

## Hello returning users and first time downloaders!

Updated July 1, 2015

In response to feedback from users attending training classes and to other users sending us comments, we continue to make improvements to the Tennessee Runoff Reduction Assessment Tool (RRAT). This includes bug fixes, changes to ease the design process, terminology changes in the RRAT or in associated Help files, modifications to the print templates, etc.

This most recent version was posted **July 1, 2015**, so if you have not downloaded the TNRRAT since then we recommend that you do so in order to have the most recent changes.

If you are unsure of the last time you downloaded, you can check this by going to the location on your computer where the TNRRAT is installed. If this folder reads 'TNRRAT Pseudo Installer...150701' (where the number is the date in yy/mm/dd format), you have the most recent version. If the date at the end of the file name is an earlier date, you do not have the most recent version.

If you have saved design runs you still need to access, don't worry, as there are two ways of approaching this once you have installed the new version. These options are discussed in detail in a new "utility" tutorial video that we have loaded on the website, which deals exclusively with database manipulation. The options are as follows:

- 1) You can bring in your old database as the current one, and all your design runs will open in the new version;
- 2) You can Import your designs from your old database into the new one that comes with the download. This is the preferred alternative.

To begin using the updated version of the TNRRAT, simply download the file from the website, extract, and open the tool. Once you save any databases, exports, or imports (.gdb files) you wish to still have access to, you can delete previous versions from your computer, as these versions will no longer be needed.

Here is an overview of the specific changes we have made:

### CHANGES MADE BETWEEN 2015-06-04 AND 2015-07-01 RELEASES

#### DESIGN / RESULT CHANGES.

- The "bypass" control defining whether flow bypasses the SCM storage once it is full has been moved into the "Element SCM Values" and made available to trained users with Design level Access. This is important from a system design consideration, but generally does not make a large impact on the RRAT results.
- The "Landscape Capacity Condition" has been modified so that it has a more logical impact on the overall runoff reduction requirement. This result is not based on the area-weighted average of the target requirement that could be met for each area. In general, this change will result in a slightly lower target runoff reduction requirement for areas with difficult landscape capacity conditions.
- For designs with elements that do not drain down within the allowed 72-hr period, the RRAT now estimates how long it would have taken to drain down rather than simply

showing 72 hours. This should help users determine by how much their design needs to change.

BUG FIXES. The only significant bug is that the “Drain Invert Depth” in the “Element SCM Values” kept resetting itself if changes were made in the general design. This has been fixed.

#### CHANGES MADE BETWEEN FIRST AND 2015-06-04 RELEASES

TERMINOLOGY / RESULTS CHANGES. First, we have redefined and rearranged the result “lights” to make them clearer and more in line with the Permit language. We have also changed some of the terminology used to clarify specific concepts related to the Permit requirements and how they are implemented in the RRAT. New definitions to provide this clarity are as follows:

- Action Volume – Runoff from the 1<sup>st</sup> inch of rainfall onto the impervious surfaces presumed to contribute pollutants to that runoff. This is the volume that must be treated because it contains contaminants.
- Capture – What you hope to do to the action volume. The portion of the action volume that is “captured” is assumed to be both treated to 100% contaminant removal and also kept onsite. The only SCMs currently defined as capturing action volume are those defined as “rainwater harvest and reuse” and SCMs that provide substantial infiltration into the underlying soil. The Permit’s stated goal is to achieve 100% capture of the action volume.
- Runoff Reduction – A reduction in the total volume (or equivalent depth) of offsite runoff resulting from the representative rainfall event. Runoff reduction can be accomplished by capture techniques (rainwater harvesting and reuse, or active infiltration techniques), or by passive infiltration practices such as lawns, forested areas, etc. Note that runoff reduction is defined independent of whether the water is considered polluted or clean, so it is in reference to the total rainfall onto the site rather than just to the action volume.

Using the terminology above, a design is considered to meet the primary Permit requirements if it captures at least 80% of the action volume and provides at least 1” of runoff reduction. A design meets the secondary fallback Permit requirements if it does the following three things: 1) provides at least 1” of runoff reduction; 2) provides at least 80% contaminant removal from the action volume by some combination of capture and other techniques; and 3) for the contaminant removal, uses capture to the maximum extent possible. Designs failing to meet at least these secondary standards are considered to not be successful onsite. If the design provides at least 80% contaminant removal from the action volume but cannot meet the runoff reduction requirement onsite, some jurisdictions may provide an offsite alternative for meeting that requirement.

In the new associated result displays, the first column you will see is labeled “OVERALL DESIGN RESULTS.” This column has one light that reads “Design OK?” which represents the entire design success in one light. If this light is green your design meets the primary Permit requirements described above, so this is as far as you need to look. If this light is YELLOW, you have met the secondary fallback requirements. A RED here

indicates an unsuccessful design. If the “Design OK?” light is RED or YELLOW, there are 3 places to check for why a design falls short. The “Pollutant removal OK?” light under the “CONTAMINANT REMOVAL RESULTS,” the “Volume red. OK?” light under the “VOLUME REDUCTION RESULTS,” and the “Problems / Concerns” column in the “Element design details / descriptions / results” table.

**HELP DESCRIPTION CHANGES.** The RRAT allows you to seek more information about any parameter by right-clicking on the parameter heading, then selecting Help. This information has been updated to improve clarity and better reflect the terminology changes described above.

**DATABASE CHANGES.** We have corrected a few minor discrepancies between the SCM descriptions in the database and the corresponding descriptions in the Manual.

**BUG FIXES.** The only significant calculation bug found in the previous version was related to improper behavior of an underdrain in a layered practice when the drain invert was up within the layers. This has been fixed.