U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NUREG-XXXX

HABIT 2.0
User's Guide (Draft)

Version 1.0

July 2016

Office of the Regulatory Research Division of System
Analysis/Radiation Protection Branch

HABIT 2.0
User's Guide (Draft)

Version 1.0

Manuscript Completed: July 2016
Date Published: TBD

Prepared by

United States Nuclear Regulatory Commission (NRC)
Office of the Regulatory Research Division of System Analysis/Radiation Protection Branch
Rockville, MD 20850

Leidos
30 W. Gude Drive, Suite 300
Rockville, MD 20850

Project Manager
Dr. Casper Sun

Revision History

Date	Version	Description	Author
June 22, 2016	1.0	Final	Natalie Tran (Leidos)

Table of Contents

List of Figures

1 Introduction

HABIT V2.0 is a package of computer codes designed to assist in the evaluation of Light-Water Reactor (LWR) control room habitability in the event of accidental spills of toxic chemicals or the accidental release of radionuclides, including noble gas. It consists of a number of program modules and produces files containing tabular output that can be printed, viewed, or imported into spreadsheet programs for further applications. HABIT V2.0 also implements a heavy-gas dispersion model, unifies input screen of EXTRAN, DEGADIS and SLAB, and incorporates Bitter Mc-Quaid calculation to determine which model needs to run and provide plotting the concentration versus time outputs.

1.1 Purpose

This *User Guide* provides HABIT users with the information necessary to understand and use the application. This manual provides the HABIT user with information to create new, open existing, import, save or delete designs. Each of the HABIT V2.0 modules is documented, including screenshots of system windows (Figures) and explanatory notes.

1.2 Assumptions

This User Guide is directed toward individuals who have had some instructions and hands-on training with previous versions of HABIT and Microsoft Windows. It is assumed that users will have the following minimum skills and knowledge to use the HABIT 2.0:

- Familiar with Microsoft Windows 7.
- User allows changing measurement units from English to SI. Some selections will affect the values used in the Control Room Flow Data and Plant Data tabs as indicated in the manual. In addition, all dose, exposure rate, and radioactivity are displaced in English units, e.g., Rem, rem/hr., and Curie.

1.3 Applicable Documents

NUREG/CR-6210, “Computer code for Evaluation of Control Room Habitability (HABIT),” June 1996.

Maintenance, Operation, and Modernization (MOM) Functional Area 2 (FA2) Task Order 10: Integrate Dense-Gas Model(s) to HABIT Milestone 2 Report, March 2015.

2 HABIT 2.0 Installation

2.1 Recommended System Requirements

Windows:

1. Intel® Pentium® 4 or AMD Athlon® 64 processor (1.6 GHz or faster)
2. Microsoft® Windows® 7 with Service Pack 1, Windows 8, or Windows 8.1
3. 2 GB of RAM (8 GB recommended)
4. 2 GB of available hard-disk space for installation; additional free space required during installation (cannot install on removable flash storage devices)
5. 1024 x 768 display (1280x800 recommended) with 16-bit color and 512 MB of VRAM (1 GB recommended)

2.2 Download HABIT 2.0 Code

HABIT 2.0 application code can be downloaded from United States Nuclear Regulatory Commission RAMP (Radiation Protection Computer Code Analysis and Maintenance Program) website (https://www.usnrc-ramp.com). HABIT 2.0 is only available for registered RAMP members with proper permissions.

2.3 Installation of HABIT 2.0

HABIT 2.0 application will be deployed through an installer. The installer will install the execution code, user interface, the available Nuclide Databases, and the Parameter Ranges files.

Downloaded file package HABIT20.zip include following contents:

1. HABIT 2.0 setup file: setup.exe
2. Demo test cases from HABIT 1.2
3. Dense Gas test cases developed for HABIT 2.0 by Dr. Tom Spicer
4. HABIT Quick Start Guide

If you have any earlier version of HABIT on your computer before you install the HABIT 2.0, **YOU MUST UNINSTALL THE PREVIOUS VERSION OF THE HABIT**. If you try to install HABIT 2.0 without uninstalling the program, the window will display following message.

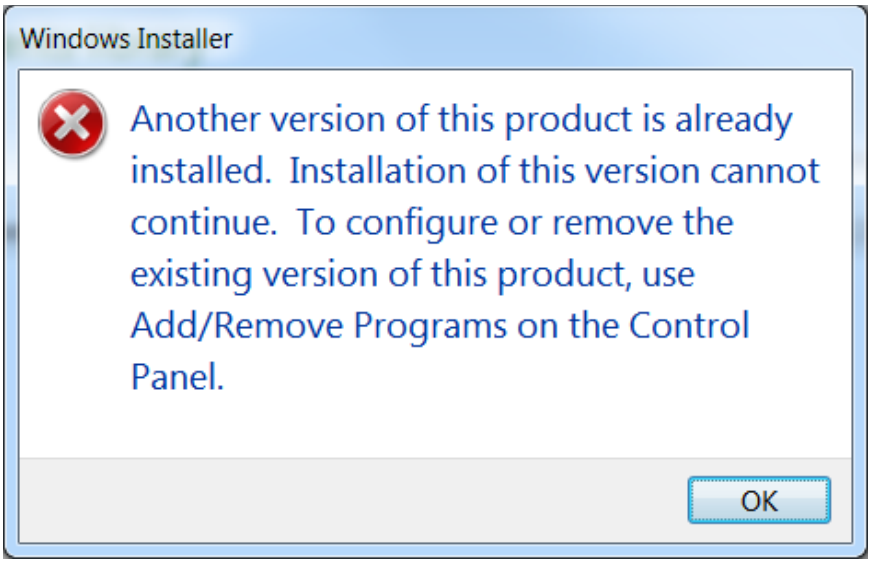

Figure 2-1: Windows Installer Warning Message

Step 1 - Unzip and extract the contents of the HABIT20.zip file to your computer.
Step 2 - Once file been extracted, you will see the HABIT20 folder in extracted folder.
Step 3 - Open the HABIT20 folder and double click the setup.exe file and follow the onscreen prompts to install HABIT 2.0. When you do this, the below screens will appear:

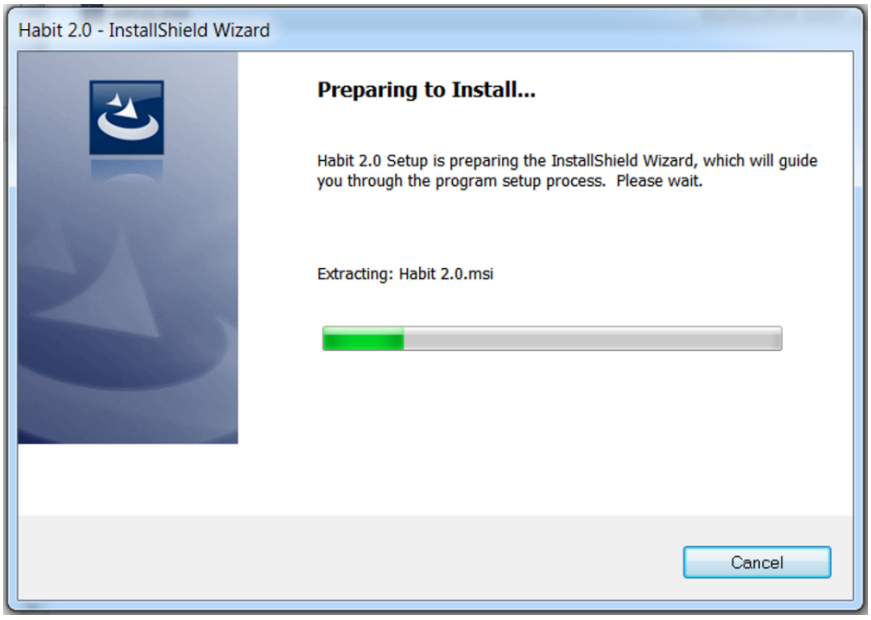

Figure 2-2: Installation Startup Window

Figure 2-3: Copyright and International Treaties Warning Window

Step 4 - When the above window appears… Click on "**Next**" button. When you do this, the below screens will appear:

