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APPLICABLE TO NWSI 10-2201
June 27, 2011***

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SOUTHERN REGION BACKUP OPERATIONS

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The following changes were made to this issuance:

1. Separated two sections into an Emergency and also a Common backup situation.
2. Added Tertiary pairings.

<Signed by>

June 13, 2011

Bill Proenza
Regional Director

Date

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1. Purpose.

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.

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 this supplement during an emergency backup situation, contact Southern Region Headquarters (SRH) Regional Operations Center (ROC) at **817-978-1100, ext 147**. This number is the 24-hour phone number for the ROC. If no one answers, leave a message and the Duty Officer will be paged and should return your call within 15 minutes.

2. Weather Forecast Office Backup.

2.1 Definitions:

- a. **Full Backup** - All of a WFO's products, services, and responsibilities (e.g. warnings, grids, data collection, etc.) need to be backed up by a designated Backup Office (see Appendix A). A list of critical products is included in Appendix A of NWSI 10-22.
- b. **Partial Backup** - Some of a 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 Responsibility** - If an office is rendered inoperative, the Primary Backup Office will assume their designated duties, as defined in Sections a and b above (Full or Partial Backup).
- d. **Secondary Backup Responsibility** - If an office is rendered inoperative, and the Primary Backup Office is either rendered inoperative or unable to assume backup responsibility due to circumstances beyond their control, the Secondary Backup Office will assume the designated duties, as defined in Sections a and b above (Full or Partial Backup).
- e. **Tertiary Backup Responsibility** - If an office is rendered inoperative, and the Primary Backup Office and the Secondary Backup Offices are either rendered inoperative or unable to assume backup responsibility due to circumstances beyond their control, the Tertiary Backup Office will assume the designated duties, as defined in Sections a and b above (Full or Partial Backup).

- f. **Dual Backup Responsibility** - In some extreme situations, both the Primary and Secondary Backup Offices may have to share backup responsibilities of the inoperative office.

2.2 **Implementation.**

Catastrophic equipment malfunctions, extended power outages, prolonged communication failures, planned and unplanned outages, and violent acts of nature may render an office incapable of fulfilling its operational responsibilities. The authority to invoke backup operations rests with the affected Meteorologist-In-Charge (MIC) / Hydrologist-In-Charge (HIC) or designee. If for any reason backup plans cannot be successfully implemented/invoked, such as both backup offices being down, notify the SRH ROC at 817-978-1100, ext 147 immediately.

2.3 **Interactive Forecast Preparation System (IFPS).**

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 specific details and instructions on setting up the Graphical Forecast Editor (GFE) for service backup operations and a list of Intersite Coordination (ISC) sites for each WFO, see the following internal webpage:

<https://srs/Program/Backup/Pages/ServiceBackupHome.aspx>

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.

2.4 **WHFS and other Hydrology Procedures.**

The WFO Hydrologic Forecast System (WHFS) support group in OCWWS/HSD at NWS HQ will provide system support for the transfer of critical information from the initiating site to the primary and secondary back up offices. Critical information includes RiverPro Templates and Product Content Control (PCC) files and key information in the WHFS Hydrology Data Base. 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.

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 in the hydrology program section (service hydrologist information category) of the SR Sharepoint server.

2.5 **Backup Preparations.**

For backup plans to be implemented in an orderly and efficient manner, each office will supply its backup offices with a current copy of (or a link to) its Station Duty Manual (SDM) or office instructions. One backup drill is required per year (see Section 8 for more information), but frequent drills are highly recommended. See Appendix B for further backup preparatory activities.

3. Backup Procedures.

3.1 Procedures for an Unplanned/Emergency Outage.

It is critical to notify surrounding offices and SRH when (A) backup procedures have been invoked and (B) when normal operations are restored. Follow the procedures below to insure proper notification: (Refer to Appendix D for a flow diagram depicting the procedures to perform during unplanned/emergency outages.)

a. When an office is rendered inoperative, its staff will do the following:

(1) **Notify the Appropriate Backup Office of the situation.**

If telephone lines are inoperative, use any means available (National Warning System (NAWAS), etc.) to contact your backup office. Ensure you relay a working contact number if applicable. The cost of any personal calls will be reimbursed. If you are unable to reach the Backup Office, call SRH for assistance. Call the SRH ROC at 817-978-1100, ext 147. If no one answers, leave a message, **and** a call-back number and which office you are calling from, and SRH personnel will be automatically paged. If commercial telephone circuits and cellular phone services are out-of-service, the office staff must become resourceful to make contacts. There have been cases where HAM radios were used to ask an amateur radio point-of-contact to call the backup office or SRH. Offices should document actions taken while invoking backup procedures.

