

***NATIONAL WEATHER SERVICE SOUTHERN REGION SUPPLEMENT 01-2004
APPLICABLE TO NWSI 10-2201
JULY 12, 2023***

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

SOUTHERN REGION BACKUP OPERATIONS

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>

OPR: W/SR11 (T. Oram)
Type of Issuance: Emergency

Certified by: W/SR1 (J. Cupo)

SUMMARY OF REVISIONS:

This supplement supersedes Southern Region Supplement 01-2004 dated December 3, 2020.

The following changes were made to this issuance:

1. Updated which office issues an ADA after a backup ends.
2. Added a new section about long-term backup.
3. Updated NWSChat room to Google Chat rooms.
4. Moved ADA details to a new section.
5. Added HydroGen Manager testing to backup requirements.
6. Removed mention of calling NCF for tertiary hydro support.
7. Added reminders when invoking backup.
8. Rearranged sections for better flow.
9. Included new information about models in tertiary backup.
10. Moved RFC and CWSU Appendices into Sections.

COYNE.JOHN.MICH Digitally signed by
AEL.1365870485 COYNE.JOHN.MICHAEL.1365870485
Date: 2023.07.12 14:31:02 -05'00'

Signature

Southern Region Backup Operations

Table of Contents	Page
1 Purpose.....	4
2 SR Backup Services Program	4
2.1 Backup Assignments	4
2.2 SR Backup Program.....	5
3 Definitions.....	5
4 Service Backup Process	6
4.1 Planned Service Backup and Mutual Aid	6
4.2 Office Evacuations	7
4.3 Prolonged Outages	7
4.4 Unable to Invoke Backup.....	8
4.5 Aviation Backup.....	8
4.6 Model Usage in Tertiary Backup	9
4.7 Backup Google Sites	9
5 Operations for WFOs for Planned or Unplanned Backups.....	9
5.1 Notifications and Actions for Inoperative WFO	9
5.2 Consider Transferring Phone Lines.....	10
5.3 Actions for Backup Office	10
5.3.1 Contact NCF.....	10
5.3.2 Send SRHADASRH.....	10
5.3.3 Monitor Weather and Assume Operational Responsibility	10
5.4 Once Operations are Restored.....	11
5.4.1 Send SRHADASRH.....	11
5.4.2 Notify NCF.....	11
5.4.3 Fill Out Online SRH Notification Form	11
6 Notification and Coordination Procedures.....	11
6.1 Contact Network Control Facility (NCF) for Monitoring when in Backup.....	12
6.2 Dedicated Backup Google Chat Rooms.....	12
6.3 Administrative Alert Message (SRHADASRH).....	12
6.4 ADA Format.....	13
7 RFC Specific Backup Instructions for Both WFOs and RFCs	13
8 CWSU Specific Service Backup Instructions	14
9 SR Service Backup Annual Requirements.....	15

9.1	Backups Per Calendar Year.....	15
9.2	Backup Requirements.....	15
9.3	SRH Tracks Backups	16
10	Test Satellite Phone during Drill/Backup (WFO and RFC only).....	16
10.1	Test Every 90 Days	16
10.2	How to Test.....	16
11	Backup Preparations.....	17
11.1	Station Duty Manual (SDM) Requirements.....	17
11.2	Impact-based Decision Support Services (IDSS).....	17
11.3	AWIPS	18
11.3.1	Graphical Forecast Editor (GFE) (WFO only).....	18
11.3.2	Maps and Shapefiles.....	18
11.3.3	AFOS2AWIPS Localization (a2a file).....	19
11.3.4	WARNGEN Templates	19
11.3.5	ADA Alerts.....	19
11.3.6	Site Level AWIPS2 Localization Repository	20
11.4	Text Products	20
11.5	Hydrology	20
11.6	Training Suggestions.....	21
11.7	Social Media, NWSSchat, and Graphicasts.....	21
11.7.1	Social Media.....	21
11.7.2	Graphicasts	21
11.8	ASOS and Upper Air.....	22
11.9	Phones	22
11.10	Broadcast Message Handler (BMH) Preparation	22
11.11	Radar Data Dissemination Backup.....	22

Appendices

A.	National Weather Service Southern Region Service Backup Assignments	A-1
B.	Backup Requirement Checklist	B-1
C.	Administrative Message (ADA) Examples	C-1

1 Purpose

Successful service backup ensures the NWS maintains continuity of operations and facilitates the performance of our mission essential functions for our partners and the public. The goal of service backup is to ensure the continuation of essential products and services and to ensure offices are familiar with the programs, products, responsibilities, and customers of their backup offices for an effective backup process. This document provides instructions for the transfer of essential operational responsibilities from Weather Forecast Office (WFO) and Center Weather Service Unit (CWSU) to other offices and the continuation of essential services for River Forecast Center (RFC) during backup situations.