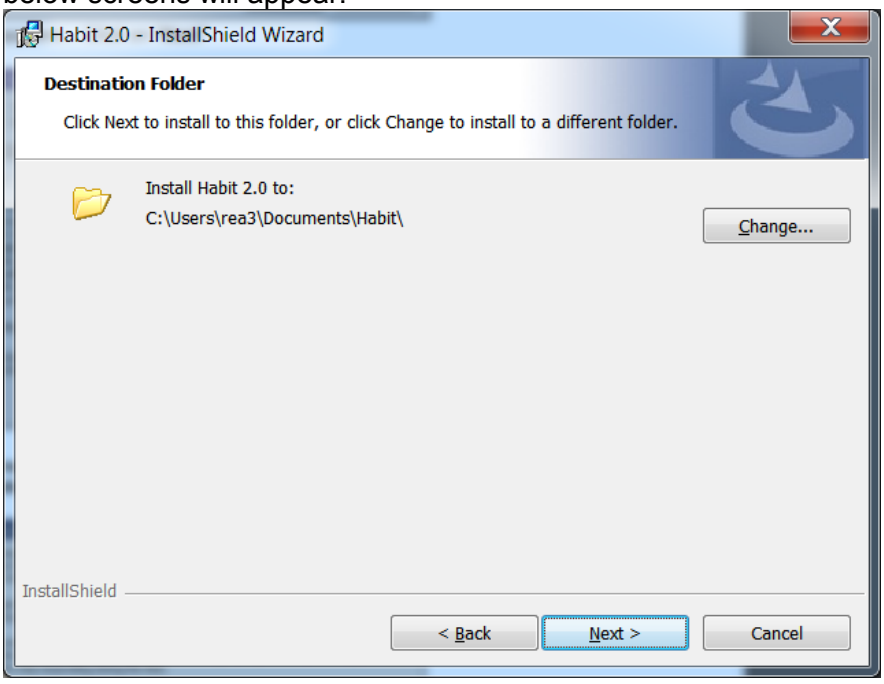

Figure 2-4: Destination Folder Selection Window

IMPORTANT – The destination folder will be slightly different form system to system, suggested to use default installation locations for easer use of HABIT 2.0.

Step 5 - When the above window appears… Click on "**Next**" button. When you do this, the below screen will appear:

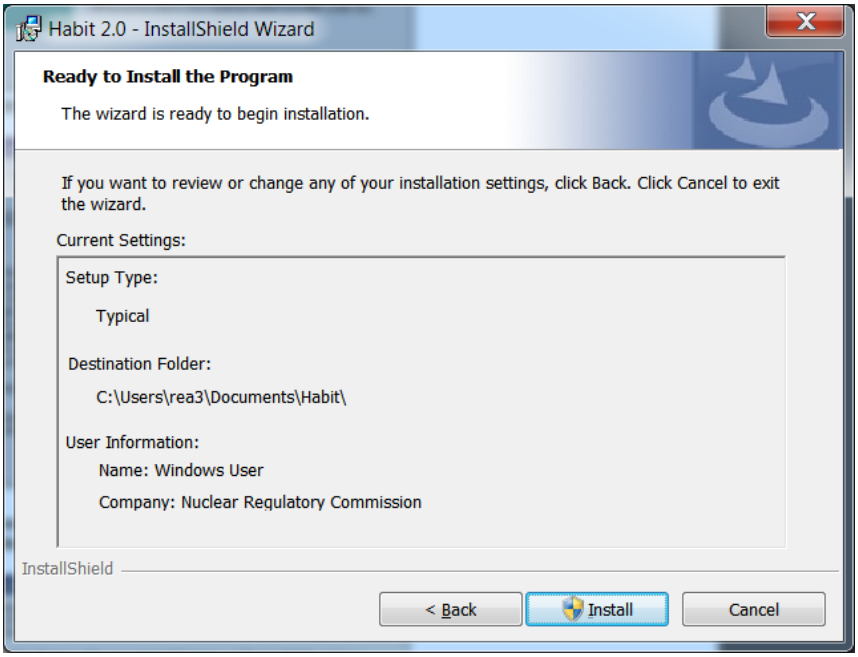

Figure 2-5: Current Settings Summary Window

Step 6 - When the above window appears… Click on "**Install**" button. When you do this, the below screens will appear:

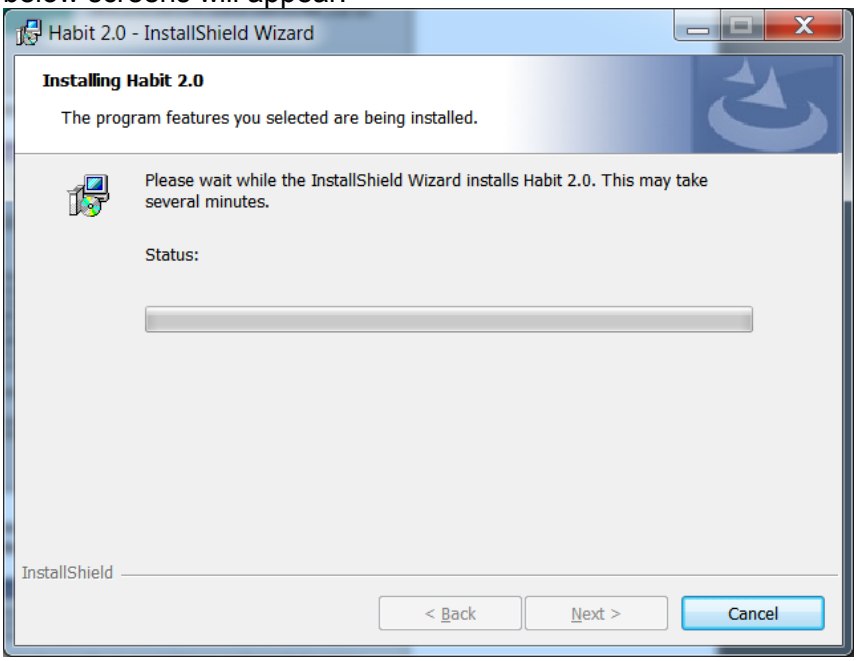

Figure 2-6: Installation in Progress Window

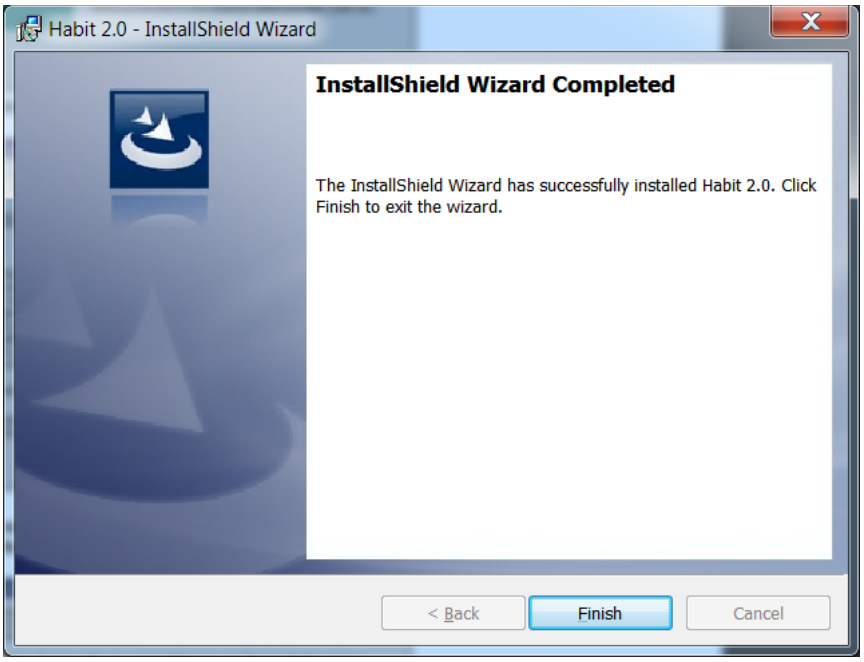

Figure 2-7: Installation Completed Message Window

Step 7 - When the above window appears… Click on "**Finish**" button.
Step 8 – Verify the HABIT 2.0 installation is successfully completed.
Click on "**Start**" button on Windows, You will see the HABIT 2.0 Menu as below:

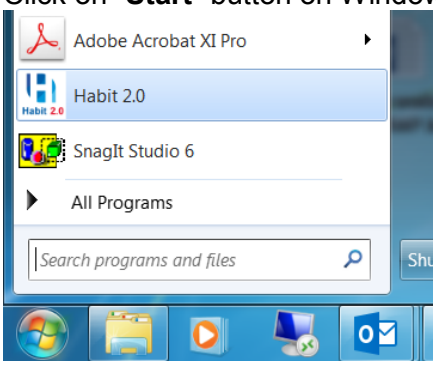

Figure 2-8: Installed HABIT 2.0 Menu in Windows Start Menu

Also, you will see a HABIT 2.0 Shortcut on your computer Desktop as below.

Figure 2-9: Installed HABIT 2.0 Shortcut on Desktop

CONGRATULATIONS!!! HABIT 2.0 is successfully installed.

