**AWIPS II Warngen Localization for creating Site Specific Dams**

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This document provides instructions for WFOs to create site specific dams in AWIPS II.

Updated 06 April 2012. This document can also be found at:

<https://collaborate.nws.noaa.gov/trac/siteconfig/wiki/SiteSpecificDams>

**1. Introduction**

In AWIPS 1 local WFOs created a text file with their local site specific dam information called LLL-damInfo.txt where LLL represents the local office ID. With the use of 2 separate templates for each AWIPS 1 warngen template...sites will need to use xml and vm coding in these 2 separate templates to code in the site specific dam information. Sites can accomplish this by editing the templates themselves...or by creating separate files that can be read in by the templates as was done in AWIPS 1. Sites are encouraged to create files outside of the warngen templates since the warngen templates are very easily rendered useless if incorrect code is placed in the templates and sites would need to edit 4 separate templates to place the site specific dam information in the nonConvectiveFlashFloodWarning.xml nonConvectiveFlashFloodWarning.vm nonConvectiveFlashFloodWarningFollowup.xml and nonConvectiveFlashFloodWarningFollowup.vm files.

**2. Coding the xml files**

The AWIPS II xml files code up bullet selections using the "bullet" variable. In order to code up Site Specific Dams in AWIPS II a special group called "damInfoBullets" is used with the bullets themselves contained in a bullet tag called "damInfoBullet". This allows the "coords" parameter to be used...which contains the lat/lon coordinates of the Site Specific Dam polygon...and will create the Site Specific Dam polygon when the "Dam Break Threat Area" button is pressed.

**2.1 How to code the nonConvectiveFlashFloodWarning.xml file**

The nonConvectiveFlashFloodWarning.xml file delivered with your AWIPS II build will not contain your Site Specific Dams...but it will contain a section to place this information for your site with example Site Specific Dams. The portion of the template where this information will be coded will look like this:

<bullet bulletText="\*\*\*\*\*\* DAM and DAM BREAK SCENARIOS (choose 1) \*\*\*\*\*\*" bulletType="title" />

</bullets>

</bulletActionGroup>

In order to get the Site Specific Dam information into the template the coding must be placed after the </bullets> line and before the </bulletActionGroup> line. The following code is an example on how a site would add 2 Site Specific Dams with 4 Scenarios and a Rule of Thumb for the Upton, NY (KOKX) cwa:

<bullet bulletText="\*\*\*\*\*\* DAM and DAM BREAK SCENARIOS (choose 1) \*\*\*\*\*\*" bulletType="title" />

</bullets>

<damInfoBullets>

<damInfoBullet bulletGroup="dam" bulletText="Big Rock Dam (Fairfield County)" bulletName="BigRockDam" parseString="BIG ROCK" coords="LAT...LON 4109 7338 4116 7311 4116 7320"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - high fast" bulletName="BigRockhighfast" parseString="COMPLETE FAILURE OF BIG ROCK"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - high normal" bulletName="BigRockhighnormal" parseString="COMPLETE FAILURE OF BIG ROCK"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - medium fast" bulletName="BigRockmediumfast" parseString="COMPLETE FAILURE OF BIG ROCK"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - medium normal" bulletName="BigRockmediumnormal" parseString="COMPLETE FAILURE OF BIG ROCK"/>

<damInfoBullet bulletGroup="ruleofthumb" bulletText="rule of thumb" bulletName="BigRockruleofthumb" parseString="FLOOD WAVE ESTIMATE"/>

<damInfoBullet bulletGroup="dam" bulletText="Branched Oak Dam (Westchester County)" bulletName="BranchedOakDam" parseString="BRANCHED OAK" coords="LAT...LON 4106 7373 4097 7366 4090 7376 4102 7382"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - high fast" bulletName="BranchedOakhighfast" parseString="COMPLETE FAILURE OF BRANCHED OAK"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - high normal" bulletName="BranchedOakhighnormal" parseString="COMPLETE FAILURE OF BRANCHED OAK"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - medium fast" bulletName="BranchedOakmediumfast" parseString="COMPLETE FAILURE OF BRANCHED OAK"/>

<damInfoBullet bulletGroup="scenario" bulletText="scenario - medium normal" bulletName="BranchedOakmediumnormal" parseString="COMPLETE FAILURE OF BRANCHED OAK"/>

<damInfoBullet bulletGroup="ruleofthumb" bulletText="rule of thumb" bulletName="BranchedOakruleofthumb" parseString="FLOOD WAVE ESTIMATE"/>

</damInfoBullets>

</bulletActionGroup>

Coding these bullets for each of your sites can be quite a task...especially if you put this code into the COR and EXT sections of the template. Therefore sites are encouraged to do the Site Specific Dam coding in a separate file. In this example we did this in a file called [damInfoBullet.xml](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfoBullet.xml) . If we do our coding in this separate file we will need to use the "include" command. In this example the coding would look like this:

<bullet bulletText="\*\*\*\*\*\* DAM and DAM BREAK SCENARIOS (choose 1) \*\*\*\*\*\*" bulletType="title" />

</bullets>

<include file="damInfoBullet.xml"/>

</bulletActionGroup>

Using the "include" command not only keeps your xml file cleaner and less cluttered...it also makes it less likely that a local site will introduce coding errors into the template...which would make the template crash on your local system. The nonConvectiveFlashFloodWarning xml file contains commented out coding for sites to include this coding directly in the template and coding for using the "include" command to bring the [damInfoBullet.xml](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfoBullet.xml) file into the template itself.

