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Operations and Services
Hydrologic Services Program, NWSPD 10-9

RIVER FORECAST CENTER PRODUCTS SPECIFICATION

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SUMMARY OF REVISIONS: This directive supersedes NWS Instruction 10–912, dated September 17, 2002. The following revisions were made to this instruction:

(1) Modified instructions to account for the requirement in NWSI 10-1701 (Text Product Formats and Codes) for the agency name and river forecast center name to collectively occupy only one line in the MND header. Previously, two lines were used - one line for "National Weather Service" and one for the RFC name.
(2) Modified instructions to incorporate the requirement in NWSI 10-1701 for $$ to be placed at the end of products.
(3) Incorporated a few minor edits and corrected a few typos that were overlooked when the initial version was developed.

    Signed   June 2, 2003
Gregory A. Mandt   Date
Director, Office of Climate,
Water, and Weather Services

River Forecast Center Products Specification

1.   <u>Introduction</u>. This directive describes issuance criteria, content, and format of hydrologic products provided by river forecast centers (RFC). RFC products can be broadly grouped into four categories: (1) forecast products, (2) support/guidance products, (3) data products, and (4) non-AWIPS-distributed products such as water supply forecast publications. Forecast and support/guidance products are covered in sections 1 through 11, with a detailed description provided for each one. Data products are covered in sections 12 through 13 and are described in an aggregated fashion. Non-AWIPS-distributed products are covered in section 14, also in an aggregated fashion. Examples of products covered in this directive are provided in NWS Manual 10-913, "River Forecast Center Product Examples."

Some RFC products are distributed over the Advanced Weather Information Processing System (AWIPS) to NWS users such as weather forecast offices (WFO) and other RFCs, but are not issued to the public through NWS-supported public dissemination systems such as NOAA Weather Wire. Selected RFC products are issued to the public over NWS-supported dissemination systems. All products distributed over AWIPS follow certain standards for World Meteorological Organization (WMO) headings and AWIPS identifiers. Additional standards for mass news dissemination (MND) headers, universal geographic code (UGC), and general format apply to products to be issued through NWS-supported dissemination system. These standards are contained in NWS Instruction 10-1701, "Text Product Formats and Codes."

Some RFC products are made available to customers and partners through the Internet and other mechanisms. The specific customers and partners and/or level of access to products through the

Internet are identified in regional and local office policies. If an RFC product is available on the Internet and it also serves as input to one or more WFO hydrologic products, the RFC should include a notice indicating the corresponding WFO product(s).

RFC forecast products contain short-term (out to 7 days), medium-term (7 out to 14 days), and long-term (2 weeks out to 3 months or more) hydrologic forecast information for specific service locations. A service location is defined as a stream location, reservoir, or lake for which any type of RFC forecast is provided. Because RFCs may provide specialized forecasts for external partners, a service location is not always a WFO forecast point. Some service locations may not have current rating tables maintained by a supporting agency such as the U.S. Geological Survey (USGS). Any product produced for such locations should include an annotation addressing the factor(s) (e.g., lack of rating table) which limit forecast accuracy.

2.   Short-Term Hydrologic Forecast Product (RVF). RFCs use the short-term hydrologic forecast product to provide routine and event-driven hydrologic forecasts. Information provided in this product includes: short-term hydrologic forecasts, graphical depictions of short-term hydrologic forecasts, and river ice forecasts. This product is not distributed over NWS-supported public dissemination pathways, but may be provided to partners through appropriate means including the Internet.

2.1   Mission Connection. The short-term hydrologic forecast product helps the NWS meet its mission by supplying the foundational information used in hydrologic forecasts, flood warnings, flood statements, and other products, thus supporting numerous water management applications which enhance the national economy.

2.2   Issuance Guidelines.

2.2.1   Creation Software. Create short-term hydrologic forecast products using the X-SETS application or other applications as appropriate.

2.2.2   Issuance Time. Issue the short-term hydrologic forecast product according to schedules coordinated with supported WFOs and regional headquarters. Issue unscheduled river forecast products and more frequent updates to routine forecast products when significant flows or flooding are occurring or expected. Specific requirement: when a stream or river is at or above flood stage and is still rising or is forecast to rise above flood stage, provide updated forecast values at more frequent intervals than normal, subject to data availability, forecaster judgement, hydrologic characteristics of the streams or rivers involved, and the needs of customers and partners.