Note: You can re-run the setup.exe of HABIT 2.0 to modify, repair, or remove the program. See window below:

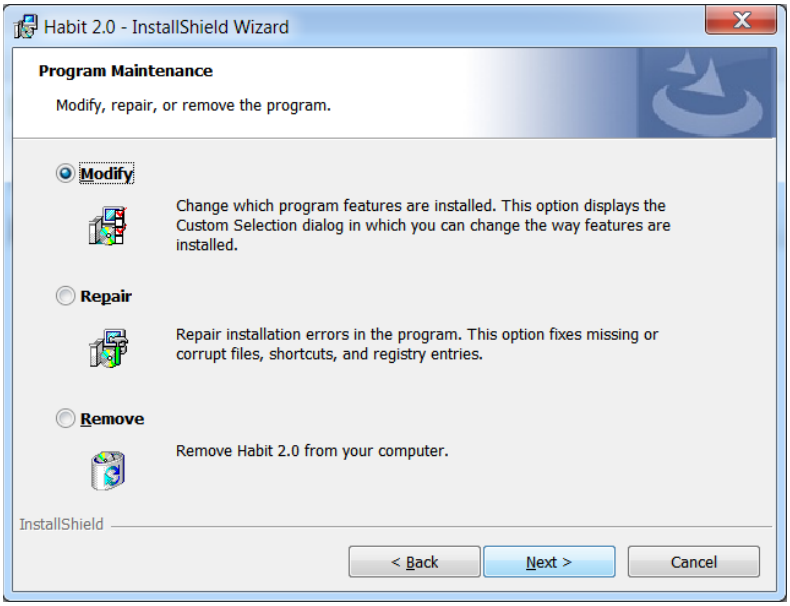

Figure 2-10: HABIT 2.0 Program Maintenance

3 Start to Using HABIT 2.0

To run HABIT calculations, Click on “Start” button on Windows, click on “**HABIT 2.0”** Menu

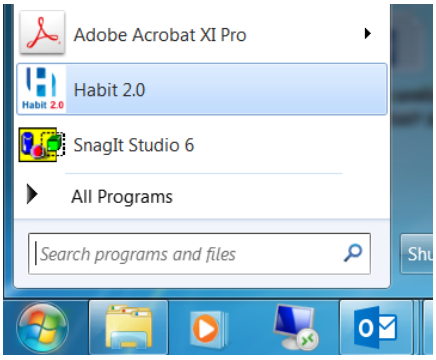

Figure 3-1: HABIT 2.0 Menu in Windows Start Menu

Or double-click on the **HABIT 2.0** icon, and the application will open

Figure 3-2: HABIT 2.0 Shortcut on Desktop

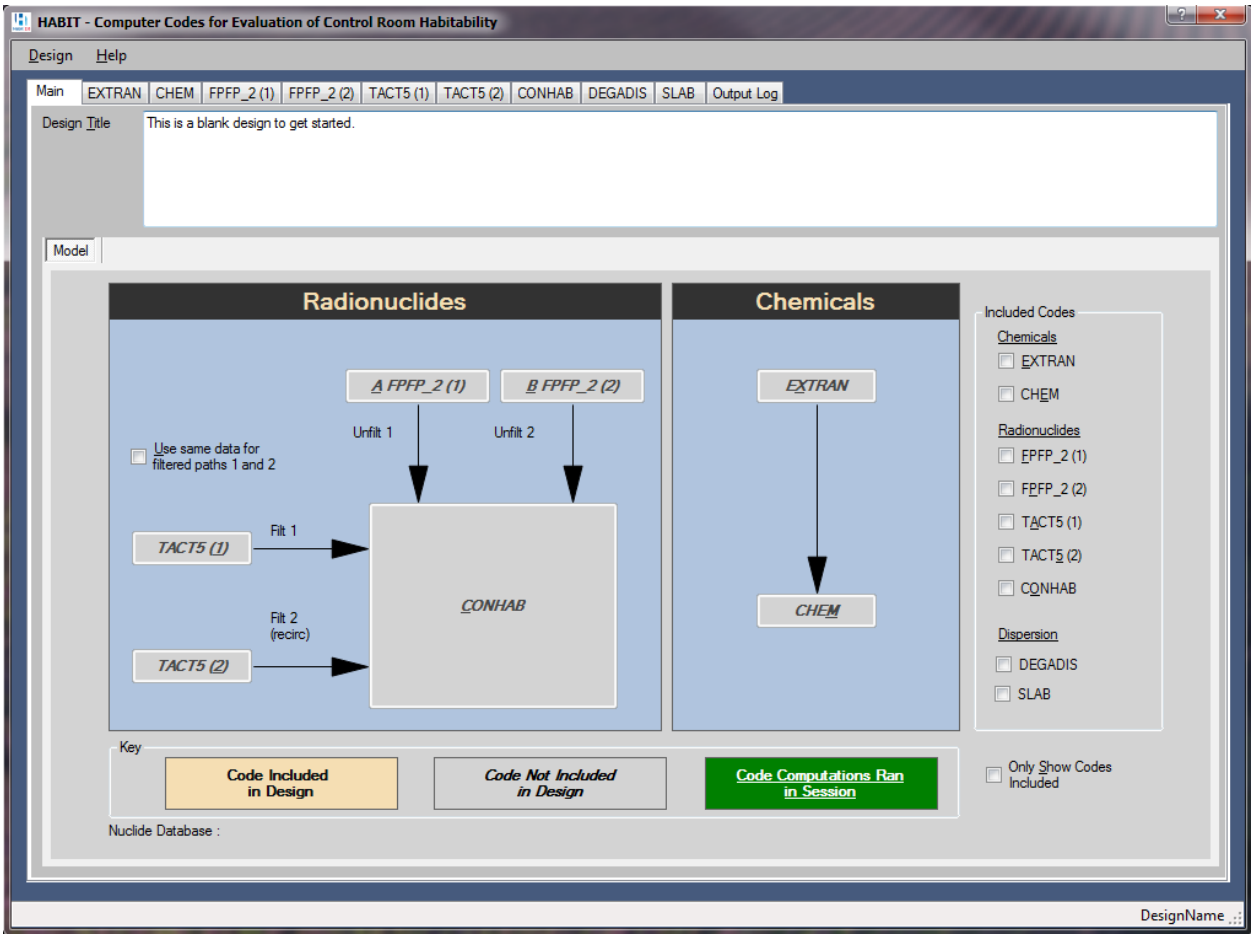

Figure 3-3: HABIT Main window

The application will automatically load the last saved design and its associated modules (if exists). Otherwise, the application will load a blank design and the user will be able to choose which modules should be included in the design.

3.1 Exiting the System

To exit HABIT 2.0, select **Design** > **Exit** from the Main Menu Bar or click on the **X** (upper right corner of application window) to close the window.

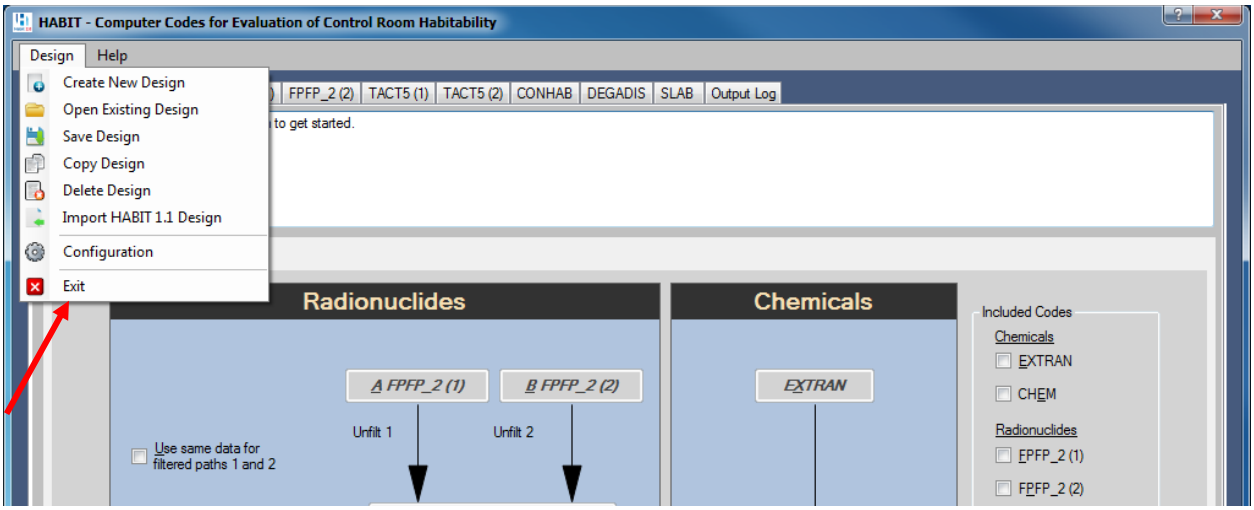

Figure 3-4: Exiting Application (Exit)

The application will provide a prompt to give the user the ability to save the design before exiting.

