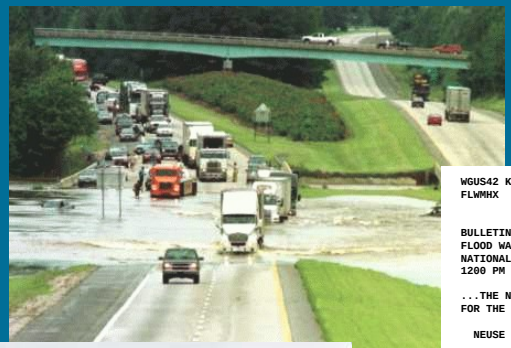
VTEC In the New NWS Flood Products for Forecast Points



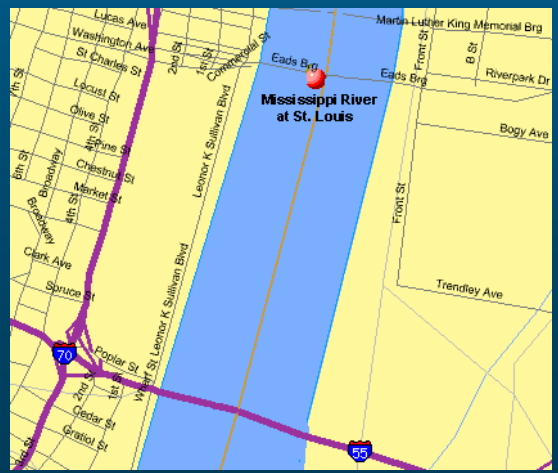
```
WGUS42 KMHX 061600
FLWMHX


BULLETIN - IMMEDIATE BROADCAST REQUESTED
FLOOD WARNING
NATIONAL WEATHER SERVICE NEWPORT/MOREHEAD CITY NC
1200 PM EDT FRI APR 6 2001

...THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A FLOOD WARNING
FOR THE FOLLOWING RIVER IN NORTH CAROLINA...

  NEUSE RIVER AT KINSTON AFFECTING CRAVEN AND LENOIR COUNTIES

.HEAVY RAINFALL LAST NIGHT IN EASTERN NORTH CAROLINA HAS CAUSED THE
ALREADY HIGH NEUSE...TAR...AND ROANOKE RIVERS TO RISE NEAR OR ABOVE
FLOOD STAGE. THESE RIVERS RISE AND FALL VERY SLOWLY...SO MINOR
FLOODING WILL PERSIST ALONG THEM FOR SEVERAL DAYS.

NEVER DRIVE CARS...TRUCKS OR SPORT UTILITY VEHICLES THROUGH FLOODED
AREAS. THE WATER MAY BE TOO DEEP TO ALLOW FOR SAFE PASSAGE.

ADDITIONAL INFORMATION IS AVAILABLE AT
HTTP://AHPS.ERH.NOAA.GOV/CGI-BIN/AHPS_CGI?MHX /LOWER CASE/
THE NEXT STATEMENT WILL BE ISSUED THIS EVENING AT 1000 PM.

NCC049-107-070200-
/O.NEW.KMHX.FL.W.0001.010407T1300Z-000000T0000Z/
/KINN7.1.ER.010407T1300Z.010412T0100Z.000000T0000Z.NO/
1200 PM EDT FRI APR 6 2001

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A
* FLOOD WARNING FOR
  NEUSE RIVER AT KINSTON
* FROM SATURDAY MORNING UNTIL FURTHER NOTICE
* AT 9 AM EDT FRIDAY THE STAGE WAS... 13.5 FEET
* MINOR FLOODING IS FORECAST
* FLOOD STAGE IS...14.0 FEET
* FORECAST...FLOOD STAGE WILL BE REACHED AT 900 AM SATURDAY. MAXIMUM
  STAGE WILL BE 15.0 FEET AT 900 PM EDT WEDNESDAY. THE RIVER MAY REMAIN
  ABOVE FLOOD STAGE FOR SEVERAL WEEKS. THE EXACT FLOOD DURATION IS
  DIFFICULT TO PREDICT DUE TO THE VERY SLOW RISE AND FALL TIMES FOR
  THIS RIVER.
* AT 14 FEET...WATER WILL BEGIN TO OVERFLOW INTO LOWLANDS ADJACENT
  TO THE NEUSE RIVER.

$$
```

VTEC (Valid Time Event Code) in Flood Products – What Is It?

