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IMPACT OF GAGE CLOSURES/OUTAGES ON RIVER FORECAST SERVICES

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<signed>

January 4, 2006

Dean P. Gulezian
Director, Eastern Region

Date

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1. Purpose. The purpose of this supplement is to state regional policy on the impact of gage closures and outages on river forecast services.

2. Background. The National Weather Service (NWS), Eastern Region (ER) prepares daily and high water river forecasts for approximately 600 locations. In order to assure accuracy and integrity of forecast information, automated or manual real-time observed river gage data must be available on a daily and criteria basis, at a minimum, to support River Forecast Centers (RFC)/Weather Forecast Offices (WFO) in their forecast operations. The U.S. Geological Survey (USGS) and other agencies that support, operate, and maintain river gages have come under increasing pressure due to budget tightening, to close stations and discontinue river gage operations. The impact of the closures may have a direct effect on river forecast operations.

The NWS has a responsibility to follow-up on proposed gage closures that affect river forecast points, and if discontinued, take appropriate action in providing a level of forecast services commensurate with data availability for the impacted river basin or forecast point. Any gage closure that changes the availability of data from a location must be investigated regarding the level of NWS river forecast service. The subsequent level of service will be based on the type and timeliness of the remaining available data.

3. Gage Closures. Field offices should alert ER Hydrologic Services Division (HSD) upon receiving notification of proposed gage discontinuations at river forecast points. ER HSD will be the focal point to coordinate funding support for stream gaging efforts with the appropriate sponsoring agencies at the state and regional level. The affected Hydrologic Service Area (HSA) will coordinate with local sponsoring agencies. Under the direction of ER HSD, Meteorologists-in-Charge (MIC)/Hydrologists-in-Charge (HIC) should encourage support for the continuation of the stream gaging program by highlighting its importance in the hydrologic

warning and forecast program. The Office of Climate, Water, and Weather Services (OCWWS) will seek support for the cooperative stream gaging program at the national level.

4. Reduced Forecast Services due to Gage Closures. The ER HSD will be responsible for evaluating the impact of the closure of a stream gaging station(s) on forecast services. The following procedure will be followed for requesting approval for reduced forecast services as a result of gage closures or extended outages:
 - a. The WFO is the office responsible for submitting requests for reduced forecast services as a result of gage closures within its HSA.
 - b. The WFO should send a letter to affected hydrologic users, alerting them to the possibility that forecast services may be reduced due to pending gage closures. (Refer to template letter in Appendix A and sample letter in Appendix B for suggested examples). Notification of potential loss of forecast services should be done immediately following first receipt of potential gauge closure or funding loss. Such a proactive approach will provide maximum amount of time to raise customer concern and perhaps locate a funding source. It will also provide maximum amount of time for customers to prepare for loss of service.
 - c. Prior to submitting a request, the HSA office should coordinate with the responsible RFC on any impacts the gage closure(s) will have on forecast services. RFC should provide their written comments on any impact(s) and their recommendations on the level of reduced service.
 - d. All requests for reduced forecast services due to gage closures should be made in **writing** by the MIC of the office with HSA responsibility to ERH HSD. Requests from offices in other NWS regions should be sent to ERH HSD through their regional HSD.
 - e. Requests should be as specific as possible. They should include technical evaluations by the servicing RFC and a copy of the letter to affected users.
 - f. ERH HSD will coordinate an evaluation of the request with the appropriate NWS offices (RFC, WFO, OCWWS, other regional HSD, etc).
 - g. ERH HSD will issue a letter of authorization on the request for reduced services to the office with HSA responsibility and the appropriate RFC. The level of reduced services will be directly related to the type and frequency of data remaining available at the location in question. Reduced service may include categorical (Major, Moderate, Minor) forecasts.
 - h. The office with HSA responsibility will be responsible for coordinating the reduction in hydrologic services with affected hydrologic users (e.g. emergency managers, hydrologic agencies, media, etc.).

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- i. Temporary or short-term gage outages should not be considered for reduction in services unless the outages develop into a long-term (6 months or more) duration. For short-term outages at river forecast points, site-specific forecasts should continue to be released. Public issuances should note that current data is unavailable or missing.
- j. Report on River Gage Station (E-19) for forecast points that have been approved for reduced service operations should be updated by the affected HSA office.
- k. Automatic or manual product formatters for the issuance of river flood forecasts and warnings should be updated to reflect the change in forecast services.
- l. WFO Hydrologic Forecast System (WHFS) applications and Advanced Hydrologic Prediction Service (AHPS) web pages should be updated to reflect the change in forecast services.

