

## Flood Warnings For Forecast Points (FLW) and Associated Follow-up Products (FLS)

**Example #1 - Flood Warning for Forecast Points: Initial Issuance (FLW).** Situation - At 12:00 noon on Friday April 6, WFO Newport/Morehead City issues a new flood warning for three forecast points in its HSA.

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 RIVERS IN NORTH CAROLINA...

NEUSE RIVER AT KINSTON AFFECTING CRAVEN AND LENOIR COUNTIES  
TAR RIVER AT GREENVILLE AFFECTING PITT COUNTY  
ROANOKE RIVER NEAR WILLIAMSTON AFFECTING MARTIN COUNTY

.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 SUVS 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](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/  
/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.

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## Flood Warnings For Forecast Points and Associated Follow-up Products (continued)

NCC147-070200-  
/O.NEW.KMHX.FL.W.0002.010406T1600Z-010410T1000Z/  
/1.ER.010406T0400Z.010408T1200Z.010410T1000Z.NO/  
1200 PM EDT FRI APR 6 2001

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A  
\* FLOOD WARNING FOR  
TAR RIVER AT GREENVILLE  
\* UNTIL TUESDAY MORNING  
\* AT 1100 AM EDT FRIDAY THE STAGE WAS...14.9 FEET  
\* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS...13.0 FEET  
\* FORECAST...MAXIMUM STAGE WILL BE 16.0 FEET AT 800 AM SUNDAY. THE  
RIVER WILL FALL BELOW FLOOD STAGE AT 600 AM TUESDAY  
\* AT 16 FEET...WIDESPREAD LOW LAND FLOODING ADJACENT TO THE TAR  
RIVER OCCURS. FARMLAND WILL BEGIN TO FLOOD ACROSS PITT COUNTY.

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NCC117-070200-  
/O.NEW.KMHX.FL.W.0003.010407T0000Z-000000T0000Z/  
/1.ER.010407T0000Z.010410T0000Z.000000T0000Z.NO/  
1200 PM EDT FRI APR 6 2001

THE NATIONAL WEATHER SERVICE IN NEWPORT HAS ISSUED A  
\* FLOOD WARNING FOR  
ROANOKE RIVER NEAR WILLIAMSTON  
\* FROM FRIDAY EVENING UNTIL FURTHER NOTICE  
\* AT 900 AM EDT FRIDAY THE STAGE WAS...9.8 FEET  
\* MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS 10.0 FEET  
\* FORECAST...FLOOD STAGE WILL BE REACHED AT 800 PM FRIDAY. FORECAST  
MAXIMUM STAGE IS 10.6 FEET AT 800 PM MONDAY. THE RIVER MAY REMAIN  
ABOVE FLOOD STAGE FOR A WEEK OR MORE. THE EXACT FLOOD DURATION IS  
DIFFICULT TO PREDICT DUE TO THE VERY SLOW RISE AND FALL TIMES FOR  
THIS RIVER.  
\* AT 10 FEET...MINOR LOWLAND FLOODING ADJACENT TO THE ROANOKE RIVER  
WILL BEGIN.

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### **Notes and Explanations:**

- (1) Each segment has its own event tracking number. This makes it easy to issue and track updates, cancellations, etc. for each forecast point in subsequent products.
- (2) Kinston was forecast to go above flood stage at 9 a.m. EDT Saturday April 7 and Williamston was forecast to go above flood stage at 8 p.m. EDT Friday April 6, so their respective Event Beginning Date/Times were (010407T1300Z) and (010407T0000Z). These same times were entered for the Flood Begin Date/Times in the H-VTEC string for each point.
- (3) For Greenville, the flood warning was issued after the fact – i.e., the river was already above flood stage at time of issuance – so the Event Beginning Date/Time in the P-VTEC string was set to the time of product issuance (010406T1600Z, see NWSI 10-1703, section 4.2.5). However, the Flood Begin Date/Time in the H-VTEC string was set to the actual time flooding started (assume gauge showed it was 12 hours earlier at 12 a.m. midnight on April 6 = 010406T0400Z).

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

(4) The maximum stages for Kinston, Greenville, and Williamston were forecast to occur at 9 p.m. Wednesday, 8 a.m. Sunday, and 8 p.m. Monday respectively, so the Flood Crest Date/Times in their respective H-VTEC strings were set to 010412T0100Z, 010408T1200Z, and 010410T0000Z.

(5) For Kinston and Williamston, the end time of the flood (i.e., time below flood stage) was unknown at the time of product issuance. Therefore, the Event Ending Date/Time in the P-VTEC string and the Flood End Date/Time in the H-VTEC string were set to 000000T0000Z for both points and the second bullet for each of these points reads "UNTIL FURTHER NOTICE."

(6) For Greenville, the river was forecast to go back below flood stage at 6 a.m. on Tuesday April 10, 2001, so the Event Ending Date/Time in the P-VTEC string and the Flood End Date/Time in the H-VTEC string were set to 010410T1000Z and the second bullet reads "UNTIL TUESDAY MORNING."

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

**Example #2 - Flood Statement: Follow-up to Flood Warning For Forecast Points (FLS).**

Situation - At 10 p.m. on April 6, WFO Newport/Morehead City issues a flood statement to follow up the flood warning issued ten hours earlier.