- **VTEC is new coding which provides for enhanced automated processing, storage, and display of NWS products.**
- **It occurs right after each Universal Geographic Code (UGC) line.**
- **It involves two lines (strings) of code – a line of Primary VTEC, or P-VTEC, followed by the Hydrologic VTEC, or H-VTEC, on the next line.**
- **It requires a new segmented format to be used so the encoded VTEC information can be closely linked to text describing the flood situation at each forecast point.**

What Is A Segment?

- A segment is a specially designated portion of a product devoted to a specific geographic area.
- A segment starts with a UGC line and ends with a double dollar sign ($$).
- A product has more than one segment when it is desirable to provide unique descriptions of what is occurring and/or expected in multiple geographic areas.
- In flood products for forecast points, each segment is built around one forecast point instead of a geographic area.



Mississippi River at St. Louis forecast point

What Is A Segment (cont.)?

In the old, unsegmented flood products:

- **There is only one UGC, which is located at the top of the product, right after the NWS Communications Identifier Block,**
- **The single UGC at the top of the product contains all the county codes for the entire product,**
- **The end of the product is marked with a $$, and**
- **Several forecast points could be covered in the product, but there is only one $$ at the end of the product.**

What Is A Segment (cont.)?

In the new, segmented flood products:

- **There is no UGC at the top of the product – instead, a UGC is found at the start of each segment,**
- **The UGC at the start of each segment describes only the county(s) covered in that segment,**
- **Each segment provides information for one forecast point,**
- **Because a county may have more than one forecast point, the same county FIPS code may appear in more than one UGC,**
- **VTEC for each forecast point is found right after the UGC for each forecast point,**
- **The flood information appears in a new bullet format, and**
- **A $$ appears at the end of each segment.**

What Is A Segment (cont.)?

Segmentation by forecast point has four main advantages for users:

- **Provides a way to encode vital flood information for individual forecast points.**
- **Provides for a standardized format for presenting information which is specific to the type of product and the current situation.**
- **Provides a point-specific code - the NWS location identifier (NWSLI) - which can be used to sort, store, and distribute information on floods at specific forecast points.**
- **Allows each individual segment to be linked to the forecast point hydrograph on the NWS Rivers web page.**

What Is A Segment (cont.)?

Here is what a segment in a flood product could look like:

```
NCC049-107-070200-
/O.NEW.KMHX.FL.W.0001.080407T1300Z-000000T0000Z/
/KINN7.1.ER.080407T1300Z.080412T0100Z.000000T0000Z.NO/
1200 PM EDT FRI APR 6 2008

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A
* FLOOD WARNING FOR
  NEUSE RIVER AT KINSTON
* FROM SATURDAY MORNING UNTIL FURTHER NOTICE
* AT 9 AM EDT FRIDAY THE STAGE WAS... 13.5 FEET
* MINOR FLOODING IS FORECAST
* FLOOD STAGE IS...14.0 FEET
* FORECAST...FLOOD STAGE WILL BE REACHED AT 900 AM SATURDAY. MAXIMUM
  STAGE WILL BE 15.0 FEET AT 900 PM EDT WEDNESDAY. THE RIVER MAY REMAIN
  ABOVE FLOOD STAGE FOR SEVERAL WEEKS. THE EXACT FLOOD DURATION IS
  DIFFICULT TO PREDICT DUE TO THE VERY SLOW RISE AND FALL TIMES FOR
  THIS RIVER.
* AT 14 FEET...WATER WILL BEGIN TO OVERFLOW INTO LOWLANDS ADJACENT
  TO THE NEUSE RIVER.

$$
```