2.2.3   Valid Time. As is the case for all RFC forecast products covered in this instruction, this product is a collection of forecast values for one or more individual service locations. An individual forecast value within this product is valid until another value is issued for the same time and service location.

2.3   Technical Description.

2.3.1 <u>MND Product Type Line</u>. Use: "RIVER FORECAST."

2.3.2 <u>Content</u>. Content of the short-term hydrologic forecast product is dictated by customer and cooperator requirements, the current hydrologic situation, and type of information being conveyed. Plain-language text may be included, but numerical forecast values are encoded in standard hydrometeorological exchange format (SHEF). If needed by customers or partners, short-term hydrologic forecast products should include both stage and discharge values.

2.3.3 <u>Format</u>. The generic format is as follows:

```
FGA₁A₂ii Kccc ddhhmm (BBB)                    (WMO Heading)
RVFxxx                                          (AWIPS ID)

RIVER FORECAST                             (NWS Product Name)
NWS <RFC name> <RFC location>                 (Issuing Office)
Time am/pm time_zone day mon dd yyyy     (Issuance time/date)

: <Headline introducing the information to be presented below>

: <SHEF-encoded forecast information>
          or
  <Narrative information>

$$
```

2.4 <u>Updates, Amendments, and Corrections</u>. Provide updates and corrections to short-term hydrologic forecast products by issuing a new product. Amendments are not applicable to this product.

3. **Extended-Range Streamflow Guidance (ESG).** This category is for extended-range hydrologic forecast information of an advisory or descriptive nature. Information provided in this product includes flood potential guidance and discussions of extended-range hydrologic forecasts. This product is not distributed over NWS-supported public dissemination pathways, but may be provided to partners through appropriate means including the Internet.

3.1 <u>Mission Connection</u>. Extended-range streamflow guidance helps the NWS meet its mission by supplying hydrologic forecast information used in medium- and long-term planning and mitigation activities. These activities include scheduling reservoir operations and preparing for floods and droughts, all of which help to protect life and property and enhance the national economy.

3.2 <u>Issuance Guidelines</u>.

3.2.1 <u>Creation Software</u>. Use the application(s) appropriate to product content.

3.2.2 <u>Issuance Time</u>. Issue extended-range streamflow guidance according to schedules coordinated with supported WFOs and external partners.

3.2.3   Valid Time. A discussion or individual forecast value in this product is valid until another discussion or value is issued for the same time, time period and service location.

3.3   Technical Description.

3.3.1   MND Product Type Line. Use any term appropriate to the product content.

3.3.2   Content. Content of extended-range streamflow guidance products is dictated by the type of information needed by customers and partners. Numerical forecast values in these products may be provided in standard tables or encoded in SHEF as required by customers and partners.

3.3.3   Format. The generic format is as follows:

```
FGA₁A₂ii Kccc ddhhmm (BBB)
ESGxxx

<insert name appropriate to content>
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<Product content>

$$
```

3.4   Updates, Amendments, and Corrections. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

4.   Extended-Range Streamflow Prediction Product (ESP). This product is for extended-range hydrologic forecast information of a numeric or probabilistic nature. Information distributed under this category includes water supply forecasts, drought and water resources guidance, and long-term probabilistic forecast information. This product is not distributed over NWS-supported public dissemination pathways, but may be provided to partners through appropriate means including the Internet.

4.1   Mission Connection. The extended-range streamflow prediction product helps the NWS meet its mission by supplying hydrologic forecast information used in medium- and long-term planning and mitigation activities. These activities include scheduling reservoir operations and preparing for floods and droughts, all of which help to protect life and property and enhance the national economy.

4.2   Issuance Guidelines.

4.2.1   Creation Software. Use the application(s) appropriate to product content.

4.2.2   Issuance Time. Issue extended-range streamflow prediction products according to schedules coordinated with supported WFOs and external partners.

4.2.3   Valid Time. An individual forecast value in this product is valid until another value is issued for the same time, time period and service location.

4.3   Technical Description.

4.3.1   MND Product Type Line. Use any term appropriate to the content.

4.3.2   Content. Content of extended-range streamflow prediction products is dictated by the type of information needed by customers and partners. Numerical forecast values in these products may be provided in tables or encoded in SHEF as required by customers and partners.