4 HABIT 2.0 Functions

Starting from the HABIT 2.0 Main Menu, the user can perform many functions, including:

1. Create New Design
2. Open Existing Design
3. Save Design
4. Copy Design
5. Delete Design
6. Import HABIT 1.1 Design
7. Configuration
8. Exit

4.1 HABIT 2.0 Main Tab

The Main tab provides a visualization of the design package (See Figure 4-1: HABIT 2.0 Main window) and controls the execution of the other components. This tab includes a flow diagram which shows the dependencies amongst all the HABIT modules. The visual styling of this flow diagram allows the user to see what modules are included in the design package as well as which modules have been run in the current session (since last program restart). The user can use the flow diagram boxes to navigate to their respective tab page. Additionally, users have the option to change what modules should be included in the design and whether to show only the included modules in the flow diagram.

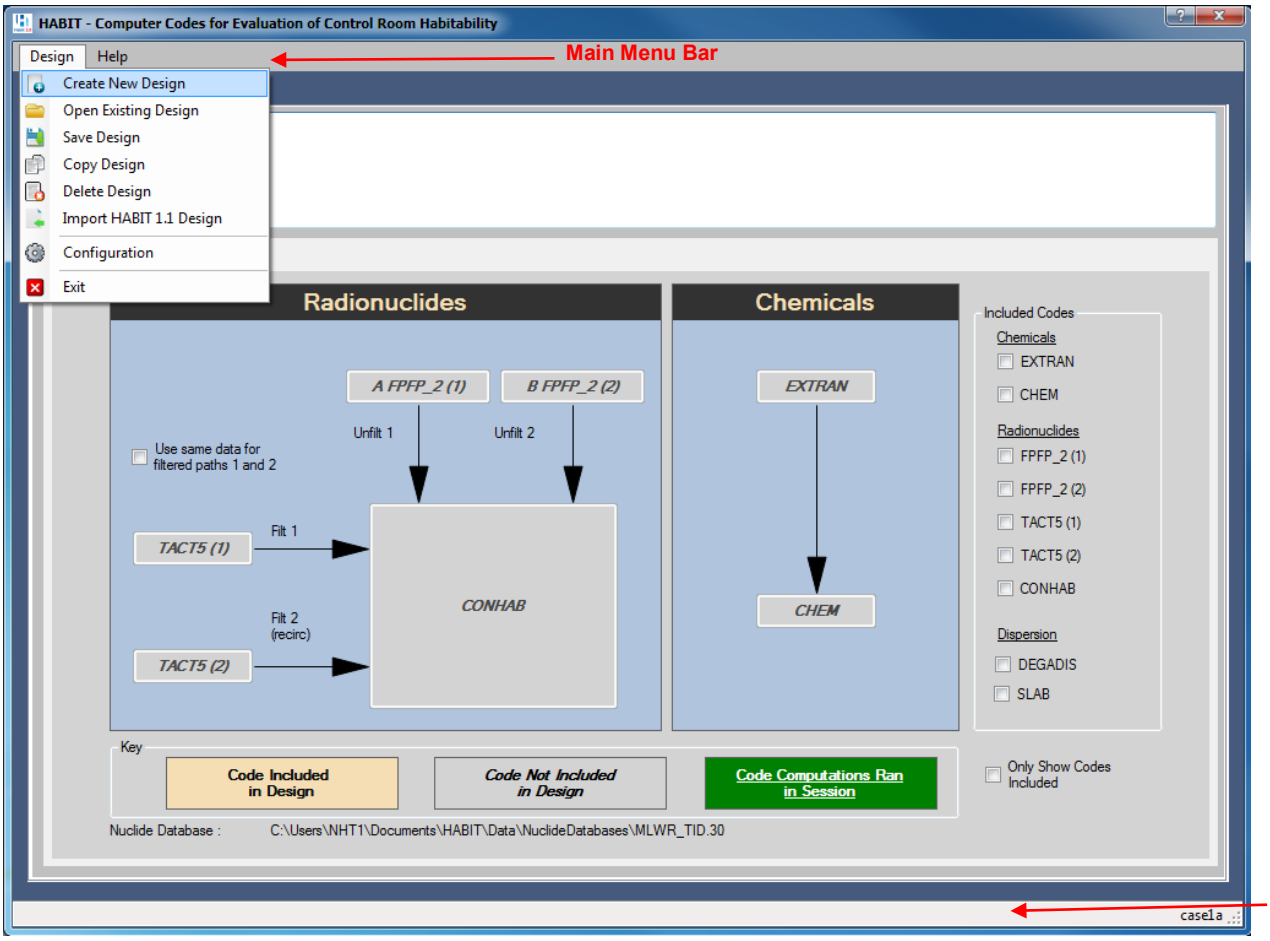

Figure 4-1: HABIT 2.0 Main window

5 System Summary

5.1 Standard Format

The new user interface for HABIT 2.0 uses a Tabbed Document Interface (TDI) which allows all the major functions to be contained within tabs in a single window. Each instance of a module (EXTRAN, CHEM, FPFP_2, TACT5, CONHAB, DEGADIS, and SLAB)[1] is contained within its own tab document. The single window containing the TDI is the Design Package window. This window coordinates the display and execution of the individual modules and well as performing functions which are design-centric (e.g. saving all the files which are part of the design package). The Design window contains a main menu bar on the top and an information bar at

1 The meaning of the acronyms are: EXTRAN is external transport; CHEM is chemical; FPFP is flow path and filter path; TACT is transport of radioactivity; CONHAB is control room habitability, DEGADIS is dense gas dispersion model and SLAB is an atmospheric dispersion model for denser than air releases.

the bottom. The application has been designed for optimal display at a resolution of 1024x768 pixels, but is adaptable to support other resolutions.

The colors for the application are changed in order to increase consistency across the application. All modules in HABIT 2.0 have similar color schemes. The Control Room Flow Diagrams use high contrast colors and share the same color scheme as flow diagrams in other modules.

5.2 HABIT 2.0 Design

Main Menu Bar
The main menu bar is on the top of the window and allows the user to perform general file actions against the Design package and access to the Help. These actions against the Design package include:

1. Creating a New Design Package,
2. Opening an Existing Design Package
3. Saving the Design Package
4. Copying the Design Package
5. Deleting the Design Package
6. Importing in an HABIT 1.1 Design Package (.i.e., dsg file)

The main menu bar uses Windows standard dropdown menus. Additionally, this menu bar allows the user to access options and settings for the design and modules. .

5.2.1 Information Bar

The information bar is at the bottom of the window and displays information about the currently loaded design. The bottom right corner displays the name of the loaded design while the bottom left corner displays the loaded filename (design file name or input file).

5.2.2 Design Package Tabs

The Main tab and the Output Log tab are tabs which are required by the application to manage the design package and to direct MS-DOS output from the FORTRAN formulations and computations so they are visible from within the application.

5.2.3 Widget Use Guidelines

- **Radio buttons** are used when there is a list of two or more options that are mutually exclusive, and the user must select exactly one choice. There is a default selection.

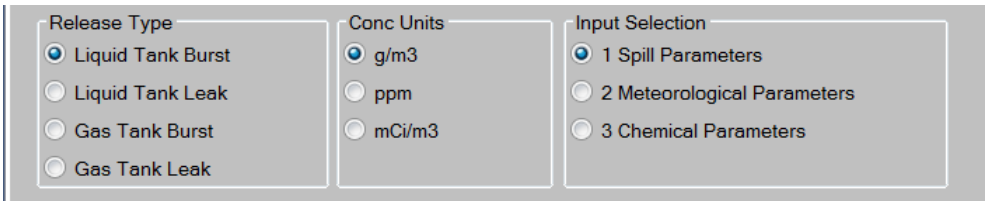

Figure 5-1: Widget Use (Radio Button)

- **Check boxes** are used when there are lists of options, and the user may select any number of choices, including zero, one, or several.

- **A stand-alone check box** is used for a single option that the user can either select or clear.

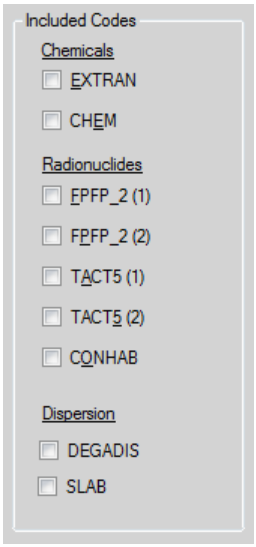

Figure 5-2: Widget Use (Check Box)

5.2.4 Error Messages

There are several ways which HABIT 2.0 displays validation messages to users.

