

**NATIONAL WEATHER SERVICE MANUAL 10-923  
FEBRUARY 8, 2005**

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

**WEATHER FORECAST OFFICE HYDROLOGIC PRODUCT EXAMPLES**

---

**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>

---

**OPR:** OS31 (T. Helble)

**Certified by:** OS3 (G. Austin)

**Type of Issuance:** Routine.

---

**SUMMARY OF REVISIONS:** This directive supersedes NWS Manual 10-923, dated February 9, 2004. The effective date provided above is February 8, 2005, but the changes for each product covered in this directive will be implemented in phases. Procedures in the February 9, 2004 version of this directive will remain in effect for a given product until the implementation date is reached for the new product format as described below:

- ▶ Sections 1 and 2 and 8 through 11 become effective on September 8, 2004.
- ▶ Section 4 (flash flood warning and associated follow-up products) will be implemented in two phases. Segmentation will be implemented for flash flood statements issued by all offices starting on November 3, 2004. After that date, selected offices will begin providing Valid Time Event Code (VTEC) in flash flood warnings and statements using the product class code for “*experimental VTEC in operational product*” as described in [Service Change Notice 04-40](#). The operational implementation date for VTEC is February 8, 2005.
- ▶ The new format with VTEC and segmentation for products covered in Section 3 (flood watch and associated follow-up products), Section 5 (flood warning for forecast points and associated follow-up products), Section 6 (areal flood warning and associated follow-up products), and Section 7 (flood statement - advisories) will be implemented at two separate times. At selected NWS offices, an Operational Test and Evaluation (OT&E) will be conducted starting on August 30, 2004 as described in [Service Change Notice 04-45](#). For the remaining NWS offices, Sections 3, 5, 6 and 7 become effective with implementation of VTEC, which will be completed at all offices by the VTEC operational implementation date of February 8, 2005.

Up-to-date information on the status of VTEC implementation is available at <http://www.nws.noaa.gov/os/vtec/>

The following revisions were made to this instruction:

- 1) Revised the section structure and numbering for watches, warnings, and statements to allow a sequence of products for a given hydrologic situation to be provided under the same main

section number - e.g., a flood statement (FLS) example is provided immediately after the initial flood warning (FLW) example.

- 2) Increased the number of examples for flood watch, flash flood warning, flash flood statement, flood warning, flood statement, and flood statement (advisories) products.
- 3) Integrated Valid Time Event Code (VTEC) into all examples of flood watches, flash flood warnings, flash flood statements, flood warnings, flood statements, and flood statement - advisories.
- 4) Converted flood watches, flash flood warnings, flash flood statements, flood warnings, flood statements, and flood statement - advisories to new standardized formats specified in NWS Instruction 10 922.

Signed

August 24, 2004

Leroy E. Spayd for Gregory A. Mandt  
Director, Office of Climate,  
Water, and Weather Services

Date

**Weather Forecast Office Hydrologic Product Examples**

<u>Table of Contents:</u> .....	<u>Page</u>
<b>1. Introduction</b> .....	<b>5</b>
<b>2. Hydrologic Outlook (ESF)</b> .....	<b>5</b>
2.1 Example #1 - Potential Flooding from Excessive Rainfall (Near Term).....	5
2.2 Example #2 - Potential Snowmelt Flooding (Long Term).....	6
2.3 Example #3 - Spring Ice Breakup Outlook (Long Term).....	7
2.4 Example #4 - AHPS Probabilistic Outlook (Long Term) .....	8
<b>3. Flood Watch and Associated Follow-up Products (FFA)</b> .....	<b>10</b>
3.1 Example #1 - Flood Watch.....	10
3.2 Example #2 - Flood Watch: Follow-up With Cancellation, Extension in Area,.....	11
and Continuation Segments	
3.3 Example #3 - Flash Flood Watch .....	13
3.4 Example #4 - Flash Flood Watch: Follow-up With Extension in Time.....	14
and Extension in Area Segments	
3.5 Example #5 - Flash Flood Watch (Short and Long Zone Names) .....	16
3.6 Example #6 - Flash Flood Watch (Long Zone Names).....	17
3.7 Example #7 - Flood Watch (Long Zone Names) .....	18
3.8 Example #8 - Flood Watch: Follow-up (Long Zone Names).....	19
3.9 Example #9 - Flood Watch: Expiration (Long Zone Names) .....	20
<b>4. Flash Flood Warning (FFW) and Associated Follow-up Products (FFS)</b> .....	<b>21</b>
4.1 Example #1 - Flash Flood Warning (FFW).....	21
4.2 Example #2 - Flash Flood Statement: Follow-up to Flash Flood Warning (FFS) .....	22
4.3 Example #3 - Flash Flood Statement: Cancellation of Flash Flood Warning (FFS).....	22
4.4 Example #4 - Flash Flood Warning for a Three-County Area (FFW).....	23
4.5 Example #5 - Flash Flood Statement: Follow up to Flash Flood Warning .....	24
With Cancellation and Continuation Segments (FFS)	
4.6 Example #6 - Flash Flood Warning: Dam Failure (FFW) .....	25
4.7 Example #7 - Flash Flood Statement: Follow up to Flash Flood Warning .....	26
for a Dam Failure (FFS)	
4.8 Example #8 - Flash Flood Warning Including Observations and Forecasts .....	27
for a Forecast Point (FFW)	
4.9 Example #9 - Flash Flood Statement Follow-up to Flash Flood Warning.....	28
Including Observations and Forecasts for a Forecast Point (FFS)	
<b>5. Flood Warning For Forecast Points (FLW) and Associated Follow-up .....</b>	<b>29</b>
<b>Products (FLS)</b>	
5.1 Example #1 - Flood Warning for Forecast Points - Initial Issuance (FLW) .....	29
5.2 Example #2 - Flood Statement: Follow-up to Flood Warning .....	31
for Forecast Points (FLS)	

5.3	Example #3 - Flood Statement: Continuation of Flood Warning for Two Forecast Points, Cancellation of Flood Warning for One Forecast (FLS)	33
5.4	Example #4 - Flood Warning for Forecast Points: Initial Issuance (FLW)	35
5.5	Example #5 - Flood Statement: Continuation of Flood Warning for Two Forecast Points, Cancellation of Flood Warning for One Forecast (FLS).	37
5.6	Example #6 - Flood Warning for Forecast Points: Initial Issuance (FLW)	38
5.7	Example #7 – Flood Warning for Forecast Points: Flood Category Increase (FLW)	41
<b>6.</b>	<b>Areal Flood Warning (FLW) and Associated Follow-up Products (FLS)</b>	<b>42</b>
6.1	Example #1 - Areal Flood Warning (FLW)	42
6.2	Example #2 - Flood Statement: Follow-up to an Areal Warning: (FLS)	43
6.3	Example #3 - Flood Statement: Cancellation of an Areal Flood Warning (FLS)	44
6.4	Example #4 - Areal Flood Warning for a River Reach (FLW)	45
6.5	Example #5 - Flood Statement: Extension in Time for an Areal Flood Warning (FLS)	45
<b>7.</b>	<b>Flood Statement – Advisories (FLS)</b>	<b>46</b>
7.1	Example #1 - Urban and Small Stream Flood Advisory	46
7.2	Example #2 - Arroyo and Small Stream Advisory	47
7.3	Example #3 – Small Stream Flood Advisory	48
7.4	Example #4 - Hydrologic Advisory for Elevated River Levels Caused By Ice Jams	49
<b>8.</b>	<b>Hydrologic Statement (RVS)</b>	<b>50</b>
8.1	Example #1 - Information on Elevated Stream Levels at a River Forecast Point	50
8.2	Example #2 - Elevated River Levels Caused By Ice Jam	51
8.3	Example #3 - SHEF Encoded Observed/Forecast Information	52
<b>9.</b>	<b>Hydrologic Summary (RVA)</b>	<b>53</b>
9.1	Example #1 - Report for Rivers and Creeks in Hydrologic Service Area	53
<b>10.</b>	<b>River and Lake Forecast Product (RVD)</b>	<b>54</b>
10.1	Example #1 - Lake Sites (in SHEF)	54
10.2	Example #2 - River and Lake Sites	54
<b>11.</b>	<b>Hydrometeorological Data Summary (HYx)</b>	<b>55</b>
11.1	Example #1 - Daily Summary (HYD)	55
11.2	Example #2 - Monthly Summary (HYM)	55

1. **Introduction.** This directive provides examples of weather forecast office (WFO) hydrologic products described in NWS Instruction 10-922. Some WFO hydrologic products issued under a given Advanced Weather Information Processing System (AWIPS) identifier (e.g., flood statement – FLS) are used for multiple purposes. Therefore, several product examples are provided to illustrate key applications. NWS Instruction 10-922 provides flexibility to include or exclude certain items from hydrologic products, so these examples should not be taken as the only prescribed formats.

2. **Hydrologic Outlook (ESF).**

2.1 **Example #1 - Potential Flooding From Excessive Rainfall (Near Term).** This outlook product describes the potential for flooding in the three to five day time frame.

FGUS73 KSGF 102135  
ESFSGF  
MOC055-056-058-060>062-110400-

HYDROLOGIC OUTLOOK  
NATIONAL WEATHER SERVICE SPRINGFIELD MO  
335 PM CST FRI DEC 10 1999

...ANOTHER HEAVY RAINMAKER TO HIT THE OZARKS COULD PRODUCE FLOODING  
EARLY NEXT WEEK...

OVER THE PAST COUPLE OF WEEKS...SIGNIFICANT RAINFALL HAS FALLEN  
ACROSS THE OZARKS. AS A RESULT...MOST OF SOUTHWEST MISSOURI IS ALMOST  
BACK TO NORMAL RAINFALL...AND IN SOME CASES ABOVE NORMAL. THROUGH  
DECEMBER 10...SPRINGFIELD HAS RECEIVED 6.84 INCHES AND MANY AREAS  
OF THE OZARKS HAVE RECEIVED MORE THAN EIGHT INCHES. THE NORMAL  
RAINFALL FOR SPRINGFIELD IN DECEMBER IS 3.16 INCHES.

BEGINNING MONDAY AND EARLY TUESDAY...THE OZARKS WILL RECEIVE ANOTHER  
SOAKING RAIN. CURRENT WEATHER MODELS INDICATE A STORM TRACK ACROSS  
NORTHERN ARKANSAS AND SOUTHERN MISSOURI...BASICALLY THE SAME TRACK  
TAKEN BY THE RECENT STORMS. THIS MEANS ABUNDANT GULF MOISTURE WILL  
BE PULLED INTO THE STORM AND DEPOSIT UPWARDS OF ONE TO TWO INCHES  
ACROSS MOST SECTIONS OF SOUTHERN MISSOURI.

FLOODING MAY OCCUR BECAUSE THE GROUND IS SATURATED FROM RECENT  
RAINS. LOW WATER CROSSINGS AND SMALL STREAMS COULD SWELL TO SMALL  
RAGING STREAMS OF WATER. RIVERS...MAINLY ACROSS SOUTHERN MISSOURI...  
COULD RISE CLOSE TO OR ABOVE FLOOD STAGE BY NEXT TUESDAY.

THE HAZARDOUS WEATHER OUTLOOK PRODUCT WILL BE UPDATED WITH THE LATEST  
INFORMATION THROUGHOUT THE WEEKEND. ANOTHER SOURCE OF CURRENT WEATHER  
INFORMATION FOR SOUTHERN MISSOURI IS THROUGH OUR WEB PAGE AT

[WWW.CRH.NOAA.GOV/SGF/](http://WWW.CRH.NOAA.GOV/SGF/) /LOWER CASE/

\$\$

**2.2 Example #2 - Potential Snowmelt Flooding (Long Term).** This product describes the overall potential for snowmelt flooding in an entire WFO hydrologic service area.

FGUS73 KBIS 221358  
ESFBIS  
NDC001>005-009>013-017>023-025-031>037-040>048-050>051-231200-

HYDROLOGIC OUTLOOK  
NATIONAL WEATHER SERVICE BISMARCK ND  
800 AM CST FRI MAR 22 2002

...SNOWMELT FLOOD OUTLOOK NUMBER 2...

THIS SNOWMELT OUTLOOK IS FOR RIVER BASINS IN WEST AND CENTRAL NORTH DAKOTA AND INCLUDES THE SOURIS RIVER DRAINAGE...THE MISSOURI RIVER DRAINAGE AND THE JAMES RIVER DRAINAGE.

BECAUSE OF THE LACK OF SIGNIFICANT AMOUNTS OF SNOW ON THE GROUND, THERE IS LITTLE POTENTIAL FOR FLOODING DURING THIS SNOWMELT SEASON EVEN IF NORMAL PRECIPITATION FOR THE NEXT TWO WEEKS IS ADDED TO THE CURRENT SNOW CONDITIONS. RIVER LEVELS AT ALL FORECAST POINTS ARE EXPECTED TO REMAIN BELOW FLOOD STAGE.

ABOVE NORMAL SPRING PRECIPITATION AND ICE JAMS WOULD INCREASE THE FLOOD THREAT DURING SPRING THAW. BELOW NORMAL PRECIPITATION OR A GRADUAL MELT WOULD DECREASE THE FLOOD THREAT.

SUMMARY OF NORTH DAKOTA'S WINTER CONDITIONS...

THE PAST WINTER BROUGHT ABOVE NORMAL TEMPERATURES AND BELOW NORMAL PRECIPITATION. FALL MOISTURE (SEPTEMBER-NOVEMBER 2001) WAS ALSO WELL BELOW NORMAL IN NORTH DAKOTA. THIS HAS CREATED BELOW NORMAL SOIL MOISTURE CONDITIONS. FROST DEPTHS AVERAGE 18 TO 24 INCHES. MARCH TEMPERATURES HAVE BEEN MUCH BELOW NORMAL WITH ABOVE NORMAL SNOWFALL.

THE 6-10 DAY FORECAST FOR NORTH DAKOTA CALLS FOR ABOVE NORMAL TEMPERATURES AND NORMAL PRECIPITATION.

THE 30-DAY AND 90-DAY OUTLOOKS INDICATE NO DEVIATION FROM NORMAL FOR PRECIPITATION OR TEMPERATURE.

CURRENT SNOW CONDITIONS...

THERE IS GENERALLY 3 TO 6 INCHES OF SNOW COVER ACROSS WEST AND CENTRAL NORTH DAKOTA. MUCH OF THIS FELL IN THE LAST SEVERAL DAYS. WATER EQUIVALENTS WERE GENERALLY ONE HALF INCH OR LESS.

BASIN SNOWPACK IN THE MOUNTAINS OF MONTANA AND WYOMING WAS GENERALLY 50 TO 70 PERCENT OF AVERAGE.

CURRENT RIVER CONDITIONS...

RIVERS AND STREAMS IN NORTH DAKOTA HAVE NEAR NORMAL TO SLIGHTLY ABOVE NORMAL FLOWS WITH MOST RIVERS FROZEN. ALL FORECAST POINTS ARE CURRENTLY BELOW FLOOD STAGE.

THIS IS THE LAST SCHEDULED OUTLOOK FOR THE SEASON.

\$\$

**2.3 Example #3 - Spring Ice Breakup Outlook (Long Term).** The following is an outlook for spring ice breakup on Alaska rivers. Note that this ESF product is produced by the Alaska Pacific River Forecast Center and not a WFO. The practice of issuing this product at an RFC only exists in the Alaska Region.

FGAK78 PACR 270000  
ESFAK  
AKZALL-092200-

HYDROLOGIC OUTLOOK  
NWS ALASKA PACIFIC RIVER FORECAST CENTER ANCHORAGE AK  
300 PM AST FRI MAR 26 2004

...SPRING BREAKUP OUTLOOK FOR ALASKA...

THE FLOOD POTENTIAL FROM SNOWMELT AND ICE JAMS THIS SPRING BREAKUP SEASON THROUGHOUT ALASKA IS CURRENTLY RATED AS AVERAGE. THIS FORECAST IS BASED ON CURRENT BELOW NORMAL TO NORMAL SNOWPACK AND ICE THICKNESS BEING REPORTED OVER MOST OF ALASKA.

ICE - MARCH 1 ICE THICKNESS DATA ARE AVAILABLE FOR A LIMITED NUMBER OF OBSERVING SITES IN ALASKA. MEASUREMENTS INDICATE THAT ICE THICKNESS IS NEAR NORMAL OR THINNER THAN NORMAL IN MOST LOCATIONS. ALL YUKON RIVER ICE MEASUREMENTS ARE THINNER THAN NORMAL AND MEASUREMENTS ON THE KUSKOKWIM RIVER ARE AT OR BELOW NORMAL. AMONG A FEW SCATTERED LOCATIONS WITH THICKER THAN NORMAL ICE IS THE KOYUKUK RIVER AT BETTLES THAT HAS 4-FT THICK ICE WHICH REPRESENTS A INCREASE OF 30% OVER NORMAL CONDITIONS. FREEZING CONDITIONS DEVELOPED LATE OVER MUCH OF ALASKA FOLLOWED BY RELATIVELY NORMAL TEMPERATURES THROUGH JANUARY. THE RATE OF ICE GROWTH WAS INHIBITED BY THE INSULATION PROVIDED BY SNOWFALL SOON AFTER FREEZEUP. A FEW WARM PERIODS IN FEBRUARY SLOWED ICE GROWTH IN THE SOUTHERN HALF OF ALASKA. SNOW - AN ANALYSIS OF THE MARCH 1 SNOWPACK BY THE NATURAL RESOURCES CONSERVATION SERVICE (NRCS) INDICATES NEAR NORMAL TO BELOW NORMAL SNOWPACK THROUGH MOST OF ALASKA. MEASUREMENTS OF ABOVE NORMAL SNOWPACK WERE REPORTED AT LOW ELEVATIONS ON THE NORTHERN KENAI PENINSULA AND AT SCATTERED LOCATIONS IN THE LOWER AND UPPER YUKON BASINS...PORCUPINE BASIN...FORTYMILE BASIN...COPPER RIVER BASIN...AND THE NORTHERN PANHANDLE. AREAS OF BELOW NORMAL MEASUREMENTS INCLUDE THE UPPER KUSKOKWIM BASIN...SUSITNA BASIN...UPPER COPPER BASIN...LOWER TANANA BASIN...AND THE SOUTHERN PANHANDLE. ALTHOUGH THESE AREAS REPORTED BELOW NORMAL SNOWPACK...THERE IS STILL ENOUGH SNOW IN MOST AREAS TO PRODUCE SIGNIFICANT SNOWMELT RUNOFF PEAKS IF SUBJECTED TO A RAPID WARMING PATTERN. WARM WEATHER IN FEBRUARY CAUSED SOME LOSS OF SNOWPACK IN LOW ELEVATION LOCATIONS IN SOUTHERN COASTAL AREAS.