Neuse River at Kinston ↓

Where Do the Segments Fit Into A Complete Product?

```
WGUS42 KMHX 061600
FLWMHX

BULLETIN - IMMEDIATE BROADCAST REQUESTED
FLOOD WARNING
NATIONAL WEATHER SERVICE NEWPORT/MOREHEAD CITY NC
1200 PM EDT FRI APR 6 2008

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FOR THE FOLLOWING RIVERS IN NORTH CAROLINA...

  NEUSE RIVER AT KINSTON AFFECTING CRAVEN AND LENOIR COUNTIES
  TAR RIVER AT GREENVILLE AFFECTING PITT COUNTY

.HEAVY RAINFALL LAST NIGHT IN EASTERN NORTH CAROLINA HAS CAUSED THE
ALREADY HIGH NEUSE AND TAR RIVERS TO RISE NEAR OR ABOVE FLOOD STAGE.
THESE RIVERS RISE AND FALL VERY SLOWLY...SO MINOR FLOODING WILL
PERSIST ALONG THEM FOR SEVERAL DAYS.

NEVER DRIVE CARS...TRUCKS OR SPORT UTILITY VEHICLES THROUGH FLOODED
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ADDITIONAL INFORMATION IS AVAILABLE AT
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NCC049-107-070200-
/O.NEW.KMHX.FL.W.0001.080407T1300Z-000000T0000Z/
/KINN7.1.ER.080407T1300Z.080412T0100Z.000000T0000Z.NO/
1200 PM EDT FRI APR 6 2008

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A
* FLOOD WARNING FOR
  NEUSE RIVER AT KINSTON
*
*   (Additional bullets)
*

$$

NCC147-070200-
/O.NEW.KMHX.FL.W.0002.080406T1600Z-080410T1000Z/
/PGVN7.1.ER.080406T0400Z.080408T1200Z.080410T1000Z.NO/
1200 PM EDT FRI APR 6 2008

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A
* FLOOD WARNING FOR
  TAR RIVER AT GREENVILLE
*
*   (Additional bullets)
*

$$
```

NWS Communications Identifier* and MND Header Blocks**

General Overview/ Synopsis Section

* See http://www.nws.noaa.gov/tg/awips.html

**Mass News Disseminator, see 10-1701: http://www.nws.noaa.gov/directives/sym/pd01017001curr.pdf

Where Do the Segments Fit Into A Complete Product? (cont.)

```
WGUS42 KMHX 061600
FLWMHX

BULLETIN - IMMEDIATE BROADCAST REQUESTED
FLOOD WARNING
NATIONAL WEATHER SERVICE NEWPORT/MOREHEAD CITY NC
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THE NEXT STATEMENT WILL BE ISSUED THIS EVENING AT 1000 PM.

NCC049-107-070200-
/O.NEW.KMHX.FL.W.0001.080407T1300Z-000000T0000Z/
/KINN7.1.ER.080407T1300Z.080412T0100Z.000000T0000Z.NO/
1200 PM EDT FRI APR 6 2008

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A
* FLOOD WARNING FOR
  NEUSE RIVER AT KINSTON
*
*  (Additional bullets)
*

$$

NCC147-070200-
/O.NEW.KMHX.FL.W.0002.080406T1600Z-080410T1000Z/
/PGVN7.1.ER.080406T0400Z.080408T1200Z.080410T1000Z.NO/
1200 PM EDT FRI APR 6 2008

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A
* FLOOD WARNING FOR
  TAR RIVER AT GREENVILLE
*
*  (Additional bullets)
*

$$
```

Note: bullet text shortened to fit on this page

First Segment

Second Segment

Summary - Overall Product Layout

- NWS Communications Identifier Block
- MND Header Block
- General Overview Headline (optional)
- General Synopsis (optional)
- One or More Segments
  - UGC
  - P-VTEC
  - H-VTEC
  - Date/Time stamp
  - Segment bullets
  - Optional tabular forecast values