1. Field validation warnings (see Figure 5-3: Validation Warning – input out of range).

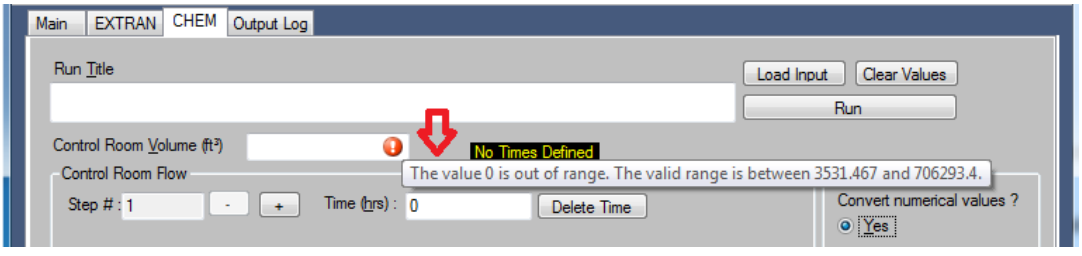

Figure 5-3: Validation Warning – input out of range

These validation warnings alert the user that the value in the field is out of range or the value is required. While it is recommended these validation warnings be fixed before the codes are run, the application does allow attempts to run the FORTRAN code despite the warnings.

2. Field validation errors (see Figure 5-4: Error Message - invalid input)

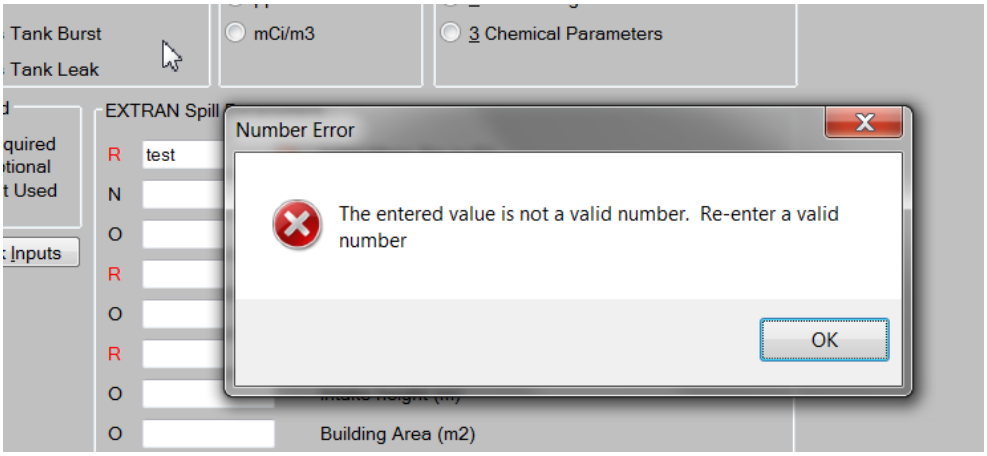

Figure 5-4: Error Message - invalid input

These validation errors occur when trying to enter alphabetic characters in a numeric field. These errors must be fixed before data entry can continue.

3. Module specific validation (see Figure 5-5: Error Messages – input missing)

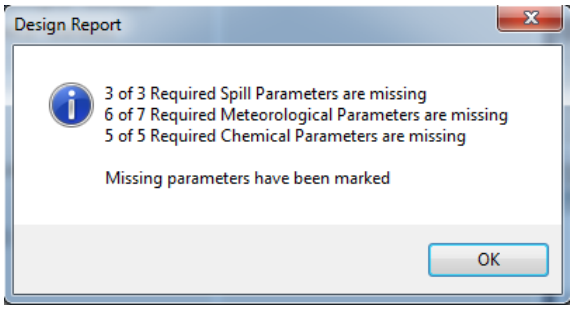

Figure 5-5: Error Messages – input missing

This type of validation is specific to the EXTRAN module. It checks for all required parameters required by the EXTRAN FORTRAN code. A summary of the validation is provided to the user. The application allows the user to attempt to run the FORTRAN code even if data is missing.

5.3 HABIT 2.0 Design Function

5.3.1 Create New Design

To create a new design, select **Design** > **Create New Design** from the Main Menu Bar

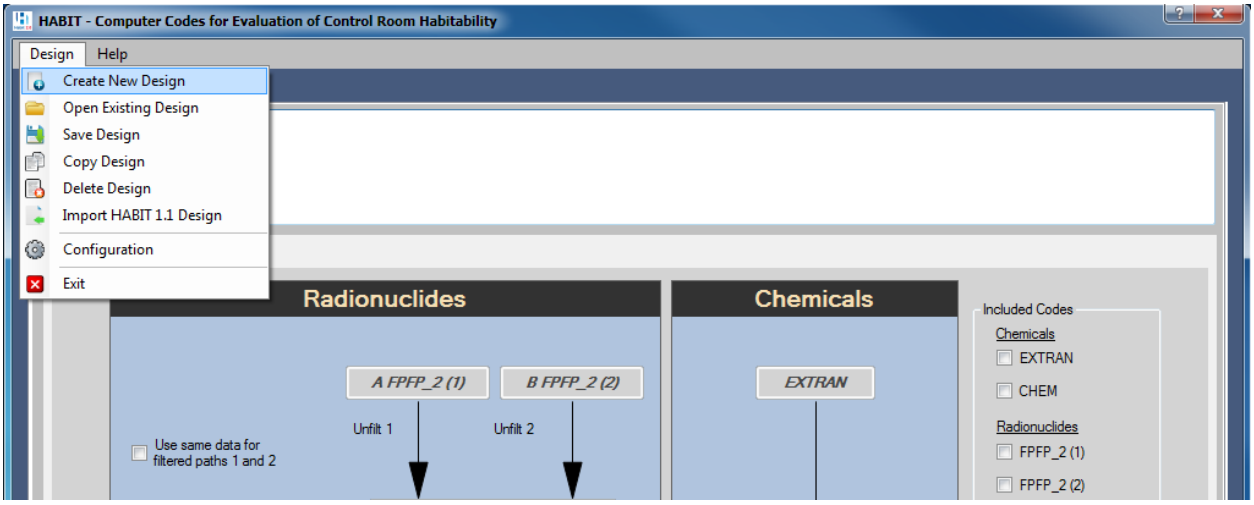

Figure 5-6: HABIT 2.0 Main Menu (Create New Design)

A prompt will appear to enter a name for the design. The design name can be up to 50 ASCII characters. The entered design name is used for the name of the storage directory for the design package as well as the prefix for the design and module input file names.

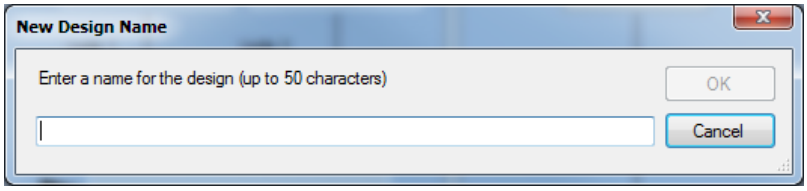

Figure 5-7: HABIT 2.0 New Design Name

Enter title in Design Title, and select the desired modules to include in the design by clicking on the checkbox (es) in the Included Codes group box. As modules are included, note the tab on the top will display the tab page for included modules and will remove the tab page for any modules not included. Additionally, note that included modules are now represented by a different visual style in the model tab page.

