editor (GFE)

Backing up WFO grids is a necessary and important function during service backup to provide continued service to our customers. All grids are required to be prepared and disseminated during service backup. This is accomplished by importing the configuration and digital data for the inoperative site from the national Central Backup Server.

For service backup to function properly, it is critical that all offices share any/all changes to their GFE maps/shapfiles with their backup offices at the time those changes are made. Do ***not*** wait to share your updated files with your backup office, otherwise valuable time may be lost in a backup situation to fix those files.

Impact-based Decision Support Services (IDSS)

IDSS have become an important means of conveying potential weather impacts to key decision-makers. The amount of resources employed toward IDSS as well as the tools utilized and support provided varies widely from office to office. Offices should, to the extent possible, attempt to mirror the IDSS by their backup offices and document deficiencies where lack of resources or capabilities precludes them from providing this support. Requesting offices should retain as much IDSS responsibility as possible as they best know the needs of their partners and customers best.

Social Media, NWSChat, and Graphicasts

Essential non-AWIPS communications such as social media, NWSChat, and graphicasts are an important part of the services NWS offices provides. Since philosophies/content differ substantially from office-to-office, coordination is very important in ensuring that products and services are, to the extent possible, seamless during backup operations. It's important for offices to exchange ideas on how (and under what conditions) these communication platforms will be maintained by the backup office.

The following link contains procedures, policies, and best practices on the use of social media, NWSChat, and graphicasts: <https://sites.google.com/a/noaa.gov/sr-social-media/home/miscellaneous/service-backup-for-social-media>

6. Drills

6.1 The Importance of Service Backup Drills

Service backup operations are complex and require the staff at the involved offices to be familiar with each other's programs and responsibilities. Management will ensure an adequate degree of awareness by requiring ALL forecast operations personnel to remain proficient in service backup operations. Staff members should review the backup office resources listed in Section 5 on a regular basis.

It is essential that all forecasters be fully trained to provide service backup. Management should have as many staff members as possible participate in each backup drill. This will ensure office personnel are better prepared, able, and confident to handle these situations and the office maintains the greatest capability to perform service backup successfully.

Most AWIPS builds are quick and do not test the ability of forecasters at backup offices, as well as the full suite of functions, to determine if a backup was actually successful. However, if your office is backing up another for their AWIPS build AND the services provided cover all the requirements in Section 6.3 below, then it can be counted as a backup drill. Further, if a no-notice outage meets or exceeds all the backup drill requirements, it also can count towards a drill.

6.2 Backup Drills Per Calendar Year

WFOs will conduct *at least one* service backup annually for each of their backup offices that meet the requirements in Section 6.3 below.

6.3 Backup Drill Requirements

The following requirements define the execution of a successful service backup and will be counted as a backup drill in the [SR backup spreadsheet](#). A formal checklist is located in Appendix B.

1. Conducted for *at least four hours*
2. Include the issuance of a complete set of forecast grids and subsequent public, aviation forecasts, any required WARNGEN products, and routine hydrologic or fire weather/marine products, which would normally be made during the forecast period
3. Verify non-routine product configuration (SVR, TOR, etc.) to the extent possible. For example, check WARNGEN templates wording
4. Test Iridium satellite phone by calling the SR ROC (see Section 6.6)
5. Fill out online backup notification form

https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDltSWVrdIE6MA#gid=0

6.4 Fill Out Online Form After Each Drill

The Google form is the only method to document completion of a backup drill and notify SRH of the occurrence. The form must be filled out after every backup (including from EACH office during a mutual backup). The findings of each drill and suggestions for improvement will be submitted by the office performing the backup via the Google Form located at https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDltSWVrdIE6MA#gid=0

6.5 SRH Will Track Drills

SRH Meteorological Services Branch (MSB) will keep a record of the backup drills each office conducts every calendar year and assist the office in resolving any significant issues identified during the drill.

6.6 Test Iridium Satellite Phones

a. Test Every 90 Days

If your office has an Iridium satellite phone, you are required to test it with the SR ROC once every 90 days.

b. Test Satellite Phone During Backup

Testing the satellite phone is a part of your backup drill (see Section 6.1).