NWS Communications Identifier and MND Header Blocks

These two blocks appear at the top of all NWS products. Here is a generic format (see NWSI 10-1701 for details):

```
WGA1A2ii cccc ddhhmm (BBB)
NNNXXX

<Broadcast Instruction Line>
<Product Type Line>
NATIONAL WEATHER SERVICE <city state>
hhmm am/pm time_zone day mon dd yyyy
```

} NWS Communications Identifier Block

} MND Header Block

In flood products for forecast points, NNN in the second line of the NWS Communications Identifier Block could be:

- FLW (for Flood Warning for Forecast Points)
- FLS (for Flood Statement – Follow-up to Flood Warning for Forecast Points)
- FFA (for Flood Watch for Forecast Points) *
- FLS (for Flood Advisory for Forecast Points) *

* This product only issued in some parts of the U.S.

General Overview/Synopsis Section

This section is optional and, if used, appears after the MND header block. Here is a generic format that is often used (but not required):

```
...THE NATIONAL WEATHER SERVICE IN <WFO location> HAS ISSUED A FLOOD
 WARNING FOR THE FOLLOWING RIVERS IN <geographic area>...

  <river> AT <location> AFFECTING <county #1> COUNTY
  <river> AT <location> AFFECTING <county #1> AND
  <county #2> COUNTIES
  <river> AT <location> AFFECTING <county #1>...
  <county #2> AND <county #3> COUNTIES

.<general synopsis>

<(optional:) call-to-action statement>

ADDITIONAL INFORMATION IS AVAILABLE AT <Web site URL>

THE NEXT STATEMENT WILL BE ISSUED <time/day phrase>.
```

General Overview Headline

General Synopsis

Note: the optional general overview/synopsis section is completely free-format and is laid out to meet the requirements of local users. The only way for an automated procedure to know when this section is over and the actual product segments begin is to recognize the first UGC line, which ends in dash<6 digits>dash (-######-), or the first VTEC line after the UGC, which starts with a forward slash (/).

Beginning of A Segment

At the start of each segment in flood products for forecast points, four lines provide the encoded information needed to define the segment:

1. `stC001-002-ddhhmm-`
2. `/k.aaa.cccc.pp.s.####.yymmddThhnnZ`$_B$`-yymmddThhnnZ`$_E$`/`
3. `/nwsli.s.ic.yymmddThhnnZ`$_B$`.yymmddThhnnZ`$_C$`.yymmddThhnnZ`$_E$`.fr/`
4. `hhmm am/pm time_zone day mon dd yyyy`

1. **UGC line** (see NWSI 10-1701 for details)
2. **Primary VTEC (P-VTEC) line (string)**
3. **Hydrologic VTEC (H-VTEC) line (string)**
4. **Date/Time stamp**

Beginning of A Segment: UGC Line

stC001-002-ddhhmm-
/k.aaa.cccc.pp.s.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

st ..,..... Two-letter standard P.O. state identifier
C ..... UGC format code meaning number(s) that follow represent county(s) or independent city(s) (note: zone codes used in flood watch)
001-002 ..... Placeholder for appropriate FIPS county or independent city number(s)
-ddhhmm- ..... Product purge date (dd), hour (hh), and minute (mm) in UTC

- **Note: See NWS Instruction 10-1702 for details on UGCs**

Beginning of A Segment: P-VTEC Line

stC001-002-ddhhmm-
/k.aaa.cccc.pp.s.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

k ..... Product Class (fixed identifier)
aaa ..... Action Code
cccc ..... Identifier for Issuing Office
pp ..... Phenomena Code
s ..... Significance Code
..... Event Tracking Number (ETN)
yymmddThhnnZ$_B$ .. Event Beginning Date/Time
yymmddThhnnZ$_E$ .. Event Ending Date/Time

- **yymmdd - Year, Month, and Day**
- **hhnn - Hour and Minute in UTC**
- **“T” & “Z” - non-numeric characters (FIPS/ANSI)**