WGUS82 KMHX 070200  
FLSMHX

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE NEWPORT/MOREHEAD CITY NC  
1000 PM EDT FRI APR 6 2001

...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVERS IN  
NORTH CAROLINA...

NEUSE RIVER AT KINSTON AFFECTING CRAVEN AND LENOIR COUNTIES  
TAR RIVER AT GREENVILLE AFFECTING PITT COUNTY  
ROANOKE RIVER NEAR WILLIAMSTON AFFECTING MARTIN COUNTY

.LAST NIGHTS HEAVY RAINFALL HAS CAUSED THE NEUSE...TAR...AND ROANOKE  
RIVERS TO RISE SLIGHTLY ABOVE FLOOD STAGE. MINOR FLOODING WILL  
PERSIST ALONG THESE RIVERS FOR SEVERAL DAYS.

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

ADDITIONAL INFORMATION IS AVAILABLE AT  
[HTTP://AHPS.ERH.NOAA.GOV/CHI-BIN/AHPS.CGI?MHX](http://ahps.erh.noaa.gov/chi-bin/ahps.cgi?mhx) /LOWER CASE/

THE NEXT STATEMENT WILL BE ISSUED SATURDAY MORNING AT 1000 AM EDT.

NCC049-107-071400-  
/O.CON.KMHX.FL.W.0001.010407T1300Z-000000T0000Z/  
/1.ER.010407T1300Z.010412T0100Z.000000T0000Z.NO/  
1000 PM EDT FRI APR 6 2001

THE FLOOD WARNING CONTINUES FOR

- NEUSE RIVER AT KINSTON
- \* FROM SATURDAY MORNING UNTIL FURTHER NOTICE
- \* AT 900 PM EDT FRIDAY THE STAGE WAS... 13.7 FEET
- \* MINOR FLOODING IS FORECAST
- \* FLOOD STAGE IS...14.0 FEET
- \* FORECAST...FLOOD STAGE WILL BE REACHED AT 900 AM EDT 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.

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NCC147-071400-  
/O.CON.KMHX.FL.W.0002.000000T0000Z-010410T1000Z/  
/1.ER.010406T0400Z.010408T1200Z.010410T1000Z.NO/  
1000 PM EDT FRI APR 6 2001

## Flood Warnings For Forecast Points and Associated Follow-up Products (continued)

THE FLOOD WARNING CONTINUES FOR  
TAR RIVER AT GREENVILLE

- \* UNTIL TUESDAY MORNING
- \* AT 900 PM EDT FRIDAY THE STAGE WAS...15.3 FEET
- \* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST
- \* FLOOD STAGE IS...13.0 FEET
- \* FORECAST...MAXIMUM STAGE WILL BE 16.0 FEET AT 800 AM EDT SUNDAY.  
THE RIVER WILL FALL BELOW FLOOD STAGE AT 600 AM EDT TUESDAY.
- \* AT 16 FEET...WIDESPREAD LOW LAND FLOODING ADJACENT TO THE TAR  
RIVER OCCURS. FARMLAND WILL BEGIN TO FLOOD ACROSS PITT COUNTY.

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NCC117-071400-  
/O.CON.KMHX.FL.W.0003.000000T0000Z-000000T0000Z/  
/1.ER.010407T0000Z.010410T0000Z.000000T0000Z.NO/  
1000 PM EDT FRI APR 6 2001

THE FLOOD WARNING CONTINUES FOR  
ROANOKE RIVER NEAR WILLIAMSTON

- \* UNTIL FURTHER NOTICE
- \* AT 900 PM EDT FRIDAY THE STAGE WAS...10.0 FEET
- \* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST
- \* FLOOD STAGE IS 10.0 FEET
- \* FORECAST...MAXIMUM STAGE WILL BE 10.6 FEET AT 800 PM EDT MONDAY. THE  
RIVER MAY REMAIN ABOVE FLOOD STAGE FOR A WEEK OR MORE. THE EXACT  
FLOOD DURATION IS DIFFICULT TO PREDICT DUE TO THE VERY SLOW RISE  
AND FALL TIMES FOR THIS RIVER.
- \* AT 10 FEET...MINOR LOWLAND FLOODING ADJACENT TO THE ROANOKE RIVER  
WILL BEGIN.

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### **Notes and Explanations:**

- (1) For Kinston, the Event Beginning Date/Time in the P-VTEC string is still 010407T1300Z because flood stage has not yet been reached there. For Greenville and Williamston, the Event Beginning Date/Times in the P-VTEC strings are 000000T0000Z because the product is being issued to provide updated information after the event has already begun at these points.
- (2) Since the forecast times for the flood at all three forecast points have not changed, all other Date/Times are unchanged from the initial flood warning product.
- (3) For Williamston, "MINOR FLOODING IS OCCURRING" has been added to the 3<sup>rd</sup> bullet because flood stage was reached there.

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

**Example #3 - Flood Statement: Continuation of Flood Warning for Two Forecast Points, Cancellation of Flood Warning for One Forecast Point (FLS).** Situation - At 10 p.m.

Monday evening on April 9<sup>th</sup> (3 1/2 days since the initial flood warning), Greenville has fallen below flood stage a bit earlier than expected, and the full forecast for Williamston is now known (i.e., models now show the time when the river will fall below flood stage). However, the Event Ending Date/Time is still beyond the forecast period for Kinston. The following product cancels the flood warning for Greenville and continues the flood warning for Kinston and Williamston.