The results of these tests (and any issues) will be recorded by SR ROC and shared with Meteorological Services Branch (MSB) and Systems Operations Division (SOD).

c. How to Test

To initiate a satellite phone test, simply call the SR ROC any day between 9am and 5pm (at 682-703-3747) using your satellite phone, identify your office, and note that you are conducting a test using your satellite phone. Conversely, you can call the SR ROC via landline to have them initiate a test call to your satellite phone.

Note: During a real backup service event (i.e., not a drill), you can call the ROC during the next business day to fulfill this requirement.

Guidance and instructions for the use of the Iridium satellite phone should be included in your local office reference materials. These should be printed out for quick access in case of an Internet outage.

7. Notification and Coordination Procedures

It is critical to notify the backup office, partners, SRH, and SR ROC when:

- a. backup procedures have been invoked; and
- b. when normal operations are restored.

In cases where an office must seek safer shelter or evacuate, employees will ensure their personal safety first, and then complete notification and coordination procedures.

An administrative message (SRHADASRH) is the primary means used by WFOs and RFCs of notifying outside partners, SR ROC, SRH, and the media. CWSUs will use an MIS product. The requirement to send an administrative message applies to planned outages and drills, as well as unplanned outages. The initial ADA will be sent by the office taking over backup operations or conducting backup for the requesting office. After the requesting office is restored, they will then send the ADA message saying they have taken back over responsibilities. See Appendices C, D, E, and F for further details.

The office may use other communication channels (e.g., AWIPS Collaboration Tool, NWSChat) to supplement the administrative message.

It is important to remember that regardless of the message source, the administrative message, and other sources viewable by the public, will not specify the reason for invoking service backup. The reason for service backup is kept internal to the NWS.

Local offices should develop mock SRHADASRH messages stored in AWIPS for quick dissemination of such products when called upon to backup an office.

Appendix A
National Weather Service Southern Region Service Backup
Assignments

Weather Forecast Offices:

| Requesting/Disabled Weather Forecast Office | Primary Backup | Secondary Backup | Tertiary Backup |
|---|---------------------------|---------------------------|-------------------------------|
| Albuquerque, NM | El Paso | Amarillo | Lubbock |
| Amarillo, TX | Lubbock | Albuquerque | Midland |
| Atlanta/Peachtree City, GA | Birmingham | Morristown | Jackson |
| Birmingham, AL | Atlanta/Peachtree City | Huntsville | Little Rock |
| Brownsville, TX | Lake Charles | San Antonio/Austin | New Orleans |
| Corpus Christi, TX | San Antonio/Austin | Houston/Galveston | Mobile |
| El Paso, TX | Albuquerque | Midland | San Angelo |
| Fort Worth/Dallas, TX | Shreveport | Norman | Tulsa |
| Huntsville, AL | Jackson | Birmingham | Morristown |
| Houston/Galveston, TX | Lake Charles | Corpus Christi | Tallahassee |
| Jackson, MS | Huntsville | Shreveport | Nashville, Atlanta/PT City |
| Jacksonville, FL | Tallahassee | Key West | Miami, San Juan |
| Key West, FL | Miami | Jacksonville | Melbourne |
| Lake Charles, LA | Houston/Galveston | New Orleans | Tampa |
| Little Rock, AR | Memphis | Tulsa | Birmingham |
| Lubbock, TX | Amarillo | San Angelo | Albuquerque |
| Melbourne, FL | Tampa | San Juan | Key West |
| Memphis, TN | Little Rock | Nashville | Shreveport |
| Miami, FL | Key West | Tampa | Jacksonville |
| Midland, TX | San Angelo | El Paso | Amarillo |
| Mobile, AL | New Orleans | Tallahassee | Corpus Christi |
| Morristown, TN | Nashville | Atlanta/Peachtree City | Huntsville |
| Nashville, TN | Morristown | Memphis | Jackson |
| New Orleans, LA | Mobile | Lake Charles | Brownsville |
| Norman, OK | Tulsa | Fort Worth/Dallas | San Antonio/Austin |
| San Angelo, TX | Midland | Lubbock | El Paso |
| San Antonio/Austin, TX | Corpus Christi | Brownsville | Norman |
| San Juan, PR | Miami | Melbourne | Key West |
| Shreveport, LA | Fort Worth/Dallas | Jackson | Memphis |
| Tallahassee, FL | Jacksonville | Mobile | Houston/Galveston |
| Tampa, FL | Melbourne | Miami | Lake Charles |