4.3.3   Format. The generic format is as follows:

```
FGA₁A₂ii Kccc ddhhmm (BBB)
ESPxxx

<insert name appropriate to content>
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<Product content>

$$
```

4.4   Updates, Amendments, and Corrections. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

5.   Areal Flash Flood Guidance (FFG). Areal flash flood guidance is a numerical estimate of the average rainfall over a specified area and time interval required to initiate flooding on small streams. Areal flash flood guidance products may be distributed over NWS-supported public dissemination pathways and posted on the Internet.

5.1   Mission Connection. Areal flash flood guidance helps the NWS to meet its mission by serving as a critical tool used in the assessment of flood threat and the issuance of watch/warning products. Areal flash flood guidance allows NWS products to be issued which alert customers and partners of potential or imminent flood threats, thus helping to protect life and property.

5.2   Issuance Guidelines.

5.2.1   Creation Software. Use the NWS flash flood guidance system (FFGS) or other applications as appropriate.

5.2.2   Issuance Time. Issue areal flash flood guidance at times coordinated between RFCs, WFOs, and regional headquarters.

5.2.3   <u>Valid Time</u>. An individual flash flood guidance value in this product is valid until another value is issued for the same time, time period, and area.

5.3   <u>Technical Description</u>.

5.3.1   <u>MND Product Type Line</u>. Use a term indicating the type of flash flood guidance in the product.

5.3.2   <u>Content</u>. Encode areal flash flood guidance values in SHEF. Three types of flash flood guidance may be provided - county, urban area, and zone. For county flash flood guidance, use county universal generic codes (UGC-C) to identify each county or subdivision of county in the product. For zone flash flood guidance, use NWS forecast zone numbers to identify each area. For urban area flash flood guidance, use a locally-developed code up to 8-characters long to identify each urban area covered in the product. More than one of these three types may be provided within a given flash flood guidance product. If more than one RFC is providing areal flash flood guidance to a WFO, the supporting RFCs should coordinate to provide a common product format for the WFO.

5.3.3   <u>Format</u>. The generic format is as follows:

```
FOA₁A₂ii Kccc ddhhmm (BBB)
FFGxxx

<optional descriptive term> FLASH FLOOD GUIDANCE
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<SHEF-encoded content>

$$
```

5.4   <u>Updates, Amendments, and Corrections</u>. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

6.   Headwater Flash Flood Guidance (FFH). Headwater flash flood guidance is a numerical estimate of the average rainfall over a specified small stream basin and time interval required to initiate flooding on the stream. Headwater flash flood guidance products may be distributed over NWS-supported public dissemination pathways and posted on the Internet.

6.1   <u>Mission Connection</u>. Headwater flash flood guidance helps the NWS to meet its mission by serving as a critical tool used in the issuance of flood watch/warning products, thus helping to protect life and property.

6.2   <u>Issuance Guidelines</u>.

6.2.1   <u>Creation Software</u>. Use the FFGS or other applications as appropriate.

6.2.2 <u>Issuance Time</u>. Issue headwater flash flood guidance at times coordinated between RFCs, WFOs, and regional headquarters.

6.2.3 <u>Valid Time</u>. An individual flash flood guidance value in this product is valid until another value is issued for the same time, time period, and basin.

6.3 <u>Technical Description</u>.

6.3.1 <u>MND Product Type Line</u>. Use: "HEADWATER FLASH FLOOD GUIDANCE."

6.3.2 <u>Content</u>. Encode headwater flash flood guidance values in SHEF. Use the NWS location identifier (NWSLI) assigned to the forecast point at the basin outlet to identify the basin, or another code as appropriate.