Appendix A - Template for Letter on Stream Gage Closures

Name

Address

Dear Name,

The proposed discontinuation of funding for river gages supported by the U.S. Geological Survey (USGS) Federal cooperative hydrologic data collection program is expected to have a major impact on the National Weather Service (NWS) river and flood forecasting capabilities for the state of state name. If this action is taken, NWS services will be seriously affected, including our ability to provide timely and accurate warnings and forecasts of floods for the city of Name of city as well as additional communities downstream, including Name of city and Name of city.

[Discuss a recent hydrologic event when the USGS stream gage(s) proposed for closure were instrumental in providing NWS forecast and warning services. Describe the causes for the event, where the flooding occurred (e.g., basins), the magnitude of the event, and how data from the threatened stream gages were used to provide timely and accurate flood forecasts.]

River gaging stations affected by the USGS-Federal cooperative hydrologic data collection program include Number official NWS forecast points in State. This is slightly more than Fraction of the total number of forecast points in the entire state. There are also Number additional gages which are used in forecast procedures. These locations are identified on the enclosed chart. They affect the issuance of river forecasts at Number NWS Forecast Offices. They also impact forecast operations at Number River Forecast Centers.

Real-time streamflow data is essential to the issuance of accurate river, flood stage, and water supply forecasts that are issued by the NWS. Without real-time data from these gages that are scheduled to be closed, the NWS will be forced to discontinue the issuance of site-specific river forecast products with stage forecast values. We will then only be able to provide limited services based on precipitation alone rather than both precipitation data and observed river stages.

I urge you to continue funding your share of the operation of the USGS river gaging network in state. If you require additional information about the effect of discontinuing these gages and what it would mean to the people in your state, please feel free to contact me at Phone number.

Sincerely yours,

Meteorologist In Charge, Name of WFO

Appendix B – Example Letter on Stream Gage Closures

State Flood Planning Coordinator
645 New London Avenue
Cranston, RI 02920

Dear Ms. Jones,

We have been notified by the United States Geological Survey (USGS) that the Pawtuxet River gauge at Cranston has been discontinued due to lack of funding. This will have a major impact on the National Weather Service (NWS) river and flood forecasting capabilities for the state of Rhode Island. Our ability to provide timely and accurate flood warnings and forecasts for the cities of Warwick and Cranston is highly dependant on the hydrometeorological information provided by this USGS river gauge.

The Pawtuxet River has flooded in Warwick and Cranston as recently as April 4th of this year. During this flood, the Pawtuxet River rose to 10.5 feet, 1.5 feet above the 9 foot flood stage. Another notable flood event was on March 31st 2001, when the Pawtuxet River rose to 11.9 feet at the Cranston gauge. At this stage, residential and business structures are impacted in sections of Cranston and Warwick. The flood of record for this gauge occurred back in June 1982, at a crest of 14.5 feet.

Past crest history has shown that significant flooding is possible on the Pawtuxet River during any time of the year. Floods have been more common in the winter and spring. During the summer and fall the possibility exists for tropical systems, which historically can produce copious amounts of precipitation resulting in devastating flooding in southern New England.

Real-time streamflow data is essential to the issuance of accurate river, flood stage, crest, low flow and water supply forecasts that are issued by the NWS. Without real-time data from the Cranston gauge, the NWS will be forced to discontinue the issuance of site-specific river stage forecasts on the Pawtuxet River. Subsequently, we will only be able to provide limited services based on precipitation data alone rather than both precipitation data and observed river stages. The National Weather Service will do all that it can to provide weather and flood warnings with information that is available. If the gauge is lost, we will continue to issue the more general Flood and Flash Flood Warnings as warranted for ungauged streams and rivers. Nevertheless, the absence of real-time river gauge data on the Pawtuxet River at Cranston will seriously hamper our ability to forecast flooding and provide advanced warning to protect lives and property.

If you require additional information about the effect of discontinuing this gauge and what it would mean to the residents and businesses of the Cranston River community, please feel free to contact one of us at (xxx) xxx-xxxx.