Offices and their backups will:

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

The [SR Backup Google Site](#) is a valuable resource containing all the documents mentioned in this Supplement, as well as additional links and information.

2 SR Backup Services Program

Service backup operations are complex and require the staff 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. Scheduling of planned backup operations during times other than the traditional weekday day shifts may be required to provide training opportunities to all staff members. Staff members should review the backup office resources listed in Section 9 on a regular basis.

It is essential that all forecasters be fully trained to provide service backup. Management should ensure all staff members have an opportunity to complete backup drills over the course of a year. 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.

Written instructions cannot cover every situation and personnel must use initiative and good judgment to ensure the continuity of operations.

2.1 Backup Assignments

Appendix A details the backup office pairings for WFOs 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 may not be feasible due to the event at hand. There have been unusual cases where quaternary backups were planned on-the-fly, set up, and temporarily put in place. When backup pairings go beyond tertiary, the Meteorological Services Branch (MSB) works with NWSHQ, the National AWIPS Program Office, the WHFS, and the affected local offices to configure AWIPS for these types of backup situations. An example would be a far inland office under expected fair weather conditions backing up a coastal site impacted by a hurricane. Preparation, flexibility, and agility are keys to a successful backup program.

2.2 SR Backup Program

The SR backup program is led by the Public and Dissemination Program Manager at SRH in MSB (referred to in this document as the Backup Program Manager). The backup to the Backup Program Manager is the MSB Chief.

The backup program also has a “Backup Think Tank,” which consists of voluntary members from SR Forecast Offices, the SR AWIPS Program Manager, and the SR Backup Program Manager. The members are listed on the [SR Backup Google Site](#), and they also maintain the Google Site.

The Backup Think Tank tracks all issues that offices report, helps resolve issues, keeps track of action items, prepares instructions, and elevates significant technical backup issues when necessary.

3 Definitions

- a. Full Backup - All of the requesting office’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/Mutual Aid/Workload Sharing - Some of the requesting office’s products, services, and responsibilities (e.g., warnings, grids, data collection, etc.) need to be backed up by their backup office. For example, one office might backup mesoscale/warning operations while another backs up hydro responsibilities. Mutual aid (workload sharing) during significant weather events allows an office to focus on the most critical services through the use of partial service backup for other services as deemed appropriate.
- c. Multiple Backup Responsibility - In many situations, it would be beneficial for the Primary, Secondary, and Tertiary Backup Offices to share partial backup responsibilities of the requesting office.
- d. Primary Backup Office - If an office is rendered inoperative or is requesting backup services, then 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).

e. 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.

f. 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 or Secondary Backup Offices to assume control due to current or anticipated workload.

4 Service Backup Process

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

Staff at the requesting office remain the primary authorities on local hydrometeorology information and as such know best the needs of their partners, customers, and the local public. To the best possible extent, the staff at the requesting office 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

NOTE: It is helpful to determine why some systems may not be functional. See this Google Document [link](#) for a flowchart that can help.

4.1 Planned Service Backup and Mutual Aid

The office requesting backup should coordinate with the backup office (or offices) ahead of time (2-3 weeks or more if possible) so appropriate measures can be taken (e.g., providing for adequate staff and/or to update files on Backup Google Sites) for planned outages such as an AWIPS upgrade, drills, operational training exercises, staff meetings,

or mutual aid between offices for significant events. Offices will follow the procedures in Section 4 for WFOs, Section 7 for RFC related backups, and Section 8 for CWSUs.

4.2 Office Evacuations

All staff will ensure the safety of local office personnel *first* and then account for all personnel for emergency evacuation of an office. If commercial telephone circuits and cellular phone services are out of service, be resourceful to make contacts, including the use of the satellite phone, if available.

Then, the staff should immediately contact your Primary Backup Office for backup help. It's also important to notify SRH as soon as possible upon departure. If you are not able to call SRH, have your backup office contact them (SR ROC at 682-703-3747) for you. If you need the SR ROCs help contacting any backup office, call them first and let them know so they can assist. Down sites need to report their personnel (location, health, and contact information) status to the ROC for Situational Awareness.

4.3 Prolonged Outages

Important actions at both the backup and backed up site for long term situations (usually starting at about 8-12 hours of backup, i.e., full set of grid production).

The office IT staff and AWIPS admin users (ITO/ESA) need to be notified to ensure that the following items are addressed.

- Turn on HydroGen Manager:
 - To ensure the backup office's AHPS web pages are updated, turn on the Backup Mode in HydroGen Manager for the downed office if you are backing up an office that is completely down.
 - **When an office returns to service**, the HydroGen process for that office at the backup must be terminated.
- Actions to be taken to ensure grids get out - these should all be done at the start of an expected extended service backup:
 - Call the NCF to routinely move backed-up office grids to Central Server NDFD.
 - The site being backed up must ensure their GFE svcbu.properties file has EXPORT_GRID=0.
 - Note: This is specific to cases where the office being backed up still has their AWIPS network connection.
 - If the office needs assistance with this, they can contact the NCF.
 - **When an office returns to service:** There can be a backlog of products in the AWIPS queues which will not allow offices to send your products or receive other products such as radar data and model data. NCF monitors these queues for this situation and should contact the office. However, if you experience these issues upon a return to service, contact NCF and ask them to evaluate your product queues to see if they need to be cleared out.