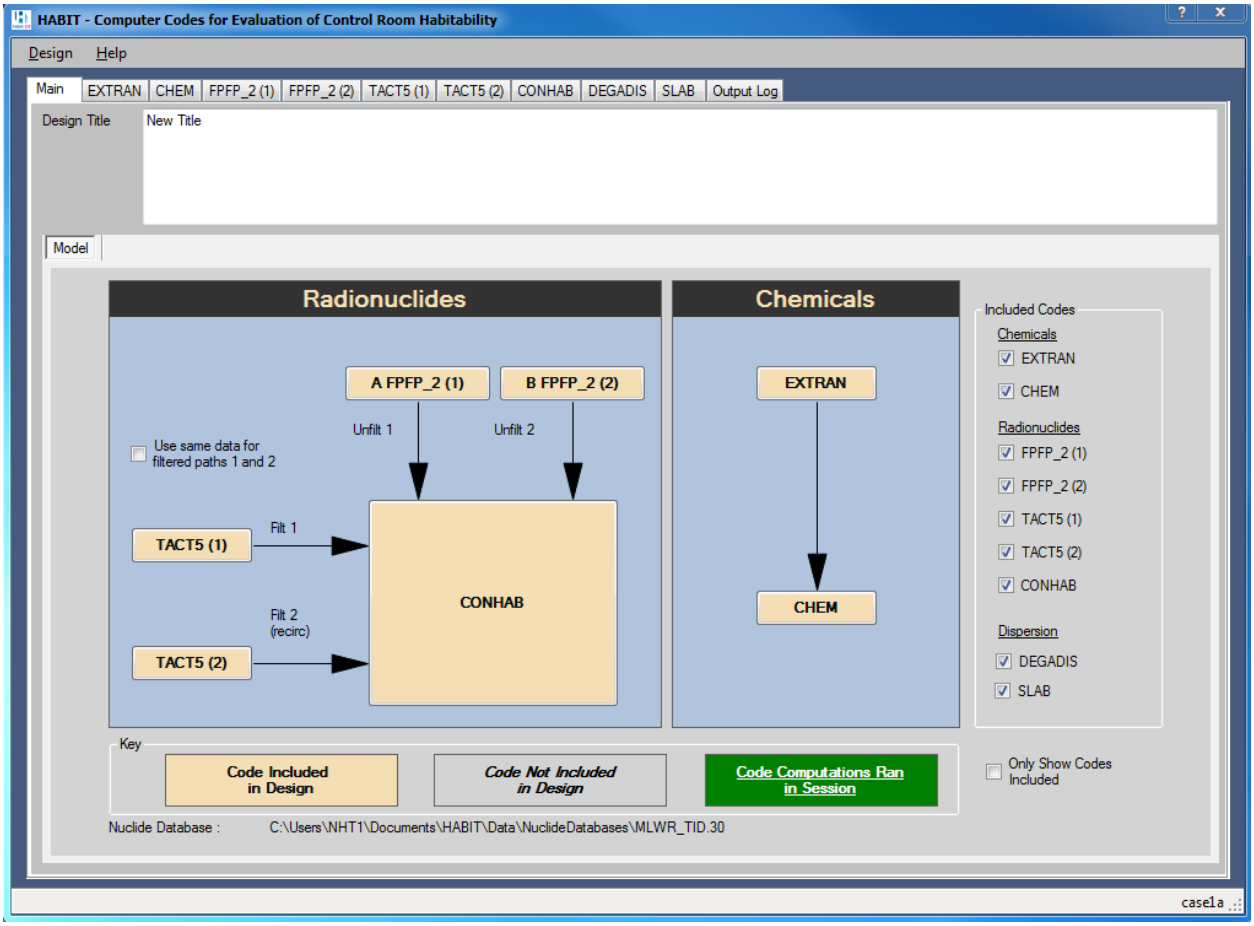

Figure 5-8: HABIT 2.0 model (after module selection)

Navigate through the tabs and input the appropriate values. Refer to HABIT Modules section for more details on each individual module.

5.3.2 Open Existing Design

To load an existing design, select **Design** > **Open** Existing Design.

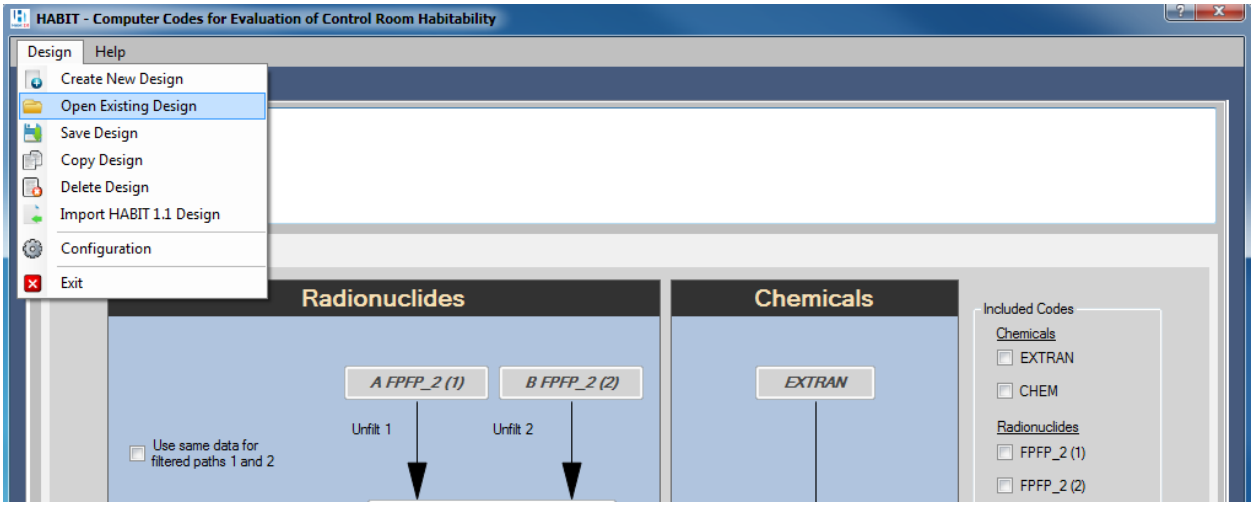

Figure 5-9: HABIT 2.0 Main Menu (Open Existing Design)

Select the design XML file to load and click Open. By default, design XML files are stored in the user's Documents folder, under the HABIT/Designs/<Design Name> subdirectory.

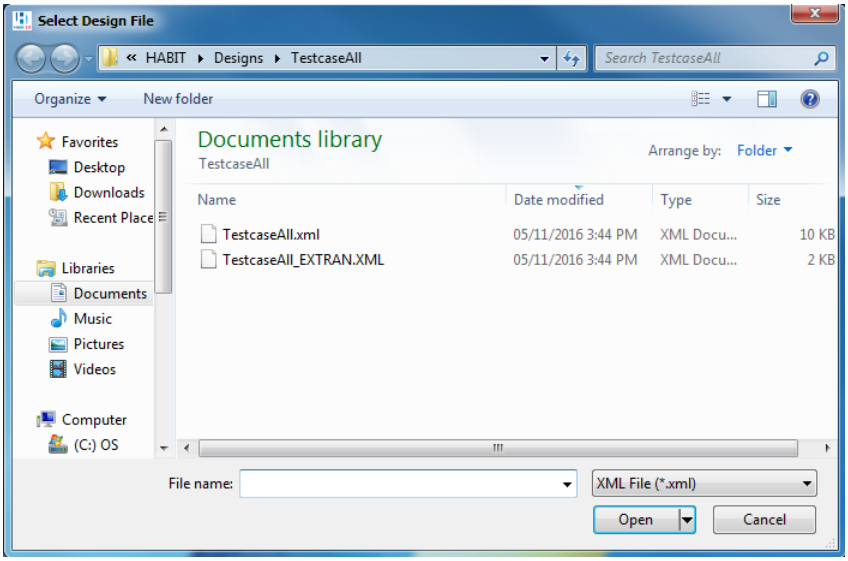

Figure 5-10: Select Design File

The loaded design will display on the Model tab. The modules included in the design will be loaded. The tabs for the included modules will be available for editing with previously saved values already loaded.

5.3.3 Save Design

To save a design, select **Design** > **Save Design**

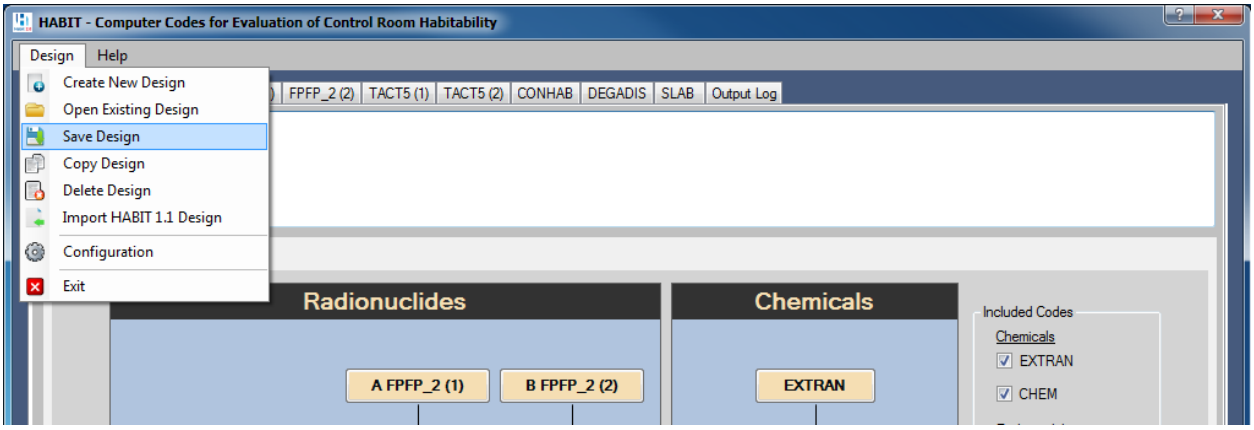

Figure 5-11: HABIT 2.0 Main Menu (Save Design)

Saving the design will save the design XML file as well as the input files for each module included in the design (inp files, nuc files, etc.). If the application does not encounter any problems writing the design package to disk, the system will display a pop-up message indicating success.

If saving the design for the first time, the application will prompt the user to create the directory for which the design package will be saved under. It will also prompt the user to enter a name for the design XML file (if user wants it to be different from the design name).

