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***Operations and Services
Hydrologic Services, NWSPD 10-9
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WESTERN REGION RFC BACK-UP***

OPR: W/WR2x1 (G. Rishel)

Certified by: W/WR2 (R. Tibi)

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Vickie Nadolski
Director, Western Region

Date

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1. Purpose: This Supplement outlines the requirements for service and system back-up of Western Region RFCs. It also covers expected RFC support for WFO hydrology programs whenever a WFO back-up plan is in effect. **System back-up** for the RFCs is defined as action required to restore/back-up or otherwise compensate for loss of capabilities of data feeds, AWIPS and other operational hardware/software, and the telephone system. **Service back-up** for the RFCs involves the same RFC producing and disseminating products either in a degraded mode on-site as a result of major systems loss or off-site due to the loss of use of the physical plant.

NOTE: Each RFC is responsible for developing, documenting, and implementing detailed plans to fulfill these requirements. No set of plans can cover every conceivable situation. Responsibility for the success in any back-up situation resides with the staff involved, exercising good judgement and common sense. Final responsibility resides with the hydrologist-in-charge (HIC) and, ultimately, with the regional director.

2. Procedures.

2.1 System Back-up: RFCs should take advantage of opportunities for redundancy in operational systems so as to minimize the potential for needing service back-up. Documentation on all primary and redundant systems will be maintained and be readily accessible to RFC operational staff. Software backup should be performed on all operational and developmental systems as recommended or required by NWS guidelines, procedures, or directives. Copies of back-up tapes or other material should be available on-site in event of system problems and off-site in the event of fire, etc. All redundant systems equipment and procedures should be tested at least once each month to ensure operational readiness.

2.2 Data Access System: RFCs should develop, implement, and maintain redundant systems for obtaining mission critical data whenever possible. Such redundancy may involve connections to partners' data systems, additional on-site hardware, or both. Documentation and

instructions for data systems will be up-to-date and accessible to staff. RFCs will also maintain the necessary equipment and procedures to receive, store, and process mission critical data at their off-site back-up locations.

2.3 AWIPS and Other Hardware/Software: AWIPS systems architecture provides redundancy, except for LDADs and the firewall, with back-up procedures if individual system components fail. RFCs should strive to have redundancy in other hardware used in operational and developmental work as well. The intent of this redundancy is to maintain the capability of providing a full suite of forecasts, guidance, and other products to customers and partners in the event of a single system failure. Instructions for recovery or utilizing redundant for operations will be maintained and accessible to operational personnel. Copies of operational and developmental software should be available on-site should events require reloading of such software.

2.4 Telephone System: In the event of a failure of the telephone system collocated offices have been supplied analog phones which support two lines each. One of these phones should be installed in the communications room and the rest should be placed in an accessible area (i.e., operations). The locations of these phones will be documented so operational personnel can find them readily in the event of a telephone system failure. In the event of a land line service failure, each RFC has been provided with a cell phone. These back-up capabilities are minimal and should be used on a priority basis.

2.5 Service Back-up: RFCs utilize unique data sets and local applications in their routine operations. This individual approach provides for hydrologic services tailored to an area; however, it makes back-up by another office virtually impossible. Hence, WR RFCs will provide service back-up to themselves, either at their current location or at an alternate location. RFCs may invoke service back-up for two reasons: 1) On-site, the loss of a major system which degrades capability to produce products and forecasts, or 2) Off-site, when the office becomes unusable due to a catastrophic event, such as a fire, flood, etc. In either case, RFC products, services, and forecasts will be reduced to some extent. RFCs will continue to produce those products that are directly related to the core NWS mission of protecting lives and property.

Western Region Headquarters should be notified as soon as possible after service back-up is initiated. The HIC or acting representative should attempt to notify the HCSD Chief, RFC Program Manager, Deputy Regional Director, or Regional Director, in that order.

2.5.1 On-Site Back-up: Should a major system occur that impairs an RFC's ability to produce or disseminate a full suite of products and a redundant system is available, the RFC will invoke on-site service back-up. The RFC must notify the WFOs it serves of the problem encountered, what RFC products will continue to be available, and provide an estimate of how long the outage is expected to continue. Daily updates on the RFC situation should be provided to all WFOs affected and WRH, along with notification of return to normal operations.

2.5.2 Off-Site Back-up: If the RFC must vacate its physical plant for any reason, off-site back-up will be invoked. WFOs served by the RFC will be notified of the situation. RFCs are expected to be operational from off-site locations with 24 hours of invoking off-site

back-up. During the interim period, WFO are expected to function without RFC products by using in-house procedures (see below for RFC requirements in developing such procedures). During off-site service back-up situations, RFCs products and services will be reduced and may be limited to those directly related to protecting lives and property, i.e., flood forecasts. The specific RFC products available during off-site back-up will be listed in the RFC off-site back-up plan. RFCs will provide up-to-date copies of off-site back-up plans to WFOs they serve and to WRH/HCSO.

If the RFC off-site service back-up will be for more than a couple of days, it may be necessary or desirable to detail personnel from the RFC to WFOs where hydrologically significant events are occurring. Such action will be coordinated between the HIC and MIC(s) with notification to Western Region Headquarters. Unless otherwise agreed to, the RFC will pay for travel and per diem resulting from such temporary details.

2.6 Service Back-up Tests: Tests of service back-up are required. One test of each on-site and off-site back-up will be performed each year (actual back-up incidents meeting test criteria may be substituted). The test should be conducted through at least one complete cycle of the forecast process and include the issuance of a set forecast products. A brief report documenting the test including results and suggestions for improvement will be forwarded to WRH/HCSO upon completion of the exercise.

2.7 Support for WFO Hydrology Programs: Whenever notified that a WFO hydrology program back-up is occurring, RFC(s) will be prepared to offer additional support to ensure continued services to NWS customers. Extra support in these situations could include: sharing hydrologic knowledge, initiating coordination of QPF, providing detailed explanations of the hydrologic forecasts and guidance, offering advice on products to issue, etc. RFC(s) should also exercise extra diligence in monitoring hydrologic conditions in the area affect by the back-up situation and should assist the back-up WFO in situation assessment when requested or necessary to ensure fulfillment of the agency mission. While extra assistance is expected of RFCs during WFO back-up situations, they are not to assume responsibility for WFO hydrology programs. If possible, RFCs should exercise this level of support whenever WFO back-up tests are conducted.

RFCs will also provide assistance to WFOs in developing and utilizing procedures to produce river forecasts during short time periods (up to 24 hours) when the RFC is in the process of instituting off-site back-up. Such procedures may be automated or manual and are intended to maintain service during such events.

2.8 Staffing: Changes to staff schedules may be needed to handle the service back-up responsibility and assisting WFOs providing hydrologic program back-up. Overtime is authorized for such activities. If a service back-up situation is expected to be prolonged, the HIC may request that personnel be detailed by contacting WRH as discussed above.