

Updates in SITES 2005.1.4

- Updates to SITES 2005.1.3 (RFC 7133) since CCE Certification on 10/18/2007:

- 10/19/2007 – Updated installation set to remove legacy SITES IDE file Sites.exe if it remains after installation. This is just to clean up from previous users who might have updated a previous installation by just replacing the Sites.exe file. The new IDE is called Sites2005.exe.
- 11/1/2007 – The program and guide is available at:
http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/Sites.html
- 11/6/2007 – The Official Notification is available online through the electronic directive at: http://directives.sc.egov.usda.gov/UG_210_8_17.htm
- 12/3/2007 – We had a question about the summary table: “How do you get the file names to wrap so you can read the full name (if long) without widening the space for that file?”, and the response: The current version does not provide word-wrap by default. If you have long filenames, you can view the summary table by columns (select Options + Specify Summary Fields, and click on By Column), then the file names would all be in the first column which is wider by default -- and can also be widened. This was considered a satisfactory solution.
- 1/24/2008 - Climatic Index issues: Bill Erion was running a job with 10 square miles, 3 3 sq.mi. subwatersheds, and a structure (intervening area 1 sq. mi.) that has no Ci for upstream sites, and since the upstream were just watersheds with no structure the hydrographs translate through. He was expecting quick return flow on the upstream sites but I don't think you can enter Ci for upstream sites or watersheds. Larry says you apply the Ci to the lower design site to get QRF in the PS hydrograph in the tail, and apply baseflow upstream. We don't know if damsites would accept a Ci entered for upstream sites, the interface does not allow for it. Morris and Larry will look into this as their time permits. We need to see what the behaviour should be. We don't know if we need a change in the program or just to give directions indicating what to do.
- 2/7/2009 – Partial data entry on the Hydrograph Data Screen may cause a Runtime error '30009': Invalid Row Value. have attached a copy of the sites file that is crashing. The problem seems to be that I opened the screen to enter a hydrograph for a subwatershed, but did not enter data before saving the file and quitting for the day. Today when I try to get back to that point, Sites produces the error message. Fixed by adding a test to catch this error. It was decided not to post a new version for just this bug since it can only be generated by only going to the Hydrograph Data Screen (entering no data), going to previous screen and then back to the schematic. If you enter a constant time increment, you're forced to enter at least three discharge values in the hydrograph data table. However, the bug is fixed in version 2005.1.4.
- 3/11/2008 – Addition of Barrier input for Special Auxiliary Spillway Analysis. Manual modification of the control file was described by Darrel Temple to provide a “temporary” fix. Fixed by adding a text field for Barrier Station Input on the Aux. Spillway Surface Profile Screen for this case.

- 3/27/2008 – SITES Watershed Inches: Someone was doing a sites-in-series run and got the wrong number of W/S inches on an upstream reach – too much water. Morris will follow up on this to see if there is an actual error in the output. If an error is identified, correction will be made. Darrel said, “If I understand correctly, the initial thought is that it may be computing runoff and routing correctly but just not correctly computing watershed inches for display properly, but I don't think and detailed checks have been made.” Follow-Up: The computations are OK, but the display is not showing the correct amounts for watershed inches in the graphics for complex watersheds. 5/20/2008: Mitch, “I just posted a new version of the Sites2005.1.3 executable to address this watershed inches computation. It turns out, based on the values output for Reach 5, that the w/s in value for reach R05 is near 0 (rounds off to 0). Is that reasonable?”
- 5/22/2008 – SITES computation of Peak Factor: Question from Tony Funderburk, “This run used a 256 PF and SITES computes to 255.98. I am not sure how SITES is computing the value.”. Don H., “The formula the program uses to compute the factor is: $\text{peakc} = 1290.667 * \text{qpp} / \text{qtt}$ where qtt is the sum of all dimhyd values (10.75540 from the dimhyd in 60MC2400m10tc35.d2c) and qpp is the sum of values through the peak plus 1/2 the peak value (3.2258 for this dataset). This results in a factor of 387.10191. There is no documentation in the program giving the rationale for the 1290.667.”. From Morris, “The 1290.667 eq goes back to 12-5-89 in the old code.” From Claudia, “ $1290.667 = 645.33 * 2$ If one assumes a triangular shaped hydrograph, perhaps the factor of 2 is coming from there??? Interesting...I'm not sure why the SITES is giving a different value, but according to Chapter 16, NEH-630, $\text{PRF} = 645.33 / (\text{summation of points on dim hyd curve} * \text{delta T})$ I've attached a spreadsheet showing ordinates for various dimensionless unit hydrographs (from the tables in Appendix 16B or NEH630, Chapter 16) and summed the ordinates, determined the delta T (based upon the number of time increments to reach the time = 1.0 and used the above equation to calculate the PRF. (I've listed the table number, the stated PRF and the computed PRF). With the exceptions of some typos for which I admit I did not check closely, the results are the same. The question remains as to where the equation in SITES originated, but more important is whether or not SITES uses the actual points in the table when it does the storm hydrograph computations. I believe that part is PROBABLY okay, but should be checked closely. If it is only the equation that computes the displayed PRF in the output that is in error then it shouldn't be a big problem to revise.” On 6/4/2008, from Bill Merkel, “Claudia has the right answer, the equation in Chapter 16 is correct. I propose changing the one line of code in SITES to be $\text{PRF} = 645.333 / \text{qtt} / \text{delta_t}$.” 6/12/2008 – Larry Goertz conferred, and the updated dams site code was posted at: <http://www.cis.ksu.edu/external/sites/sites2005/Sites2005DCH.zip>
- 6/19/2008 – Testing completed by Larry to check new dams site code.
- 8/8/2008 – Notes from teleconference:
 - a. User Feedback: (Morris and Larry) Subwatersheds upstream of the design site are not getting Quick Return Flow for the principal spillway routing properly. WinTR-20 takes $\text{DA} * \text{QRF}$ in CSM = QRF in cfs. If a site is to be a design site it should have quick return flow, but if the major interest of quick return

