GALE 3.0 Change Log

Release Date September 30, 2017

Code/File Changes:

- In both the PWR and BWR version of the code, added a fixed parameter text file named "PWRfixed-parameters.txt" and "BWRfixed-parameters.txt," respectively. These are text files that allow the user to change selected fixed modeling GALE-PWR and GALE-BWR parameters which are read by code when calculating gaseous and liquid effluent values. The default values in these text files are set to the GALE86 and ANSI/ANS-18.1-1984 parameters, but can be change to any value selected by the user. Additionally, these files contain comments for each parameter indicating the reference source the data. These files can be opened and edited in any text editor program (i.e. NotePad) by the user

Graphical User Interface (GUI) Changes:

- Added the release date (month and year) and a copyright statement to the introductory screen for both the PWR and BWR codes.

- Added the user selection option of "GALE Version" to the introductory screen for both the PWR and BWR codes. This option allows the user to select either from the *GALE86* (**default value**) or the *GALE09* version of modeling parameters.

- Added the user selection option of "ANS-18.1 Version" to the introductory screen for both the PWR and BWR codes. This option allows the user to select either from the *ANSI/ANS-18.1-1984* (**default value**), *ANSI/ANS-18.1-1999* or the *ANSI/ANS-18.1-2016* version of the reactor coolant source terms.

- In both the PWR and BWR version of the code, the "OK" button on the "General Reactor Parameters" screen was renamed to "Run." The function of this button to execute the code and save the results did not change with this update.

- In the PWR version of the code, the dropdown menu selection choice in the "Steam Generator Blowdown Rate and Blowdown Treatment Method" input field on the "General Reactor Parameters" screen was revised to include the number values associated with the text similar to the choices in the GALE86 version of the code.

- In the PWR version of the code, the dropdown menu selection choice in the "Letdown Systems" section on the "Gaseous Radwaste Treatment System" screen was revised to include the number values associated with the text similar to the choices in the GALE86 version of the code.

- In both the PWR and BWR version of the code, the "Detergent Waste Partition Factor" input field was removed from the "General Reactor Parameters" screen and subsequently added as a new tab, labeled "Detergent Waste," under the "Liquid Radwaste Treatment System" screens in each code version. Additionally, the range of acceptable values for the partition factor was added to the "Detergent Waste" tab.

- In both the PWR and BWR version of the code, the "OK" button on the "Liquid Radwaste Treatment System" screens were renamed to "Save." The function of this button to did not change with this update.

- In both the PWR and BWR version of the code, the "OK" button on the "Gaseous Radwaste Treatment System" screens were renamed to "Save." The function of this button to did not change with this update.

- In the PWR version of the code, the reference statement of "No = 0% Yes = 99%" was added to all the applicable gaseous waste input tabs on the "Gaseous Radwaste Treatment System" screen which contain RG 1.140 HEPA filter inputs fields.

- In the BWR version of the code, the reference statement of "No = 0% Yes = 99%" was added for all RG 1.140 HEPA filter inputs fields on the "Gaseous Radwaste Treatment System" screen.

- In the PWR version of the code, two buttons were added to the "Charcoal Adsorbers" sections of the various gaseous waste input tabs on the "Gaseous Radwaste Treatment System" screen to provide user guidance regarding charcoal adsorber removal efficiencies. The two buttons are labeled "Reg. Guide 1.140 Efficiency" and "NUREG-0017 Efficiency" and these buttons open separate screens with charcoal adsorber removal efficiencies from each respective reference. Additionally, the range of acceptable values was added to the charcoal adsorber removal efficiency input field.

- In the BWR version of the code, a new section was added to the bottom of the "Gaseous Radwaste Treatment System" screen for "Charcoal Adsorber Removal Efficiency Information." The this new section contains two buttons labeled "Reg. Guide 1.140 Efficiency" and "NUREG-0016 Efficiency" and these buttons open separate screens with charcoal adsorber removal efficiencies from each respective reference. Additionally, the range of acceptable values was added to the charcoal adsorber removal efficiency input fields.

GALE Output File changes:

- In both the PWR and BWR version of the code, the gaseous and liquid effluent output files contain and statement on top of each stating the "GALE Version" and the "ANS-18.1 Version" selected by the user on the "General Reactor Parameters" screen.

- In both the PWR and BWR version of the code, the gaseous and liquid effluent output files contain and statement below the "GALE Version" and the "ANS-18.1 Version" indicating any modifications in the "PWRfixed-parameters.txt" and "BWRfixed-parameters.txt," files chosen by the user. This statement will list all parameters changed and also include both the recommended values and values requested by the user.

- In both the PWR and BWR version of the code, the gaseous and liquid effluent output files formats were revised so that all output numerical values are displayed in scientific notation only. Additionally, values less than 1.0E-05 are not displayed because such a value would not have meaning given the precision of the code parameters.

- In both the PWR and BWR version of the code, the gaseous and liquid effluent output files formats were revised so that all of the output values are aligned correctly and removed data carryover from printing on large format paper.

- A copyright statement was added to all of the output files (PWRGE, PWRLE, BWRGE and BWRLE).