6.3.3 <u>Format</u>. The generic format is as follows:

```
FOA₁A₂ii Kccc ddhhmm (BBB)
FFHxxx

HEADWATER FLASH FLOOD GUIDANCE
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<SHEF-encoded content>

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```

6.4 <u>Updates, Amendments, and Corrections</u>. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

7. **Gridded Flash Flood Guidance (FFD).** Gridded flash flood guidance are numerical estimates of the average rainfall over a set of pre-defined grid areas and a specified time interval required to initiate flooding on small streams. Gridded flash flood guidance products may be distributed over NWS-supported public dissemination pathways and posted on the Internet.

7.1 <u>Mission Connection</u>. Gridded flash flood guidance helps the NWS to meet its mission by serving as a critical tool used in the issuance of flood watch/warning products. Gridded flash flood guidance allows NWS products to be issued which alert customers and partners of potential or imminent flood threats, thus helping to protect life and property.

7.2 <u>Issuance Guidelines</u>.

7.2.1 <u>Creation Software</u>. Use the FFGS or other applications as appropriate.

7.2.2 <u>Issuance Time</u>. Issue gridded flash flood guidance at times coordinated between RFCs, WFOs, and regional headquarters.

7.2.3   Valid Time. A flash flood guidance value for an individual grid is valid until another value is issued for the same time, time period, and grid.

7.3   Technical Description.

7.3.1   MND Product Type Line. If included, use "GRIDDED FLASH FLOOD GUIDANCE."

7.3.2   Content. Distribute gridded flash flood guidance encoded in a standard NWS gridded format (e.g., GRIB).

7.3.3   Format. Organize information within a product using a format appropriate to the encoding mechanism. The WMO heading and AWIPS identifiers are as follows:

> FOA_1A_2ii Kccc ddhhmm (BBB)
> FFDxxx

7.4   Updates, Amendments, and Corrections. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

8.   Hydrologic Model Variable States and Parameters (FFV). It is planned for RFCs to share hydrologic model variable states and parameters through this product to support the WFO site-specific hydrologic forecast application. It may contain selected information directly from the RFC operational forecast system (OFS) or categorical information derived from OFS variable states. This product will not be distributed over NWS-supported public dissemination pathways, but may be provided to partners through appropriate means including the Internet.

8.1   Mission Connection. The hydrologic model variable states and parameters product helps the NWS to meet its mission by supporting the issuance of site-specificity of flood watch/ warning products, thus helping to protect life and property.

8.2   Issuance Guidelines.

8.2.1   Creation Software. Use appropriate applications.

8.2.2   Issuance Time. If a WFO hydrologic modeling procedure exists and current RFC model variable states or parameters are used in the procedure, issue this product each time the RFC operational forecast system is executed and carryovers are saved for the WFO forecast basin(s). Coordinate other issuance times with regional headquarters and supported WFOs.

8.2.3   Valid Time. An individual variable state or parameter is valid until another value is issued for the same time and forecast basin.

8.3   Technical Description.

8.3.1   MND Product Type Line. Use "HYDROLOGIC MODEL VARIABLE STATES/PARAMETERS."

8.3.2   Content. Encode hydrologic model variable states and parameters in SHEF. Use the NWS location identifier (NWSLI) assigned to the forecast point at the basin outlet to identify the basin, or another code as appropriate.

8.3.3   Format. The generic format is as follows:

```
FOA₁A₂ii Kccc ddhhmm (BBB)
FFVxxx

HYDROLOGIC MODEL VARIABLE STATES/PARAMETERS
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<SHEF-encoded content>

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8.4   Updates, Amendments, and Corrections. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

9.   Hydrometeorological Discussion (HMD). Hydrometeorological discussions provide a hydrology-oriented overview of the current and expected hydrometeorological situation across the RFC area. This product is made available over NWS-supported public dissemination pathways and posted on the Internet.

9.1   Mission Connection. The hydrometeorological discussion helps the NWS meet its mission by providing background information which enhances understanding of the current hydrologic situation in large river basins. This helps customers and partners focus their water resources and flood mitigation activities, thus enhancing the national economy.

9.2   Issuance Guidelines.

9.2.1   Creation Software. Use appropriate text editor on AWIPS or other applications (e.g., Web software) as appropriate

9.2.2   Issuance Time. Issue hydrometeorological discussions according to schedules coordinated with supported WFOs and other partners.

9.2.3   Valid Time. This product should be considered valid for a period up to 24 hours from the time of issuance.

9.3   Technical Description.

9.3.1   MND Product Type Line. Use: "HYDROMETEOROLOGICAL DISCUSSION."

9.3.2 <u>Content</u>. Topics discussed in this product may include: (1) antecedent precipitation and other events leading up to the present hydrologic situation, (2) existing streamflow conditions, (3) future precipitation events of hydrologic interest, and (4) expected river trends and potential for flooding and other hydrologic events. Content and level of detail in each section may vary from day to day according to current needs. Drought and snow pack/soil moisture information may also be included. Note: information of an internal-NWS nature should not be included in hydrometeorological discussions.

In lieu of a conventional text discussion product, a menu-driven display of data, forecasts, and text products may be made available on the Web.