flow is how it affects 10-day drawdown, is it needed for both upstream and downstream sites? Or for only one and not the other? Larry will think about the various options and come out with a description of how QRF should be handled for various cases. Then he can work with Don to fix it. Bill Merkel will be in Fort Worth August 11-14 and he is willing to work with Morris and Larry on this. Some A and E's are abusing the 10-day drawdown glitch.

- b. Watershed Inches issue status: SITES computes correctly, but cleanup is needed on upstream site reporting.
- c. Dimensionless Unit Hydrograph (DUH) output status: Problem involved clearing out memories. It has been identified and cleaned up but is not in the version that is out for public use. There is also the problem with the output of the PRF value which is corrected in the developmental program but not in the public use version. After these 3 problems are corrected perhaps we should make a new submittal for CCE. Mitch can do a new installation package. The last release was in October 2007. SITES is separate from WinDAM and it will stay awhile so it is worth making corrections still. SITES is a design tool and WinDAM is primarily an analysis tool focused on overtopping and breach; it will compute a PS routing and is linked to the earth spillway erosion analyses, and was developed with as much routing flexibility as possible but it does not do the hydrology development that SITES does. Also does not check NRCS criteria.
- d. ASDSO SITES training preparation discussed.
- 10/21/2008 – SITES Teleconference Notes:
 - a. QRF and subarea in series still are problems. Larry has done work on it and written a report, Darrel and Don will look at the report and start working on a fix.
 - b. The display of watershed inches problem may be related to truncation at low flow. This will also be looked at and corrected before release of a new version.
 - c. Tony reported feedback from the Area Engineers in that they really like using SITES on 378 designs and 2 offices want more training on this.
 - d. The ASFILE is for subcritical flow only. You do not need it when the WSPVRT rating (default) is used. If you use the ASFILE to rate Supercritical flow in the spillway, you are likely under estimating the flow for a given head and should end up with a higher dam. Don't expect a great difference.
- 10/29/2008 – Updated Sites to handle partial input of data on the Special Aux. Spillway Analysis path; e.g., entering a barrier without providing AS Material Information. Updated the help file (Sites.chm) to include a Barrier entry on the AS Profile Screen help page.
- 12/12/2008 – Darrel: “Finally got around to looking at what had been identified as the “watershed inches” problem with SITES and think that it is actually a problem in the creation of the *.phy files with the dams site routine. The .D2C file is rather extensive and I think that the problem exhibits itself in more than one place. The one we zeroed in on was reach 5 and the associated hydrograph file appears to be H028.PHY. Based on the plots in the attached Word document, I think the computations are actually proceeding correctly and it is just an output problem.” From Don, 12/13/2008: “It looks like after the first 15 or 16 values the discharges

straighten out. When it was writing the .PHY file, it was checking for zero to stop writing. I commented out that part so the whole hydrograph was output. I've attached the H028.PHY so you can see what it was doing.". Fix posted.

- 12/15/2008 – SITES Raintable Duration Problem, from Don H., “The program is checking duration greater than 1.0, so anything between zero and 1 will give the error message. Is there anything special about 1 hour duration? If there is, I can't find it in the program. I changed my version from "If (rdur(kptbl) .GT. 1.0) " to "If (rdur(kptbl) .GT. 0.0) " and it works okay. So - if there's nothing sacred about 1 hour - I'll post the updated version – posted, updated version incorporated into Sites 2005.1.4.