FOR MORE DETAILS ON THE MARCH 1 SNOWPACK...PLEASE REFER TO THE VARIOUS SNOW GRAPHS OPTIONS AT THE APRFC WEB SITE AT [HTTP://APRFC.ARH.NOAA.GOV](http://APRFC.ARH.NOAA.GOV) /ALL LOWER CASE/ OR ON THE NRCS WEB SITE AT [HTTP://AMBCS.ORG](http://AMBCS.ORG) /ALL LOWER CASE/ AND SELECTING SNOWPACK REPORTS OR SNOWPACK MAPS.

WEATHER - MOST OF ALASKA WAS WARMER THAN NORMAL DURING FEBRUARY BUT HAS RETURNED TO MORE SEASONAL TEMPERATURES DURING MARCH. THE GREATEST FACTOR IN DETERMINING THE SEVERITY OF BREAKUP REMAINS THE WEATHER DURING APRIL AND MAY. THE SPRING OUTLOOK FOR THE APRIL THROUGH JUNE PERIOD CALLS FOR A GREATER LIKELIHOOD OF ABOVE NORMAL TEMPERATURES FOR ALL OF ALASKA EXCEPT THE NORTH SLOPE. THE OUTLOOK FOR APRIL INDICATES NO TENDENCY FOR ABOVE OR BELOW NORMAL TEMPERATURES IN ALASKA. THUS IT SEEMS

UNLIKELY THAT THE ANTICIPATED WARM WEATHER WILL DEVELOP EARLY IN THE APRIL TO JUNE PERIOD. IF THE WEATHER REMAINS RELATIVELY COOL IN APRIL AND EARLY MAY FOLLOWED BY RAPID WARMING DURING MAY...THE MAJORITY OF SNOWMELT VOLUME WILL REACH THE STREAMS OVER A SHORT TIME PERIOD INCREASING THE PEAK IN STREAMFLOW AND THEREFORE INCREASING THE CHANCE OF ICE JAMS. FOR MORE INFORMATION ON THE OUTLOOKS FOR THIS SPRING PLEASE REFER TO THE CLIMATE PREDICTION CENTER WEB SITE AT [HTTP://WWW.CPC.NCEP.NOAA.GOV/PRODUCTS/FORECASTS](http://www.cpc.ncep.noaa.gov/products/forecasts) /ALL LOWER CASE/.

THE FLOOD POTENTIAL IS DESCRIBED BELOW...

FLOOD POTENTIAL	DEFINITION
BELOW AVERAGE.....	COMMUNITIES THAT FLOOD NEARLY EVERY YEAR MAY EXPERIENCE MINOR FLOODING OF LOW LYING AREAS
AVERAGE.....	COMMUNITIES PRONE TO SNOWMELT OR ICE JAM FLOODS SHOULD EXPECT SIMILAR CONDITIONS THIS YEAR
ABOVE AVERAGE.....	SEVERAL COMMUNITIES ARE VERY LIKELY TO FLOOD AND THE EXTENT OF FLOODING MAY BE SUBSTANTIAL

FOR MORE DETAIL AND TO SEE A FLOOD POTENTIAL MAP...ICE THICKNESS MAP ...SNOWPACK MAP...AND OTHER BREAKUP INFORMATION...REFER TO OUR WEB SITE AT [HTTP://APRFC.ARH.NOAA.GOV/PRODUCTS/GBRKUP.PHP](http://aprfc.arh.noaa.gov/products/gbrkup.php) /ALL LOWER CASE/ IF YOU HAVE ANY COMMENTS OR QUESTIONS REGARDING THIS STATEMENT...PLEASE EMAIL US AT [BECKY.PERRY@NOAA.GOV](mailto:becky.perry@noaa.gov)

THE NEXT SPRING BREAKUP OUTLOOK IS SCHEDULED FOR APRIL 9 2004.

\$\$

LAR

**2.4 Example #4 - AHPS Probabilistic Outlook (Long Term).** This product describes the chance of exceeding stages at specific locations for roughly the next three months.

FGUS73 KGRR 231917  
ESFGRR

MIC005-015-025-035-037-045-057-065-067-073-075-077-081-085-105-107-117-121-123-127-133-139-159-221200-

HYDROLOGIC OUTLOOK  
NATIONAL WEATHER SERVICE GRAND RAPIDS MI  
316 PM EDT TUE SEP 23 2003

...ADVANCED HYDROLOGIC PREDICTION SERVICE PROBABILISTIC OUTLOOK FOR THE GRAND...KALAMAZOO...AND ST JOSEPH RIVER BASINS...

THE GRAND RAPIDS OFFICE OF THE NATIONAL WEATHER SERVICE HAS IMPLEMENTED THE ADVANCED HYDROLOGIC PREDICTION SERVICE /AHPS/ FOR ALL LOCATIONS IN THE GRAND...KALAMAZOO AND ST JOSEPH RIVER BASINS. AHPS ENABLES THE NATIONAL WEATHER SERVICE TO PROVIDE LONG-RANGE PROBABILISTIC RIVER OUTLOOKS. THIS SERVICE IS ALSO AVAILABLE ON THE INTERNET.

**NWSM 10-923 FEBRUARY 8, 2005**

IN THE TABLE BELOW...THE 90 THROUGH 10 PERCENT COLUMNS INDICATE THE CHANCE THE RIVER COULD RISE ABOVE THE LISTED STAGE LEVELS IN THE NEXT 90 DAYS. EXAMPLE: THE RED CEDAR RIVER AT WILLIAMSTON HAS A FLOOD STAGE OF 9 FEET. IN THE NEXT 90 DAYS THERE IS A 20 PERCENT CHANCE THE RED CEDAR RIVER NEAR WILLIAMSTON WILL RISE ABOVE 5.5 FEET.

CHANCE OF EXCEEDING STAGES AT SPECIFIC LOCATIONS  
VALID SEPTEMBER 24, 2003 - DECEMBER 18, 2003

LOCATION	FS(FT)	PERCENT CHANCE OF EXCEEDING LISTED STAGE							
		90	80	70	60	50	40	30	20
RED CEDAR RIVER									
WILLIAMSTON	9	2.7	3.5	3.9	4.1	4.6	4.9	5.0	5.5
EAST LANSING	7	3.4	3.5	3.9	4.0	4.2	4.3	4.4	4.6
LOOKING GLASS RIVER									
EAGLE	6	1.1	1.5	1.8	2.1	2.2	2.5	2.9	3.0
MAPLE RIVER									
MAPLE RAPIDS	9.5	2.7	3.5	4.3	4.6	5.1	5.6	6.8	7.3
FLAT RIVER									
SMYRNA	6	3.7	3.8	4.0	4.2	4.4	4.6	4.9	5.2
KALAMAZOO RIVER									
MARSHALL	8	4.0	4.1	4.2	4.2	4.3	4.5	4.5	4.7
COMSTOCK	9	3.9	4.2	4.3	4.5	4.6	4.8	4.9	5.2
FENNVILLE	12	6.8	7.5	8.5	9.3	9.7	10.0	10.4	10.7
NEW RICHMOND	9								
ST JOSEPH RIVER									
BURLINGTON	6.5	3.0	3.2	3.3	3.5	3.5	3.7	3.8	4.0
PORTAGE RIVER									
VICKSBURG	5	3.3	3.5	3.8	4.0	4.0	4.2	4.3	4.4

THIS LONG-RANGE PROBABILISTIC OUTLOOK CONTAINS NUMBERS THAT ARE CALCULATED USING MULTIPLE SCENARIOS FROM 30 OR MORE YEARS OF CLIMATOLOGICAL DATA. THESE NUMBERS ALSO TAKE INTO ACCOUNT CURRENT CONDITIONS OF THE RIVER...SNOW COVER AND SOIL MOISTURE...AS WELL AS 30 TO 90 DAY LONG-RANGE OUTLOOKS OF TEMPERATURE AND PRECIPITATION. BY PROVIDING THE COMPLETE RANGE OF PROBABILISTIC NUMBERS...THE LEVEL OF RISK ASSOCIATED WITH LONG-RANGE PLANNING DECISIONS CAN BE DETERMINED. THESE PROBABILISTIC NUMBERS ARE PART OF AHPS.

ADDITIONAL SUPPORTIVE DATA AND EXPLANATION ARE AVAILABLE ON THE INTERNET AT: [WWW.CRH.NOAA.GOV/GRR/](http://WWW.CRH.NOAA.GOV/GRR/) /ALL LOWER CASE/. LONG-RANGE PROBABILISTIC OUTLOOKS ARE ISSUED EACH MONTH...NEAR THE END OF THE MONTH...THROUGHOUT THE YEAR.

\$\$

**3. Flood Watch and Associated Follow-up Products (FFA).**

**3.1 Example #1 - Flood Watch.** Situation - forecasters at WFO Blacksburg, VA see a storm system approaching from the south. Models indicate that the storm could produce moderate to heavy rain over an extended period and forecasters see the potential for flooding, but at this time they cannot predict with certainty which rivers and streams are threatened. The WFO issues a flood watch for counties in Virginia and North Carolina at 2:52 a.m. on Tuesday May 27, 2003.

WGUS61 KRNK 270652  
FFARNK

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE BLACKSBURG VA  
252 AM EDT TUE MAY 27 2003

NCZ003>006-019-020-VAZ022>024-032>035-043>047-058-059-271300-  
/O.NEW.KRNK.FL.A.0002.030527T1400Z-030528T0800Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
AMHERST-APPOMATTOX-BEDFORD-BOTETOURT-BUCKINGHAM-CAMPBELL-CASWELL-  
CHARLOTTE-FRANKLIN-HALIFAX-HENRY-PATRICK-PITTSYLVANIA-ROANOKE-  
ROCKBRIDGE-ROCKINGHAM-STOKES-SUNNY-WILKES-YADKIN-  
252 AM EDT TUE MAY 27 2003

...FLOOD WATCH IN EFFECT FROM THIS MORNING TO WEDNESDAY MORNING...

THE NATIONAL WEATHER SERVICE IN BLACKSBURG HAS ISSUED A

\* FLOOD WATCH FOR PARTS OF SOUTHWESTERN VIRGINIA AND NORTHWEST  
NORTH CAROLINA

\* FROM THIS MORNING TO WEDNESDAY MORNING

\* LOW PRESSURE IS EXPECTED TO STRENGTHEN OVER THE CAROLINAS AND MOVE  
EAST THIS AFTERNOON AS A POTENT UPPER DISTURBANCE OVER KENTUCKY  
MOVES OVER THE SOUTHERN APPALACHIANS. AS A RESULT RAIN IS EXPECTED  
TO REDEVELOP AND BECOME HEAVY AT TIMES ALONG AND EAST OF THE BLUE  
RIDGE LATER THIS MORNING AND THIS AFTERNOON.

\* LOWER PORTIONS OF THE DAN AND ROANOKE RIVERS ARE ALREADY IN OR NEAR  
FLOOD DUE TO HEAVY RAINFALL SUNDAY...AND ADDITIONAL RAINFALL COULD  
EASILY CAUSE SHARP RISES ON THESE RIVERS. AREA CREEKS AND STREAMS  
ARE ALSO RUNNING HIGH AND COULD FLOOD WITH MORE HEAVY RAIN.

REMEMBER...A FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT  
IMMINENT IN THE WATCH AREA.

\$\$

**Notes and Explanations -**

(1) The forecaster believes the flood threat starts at 10 a.m. on Tuesday, May 27, 2003 (1400Z). Therefore, the Event Beginning Date/Time group is 030527T1400Z and the beginning time/day phrase used in the second bullet is "THIS MORNING."

(2) The forecaster wants the watch to be valid until 4 a.m. Wednesday, May 28, 2003 (800Z). Therefore, the Event Ending Date/Time group is 030528T0800Z and the ending time/day phrase used in the second bullet is "WEDNESDAY MORNING."

**3.2 Example #2 - Flood Watch: Follow-up With Cancellation, Extension in Area, and Continuation Segments.** Situation - WFO Blacksburg had already issued a flood watch for counties in Virginia and North Carolina at 2:52 a.m. on Tuesday May 27, 2003 (see section 3.1). A little over five hours later at 8:00 a.m., the forecaster decides that the storm track will be further west, so new counties in North Carolina, Virginia, West Virginia will need to be added and some of the counties in the eastern part of the original watch area will need to be cancelled. This would call for issuance of a product with three segments as follows:

WGUS61 KRNK 271200  
FFARNK

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE BLACKSBURG VA  
800 AM EDT TUE MAY 27 2003

...FLOOD WATCH AREA SHIFTED WESTWARD WITH FLOODING NOW POSSIBLE IN  
SOUTHWESTERN VIRGINIA...EASTERN WEST VIRGINIA AND NORTHWEST NORTH  
CAROLINA UNTIL TOMORROW MORNING...

NCZ005-006-VAZ044>047-058-059-271300-  
/O.CAN.KRNK.FL.A.0002.030527T1400Z-030528T0800Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
APPOMATTOX-BUCKINGHAM-CAMPBELL-CHARLOTTE-CASWELL-HALIFAX-  
PITTSYLVANIA-ROCKINGHAM-  
800 AM EDT TUE MAY 27 2003

...FLOOD WATCH IS CANCELLED...

THE FLOOD WATCH HAS BEEN CANCELLED. LOW PRESSURE CONTINUES TO  
STRENGTHEN OVER THE CAROLINAS AS AN UPPER DISTURBANCE THAT TRIGGERED  
HEAVY RAIN OVER KENTUCKY IS STARTING TO MOVE IN OVER THE SOUTHERN  
APPALACHIANS. HOWEVER...THE HEAVIEST RAINFALL IS NOW EXPECTED TO  
OCCUR FURTHER WEST ALONG BOTH SIDES OF THE BLUE RIDGE THIS MORNING AND  
THIS AFTERNOON. THEREFORE...THE FLOOD WATCH IS BEING CANCELLED FOR  
THOSE COUNTIES FARTHER EAST FROM THE BLUE RIDGE.

\$\$

NCZ001-002-018-VAZ011>018-020-WVZ044-045-272000-  
/O.EXA.KRNK.FL.A.0002.030527T1400Z-030528T0800Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
ALLEGHANY-ASHE-BATH-CARROLL-CRAIG-FLOYD-GILES-GRAYSON-GREENBRIER-  
MONROE-MONTGOMERY-PULASKI-WATAUGA-WYTHE  
800 AM EDT TUE MAY 27 2003

...FLOOD WATCH IN EFFECT FROM THIS MORNING TO WEDNESDAY MORNING...

THE NATIONAL WEATHER SERVICE IN BLACKSBURG HAS EXPANDED THE

\* FLOOD WATCH TO INCLUDE THE APPALACHIAN REGIONS OF VIRGINIA...WEST  
VIRGINIA AND NORTH CAROLINA

\* FROM THIS MORNING TO WEDNESDAY MORNING

\* LOW PRESSURE CONTINUES TO STRENGTHEN OVER THE CAROLINAS AS A POTENT UPPER DISTURBANCE THAT TRIGGERED HEAVY RAIN OVER KENTUCKY IS STARTING TO MOVE OVER THE SOUTHERN APPALACHIANS. HOWEVER...THE HEAVIEST RAINFALL IS NOW EXPECTED TO OCCUR ALONG BOTH SIDES OF THE BLUE RIDGE THIS MORNING AND THIS AFTERNOON. THEREFORE...THE FLOOD WATCH IS BEING EXTENDED INTO AREAS ALONG AND WEST OF THE BLUE RIDGE.

\* AREA CREEKS AND STREAMS ARE RUNNING HIGH AND COULD FLOOD WITH MORE HEAVY RAIN.

REMEMBER...A FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT IN THE WATCH AREA.

\$\$

NCZ003-004-019-020-VAZ022>024-032>035-043-272000-  
/O.CON.KRNK.FL.A.0002.030527T1400Z-030528T0800Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
AMHERST-BEDFORD-BOTETOURT-FRANKLIN-HENRY-PATRICK-ROANOKE-  
ROCKBRIDGE-STOKES-SUNNY-WILKES-YADKIN  
800 AM EDT TUE MAY 27 2003

...FLOOD WATCH REMAINS IN EFFECT FROM THIS MORNING TO WEDNESDAY MORNING...

THE FLOOD WATCH CONTINUES FOR

\* SOUTHWESTERN VIRGINIA AND NORTHWEST NORTH CAROLINA

\* FROM THIS MORNING TO WEDNESDAY MORNING

\* LOW PRESSURE CONTINUES TO STRENGTHEN OVER THE CAROLINAS AS A POTENT UPPER DISTURBANCE THAT TRIGGERED HEAVY RAIN OVER KENTUCKY IS STARTING TO MOVE OVER THE SOUTHERN APPALACHIANS. THE HEAVIEST RAINFALL IS NOW EXPECTED BE CENTERED OVER THE BLUE RIDGE THIS MORNING AND THIS AFTERNOON. THEREFORE...THE FLOOD WATCH CONTINUES ALONG THE WESTERN SLOPES OF THE BLUE RIDGE.

\* ADDITIONAL RAINFALL COULD CAUSE RISES ON THE UPPER REACHES OF THE DAN AND ROANOKE RIVERS RIVERS. AREA CREEKS AND STREAMS ARE ALSO RUNNING HIGH AND COULD FLOOD WITH MORE HEAVY RAIN.

REMEMBER...A FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT IN THE WATCH AREA.

\$\$

**Notes and Explanations:**

- (1) A cancellation segment (CAN) is used to remove the zones from the area for which a flood watch no longer applies.
- (2) An extension in area segment (EXA) is used for the new zones now being covered by the multi-segmented flood watch.
- (3) A continuation segment (CON) is used for the zones in the original watch that will continue to be covered in the multi-segmented flood watch.
- (4) All three segments in this product have the same event tracking number.

- (5) This product is being issued at 8:00 a.m. (1200Z), which is still two hours before the event beginning time provided in this and the original product (10:00 a.m. or 1400Z), so the Event Beginning Date/Time for all three segments remains the same as the initial flood watch (030527T1400Z) and "THIS MORNING" is still used in the second bullet of segments 2 and 3.
- (6) All three segments, including the cancellation segment, use the same date and time in the Event Ending Date/Time group - i.e., 4 a.m. on May 28<sup>th</sup> (030528T0800Z).

**3.3 Example #3 – Flash Flood Watch.** Situation: A storm system is moving into the WFO Springfield, MO area from the west. Forecasters conclude that flash flooding could be triggered by this storm. However, at this time they cannot predict with certainty which specific locations could experience the flash flooding. At 3:00 a.m. (900Z) on Wednesday, March 19, 2003, the WFO issues a flash flood watch for seven counties in southwestern Missouri.