Beginning of A Segment: H-VTEC Line

```
stC001-002-ddhhmm-
/k.aaa.cccc.pp.s.####.yymmddThhnnZB-yymmddThhnnZE/
/nwsli.s.ic.yymmddThhnnZB.yymmddThhnnZC.yymmddThhnnZE.fr/
hhmm am/pm time_zone day mon dd yyyy
```

nwsli .....NWS Location Identifier
s .....Flood Severity Code
ic .....Immediate Cause
yymmddThhnnZ$_B$ ..Flood Beginning Date/Time
yymmddThhnnZ$_C$ ..Flood Crest Date/Time
yymmddThhnnZ$_E$ ..Flood Ending Date/Time

- **yymmdd - Year, Month, and Day**
- **hhnn - Hour and Minute in UTC**
- **“T” & “Z” - non-numeric characters (FIPS/ANSI)**

fr .....Flood Record Status

How Many Different Types of Segments Are There?

Several different types as determined by:

- **The action being taken for the current hydro-meteorological situation, as indicated by the Action Code (aaa) in the P-VTEC line (e.g., a NEW segment for a newly issued flood warning),**
- **The kind of product, as indicated by NNN in the second line of the NWS communications block (e.g., FLW, FLS), and**
- **Special hydrologic situations (e.g., increase in flood category).**

Types of Segments In Flood Warnings for Forecast Points (FLW)

- Initial Issuance (NEW)
- Non-flood (ROU)
  - Note: this is often used in FLS also
- Category Increase (CON or EXT)
- Correction (COR)
  - No additional details will be provided for COR segments on subsequent slides – they are just revisions of previously issued segments with VTEC action code aaa reset to COR .

Initial Issuance (NEW) Segment Format In Flood Warnings

Required – White
Required in Certain Cases – Orange
Optional – Yellow

stC001-002-ddhhmm-
/k.NEW.cccc.FL.W.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

...Headline...

THE NATIONAL WEATHER SERVICE IN <WFO location> HAS ISSUED A
* FLOOD WARNING FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase> or UNTIL FURTHER NOTICE>>
  or <UNTIL <time/day phrase> or FURTHER NOTICE>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <category> FLOODING IS OCCURRING AND <category> FLOODING IS FORECAST
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
* FORECAST...FLOOD <STAGE/FLOW> WILL BE REACHED AT <time> <day>. <One or more sentences with additional forecast information such as forecast crest/time and time for fall below flood stage.> <If second bullet uses "further notice," include best estimate of flood duration and briefly explain why it can't be specified exactly.>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$

Non-Flood (ROU) Segment Format In Flood Warnings

Required – White
Optional – Yellow

```
stC001-002-ddhhmm-
/k.ROU.cccc.HY.S.0000.000000T0000Z-000000T0000Z/
/nwsli.N.ic.000000T0000Z.000000T0000Z.000000T0000Z.OO/
hhmm am/pm time_zone day mon dd yyyy

FORECAST INFORMATION FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* NO FLOODING IS CURRENTLY FORECAST
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
* FORECAST...<One or more sentences with information such as the magnitude
  and timing for the forecast peak stage/flow.
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$
```

Category Increase Segment Format In Flood Warnings

Required – White
Required in Certain Cases – Orange
Optional – Yellow

stC001-002-ddhhmm-
/k.<CON or EXT>.cccc.FL.W.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

...FORECAST FLOODING INCREASED FROM <cat.> TO <cat.> AND INCREASED IN DURATION UNTIL <time/day phrase>...