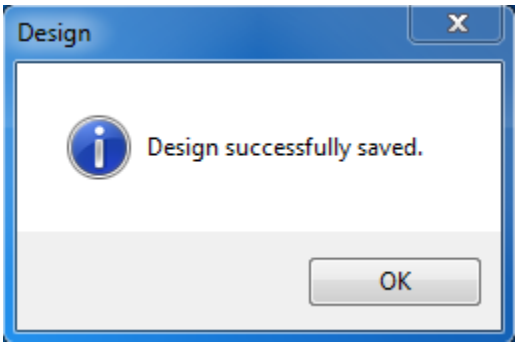

Figure 5-12: Save Design message

5.3.4 Copy Design

To copy a design from another file, select **Design** > **Copy Design**

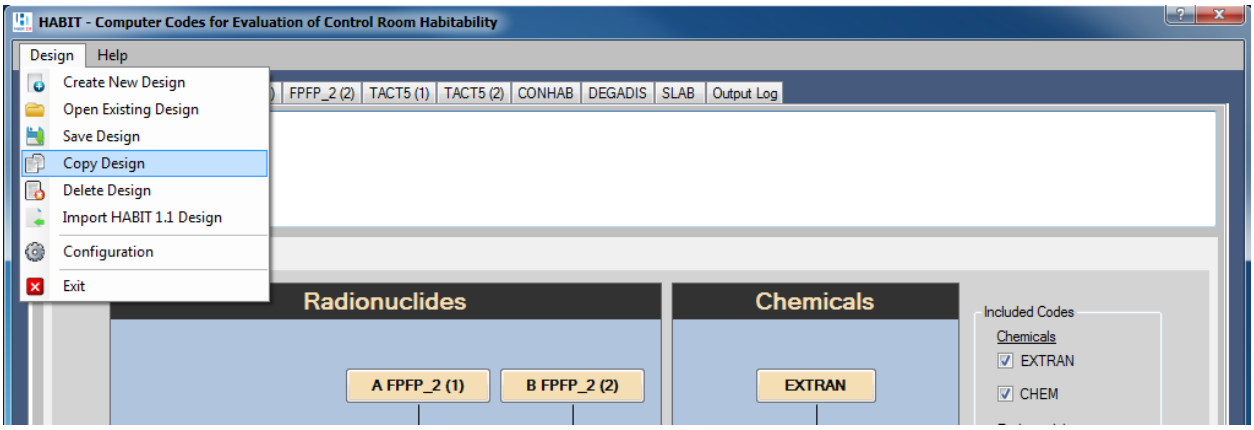

Figure 5-13: HABIT 2.0 Main Menu (Copy Design)

Once the Select Design to Copy window opens, select the file to copy

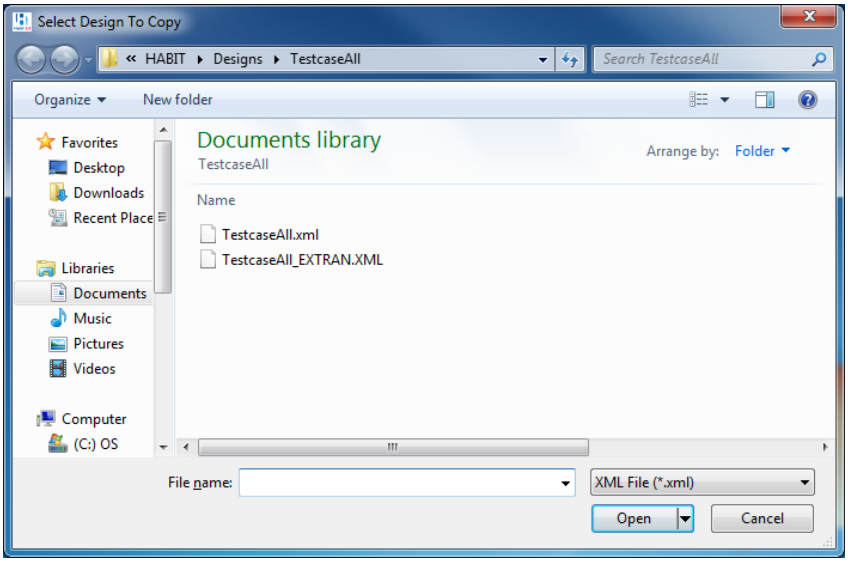

Figure 5-14: Select Design to Copy

Enter a new name for the copied design and click OK

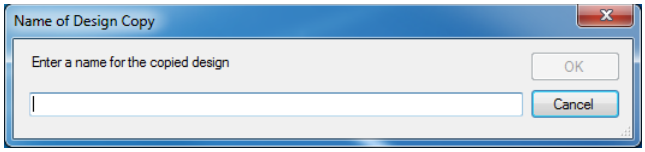

Figure 5-15: Name Design

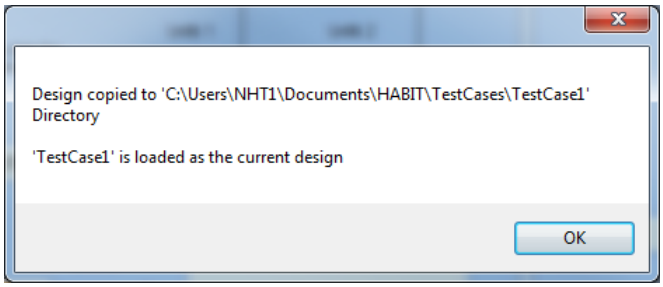

Figure 5-16: Design Copied message

When copying a design, the application will copy the input files from the source design package into the copy design package. All files in the copy design will use be prefixed with the design name. After the design is copied, the copy will be loaded as the currently edited design.

5.3.5 Delete Design

To delete a design, select **Design** > **Delete Design**

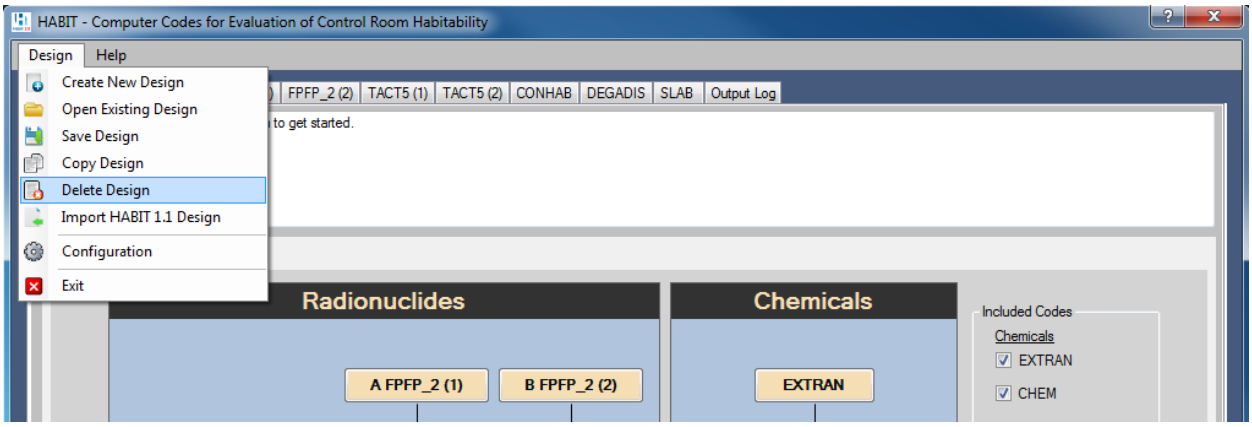

Figure 5-17: HABIT 2.0 Main Menu (Delete Design)

Once the Select Design to Delete window opens, select the file to delete and click > **Open**

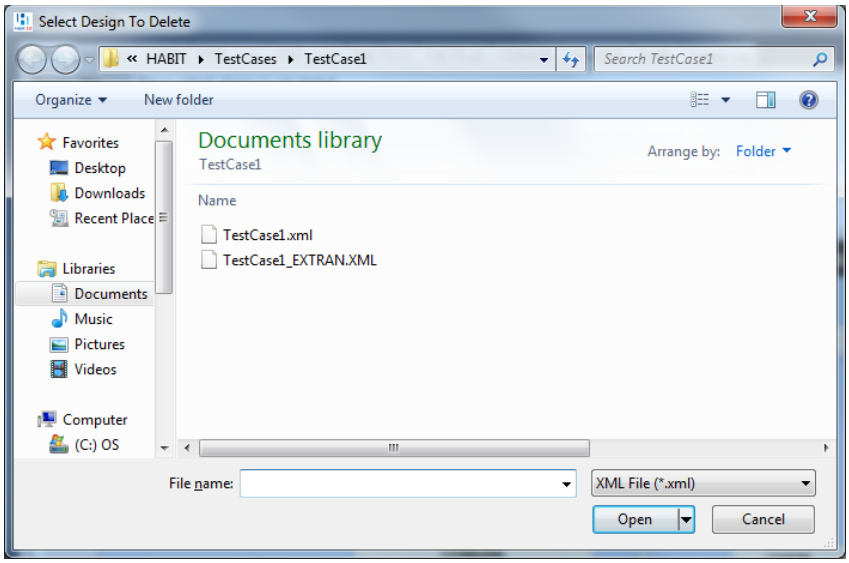

Figure 5-18: Select Design to Delete

A confirmation of the Design Delete will display. Click on "**Yes"** button to continue with the delete. The delete function will delete all files associated with a particular design.