WGUS82 KMHX 100200  
FLSMHX

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE NEWPORT/MOREHEAD CITY NC  
1000 PM EDT MON APR 9 2001

...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVERS IN  
NORTH CAROLINA...

NEUSE RIVER AT KINSTON AFFECTING CRAVEN AND LENOIR COUNTIES  
ROANOKE RIVER NEAR WILLIAMSTON AFFECTING MARTIN COUNTY

...THE FLOOD WARNING IS CANCELLED FOR THE FOLLOWING RIVER IN NORTH  
CAROLINA...

TAR RIVER AT GREENVILLE AFFECTING PITT COUNTY

.THE TAR RIVER HAS DROPPED BELOW FLOOD STAGE WHILE THE NEUSE AND  
ROANOKE RIVERS ARE SLOWLY FALLING.

NEVER DRIVE CARS...TRUCKS OR SUVS THROUGH FLOODED AREAS.

ADDITIONAL INFORMATION IS AVAILABLE AT  
[HTTP://AHPS.ERH.NOAA.GOV/CHI-BIN/AHPS.CGI?MHX](http://ahps.erh.noaa.gov/chi-bin/ahps.cgi?mhx) /LOWER CASE/

THE NEXT STATEMENT WILL BE ISSUED TUESDAY MORNING AT 1000 AM EDT.

NCC147-100215-  
/O.CAN.KMHX.FL.W.0002.000000T0000Z-010410T1000Z/  
/1.ER.010406T0500Z.010408T1300Z.010410T0000Z.NO/  
1000 PM EDT MON APR 9 2001

THE FLOOD WARNING IS CANCELLED FOR

TAR RIVER AT GREENVILLE

- \* AT 900 PM EDT MONDAY THE STAGE WAS...12.9 FEET
- \* FLOOD STAGE IS...13.0 FEET
- \* FELL BELOW FLOOD STAGE AT 800 PM MONDAY
- \* FORECAST...A SLOW DECLINE SHOULD CONTINUE...WITH THE RIVER  
FALLING TO 12 FEET BY 800 PM WEDNESDAY.

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## Flood Warnings For Forecast Points and Associated Follow-up Products (continued)

NCC049-107-101400-  
/O.CON.KMHX.FL.W.0001.000000T0000Z-000000T0000Z/  
/1.ER.010407T1300Z.010412T0100Z.000000T0000Z.NO/  
1000 PM EDT MON APR 9 2001

THE FLOOD WARNING CONTINUES FOR  
NEUSE RIVER AT KINSTON  
\* UNTIL FURTHER NOTICE  
\* AT 900 PM EDT MONDAY THE STAGE WAS... 14.6 FEET  
\* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS...14.0 FEET  
\* FORECAST...MAXIMUM STAGE WILL BE 15.1 FEET AT 900 PM EDT WEDNESDAY.  
THE RIVER MAY REMAIN ABOVE FLOOD STAGE FOR 1 TO 2 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 OVERFLOWS INTO LOWLANDS ADJACENT TO THE NEUSE  
RIVER.

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NCC117-101400-  
/O.EXT.KMHX.FL.W.0003.000000T0000Z-010413T0200Z/  
/1.ER.010407T0000Z.010410T0000Z.010413T0200Z.NO/  
1000 PM EDT MON APR 9 2001

...FLOOD WARNING NOW EXPECTED TO END THURSDAY EVENING...

THE FLOOD WARNING CONTINUES FOR  
ROANOKE RIVER NEAR WILLIAMSTON  
\* UNTIL THURSDAY EVENING  
\* AT 900 PM EDT MONDAY THE STAGE WAS...10.5 FEET  
\* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS 10.0 FEET  
\* FORECAST...THE RIVER HAS PEAKED AND WILL BEGIN A SLOW FALL...  
FALLING BELOW FLOOD STAGE THURSDAY EVENING  
\* AT 10 FEET...MINOR LOWLAND FLOODING ADJACENT TO THE ROANOKE RIVER  
OCCURS.

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### **Notes and Explanations:**

(1) For Greenville, the event had been forecast to end at 1000Z on April 10, but when this product was issued at 0200Z on April 10, the river had already fallen below flood stage two hours before product issuance. Therefore, the time the event was originally forecasted to end (010410T1000Z) is used in the Event Ending Date/Time of the P-VTEC string and the time that the river actually fell below flood stage (010410T0000Z) is used in the Flood End Date/Time of the H-VTEC string (see NWSI 10-1703, Section 4.2.6).

## **Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

(2) The third segment (Roanoke River at Williamston) illustrates a special case – an event ending time is being forecast for the first time for a long-duration flood at a location for which the previous FLS products used ten zeros for the Event Ending Date/Time in the P-VTEC string. The river is now forecast to fall below flood stage at about 10 p.m. on Thursday evening April 12 (0200Z on April 13). Therefore, the third segment uses the EXT action code instead of CON and its format is otherwise the same as a continuation segment, except a special headline is used to announce that an ending time has been determined and the Event Ending Date/Time in the P-VTEC string and the Flood End Date/Time in the H-VTEC string are now filled in with an actual date and time instead of ten zeros. After this special EXT segment is issued, the next flood statement product would revert to using a CON segment for this forecast point until the flood ends, unless the event ending time changes again, which would require the process to be repeated.



