

**NATIONAL WEATHER SERVICE INSTRUCTION 10-941
OCTOBER 15, 2003**

**Operations and Services
Hydrologic Services Program, NWSPD 10-9**

FLOOD WARNING SYSTEMS

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OPR: OS31 (T. Donaldson)
Type of Issuance: Routine.

Certified by: OS3 (T. Graziano)

SUMMARY OF REVISIONS: This directive supersedes NWS Instruction 10-941, dated September 17, 2002. The following revisions were made to this instruction:

- (1) Removed the section 1 reference to NWS Manual 10-942 as a source for detailed descriptions of the Integrated Flood Observing and Warning System (IFLOWS), Automated Local Evaluation in Real-Time (ALERT) systems, and other automated flood warning systems since these systems are better described in documentation from the private sector.
- (2) Modified section 7 to decrease emphasis on direct NWS involvement in certifying a flood warning system under the FEMA Community Rating System and instead highlight the three-way relationship between the NWS StormReady program, flood warning systems, and the Community Rating System.

Signed

September 30, 2003

Gregory A. Mandt
Director, Office of Climate,
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Date

Flood Warning Systems

<u>Table of Contents:</u>	<u>Page</u>
1. Introduction	2
2. NWS/Flood Warning System Interface	2
3. Radio Frequency Authorizations	3
4. Memorandum of Understanding	3
5. Technical Assistance	3
6. Issuance of Local Observations	4
7. Federal Insurance and Mitigation Administration Community Rating System	4

1. Introduction. This chapter provides instructions governing cooperation between the National Weather Service (NWS) and the owners and operators of flood warning systems (FWS).

Several types of FWSs with varying levels of sophistication exist to meet state, regional, and local community needs. These include: (1) manual self-help FWS; (2) Integrated Flood Observing and Warning System (IFLOWS); (3) Automated Local Evaluation in Real-Time (ALERT) systems; (4) other automated flood warning systems such as systems where data is collected via satellite, microwave, trunk radio, telephone lines or computer network; and (5) mesonets. These FWSs can support NWS field office operations by providing near real-time hydrometeorological data that would otherwise be unavailable.

2. NWS/Flood Warning System Interface. Interfaces between the NWS information processing system (i.e., Advanced Weather Interactive Processing System [AWIPS]) and a FWS will be in accordance with NWS computer security and change management policies. If an FWS operator desires to utilize NWS resources (e.g., NWS expertise regarding the design, development, or software for the FWS, or NWS communication systems) for the operation of their FWS, data products from their system must be compatible with an NWS-supported data ingest interface. In addition, hydrometeorological data products from the operator’s FWS will:

- a. Support the NWS's hydrologic and meteorological forecast operations for the cooperator's area; and
- b. Arrive at NWS frequently enough to support routine forecast and warning operations, monitor critical hydrometeorological events, and support radar-based precipitation processing.

If an NWS weather forecast office (WFO) or river forecast center (RFC) serves as the sole NWS collection point for a given FWS, the data should be disseminated over the NWS communications system in products using Standard Hydrometeorological Exchange Format (SHEF) so that all affected NWS offices may have access to the data.

3. Radio Frequency Authorizations. Many FWS transmit data via line-of-sight radio signals. Transmission of these signals requires a license. If the party responsible for radio operation is a non-Federal agency, the license is issued by the Federal Communications Commission. If the responsible party is a Federal agency, the license is issued by the Interdepartment Radio Advisory Committee (IRAC), through the agency's IRAC representative. The NWS IRAC representative is in the Office of Climate, Water and Weather Service, Hydrologic Services. The NWS may assist non-Federal cooperators in obtaining radio frequency assignments, but the NWS is not required to complete the actual applications. Service hydrologists and hydrology focal points should be familiar with the basic radio frequency authorization procedures as outlined in NWS Manual 10-942, "Flood Warning Systems Manual," and be able to guide cooperators to the correct starting point in the application procedure.

4. Memorandum of Understanding (MOU). A MOU will be established by the local forecast office, with concurrence from the regional headquarters, to set forth the responsibilities of the NWS and the FWS cooperator. Sample MOUs may be found in NWS Manual 10-942. The MOU should:

- a. Clearly define the responsibilities of the NWS and cooperators for design, installation, implementation, operation, data archive and maintenance of the FWS.
- b. Provide for appropriate levels of coordination during flood episodes.

An annual review should be conducted by the local forecast office with the FWS operator to ensure all parties clearly understand their responsibilities as outlined in the MOU.

5. Technical Assistance. When requested by the FWS operator to share information and provide technical assistance, the NWS personnel involved to the extent practicable and time allowing, will:

- a. Provide available information on FWS equipment and software, including lists of available vendors and FWS user organizations;
- b. Assist in the proposal of locations for field equipment;
- c. Provide the names and addresses of individuals who must be contacted to initiate the process of Federal approval for use of hydrologic radio frequencies;
- d. Provide information on appropriate flood forecasts and warnings;
- e. Assist the FWS cooperator in developing suitable methods for obtaining NWS products appropriate to the function of the FWS operator; and

f. Provide other support and associated documentation as agreed to in an MOU.

6. Issuance of Local Observations. The NWS is mandated by Congress to provide flood forecasts and warnings to the public. However, if an FWS operator determines a need to advise a community of an impending flood situation before coordinating with the NWS, it may do so by providing a local observation of impending conditions to its constituents. The FWS operator then relays any such local observation and other supporting information to the NWS as soon as practicable. When necessary, the NWS field office will then issue an official product in support of the local observation.

7. Federal Insurance and Mitigation Administration Community Rating System. The Community Rating System was established under the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP). Under the Community Rating System, communities may obtain flood insurance premium discounts by documenting certain flood mitigation activities. Establishment of an automated FWS is one of the creditable activities under the Community Rating System.

A community receiving Community Rating System credit for an automated FWS may also receive an additional 25 points for establishing certain procedures to reduce the consequences of weather-related disasters as part of the StormReady program. FEMA requires a community to obtain StormReady recognition documentation from the NWS for the community to receive the additional 25 points credit.