Once the queue is cleaned out by the NCF, AWIPS operations are restored reasonably quickly.

To evaluate the need for the deployment of personnel or other options for prolonged outages (normally starting at 8-12 hours or more), management should email the SR Deployment Team at sr.deployments@noaa.gov. This email list reaches all relevant personnel (email and text) within OSD and the SR ROC to ensure awareness and a timely response to the request.

4.4 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 and then the tertiary office, if necessary.

If a downed office cannot be backed up by any of their pairings listed in Appendix A, the office should contact the SR ROC, who then will contact the SRH ICS Planning Section Chief.

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.

As a reminder about multiple backup responsibilities, there may be circumstances where it is impossible for one office to effectively provide complete backup for another office. In such circumstances, an office requiring backup may need to have its operations divided between the primary, secondary, and/or tertiary offices. This is a very effective common practice.

Offices who have experienced a rejection of service backup by one of their backup offices without a valid reason will notify the SR ROC as soon as possible. The Hydrologic Services Branch (HSB) Chief or Meteorological Services Branch (MSB) Chief will, in turn, be informed of these events and will review the situation and collaborate on a solution.

4.5 Aviation Backup

During backup, offices that take over only aviation backup operations for a short period can issue TAFs via the traditional method of AvnFPS. If a backup office has sole aviation responsibility for over about 6 hours, then they may download the grids from the central server and use (and/or update) the Digital Aviation Services (DAS) grids to issue the TAFs. If an office has split backup services, usually one office will have responsibility for updating all the grids (including the DAS grids), and therefore the other

split backup office who is issuing the TAFs only, may download those grids and use them to issue the TAFs for the downed office.

4.6 Model Usage in Tertiary Backup

In tertiary backup, the focus will be on warning operations and IDSS. It is not expected that forecasters will be doing heavy grid editing. This is particularly true during the early stages of a backup event. In these instances, staffing may be limited and the backup should be focused on mission critical warnings and event messaging of the weather.

Due to the larger forecast domains needed to encompass the new tertiary pairings as well as prioritizing critical operations, tertiary backup services will only use a very small subset of grids in tertiary backup. This is to minimize any system impacts and allow for a focus on higher priorities during tertiary backup. In tertiary backup, along with IDSS, offices will focus on the Critical Products listed in Appendix A of [NWSI 10-2201](#).

Therefore, in tertiary backup:

- (1) Use grids from the National Blended Models (NBM),
- (2) Use grids from the Weather Prediction Center (WPC) Quantitative Precipitation Forecast (QPF),
- (3) Use tropical grids required to populate and issue forecasts in tertiary backup.

The NBM and WPC QPF are already used by most WFOs to initialize the forecast (population procedure, ForecastBuilder, etc.) and the frequent updates from the NBM makes the data set ideal for operations in backup. Additionally, the NBM already incorporates the various forecast models that forecasters use routinely in their daily forecast process.

4.7 Backup Google Sites

Offices are required to maintain a Backup Google Site which is a critical reference for their backup offices. The SR Backup Google Sites are standardized with links to duties, station duty manual, list of operational requirements, etc. The information on the local Google Site needs to be reviewed and updated regularly.

5 Operations for WFOs for Planned or Unplanned Backups

5.1 Notifications and Actions for Inoperative WFO

When an office becomes inoperative, we will follow the procedures below for a smooth backup process. Details about each are described below in subsections.

1. If an office loses network/comms, contact the following entities as soon as possible:
 - a. the backup office,
 - b. ROC,
 - c. NCO (Monitors VSAT/Comms),

- d. NCF (Monitors AWIPS/VSAT/Comms)
2. Try to minimize bandwidth use where possible to help VSAT:
 - a. Disable LDM data where applicable
 - b. Disable any data download scripts. Only send mission essential graphical products.
 - c. Avoid use of any online video or training streams except for essential operational needs.
3. Offices should document all actions taken while invoking backup procedures in the office shift log; ITO and ESA should be notified ASAP of any issues affecting OPS.

5.2 Consider Transferring Phone Lines

To transfer operational phone lines to your backup office, follow [these instructions](#). There are a couple of ways to do this and a couple of different types of phones to transfer them to. Ensure the Backup site is aware of lines being transferred.

5.3 Actions for Backup Office

The office conducting the backup will assume the operations of the requesting office.