**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

**Example #4 - Flood Warning for Forecast Points: Initial Issuance (FLW).** Situation - an unexpectedly intense rainfall occurs overnight just to the east of Des Moines, IA. At 10:30 a.m. on Friday May 9, WFO Des Moines issues a new flood warning for three forecast points.

WGUS43 KDMX 091530  
FLWDMX

BULLETIN - IMMEDIATE BROADCAST REQUESTED  
FLOOD WARNING  
NATIONAL WEATHER SERVICE DES MOINES IA  
1030 AM CDT FRI MAY 9 2003

...THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A FLOOD WARNING FOR THE FOLLOWING RIVERS IN CENTRAL IOWA...

RACCOON RIVER AT VAN METER  
RACCOON RIVER AT DES MOINES FLEUR DRIVE  
DES MOINES RIVER AT DES MOINES SE 6TH

AFFECTING THE FOLLOWING COUNTIES IN IOWA...DALLAS AND POLK.

.OVERNIGHT RAINS OF 1 TO 1.5 INCHES ACROSS THE RACCOON RIVER BASIN HAVE PRODUCED A QUICK RISE ON THE RIVER. MODERATE FLOODING IS FORECAST TO OCCUR ON THE RACCOON AND MINOR FLOODING ON THE DES MOINES RIVER. THE CREST ON THE RACCOON WILL BE SATURDAY MORNING IN DES MOINES.

NEVER DRIVE CARS...TRUCKS OR SUVS THROUGH FLOODED AREAS. STAY TUNED TO DEVELOPMENTS BY LISTENING TO NOAA WEATHER RADIO.

ADDITIONAL INFORMATION IS AVAILABLE AT  
[WWW.CRH.NOAA.GOV/DMX/AHPS](http://WWW.CRH.NOAA.GOV/DMX/AHPS)

THE NEXT STATEMENT WILL BE ISSUED AT 1000 PM FRIDAY EVENING.

IAC049-100300-  
/O.NEW.KDMX.FL.W.0011.030509T1530Z-030512T0300Z/  
/1.ER.030509T0400Z.030509T0900Z.030512T0300Z.NO/  
1030 AM CDT FRI MAY 9 2003

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

- \* FLOOD WARNING FOR  
RACCOON RIVER AT VAN METER
- \* UNTIL SUNDAY EVENING
- \* AT 900 AM CDT FRIDAY THE STAGE WAS... 16.4 FEET
- \* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST
- \* FLOOD STAGE IS...13.0 FEET
- \* FORECAST...THE RIVER WILL FALL BELOW FLOOD STAGE SUNDAY EVENING.  
FLOOD STAGE WAS REACHED AT 1100 PM THURSDAY NIGHT AND THE RIVER  
CRESTED AT 16.5 FEET 400 AM FRIDAY MORNING.
- \* AT 16.0 FEET...THE UTICA TRAIL ROAD SOUTHWEST OF BOONVILLE AND  
SOUTH OF COUNTY ROAD F90 BEGINS TO FLOOD

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## Flood Warnings For Forecast Points and Associated Follow-up Products (continued)

IAC153-100300-  
/O.NEW.KDMX.FL.W.0012.030509T1530Z-030512T0900Z/  
/2.ER.030509T0900Z.030510T0900Z.030512T0900Z.NO/  
1030 AM CDT FRI MAY 9 2003

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A  
\* FLOOD WARNING FOR  
RACCOON RIVER AT DES MOINES FLEUR DRIVE  
\* UNTIL MONDAY MORNING  
\* AT 900 AM CDT FRIDAY THE STAGE WAS...13.9 FEET  
\* MINOR FLOODING IS OCCURRING AND MODERATE FLOODING IS FORECAST  
\* FLOOD STAGE IS...12.0 FEET  
\* FORECAST...THE RIVER WILL CREST AT 15.1 FEET AT 400 AM SATURDAY  
MORNING AND FALL BELOW FLOOD STAGE AT 400 AM MONDAY MORNING.  
\* AT 15 FEET...FLOODING OCCURS OVER MUCH OF SOUTHWEST 28TH STREET  
BETWEEN VALLEY DRIVE AND THE RAILROAD TRACKS.

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IAC153-100300-  
/O.NEW.KDMX.FL.W.0013.030509T2100Z-030510T2100Z/  
/1.ER.030509T2100Z.030510T0300Z.030510T2100Z.NO/  
1030 AM CDT FRI MAY 9 2003

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A  
\* FLOOD WARNING FOR  
DES MOINES RIVER AT DES MOINES SE 6TH  
\* FROM THIS AFTERNOON UNTIL SATURDAY AFTERNOON  
\* AT 900 AM EDT FRIDAY THE STAGE WAS...23.7 FEET  
\* MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS 24.0 FEET  
\* FORECAST...FLOOD STAGE WILL BE REACHED AT 400 PM FRIDAY. THE RIVER  
WILL REMAIN NEAR FLOOD STAGE UNTIL MID-AFTERNOON SATURDAY.  
\* AT 24 FEET...WEST RIVERSIDE DRIVE IS FLOODED.