WGUS63 KFGF 190900  
FFASGF

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE SPRINGFIELD MO  
300 AM CST WED MAR 19 2003

MOZ066-077-088-093-094-101-102-191500-  
/O.NEW.KSGF.FF.A.0002.030319T1500Z-030320T2200Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
BARRY-BARTON-JASPER-LAWRENCE-MCDONALD-NEWTON-VERNON-  
300 AM CST WED MAR 19 2003

...FLASH FLOOD WATCH IN EFFECT FROM THIS MORNING TO THURSDAY  
AFTERNOON...

THE NATIONAL WEATHER SERVICE IN SPRINGFIELD HAS ISSUED A

\* FLASH FLOOD WATCH FOR SOUTHWESTERN MISSOURI

\* FROM THIS MORNING TO THURSDAY AFTERNOON

\* A STRONG STORM SYSTEM MOVING NORTHEAST ACROSS THE CENTRAL PLAINS  
WILL CONTINUE TO PUMP MOISTURE NORTHWARD FROM THE GULF OF MEXICO.  
A LARGE BAND OF RAIN AND THUNDERSTORMS WILL CONTINUE TO ROTATE  
NORTHWESTWARD AROUND THIS UPPER LOW. MODERATE TO HEAVY RAIN AND  
OCCASIONAL THUNDERSTORMS ASSOCIATED WITH THIS BAND WILL CONTINUE  
OVER THE WATCH AREA MUCH OF TODAY. WIDESPREAD RAINFALL AMOUNTS OF  
1 TO 2 INCHES ARE LIKELY IN THE WATCH AREA TODAY...WITH LOCALLY  
HEAVIER AMOUNTS OF 3 OR MORE INCHES POSSIBLE.

REMEMBER...A FLASH FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT  
IMMINENT IN THE WATCH AREA. PERSONS IN SOUTHWESTERN MISSOURI SHOULD  
BE AWARE OF THE POSSIBILITY FOR HEAVY RAINFALL AND FLASH FLOODING...  
CHECK YOUR PREPAREDNESS REQUIREMENTS...ESPECIALLY IF YOU HAVE  
INTERESTS ALONG RIVERS IN THE AREA. KEEP INFORMED...AND BE READY FOR  
ACTION IF FLOODING IS OBSERVED OR IF A FLASH FLOOD WARNING IS ISSUED.  
STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR YOUR CABLE  
TELEVISION PROVIDER FOR WATCH UPDATES AND POSSIBLE WARNINGS.

\$\$

J. DOE

**Notes and Explanations:**

(1) The forecaster believes the flood threat starts at 9:00 a.m. on Wednesday, March 19, 2003 (1500Z). Therefore, the Event Beginning Date/Time group is 030319T1500Z and the beginning time/day phrase used in the second bullet is "THIS MORNING."

(2) The forecaster wants the watch to be valid until 4:00 p.m. Thursday, March 20 (2200Z). Therefore, the Event Ending Date/Time group is 030320T2200Z and the ending time/day phrase used in the second bullet is "THURSDAY AFTERNOON."

**3.4 Example #4 – Flash Flood Watch: Follow-up With Extension in Time and Extension In Area Segments.**

Situation: Six hours after the initial flash flood watch was issued, forecasters at WFO Springfield, MO decide that the approaching storm will cover a wider area and have a longer duration than originally anticipated. At 9:00 a.m. on Wednesday, March 19, they issue a flash flood watch which expands coverage into three counties in southeastern Kansas and extends the event expiration time by eight hours from 4:00 p.m. Thursday afternoon to midnight.

WGUS63 KFGF 191500  
FFASGF

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE SPRINGFIELD MO  
900 AM CST WED MAR 19 2003

...POSSIBILITY OF FLASH FLOODING EXTENDS INTO FAR SOUTHEASTERN  
KANSAS NOW EXTENDS UNTIL MIDNIGHT TOMORROW...

MOZ066-077-088-093-094-101-102-192100-  
/O.EXT.KSGF.FF.A.0002.000000T0000Z-030321T0600Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
BARRY-BARTON-JASPER-LAWRENCE-MCDONALD-NEWTON-VERNON-  
900 AM CST WED MAR 19 2003

...FLASH FLOOD WATCH EXTENDED UNTIL LATE THURSDAY NIGHT...

THE NATIONAL WEATHER SERVICE IN SPRINGFIELD HAS EXTENDED THE

\* FLASH FLOOD WATCH

\* UNTIL LATE THURSDAY NIGHT

\* A STRONG STORM SYSTEM MOVING NORTHEAST ACROSS THE CENTRAL PLAINS  
CONTINUES TO DRAW MOISTURE NORTHWARD FROM THE GULF OF MEXICO. RAIN  
AND A FEW THUNDERSTORMS ARE BEGINNING TO MOVE INTO THE SOUTHERN  
PART OF THE WATCH AREA. HEAVY RAIN IS NOW POSSIBLE INTO TONIGHT...  
WITH LOCALIZED AMOUNTS OF 1 TO 2 INCHES POSSIBLE IN THE WATCH  
AREA. EVEN HEAVIER AMOUNTS OF 3 OR MORE INCHES COULD STILL OCCUR.

A FLASH FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT  
IN THE WATCH AREA. PERSONS IN SOUTHWESTERN MISSOURI SHOULD BE AWARE OF  
OF THE POSSIBILITY FOR HEAVY RAINFALL AND FLASH FLOODING...CHECK YOUR  
PREPAREDNESS REQUIREMENTS...ESPECIALLY IF YOU HAVE INTERESTS ALONG  
SMALL RIVERS AND STREAMS IN THE AREA. KEEP INFORMED...AND BE READY FOR  
ACTION IF FLOODING IS OBSERVED OR IF A FLASH FLOOD WARNING IS ISSUED.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR YOUR CABLE TELEVISION PROVIDER FOR WATCH UPDATES AND POSSIBLE WARNINGS.

\$\$

KSZ073-097-101-192100-  
/O.EXB.KSGF.FF.A.0002.000000T0000Z-030321T0600Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
BOURBON-CHEROKEE-CRAWFORD-  
900 AM CST WED MAR 19 2003

...FLASH FLOOD WATCH IN EFFECT UNTIL LATE THURSDAY NIGHT...

THE NATIONAL WEATHER SERVICE IN SPRINGFIELD HAS EXPANDED THE

\* FLASH FLOOD WATCH TO INCLUDE FAR SOUTHEASTERN KANSAS

\* UNTIL LATE THURSDAY NIGHT

\* A STRONG STORM SYSTEM MOVING NORTHEAST ACROSS THE CENTRAL PLAINS CONTINUES TO DRAW MOISTURE NORTHWARD FROM THE GULF OF MEXICO. RAIN AND A FEW THUNDERSTORMS ROTATING AROUND THIS LOW ARE BEGINNING TO MOVE INTO THE SOUTHERN PART OF THE WATCH AREA. HEAVY RAIN MAY AFFECT AREAS FURTHER WEST INTO SOUTHEASTERN KANSAS AND LAST INTO TONIGHT. LOCAL AMOUNTS OF 1 TO 2 INCHES ARE POSSIBLE IN THE WATCH AREA...WITH 3 OR MORE INCHES STILL POSSIBLE IN SOME LOCATIONS.

A FLASH FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT IN THE WATCH AREA. BE AWARE OF THE POSSIBILITY FOR HEAVY RAINFALL AND FLASH FLOODING...CHECK YOUR PREPAREDNESS REQUIREMENTS... ESPECIALLY IF YOU HAVE INTERESTS ALONG SMALL RIVERS AND STREAMS IN THE AREA. KEEP INFORMED...AND BE READY FOR ACTION IF FLOODING IS OBSERVED OR IF A FLASH FLOOD WARNING IS ISSUED.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR YOUR CABLE TELEVISION PROVIDER FOR WATCH UPDATES AND POSSIBLE WARNINGS.

\$\$

### Notes and Explanations:

(1) The new counties being added to the flash flood watch are handled in an EXB (extended in both area and time) segment and the counties in the original flood watch are handled in an EXT (extended in time) segment.

(2) The event beginning time in the original flash flood watch was 9:00 a.m. Since this follow-up product is being issued at 9:00 a.m., the event is considered to have already begun and the Event Beginning Date/Time groups for both segments is coded with ten zeros (000000T0000Z). Therefore, no beginning time/day phrases are used in the headlines and second bullets of the EXB and EXT segments.

(3) The forecaster wants to extend the valid time by eight hours to midnight (0600Z). Therefore, the Event Ending Date/Time group is 030321T0600Z and the ending time/day phrase used is "LATE THURSDAY NIGHT."

**3.5 Example #5: Flash Flood Watch (Short and Long Zone Names).** Situation: A forecaster at WFO Albuquerque, NM notes a line of thunderstorms has formed and is moving across the state. Conditions are favorable for flash flooding, but the nature of the storm makes it difficult to predict with certainty where it could occur, so a flash flood watch is issued for the day over a wide area.

WGUS65 KABQ 281555  
FFAABQ

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE ALBUQUERQUE NM  
955 AM MDT SAT OCT 28 2000

...FLASH FLOODING POSSIBLE IN THE EAST CENTRAL PLAINS AND SOUTHEAST  
NEW MEXICO TODAY...

NMZ006-012-013-018>021-281800-  
/O.NEW.KABQ.FF.A.0015.001028T1555Z-001028T2200Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
HARDING COUNTY-CONCHAS LAKE/GUADALUPE COUNTY-QUAY COUNTY-  
DE BACA COUNTY-CHAVES COUNTY PLAINS-ROOSEVELT COUNTY-CURRY COUNTY-  
955 AM MDT SAT OCT 28 2000

...FLASH FLOOD WATCH IN EFFECT UNTIL THIS AFTERNOON...

THE NATIONAL WEATHER SERVICE IN ALBUQUERQUE HAS ISSUED A

- \* FLASH FLOOD WATCH FOR THE EAST CENTRAL PLAINS AND SOUTHEAST AREAS  
OF NEW MEXICO
- \* UNTIL THIS AFTERNOON
- \* AT 950 AM MDT...WELL DEFINED LINE OF STRONG THUNDERSTORMS WAS  
MOVING SLOWLY EASTWARD ACROSS PARTS OF EASTERN NEW MEXICO. THE LINE  
CURRENTLY EXTENDS FROM WESTERN CHAVES TO NORTHEAST DE BACA INTO  
EASTERN SAN MIGUEL AND HARDING COUNTIES. THE LINE OF THUNDERSTORMS  
WILL GRADUALLY MOVE EASTWARD AS THE UPPER LEVEL STORM SYSTEM BEGINS  
TO MOVE INTO NORTHEAST NEW MEXICO LATER TODAY.
- \* SOUTHERLY WINDS...AT THE SURFACE AND ALOFT...ARE CREATING AN  
ENVIRONMENT FAVORABLE FOR TRAINING OF THUNDERSTORMS OVER THE  
EASTERN PORTIONS OF NEW MEXICO. SOME OF THE STRONGER STORMS COULD  
PRODUCE RAINFALL RATES BETWEEN 1 TO 2 INCHES AN HOUR.

A FLASH FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT  
IN THE WATCH AREA.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR YOUR CABLE  
TELEVISION PROVIDER FOR WATCH UPDATES AND POSSIBLE WARNINGS.

\$\$

**Notes and Explanation:**

(1) The forecaster wants the watch to start immediately because the line of thunderstorms has already formed, so the Event Beginning Date/Time (001028T1555Z) is the same as the product issuance date/time (9:55 a.m. on Saturday, Oct 28, 2000).

(2) Note how the highly variable topography in New Mexico necessitates the use of more terrain-oriented names for some zones such as "Chaves County Plains," while other zones correspond one-to-one with counties.

**3.6 Example #6: Flash Flood Watch (Long Zone Names).** Situation: A storm system with heavy rainfall is moving onshore into the WFO San Diego, CA area. Because it is difficult to precisely predict where and if flash flood-causing rainfall will occur, a flash flood watch is issued for the night and next day over most of the county warning area.

WGUS66 KSGX 120342  
FFASGX

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE SAN DIEGO CA  
745 PM PST TUE FEB 11 2003

...FLASH FLOODING POSSIBLE OVER SOUTHERN CALIFORNIA UNTIL THURSDAY MORNING...

CAZ042-043-048-050-055>058-061-062-121200-  
/O.NEW.KSGX.FF.A.0003.030212T0345Z-030213T1200Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
ORANGE COUNTY COASTAL AREAS-SAN DIEGO COUNTY COASTAL AREAS-  
SAN BERNARDINO AND RIVERSIDE COUNTY VALLEYS-THE INLAND EMPIRE-  
SAN DIEGO COUNTY VALLEYS-SAN BERNARDINO COUNTY MOUNTAINS-RIVERSIDE  
COUNTY MOUNTAINS-SANTA ANY MOUNTAINS AND FOOTHILLS-SAN DIEGO COUNTY  
MOUNTAINS-COACHELLA VALLEY-SAN DIEGO COUNTY DESERTS-  
745 PM PST TUE FEB 11 2003

...FLASH FLOOD WATCH IN EFFECT UNTIL THURSDAY MORNING...

THE NATIONAL WEATHER SERVICE IN SAN DIEGO HAS ISSUED A

\* FLASH FLOOD WATCH FOR SAN DIEGO AND ORANGE COUNTIES...THE INLAND EMPIRE...THE COACHELLA VALLEY AND THE MOUNTAINS AND DESERTS OF SAN BERNARDINO AND RIVERSIDE COUNTIES

\* UNTIL THURSDAY MORNING

\* A LARGE STORM SOUTHWEST OF SAN DIEGO WILL CONTINUE TO FEED MOISTURE INTO SOUTHERN CALIFORNIA TONIGHT AND WEDNESDAY. AS THE STORM MOVES NORTHEAST RAIN WILL INCREASE ACROSS THE AREA...WITH HEAVY RAIN LIKELY WEDNESDAY. RAINFALL RATES OF 1/2 INCH PER HOUR OR MORE WILL PRODUCE STREET FLOODING...AND MAY ALSO BRING SMALL CREEKS AND STREAMS TO BANKFULL.

A FLASH FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT IN THE WATCH AREA.

THE HEAVY RAINS WILL INCREASE THE THREAT OF MUDSLIDES AND FLOODING IN AND BELOW THE BURN AREAS. RESIDENTS IN THESE AREAS SHOULD MAKE PREPARATIONS FOR FLOODING AND BE PREPARED TO MOVE TO HIGHER GROUND IF HEAVY RAINS DEVELOP. STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR CABLE TELEVISION FOR WATCH UPDATES AND POSSIBLE WARNINGS.

\$\$

**Notes and Explanations:**

(1) The forecaster wants the watch to start immediately because the storm system is already moving on shore, so the Event Beginning Date/Time (030212T0345Z) is the same as the product issuance date/time (7:45 p.m. on Tuesday, Feb 11, 2003).

(2) Note how the highly variable topography in Southern California necessitates the use of more terrain-oriented zone names such as "San Bernardino County Mountains."

**3.7 Example #7: Flood Watch (Long Zone Names).** Situation: A large area of moderate rainfall is occurring over the coast range portion of the WFO Portland, OR county warning area. Under current antecedent conditions, this heavily forested area can absorb about two inches of rainfall without significant flooding. Heavier rainfall could occur in a few areas, so the forecaster knows that there is some potential for flooding. Therefore, a flood watch is issued until 11:00 p.m. Saturday evening.

WGUS66 KPQR 220131  
FFAPQR

URGENT - IMMEDIATE BROADCAST REQUESTED  
FLOOD WATCH  
NATIONAL WEATHER SERVICE PORTLAND OR  
530 PM PST FRI MAR 21 2003

ORZ001>004-006>008-WAZ021-220700-  
/O.NEW.KPQR.FL.A.0007.030322T0130Z-030323T0700Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
NORTH OREGON COAST-CENTRAL OREGON COAST-COAST RANGE OF NORTHWEST  
OREGON-CENTRAL COAST RANGE OF WESTERN OREGON-GREATER PORTLAND  
METRO AREA-CENTRAL WILLAMETTE VALLEY-SOUTH WILLAMETTE VALLEY-  
SOUTH WASHINGTON COAST  
530 PM PST FRI MAR 21 2003

...FLOOD WATCH IN EFFECT UNTIL SATURDAY NIGHT...

THE NATIONAL WEATHER SERVICE IN PORTLAND HAS ISSUED A

- \* FLOOD WATCH FOR THE WILLAMETTE TRIBUTARIES DRAINING THE NORTHWEST OREGON COAST RANGE AND THE COASTAL RIVERS AND STREAMS OF SOUTHWEST WASHINGTON AND NORTHWEST OREGON
- \* UNTIL SATURDAY NIGHT
- \* RAIN CONTINUES TO FALL THIS EVENING OVER THE COAST AND COAST RANGE OF SOUTHWEST WASHINGTON AND NORTHWEST OREGON...AND WILL CONTINUE TO BE HEAVY AT TIMES TONIGHT.
- \* SEVERAL OF THE RIVERS AND STREAMS DRAINING THE COAST RANGE IN NORTHWEST OREGON AND SOUTHWEST WASHINGTON MAY RISE TO FLOOD STAGE TONIGHT OR SATURDAY. ALONG THE COASTAL SLOPES THE STREAMS MOST AT RISK FOR FLOODING INCLUDE THE NEHALEM...WILSON...SILETTE AND SIUSLAW RIVERS. STREAMS AT RISK FOR FLOODING DRAINING THE EAST SLOPES OF THE COAST RANGE INTO THE WILLAMETTE RIVER INCLUDE THE LUCKIAMUTE...MARYS AND UPPER TULATIN RIVERS.

A FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT IN THE WATCH AREA.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR YOUR CABLE TELEVISION PROVIDER FOR WATCH UPDATES AND POSSIBLE WARNINGS. STAGE FORECASTS FOR RIVERS IN THE WATCH AREA SHOULD BE MONITORED. THESE 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. RIVER FORECASTS ALSO 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/.

\$\$

J. DOE

**Notes and Explanations:**

- (1) The forecaster wants the watch to start immediately because the rainfall has already started, so the Event Beginning Date/Time (030322T0130Z) is the same as the product issuance date/time (5:30 p.m. on Friday, Mar 21, 2003).
- (2) Note how more terrain-oriented zone names such as "Coast Range of Northwest Oregon" are used because of the mountainous topography in coastal Oregon and Washington.
- (3) Note the highly specific description of the areas and streams with the potential for flooding.