(2) **Send SRHADASRH.**

If possible, send an Administrative Alert message (SRHADASRH) addressed to ALL [in the AWIPS header block text window] notifying other offices that the backup process has been initiated. If not possible, ask the Backup Office to do this for you.

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.

Example:

NOUS74 KEHU 152104
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION
HEADQUARTERS
404 PM EST SAT MAR 15 2003

TO: MOB...TBW...FFC...BMX...JAX
FROM: NWS WFO TALLAHASSEE

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

\$\$

- (3) **Contact SRH ROC.**
If not already notified and time permits, call SRH ROC at 817-978-1100, ext 147 to notify about the situation.
- (4) For prolonged outages, a member of the office management should contact the SRH ROC at 817-978-1100, ext 147 to discuss with SRH personnel options and plans for possibly sending forecasters to other offices for support.

b. Once operations are restored:

- (1) **Send SRHADASRH.**
Send the SRHADASRH to ALL notifying your office has resumed normal operations. Example:

NOUS74 KEHU 152153
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION
HEADQUARTERS
453 PM EST SAT MAR 15 2003

TO: MOB...TBW...FFC...BMX...JAX
FROM: NWS WFO TALLAHASSEE

NWS WFO TALLAHASSEE HAS RESUMED NORMAL OPERATIONS.

\$\$

- (2) **Notify SRH ROC.**
Inform them by phone of the return to normal operations.

3.2 Planned Outages.

For planned outages (for example, an AWIPS upgrade), follow the same procedures in Sections 3.1 and 3.2, but notify the Backup Office ahead of time (2-3 days or more if possible) so appropriate measures can be taken (for example, provide for adequate staff and/or plans to deploy forecasters to a nearby office).

3.3 Evacuations.

If an office is evacuated, notify ALL your backup offices and SRH as soon as possible upon departure and upon return. Call the SRH ROC at 817-978-1100, ext 147. If no one answers, leave a message with a call-back number and which office you are calling from, and the Duty Officer will automatically be paged. If commercial telephone circuits and cellular phone services are out-of-service, the office staff must become resourceful to make contacts.

3.4 Procedures for a Backup Office when Supporting an Inoperative Office:

The Backup Office will assume the operations of the inoperative office and will also notify surrounding offices and contact the SRH ROC. Refer to Appendix E for a flow diagram depicting the procedures a backup office should perform when supporting an inoperative office. Specifically:

a. When an office is backing up an inoperative office, its staff will do the following:

(1) **Send an SRHADASRH,**

If the inoperative office has not sent out an SRHADASRH product, send the SRHADASRH product to ALL notifying others your office has assumed operational responsibility for your Backup Office. This step is to ensure offices are aware of the backup situation. Example:

NOUS74 KEHU 152105
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION
HEADQUARTERS
405 PM EST SAT MAR 15 2003

TO: MOB...TBW...FFC...BMX
FROM: NWS WFO JACKSONVILLE

WFO JACKSONVILLE HAS ASSUMED OPERATIONAL
RESPONSIBILITY FOR WFO TALLAHASSEE UNTIL FURTHER NOTICE.

\$\$

(2) **Contact SRH ROC.**

As weather conditions permit and if the inoperative office has not already done so, call SRH ROC at 817-978-1100, ext 147 and notify them of the details of the situation. If no one answers, leave a message and call-back number, and the Duty Officer will automatically be paged.

(3) **Monitor Weather and Emulate the Inoperative Office.**

Monitor the weather across the County Warning Area (CWA) of the inoperative office, issue grids and issue routine and/or warning products as needed until the office has resumed functions.

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 insure proper dissemination. The mass media header format should follow the examples shown in NWSI 10-1701.

4. Backup Assignments for WFOs.

Appendix A details the Backup Office pairings. Appendix B lists important preparatory activities for Backup Offices.

5. 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 C shows the radar backup sites for the Southern Region.

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

6. River Forecast Center (RFC) Backup.

- a. If an RFC goes into backup, the RFC should call their backup office and also send the SRHADASRH product to ALL. When returning to normal operations, inform your backup office and also send out another SRHADASRH to notify surrounding offices.