9.3.3 <u>Format</u>. The generic format is as follows:

```
AGA₁A₂ii Kccc ddhhmm (BBB)
HMDxxx

HYDROMETEOROLOGICAL DISCUSSION
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<Discussion>

$$
```

9.4 <u>Updates, Amendments, and Corrections</u>. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

10. Hydrometeorological Coordination Message (HCM). Hydrometeorological coordination messages are produced by RFCs to communicate any type of internal forecast/support-oriented information between RFCs, associated WFOs, and the National Centers for Environmental Prediction (NCEP). This product is not distributed over NWS-supported public dissemination pathways or posted on the Internet, but may be made available through secured mechanisms to selected partners.

10.1 <u>Mission Connection</u>. The hydrometeorological coordination message helps the NWS meet its mission by providing RFC, WFO, and NCEP forecasters with a mechanism for communicating sensitive information on potential hydrometeorological activity before it is released to the public in the form of forecasts and warnings.

10.2 <u>Issuance Guidelines</u>.

10.2.1 <u>Creation Software</u>. Use appropriate text editor on AWIPS.

10.2.2 <u>Issuance Time</u>. Issue whenever necessary.

10.3 <u>Technical Description</u>.

10.3.1 <u>MND Product Type Line</u>. Use: "HYDROMETEOROLOGICAL COORDINATION MESSAGE."

10.3.2 <u>Content</u>. Topics discussed in this product may include (but are not limited to): contingency planning for future hydrometeorological events, QPF verification information, hydrologic forecast verification information, and problems with gage or radar-based data.

10.3.3 <u>Format</u>. The generic format is as follows:

```
AGA₁A₂ii Kccc ddhhmm (BBB)
HCMxxx

HYDROMETEOROLOGICAL COORDINATION MESSAGE
NWS <RFC name> <RFC location>
Time am/pm time_zone day mon dd yyyy

<Headline introducing the information to be presented below>

<Discussion>

$$
```

10.4 <u>Updates, Amendments, and Corrections</u>. Not applicable.

11. **Significant River Flood Outlook Product.** This graphical product broadly identifies areas where potential exists for significant river flooding during the next 5 days. "Significant flooding" is defined as flooding which falls in the moderate and major categories as defined in NWS Manual 10-950. Each RFC posts their significant river flood outlook product on their web server and the CONUS RFCs transmit their product to Hydrometeorological Prediction Center (HPC) at the NCEP. The significant river flood outlook product can be used as guidance by WFOs when they prepare local hydrologic outlooks as described in NWS Instruction 10-922.

11.1 <u>Mission Connection</u>. The significant river flood outlook product helps the NWS meet its mission by graphically depicting areas of river flood potential. This helps customers and partners focus and optimize their flood mitigation activities, thus enhancing the national economy.

11.2 <u>Issuance Guidelines</u>.

11.2.1 <u>Creation Software</u>. Create significant river flood outlook products using the ArcView software on AWIPS or other applications as appropriate.

11.2.2 <u>Issuance Time</u>. Issue this product at least once per day.

11.3 <u>Technical Description</u>.

11.3.1 <u>Content</u>. Using the color/patterns shown below in section 11.3.2, characterize flood potential in the graphic according to the following criteria:

    a.   <u>Possible</u>: Hydrometeorological conditions indicate significant flooding could occur. Such flooding is neither certain nor imminent.

    b.   <u>Likely</u>: Hydrometeorological conditions indicate significant flooding can be expected during the outlook period.

    c.   <u>Occurring/Imminent</u>: Significant flooding is already occurring or is forecast to occur during the outlook period.

For areas with no flood potential, use no color or pattern. Coordinate product content with neighboring RFCs to ensure appropriate consistency across boundaries, using the HPC as the facilitator. At some location within the web display, provide links for access to the latest watches and warnings from associated WFOs.