5.3.1 Contact NCF

Contact the NCF at the start of the backup so they can monitor the backup.

5.3.2 Send SRHADASRH

The office taking over backup will send an Administrative Alert message (SRHADASRH). See Section 6.3 for details. This required action notifies other offices, SRH, and the SR ROC that the backup process has been initiated. The office requesting backup should continue operations until the ADA is received unless they are incapable of continuing operations.

5.3.3 Monitor Weather and Assume Operational Responsibility

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 uses social media and Graphicasts routinely in their operations, the backup office should try to assume that capability to the extent possible. Further, all efforts should be made to emulate the requesting office on NWChat.

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:

- webpage editing,
- climate products,
- and NWR product generation.

Services like the climate products and NWR product generation can be done after an office resumes normal operations. To populate the NWR, offices should republish the grids and resend needed text products. For past climate reports (CLIs, CF6s, etc.), the products can be generated with the climate GUI to populate the database of text reports.

As specified in Section 4.2.3 of [Directive 10-1701](#), all products issued by a backup office will contain the product identifiers and mass media headers of the office being backed up. Setting the "Issued By" option in the GFE text formatter window ensures the proper backup dissemination header is included. 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 "Issued by National Weather Service San Angelo TX" line.

5.4 Once Operations are Restored

When the disabled office becomes operable, they will contact the office backing them up.

5.4.1 Send SRHADASRH

The office who is no longer providing backup will send an SRHADASRH to notify that backup has ended. See Section 6.4 for details. This required action notifies other offices, SRH, and the SR ROC that the backup process has ended.

5.4.2 Notify NCF

Both offices will notify the NCF that the backup service has ended and that they can close out the ticket. During the service backup, sites will exchange the NCF Trouble Ticket Number (TT#) with each other, so service backup details can be properly logged.

5.4.3 Fill Out Online SRH Notification Form

The office that assumed backup responsibility will fill out [the online notification form after every backup](#) (drills, as well as planned/unplanned outages). If it was a mutual backup, each office must complete the form. SRH uses the form to track all backups performed by offices on the [backup spreadsheet](#).

The Google form is the only method to track completion of a backup, gather issues, findings, and best practices. Local focal points, ITOs, and NCF should first troubleshoot issues that arise during the backup. If issues persist, include an explanation and any associated trouble ticket numbers on the form.

After the form is filled out, SRH then receives the information via email - comments and best practices – and then populates the tracker.

6 Notification and Coordination Procedures

Notification and coordination are crucial components to all backups.

6.1 Contact Network Control Facility (NCF) for Monitoring when in Backup

In order for the NCF to properly monitor the service backup operation, it is required for offices to contact NCF before a backup has been initiated (for all backups - drills or no-notice outages.) If the site is unable to contact them ahead of initiation, they should contact them as soon as practical in order to establish monitoring of the backup operation.

Inform the NCF of the type of backup (no-notice, a test, for an AWIPS upgrade, etc.)

Document the NCF trouble ticket number that is opened for your backup so that your office, your backup office, and SRH can reference the ticket, if needed.

The requirement to open a ticket allows the NCF to be more prepared to assist as well as document system state when issues arise. Roughly half of all service backups result in issues - that NCF can help resolve. If the NCF is already monitoring the backup, they can more quickly assist in fixing any problems. Therefore, it is very important to take the time to contact the NCF and let them know, so that they can better support your service backup. This is especially true during backups lasting longer than 24 hours so any needed changes to grid upload locations, file or template transfer, and/or AWIPS configuration can be monitored and executed.

6.2 Dedicated Backup Google Chat Rooms

Four dedicated Google Chat rooms for backup coordination are available. These chat rooms provide an effective solution to communicate and collaborate during backups. Use of the chat rooms is not required, but they provide an additional avenue of communication between the offices during a backup.

The backup Google Chat rooms are first come/first served:

- SRBackup1
- SRBackup2
- SRBackup3
- SRBackup4

There are other avenues to communicate if Google Chat is unavailable:

- AWIPS collaboration tool
- Cell phone
- Taking photos of the radar screen for the backup office
- FaceTime/Skype
- GoToMeeting SR account(s)
- Regular phone line
- Satellite phone

6.3 Administrative Alert Message (SRHADASRH)

An Administrative Alert Message (SRHADASRH) is the primary means used to notify SRH, SR ROC, and other surrounding offices when:

- a. backup procedures have been invoked
- b. when normal operations are restored
- c. when a change has been made to backup procedure

ADA messages notify SRH, SR ROC, and surrounding offices to help maintain situational awareness about ongoing backups. This is key when it comes to communication between offices, coordination and collaboration calls, and the overall operating picture of the Southern Region and SRH.

Safety First:

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.

Process for Issuing ADA:

The requirement to send an administrative message applies to every backup. The initial ADA and the final ADA will be sent by the office who took over service backup operations.