- b. Also contact the SRH ROC at 817-978-1100, ext 147, if an RFC goes into backup. If no one answers, leave a message with a call-back number and which office you are calling from, and the Duty Officer will automatically be paged.
- c. Notify affected WFOs immediately that they have hydrologic responsibilities until the RFC can commence backup services on their mobile backup system. RFCs should use the mobile (or stationary) RFC backup system during AWIPS system or communication outages. The service backup can originate from the local office or a location remote from the collocated facility dependent on the type of outage.
- d. Until the RFC has established their backup system (either onsite or at another location), 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.
- e. RFCs will ensure that staff is trained in the use of the mobile RFC backup system, including procedures to serve as the “backup dissemination office” to another RFC.
- f. RFCs will identify external facilities to conduct RFC backup operations. RFCs should ensure that they have access to a reliable Internet Service Provider and an adequate telephone system to support RFC backup operations.
- g. RFCs will determine the best off-site location to store their mobile RFC backup system.
- h. 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.
- i. RFCs will use the mobile (or stationary) 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.
- j. RFCs will ensure that the mobile RFC backup system is configured with the latest software (e.g., NWS River Forecast System, local applications, etc.) to support hydrometeorological operations at the RFC. If required, ABRFC will provide technical support for the RFCs.
- k. RFCs will conduct a test of the mobile RFC backup system on a semi-annual basis. This will allow staff members to gain experience and confidence with the mobile RFC backup system. The results of the test will be forwarded to the Hydrologic Services Branch.

- l. SRH, in coordination with the Hydrologic Services Branch and the RFCs, will provide information technology support for RFC backup operations.
- m. 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 are as follows:

Office in Backup Mode	Primary Backup Dissemination Office
ABRFC	WGRFC
LMRFC	SERFC
SERFC	LMRFC
WGRFC	ABRFC

- 7. Center Weather Service Unit (CWSU) Backup.
CWSU backup information is located in Appendix B of NWSI 10-803.

Notify SRH ROC if an extended disruption in services is expected by calling the Regional Operations Center directly at 817-978-1100, ext 147. If no one answers, leave a message with a call-back number and which office you are calling from, and the Duty Officer will automatically be paged

CWSUs should ensure they are set up to receive the SRHADASRH product.

- 8. Drills.
Service backup is a complex operation that requires the staffs at Backup Offices to be familiar with each other's programs and responsibilities. It is a requirement of offices to conduct at least one service backup drill annually, even if routine backups have been completed during the year. Problems and confusion are still occurring during routine backup situations as not all staff may be present during a service backup situation or trained on how to perform service backup successfully. In addition, with the deployment of AWIPS II, service backup opportunities due to AWIPS software installs will become fewer and farther between. Therefore, at least one annual backup drill is required. Try and have as many staff members available as possible to participate in the backup drill(s). Notify Melinda Bailey at SRH after you complete annual backup drills. Notification of offices being backed up by another, even during tests, requires an SRHADASRH. See Section 3.1 for details.

It has been shown that more frequent drills prepare staff for unplanned events. During hurricane situations, unplanned communication outages, late night storms, etc. the offices that have practiced backup are better prepared, able, and confident for these situations.

**Appendix A - National Weather Service Southern Region
Service Backup Assignments**

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

River Forecast Center	Primary Backup	Secondary Backup	Tertiary Backup
Arkansas-Red River Basin (OK)	West Gulf	Southeast	
Lower Mississippi (LA)	Southeast	West Gulf	
Southeast (GA)	Lower Mississippi	Arkansas-Red River Basin	
West Gulf (TX)	Arkansas-Red River Basin	Lower Mississippi	

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 - Offices Preparatory Activities

The goal of Service Backup is to ensure continuation of essential products and services and to ensure offices are familiar with the programs, products, and customers of their backup partner. Backup Offices were selected on the basis of similar service programs, weather regimes, and proximity. Familiarity with each other's programs and responsibilities ensures an effective backup process. The following is a list of activities Backup Offices should strongly consider:

Administration:

- 1) Exchange Station Duty Manuals (SDM) 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 (including from other regions) 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.
- 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.

Outreach

- 11) Notify emergency managers and other core partners of the backup plan.
- 12) Introduce your Backup Office to your emergency managers.
- 13) Promote staff participation in Backup Office visitations.
- 14) Have mutual customer service workshops or customer advisory committee meetings.
- 15) Coordinate active customer service outreach programs.
- 16) Coordinate any focal point activity with your Backup Office (e.g. severe weather, hurricane, hydrology, AWIPS, marine, aviation, radar, weather radio, climatology, etc.).
- 17) Ensure ham radio operators can help others in other CWAs.

Training

- 18) Conduct seminars and training sessions with your Backup Office.
- 19) Share local climatology and meteorological nuances that your office has discovered through experience and any rules-of-thumb or local forecasting techniques.
- 20) Play a vital role in staff training. An example is a new MIC being assisted by the Backup Office MIC.
- 21) Share with your Backup Office lessons learned from severe weather or unusual weather events/forecasts.
- 22) Conduct a meteorological case study with someone in your Backup Office.
- 23) Develop a forecaster exchange program. Forecasters can be exchanged for a day or two to fully experience the programs of their Backup Office.