**3.8 Example #8 - Flood Watch: Follow-up (Long Zone Names).** Five and a half hours after the initial flood watch was issued, forecasters at WFO Portland, OR issued a flood watch to update the original watch.

WGUS66 KPQR 220700  
FFAPQR

FLOOD WATCH  
NATIONAL WEATHER SERVICE PORTLAND OR  
1100 PM PST FRI MAR 21 2003

ORZ001>004-006>008-WAZ021-221300-  
/O.CON.KPQR.FL.A.0007.000000T0000Z-030323T0700Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
NORTH OREGON COAST-CENTRAL OREGON COAST-COAST RANGE OF NORTHWEST  
OREGON-CENTRAL COAST RANGE OF WESTERN OREGON-GREATER PORTLAND METRO  
AREA-CENTRAL WILLAMETTE VALLEY-SOUTH WILLAMETTE VALLEY-SOUTH  
WASHINGTON COAST-  
1100 PM PST FRI MAR 21 2003

...FLOOD WATCH REMAINS IN EFFECT UNTIL SATURDAY NIGHT...

THE FLOOD WATCH CONTINUES FOR

- \* THE WILLAMETTE TRIBUTARIES DRAINING THE NORTHWEST OREGON COAST RANGE AND THE COASTAL RIVERS AND STREAMS OF SOUTHWEST WASHINGTON AND NORTHWEST OREGON
- \* UNTIL SATURDAY NIGHT
- \* MODERATE RAIN CONTINUES TO FALL THIS EVENING OVER THE WATCH AREA WITH A FEW HEAVIER AREAS ON THE COASTAL SLOPES. SO FAR ALL MAJOR RIVERS AND STREAMS DRAINING THE COAST RANGE IN NORTHWEST OREGON AND SOUTHWEST WASHINGTON ARE BELOW FLOOD STAGE...BUT STILL SHOULD BE MONITORED CLOSELY FOR THE POSSIBILITY OF FLOODING SHOULD RAINFALL

EXCEED THE CURRENTLY FORECAST VALUES.

A FLOOD WATCH MEANS THAT FLOODING IS POSSIBLE BUT NOT IMMINENT IN THE WATCH AREA.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL MEDIA OR YOUR CABLE TELEVISION PROVIDER FOR WATCH UPDATES AND POSSIBLE WARNINGS. THE LATEST RIVER STAGES AND FORECASTS CAN BE MONITORED AT [WWW.WRH.NOAA.GOV/PORTLAND/PUBLIC\\_HYDRO](http://WWW.WRH.NOAA.GOV/PORTLAND/PUBLIC_HYDRO) /LOWER CASE/.

\$\$

J. DOE

**3.9 Example #9 - Flood Watch: Expiration (Long Zone Names).** At the product expiration time for the previously issued flood watch on Saturday, March 22, forecasters at WFO Portland issue a final product to announce expiration of the flood watch.

WGUS66 KPQR 230700  
FFAPQR

FLOOD WATCH  
NATIONAL WEATHER SERVICE PORTLAND OR  
1100 PM PST SAT MAR 22 2003

ORZ001>004-006>008-WAZ021-230715-  
/O.EXP.KPQR.FL.A.0007.000000T0000Z-030323T0700Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
NORTH OREGON COAST-CENTRAL OREGON COAST-COAST RANGE OF NORTHWEST  
OREGON-CENTRAL COAST RANGE OF WESTERN OREGON-GREATER PORTLAND  
METRO AREA-CENTRAL WILLAMETTE VALLEY-SOUTH WILLAMETTE VALLEY-  
SOUTH WASHINGTON COAST-  
1100 PM PST SAT MAR 22 2003

...FLOOD WATCH IS NO LONGER IN EFFECT...

THE FLOOD WATCH FOR THE WILLAMETTE TRIBUTARIES DRAINING THE NORTHWEST OREGON COAST RANGE AND THE COASTAL RIVERS AND STREAMS OF SOUTHWEST WASHINGTON AND NORTHWEST OREGON HAS BEEN ALLOWED TO EXPIRE.

MODERATE TO HEAVY RAIN FELL OVERNIGHT ALONG THE COAST AND IN THE COAST RANGE OF SOUTHWEST WASHINGTON AND NORTHWEST OREGON...BUT REMAINED WITHIN THE RANGE OF FORECAST VALUES. THIS ALLOWED ALL RIVERS AND STREAMS IN THE WATCH AREA TO REMAIN BELOW FLOOD STAGE. RIVERS WILL STILL BE AT HIGH LEVELS FOR THE NEXT FEW DAYS BUT GRADUALLY RECEDE UNTIL THE NEXT STORM ARRIVES THIS TUESDAY.

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

\$\$

J. DOE

**4. Flash Flood Warning (FFW) and Associated Follow-up Products (FFS).**

**4.1 Example #1 - Flash Flood Warning (FFW).** Situation - radar shows thunderstorms with heavy rain moving northwest across central Long Island, NY. WFO New York City/Upton forecasters, using the flash flood monitoring and prediction system, note the likelihood of flash flooding in several small basins in southwest Suffolk County and decide to issue a flash flood warning at 12:55 p.m. EDT (1655Z). The resulting product is the most common type of flash flood warning issued by the NWS - a flash flood warning for an area.

WGUS51 KOKX 141655  
FFWOKX  
NYC103-142000-  
/O.NEW.KOKX.FF.W.0005.000814T1655Z-000814T2000Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/

BULLETIN - EAS ACTIVATION REQUESTED  
FLASH FLOOD WARNING  
NATIONAL WEATHER SERVICE NEW YORK NY  
1255 PM EDT MON AUG 14 2000

THE NATIONAL WEATHER SERVICE IN UPTON HAS ISSUED A

\* FLASH FLOOD WARNING FOR  
SOUTHWEST SUFFOLK COUNTY IN SOUTHEASTERN NEW YORK STATE

\* UNTIL 400 PM EDT

\* AT 1254 PM NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED  
THUNDERSTORMS MOVING NORTHWEST TOWARD THE WARNED AREA. RAINFALL  
RATES FROM 2 TO 3 INCHES PER HOUR WILL CAUSE FLASH FLOODING OF  
LOW LYING AND POOR DRAINAGE AREAS. THE HEAVY RAINS SHOULD END BY  
200 PM EDT AND IT WILL TAKE ANOTHER HOUR OR TWO FOR THE FLOODING  
TO DISSIPATE.

DO NOT DRIVE YOUR VEHICLE INTO AREAS WHERE THE WATER COVERS THE  
ROADWAY. VEHICLES CAUGHT IN RISING WATER SHOULD BE ABANDONED. MOVE  
TO HIGHER GROUND IMMEDIATELY.

REPORT SEVERE WEATHER TO THE NEAREST LAW ENFORCEMENT AGENCY. THEY  
WILL RELAY YOUR REPORT TO THE NATIONAL WEATHER SERVICE FORECAST  
OFFICE IN UPTON.

LAT...LON 4153 7264 4131 7255 4138 7190 4159 7198

\$\$

**Notes and Explanations:-**

(1) In flash flood warnings, the Event Beginning Date/Time is always the same as the product issuance time, so in this case the former (000814T1655Z) corresponds to 1255 p.m. EDT on Monday, August 14, 2000.

(2) Note how that even though forecaster predicts the end of heavy rain by 2:00 p.m., she allows another two hours for the flash flooding to dissipate. Therefore, the Event Ending Date/Time is 000814T2000Z (4:00 p.m. on Monday, August 14 2000).

**4.2 Example #2 – Flash Flood Statement: Follow-up to Flash Flood Warning (FFS).**

Situation - 35 minutes after the flash flood warning was issued for Suffolk County, the forecaster at WFO Upton issues a flash flood statement to provide updated information on the event.

WGUS71 KOKX 141730  
FFSOKX

FLASH FLOOD STATEMENT  
NATIONAL WEATHER SERVICE NEW YORK NY  
130 PM EDT MON AUG 14 2000

NYC103-142000-  
/O.CON.KOKX.FF.W.0005.000000T0000Z-000814T2000Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
SUFFOLK NY  
130 PM EDT MON AUG 14 2000

...THE FLASH FLOOD WARNING REMAINS IN EFFECT FOR SOUTHWEST SUFFOLK COUNTY IN SOUTHEASTERN NEW YORK STATE UNTIL 400 PM EDT...

AT 130 PM EDT...WEATHER SERVICE DOPPLER RADAR INDICATED A CLUSTER OF THUNDERSTORMS PRODUCING VERY HEAVY RAIN IN AN AREA FROM BRENTWOOD WEST TO DEER PARK AND NORTH TO ABOUT INTERSTATE 495. THUNDERSTORMS ARE MOVING NORTH TOWARDS HUNTINGTON STATION AND LLOYD POINT. RADAR ESTIMATES INDICATE 2 INCHES HAVE FALLEN. LAW ENFORCEMENT OFFICERS IN THE AREA REPORT SEVERAL ROADS ARE COVERED WITH WATER AND ARE TEMPORARILY IMPASSIBLE.

DO NOT DRIVE YOUR VEHICLE INTO AREAS WHERE THE WATER COVERS THE ROADWAY. VEHICLES CAUGHT IN RISING WATER SHOULD BE ABANDONED. MOVE TO HIGHER GROUND IMMEDIATELY.

REPORT SEVERE WEATHER TO THE NEAREST LAW ENFORCEMENT AGENCY. THEY WILL RELAY YOUR REPORT TO THE NATIONAL WEATHER SERVICE IN UPTON.

LAT...LON 4153 7264 4131 7255 4138 7190 4159 7198

\$\$

**4.3 Example #3 – Flash Flood Statement: Cancellation of Flash Flood Warning (FFS).**

Situation – A half hour before the flash flood warning was scheduled to expire, WFO Upton issues a flash flood statement to cancel the warning and summarize reported impacts.

WGUS71 KOKX 141930  
FFSOKX

FLASH FLOOD STATEMENT  
NATIONAL WEATHER SERVICE NEW YORK NY  
330 PM EDT MON AUG 14 2000

NYC103-141945-  
/O.CAN.KOKX.FF.W.0005.000000T0000Z-000814T2000Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
SUFFOLK NY-  
330 PM EDT MON AUG 14 2000

...THE FLASH FLOOD WARNING HAS BEEN CANCELLED FOR SOUTHWEST SUFFOLK COUNTY IN NEW YORK...

NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATES THAT THE THUNDERSTORMS HAVE MOVED WELL OUT OF THE AREA AND INTO THE LONG ISLAND SOUND. NO HEAVY RAINFALL HAS OCCURRED IN THE WARNING AREA FOR OVER AN HOUR. THE MOST SERIOUS FLOODING OCCURRED ON JEFFERSON AVENUE NEAR THE BRENTWOOD COUNTRY CLUB WHERE SEVERAL HOMES WERE FLOODED AND A BRIDGE WAS DAMAGED. WATER WAS REPORTED OVER THE ROADWAY AT SEVERAL LOCATIONS IN DEER PARK AND HUNTINGTON STATION. FLOODING HAS SUBSIDED AND THE FLOOD THREAT NO LONGER EXISTS... BUT PONDING OF WATER ON ROADWAYS MAY CONTINUE AT A FEW LOCATIONS AS FLOOD WATERS RECEDE.

REMAIN CAUTIOUS WHEN DRIVING IN LOW LYING AREAS...AND REPORT ANY FLOODED ROADWAYS TO THE NEAREST LAW ENFORCEMENT AGENCY. THEY WILL RELAY YOUR REPORT TO THE NATIONAL WEATHER SERVICE FORECAST OFFICE IN UPTON.

LAT...LON 4153 7264 4131 7255 4138 7190 4159 7198

\$\$

**Note and Explanation:**

(1) Note how even though the warning is being cancelled a half hour early at 3:30 p.m. (1930Z), the time indicated in the Event Ending Date/Time is still 2000Z.

**4.4 Example #4 – Flash Flood Warning for a Three-County Area (FFW).** Situation - radar shows a slow moving band of heavy rainfall moving east across north central Ohio. WFO Cleveland forecasters note the likelihood of flash flooding in portions of Lorain, Medina, and Summit Counties and decide to issue a flash flood warning at 3:15 a.m. EDT (715Z).

WGUS51 KCLE 210715  
FFWCLE  
OHC093-103-153-211200-  
/O.NEW.KCLE.FF.W.0017.040521T0715Z-040521T1200Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/

BULLETIN - EAS ACTIVATION REQUESTED  
FLASH FLOOD WARNING  
NATIONAL WEATHER SERVICE CLEVELAND OH  
315 AM EDT FRI MAY 21 2004

THE NATIONAL WEATHER SERVICE IN CLEVELAND HAS ISSUED A

- \* FLASH FLOOD WARNING FOR...  
LORAIN COUNTY IN NORTH CENTRAL OHIO...  
MEDINA COUNTY IN NORTHEAST OHIO...  
SUMMIT COUNTY IN NORTHEAST OHIO...
- \* UNTIL 800 AM EDT
- \* AT 304 AM EDT WEATHER SERVICE RADAR INDICATED THUNDERSTORMS WITH HEAVY RAINS IN THE AREA. WITH THE GROUND NEARLY SATURATED...FLOODING IS LIKELY.

NEVER DRIVE OR WALK INTO FLOODED AREAS.

LAT...LON 4113 8224 4130 8238 4117 8147 4097 8147

\$\$

**4.5 Example #5 – Flash Flood Statement: Follow up to Flash Flood Warning With Cancellation and Continuation Segments (FFS).** Situation – at 4:30 a.m., radar shows that the band of heavy rainfall has shifted eastward in north central Ohio. WFO Cleveland forecasters decide to cancel the flash flood warning in Lorain County and continue the flash flood warning in the two counties that are further east - Medina and Summit.

WGUS71 KCLE 210830  
FFSCLE

FLASH FLOOD STATEMENT  
NATIONAL WEATHER SERVICE CLEVELAND OH  
430 AM EDT FRI MAY 21 2004

OHC093-210845-  
/O.CAN.KCLE.FF.W.0017.000000T0000Z-040521T1200Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
LORAIN OH-  
430 AM EDT FRI MAY 21 2004

...THE FLASH FLOOD WARNING HAS BEEN CANCELLED FOR LORAIN COUNTY IN NORTH CENTRAL OHIO...

AT 425 AM EDT WEATHER SERVICE RADAR INDICATED THUNDERSTORMS HAVE MOVED EASTWARD OUT OF THE COUNTY AND FLASH FLOODING HAS SUBSIDED. SOME MINOR FLOODING WAS REPORTED ON HIGHWAY 18 JUST EAST OF WELLINGTON...BUT IT QUICKLY SUBSIDED.

DO NOT TO DRIVE WHERE WATER COVERS THE ROAD. WATER DEPTH MAY BE TOO GREAT TO ALLOW YOUR CAR...TRUCK OR SUV TO CROSS SAFELY.

LAT...LON 4108 8198 4125 8198 4117 8147 4097 8147

\$\$

OHC103-153-211200-  
/O.CON.KCLE.FF.W.0017.000000T0000Z-030521T1200Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
MEDINA OH-SUMMIT OH-  
430 AM EDT FRI MAY 21 2004

...A FLASH FLOOD WARNING REMAINS IN EFFECT FOR MEDINA AND SUMMIT COUNTIES UNTIL 800 AM EDT...

THUNDERSTORMS WITH HEAVY RAIN HAVE CAUSED FLOODING IN PORTIONS OF MEDINA AND SUMMIT COUNTIES THIS MORNING. RADAR ESTIMATES INDICATED FROM 1 TO 2 INCHES HAD FALLEN FROM ABOUT 200 AM THROUGH 420 AM. THIS CAUSED FLOODING ON LAUREL ROAD IN BRUNSWICK WHERE TWO HOMES WERE FLOODED. FLOODING WAS ALSO REPORTED ON NORTH CARPENTER ROAD. ADDITIONAL FLOODING IS LIKELY IN OTHER LOCATIONS ACROSS THE AREA.

DO NOT TO DRIVE WHERE WATER COVERS THE ROAD. WATER DEPTH MAY BE TOO GREAT TO ALLOW YOUR CAR...TRUCK OR SUV TO CROSS SAFELY.

LAT...LON 4108 8198 4125 8198 4117 8147 4097 8147

\$\$

**Notes and Explanations:**

- (1) The first segment cancels the warning for one county (Lorain) and the second segment continues the warning for the other two counties in the original warning (Medina and Summit)
- (2) Note how the product expiration time in the UGC line for the CAN segment (845Z) indicates that it is to be purged 15 minutes after product issuance, while the product expiration time in the UGC line for the CON segment is the same as the Event Ending Time (1200Z).
- (3) Note the new Lat/Lon polygon coordinates for the revised warning area, which are repeated in both the CAN and CON segments.

**4.6 Example #6 - Flash Flood Warning: Dam Failure (FFW).** Situation - At 10 a.m. CDT, WFO Goodland receives a report from the U.S. Bureau of Reclamation that Bonny Dam is failing due to an expanding leak at the base of the dam. Bonny Dam is an earth fill structure on the South Fork Republican River, just upstream from the Colorado/Kansas state line. Because the river below the dam flows northeast, the warning must cover a town in eastern Colorado, a town in the northwest corner of Kansas, and two towns in southwest Nebraska.

WGUS53 KGLD 221608  
FFWGLD  
COC125-KSC023-NEC057-087-230015-  
/O.NEW.KGLD.FF.W.0003.020422T1508Z-020423T0015Z/  
/U.DM.000000T0000Z.000000T0000Z.000000T0000Z.OO/

BULLETIN - EAS ACTIVATION REQUESTED  
FLASH FLOOD WARNING  
NATIONAL WEATHER SERVICE GOODLAND KS  
1008 AM MDT MON APR 22 2002

THE NATIONAL WEATHER SERVICE IN GOODLAND HAS ISSUED A

\* FLASH FLOOD WARNING FOR THE SOUTH FORK REPUBLICAN RIVER BELOW FAILING BONNY DAM... INCLUDING THE FOLLOWING DOWNSTREAM LOCATIONS...

SOUTHEASTERN YUMA COUNTY IN NORTHEAST COLORADO  
THIS INCLUDES THE CITY OF HALE  
CHEYENNE COUNTY IN NORTHWEST KANSAS  
THIS INCLUDES THE CITY OF ST FRANCIS  
SOUTHEASTERN DUNDY COUNTY IN SOUTHWEST NEBRASKA  
THIS INCLUDES THE CITY OF BENKELMAN  
WESTERN HITCHCOCK COUNTY IN SOUTHWEST NEBRASKA  
THIS INCLUDES THE CITY OF STRATTON

\* UNTIL 615 PM MDT /715 PM CDT/

\* AT 1000 AM MDT /11 AM CDT/ NATIONAL WEATHER SERVICE AND THE UNITED STATES BUREAU OF RECLAMATION REPORTS THAT BONNY DAM HAS FAILED... MASSIVE FLASH FLOODING IS DEVELOPING BELOW THE DAM DUE TO RAPID EROSION OF THE STRUCTURE.