For Mutual Backups:

If the backup is a mutual backup, then either office can issue the ADA messages for both offices. Be sure to state it is a mutual backup and list both of the offices involved.

6.4 ADA Format

WFOs will use the SRHADASRH product identification label (PIL). See Appendix C for ADA examples and formats for WFOs, RFCs, and CWSUs.

SRHADASRH products should be addressed to ALL in the AWIPS header block text window.

The “TO” line of the ADA will state “All Southern Region Offices” and only use the three-letter XXX format for office names

Further, every office is to ensure SRHADASRH is locally configured to *alarm audibly* on the AWIPS Text Workstation.

7 RFC Specific Backup Instructions for Both WFOs and RFCs

If an RFC goes into backup, they will send an SRHADASRH product which will notify other offices, SRH, and applicable ROCs that the backup process has been initiated. When

returning to normal operations, the RFC will send another SRHADASRH for notification. See Appendix C for ADA examples.

- a. The requesting RFC will notify affected WFOs immediately that they have hydrologic responsibilities until the RFC can commence backup services at the National Water Center.
- b. 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.
- c. RFCs will ensure that staff is trained in the use of the RFC backups by logging on to an operational system being hosted at the National Water Center.
- d. RFCs will use the RFC backup hosted at the National Water Center 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.

8 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 3.5 of [NWSI 10-803](#).

CWSU ADAs:

CWSUs will issue an ADA product for backup notification. This ADA product notifies other offices, SRH, and the SR ROC that you are being backed up.

CWSUs will not state in their ADA any reference to short staffing. CWSUs are also not required to add a “will resume” sentence, because another ADA will be sent out when back up ends (e.g. office opens up).

See CWSU ADA examples in Appendix C.

Backup Preparation:

- CWSUs must have access to their backup site’s Station Duty Manual. A copy of your SDM will be located on the office Google Site.
- CWSUs should ensure they are set up to receive the ADA product in NWChat.
- CWSUs should be able to provide scheduled and on-demand briefings, Pre-Duty Weather Briefings (PDWBs), Center Weather Advisories, 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 SRHADASRH product to ALL and state which CWSU has backup responsibility.

When returning to normal operations, the CWSU that was being backed up will inform the office providing the backup of the return to normal operations and also send out an SRHADASRH product to notify surrounding offices.

Backup Drills:

CWSUs will conduct two backup drills or full operational backups a year. The results of backup drills and suggestions for improvement will be submitted via the [Google Form](#).

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.

9 SR Service Backup Annual Requirements

9.1 Backups Per Calendar Year

WFOs will conduct *at least one* service backup annually for each of their backup pairings. See the requirements in Section 9.2 and a checklist in Appendix B. CWSU and RFCs will conduct two service backups annually.

9.2 Backup Requirements

A formal checklist for the backup requirements is located in Appendix B and also on [the Backup Google Site](#). In summary, the following requirements must be met to be counted as a backup drill:

- **Conducted the backup for at least four hours.**
- **Included 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.
- **Verified non-routine product configuration to the extent possible.** For example, a WFO would verify SVR and TOR text configuration and check wording of WARNGEN templates. If time permits, load D2D in PRACTICE mode, launch WarnGen, and select the appropriate WFO in the “Backup” WFO dropdown menu.
- **Opened HydroGen Manager to set "Backup Mode Only" for the specific WFO you are backing up.**

- ◆ Starting HydroGen Backup Manager ensures the continuity of data transfer from AWIPS to AHPS/NWPS during unplanned backups, and therefore, practicing starting/ending HydroGen Backup Manager needs to be a part of every backup routine.
 - ◆ If AWIPS is running at the office being backed up, the office performing backup services will practice the process of starting HydroGen backup **and then immediately stop** HydroGen backup - so that it's not running simultaneously at both offices the entire time (which could cause issues).
 - ◆ If AWIPS (or AWIPS communication) is down at the office being backed up, the office performing backup services needs to start HydroGen Manager and **continue** until the backup is complete. When the downed office's AWIPS is up and running again, the office performing backup then needs to stop HydroGen backup.
- **Tested Iridium satellite phone** by calling the SR ROC (see Section 10).
- [Completed online backup notification form.](#)

9.3 SRH Tracks Backups

SRH MSB will [track](#) all backups. MSB, the AWIPS Program Manager, and the SR Backup Think Tank will assist offices with any significant issues identified during backups.

10 Test Satellite Phone during Drill/Backup (WFO and RFC only)

Testing the satellite phone is a part of the backup requirements (see Section 9.2).

10.1 Test Every 90 Days

Offices with an Iridium satellite phone will test the phone with the ROC at least every 90 days. The SR ROC [keeps a log](#) of the satellite tests.

10.2 How to Test

To initiate a satellite phone test, simply call the SR ROC any day between 9am and 5pm (at +1-682-703-3747) 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 an unplanned backup event, call the ROC during the next business day to fulfill the 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. It is a given that sites need to keep phones charged and in good operational order.