**2.2 How to code the nonConvectiveFlashFloodWarningFollowup.xml file**

Portions of the nonConvectiveFlashFloodWarningFollowup.xml file are coded a bit differently than the dambreak.xml file.

**2.21 CON and COR sections**

The CON and COR section of the template are coded in a similar manner as the nonConvectiveFlashFloodWarning.xml file and can therefore use the same [damInfoBullet.xml](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfoBullet.xml) file as the nonConvectiveFlashFloodWarning.xml file. Since this coding was already covered in section 2.1 it will not be rehashed here.

**2.22 CAN and EXP sections**

Sites have two options when coding the CAN and EXP sections of the template. To keep the amount of coding a site performs to a minimum sites can include the [damInfoBullet.xml](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfoBullet.xml) file that is referenced in the CON and COR sections of the template. None of the Scenarios or Rule of Thumb options will be used in the CAN and EXP products...however the name of the Dam will be used so the product meets the requirements set forth in the 10-922 directive.

Since the CAN and EXP sections of the template do not require the Scenarios or Rule of Thumb selections...sites can shorten this section to keep the template length manageable. As mentioned before...the only bullets that are required are the Dam names themselves so the Dams can be referenced in the CAN and EXP products that are issued. Sites can also add End of Warning selections that are pre-populated with information for CAN and EXP products as they see fit. Taking the same example used in the previous section the EXP and CON section would look like this if a site chooses to shorten the CAN and EXP section of the template:

<bullet bulletText="\*\*\*\*\*\* DAM and DAM BREAK SCENARIOS \*\*\*\*\*\*" bulletType="title" />

<damInfoBullets>

<damInfoBullet bulletGroup="dam" bulletText="Big Rock Dam (Fairfield County)" bulletName="BigRockDam" parseString="BIG ROCK"/>

<damInfoBullet bulletGroup="dam" bulletText="Branched Oak Dam (Westchester County)" bulletName="BranchedOakDam" parseString="BRANCHED OAK"/>

</damInfoBullets>

Depending on the number of Dams a site has...this information could be coded directly into the template or in a separate xml file. Examples of this coding are included in thenonConvectiveFlashFloodWarningFollowup xml file and in this [damInfoBulletName.xml](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfoBulletName.xml) file with only the Dam names included.

**3. Coding the vm files**

The selections in the xml files are passed to the vm files which do the work of coding up the actual product that will show up in the warngen window that pops up when you hit create text.

**3.1 How to code the nonConvectiveFlashFloodWarning.vm file**

The Site Specific Dam coding should go before the product header is created in the template and after the "hycType" and "ic" variables are set in the template since we will be overriding the "hycType" variable with Site Specific Dam information. The coding used in the previous examples to create Site Specific Dams would look like this:

#########################################################################

## The next section is for site specific dams. Each site should take the

## example below and customize it for their dams with the information

## from the LLL-damInfo.txt file in AWIPS 1. If you have any questions

## please contact Phil Kurimski - WFO DTX

#########################################################################

#if(${list.contains($bullets, "BigRockDam")})

#set($riverName = "PHIL RIVER")

#set($damName = "BIG ROCK DAM")

#set($cityInfo = "EVAN...LOCATED ABOUT 3 MILES")

#end

#if(${list.contains($bullets, "BigRockhighfast")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT EVAN COULD EXCEED 18 FEET IN 16 MINUTES.")

#end

#if(${list.contains($bullets, "BigRockhighnormal")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT EVAN COULD EXCEED 23 FEET IN 31 MINUTES.")

#end

#if(${list.contains($bullets, "BigRockmediumfast")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT EVAN COULD EXCEED 14 FEET IN 19 MINUTES.")

#end

#if(${list.contains($bullets, "BigRockmediumnormal")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT EVAN COULD EXCEED 17 FEET IN 32 MINUTES.")

#end

#if(${list.contains($bullets, "BigRockruleofthumb")})

#set($ruleofthumb = "FLOOD WAVE ESTIMATE BASED ON THE DAM IN IDAHO: FLOOD INITIALLY HALF OF ORIGINAL HEIGHT BEHIND DAM AND 3-4 MPH; 5 MILES IN 1/2 HOURS; 10 MILES IN 1 HOUR; AND 20 MILES IN 9 HOURS.")

#end

#if(${list.contains($bullets, "BranchedOakDam")})

#set($riverName = "KELLS RIVER")

#set($damName = "BRANCHED OAK DAM")

#set($cityInfo = "DANGELO...LOCATED ABOUT 6 MILES")

#end

#if(${list.contains($bullets, "BranchedOakhighfast")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT DANGELO COULD EXCEED 19 FEET IN 32 MINUTES.")