Resources

24) If your office has an office emergency phone/satellite phone, make sure it is charged and everyone knows where it is located, know how to use it, and that the number is accessible. Ensure necessary #s are preprogrammed into the phone.

IT:

25) Make sure AWIPS is configured to support the duties of your Backup Office.

26) Share any local applications necessary for operations.

27) Make sure to have all maps and backgrounds for any computer programs, such as WarnGen, etc.

28) Have a ready-to-go Emergency Manager Kit available/ready. This could be very helpful for the office you are backing up.

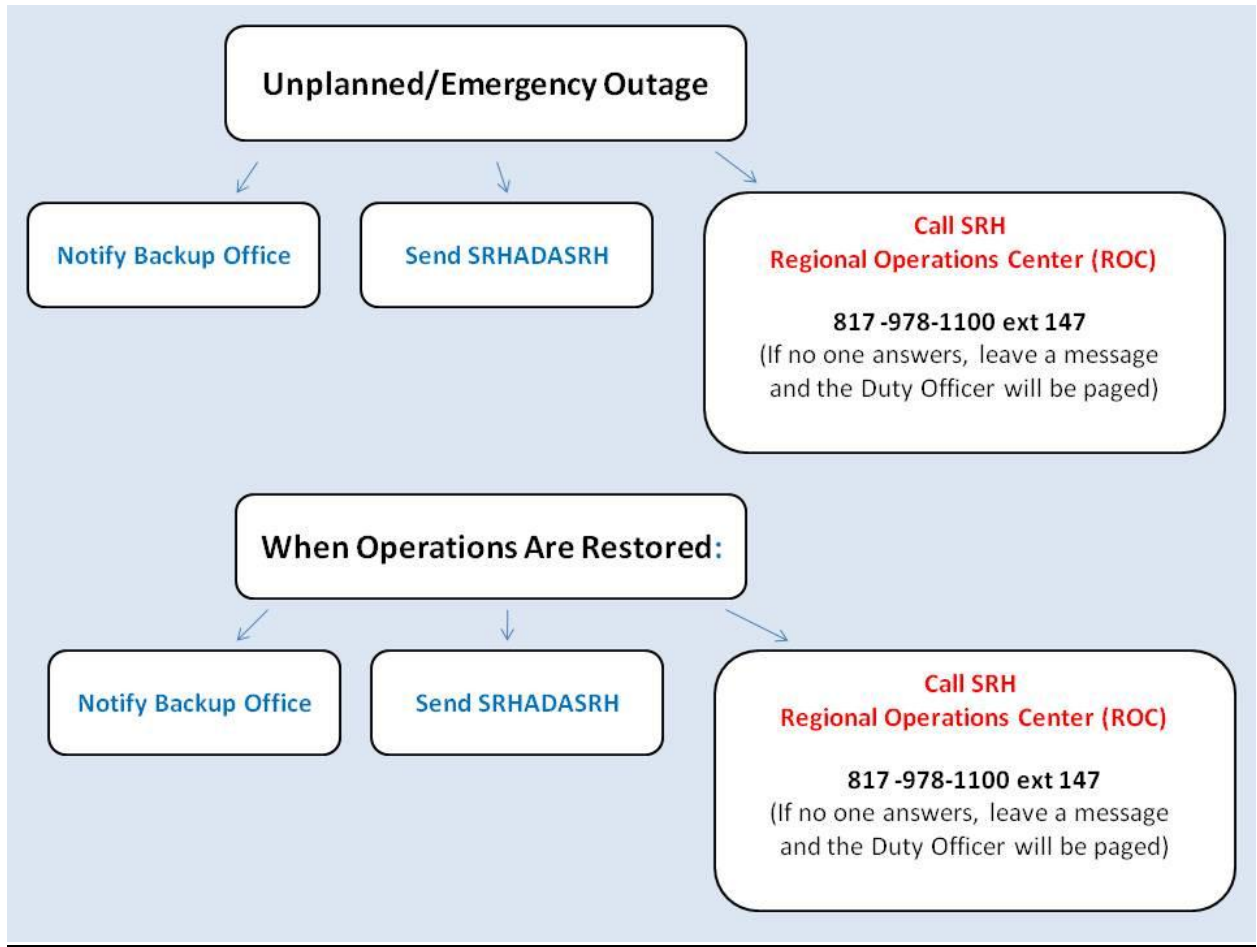
29) Utilize 12Planet and NWSChat during backup events.

Appendix C

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 D - Flow Diagram for Unplanned/Emergency Outages



Appendix E - Flow Diagram for Backup of an Inoperative Office