11 Backup Preparations

For service backup to be implemented in an orderly and efficient manner, the sharing of updated information is crucial. 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.

11.1 Station Duty Manual (SDM) Requirements

Each office will post a copy of their SDM on their office [Google Site](#) so the backup offices can get to it easily. In addition, each office 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 offices assigned backup responsibility. This will ensure availability of these resources in the event traditional access points are not available.

11.2 Impact-based Decision Support Services (IDSS)

IDSS is an important means of conveying potential weather, water, and climate impacts to core partners and other key decision-makers. To the extent possible, offices should mirror the IDSS capabilities of their backup offices and document deficiencies where lack of resources or capabilities precludes them from providing this support. Offices requesting service backup should retain IDSS responsibility as long as possible; IDSS is founded on relationships built over time and the local office best understands the needs and thresholds of their partners and customers.

Backup operations should also be used to further IDSS within your office. Offices are encouraged to coordinate with their backup offices for assistance to allow staff to attend large-scale table top exercises, local Integrated Warning Team meetings, office training and station meetings, and partner visits. These activities build the knowledge base of forecasters and deepen the relationship with core partners.

To support IDSS, it is critical for offices to mirror the capabilities of their backup offices. Therefore, your backup offices should have access to your email distribution lists, email and social media templates, partner contact lists, and applicable local policies and procedures for IDSS delivery.

Keep these actions in mind:

- 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. When you update the lists, share them with your backup office (if not already on a Google Site).
- Store some (or all) of the contact information on your office Google Site for the backup office to have access.
- If you have any special NWSSChat rooms, share that information with your backup office. Remember that you may 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 "EMA" rooms are only accessible to that office's staff, not their backup office's staff, as an example.

- Notify emergency managers and other core partners who your backup offices are.
- Introduce your backup office to your emergency managers.
- Have mutual customer service workshops or customer advisory committee meetings.
- Coordinate active customer service outreach programs.
- Coordinate any focal point activity with your backup office (e.g., severe weather, hurricane, hydrology, AWIPS, marine, aviation, radar, weather radio, climatology, etc.).
- Ensure Amateur Radio operators can help others in other CWAs.

11.3 AWIPS

Make sure AWIPS is configured to support the duties of your backup office. Share any local applications necessary for operations with your backup offices to ensure consistency of local applications.

If possible, utilize the AWIPS Collaboration Tool during backup events. The AWIPS Collaboration Tool can be configured for service backup so that the backup office's neighbors can see your chats while knowing they are in backup mode.

11.3.1 Graphical Forecast Editor (GFE) (WFO only)

Routinely ensure the Graphical Forecast Editor (GFE) service backup works for backup services. Many times, changes have been made at the backup office, but have not been uploaded to the Central Server. Doing those checks routinely makes the backup process easier.

For a successful backup of WFO grids, importing the configuration and digital data for the inoperative site from the national Central Backup Server is required. Offices should keep it updated frequently.

For service backup to function properly, it is critical that all offices share any/all changes to their GFE maps/shapefiles 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.

11.3.2 Maps and Shapefiles

For service backup to function properly, make sure to have all the **most-up-to-date** maps and backgrounds for any computer programs, such as WARNGEN shapefiles, localization for Thin Client, etc. It is critical that all offices share all changes of any critical maps/shapefiles with their backup offices as soon as possible.

It is important that your backup office is aware of the changes to make the necessary updates. Do ***not*** wait to share your updated files with your backup office; otherwise, valuable time may be lost in an unplanned backup situation to fix those files.

11.3.3 AFOS2AWIPS Localization (a2a file)

The afos2awips localization in AWIPS is essential for service backup to function properly. This nationally maintained file is available for viewing via the Localization Perspective in Common AWIPS Visualization Environment (CAVE) (EDEX > AFOS2AWIPS). The file lists all text product PILs with the associated issuing offices. An office will be unable to issue products for another office during service backup if the PIL and office are not listed in this file.

Additionally, afos2awips entries can cause issues with GFE if improper PILs are included or proper PILs are missing from the file. Issues with GFE text product formatters can arise from these problems since the a2a file also is used to create *configured* text product formatter files in the localization perspective.

Offices need to keep their national afos2awips.txt file current on their AWIPS system. View the "[Updating AWIPS A2A File Cookbook Instructions](#)" to ensure that your site is maintaining a current version of this file on your system.

Whether using an automated script or manual update, sites need to routinely grab the latest file in order to be sure that they have all necessary PILs for each of your backup offices. Similarly, sites requesting changes, additions, or deletions to PILs need to submit those requests via a National Dataset Maintenance (NDM) ticket to update the national afos2awips.txt file. Requests can be submitted [via this link](#). Finally, once these changes are approved, the requesting site needs to inform all of their backup offices that a new set of NDM files is ready for download and install at their backup offices.