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### **Notes and Explanations:**

(1) Both Raccoon River forecast points were already in flood when the product was issued – so the Event Beginning Date/Time in the P-VTEC strings for each point is set to the current product issuance time – i.e., 030509T1530Z. However, the Event Beginning Date/Time in the H-VTEC strings is set to the actual time flooding started at each point (assume 11 p.m. May 8 = 030509T0400Z for Raccoon River at Van Meter and 4 a.m. May 9 = 030509T0900Z for Raccoon River at Des Moines Fleur Drive).

(2) The forecaster expects the flood warnings at Van Meter, Des Moines Fleur Drive, and Des Moines SE 6th to be in effect until 10 p.m. Sunday evening, 4 a.m. Monday morning, and 4 p.m. Saturday morning respectively. Therefore, the time/day phrase used for these forecast points in the second bullet is “Sunday evening,” “Monday morning,” and “Saturday afternoon,” respectively.

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

**Example #5 - Flood Statement – Flood Statement: Continuation of Flood Warning for Two Forecast Points, Cancellation of Flood Warning for One Forecast Point (FLS).** Situation -

At 10:00 p.m. on Friday May 9, WFO Des Moines issues a flood statement to follow up the previously issued flood warning for three forecast points in its HSA.

WGUS83 KDMX 100300  
FLSDMX

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE DES MOINES IA  
1000 PM CDT FRI MAY 9 2003

...THE NATIONAL WEATHER SERVICE IN DES MOINES IS CONTINUING THE  
FLOOD WARNING FOR THE FOLLOWING RIVERS IN CENTRAL IOWA...

RACCOON RIVER AT VAN METER  
RACCOON RIVER AT DES MOINES FLEUR DRIVE

AFFECTING THE FOLLOWING COUNTIES IN IOWA...DALLAS AND POLK.

THE FLOOD WARNING IS CANCELLED FOR...

DES MOINES RIVER AT DES MOINES SE 6TH

AFFECTING THE FOLLOWING COUNTY IN IOWA...POLK.

.FLOODING CAUSED BY THE RAINS THURSDAY NIGHT AND FRIDAY MORNING  
CONTINUES ON THE LOWER END OF THE RACCOON RIVER.

NEVER DRIVE CARS...TRUCKS OR SUVS THROUGH FLOODED AREAS. STAY TUNED  
TO DEVELOPMENTS BY LISTENING TO NOAA WEATHER RADIO.

ADDITIONAL INFORMATION IS AVAILABLE AT  
[WWW.CRH.NOAA.GOV/DMX/AHPS](http://WWW.CRH.NOAA.GOV/DMX/AHPS)

THE NEXT STATEMENT WILL BE ISSUED SATURDAY MORNING.

IAC049-101500-  
/O.CON.KDMX.FL.W.0011.000000T0000Z-030512T0300Z/  
/1.ER.030509T0400Z.030509T0900Z.030512T0300Z.NO/  
1000 PM CDT FRI MAY 9 2003

THE FLOOD WARNING CONTINUES FOR  
RACCOON RIVER AT VAN METER  
\* UNTIL SUNDAY EVENING  
\* AT 900 PM CDT FRIDAY THE STAGE WAS... 15.9 FEET  
\* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS...13.0 FEET  
\* FORECAST...THE RIVER WILL CONTINUE TO RECEDE STEADILY AND FALL  
BELOW FLOOD STAGE SUNDAY EVENING. FLOOD STAGE WAS REACHED AT 11 PM  
THURSDAY NIGHT AND CRESTED AT 16.5 FEET 400 AM FRIDAY MORNING.  
\* AT 16.0 FEET...THE UTICA TRAIL ROAD SOUTHWEST OF BOONVILLE AND  
SOUTH OF COUNTY ROAD F90 BEGINS TO FLOOD

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## Flood Warnings For Forecast Points and Associated Follow-up Products (continued)

IAC153-101500-  
/O.CON.KDMX.FL.W.0012.000000T0000Z-030512T0900Z/  
/2.ER.030509T0900Z.030510T0900Z.030512T0900Z.NO/  
1000 PM CDT FRI MAY 9 2003

THE FLOOD WARNING CONTINUES FOR  
RACCOON RIVER AT DES MOINES FLEUR DRIVE  
\* UNTIL MONDAY MORNING  
\* AT 900 PM CDT FRIDAY THE STAGE WAS...14.3 FEET  
\* MINOR FLOODING IS OCCURRING AND MODERATE FLOODING IS FORECAST  
\* FLOOD STAGE IS...12.0 FEET  
\* FORECAST...THE RIVER WILL CREST AT 15.1 FEET AT 400 AM SATURDAY  
MORNING AND FALL BELOW FLOOD STAGE AT 400 AM MONDAY MORNING.  
\* AT 15 FEET...FLOODING OCCURS OVER MUCH OF SOUTHWEST 28<sup>TH</sup> STREET  
BETWEEN VALLEY DRIVE AND THE RAILROAD TRACKS.