\* THE ESTIMATED TIME FOR THE LEADING EDGE OF THE FLOOD WAVE TO REACH HALE IS 1030 AM MDT...FOR ST. FRANCIS 1248 PM MDT... FOR BENKELMAN 338 PM MDT AND FOR STRATTON 6 PM MDT.

MOVE FAR AWAY FROM THE SOUTH FORK REPUBLICAN RIVER AND DO NOT STAY IN AREAS SUBJECT TO FLOODING WHEN WATER BEGINS RISING. THIS IS A VERY DANGEROUS SITUATION BELOW BONNY DAM. ALL PEOPLE LIVING ALONG OR LOCATED NEAR THE SOUTH FORK REPUBLICAN AND REPUBLICAN RIVERS SHOULD BEGIN EVACUATION...AND MOVE TO HIGHER GROUND IMMEDIATELY.

LAT...LON 3868 10233 3871 10187 3909 10187 3904 10209 3903 10234

\$\$

**Notes and Explanations:**

(1) Note how the flood severity code in the H-VTEC string is "U" – because the flood severity code is either 1, 2, or 3 (for minor, moderate, or major flooding) or U (for unknown) in flash flood warnings which include point-specific hydrologic forecast information or provide information on flash flooding which is not the direct result of heavy precipitation (e.g, a dam failure).

**4.7 Example #7 – Flash Flood Statement: Follow up to Flash Flood Warning For A Dam Failure (FFS).** Situation - Bonny Dam failed 30 minutes ago and the WFO needs to provide updated information on the downstream moving flood wave. A single-segment flash flood statement is issued.

WGUS73 KGLD 221638  
FFSGLD

FLASH FLOOD STATEMENT  
NATIONAL WEATHER SERVICE GOODLAND KS  
1038 AM MDT MON APR 22 2002

COC125-KSC023-NEC057-087-230015-  
/O.CON.KGLD.FF.W.0003.000000T0000Z-020423T0015Z/  
/U.DM.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
YUMA CO-CHEYENNE KS-DUNDY NE-HITCHCOCK NE-  
1038 AM MDT MON APR 22 2002

...THE FLASH FLOOD WARNING DUE TO FAILURE OF BONNY DAM REMAINS IN EFFECT ALONG THE SOUTH FORK REPUBLICAN RIVER IN NORTHEAST COLORADO NORTHWEST KANSAS AND SOUTHWEST NEBRASKA...

THE FLOOD WAVE CAUSED BY FAILURE OF BONNY DAM REACHED THE TOWN OF HALE COLORADO AT 1030 AM MDT. LOCAL POLICE REPORTED A 30 TO 40 FOOT HIGH FLOOD WAVE SWEEPING THROUGH THE TOWN...CAUSING NEAR TOTAL DAMAGE TO ALL STRUCTURES AT LOWER ELEVATIONS NEAR THE RIVER.

THE ESTIMATED TIME FOR THE LEADING EDGE OF THE FLOOD WAVE TO REACH ST. FRANCIS KS IS 1248 PM MDT...FOR BENKELMAN NE 338 PM MDT AND FOR STRATTON NE ABOUT 600 PM MDT.

THE NEXT DOWNSTREAM RESERVOIR...SWANSON RESERVOIR BEHIND TRENTON DAM IN HITCHCOCK COUNTY NEBRASKA...HAS BEEN VERY LOW DUE TO THE RECENT DROUGHT. AUTHORITIES BELIEVE THAT TRENTON DAM WILL BE ABLE TO CONTAIN THE FLOOD WATERS FROM FAILED BONNY DAM...SO FAILURE OF TRENTON DAM IS NOT A THREAT AT THIS TIME. HOWEVER...WATER RELEASES HAVE BEEN STARTED FROM TRENTON DAM TO ENSURE THE SAFETY OF THE DAM. THEREFORE RIVER LEVELS WILL BE A FOOT OR SO HIGHER THAN THEY HAVE BEEN IN THE SOUTH FORK REPUBLICAN RIVER BELOW TRENTON DAM AND IN THE REPUBLICAN RIVER BELOW WHERE THE TWO RIVERS JOIN.

THIS IS A VERY DANGEROUS SITUATION BELOW BONNY DAM! MOVE FAR AWAY FROM THE SOUTH FORK REPUBLICAN RIVER AND DO NOT STAY IN AREAS SUBJECT TO FLOODING WHEN WATER BEGINS RISING. ALL PEOPLE LIVING ALONG OR LOCATED NEAR THE SOUTH FORK REPUBLICAN RIVER SHOULD EVACUATE... AND MOVE TO HIGHER GROUND IMMEDIATELY!

LAT...LON 3868 10233 3871 10187 3909 10187 3904 10209 3903 10234

\$\$

**4.8 Example #8 - Flash Flood Warning Including Observations and Forecasts for a Forecast Point (FFW).** Situation - radar shows heavy precipitation training over the Kansas City area, with a maximum over the Brush Creek watershed. Forecasters at WFO Kansas City/Pleasant Hill know that a storm with this rainfall amount, intensity, and areal coverage will cause flash flooding on Brush Creek in the Kansas City Plaza area, and the WFO site-specific application is executed to confirm this. A flash flood warning is issued which includes point-specific forecast information at the end after the standard flash flood warning bullets.

WGUS53 KEAX 092349  
FFWEAX  
MOC095-100445-  
/O.NEW.KEAX.FF.W.0007.010809T2349Z-010810T0445Z/  
/2.ER.010810T0030Z.010810T0130Z.010810T0445Z.NO/

BULLETIN - EAS ACTIVATION REQUESTED  
FLASH FLOOD WARNING  
NATIONAL WEATHER SERVICE KANSAS CITY/PLEASANT HILL MO  
649 PM CDT THU AUG 9 2001

THE NATIONAL WEATHER SERVICE IN PLEASANT HILL HAS ISSUED A

\* FLASH FLOOD WARNING FOR  
JACKSON COUNTY IN WEST CENTRAL MISSOURI  
SPECIFICALLY FOR BRUSH CREEK AT WARD PARKWAY IN KANSAS CITY MO...

\* UNTIL 1145 PM CDT

\* AT 649 PM CDT...RADAR ESTIMATED 3 TO 4 INCHES OF RAIN HAS FALLEN  
OVER THE BRUSH CREEK WATERSHED SINCE LATE THIS AFTERNOON.

\* RUNOFF FROM THIS RAINFALL WILL CAUSE BRUSH CREEK AT WARD PARKWAY  
TO RISE ABOVE FLOOD STAGE...AND THREATEN TO LIFE AND PROPERTY.

MOTORISTS ARE REMINDED NOT TO DRIVE WHERE WATER COVERS THE ROAD.  
WATER DEPTH MAY BE TOO GREAT TO ALLOW YOUR CAR...TRUCK OR SUV TO  
CROSS SAFELY.

LAT...LON 3901 9456 3887 9439 3889 9426 3902 9413 3918 9432

&& FORECAST FOR SPECIFIC LOCATION IN THE FLASH FLOOD WARNING AREA...

FOR BRUSH CREEK AT WARD PARKWAY...

\* AT 600 PM THE LATEST STAGE WAS...43 FEET.

\* MODERATE FLOODING IS FORECAST

\* FLOOD STAGE IS...47 FEET

- \* FORECAST...FLOOD STAGE WILL BE REACHED AT ABOUT 730 PM. A MAXIMUM STAGE OF 49 FEET IS EXPECTED AT ABOUT 830 PM. THE CREEK WILL FALL BELOW FLOOD STAGE AT ABOUT 1145 PM.
- \* AT 48 FEET...WARD PARKWAY AND JOHNSON DRIVE NEAR THE WARD PARKWAY BRIDGE ARE UNDER WATER. ALSO...OTHER BRIDGES AND ROADS UPSTREAM AND DOWNSTREAM OF THE PLAZA FEDERAL FLOOD CONTROL PROJECT ARE FLOODED.

\$\$

**4.9 Example #9 – Flash Flood Statement: Follow-up to Flash Flood Warning Including Observations and Forecasts for a Forecast Point (FFS)**. Situation - eleven minutes after the initial flash flood warning was issued, an updated observation for the Brush Creek stream gage has been received, so a flash flood statement is issued to follow-up the warning.

WGUS73 KEAX 100000  
FFSEAX

FLASH FLOOD STATEMENT  
NATIONAL WEATHER SERVICE KANSAS CITY/PLEASANT HILL MO  
700 PM CDT THU AUG 9 2001

MOC095-100245-  
/O.CON.KEAX.FF.W.0007.000000T0000Z-010810T0445Z/  
/2.ER.010810T0030Z.010810T0130Z.010810T0445Z.NO/  
JACKSON MO-  
700 PM CDT THU AUG 9 2001

...A FLASH FLOOD WARNING REMAINS IN EFFECT UNTIL 1145 PM CDT FOR JACKSON COUNTY...SPECIFICALLY FOR BRUSH CREEK AT WARD PARKWAY IN KANSAS CITY MISSOURI.

RAINFALL HAS ENDED OVER THE BRUSH CREEK WATERSHED...WITH TOTALS REACHING 4 INCHES IN PRAIRIE VILLAGE KANSAS. RUNOFF WILL WORK ITS WAY DOWN BRUSH CREEK THROUGH TONIGHT...WITH HIGHEST FLOWS DURING THE NEXT THREE HOURS.

MOTORISTS ARE REMINDED NOT TO DRIVE WHERE WATER COVERS THE ROAD. WATER DEPTH MAY BE TOO GREAT TO ALLOW YOUR CAR...TRUCK OR SUV TO CROSS SAFELY.

LAT...LON 3901 9456 3887 9439 3889 9426 3902 9413 3918 9432

&& FORECAST FOR SPECIFIC LOCATION IN THE FLASH FLOOD WARNING AREA...

FOR BRUSH CREEK AT WARD PARKWAY...

- \* AT 700 PM THE LATEST STAGE WAS...46 FEET.
- \* MODERATE FLOODING IS FORECAST
- \* FLOOD STAGE IS...47 FEET
- \* FORECAST...FLOOD STAGE WILL BE REACHED AT ABOUT 730 PM. A MAXIMUM STAGE OF 49 FEET IS EXPECTED AT ABOUT 830 PM. THE CREEK WILL FALL BELOW FLOOD STAGE AT ABOUT 1145 PM
- \* AT 48 FEET...WARD PARKWAY AND JOHNSON DRIVE NEAR THE WARD PARKWAY BRIDGE ARE UNDER WATER. IN ADDITION...OTHER BRIDGES AND ROADS UPSTREAM AND DOWNSTREAM OF THE PLAZA FEDERAL FLOOD CONTROL PROJECT ARE FLOODED.

\$\$

**5. Flood Warning For Forecast Points (FLW) and Associated Follow-up Products (FLS).**

**5.1 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.

\$\$

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.

\$\$

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.

\$\$

### 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).
- (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."

## 5.2 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

NWSM 10-923 FEBRUARY 8, 2005

- \* 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.

\$\$

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

- 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.

\$\$

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.

\$\$

**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 third bullet because flood stage was reached there.

**5.3 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.

\$\$

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.

\$\$

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.

\$\$

### 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).

(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.

**5.4 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

\$\$

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.

\$\$

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.

\$\$

**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.

**5.5 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

\$\$

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.

\$\$

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 6TH  
\* 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.

\$\$

### 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.

### 5.6 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.
- \* 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.

\$\$

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.

\$\$

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.

\$\$

**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, 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.

**5.7 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 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.

\$\$

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.

\$\$

### 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.

## 6. Areal Flood Warning (FLW) and Associated Follow-up Products (FLS).

**6.1 Example #1 - Areal Flood Warning (FLW).** Situation – at about 8:00 a.m., a forecaster at WFO Wilmington, Ohio notes that over 3 inches of rain fell overnight on portions of Adams County in southern Ohio. Looking at the amount of rain that has already occurred, coupled with the strong possibility of an additional 1 to 2 inches, the forecaster determines that this is enough to cause widespread flooding throughout Adams County. There is one forecast point in this county, but the heavy rainfall is covering a wider area, so the forecaster decides to issue an areal flood warning for the entire county.

WGUS41 KILN 241202  
FLWILN

BULLETIN - IMMEDIATE BROADCAST REQUESTED  
FLOOD WARNING  
NATIONAL WEATHER SERVICE WILMINGTON OH  
802 AM EDT THU AUG 24 2000

OHC001-241800-  
/O.NEW.KILN.FL.W.0011.000824T1202Z-000825T0000Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
ADAMS-  
INCLUDING THE CITIES OF WEST UNION...WRIGHTSVILLE...BLUE CREEK  
802 AM EDT THU AUG 24 2000

...FLOOD WARNING IN EFFECT UNTIL 800 PM THIS EVENING...

THE NATIONAL WEATHER SERVICE IN WILMINGTON HAS ISSUED A

\* FLOOD WARNING FOR SMALL STREAMS IN ADAMS COUNTY

\* UNTIL 800 PM THIS EVENING

\* AT 800 AM EDT...WEATHER SERVICE DOPPLER RADAR INDICATED THAT OVER  
3 INCHES OF RAIN HAD FALLEN OVER PARTS OF THE COUNTY. AN ADDITIONAL  
ONE OR TWO INCHES ARE POSSIBLE THROUGHOUT THE DAY. AS A RESULT...  
HIGH WATER LEVELS CAN BE EXPECTED INTO THE EVENING HOURS. SOME  
LOCATIONS IN THE WARNING AREA INCLUDE WEST UNION AND BLUE CREEK.

IF FLOODING IS OBSERVED...ACT QUICKLY. MOVE TO HIGHER GROUND. DO NOT  
STAY IN AREAS SUBJECT TO FLOODING WHEN WATER BEGINS RISING.

\$\$

**6.2 Example #2 - Flood Statement: Follow-up to an Areal Warning: (FLS).** Situation –  
the previous flood warning issued for Adams County had a product expiration time six hours  
after issuance and an Event Ending Date/Time twelve hours after issuance. Heavy rain and  
flooding is continuing, so just before 2:00 p.m., WFO Wilmington, OH issues a flood statement  
to continue the areal flood warning and provide updated flood information.

WGUS81 KILN 241755  
FLSILN

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE WILMINGTON OH  
155 PM EDT THU AUG 24 2000

OHC001-250000-  
/O.CON.KILN.FL.W.0011.000000T0000Z-000825T0000Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
ADAMS-  
INCLUDING THE CITIES OF WEST UNION...WRIGHTSVILLE...BLUE CREEK  
155 PM EDT THU AUG 24 2000

...FLOOD WARNING REMAINS IN EFFECT UNTIL 800 PM THIS EVENING...

THE FLOOD WARNING CONTINUES FOR

\* SMALL STREAMS IN ADAMS COUNTY

\* UNTIL 800 PM EDT THIS EVENING

\* AT 150 PM EDT...WEATHER SERVICE DOPPLER RADAR INDICATED A SECOND AREA OF HEAVY RAINFALL APPROACHING THE COUNTY AND SURROUNDING AREAS. AN ADDITIONAL HALF INCH TO INCH OF RAIN IS POSSIBLE OVER PARTS OF ADAMS COUNTY...CAUSING SMALL STREAMS TO RISE AGAIN AFTER THIS MORNINGS FLOODS. FLOODING HAS BEEN REPORTED AT SEVERAL LOCATIONS ALONG WEST UNION AND BLUE CREEKS...BUT THE STREAMS ARE CRESTING AND FLOODING SHOULD BEGIN TO DECREASE IN THE NEXT FEW HOURS AFTER THE SECOND AREA OF HEAVY RAINFALL PASSES THROUGH.

IF FLOODING IS OBSERVED...ACT QUICKLY. MOVE TO HIGHER GROUND TO ESCAPE FLOOD WATERS. DO NOT STAY IN AREAS SUBJECT TO FLOODING WHEN WATER BEGINS RISING. NEVER DRIVE CARS...TRUCKS OR SUVS THROUGH FLOODED AREAS. THE WATER MAY BE TOO DEEP TO ALLOW FOR SAFE PASSAGE.

\$\$

### **6.3 Example #3 - Flood Statement: Cancellation of an Areal Flood Warning (FLS).**

Situation – in the previous flood statement continuing the flood warning for Adams County, the product expiration time was set to six hours after issuance – i.e., 0000Z or 8:00 pm. However, the flooding ended earlier than expected and the threat for more rain had ended, so at 2200Z (6:00 p.m.), WFO Wilmington, OH issues a flood statement to cancel the areal flood warning.

WGUS81 KILN 242200  
FLSILN

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE WILMINGTON OH  
600 PM EDT THU AUG 24 2000

OHC001-242300-  
/O.CAN.KILN.FL.W.0011.000000T0000Z-000825T0000Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
ADAMS-  
INCLUDING THE CITIES OF WEST UNION...WRIGHTSVILLE...BLUE CREEK  
600 PM EDT THU AUG 24 2000

...FLOOD WARNING IS CANCELLED...

THE FLOOD WARNING IS CANCELLED FOR SMALL STREAMS IN ADAMS COUNTY. AT 600 PM EDT...WEATHER SERVICE DOPPLER RADAR INDICATED THE SECOND AREA OF HEAVY RAINFALL HAS MOVED OUT OF THE COUNTY AND SURROUNDING AREAS. SMALL STREAMS HAVE DROPPED FROM FLOOD LEVELS...BUT HIGHER THAN NORMAL FLOWS MAY CONTINUE THROUGH EARLY THIS EVENING.

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

\$\$

### **Notes and Explanations:**

(1) Even though the flood warning is being cancelled at 2200Z (6 p.m.) on August 24, the Event Ending Date/Time remains 0000Z on August 25, per VTEC rules (NWSI 10-1703, sect. 2.2.2).

**6.4 Example #4 – Areal Flood Warning for a River Reach (FLW).** Situation – Releases from Albeni Falls Dam have kept flows along the Pend Oreille River close to flood level for several days. During the morning on June 5, a forecaster at WFO Spokane, OR receives information indicating that several factors are coming together to push the river above flood level along an extended reach. At 11:00 a.m., the forecaster decides to issue an areal flood warning covering an entire reach of the Pend Oreille River in Pend Oreille County from Albeni Falls Dam downstream (northward) to the Canadian border.