| | | | |
|-----------|--------|-------------|-------------------|
| Tulsa, OK | Norman | Little Rock | Fort Worth/Dallas |
|-----------|--------|-------------|-------------------|

Center Weather Service Units:

| Center Weather Service Unit | Primary Backup | Secondary Backup | Tertiary Backup |
|-----------------------------|-------------------|------------------|-----------------|
| Albuquerque, NM | Denver (Longmont) | | |
| Fort Worth, TX | Houston | | |
| Houston, TX | Fort Worth | | |
| Memphis, TN | Atlanta | | |
| Atlanta, GA | Memphis | | |
| Jacksonville, FL | Miami | | |
| Miami, FL | Jacksonville | | |

Appendix B
Backup Requirement Checklist

Backup drill requirements:

- _____ 1. Conducted for *at least four hours*.

- _____ 2. Include the issuance of a complete set of forecast grids and subsequent public and aviation text forecasts, any required WWA or WARNGEN products, and routine hydrologic or fire weather/marine products, which would normally be issued during the forecast period.

- _____ 3. Verify non-routine product configuration (SVR, TOR, etc.) to the extent possible.

- _____ 4. Test Iridium satellite phone by calling the SR ROC at 682-703-3747 (see Section 6.6). Note: If this is a real backup services event (i.e. not a drill), you can call the ROC during the next business day to fulfill this requirement.

- _____ 5. Fill out the online [backup notification form](#).

NOTE: All the above requirements must be met to be counted as a drill.

Appendix C

WFO Specific Backup Instructions for Unplanned Emergency Outage

A. Service Backup Initiation. When an office is rendered inoperative, the inoperative office's staff will do the following:

(1) Notify the Appropriate Backup Office of the situation

Contact the backup office using any means available if phone lines are down:

- a. Cell phone
- b. National Warning System (NAWAS)
- c. NWSChat (remember that media can be on NWSChat so be careful stating the reason for being down)
- d. HAM radios have been used to ask an amateur radio point-of-contact to call the backup office or SRH.

Offices should document all actions taken while invoking backup procedures.

(2) Prolonged Outages

To evaluate the need for deployment of personnel or other options, for prolonged outages (normally 6-12 hours) a member of the office management will contact the SR ROC at 682-703-3747 to discuss with SRH personnel options and plans for support.

B. Once operations are restored

Send SRHADASRH

Send the SRHADASRH to ALL notifying your office has resumed normal operations.

See Appendix I: Administrative Message Examples.

Appendix D

WFO Specific Backup Instructions for Supporting a Requesting Office

A. Service Backup Initiation. When an office is backing up an inoperative office, the backup office's staff will do the following:

The backup office will assume the operations of the requesting office and will also notify surrounding offices and contact the SR ROC. Specifically:

(1) **Send SRHADASRH**

The backup office will send an Administrative Alert message (SRHADASRH) addressed to ALL [in the AWIPS header block text window] notifying other offices, SRH, and the SR ROC that the backup process has been initiated. This step is to ensure offices are aware of the backup situation.

In the forwarding "TO" line of the ADA, include the three-letter ID of the surrounding offices. Do not specify the reason for the backup in the ADA (**the reason is for NWS employees only, and the ADA is a public product**). All offices need to ensure SRHADASRH is locally configured to *alarm audibly* on the Advanced Weather Interactive Processing System (AWIPS) Text Workstation.

See Appendix I: Administrative Message Examples.