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IAC153-100400-  
/O.CAN.KDMX.FL.W.0013.000000T0000Z-030510T2100Z/  
/1.ER.000000T0000Z.000000T0000Z.000000T0000Z.NO/  
1000 PM EDT FRI MAY 9 2003

THE FLOOD WARNING IS CANCELLED FOR  
DES MOINES RIVER AT DES MOINES SE 6<sup>TH</sup>  
\* AT 900 PM CDT FRIDAY THE STAGE WAS...23.8 FEET  
\* FLOOD STAGE IS 24.0 FEET  
\* FORECAST...THE RIVER WILL STAY BELOW FLOOD STAGE THROUGH THE  
CURRENT EVENT AND GRADUALLY RECEDE TO 23.5 FEET BY MONDAY MORNING  
\* AT 24 FEET...WEST RIVERSIDE DRIVE IS FLOODED.

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### **Notes and Explanations:**

(1) Even though VTEC rules call for cancellation segments to go before continuation segments, the segment canceling the flood warning for Des Moines SE 6<sup>th</sup> occurs after the continuation segments for Van Meter and Des Moines Fleur Drive. This is because Des Moines SE 6<sup>th</sup> is downstream from Van Meter and Des Moines Fleur Drive and the WFO wants its flood products to reflect this upstream to downstream hierarchy.

(2) Note how the H-VTEC string has been zeroed out for Des Moines SE 6<sup>th</sup>. This is because the river never reached flood stage at that forecast point, so the forecaster decided to cancel the flood warning for that location.

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

**Example #6 - Flood Warning for Forecast Points: Initial Issuance (FLW).** Situation – Overnight heavy rainfall in southwest Washington near the mouth of the Columbia River has elevated flows on the lower Cowlitz River. At the same time, the lower Columbia River is expected to slightly exceed flood stage due to high tides. At 10:00 a.m. on Tuesday, December 5, WFO Portland, Oregon issues a flood warning for three forecast points.

WGUS46 KPQR 051800  
FLWPQR

BULLETIN - IMMEDIATE BROADCAST REQUESTED  
FLOOD WARNING  
NATIONAL WEATHER SERVICE PORTLAND OR  
1000 AM PST TUE DEC 5 2000

...THE NATIONAL WEATHER SERVICE IN PORTLAND HAS ISSUED A FLOOD WARNING FOR THE FOLLOWING RIVERS IN SOUTHWEST WASHINGTON...

COWLITZ RIVER AT CASTLE ROCK AFFECTING COWLITZ COUNTY  
COWLITZ RIVER AT KELSO AFFECTING COWLITZ COUNTY  
COLUMBIA RIVER AT LONGVIEW AFFECTING COWLITZ AND COLUMBIA COUNTIES

.OVERNIGHT RAINS OF 2 TO 4 INCHES IN SOUTHWEST OREGON COUPLED WITH 1 TO 2 INCHES FORECAST FOR TODAY WILL PRODUCE FLOODING ON THE LOWER COWLITZ RIVER. A SEPARATE MINOR FLOODING PROBLEM EXISTS ON THE TIDAL COLUMBIA DUE TO ALREADY HIGH FLOWS MOVING DOWN THE RIVER COUPLED WITH HIGH TIDES.

RIVER STAGE FORECASTS ARE BASED ON OBSERVED AND FORECAST RAINFALL AND TEMPERATURES. IF ACTUAL RAINFALL AND TEMPERATURES VARY FROM THE FORECAST VALUES...THE RIVER STAGE WILL VARY ACCORDINGLY. NATIONAL WEATHER SERVICE RIVER FORECASTS INCLUDE CURRENT AND PLANNED RESERVOIR RELEASES.

FOR THE LATEST RIVER STAGES AND FORECASTS VISIT OUR WEB PAGE AT: [WWW.WRH.NOAA.GOV/PORTLAND/PUBLIC\\_HYDRO/](http://WWW.WRH.NOAA.GOV/PORTLAND/PUBLIC_HYDRO/) /LOWER CASE/

THE NEXT STATEMENT WILL BE ISSUED AT 1000 PM THIS EVENING.

WAC015-060600-  
/O.NEW.KPQR.FL.W.0077.001207T1000Z-001208T1400Z/  
/1.ER.001207T1000Z.001207T1800Z.001208T1400Z.NO/  
COWLITZ-  
INCLUDING THE CITY OF CASTLE ROCK  
1000 AM PST TUE DEC 5 2000

THE NATIONAL WEATHER SERVICE IN PORTLAND HAS ISSUED A  
\* FLOOD WARNING FOR  
COWLITZ RIVER AT CASTLE ROCK  
\* FROM LATE WEDNESDAY NIGHT UNTIL FRIDAY MORNING  
\* AT 800 AM PST TUESDAY THE STAGE/FLOW WAS...46.8 FEET / 59000 CFS  
\* MINOR FLOODING IS FORECAST  
\* FLOOD STAGE/FLOW IS...48.0 FEET / 65000 CFS  
\* FORECAST...THE RIVER IS EXPECTED TO RISE THROUGH THE NIGHT...  
REACHING FLOOD STAGE AROUND 200 AM THURSDAY. IT WILL CONTINUE TO  
RISE THROUGH THE MORNING HOURS AND CREST NEAR 51.5 FEET LATE  
THURSDAY MORNING AND REMAIN ABOVE FLOOD STAGE THROUGH THE DAY.