WGUS46 KOTX 051800  
FLWOTX

BULLETIN - IMMEDIATE BROADCAST REQUESTED  
FLOOD WARNING  
NATIONAL WEATHER SERVICE SPOKANE WA  
1100 AM PDT WED JUN 5 2002

WAC051-060600-  
/O.NEW.KOTX.FL.W.0003.020605T1800Z-020607T0600Z/  
/O.RS.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
PEND OREILLE-  
INCLUDING THE CITIES OF...NEWPORT...IONE...METALINE...METALINE FALLS  
1100 AM PDT WED JUN 5 2002

...FLOOD WARNING IN EFFECT UNTIL 1100 PM PDT THURSDAY EVENING...

THE NATIONAL WEATHER SERVICE IN SPOKANE HAS ISSUED A

- \* FLOOD WARNING FOR THE PEND OREILLE RIVER IN PEND OREILLE COUNTY
- \* UNTIL 1100 PM PDT THURSDAY EVENING
- \* ON THE PEND OREILLE RIVER BELOW ALBENI FALLS DAM...RELEASES FROM ALBENI FALLS DAM HAVE INCREASED TO 98000 CFS AT 1000 AM WEDNESDAY. THE FLOOD FLOW IS 100000 CFS. THE OUTFLOW FROM ALBENI FALLS DAM WILL DECREASE SLIGHTLY THIS EVENING TO 92000 CFS.
- \* THOUGH THE RIVER IS CURRENTLY BELOW FLOOD FLOW IMMEDIATELY BELOW THE DAM...MINOR FLOODING WILL OCCUR ALONG THE RIVER FURTHER DOWNSTREAM FROM NEWPORT TO THE CANADIAN BORDER DUE TO INFLOW FROM TRIBUTARIES AND LOCAL RAINFALL. SEVERAL STRUCTURES WILL BE FLOODED IN NEWPORT. THE RAINFALL EXPECTED TODAY WILL ADD TO THE EXISTING HIGH FLOW.

BOATERS AND PERSONS WITH INTERESTS ALONG THE PEND OREILLE RIVER ARE URGED TO USE EXTREME CAUTION WHEN NEAR OR ON THE RIVER. STAY TUNED TO FURTHER DEVELOPMENTS BY LISTENING TO NOAA WEATHER RADIO OR YOUR LOCAL TV OR RADIO STATIONS.

\$\$

**6.5 Example #5 – Flood Statement: Extension In Time for an Areal Flood Warning (FLS).** Situation – At 11:00 p.m. on Thursday evening, the forecaster realizes that the river did not recede as much as originally expected and decides to extend the areal flood warning for the Pend Oreille River in Pend Oreille County by 24 hours.

WGUS86 KOTX 070600  
FLSOTX

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE SPOKANE WA  
1100 PM PDT THU JUN 6 2002

WAC051-071800-  
/O.EXT.KOTX.FL.W.0003.000000T0000Z-020608T0600Z/  
/O.RS.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
PEND OREILLE-  
INCLUDING THE CITIES OF...NEWPORT...IONE...METALINE...METALINE FALLS  
1100 PM PDT THU JUN 6 2002

...FLOOD WARNING EXTENDED UNTIL 1100 PM PDT FRIDAY EVENING...

THE NATIONAL WEATHER SERVICE IN SPOKANE HAS EXTENDED THE

\* FLOOD WARNING FOR THE PEND OREILLE RIVER IN PEND OREILLE COUNTY

\* UNTIL 1100 PM PDT FRIDAY EVENING

\* ON THE PEND OREILLE RIVER BELOW ALBENI FALLS DAM...THE MOST  
RECENTLY REPORTED DAM RELEASE WAS 92800 CFS AT 1000 PM THURSDAY.  
TRIBUTARIES AND LOCAL RAINFALL HAVE ADDED TO THE DAM OUTFLOW TO  
RAISE THE RIVER ABOVE FLOOD FLOW OF 100000 CFS. THE OUTFLOW FROM  
ALBENI FALLS DAM IS FORECAST TO GRADUALLY DECREASE TO 92000 CFS  
BY SATURDAY MORNING AND THE RAINFALL IS EXPECTED TO END EARLY  
FRIDAY MORNING...SO MINOR FLOODING WILL CONTINUE UNTIL FRIDAY  
EVENING.

\* MINOR FLOODING CONTINUES ALONG THE RIVER DOWNSTREAM FROM NEWPORT TO  
THE CANADIAN BORDER. SEVERAL STRUCTURES ARE FLOODED AND SOME SAND  
BAGGING OPERATIONS ARE CONTINUING. ANY ADDITIONAL RAINFALL WOULD  
ADD TO THE EXISTING HIGH FLOW.

BOATERS AND PERSONS WITH INTERESTS ALONG THE PEND OREILLE RIVER ARE  
URGED TO USE EXTREME CAUTION WHEN NEAR OR ON THE RIVER. STAY TUNED  
TO FURTHER DEVELOPMENTS BY LISTENING TO NOAA WEATHER RADIO OR YOUR  
LOCAL TV OR RADIO STATIONS.

\$\$

## 7. **Flood Statement – Advisories (FLS).**

7.1 **Example #1 - Urban and Small Stream Flood Advisory.** Situation – A forecaster at WFO San Angelo notes an area of thunderstorms across central and northern Taylor County in Texas. Based on experience with numerous similar storm complexes, the forecaster decides that the likely hydrologic response would not rise to a level warranting a flood or flash flood warning, but instead issues an urban and small stream flood advisory to heighten the level of public awareness in the area

WGUS84 KSJT 281256  
FLSSJT

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE SAN ANGELO TX  
755 AM CDT TUE MAY 28 2002

TXC441-281500-  
/O.NEW.KSJT.FL.Y.0005.020528T1255Z-020528T1500Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
TAYLOR-  
INCLUDING THE CITY OF ABILENE  
755 AM CDT TUE MAY 28 2002

...URBAN AND SMALL STREAM FLOOD ADVISORY IN EFFECT UNTIL 1000 AM CDT  
TUESDAY...

THE NATIONAL WEATHER SERVICE IN SAN ANGELO HAS ISSUED AN

- \* URBAN AND SMALL STREAM FLOOD ADVISORY FOR TAYLOR COUNTY AND THE  
CITY OF ABILENE
- \* UNTIL 1000 AM CDT TUESDAY
- \* AT 750 AM CDT...WEATHER SERVICE DOPPLER RADAR INDICATED  
THUNDERSTORMS WITH LOCALLY HEAVY RAINFALL ACROSS CENTRAL AND  
NORTHERN TAYLOR COUNTY. RAINFALL BETWEEN 1 TO 2 INCHES HAS FALLEN  
IN ABILENE SINCE 700 AM WITH ANOTHER ONE HALF INCH POSSIBLE THROUGH  
MID MORNING.
- \* LOW LYING AND POOR DRAINAGE AREAS ACROSS THE CITY OF ABILENE MAY  
BECOME FLOODED AND IMPASSABLE.

MOTORISTS ACROSS ABILENE SHOULD USE EXTREME CAUTION WHEN TRAVELING  
ACROSS THE CITY. DO NOT ATTEMPT TO CROSS AREAS WHERE WATER OF UNKNOWN  
DEPTH COVERS THE ROAD.

\$\$

**7.2 Example #2 – Arroyo and Small Stream Advisory.** Situation - A forecaster at WFO Albuquerque observes an area of thunderstorms moving into Sandoval County in New Mexico. Based on experience with numerous similar storm complexes, the forecaster decides that the likely hydrologic response would not rise to a level warranting a flood or flash flood warning, but instead issues an arroyo and small streams flood advisory to heighten the level of public awareness in the area. “Arroyo and small stream” is used in the advisory title because it more accurately captures the type of stream channels in the area.

WGUS85 KABQ 072300  
FLSABQ

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE ALBUQUERQUE NM  
500 PM MDT TUE OCT 7 2003

NMC043-080100-  
/O.NEW.KABQ.FL.Y.0014.031007T2300Z-031008T0100Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
SANDOVAL  
500 PM MDT TUE OCT 7 2003

...ARROYO AND SMALL STREAM FLOOD ADVISORY IN EFFECT UNTIL 700 PM MDT  
TUESDAY...

THE NATIONAL WEATHER SERVICE IN ALBUQUERQUE HAS ISSUED AN

\* ARROYO AND SMALL STREAM FLOOD ADVISORY FOR SOUTHERN SANDOVAL COUNTY  
IN NORTH CENTRAL NEW MEXICO

\* UNTIL 700 PM MDT TUESDAY

\* AT 453 PM MDT NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED  
WIDESPREAD MODERATE RAIN OVER SOUTHERN SANDOVAL COUNTY WITH POCKETS  
OF HEAVY RAIN FROM SAN YSIDRO EXTENDING SOUTHWEST INTO BERNALILLO  
AND CIBOLA COUNTIES. THIS LARGE AREA OF RAIN IS MOVING NORTH TO  
NORTHEAST AT 15 TO 20 MPH AND WILL OVERSPREAD MUCH OF SANDOVAL  
COUNTY THROUGH 700 PM.

\* ADDITIONAL RAINFALL AMOUNTS UP TO ONE HALF INCH WILL CONTINUE TO  
CAUSE RISES IN SMALL STREAMS AND NORMALLY DRY ARROYOS...AND COULD  
CREATE DANGEROUS FLOWS OVER LOW WATER CROSSINGS.

HEAVY RAINFALL MAY CAUSE ARROYOS AND SMALL STREAMS TO SPILL OVER  
THEIR BANKS...RESULTING IN FLOODING OF LOW LYING AREAS AND ROAD  
INTERSECTIONS. DO NOT ATTEMPT TO DRIVE THROUGH THESE WATERS. WATER  
IN ARROYOS MAY TRAVEL MANY MILES AND TAKE HOURS TO REACH YOUR LOCATION  
FROM UPSTREAM RAIN AREAS

\$\$

**7.3 Example #3 - Small Stream Flood Advisory.** Situation – This product is the seventh in a series of flood watches, flood warnings, flood advisories, and flood statements that was issued for a hydrologic event in the WFO Portland, OR hydrologic service area. This product covers a portion of the area where waters were reported over several roadways, but didn't reach a level warranting issuance of a flood warning.

WGUS86 KPQR 150315  
FLSPQR

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE PORTLAND OR  
715 PM PST WED NOV 14 2001

...NW OREGON/SW WASHINGTON COASTAL BASINS BULLETIN NO. 7...

WAC049-069-150700-  
/O.CON.KPQR.FL.Y.0054.011113T0315Z-011115T1400Z/  
/O.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
PACIFIC-WAHKIAKUM-  
715 PM PST WED NOV 14 2001

...SMALL STREAM FLOOD ADVISORY REMAINS IN EFFECT UNTIL 600 AM PST  
THURSDAY...

THE SMALL STREAM FLOOD ADVISORY CONTINUES FOR

- \* PACIFIC AND WAHKIAKUM COUNTIES IN SOUTHWEST WASHINGTON
- \* UNTIL 600 AM CDT THURSDAY
- \* AT 715 PM PST...EMERGENCY OFFICIALS INDICATE WATER IS STILL OVER SEVERAL ROADWAYS IN PACIFIC AND WAHKIAKUM COUNTIES.
- \* RUNOFF FROM PREVIOUS HEAVY RAINFALL OVER THE AREA WILL CONTINUE TO POSE FLOODING PROBLEMS ON SMALL STREAMS...CREEKS AND RIVERS IN THESE AREAS.

MOTORISTS SHOULD USE EXTREME CAUTION WHEN TRAVELING IN THESE AREAS. DO NOT ATTEMPT TO CROSS AREAS WHERE WATER OF UNKNOWN DEPTH COVERS THE ROAD.

\$\$

**7.4 Example #4 - Hydrologic Advisory for Elevated River Levels Caused By Ice Jams.**

Situation – A forecaster receives a report of ice jams on two rivers. From observer reports, the ice jams are not causing inundations which reach flood levels, so he decides to issue a hydrologic advisory to elevate public awareness of the unusual hydrologic activity.

WGUS81 KCAR 212115  
FLSCAR

FLOOD STATEMENT  
NATIONAL WEATHER SERVICE CARIBOU ME  
515 PM EDT MON APR 21 2003

MEC003-222100-  
/O.NEW.KCAR.FL.Y.0004.030421T2115Z-030424T2100Z/  
/O.IJ.000000T0000Z.000000T0000Z.000000T0000Z.OO/  
AROOSTOOK  
515 PM EDT MON APR 21 2003

...HYDROLOGIC ADVISORY IN EFFECT UNTIL 500 PM THURSDAY...

THE NATIONAL WEATHER SERVICE IN CARIBOU HAS ISSUED A

- \* HYDROLOGIC ADVISORY FOR ICE JAMS ON THE AROOSTOOK AND SAINT JOHN RIVERS
- \* UNTIL 500 PM THURSDAY
- \* TWO ICE JAMS WERE OBSERVED ON THE AROOSTOOK RIVER...AND ONE ICE JAM WAS REPORTED ON THE SAINT JOHN RIVER IN NORTHEAST AROOSTOOK COUNTY MONDAY.

ON THE AROOSTOOK RIVER...THE FIRST JAM WAS DOWNSTREAM OF THE VILLAGE OF CROUSEVILLE ON STATE ROUTE 164 BETWEEN THE TOWNS OF WASHBURN AND PRESQUE ISLE. THIS JAM APPEARED TO HAVE BROKEN IN HALF OVER THE PAST 24 HOURS...SENDING THE DOWNSTREAM FLOW OF ICE SOUTHEAST THROUGH THE TOWN OF PRESQUE ISLE LATE MONDAY AFTERNOON. THIS JAM...COMBINED WITH THE SNOWMELT RUNOFF...IS CAUSING THE RIVER TO BACKUP INTO LOW LYING AREAS OF THE FLOODPLAIN...BUT DOES NOT SEEM TO BE THREATENING ANY ROADS OR PROPERTY AT THIS TIME.

ON THE AROOSTOOK RIVER...NEAR THE TOWN OF FORT FAIRFIELD...AN ICE JAM HAS FORMED IN THE RUSSELL FLATS AREA APPROXIMATELY TWO MILES DOWNSTREAM OF THE FORT FAIRFIELD BRIDGE...WHERE THE AROOSTOOK RIVER FLOWS INTO NEW BRUNSWICK. THIS JAM IS CAUSING THE RIVER TO RISE BEHIND THE JAM...BUT DOES NOT SEEM TO BE THREATENING AT THIS TIME.

ON THE SAINT JOHN RIVER...A RIVER SPOTTER HAS REPORTED AN ICE JAM FIVE TO SIX MILES DOWNSTREAM OF THE INTERNATIONAL BRIDGE IN VAN BUREN...WHERE THE ICE FLOE HAS RUN INTO THE STILL STRONG SHEET OF RIVER ICE. THIS RIVER SPOTTER ALSO NOTED THAT DOWNSTREAM OF THIS JAM THE SAINT JOHN RIVER APPEARED TO BE FREE OF ICE.

RIVER ICE IS VERY UNPREDICTABLE...AND MAY MOVE AND JAM WITH LITTLE NOTICE. ANY ICE JAM CAN CAUSE FLOODING...AS THE ICE DAMS THE RIVER... CAUSING THE RIVER AT OR BEHIND THE JAM TO ELEVATE. STAY CLEAR OF LOW LYING AREAS NEAR ICE AFFECTED RIVERS AND MONITOR CONDITIONS CLOSELY.

\$\$

**8. Hydrologic Statement (RVS).**

**8.1 Example #1 - Information on Elevated Stream Levels At A River Forecast Point.**

Situation: the Sulphur River has been flowing close to flood stage for several days. This product provides an update on the current and near-term forecast for the river at the town of Cooper. The RVS product could be used for this type of elevated streamflow situation if dissemination over NOAA Weather Wire and the internet was sufficient to get the information to need-to-know officials and it was not necessary for the product to go out over NOAA Weather Radio.

FGUS84 KFWD 110117  
RVSFWD  
TXC119-223-120100-

HYDROLOGIC STATEMENT  
NATIONAL WEATHER SERVICE FORT WORTH TX  
817 PM CDT WED APR 10 2002

THIS STATEMENT UPDATES INFORMATION FOR THE FOLLOWING LOCATIONS ON THE SULPHUR RIVER...COOPER

FOR THE SOUTH SULPHUR RIVER NEAR COOPER...THE STAGE AT 715 PM WEDNESDAY WAS 15.7 FEET. FLOOD STAGE IS 16.0 FEET. THE RIVER IS FORECAST TO HOLD AROUND 15.7 FEET...JUST BELOW FLOOD STAGE FOR THE NEXT SEVERAL DAYS. IF THE RIVER REACHES OR EXCEEDS 16.0 FEET...MINOR OUT OF BANK FLOODING WILL OCCUR AND A FEW RURAL ROADS WILL BEGIN TO FLOOD. MINOR FLOODING WILL ALSO OCCUR TO FARM AND RANCH LAND ADJACENT TO THE RIVER.

&&

LOCATION	FLD STG	OBSERVED		FORECAST 7 PM			
		STG	DAY	TIME	THU	FRI	SAT
SULPHUR RIVER COOPER	16	15.7	WED	7 PM	15.7	15.6	15.5

\$\$

**8.2 Example #2 - Elevated River Levels Caused By Ice Jam.** This example illustrates how the information shown in the product in section 7.4 could be provided in a hydrologic statement using a non-bulleted format. The hydrologic statement could be used for this type of elevated streamflow situation if it was not necessary for the product to be disseminated over NOAA Weather Radio, and NOAA Weather Wire and the internet were believed to be sufficient to get the information to need-to-know officials.

FGUS81 KCAR 212111  
RVSCAR  
MEC003-222100-

HYDROLOGIC STATEMENT  
NATIONAL WEATHER SERVICE CARIBOU ME  
515 PM EDT MON APR 21 2003

...ICE JAMS PERSIST ON THE AROOSTOOK AND SAINT JOHN RIVERS...

TWO ICE JAMS WERE OBSERVED ON THE AROOSTOOK RIVER...AND ONE ICE JAM WAS REPORTED ON THE SAINT JOHN RIVER IN NORTHEAST AROOSTOOK COUNTY MONDAY.

ON THE AROOSTOOK RIVER...THE FIRST JAM WAS DOWNSTREAM OF THE VILLAGE OF CROUSEVILLE ON STATE ROUTE 164 BETWEEN THE TOWNS OF WASHBURN AND PRESQUE ISLE. THIS JAM APPEARED TO HAVE BROKEN IN HALF OVER THE PAST 24 HOURS...SENDING THE DOWNSTREAM FLOW OF ICE SOUTHEAST THROUGH THE TOWN OF PRESQUE ISLE LATE MONDAY AFTERNOON. THIS JAM...COMBINED WITH THE SNOWMELT RUNOFF...IS CAUSING THE RIVER TO BACKUP INTO LOW LYING AREAS OF THE FLOODPLAIN...BUT DOES NOT SEEM TO BE THREATENING ANY ROADS OR PROPERTY AT THIS TIME.