(2) **Monitor Weather and Emulate the Inoperative Office**

Monitor the weather across the County Warning Area (CWA) of the requesting office, issue warnings and other hazardous communications, grids, and other routine products as needed until the office has resumed functions.

If the requesting office utilizes social media and graphiccasts routinely in their operations, the backup office should try to emulate that capability to the extent possible. Further, all efforts should be made to emulate the requesting office on NWSChat. As a reminder, here is the link to the Google site that contains procedures and best practices for social media:

<https://sites.google.com/a/noaa.gov/sr-social-media/home/miscellaneous/service-backup-for-social-media>

There are some WFO products and services that do not have a robust backup mechanism in place. These products and services include, but are not limited to, web page, climate services, social media, AHPS, and NWR. During backup operations, the backup office should work with the requesting office and SRH to find the best solution to cover every program area of the requesting office.

As specified in Directive 10-1701, Section 4.2.3, all products issued by a backup office will contain the product identifiers and mass media headers of the office being backed up. For example, if WFO Midland experiences an outage requiring backup, WFO San Angelo will issue the Midland zone forecast using the appropriate Midland product identifier, along with an ISSUED BY NATIONAL WEATHER SERVICE SAN ANGELO TX line. This will ensure proper dissemination. The mass media header format should follow the examples shown in NWSI 10-1701.

B. Once operations are restored

(1) **Fill Out Online Form**

The office that accepted the responsibility to perform the backup will fill out the online form, which notifies SRH so the backup can be counted in the backup drill spreadsheet. Further, the form documents lessons learned and any issues discovered.

The link to the form is:

https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDltSWVrdlE6MA#gid=0

(2) **Ensure ADA Was Sent By Other Office**

Check that an ADA message was sent by the office no longer needing to be backed up, that their operations were restored.

Appendix E
WFO Specific Backup Instructions for Planned Outages (drills)

A. Service Backup Initiation. When an office is backing up another office, the staff conducting the backup will do the following:

- (1) **Send SRHADASRH**
Send the SRHADASRH to ALL notifying that the backup process has been initiated.
- (2) Be conducted for *at least four hours* backing up other office.
- (3) Include the issuance of a complete set of forecast grids and subsequent public, aviation forecasts, any required WARNGEN products, and routine hydrologic or fire weather/marine products, which would normally be made during the forecast period.
- (4) Test the Iridium satellite phone by calling the SR ROC (see Section 6.6).

B. Once the backup drill is complete

- (1) **Send SRHADASRH**
Just as for unplanned outages, the office no longer being backed up will send the SRHADASRH to ALL notifying your office has resumed control.

See Appendix I: Administrative Message Examples.

- (2) **Fill Out Online Form**
The office that provided the backup will fill out the online Google form which notifies SRH of the backup so it can be counted in the backup drill spreadsheet. Further, the form documents lessons learned and any issues discovered. If it was a mutual swap, BOTH offices must submit the form.

The link to the form is:

https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDItdSWVrdIE6MA#gid=0

Appendix F**RFC Specific Backup Instructions for Both WFOs and RFCs**

- a. If an RFC goes into backup, the requesting RFC will call their backup office to notify them. The backup RFC will send an SRHADASRH product which will notify other offices, SRH, and the SR ROC that the backup process has been initiated. When returning to normal operations, the previously requesting RFC will inform the backup office of the return to normal operations and also send out an SRHADASRH to notify surrounding offices.
- b. The requesting RFC will notify affected WFOs immediately that they have hydrologic responsibilities until the RFC can commence backup services on their backup system. RFCs should use the RFC backup system during AWIPS system or communication outages.
- c. Until the RFC has established their backup, the WFO staff should be prepared to take over hydrologic responsibilities. During this time, the WFOs will monitor, and adjust existing river forecasts as necessary until the RFC is able to again assume that responsibility. The WFOs will keep the hydrologic forecasts and warnings as accurate as possible. The WFO staff should access any resources practical in this effort, including phone coordination with the servicing RFC.
- d. RFCs will ensure that staff is trained in the use of the RFC backup system, including procedures to serve as the “backup dissemination office” to another office.
- e. RFCs will determine the best location (off-site if do-able) to store their portable RFC backup system.
- f. RFCs will periodically upload observed and model data to a SRH server system, as necessary, to initialize the backup forecast system in a reasonable time period. It is recommended that uploads take place at least once per day.
- g. RFCs will use the RFC backup system to generate and disseminate a core suite of hydrologic products to support WFO hydrologic operations. See Appendix A in NWSI 10-2201 for a list of critical products.
- h. RFCs will ensure that the RFC backup system is configured with the latest software (e.g., Community Hydrologic Prediction System (CHPS) to support hydrometeorological operations at the RFC. If required, ABRFC will provide technical support for the RFCs.
- i. RFCs will conduct a test of the mobile RFC backup system at least twice a year. This will allow staff members to gain experience and confidence with the RFC