THE FLOOD WARNING CONTINUES FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase> or UNTIL FURTHER NOTICE>>
  or <UNTIL <time/day phrase> or FURTHER NOTICE>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <category> FLOODING IS OCCURRING AND <category> FLOODING IS FORECAST
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
• FORECAST...One or more sentences with forecast information such as when flood stage will be reached, forecast crest/time, and time for fall below flood stage.> <If second bullet uses “FURTHER NOTICE,” include best estimate of flood duration and briefly explain why it can’t be specified exactly.>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$

Types of Segments In Flood Statement - Follow Up to Flood Warnings (FLS)

- Continuation (CON) (Very common)
- Non-flood (ROU)
- Change in Flood Timing (EXT)
- Forecasting End of Event for First Time (EXT)
- Cancellation (CAN)
- Expiration (EXP)
- Correction (COR)

Flood Statement – CON Segment Format

Required – White
Required in Certain Cases – Orange
Optional – Yellow

stC001-002-ddhhmm-
/k.CON.cccc.FL.W.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

...Headline...

THE FLOOD WARNING CONTINUES FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase> or UNTIL FURTHER NOTICE>>
  or <UNTIL <time/day phrase> or FURTHER NOTICE>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <category> FLOODING IS OCCURRING AND <category> FLOODING IS FORECAST
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
• FORECAST...One or more sentences with forecast information such as when
  flood stage will be reached, forecast crest/time, and time for fall below
  flood stage.> <If second bullet uses "FURTHER NOTICE," include best estimate
  of flood duration and briefly explain why it can't be specified exactly.>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$

Flood Statement – EXT Segment Format

Required – White
Required in Certain Cases – Orange
Optional – Yellow

stC001-002-ddhhmm-
/k.EXT.cccc.FL.W.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

...FLOOD WARNING EXTENDED UNTIL <<time/day phrase> or FURTHER NOTICE>...

THE FLOOD WARNING CONTINUES FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase> or UNTIL FURTHER NOTICE>>
  or <UNTIL <time/day phrase> or FURTHER NOTICE>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <category> FLOODING IS OCCURRING AND <category> FLOODING IS FORECAST
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
• FORECAST...One or more sentences with forecast information such as when
  flood stage will be reached, forecast crest/time, and time for fall below
  flood stage.> <If second bullet uses "FURTHER NOTICE," include best estimate
  of flood duration and briefly explain why it can't be specified exactly.>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$

Flood Statement – Forecasting End of Event for 1st Time

stC001-002-ddhhmm-
/k.EXT.cccc.FL.W.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/
/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/
hhmm am/pm time_zone day mon dd yyyy

...FLOOD WARNING NOW EXPECTED TO END <time/day phrase>...

THE FLOOD WARNING CONTINUES FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase>> or <UNTIL <time/day phrase>>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <category> FLOODING IS OCCURRING AND <category> FLOODING IS FORECAST
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
• FORECAST...One or more sentences with forecast information such as when flood stage will be reached, forecast crest/time, and time for fall below flood stage.>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$

Required – White
Optional – Yellow

Flood Statement – CAN Segment Format

```
stC001-002-ddhhmm-
/k.CAN.cccc.FL.W.####.yymmddThhnnZB-yymmddThhnnZE/
/nwsli.s.ic.yymmddThhnnZB.yymmddThhnnZC.yymmddThhnnZE.fr/
hhmm am/pm time_zone day mon dd yyyy

...Headline...

THE FLOOD WARNING IS CANCELLED FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
* FELL BELOW FLOOD <STAGE/FLOW> AT <time> <day>
* FELL BELOW <other stage/flow type> AT <time> <day>
* FORECAST...sentences or paragraph with forecast information>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$
```

Required – White
Optional – Yellow

Flood Statement – EXP Segment Format

```
stC001-002-ddhhmm-
/k.EXP.cccc.FL.W.####.yymmddThhnnZB-yymmddThhnnZE/
/nwsli.s.ic.yymmddThhnnZB.yymmddThhnnZC.yymmddThhnnZE.fr/
hhmm am/pm time_zone day mon dd yyyy

...Headline...

THE FLOOD WARNING HAS EXPIRED FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
* FELL BELOW FLOOD <STAGE/FLOW> AT <time> <day>
* FELL BELOW <other stage/flow type> AT <time> <day>
* FORECAST...<sentences or paragraph with forecast information>
* <description of impacts at given stage(s)/flow(s)>
* <flood history information>

&&
<tabular observed/forecast values for segment>

$$
```