ON THE AROOSTOOK RIVER...NEAR THE TOWN OF FORT FAIRFIELD...AN ICE JAM HAS FORMED IN THE RUSSELL FLATS AREA APPROXIMATELY TWO MILES DOWNSTREAM OF THE FORT FAIRFIELD BRIDGE...WHERE THE AROOSTOOK RIVER FLOWS INTO NEW BRUNSWICK. THIS JAM IS CAUSING THE RIVER TO RISE BEHIND THE JAM...BUT DOES NOT SEEM TO BE THREATENING AT THIS TIME.

ON THE SAINT JOHN RIVER...A RIVER SPOTTER HAS REPORTED AN ICE JAM FIVE TO SIX MILES DOWNSTREAM OF THE INTERNATIONAL BRIDGE IN VAN BUREN...WHERE THE ICE FLOE HAS RUN INTO THE STILL STRONG SHEET OF RIVER ICE. THIS RIVER SPOTTER ALSO NOTED THAT DOWNSTREAM OF THIS JAM THE SAINT JOHN RIVER APPEARED TO BE FREE OF ICE.

RIVER ICE IS VERY UNPREDICTABLE...AND MAY MOVE AND JAM WITH LITTLE NOTICE. ANY ICE JAM CAN CAUSE FLOODING...AS THE ICE DAMS THE RIVER... CAUSING THE RIVER AT OR BEHIND THE JAM TO ELEVATE. STAY CLEAR OF LOW LYING AREAS NEAR ICE AFFECTED RIVERS AND MONITOR CONDITIONS CLOSELY.

\$\$

**8.3 Example #3 - SHEF Encoded Observed/Forecast Information.** This example shows how the hydrologic statement could be used to provide routine hydrologic observations and forecasts encoded in Standard Hydrometeorological Exchange Format (SHEF).

FGUS83 KLMK 171530  
 RVSLMK  
 INZ089>090-KYZ035-040-049-180300-

HYDROLOGIC STATEMENT  
 NATIONAL WEATHER SERVICE LOUISVILLE KY  
 1130 AM EDT TUE APR 17 2001

.B SDF 0417 DH12/DC0104171400/HT/DRH+24/HTIFF/DRH+48/HTIFF/DRH+72/HTIFF

: ID	STATION NAME	FLOOD STAGE	7AM STAGE	24-HR CHANGE	7AM FORECASTS		
					FRI	SAT	SUN
:	OHIO RIVER						
MKLN2	:MARKLAND LOCK	51.0:	25.4/:	-3.9:	23.7 /	25.1 /	26.0 /

.END

.B SDF 0417 DH12/DC0104171400/HP/DRH+24/HPIFF/DRH+48/HPIFF/DRH+72/HPIFF

: ID	STATION NAME	FLOOD STAGE	7AM STAGE	24-HR CHANGE	7AM FORECASTS		
					FRI	SAT	SUN
:	OHIO RIVER						
MLUK2	:MCALPINE UPPER	23.0:	12.5/:	-0.1:	12.5 /	12.5 /	12.5 /

.END

.B SDF 0417 DH12/DC0104171400/HT/DRH+24/HTIFF/DRH+48/HTIFF/DRH+72/HTIFF

: ID	STATION NAME	FLOOD STAGE	7AM STAGE	24-HR CHANGE	7AM FORECASTS		
					FRI	SAT	SUN
:	OHIO RIVER						
MLPK2	:MCALPINE LOCK	55.0:	28.4/:	-4.3:	23.0 /	24.3 /	25.0 /
CNNI3	:CANNELTON LOCK	42.0:	18.0/:	0.5:	18.0 /	22.4 /	20.2 /

.END

.B SDF 0417 DH12/DC0104170707/HP/DRH+24/HPIFF/DRH+48/HPIFF/DRH+72/HPIFF

KENTUCKY RIVER

FODK2	:FORDHOLE LOCK	26.0:	10.0/:	-0.1:	11.1 /	11.3 /	11.4 /
HIBK2	:HIGH BRIDGE LOCK	30.0:	9.9/:	0.2:	9.2 /	9.5 /	9.9 /
FFTK2	:FRANKFORT LOCK	31.0:	7.8/:	0.0:	8.0 /	8.1 /	8.2 /

.END

\$\$

9. Hydrologic Summary (RVA).

9.1 Example #1 - Report for Rivers and Creeks in Hydrologic Service Area.

SRUS43 KDDC 201351  
RVADDC

HYDROLOGIC SUMMARY  
NATIONAL WEATHER SERVICE DODGE CITY KS  
850 AM CDT MON MAY 20 2002

LOCATION	FS	STAGE HEIGHT	24-HR CHANGE	POOL HEIGHT	24-HR CHANGE
ARKANSAS RIVER					
COOLIDGE 1S	8	2.45	0.00		
SYRACUSE	10	3.11	0.00		
GARDEN CITY	10	5.04	0.01		
DODGE CITY	11	5.82	0.01		
KINSLEY	12	3.75	-0.02		
BUCKNER CREEK					
BURDETT 6W	16	3.73	0.00		
CIMARRON RIVER					
ELKHART 8N	8	4.01	0.00		
FORGAN 8N	7	2.44	-0.02		
CROOKED CREEK					
ENGLEWOOD	5	1.64	M		
MEDICINE LODGE RIVER					
KIOWA 2NE	10	1.36	-0.06		
PAWNEE RIVER					
BURDETT 7WNW	23	2.53	0.00		
ROZEL 1N	31	5.86	0.00		
SALINE RIVER					
WAKEENEY 5N	13	2.07	-0.01		
S.FK NINNESCAH RIVER					
PRATT 1E	8	2.78	-0.02		
SMOKY HILL RIVER					
ARNOLD 12N	7	0.69	-0.01		
CEDAR BLUFF RSVR					
SCHOENCHEN 3W	11	2.55	-0.02	2143.21	M
SCHOENCHEN 2E	11	2.23	M		

\$\$

**10. River and Lake Forecast Product (RVD).**

**10.1 Example #1 - Lake Sites (in SHEF).**

FGUS54 KLUB 081306  
 RVDLUB  
 TXC045-075-169-263-091300-

DAILY RIVER AND LAKE SUMMARY  
 NATIONAL WEATHER SERVICE LUBBOCK TX  
 805 AM CDT FRI JUN 08 2001

.B LUB 0608 DC0106080805 DH12/HP/  
 :  
 :RESERVOIR/LAKE SITES  
 :  
 : STATION NORMAL POOL 7AM 24-HR:  
 ID NAME POOL ELEV. CHANGE  
 :  
 MKZT2 :MCKENZIE LAKE 3100: 3031.69/: -0.03:  
 CWRT2 :WHITE RIVER LAKE 2370: 2354.38/: -0.02:  
 LHPT2 :LAKE ALAN HENRY 2220: 2206.35/: -0.07:  
 :  
 .END