Appendix F Continued

RFC Specific Backup Instructions for Both WFOs and RFCs

backup system. The results of backup drills and suggestions for improvement will be submitted via the Google Form located at

https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDltSWVrdlE6MA#gid=0.

The information will be passed on to the HSB and MSB Chiefs. SRH will keep a record of the backup drills each office conducts and assist the office in resolving any significant issues identified.

- j. SRH, in coordination with the Hydrologic Services Branch and the RFCs, will provide information technology support for RFC backup operations.
- k. Primary Backup RFC offices are responsible for running the LDAD dissemination software for the RFC in backup mode. The assignment of RFC backup dissemination offices will be another RFC, SRH, or WFO.

Appendix G

CWSU Specific Service Backup Instructions

CWSU backup office pairings are documented in Appendix B of [NWSI 10-803](#) and also located in Appendix A of this Supplement.

CWSU backup requirements are documented in Chapter 9 of [NWSI 10-803](#).

CWSUs will issue a Meteorological Impact Statement (MIS) product in lieu of an ADA product for backup notification. This MIS product will notify other offices, SRH, and the SR ROC that you are being backed up.

Backup Preparation:

- CWSUs must have access to their backup site's Station Duty Manual and/or Weather Information Play Book (<http://ocwws.weather.gov/cwsu/index.shtml>). The SDM will be located on your office Google Site.
- CWSUs should ensure they are set up to receive the MIS product.
- CWSUs should be able to provide scheduled and on-demand briefings, Center Weather Advisories (CWAs), and Meteorological Impact Statements.

Going into Backup: If a CWSU goes into backup, the requesting CWSU will call their backup office to notify them. The backup CWSU will send an MIS product to ALL and state which CWSU has backup responsibility.

NOTE: Do NOT state the reason for the backup (specifically, never mention staffing as the reason).

When returning to normal operations, the previously requesting CWSU will inform the backup office of the return to normal operations and also send out a MIS product to notify surrounding offices. See Sections 9.2 and 9.3 in [NWSI 10-803](#) for more information.

Backup Drills: CWSUs will conduct two backup drills a year. The results of backup drills and suggestions for improvement will be submitted via the Google Form located at https://docs.google.com/a/noaa.gov/spreadsheet/viewform?usp=drive_web&formkey=dGp5NEc4TUh2MmxIand5ZDItdlE6MA#gid=0.

The information will be passed on to the MSB Chief and the Aviation Program Manager. MSB will keep a record of the backup drills each office conducts and assist the office in resolving any significant issues identified.

Appendix H WFO Specific Instructions

The goal of Service Backup is to ensure the continuation of essential products and services and to ensure the offices are familiar with the programs, products, and customers of their backup partner. Familiarity with each other's programs and responsibilities ensures an effective backup process. The following is a list of mandatory and strongly considered activities for backup offices:

Administration (mandatory):