Required – White
Optional – Yellow

Flood Watch for Forecast Points

- Optional product
- Used when flood forecast is uncertain due to uncertain future precipitation
- Segment Types Used:
  - Initial issuance (NEW)
  - Continuation (CON)
  - Change in flood timing (EXT)
  - Cancellation (CAN)
  - Expiration (EXP)
  - Correction (COR)

Flood Watch for Forecast Points NEW Segment Format

```
stZ001-005>015-ddhhmm-
/k.NEW.cccc.FL.A.####.yymmddThhnnZB-yymmddThhnnZE/
/nwsli.0.ic.000000T0000Z.000000T0000Z.000000T0000Z.OO/
hhmm am/pm time_zone day mon dd yyyy

...Headline...

THE NATIONAL WEATHER SERVICE IN <WFO location> HAS ISSUED A
* FLOOD WATCH FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase> or UNTIL <time/day phrase>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <flood category> FLOODING IS POSSIBLE
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
* FORECAST...FLOOD <STAGE/FLOW> MAY BE REACHED AT <time> <day>. <Additional
  forecast information (e.g., possible crest/time).
* <description of impacts at given stage(s)/flow(s)>

&&
<tabular observed/forecast values for segment>

$$
```

Required – White
Optional – Yellow

Flood Advisory for Forecast Points

- Optional product
- Used when rivers are approaching (but not exceeding) flood level
- Segment Types
  - Initial issuance (NEW)
  - Continuation (CON)
  - Change in flood timing (EXT)
  - Cancellation (CAN)
  - Expiration (EXP)
  - Correction (COR)

Flood Advisory for Forecast Points NEW Segment Format

```
stC001-002-ddhhmm-
/k.NEW.cccc.FL.Y.####.yymmddThhnnZB-yymmddThhnnZE/
/nwsli.N.ic.000000T0000Z.000000T0000Z.000000T0000Z.OO/
hhmm am/pm time_zone day mon dd yyyy

...Headline...

THE NATIONAL WEATHER SERVICE IN <WFO location> HAS ISSUED A
* FLOOD ADVISORY FOR
  <river/stream name> <proximity term - e.g., AT> <location>
* <FROM <time/day phrase> TO <<time/day phrase> or UNTIL <time/day phrase>
* AT <time> <day> THE <STAGE/FLOW> WAS...<stage/flow>
* <other stage/flow type> <STAGE/FLOW> IS... <stage/flow>
* FLOOD <STAGE/FLOW> IS... <flood stage/flow>
* FORECAST...<one or more sentences with forecast information such as
  magnitude and time of the crest.>
* <description of impacts at given stage(s)/flow(s)>

&&
<tabular observed/forecast values for segment>

$$
```

Required – White
Optional – Yellow

Resources With Additional Information On VTEC

- Single page guide to VTEC elements:

  http://www.weather.gov/os/vtec/pdfs/VTEC_explanation5.pdf

- NWS Instruction 10-1703, the comprehensive NWS directive on VTEC:

  http://www.nws.noaa.gov/directives/sym/pd01017003curr.pdf

- NWS Instruction 10-922, the NWS directive on hydrologic products:

  http://www.nws.noaa.gov/directives/sym/pd01009022pend.pdf

- NWS Instruction 10-923, the NWS directive with examples of hydrologic products:

  http://www.nws.noaa.gov/directives/sym/pd01009023pend.pdf

Resources With Additional Information On VTEC (cont.)

- **Web page with latest information on implementation of Hydrologic VTEC (schedules, etc.):**

  http://www.nws.noaa.gov/os/vtec/hydro_vtec.shtml

- **Microsoft Excel file with NWS location identifiers (NWSLI) for forecast points:**

  Click on: http://www.nws.noaa.gov/os/vtec/hydro_vtec.shtml , scroll down, and find link to NWSLI file in the resources table.

- **Questions and comments:**

  Contact Tim Helble at: timothy.helble@noaa.gov