## Flood Warnings For Forecast Points and Associated Follow-up Products (continued)

\* ABOVE 51 FEET...EXPECT FLOODING OF BUILDINGS AND RESIDENTIAL AREAS WEST OF THE RIVER IN THE VICINITY OF CASTLE ROCK. ALSO...EXPECT WIDESPREAD FLOODING OF LOW LYING PASTURE AND FARMLAND.

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WAC015-060600-  
/O.NEW.KPQR.FL.W.0078.001207T1400Z-001208T1800Z/  
/1.ER.001207T1400Z.001207T2200Z.001208T1800Z.NO/  
COWLITZ-  
INCLUDING THE CITIS OF KELSO...LONGVIEW  
1000 AM PST TUE DEC 5 2000

THE NATIONAL WEATHER SERVICE IN PORTLAND HAS ISSUED A

\* FLOOD WARNING FOR  
COWLITZ RIVER AT KELSO  
\* FROM THURSDAY MORNING UNTIL FRIDAY MORNING  
\* AT 900 AM PST TUESDAY THE STAGE/FLOW WAS...20.2 FEET / 90000 CFS  
\* MINOR FLOODING IS FORECAST  
\* FLOOD STAGE/FLOW IS...21.5 FEET / 100000 CFS  
\* FORECAST...THE RIVER IS EXPECTED TO RISE THROUGH THE NIGHT AND WEDNESDAY...REACHING FLOOD STAGE AROUND 600 AM THURSDAY. IT WILL CONTINUE TO RISE THROUGH THE MORNING HOURS AND CREST NEAR 25.0 FEET EARLY THURSDAY AFTERNOON AND REMAIN ABOVE FLOOD STAGE THROUGH THE DAY.  
\* ABOVE 24.5 FEET...FLOODING OF A FEW RESIDENTIAL AREAS IN THE KELSO VICINITY BEGINS. ALSO...EXPECT WIDESPREAD FLOODING OF PASTURE LAND AND LOW LYING ROADS.

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ORC009-WAC015-060600-  
/O.NEW.KPQR.FL.W.0079.001206T0300Z-001207T1600Z/  
/1.ER.001206T0300Z.001207T1400Z.001207T1600Z.NO/  
COWLITZ-COLUMBIA-  
INCLUDING THE CITIES OF LONGVIEW...RAINER  
1000 AM PST TUE DEC 5 2000

THE NATIONAL WEATHER SERVICE IN PORTLAND HAS ISSUED A

\* FLOOD WARNING FOR  
COLUMBIA RIVER AT LONGVIEW  
\* FROM THIS EVENING UNTIL THURSDAY MORNING  
\* AT 800 AM PST TUESDAY THE STAGE WAS...9.8 FEET  
\* MINOR FLOODING IS FORECAST  
\* FLOOD STAGE IS...12.0 FEET  
\* FORECAST...THE RIVER IS EXPECTED TO CREST NEAR 12.0 FEET AROUND 700 PM THIS EVENING...AND AT 12.5 FEET AROUND 600 AM THURSDAY... CORRESPONDING WITH HIGH TIDES AT LONGVIEW.  
\* ABOVE 12.0 FEET...EXPECT MINOR FLOODING OF UN-LEVEED LOW LYING FARMLAND NEAR THE COLUMBIA.

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### **Notes and Explanations:**

- (1) Note that the observation and flood stage bullets include both stage and flow.
- (2) The Columbia River at Longview is expected to have two peaks above flood stage,

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

coinciding with tidal maximums. The Event Beginning Date/Time and Flood Begin Date/Time for this segment correspond to when flood stage is exceeded before the first peak and the Event Ending Date/Time and Flood End Date/Time correspond to when the river is expected to drop below flood stage after the second peak.

(3) Note how segments in this product include the optional county and city name lines below the H-VTEC strings.

**Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

**Example #7 - Flood Warning for Forecast Points: Flood Category Increase (FLW).**

Situation – Very heavy rains over the southwest Washington during the morning of December 5 have greatly increased surface runoff in the lower Cowlitz basin. At 4:00 p.m. on , December 5 (6 hours after the initial flood warning), a flood warning is issued for Castle Rock and Kelso to announce an increase in forecast flood severity from minor to major flooding.

WGUS46 KPQR 060000  
FLWPQR

BULLETIN - IMMEDIATE BROADCAST REQUESTED  
FLOOD WARNING  
NATIONAL WEATHER SERVICE PORTLAND OR  
400 PM PST TUE DEC 5 2000

...FORECAST FLOODING CHANGED FROM MINOR TO MAJOR SEVERITY AND INCREASED IN DURATION FOR THE FOLLOWING LOCATIONS ON THE COWLITZ RIVER...

COWLITZ RIVER AT CASTLE ROCK AFFECTING COWLITZ COUNTY  
COWLITZ RIVER AT KELSO AFFECTING COWLITZ COUNTY

.VERY HEAVY RAINS OF 3 TO 4 INCHES SINCE EARLY THIS MORNING WILL INCREASE THE SEVERITY OF FLOODING ON THE LOWER COWLITZ RIVER.

RIVER STAGE FORECASTS ARE BASED ON OBSERVED AND FORECAST RAINFALL AND TEMPERATURES. IF ACTUAL RAINFALL AND TEMPERATURES VARY FROM THE FORECAST VALUES...THE RIVER STAGE WILL VARY ACCORDINGLY. NATIONAL WEATHER SERVICE RIVER FORECASTS INCLUDE CURRENT AND PLANNED RESERVOIR RELEASES.