- 1) Exchange SDMs or office instructions.
- 2) Keep current examples of the various products your backup office issues.
- 3) Make sure the Administrative Alert Messages from all affected ISC sites are alarmed on AWIPS.
- 4) Ensure all minor format differences between your products and your backup office's products are completely understood.
- 5) Provide your backup office with a list of emergency managers, storm spotters, and media in your CWA along with necessary phone numbers and email addresses.
- 6) If you have any special NWSChat rooms, share that information with your backup office. Remember that you will need to give backup office personnel permission to enter these rooms (the admins can add all NWS personnel from a specific office through the room management web page). Most office's "EM" rooms are only accessible to that office's staff, not their backup office's staff, as an example.
- 7) Share web-based capabilities, like intranet webpages or severe weather email links.
- 8) Share E-19s that provide flood damage information, historical crests, and other hydrological information.
- 9) Share listings of automated gages, sensors, and Automated Surface Observing System (ASOS) units with associated phone numbers, etc.
- 10) Share listings of meteorological, hydrological, and RFC products on AWIPS.
- 11) Share social media practices and recommendations for social media interaction during backup services.

Training (mandatory):

- 12) Conduct seminars and training sessions with your backup office.
- 13) Share local climatology, hydrologic, and meteorological nuances that your office has discovered through experience and any rules-of-thumb or local forecasting techniques.
- 14) Play a vital role in staff training. An example of this may be having a new MIC being assisted by the backup office MIC.
- 15) Share lessons learned from severe weather or unusual weather events/forecasts with your backup office.

Resources (mandatory):

- 16) Make sure the office emergency phone/satellite phone is charged and everyone knows where it is located, know how to use it, and that the number is accessible. Ensure necessary phone numbers are preprogrammed into the phone.
- 17) Test at least once a year transferring your phone lines (VOIP – Voice Over Internet Protocol) to your backup offices.

Appendix H Continued
WFO Specific Instructions

IT (mandatory):

- 18) Make sure AWIPS is configured to support the duties of your backup office.
- 19) Share any local applications necessary for operations with your backup offices to ensure consistency of local applications.
- 20) BEFORE your backup drills, ensure the Graphical Forecast Editor (GFE) service backup works a week or so prior to the backup date. Many times, changes have been made at the backup office but have not been uploaded to the central server. Doing those checks a week or so prior to the scheduled backup, in addition to the training/drills, can really make the backup process easier.
- 21) Severe weather backup operations/WARNING templates must be shared with backup offices when updated.
- 22) Make sure to have all the **most-up-to-date** maps and backgrounds for any computer programs, such as WARNING shapefiles, localization for Thin Client, etc.
- 23) Utilize the AWIPS Collaboration Tool and NWSChat during backup events.

Training (strongly recommended):

- 24) The backup office should do a case study within the primary offices domain and coordinate the results with the SOO/WCM/designee of the primary office.
- 25) Develop a forecaster exchange program. Forecasters can be exchanged for a day or two to fully experience the programs of their backup office.

Outreach (strongly recommended):

- 26) Notify emergency managers and other core partners of the backup plan.
- 27) Introduce your backup office to your emergency managers.
- 28) Promote staff participation in backup office visitations.
- 29) Have mutual customer service workshops or customer advisory committee meetings.
- 30) Coordinate active customer service outreach programs.
- 31) Coordinate any focal point activity with your backup office (e.g., severe weather, hurricane, hydrology, AWIPS, marine, aviation, radar, weather radio, climatology, etc.).
- 32) Ensure Amateur Radio operators can help others in other CWAs.

ASOS and Upper Air:

A WFO providing service backup will provide ASOS observation monitoring and quality control as described in NWSI 10-1305.

ASOS and the Upper Air systems automatically connect and/or can be dialed manually to transmit the observations per a network configuration plan including redundant dial backup. This network configuration plan is not a part of this Supplement. If the primary and backup automated communication systems fail and/or manual observations are generated, the responsible WFO will contact AOMC if there are missing observations.

Appendix H Continued WFO Specific Instructions

Broadcast Message Handler (BHM) Preparation:

When an office must evacuate, the automated BHM program will be able to continue broadcasting as normal as long as products come into AWIPS from the service backup office and are automatically transmitted to BHM. For those products that are not fully automated, an office should add a short message to the broadcast cycle stating that only limited updates will be available until further notice. **Ensure that no public announcement is made that the office has been evacuated.**

Social Media:

Social media is an integral part of operations. Since philosophies/content differ substantially from office-to-office, coordination is very important in backing up these activities to try to emulate that capability to the extent possible during backup. It's important for offices to exchange ideas on how (and under what conditions) these communication platforms will be maintained by the backup office.

