RADTRAD Change Log: Version 5.2.0

Released December 2025

- With the changes to the X/Q implementation in Rev. 1 of RG 1.183, users expressed interest in adding a X/Q option that used the worst two-hour dose times for the EAB to base the X/Q values on rather than each individual dose locations worst two-hour dose time. This option was added to the X/Q tables as REV1_EAB.
- During the process of adding in the new X/Q option, it was noticed that compartments that weren't set as dose locations and thus would not have a X/Q table associated with the compartment were being printed out to the X/Q section of the log file. This information was removed and only dose locations that had their X/Q tables adjusted are included in the log file.

- The Rev. 1 FHA model was adding elemental iodine that was re-evolved from the pool to the environment's atmosphere correctly, but any compartment that had a flow path from the environment to the compartment did not see an increase of iodine in the compartment's atmosphere. Logic was added to correctly add the elemental iodine passing from the environment to the compartment(s) accounting for atmospheric conditions and pathway conditions like deposition and filtration.

- A typo was introduced in version 5.1.1 that caused any model that used the Rev. 1 PWR default release timings and fractions to cause an error and was fixed in this update.

- A bug was found that the analytical code (AC) was not using the same release durations for the Rev. 1 and Rev. 0 PWR and BWR default release timings as shown in SNAP. The durations shown in SNAP were correct and the AC was changed to use the same values.

- The NRC suggested that the name of the output file <TestName>NRC.out is adding misguided importance to the file. The <TestName>NRC.out file provides extra information that should be used alongside the <TestName>.out file and has been renamed to <TestName>ExtInfo.out. The contents of the file remain unchanged.

- A bug was found that caused models to fail when the show event flag was set to false. When the worst two-hour dose calculations were modified in a previous update, the calculations used the time of the last output assuming that the last output would be the end of the simulation. However, when the show event flag was set to false, the last output was not guaranteed to be at the end of the simulation causing the worst two-hour dose logic to break. The output will now always include the end of the simulation results

(unless an error occurs during the simulation) and the worst two-hour dose calculations now use the user input to know when the simulation ends.

- Users can now set their own chemical groups and assign elements to each of the user-defined chemical groups. However, the Noble Gases and Halogen groups will remain as the first two chemical groups and the user cannot change the elements in these groups or use these elements in another group. This is due to the significant differences in how these elements are handled in the AC.