

TableCalculator

Explore the Basis for the Low-Level Radioactive Waste Classification Tables

About Low-Level Radioactive Waste Classification

In the United States, classification of Low-Level Radioactive Waste (LLRW) as Class A, B, C, or Greater-Than-Class C (GTCC) is based on radionuclide concentration limits provided in tables in Section 61.55 of Title 10 of the Code of Federal Regulations (CFR). During the development of 10 CFR Part 61 in the early 1980s, the NRC staff developed the LLRW classification tables based on model projections of dose to an individual who inadvertently intrudes on a LLRW disposal site at different times after closure.

About TableCalculator

TableCalculator is a user-friendly tool to facilitate a more comprehensive understanding of the deterministic calculations the NRC staff used to develop the classification tables. The tool allows users to trace the original calculations and observe the effects of changes in parameter values by running the calculations with updated data. For example, users may update dose conversion factors from the original International Commission on Radiological Protection (ICRP) Publication 2—based dose conversion factors (DCFs) to values based on ICRP 26 and 30 or ICRP 72. The tool also provides users access to intermediate results, such as individual exposure pathway contributions, that were not provided as outputs from the original code. In addition, the tool includes internal documentation for each equation and parameter value to improve traceability.

Running TableCalculator

TableCalculator is available from the NRC Radiation Protection Computer Code Analysis and Maintenance Program (RAMP) website. The purpose of the RAMP is to develop, maintain, improve, distribute, and provide training on NRC-sponsored radiation protection and dose assessment computer codes.

TableCalculator runs in the GoldSim Player, which is available without cost from the GoldSim Technology Group. The player file allows the user to navigate through dashboards to change input values and view calculation results. The tool also allows the user to browse “behind the scenes” to view the equations and parameter the tool uses. Use the following steps to run TableCalculator and view supporting information:

- 1) Download the GoldSim player:
<https://www.goldsim.com/Web/Customers/Downloads/Player/>
- 2) Register for a membership on the RAMP website <https://ramp.nrc-gateway.gov/>.
TableCalculator is available at the lowest (free) RAMP membership level.
- 3) From the RAMP homepage, choose TableCalculator from the “Codes+” menu option at the top of the page.

- 4) Download the TableCalculator player file from the “Downloads” button on the left side of the screen. Run TableClaculator by starting the GoldSim player and choosing the downloaded TableCalculator player file from within the GoldSim player.

Basic navigation instructions, conference papers, and NRC references supporting the TableCalculator calculations and parameter values are available under the “Documentation” menu option on the TableCalculator page of the RAMP website.

Additional Information

A. Christianne Ridge, David W. Esh, Allen J. Gross. [*TableCalculator: a Transparent Public Tool to Replicate US NRC LLW Classification Table Calculations \(ML18353A481\)*](#), Waste Management Symposia, WM2019 Conference, March 3-7, 2019 Phoenix, Arizona, USA.

Louis D. Caponi, A. Christianne Ridge, David W. Esh, Patrick A. LaPlante, and Christopher A. McKenney. [*Using TableCalculator to Evaluate Parametric and Model Uncertainty in the Development of the NRC LLRW Classification Tables \(ML22004A305\)*](#), Waste Management Symposia, WM2022 Conference, March 6 – 10, 2022, Phoenix, Arizona, USA.

A. Christianne Ridge, David Esh, Louis Caponi, Patrick LaPlante, and Christopher McKenney. [*Presentation for the Low-Level Waste Forum 2022 Fall Meeting: Using TableCalculator to Evaluate Parametric and Model Uncertainty in the Development of the NRC LLRW Classification Tables \(ML22269A335\)*](#). Low-Level Radioactive Waste Forum Fall 2022 Meeting, October 12-13, 2022, Baltimore, Maryland, USA.

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