Every office's a2a file should be synced with the national baseline NDM file. It is critical for smooth service backup operations.

11.3.4 WARNGEN Templates

Any time a change is made to the WARNGEN templates on a local or national level, the updates must be shared with the backup offices right away. Changes to the WARNGEN templates include the products themselves and the configuration for the WARNGEN GUI. Unplanned outages can happen anytime, so sharing updated WARNGEN templates is a key step in completing the NWS mission of protecting lives and property. Offices need to share every warning template that would be used during a normal warning environment.

11.3.5 ADA Alerts

Make sure the Administrative Alert Message product is audibly alarmed on AWIPS workstations.

11.3.6 Site Level AWIPS2 Localization Repository

Sites should create a site level repository of AWIPS2 data on VLAB. This repository will serve as a great starting point for sharing data and configuration files between service backup sites. Additionally, the repository also acts as a well-prepared archive of file changes on your own AWIPS system. The process to create this archive can be found in the instructions for Southern Region offices posted to VLAB ([Repository Instructions](#)). Once populated, any other site can access your site files via the link at <https://vlab.noaa.gov/svn/xxx/trunk/a2/localization/> where “xxx” is your office 3-letter identifier.

11.4 Text Products

Keep current examples of the various products your backup office issues on your local Backup Google Site. Also, ensure all minor format differences between your products and your backup office’s products are completely understood. Further, share listings of meteorological, hydrological, and RFC products on AWIPS.

It is also beneficial to increase the number of versions of various text products for your primary, secondary, and tertiary backup offices within the office Text Database.

11.5 Hydrology

Share E-19s that provide flood damage information, historical crests, and other hydrological information.

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 need to have access to all hydrometeorological data needed to perform hydrologic backup operations, as well as the forecasts generated by the RFC.
- Key Hazard Services files need to be shared with backup sites in advance such as Dam Break and burn scar for Hydro portion.

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 and other hydro related backup tasks can be found in the [Hydro in Backup](#) and [Common AHPS/HydroGen Operations](#) documents.

11.6 Training Suggestions

1. Conduct virtual or in person seminars and training sessions with your backup office.
2. Share local climatology, hydrologic, and meteorological nuances that your office has discovered through experience and any rules-of-thumb or local forecasting techniques.
3. Share lessons learned from severe weather or unusual weather events/forecasts with your backup office.
4. The backup office could do a case study within the primary offices domain and coordinate the results with the SOO/WCM/designee of the primary office.
5. Develop a forecaster exchange program. Forecasters can be exchanged for a day or two to fully experience the programs of their backup office (if budget allows).

11.7 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 provide. Since philosophies/content differ substantially from office-to-office, coordination is also essential to ensure that products and services are, to the extent possible, seamless during backup operations. It is critical for offices to exchange ideas on how (and under what conditions) these communication platforms will be maintained by the backup office. Each office should ensure that everyone who may need to participate in backing up an office has access to social media sites (URLs and passwords). Additionally, some social media systems like Facebook impose limits to the number of site editors allowed at one time, so backup sites need to have site's blessing before logging into edit mode.

11.7.1 Social Media

Share social media practices and recommendations for social media interaction during backup services.

There are two Google Documents that provide information about service backup for social media.

- [Service Backup Best Practices for Social Media in SR](#)
- [Social Media Backup for SR](#)

11.7.2 Graphicasts

The recommended dissemination software for Graphicasts in service backup is the Send2Web version for Windows. The procedures, install, software instructions, and documentation are located on [VLAB at this link](#).

GraphiDSS backup information is located [here](#).

11.8 ASOS and Upper Air

Share listings of automated gauges, sensors, and Automated Surface Observing System (ASOS) units with associated phone numbers, etc.

A WFO providing service backup will provide ASOS observation monitoring as described in [NWSI 10-1305](#).

ASOS automatically connects, 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 the AOMC if there are missing observations.

11.9 Phones

Make sure the office emergency phone/satellite phone is charged and everyone knows where it is located, knows how to use it, and that the number is accessible. Ensure necessary phone numbers are preprogrammed into the phone.

Test at least once a year transferring your phone lines (VOIP – Voice Over Internet Protocol) to one of your backup offices. [See this link for more information](#).

11.10 Broadcast Message Handler (BMH) Preparation

When an office must evacuate, the automated BMH 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 BMH. 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.**

11.11 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/reporting site for the downed office's radar data.

Visit the [Radar Backup Viewer](#) to see which radars are backed up by which office and what data ingest options are available to each. Simply click the down arrow on the button to choose the office that is down. Primary, secondary, and tertiary offices are color coded across the document.

Use the table in the viewer to determine which type of radar data backup is needed for the

given situation. The [Southern Region Radar Backup instructions](#) (also linked in the viewer) will help you initiate and terminate each type of radar backup.