A Google Site has been established to house updated procedures and best-practices:

<https://sites.google.com/a/noaa.gov/sr-social-media/home/miscellaneous/service-backup-for-social-media>

GFE:

Backing up WFO grids is a necessary and important function during service backup to provide continued service to our customers. All grids are required to be prepared and disseminated during service backup. This is accomplished by importing the configuration and digital data for the inoperative site from the national Central Backup Server.

For service backup to function properly, it is critical that all offices share any/all changes to their GFE maps/shapfiles with their backup offices at the time those changes are made. Do not wait to share your updated files with your backup office, otherwise valuable time may be lost in a backup situation to fix those files.

WHFS and other Hydrologic Procedures:

The WFO Hydrologic Forecast System (WHFS) support group at NWS HQ will provide system support for the transfer of critical information from the initiating site to all backup offices. Critical information includes RiverPro Templates, Product Content Control (PCC) files, and key information in the WHFS database. This file transfer should be performed whenever significant changes are made to critical hydrology information. For coastal and first tier inland offices, this process needs to be performed prior to the start of hurricane season. This process will be initiated by the office opening a trouble ticket with NCF requesting the file transfer to support service backup.

Appendix H Continued WFO Specific Instructions

Other important hydrologic information that needs to be shared by the local office with the backup offices:

- Relevant parts of the Hydrologic Services Manual (HSM) (including detailed maps, examples of products issued by your office, explanation of special cases or conditions at river points in your HSA, etc.).
- Current E-19s.
- Templates or pre-formats for hydrologic products, along with instructions.
- Current rating curves.
- List of hydrologic customers, including their phone numbers and what products they use.
- WHFS and HYDROMET at the backup sites needs to have access to all hydrometeorological data needed to perform hydrologic backup operations, as well as the forecasts generated by the RFC.

The backup office will ensure that AHPS web page service backup is invoked/terminated, as required. Instructions for invoking/terminating AHPS web page service backup support are available at this link:

<https://drive.google.com/a/noaa.gov/file/d/0B2lyCy0W8LW7Mm1KVEZEN2pPRkE/view?usp=sharing>

Radar Data Dissemination Backup:

It is now possible to reliably provide service backup for an inoperative office's radar products. The assumptions are that the inoperative office is still on the AWIPS WAN and that the WSR-88D is still functional. If a site has a scheduled, or non-scheduled, outage expected to last for several hours or more, a site's radar backup can act as the transmission site for the downed office's radar data.

More detailed information regarding the setup of radar backup can be found in your site's Radar File Help Sheet maintained by the Radar Operations Center. Each office's Radar Focal Point and ESA should have access to this documentation. Appendix J indicates the radar backup sites for the Southern Region and Appendix K provides WSR-88D data backup options.

Before entering into or terminating radar backup, site(s) should contact the NCF for support.

Appendix I
Administrative Message Examples

Backup Implementation Example.

Issued by the office conducting the backup. Do not state the reason for the backup.

NOUS74 KEHU 152104
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION HEADQUARTERS
404 PM EST SAT MAR 15 2013

TO: ALL SOUTHERN REGION OFFICES

FROM: NWS WFO JACKSONVILLE

SUBJECT: SERVICE BACKUP

NWS WFO JACKSONVILLE IS BACKING UP WFO TALLAHASSEE. WILL ADVISE
WHEN WE HAVE RETURNED TO NORMAL OPERATIONS.

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Resumption of Service Example.

The offices who resumes operations will send the ADA message.

NOUS74 KEHU 152153
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION HEADQUARTERS
453 PM EST SAT MAR 15 2013

TO: ALL SOUTHERN REGION OFFICES

FROM: NWS WFO TALLAHASSEE

SUBJECT: SERVICE BACKUP

NWS WFO TALLAHASSEE HAS RESUMED NORMAL OPERATIONS.