11.3.2 <u>Format</u>. A sample significant river flood outlook product is shown below:
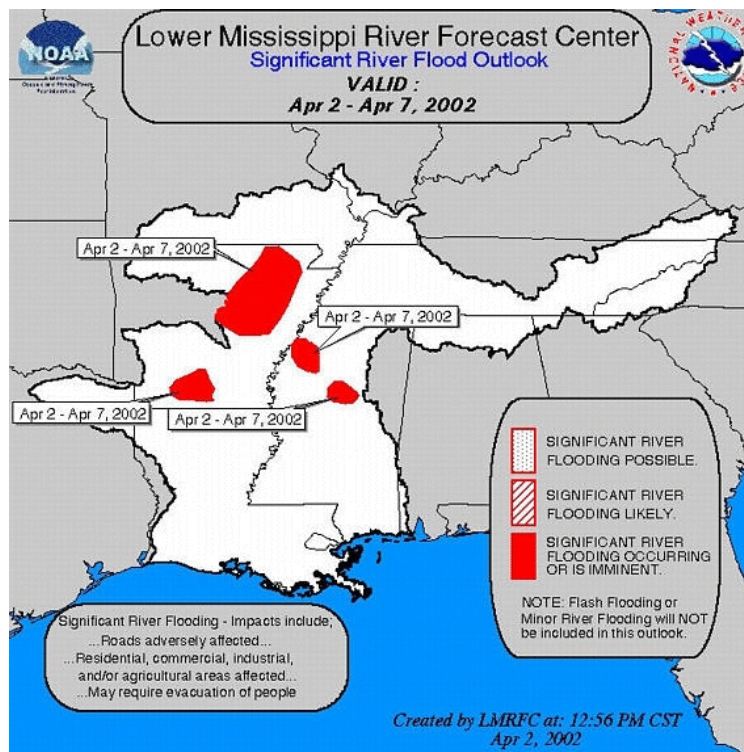
11.4   <u>Updates, Amendments, and Corrections</u>. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

12.   **Hydrometeorological Data Products.**

12.1   <u>Mission Connection</u>. RFC hydrometeorological data products contribute to a national information database which can be used by other governmental agencies, the private sector, and the public to enhance the national economy.

12.2   Issuance Guidelines.

12.2.1 Creation Software. Create products using appropriate local applications.

12.2.2 Issuance Time. Issue according to schedules developed with customers and partners.

12.3   Technical Description.

12.3.1 MND Product Type Line. Use the MND product type lines shown in table 1.

WMO Heading	MND Product Type Line	Content
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR1xxx	HYDROMETEOROLOGICAL DATA REPORT #1	Locally-collected hydrometeoro-logical data
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR2xxx	HYDROMETEOROLOGICAL DATA REPORT #2	Locally-collected hydrometeoro-logical data
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR3xxx	HYDROMETEOROLOGICAL DATA REPORT #3	Cooperative observer data
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR4xxx	HYDROMETEOROLOGICAL DATA REPORT #4	Cooperative observer special reports
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR5xxx	HYDROMETEOROLOGICAL DATA REPORT #5	Locally-collected hydrometeoro-logical data
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR8xxx	HYDROMETEOROLOGICAL DATA REPORT #8	Locally-collected hydrometeoro-logical data
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RR9xxx	HYDROMETEOROLOGICAL DATA REPORT #9	Locally-collected hydrometeoro-logical data
SRA$_1$A$_2$ii Kccc ddhhmm (BBB) RRAxxx	AUTOMATED DATA REPORT	Automated river and rain gage data

Table 1. Header instructions for hydrometeorological data products.

12.3.2 Content. See Table 1 for the type of content in each hydrometeorological data product.

12.3.3 Format. Format hydrometeorological data products in SHEF unless otherwise noted in Table 1. Use the WMO header and MND product type line listed in Table 1. Use of a headline is optional.

12.4   Updates, Amendments, and Corrections. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

13.   Hydrometeorological Data Summary Products (HYx).

13.1   Mission Connection. Daily, weekly, and monthly hydrometeorological data summary products contribute to a national information database which can be used by other governmental agencies, the private sector, and the public to enhance the national economy.

13.2   Issuance Guidelines.

13.2.1 <u>Creation Software</u>. Create hydrometeorological data summary products using appropriate local applications.

13.2.2 <u>Issuance Time</u>. Issue hydrometeorological data summary products on a daily (HYD), weekly (HYW), or monthly (HYM) basis according to schedules developed with local customers and partners.

13.3 <u>Technical Description</u>.

13.3.1 <u>MND Product Type Line</u>. Use the MND product type lines shown in table 2.

WMO Header	MND Product Type Line	Content
SXA_1A_2ii Kccc ddhhmm (BBB) HYDxxx	DAILY HYDROMETEOROLOGICAL DATA SUMMARY	Quality controlled daily hydromet data summary, SHEF or tabular format
CWA_1A_2ii Kccc ddhhmm (BBB) HYWxxx	WEEKLY HYDROMETEOROLOGICAL DATA SUMMARY	Quality controlled weekly hydromet data summary, SHEF or tabular format
CSA_1A_2ii Kccc ddhhmm (BBB) HYMxxx	MONTHLY HYDROMETEOROLOGICAL DATA SUMMARY	Quality controlled monthly hydromet data summary, SHEF or tabular format

Table 2. Header instructions for hydrometeorological data summary products.