These documents are also accessible from the [SR Radar Google Site](#).

Appendix A:

Southern Region WFO Service Backup Assignments

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

Appendix B:

Backup Requirement Checklist

All five (5) of the below requirements must be met to be counted as one of the annual required backups:

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

_____ **2. Included the issuance of routine 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. Verified non-routine product configuration to the extent possible.** For example, a WFO would verify SVR and TOR text configuration via D2D **PRACTICE** mode and check wording of WARNGEN templates.

_____ **4. Opened HydroGen Manager to set "Backup Mode Only" for the specific WFO backed up.**

- **Starting HydroGen Backup Manager ensures the continuity of data transfer from AWIPS to AHPS/NWPS during unplanned backups, and therefore, practicing starting/ending HydroGen Backup Manager needs to be a part of every backup routine.**
- **If AWIPS is running at the office being backed up, the office performing backup services will practice the process of starting HydroGen backup and then immediately stop HydroGen backup - so that it's not running simultaneously at both offices the entire time (which could cause issues).**
- **If AWIPS (or AWIPS communication) is down at the office being backed up, the office performing backup services needs to start HydroGen Manager and continue until the backup is complete. When the downed office's AWIPS is up and running again, the office performing backup then needs to stop HydroGen backup.**

_____ **5. Tested Iridium satellite phone** by calling the SR ROC at +1-682-703-3747 (see Section 10). Note: If this is a real backup event (i.e. not a drill), you can call the ROC during the next business day to fulfill this requirement.

_____ **6. Completed online [backup notification form](#).**

Appendix C:
Administrative Message (ADA) Examples

RFC ADA Examples:

If backup remains at RFC, use this format:

NOUS74 KEHU 262016
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
316 PM CDT Fri Oct 26 2018

To: All Southern Region Offices

From: SERFC

Subject: SERFC is in backup operations

SERFC has initiated backup.

\$\$

If backup is away from the office, use this format:

NOUS74 KEHU 262017
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
317 PM CDT Fri Oct 26 2018

To: All Southern Region Offices

From: LMRFC

Subject: LMRFC is in backup operations

LMRFC has initiated backup operations. They can still be reached at: [fill in contact phone #]

CWSU ADA examples:

Backup Implementation Examples. Issued by the office conducting the backup.

NOUS74 KEHU 302139

ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
335 PM CT Mon Dec 30 2019

To: SRH..SR-ROC.. ZTL..ZHU..ZKC..ZID..ZFW...AWC

From: CWSU ZME

Subject: CWSU ZTL Backup

CWSU ZME will be backing up CWSU ZTL until further notice.

\$\$

Or

NOUS74 KEHU 202059
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
500 PM EST Sat Jun 20 2020

To: SRH...MFL...JAX...ZHU...ZTL...ZNY...AWC...SR-ROC

From: CWSU ZMA

Subject: CWSU ZJX Backup

CWSU ZMA will be backing up CWSU ZJX from 20/2100Z until 21/0030Z.

\$\$

Or

NOUS74 KEHU 302139
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
335 PM CT Mon Dec 30 2019

To: SRH..SR-ROC.. ZTL..ZHU..ZKC..ZID..ZFW...AWC

From: CWSU ZTL

Subject: CWSU ZME Backup

CWSU ZTL will resume backup service responsibility for CWSU ZME starting at 21/1100Z.

\$\$

Resumption of Service Example. Issued by the office that was being backed up.

NOUS74 KEHU 262017
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
317 PM CDT Fri Oct 26 2018

To: All Southern Region Offices

From: CWSU ZHU

Subject: CWSU ZHU is resuming normal operations

CWSU ZHU has returned to service following backup due to a service backup test.

\$\$

WFO ADA Examples

Backup Implementation Example. Issued by the office conducting the backup.

NOUS74 KEHU 081321
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
721 AM CST Thu Nov 8 2018

To: All Southern Region Offices

From: WFO OHX

Subject: WFO OHX providing Service Backup for WFO MRX

WFO OHX has assumed full service backup for WFO MRX due to a service backup test.

\$\$

Resumption of Service Example. Issued by the office who conducted the backup.

NOUS74 KEHU 262017
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
317 PM CDT Fri Oct 26 2018

To: All Southern Region Offices

From: WFO OHX

Subject: WFO MRX is resuming normal operations

WFO MRX has returned to service following backup due to a service backup test.

\$\$

Mutual Backup Example:

NOUS74 KEHU 011203
ADASRH

Alert Administrative Message
National Weather Service Southern Region Headquarters
703 AM CDT Wed Jul 1 2020

To: All Southern Region Offices

From: WFO CRP

Subject: WFO CRP and WFO MLB Mutual Backup Swap

WFO CRP and WFO MLB will be conducting a mutual backup swap through 16Z for testing.

\$\$