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Appendix J
NWS Southern Region Radar Backup Assignments

| WFO System | Provides Primary “radar” backup for... | and Secondary “radar” backup for ... |
|-------------------|---|---|
| ABQ | KEPZ & KHDX | KAMA |
| AMA | KLBB | KABX & KFDX |
| BMX | KFFC & KJGX | KHTX |
| BRO | | KEWX & KDFX |
| CRP | KEWX & KDFX | KHGX |
| EPZ | KABX & KFDX | KMAF |
| EWX | KCRP | KBRO |
| FFC | KBMX & KMXX | KMRX |
| FWD | KSHV | KTLX, KFDR & KVNK |
| HUN | KDGX & KGWX | KBMX & KMXX |
| HGX | KLCH & KPOE | KCRP |
| JAN | KHTX | KSHV |
| JAX | KTLH & KEOX | KBYX |
| KEY | KAMX | KJAX & KVAX |
| LCH | KBRO & KHGX | KLIX |
| LIX | KMOB & KEVX | KLCH & KPOE |
| LUB | KAMA | KSJT & KDYX |
| LZK | KNQA | KINX & KSRX |
| MAF | KSJT & KDYX | KEPZ & KHDX |
| MEG | KLZK | KOHX |
| MFL | KBYX & TJUA | KTBW |
| MLB | KTBW | TJUA |
| MOB | KLIX | KTLH & KEOX |
| MRX | KOHX | KFFC & KJGX |
| OHX | KMRX | KNQA |
| OUN | KINX & KSRX | KFWS & KGRK |
| SJT | KMAF | KLBB |
| SJU | | KMLB |
| SHV | KFWS & KGRK | KDGX & KGWX |
| TAE | KJAX & KVAX | KMOB & KEVX |
| TBW | KMLB | KAMX |
| TSA | KTLX, KFDR & KVNK | KLZK |

Appendix K
WSR-88D Data Backup Options

| Type of Backup | OTR | RMR | WAN Based ORPG Backup Scenario A | WAN Based ORPG Backup Scenario B | VSAT (Total Outage) |
|-----------------------------|--|---|---|---|--|
| When to use | To supplement data received via the SBN on a one-product, one-time basis (i.e., Reflectivity Cross-Section). | To supplement data received via the SBN in larger quantities over a set period of time. | To replace data received via the SBN with data retrieved via RPS List. | If the primary AWIPS that normally transmits the WSR-88D data to the radar central server, SBN, etc., is down (i.e., during hardware or software installs), this capability enables an adjacent WFO AWIPS to restore WSR-88D data transmission to the radar central server, SBN, etc. | Long term outages greater than 48 hours. Can be configured at the WFO or the RDA depending upon outage conditions and location of RDA. |
| Limitations | While this can add additional products to what is already received via the SBN, it requires the user to issue repeatedly if more than one product is required or a product is required more than one time. | Manipulating RMR Lists is time-consuming and tedious and not easy to do on-the-fly. | Initiating a WAN Dedicated connection will terminate the SBN feed, which means that RPS Lists must be generated for each VCP mode and must include all products required for operations. Accessibility and bandwidth restrictions also apply during this form of backup limiting the size and number of products that may traverse this line. | Same as ORPG Backup Scenario A. In addition, this Scenario will utilize the national baseline RPS lists, so you will be limited to just the products on that list plus a smaller subset of the products on your local lists; the maximum number of products is 65. | Takes time to deploy from the ROC in Norman and takes time to set up and configure. |
| Support level needed | User | User | FXA or NCF | FXA or NCF | Regional HQ and ROC |

ORPG – Open Radar Product Generator
 RMR – Radar Multiple Request
 ROC – Radar Operations Center
 VSAT – Very Small Aperture Terminal (Satellite)
 RPS – Routine Product Set
 RDA – Radar Data Acquisition unit

OTR – One Time Request
 NCF – Network Control Facility
 WAN – Wide Area Network
 SBN – Satellite Broadcast Network
 VCP – Volume Coverage Pattern