FOR THE LATEST RIVER STAGES AND FORECASTS VISIT OUR WEB PAGE AT: [WWW.WRH.NOAA.GOV/PORTLAND/PUBLIC\\_HYDRO/](http://WWW.WRH.NOAA.GOV/PORTLAND/PUBLIC_HYDRO/) /LOWER CASE/

THE NEXT STATEMENT WILL BE ISSUED AT 1000 PM THIS EVENING...OR EARLIER IF FURTHER UPDATES ARE NEEDED.

WAC015-060600-  
/O.EXT.KPQR.FL.W.0077.001207T1000Z-001209T1400Z/  
/3.ER.001207T1000Z.001207T1800Z.001209T1400Z.NO/  
COWLITZ-  
INCLUDING THE CITY OF CASTLE ROCK  
400 PM PST TUE DEC 5 2000

...FORECAST FLOODING INCREASED FROM MINOR TO MAJOR AND FLOOD WARNING EXTENDED UNTIL SATURDAY MORNING...

THE FLOOD WARNING CONTINUES FOR  
COWLITZ RIVER AT CASTLE ROCK

- \* FROM LATE WEDNESDAY NIGHT UNTIL SATURDAY MORNING
- \* AT 300 PM PST TUESDAY THE STAGE/FLOW WAS...47.2 FEET / 61000 CFS
- \* MAJOR FLOODING IS FORECAST
- \* FLOOD STAGE/FLOW IS...48.0 FEET / 65000 CFS
- \* FORECAST...THE RIVER IS EXPECTED TO RISE THROUGH THE NIGHT AND WEDNESDAY... REACHING FLOOD STAGE AROUND 200 AM THURSDAY. IT WILL CONTINUE TO RISE THROUGH THE MORNING HOURS AND CREST NEAR 54.0 FEET LATE MORNING THURSDAY AND REMAIN ABOVE FLOOD STAGE UNTIL SATURDAY



## **Flood Warnings For Forecast Points and Associated Follow-up Products (continued)**

MORNING.

- \* ABOVE 51 FEET...EXPECT FLOODING OF BUILDINGS AND RESIDENTIAL AREAS WEST OF THE RIVER IN THE VICINITY OF CASTLE ROCK. ALSO...EXPECT WIDESPREAD FLOODING OF LOW LYING PASTURE AND FARMLAND. AT 54 FEET... EXPECT WIDESPREAD FLOODING OF BUSINESS AND RESIDENTIAL AREAS... ESPECIALLY WEST OF THE RIVER IN THE FOUR CORNERS AREA AND ALONG HWY 411. ALSO EXPECT WIDESPREAD FLOODING OF FARM AND PASTURE LAND. LEVEES HAVE HISTORICALLY BEEN THREATENED OF OVERTOPPING AT THIS AND HIGHER LEVELS.

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WAC015-060600-  
/O.EXT.KPQR.FL.W.0078.001207T1400Z-001209T2200Z/  
/3.ER.001207T1400Z.001207T2200Z.001209T2200Z.NO/  
COWLITZ  
INCLUDING THE CITIS OF KELSO...LONGVIEW  
400 PM PST TUE DEC 5 2000

...FORECAST FLOODING INCREASED FROM MINOR TO MAJOR SEVERITY AND FLOOD WARNING EXTENDED UNTIL SATURDAY AFTERNOON...

THE FLOOD WARNING CONTINUES FOR  
COWLITZ RIVER AT KELSO

- \* FROM THURSDAY MORNING UNTIL SATURDAY MORNING
- \* AT 300 PM PST TUESDAY THE STAGE/FLOW WAS...20.6 FEET / 93000 CFS
- \* MAJOR FLOODING IS FORECAST
- \* FLOOD STAGE/FLOW IS...21.5 FEET / 100000 CFS
- \* FORECAST...THE RIVER IS EXPECTED TO RISE THROUGH THE NIGHT AND WEDNESDAY...REACHING FLOOD STAGE AROUND 600 AM THURSDAY. IT WILL CONTINUE TO RISE THROUGH THE MORNING HOURS AND CREST NEAR 27.0 FEET LATE AFTERNOON THURSDAY AND REMAIN ABOVE FLOOD STAGE UNTIL EARLY SATURDAY AFTERNOON.
- \* ABOVE 24.5 FEET...FLOODING OF A FEW RESIDENTIAL AREAS IN THE KELSO VICINITY BEGINS. ALSO...EXPECT WIDESPREAD FLOODING OF PASTURE LAND AND LOW LYING ROADS. ABOVE 26.5 FEET...SOME FLOODING OF BUSINESS AND RESIDENTIAL AREAS OCCURS IN KELSO. NUMEROUS ROAD CLOSURES CAN BE EXPECTED. THE TOPS OF LEVEES ARE APPROACHED AT THIS LEVEL.

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### **Notes and Explanations:**

- (1) Note how the Flood Warning (FLW) identifier is used in a product which is following up a previously issued FLW, but the event tracking numbers are the same as those in the previously issued product for both segments.
- (2) Note that the overview headline and individual segment headlines announce both an increase in forecast flood severity and an extension of the flood warning.
- (3) Note - EXT segments are used when a category increase also involves a warning extension.