13.3.2 <u>Content</u>. See Table 2 for the type of content in each hydrometeorological data summary product.

13.3.3 <u>Format</u>. Format hydrometeorological data products using standard tables or SHEF as coordinated with customers and partners. Use the WMO header and MND product type line listed in Table 2. Use of a headline is optional.

13.4 <u>Updates, Amendments, and Corrections</u>. Provide updates and corrections by issuing a new product. Amendments are not applicable to this product.

14. Miscellaneous Non-AWIPS-Distributed Products. Several RFC products are not disseminated via AWIPS, but nonetheless constitute a significant contribution to the NWS Hydrologic Services Program. These include various types of water supply products and publications as well as a variety of observed and forecast hydrologic information provided via RFC Web pages. Content and format of these products will evolve with improvements in technology. RFCs should strive to maximize the provision of such information which is tailored to their local customers.

14.1 <u>Mission Connection</u>. These products help the NWS meet its mission by supplying observed and forecast hydrologic information used in medium- and long-term planning and mitigation activities. These activities include preparing for floods and droughts, scheduling reservoir operations, and allocating water resources for various consumptive uses, all of which help to protect life and property and enhance the national economy.

14.2   Issuance Guidelines.

14.2.1 Creation Software. Create these products using appropriate local applications.

14.2.2 Issuance Time. Provide RFC products not distributed over AWIPS according to schedules coordinated with supported WFOs and external partners and use application(s) appropriate to product content.

14.3   Technical Description.

14.3.1 Content. The content of RFC products not distributed over AWIPS varies according to the needs of customers and partners. Some examples of these products and their associated content include:

a.   The "Water Supply Outlook for the Western United States," a.k.a. Westwide Publication - presents a broad outlook for water supply conditions in the western U.S., including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs. This publication includes basic data and streamflow forecasts prepared by cooperating agencies, which include the U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, U.S. Dept. of Agriculture (USDA) Forest Service, U.S. National Park Service, U.S. Geological Survey, British Columbia Ministry of the Environment, and the California Dept. of Water Resources. NWS contributors include the California-Nevada, Colorado Basin, Northwest, Missouri Basin, Arkansas-Red Basin, West Gulf, and Alaska-Pacific RFCs. This official publication is issued jointly by the NWS and the USDA Natural Resources Conservation Service, on a once-a-month basis, following the issuance of the monthly water supply forecasts from January through May.

b.   Local Water Supply Publications - produced primarily by western RFCs, contain products information on snowpack and recent precipitation as well as seasonal volumetric forecasts. The products are a combination of text and graphs. These publications are primarily provided to customers and partners via Web pages.

c.   Miscellaneous hydrologic information - produced by the RFCs for use by local customers and partners. This information is most commonly distributed via the Web and includes graphical information on soil moisture accounting model variable states; model inputs such as mean areal precipitation (MAP), mean areal temperature (MAT) and freezing levels; graphical observed and forecast hydrographs, historical contextual information such as daily historical peaks, critical stages, and daily historical probabilistic values; graphical rating curves; maps showing topography and soil types, and photographs of hydrologic interest.

14.3.2 Format. Use format appropriate to requirements of customers and partners.

14.4   Updates, Amendments, and Corrections. Provide updates and corrections by issuing a new product or by updating information on the Web. Amendments are not applicable to this product.

15.   Assimilated Data Fields. RFCs assimilate remotely-sensed precipitation estimates, QPFs, and other hydrometeorological information for use in their hydrologic forecast operations. This assimilated information may be forwarded to other offices inside and outside the NWS through mutually agreeable mechanisms and may be made available on the Internet.

16.   Advanced Hydrologic Prediction Service. The hydrologic forecast information and observed data contained in products described in the previous sections, as well as additional output from WFO and RFC hydrologic modeling systems, can be incorporated into a graphical products and a forecast information database. These graphical products provided through the Internet and other mechanisms, the forecast information database from which they are derived, and improvements to the underlying hydrologic science and forecasting technology form the core of the Advanced Hydrologic Prediction Service (AHPS). All AHPS products and information provided by an RFC through the Internet will conform to current NWS, NOAA, and DOC policies.