#end

#if(${list.contains($bullets, "BranchedOakhighnormal")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT DANGELO COULD EXCEED 26 FEET IN 56 MINUTES.")

#end

#if(${list.contains($bullets, "BranchedOakmediumfast")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT DANGELO COULD EXCEED 14 FEET IN 33 MINUTES.")

#end

#if(${list.contains($bullets, "BranchedOakmediumnormal")})

#set($scenario = "IF A COMPLETE FAILURE OF THE DAM OCCURS...THE WATER DEPTH AT DANGELO COULD EXCEED 20 FEET IN 60 MINUTES.")

#end

#if(${list.contains($bullets, "BranchedOakruleofthumb")})

#set($ruleofthumb = "FLOOD WAVE ESTIMATE BASED ON THE DAM IN IDAHO: FLOOD INITIALLY HALF OF ORIGINAL HEIGHT BEHIND DAM AND 3-4 MPH; 5 MILES IN 1/2 HOURS; 10 MILES IN 1 HOUR; AND 20 MILES IN 9 HOURS.")

#end

#######################################################################

## Look for site specific selections to override the 4th bullet and

## to set up the headlines and additional info used in the product.

## This loop assumes you end each site specific selection with

## the word "Dam". If you end with a different word you will need

## to modify the loop below.

########################################################################

#foreach ($bullet in $bullets)

#if ($bullet.endsWith("Dam"))

#set($ctaSelected = "YES")

#set($sitespecSelected = "YES")

#set($hycType = "THE ${riverName} BELOW ${damName}")

#set($reportType1 = "${reportType2} ${damName} ON THE ${riverName}")

#set($addInfo = "THE NEAREST DOWNSTREAM TOWN IS ${cityInfo} FROM THE DAM.")

#set($sitespecCTA = "IF YOU ARE IN LOW LYING AREAS BELOW THE ${damName} YOU SHOULD MOVE TO HIGHER GROUND IMMEDIATELY.")

#end

#end

#######################################################################

## End of Site Specific Dam Information

#######################################################################

The first section of code determines which Dam was selected and assigns the variables that will be used in the product itself. Rather than assign the values at the bottom of this code for each Dam...setting the variables allows for a shorter file and more standardized statements. Scenarios and Rule of Thumb variables are then set according to a sites AWIPS 1 LLL-damInfo.txt file.

Coding this up in the vm files could make your nonConvectiveFlashFloodWarning.vm file quite lengthy...especially if you have a lot of Dams in your cwa. Therefore sites are encouraged to do the Site Specific Dam coding in a separate file. In this example we did this in a file called [damInfo.vm](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfo.vm) which is the AWIPS II equivalent of the LLL-damInfo.txt file in AWIPS 1. If we do our coding in this separate file we will need to use the "parse" command. In this example the coding would look like this:

#########################################################################

## Parse command to include a damInfo.vm file with site specific dam

## information. Sites can include this information in a separate file or

## include in the template per the coding below.

#########################################################################

#parse ("damInfo.vm")

Using the "parse" command not only keeps your nonConvectiveFlashFloodWarning vm file cleaner and less cluttered...it also makes it less likely that a local site will introduce coding errors into the template...which would make the template crash on your local system. The nonConvectiveFlashFloodWarning vm file contains commented out coding for sites to include this coding directly in the template and coding for using the "parse" command to bring in the [damInfo.vm](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfo.vm) file into the template itself.

**3.2 How to code the nonConvectiveFlashFloodWarningFollowup.vm file**

Unlike the nonConvectiveFlashFloodWarning xml file which required different coding for the EXP and CAN sections...the nonConvectiveFlashFloodWarningFollowup vm can use the exact same coding as the nonConvectiveFlashFloodWarning vm file as long as the Site Specific Dam information is coded up before the individual EXP/CAN/CON section headers and after the "ic" and "hycType" variables are set so the Site Specific Dam information will override the "hycType" variable. The individual EXP/CAN/CON sections will only use the variables needed...therefore separate coding is not needed in this template. Since the coding is the same as the nonConvectiveFlashFloodWarning vm file the [damInfo.vm](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfo.vm) file can again be parsed into the template...saving the site from coding up 2 separate templates. For this same reason the coding will not be repeated in this section of the instructions.

The nonConvectiveFlashFloodWarningFollowup vm file contains commented out coding for sites to include this coding directly in the template and coding for using the "parse" command to bring in the [damInfo.vm](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfo.vm) file into the template itself.

**4. Conclusions**

Migrating Site Specific Dam information from the AWIPS 1 LLL-damInfo.txt file to the AWIPS 2 [damInfoBullet.xml](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfoBullet.xml) and [damInfo.vm](https://collaborate.nws.noaa.gov/trac/siteconfig/attachment/wiki/SiteSpecificDams/damInfo.vm) files is no small feat. It is hoped that these instructions and examples will help sites accomplish this without too much frustration.