\$\$

**10.2 Example #2 - River and Lake Sites.**

FGUS51 KLWX 011706  
 RVDLWX  
 MDC001>002-009-DCC001-021700-

DAILY RIVER AND LAKE SUMMARY  
 NATIONAL WEATHER SERVICE BALTIMORE MD/WASHINGTON DC  
 1206 PM EST THU MAR 01 2001

.B WBC 0301 DC01030112  
 DH12/HG/DRH+24/HG/DRH+48/HG/DRH+72/HG/DRH+96/HG/DRH+120/HG/DRH+144/HG/DRH+168/HG/DRH+192/HG/DRH+216/HG/DRH+240/HG/DRH+264/HG/DRH+288/HG/DRH+312/HG/DRH+336/HG/DRH+360/HG/DRH+384/HG/DRH+408/HG/DRH+432/HG/DRH+456/HG/DRH+480/HG/DRH+504/HG/DRH+528/HG/DRH+552/HG/DRH+576/HG/DRH+600/HG/DRH+624/HG/DRH+648/HG/DRH+672/HG/DRH+696/HG/DRH+720/HG/DRH+744/HG/DRH+768/HG/DRH+792/HG/DRH+816/HG/DRH+840/HG/DRH+864/HG/DRH+888/HG/DRH+912/HG/DRH+936/HG/DRH+960/HG/DRH+984/HG/DRH+1008/HG/DRH+1032/HG/DRH+1056/HG/DRH+1080/HG/DRH+1104/HG/DRH+1128/HG/DRH+1152/HG/DRH+1176/HG/DRH+1200/HG/DRH+1224/HG/DRH+1248/HG/DRH+1272/HG/DRH+1296/HG/DRH+1320/HG/DRH+1344/HG/DRH+1368/HG/DRH+1392/HG/DRH+1416/HG/DRH+1440/HG/DRH+1464/HG/DRH+1488/HG/DRH+1512/HG/DRH+1536/HG/DRH+1560/HG/DRH+1584/HG/DRH+1608/HG/DRH+1632/HG/DRH+1656/HG/DRH+1680/HG/DRH+1704/HG/DRH+1728/HG/DRH+1752/HG/DRH+1776/HG/DRH+1800/HG/DRH+1824/HG/DRH+1848/HG/DRH+1872/HG/DRH+1896/HG/DRH+1920/HG/DRH+1944/HG/DRH+1968/HG/DRH+1992/HG/DRH+2016/HG/DRH+2040/HG/DRH+2064/HG/DRH+2088/HG/DRH+2112/HG/DRH+2136/HG/DRH+2160/HG/DRH+2184/HG/DRH+2208/HG/DRH+2232/HG/DRH+2256/HG/DRH+2280/HG/DRH+2304/HG/DRH+2328/HG/DRH+2352/HG/DRH+2376/HG/DRH+2400/HG/DRH+2424/HG/DRH+2448/HG/DRH+2472/HG/DRH+2496/HG/DRH+2520/HG/DRH+2544/HG/DRH+2568/HG/DRH+2592/HG/DRH+2616/HG/DRH+2640/HG/DRH+2664/HG/DRH+2688/HG/DRH+2712/HG/DRH+2736/HG/DRH+2760/HG/DRH+2784/HG/DRH+2808/HG/DRH+2832/HG/DRH+2856/HG/DRH+2880/HG/DRH+2904/HG/DRH+2928/HG/DRH+2952/HG/DRH+2976/HG/DRH+3000/HG/DRH+3024/HG/DRH+3048/HG/DRH+3072/HG/DRH+3096/HG/DRH+3120/HG/DRH+3144/HG/DRH+3168/HG/DRH+3192/HG/DRH+3216/HG/DRH+3240/HG/DRH+3264/HG/DRH+3288/HG/DRH+3312/HG/DRH+3336/HG/DRH+3360/HG/DRH+3384/HG/DRH+3408/HG/DRH+3432/HG/DRH+3456/HG/DRH+3480/HG/DRH+3504/HG/DRH+3528/HG/DRH+3552/HG/DRH+3576/HG/DRH+3600/HG/DRH+3624/HG/DRH+3648/HG/DRH+3672/HG/DRH+3696/HG/DRH+3720/HG/DRH+3744/HG/DRH+3768/HG/DRH+3792/HG/DRH+3816/HG/DRH+3840/HG/DRH+3864/HG/DRH+3888/HG/DRH+3912/HG/DRH+3936/HG/DRH+3960/HG/DRH+3984/HG/DRH+4008/HG/DRH+4032/HG/DRH+4056/HG/DRH+4080/HG/DRH+4104/HG/DRH+4128/HG/DRH+4152/HG/DRH+4176/HG/DRH+4200/HG/DRH+4224/HG/DRH+4248/HG/DRH+4272/HG/DRH+4296/HG/DRH+4320/HG/DRH+4344/HG/DRH+4368/HG/DRH+4392/HG/DRH+4416/HG/DRH+4440/HG/DRH+4464/HG/DRH+4488/HG/DRH+4512/HG/DRH+4536/HG/DRH+4560/HG/DRH+4584/HG/DRH+4608/HG/DRH+4632/HG/DRH+4656/HG/DRH+4680/HG/DRH+4704/HG/DRH+4728/HG/DRH+4752/HG/DRH+4776/HG/DRH+4800/HG/DRH+4824/HG/DRH+4848/HG/DRH+4872/HG/DRH+4896/HG/DRH+4920/HG/DRH+4944/HG/DRH+4968/HG/DRH+4992/HG/DRH+5016/HG/DRH+5040/HG/DRH+5064/HG/DRH+5088/HG/DRH+5112/HG/DRH+5136/HG/DRH+5160/HG/DRH+5184/HG/DRH+5208/HG/DRH+5232/HG/DRH+5256/HG/DRH+5280/HG/DRH+5304/HG/DRH+5328/HG/DRH+5352/HG/DRH+5376/HG/DRH+5400/HG/DRH+5424/HG/DRH+5448/HG/DRH+5472/HG/DRH+5496/HG/DRH+5520/HG/DRH+5544/HG/DRH+5568/HG/DRH+5592/HG/DRH+5616/HG/DRH+5640/HG/DRH+5664/HG/DRH+5688/HG/DRH+5712/HG/DRH+5736/HG/DRH+5760/HG/DRH+5784/HG/DRH+5808/HG/DRH+5832/HG/DRH+5856/HG/DRH+5880/HG/DRH+5904/HG/DRH+5928/HG/DRH+5952/HG/DRH+5976/HG/DRH+6000/HG/DRH+6024/HG/DRH+6048/HG/DRH+6072/HG/DRH+6096/HG/DRH+6120/HG/DRH+6144/HG/DRH+6168/HG/DRH+6192/HG/DRH+6216/HG/DRH+6240/HG/DRH+6264/HG/DRH+6288/HG/DRH+6312/HG/DRH+6336/HG/DRH+6360/HG/DRH+6384/HG/DRH+6408/HG/DRH+6432/HG/DRH+6456/HG/DRH+6480/HG/DRH+6504/HG/DRH+6528/HG/DRH+6552/HG/DRH+6576/HG/DRH+6600/HG/DRH+6624/HG/DRH+6648/HG/DRH+6672/HG/DRH+6696/HG/DRH+6720/HG/DRH+6744/HG/DRH+6768/HG/DRH+6792/HG/DRH+6816/HG/DRH+6840/HG/DRH+6864/HG/DRH+6888/HG/DRH+6912/HG/DRH+6936/HG/DRH+6960/HG/DRH+6984/HG/DRH+7008/HG/DRH+7032/HG/DRH+7056/HG/DRH+7080/HG/DRH+7104/HG/DRH+7128/HG/DRH+7152/HG/DRH+7176/HG/DRH+7200/HG/DRH+7224/HG/DRH+7248/HG/DRH+7272/HG/DRH+7296/HG/DRH+7320/HG/DRH+7344/HG/DRH+7368/HG/DRH+7392/HG/DRH+7416/HG/DRH+7440/HG/DRH+7464/HG/DRH+7488/HG/DRH+7512/HG/DRH+7536/HG/DRH+7560/HG/DRH+7584/HG/DRH+7608/HG/DRH+7632/HG/DRH+7656/HG/DRH+7680/HG/DRH+7704/HG/DRH+7728/HG/DRH+7752/HG/DRH+7776/HG/DRH+7800/HG/DRH+7824/HG/DRH+7848/HG/DRH+7872/HG/DRH+7896/HG/DRH+7920/HG/DRH+7944/HG/DRH+7968/HG/DRH+7992/HG/DRH+8016/HG/DRH+8040/HG/DRH+8064/HG/DRH+8088/HG/DRH+8112/HG/DRH+8136/HG/DRH+8160/HG/DRH+8184/HG/DRH+8208/HG/DRH+8232/HG/DRH+8256/HG/DRH+8280/HG/DRH+8304/HG/DRH+8328/HG/DRH+8352/HG/DRH+8376/HG/DRH+8400/HG/DRH+8424/HG/DRH+8448/HG/DRH+8472/HG/DRH+8496/HG/DRH+8520/HG/DRH+8544/HG/DRH+8568/HG/DRH+8592/HG/DRH+8616/HG/DRH+8640/HG/DRH+8664/HG/DRH+8688/HG/DRH+8712/HG/DRH+8736/HG/DRH+8760/HG/DRH+8784/HG/DRH+8808/HG/DRH+8832/HG/DRH+8856/HG/DRH+8880/HG/DRH+8904/HG/DRH+8928/HG/DRH+8952/HG/DRH+8976/HG/DRH+9000/HG/DRH+9024/HG/DRH+9048/HG/DRH+9072/HG/DRH+9096/HG/DRH+9120/HG/DRH+9144/HG/DRH+9168/HG/DRH+9192/HG/DRH+9216/HG/DRH+9240/HG/DRH+9264/HG/DRH+9288/HG/DRH+9312/HG/DRH+9336/HG/DRH+9360/HG/DRH+9384/HG/DRH+9408/HG/DRH+9432/HG/DRH+9456/HG/DRH+9480/HG/DRH+9504/HG/DRH+9528/HG/DRH+9552/HG/DRH+9576/HG/DRH+9600/HG/DRH+9624/HG/DRH+9648/HG/DRH+9672/HG/DRH+9696/HG/DRH+9720/HG/DRH+9744/HG/DRH+9768/HG/DRH+9792/HG/DRH+9816/HG/DRH+9840/HG/DRH+9864/HG/DRH+9888/HG/DRH+9912/HG/DRH+9936/HG/DRH+9960/HG/DRH+9984/HG/DRH+10008/HG/DRH+10032/HG/DRH+10056/HG/DRH+10080/HG/DRH+10104/HG/DRH+10128/HG/DRH+10152/HG/DRH+10176/HG/DRH+10200/HG/DRH+10224/HG/DRH+10248/HG/DRH+10272/HG/DRH+10296/HG/DRH+10320/HG/DRH+10344/HG/DRH+10368/HG/DRH+10392/HG/DRH+10416/HG/DRH+10440/HG/DRH+10464/HG/DRH+10488/HG/DRH+10512/HG/DRH+10536/HG/DRH+10560/HG/DRH+10584/HG/DRH+10608/HG/DRH+10632/HG/DRH+10656/HG/DRH+10680/HG/DRH+10704/HG/DRH+10728/HG/DRH+10752/HG/DRH+10776/HG/DRH+10800/HG/DRH+10824/HG/DRH+10848/HG/DRH+10872/HG/DRH+10896/HG/DRH+10920/HG/DRH+10944/HG/DRH+10968/HG/DRH+10992/HG/DRH+11016/HG/DRH+11032/HG/DRH+11056/HG/DRH+11080/HG/DRH+11104/HG/DRH+11128/HG/DRH+11152/HG/DRH+11176/HG/DRH+11200/HG/DRH+11224/HG/DRH+11248/HG/DRH+11272/HG/DRH+11296/HG/DRH+11320/HG/DRH+11344/HG/DRH+11368/HG/DRH+11392/HG/DRH+11416/HG/DRH+11440/HG/DRH+11464/HG/DRH+11488/HG/DRH+11512/HG/DRH+11536/HG/DRH+11560/HG/DRH+11584/HG/DRH+11608/HG/DRH+11632/HG/DRH+11656/HG/DRH+11680/HG/DRH+11704/HG/DRH+11728/HG/DRH+11752/HG/DRH+11776/HG/DRH+11800/HG/DRH+11824/HG/DRH+11848/HG/DRH+11872/HG/DRH+11896/HG/DRH+11920/HG/DRH+11944/HG/DRH+11968/HG/DRH+11992/HG/DRH+12000/HG/DRH+12024/HG/DRH+12048/HG/DRH+12072/HG/DRH+12096/HG/DRH+12120/HG/DRH+12144/HG/DRH+12168/HG/DRH+12192/HG/DRH+12216/HG/DRH+12240/HG/DRH+12264/HG/DRH+12288/HG/DRH+12312/HG/DRH+12336/HG/DRH+12360/HG/DRH+12384/HG/DRH+12408/HG/DRH+12432/HG/DRH+12456/HG/DRH+12480/HG/DRH+12504/HG/DRH+12528/HG/DRH+12552/HG/DRH+12576/HG/DRH+12600/HG/DRH+12624/HG/DRH+12648/HG/DRH+12672/HG/DRH+12696/HG/DRH+12720/HG/DRH+12744/HG/DRH+12768/HG/DRH+12792/HG/DRH+12816/HG/DRH+12840/HG/DRH+12864/HG/DRH+12888/HG/DRH+12912/HG/DRH+12936/HG/DRH+12960/HG/DRH+12984/HG/DRH+13000/HG/DRH+13024/HG/DRH+13048/HG/DRH+13072/HG/DRH+13096/HG/DRH+13120/HG/DRH+13144/HG/DRH+13168/HG/DRH+13192/HG/DRH+13216/HG/DRH+13240/HG/DRH+13264/HG/DRH+13288/HG/DRH+13312/HG/DRH+13336/HG/DRH+13360/HG/DRH+13384/HG/DRH+13408/HG/DRH+13432/HG/DRH+13456/HG/DRH+13480/HG/DRH+13504/HG/DRH+13528/HG/DRH+13552/HG/DRH+13576/HG/DRH+13600/HG/DRH+13624/HG/DRH+13648/HG/DRH+13672/HG/DRH+13696/HG/DRH+13720/HG/DRH+13744/HG/DRH+13768/HG/DRH+13792/HG/DRH+13816/HG/DRH+13840/HG/DRH+13864/HG/DRH+13888/HG/DRH+13912/HG/DRH+13936/HG/DRH+13960/HG/DRH+13984/HG/DRH+14000/HG/DRH+14024/HG/DRH+14048/HG/DRH+14072/HG/DRH+14096/HG/DRH+14120/HG/DRH+14144/HG/DRH+14168/HG/DRH+14192/HG/DRH+14216/HG/DRH+14240/HG/DRH+14264/HG/DRH+14288/HG/DRH+14312/HG/DRH+14336/HG/DRH+14360/HG/DRH+14384/HG/DRH+14408/HG/DRH+14432/HG/DRH+14456/HG/DRH+14480/HG/DRH+14504/HG/DRH+14528/HG/DRH+14552/HG/DRH+14576/HG/DRH+14600/HG/DRH+14624/HG/DRH+14648/HG/DRH+14672/HG/DRH+14696/HG/DRH+14720/HG/DRH+14744/HG/DRH+14768/HG/DRH+14792/HG/DRH+14816/HG/DRH+14840/HG/DRH+14864/HG/DRH+14888/HG/DRH+14912/HG/DRH+14936/HG/DRH+14960/HG/DRH+14984/HG/DRH+15000/HG/DRH+15024/HG/DRH+15048/HG/DRH+15072/HG/DRH+15096/HG/DRH+15120/HG/DRH+15144/HG/DRH+15168/HG/DRH+15192/HG/DRH+15216/HG/DRH+15240/HG/DRH+15264/HG/DRH+15288/HG/DRH+15312/HG/DRH+15336/HG/DRH+15360/HG/DRH+15384/HG/DRH+15408/HG/DRH+15432/HG/DRH+15456/HG/DRH+15480/HG/DRH+15504/HG/DRH+15528/HG/DRH+15552/HG/DRH+15576/HG/DRH+15600/HG/DRH+15624/HG/DRH+15648/HG/DRH+15672/HG/DRH+15696/HG/DRH+15720/HG/DRH+15744/HG/DRH+15768/HG/DRH+15792/HG/DRH+15816/HG/DRH+15840/HG/DRH+15864/HG/DRH+15888/HG/DRH+15912/HG/DRH+15936/HG/DRH+15960/HG/DRH+15984/HG/DRH+16000/HG/DRH+16024/HG/DRH+16048/HG/DRH+16072/HG/DRH+16096/HG/DRH+16120/HG/DRH+16144/HG/DRH+16168/HG/DRH+16192/HG/DRH+16216/HG/DRH+16240/HG/DRH+16264/HG/DRH+16288/HG/DRH+16312/HG/DRH+16336/HG/DRH+16360/HG/DRH+16384/HG/DRH+16408/HG/DRH+16432/HG/DRH+16456/HG/DRH+16480/HG/DRH+16504/HG/DRH+16528/HG/DRH+16552/HG/DRH+16576/HG/DRH+16600/HG/DRH+16624/HG/DRH+16648/HG/DRH+16672/HG/DRH+16696/HG/DRH+16720/HG/DRH+16744/HG/DRH+16768/HG/DRH+16792/HG/DRH+16816/HG/DRH+16840/HG/DRH+16864/HG/DRH+16888/HG/DRH+16912/HG/DRH+16936/HG/DRH+16960/HG/DRH+16984/HG/DRH+17000/HG/DRH+17024/HG/DRH+17048/HG/DRH+17072/HG/DRH+17096/HG/DRH+17120/HG/DRH+17144/HG/DRH+17168/HG/DRH+17192/HG/DRH+17216/HG/DRH+17240/HG/DRH+17264/HG/DRH+17288/HG/DRH+17312/HG/DRH+17336/HG/DRH+17360/HG/DRH+17384/HG/DRH+17408/HG/DRH+17432/HG/DRH+17456/HG/DRH+17480/HG/DRH+17504/HG/DRH+17528/HG/DRH+17552/HG/DRH+17576/HG/DRH+17600/HG/DRH+17624/HG/DRH+17648/HG/DRH+17672/HG/DRH+17696/HG/DRH+17720/HG/DRH+17744/HG/DRH+17768/HG/DRH+17792/HG/DRH+17816/HG/DRH+17840/HG/DRH+17864/HG/DRH+17888/HG/DRH+17912/HG/DRH+17936/HG/DRH+17960/HG/DRH+17984/HG/DRH+18000/HG/DRH+18024/HG/DRH+18048/HG/DRH+18072/HG/DRH+18096/HG/DRH+18120/HG/DRH+18144/HG/DRH+18168/HG/DRH+18192/HG/DRH+18216/HG/DRH+18240/HG/DRH+18264/HG/DRH+18288/HG/DRH+18312/HG/DRH+18336/HG/DRH+18360/HG/DRH+18384/HG/DRH+18408/HG/DRH+18432/HG/DRH+18456/HG/DRH+18480/HG/DRH+18504/HG/DRH+18528/HG/DRH+18552/HG/DRH+18576/HG/DRH+18600/HG/DRH+18624/HG/DRH+18648/HG/DRH+18672/HG/DRH+18696/HG/DRH+18720/HG/DRH+18744/HG/DRH+18768/HG/DRH+18792/HG/DRH+18816/HG/DRH+18840/HG/DRH+18864/HG/DRH+18888/HG/DRH+18912/HG/DRH+18936/HG/DRH+18960/HG/DRH+18984/HG/DRH+19000/HG/DRH+19024/HG/DRH+19048/HG/DRH+19072/HG/DRH+19096/HG/DRH+19120/HG/DRH+19144/HG/DRH+19168/HG/DRH+19192/HG/DRH+19216/HG/DRH+19240/HG/DRH+19264/HG/DRH+19288/HG/DRH+19312/HG/DRH+19336/HG/DRH+19360/HG/DRH+19384/HG/DRH+19408/HG/DRH+19432/HG/DRH+19456/HG/DRH+19480/HG/DRH+19504/HG/DRH+19528/HG/DRH+19552/HG/DRH+19576/HG/DRH+19600/HG/DRH+19624/HG/DRH+19648/HG/DRH+19672/HG/DRH+19696/HG/DRH+19720/HG/DRH+19744/HG/DRH+19768/HG/DRH+19792/HG/DRH+19816/HG/DRH+19840/HG/DRH+19864/HG/DRH+19888/HG/DRH+19912/HG/DRH+19936/HG/DRH+19960/HG/DRH+19984/HG/DRH+20000/HG/DRH+20024/HG/DRH+20048/HG/DRH+20072/HG/DRH+20096/HG/DRH+20120/HG/DRH+20144/HG/DRH+20168/HG/DRH+20192/HG/DRH+20216/HG/DRH+20240/HG/DRH+20264/HG/DRH+20288/HG/DRH+20312/HG/DRH+20336/HG/DRH+20360/HG/DRH+20384/HG/DRH+20408/HG/DRH+20432/HG/DRH+20456/HG/DRH+20480/HG/DRH+20504/HG/DRH+20528/HG/DRH+20552/HG/DRH+20576/HG/DRH+20600/HG/DRH+20624/HG/DRH+20648/HG/DRH+20672/HG/DRH+20696/HG/DRH+20720/HG/DRH+20744/HG/DRH+20768/HG/DRH+20792/HG/DRH+20816/HG/DRH+20840/HG/DRH+20864/HG/DRH+20888/HG/DRH+20912/HG/DRH+20936/HG/DRH+20960/HG/DRH+20984/HG/DRH+21000/HG/DRH+21024/HG/DRH+21048/HG/DRH+21072/HG/DRH+21096/HG/DRH+21120/HG/DRH+21144/HG/DRH+21168/HG/DRH+21192/HG/DRH+21216/HG/DRH+21240/HG/DRH+21264/HG/DRH+21288/HG/DRH+21312/HG/DRH+21336/HG/DRH+21360/HG/DRH+21384/HG/DRH+21408/HG/DRH+21432/HG/DRH+21456/HG/DRH+21480/HG/DRH+21504/HG/DRH+21528/HG/DRH+21552/HG/DRH+21576/HG/DRH+21600/HG/DRH+21624/HG/DRH+21648/HG/DRH+21672/HG/DRH+21696/HG/DRH+21720/HG/DRH+21744/HG/DRH+21768/HG/DRH+21792/HG/DRH+21816/HG/DRH+21840/HG/DRH+21864/HG/DRH+21888/HG/DRH+21912/HG/DRH+21936/HG/DRH+21960/HG/DRH+21984/HG/DRH+22000/HG/DRH+22024/HG/DRH+22048/HG/DRH+22072/HG/DRH+22096/HG/DRH+22120/HG/DRH+22144/HG/DRH+22168/HG/DRH+22192/HG/DRH+22216/HG/DRH+22240/HG/DRH+22264/HG/DRH+22288/HG/DRH+22312/HG/DRH+22336/HG/DRH+22360/HG/DRH+22384/HG/DRH+22408/HG/DRH+22432/HG/DRH+22456/HG/DRH+22480/HG/DRH+22504/HG/DRH+22528/HG/DRH+22552/HG/DRH+22576/HG/DRH+22600/HG/DRH+22624/HG/DRH+22648/HG/DRH+22672/HG/DRH+22696/HG/DRH+22720/HG/DRH+22744/HG/DRH+22768/HG/DRH+22792/HG/DRH+22816/HG/DRH+22840/HG/DRH+22864/HG/DRH+22888/HG/DRH+22912/HG/DRH+22936/HG/DRH+22960/HG/DRH+22984/HG/DRH+23000/HG/DRH+23024/HG/DRH+23048/HG/DRH+23072/HG/DRH+23096/HG/DRH+23120/HG/DRH+23144/HG/DRH+23168/HG/DRH+23192/HG/DRH+23216/HG/DRH+23240/HG/DRH+23264/HG/DRH+23288/HG/DRH+23312/HG/DRH+23336/HG/DRH+23360/HG/DRH+23384/HG/DRH+23408/HG/DRH+23432/HG/DRH+23456/HG/DRH+23480/HG/DRH+23504/HG/DRH+23528/HG/DRH+23552/HG/DRH+23576/HG/DRH+23600/HG/DRH+23624/HG/DRH+23648/HG/DRH+23672/HG/DRH+23696/HG/DRH+23720/HG/DRH+23744/HG/DRH+23768/HG/DRH+23792/HG/DRH+23816/HG/DRH+23840/HG/DRH+23864/HG/DRH+23888/HG/DRH+23912/HG/DRH+23936/HG/DRH+23960/HG/DRH+23984/HG/DRH+24000/HG/DRH+24024/HG/DRH+24048/HG/DRH+24072/HG/DRH+24096/HG/DRH+24120/HG/DRH+24144/HG/DRH+24168/HG/DRH+24192/HG/DRH+24216/HG/DRH+24240/HG/DRH+24264/HG/DRH+24288/HG/DRH+24312/HG/DRH+24336/HG/DRH+24360/HG/DRH+24384/HG/DRH+24408/HG/DRH+24432/HG/DRH+24456/HG/DRH+24480/HG/DRH+24504/HG/DRH+24528/HG/DRH+24552/HG/DRH+24576/HG/DRH+24600/HG/DRH+24624/HG/DRH+24648/HG/DRH+24672/HG/DRH+24696/HG/DRH+24720/HG/DRH+24744/HG/DRH+24768/HG/DRH+24792/HG/DRH+24816/HG/DRH+24840/HG/DRH+24864/HG/DRH+24888/HG/DRH+24912/HG/DRH+24936/HG/DRH+24960/HG/DRH+24984/HG/DRH+25000/HG/DRH+25024/HG/DRH+25048/HG/DRH+25072/HG/DRH+25096/HG/DRH+25120/HG/DRH+25144/HG/DRH+25168/HG/DRH+25192/HG/DRH+25216/HG/DRH+25240/HG/DRH+25264/HG/DRH+25288/HG/DRH+25312/HG/DRH+25336/HG/DRH+25360/HG/DRH+25384/HG/DRH+25408/HG/DRH+25432/HG/DRH+25456/HG/DRH+25480/HG/DRH+25504/HG/DRH+25528/HG/DRH+25552/HG/DRH+25576/HG/DRH+25600/HG/DRH+25624/HG/DRH+25648/HG/DRH+25672/HG/DRH+25696/HG/DRH+25720/HG/DRH+25744/HG/DRH+25768/HG/DRH+25792/HG/DRH+25816/HG/DRH+25840/HG/DRH+25864/HG/DRH+25888/HG/DRH+25912/HG/

**11. Hydrometeorological Data Summary (HYx).**

**11.1 Example #1 - Daily Summary (HYD).**

SXUS52 KCHS 301437  
 HYDCHS  
 GAZ087-088-099>101-114>119-137>141-SCZ040-042>045-047>050-011400-

DAILY HYDROMETEOROLOGICAL DATA SUMMARY  
 NATIONAL WEATHER SERVICE CHARLESTON SC  
 1036 AM EDT TUE APR 30 2002

.B CHS 0430 E DH07/TX/TN/TA/PPP/TSIRZX/TSIRZN/TSIRZ  
 :  
 : CHARLESTON AREA TEMPERATURES AND PRECIPITATION  
 :  
 :MAX...HIGH TEMPERATURE LAST 24 HRS MIN...LOW TEMPERATURE LAST 24 HRS  
 :CUR...CURRENT TEMPERATURE PCPN...PRECIPITATION LAST 24 HRS  
 :  
 :  
 : AIR TEMP SOIL TEMP  
 : STATION MAX MIN CUR PCPN MAX MIN CUR  
 :  
 :...SOUTH COASTAL...  
 :CHARLESTON ARPT :CHS 92/ 56/ 63/ 0.01/ 77/ 68/  
 :CHARLESTON CITY :CHLS1 92/ 64/ 64/ 0.03/ 79/ 66/  
 :BEAUFORT :BEAS1 92/ 62/ 62/ 0.01/ 80/ 67/  
 :SUMMERVILLE :SMVS1 93/ 52/ 52/ 0.00/ / /  
 :JAMESTOWN :JAMS1 91/ 55/ 57/ 0.02/ / /  
 :  
 :...SOUTHEAST GEORGIA...  
 :SAVANNAH ARPT :SAV 93/ 56/ 66/ 0.00/ / / 74  
 :SPRINGFIELD :SRFG1 93/ 57/ 57/ 0.11/ / /  
 :EDEN :EDEG1 93/ 55/ 66/ 0.00/ / /  
 :ROCKY FORD :RCFG1 91/ 53/ 53/ M / / /  
 :  
 .END

\$\$

**11.2 Example #2 - Monthly Summary (HYM).**

CSUS46 KMTR 051725  
 HYMMTR

MONTHLY HYDROMETEOROLOGICAL DATA SUMMARY  
 NATIONAL WEATHER SERVICE SAN FRANCISCO CA  
 925 AM PST FRI APR 5 2002

.B MTR 0331 P DH24/PPM  
 :  
 : MONTHLY PRECIPITATION FOR SF BAY AREA AND CENTRAL COAST  
 :  
 :  
 : ANGWIN PACIFIC UNION COLLEGE  
 : BIG SUR STATE PARK  
 : FORT ROSS  
 : HEALDSBURG FIRE DEPT  
 : KING CITY  
 : MOUNT HAMILTON

**NWSM 10-923 FEBRUARY 8, 2005**

NSHC1 2.63 :NAPA STATE HOSPITAL  
PANC1 0.90 :PANOCHÉ 2W  
PRSC1 0.80 :PRIEST VALLEY  
SFOC1 2.27 :SAN FRANCISCO DOWNTOWN  
SCRC1 3.52 :SANTA CRUZ  
STSC1 2.43 :SANTA ROSA  
WVIC1 1.51 :WATSONVILLE WATERWORKS  
.END

\$\$