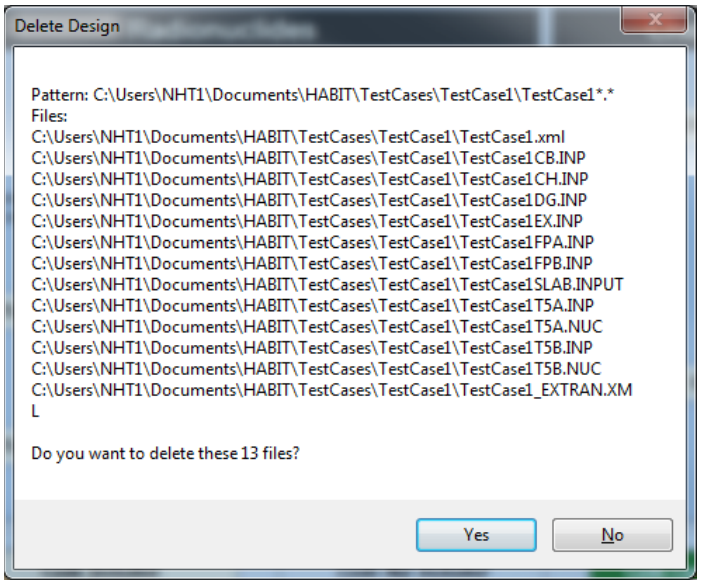

Figure 5-19: Delete Design Confirmation

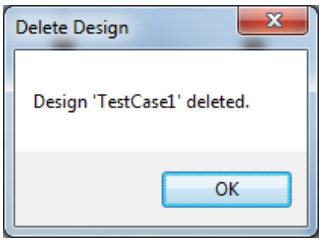

Figure 5-20: Delete Design Complete message

5.3.6 Import HABIT 1.1 Design

When a user selects **Design** > **Import HABIT 1.1 Design** from the Main Menu Bar, the user can select to import previously created design examples from version 1.1.

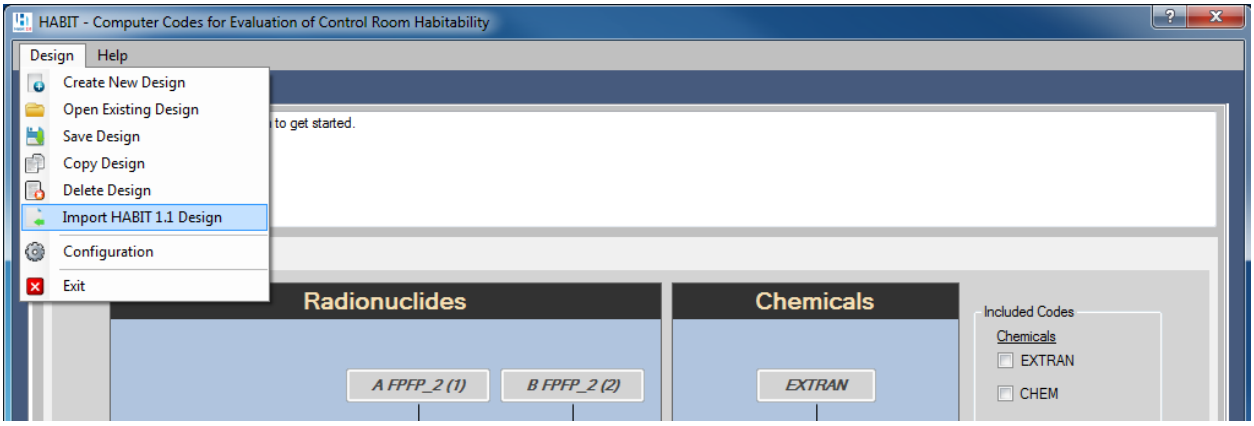

Figure 5-21: HABIT 2.0 Main Menu (Import HABIT 1.1 Design)

Select HABIT 1.1 Design File will be displayed. Navigate to the appropriate HABIT Design (.dsg) File, select the file, and click Open.

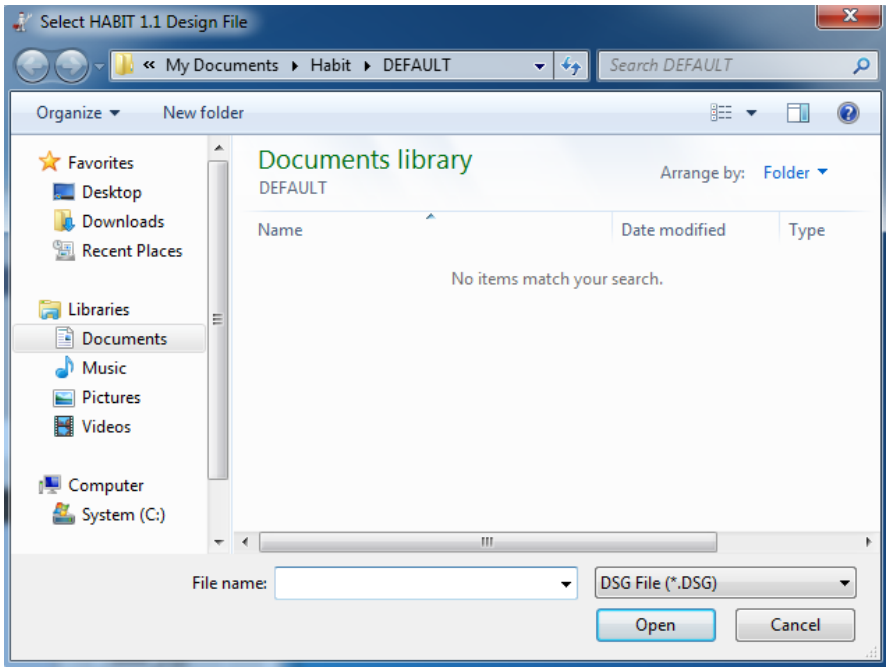

Figure 5-22: Select HABIT 1.1 Design File

If successful, the Design Import informational message will display with the imported directory.

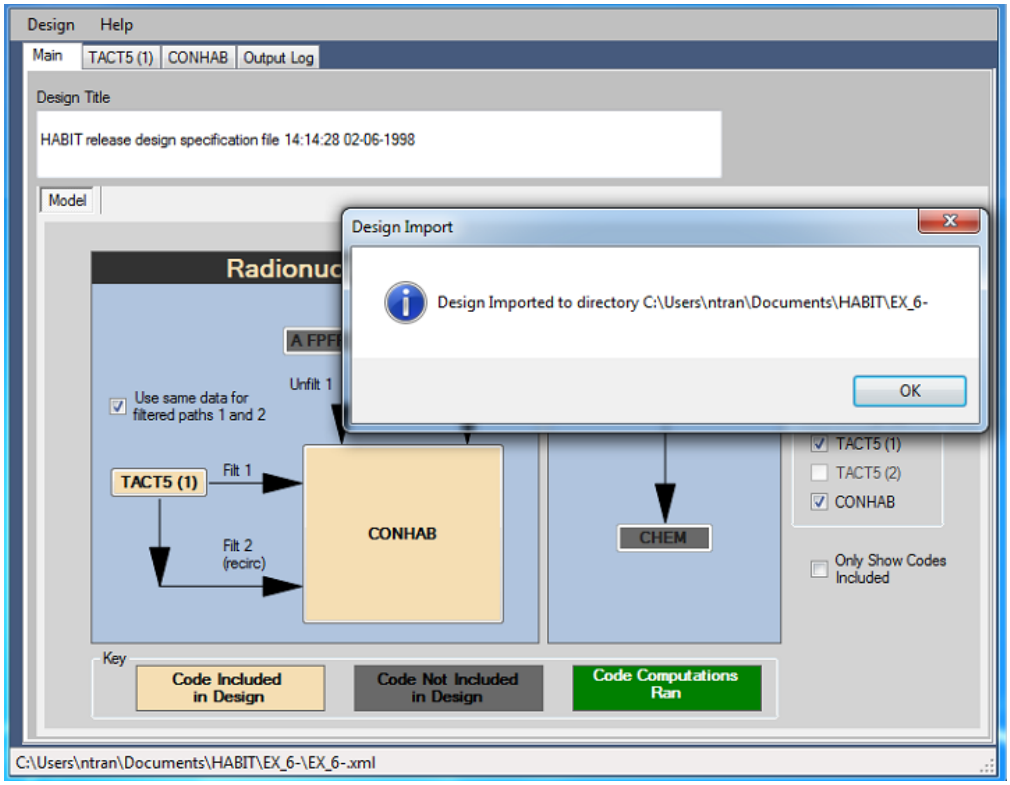

Figure 5-23: Design Imported

Navigate through the available tabs to make any desired update and click on Run button.

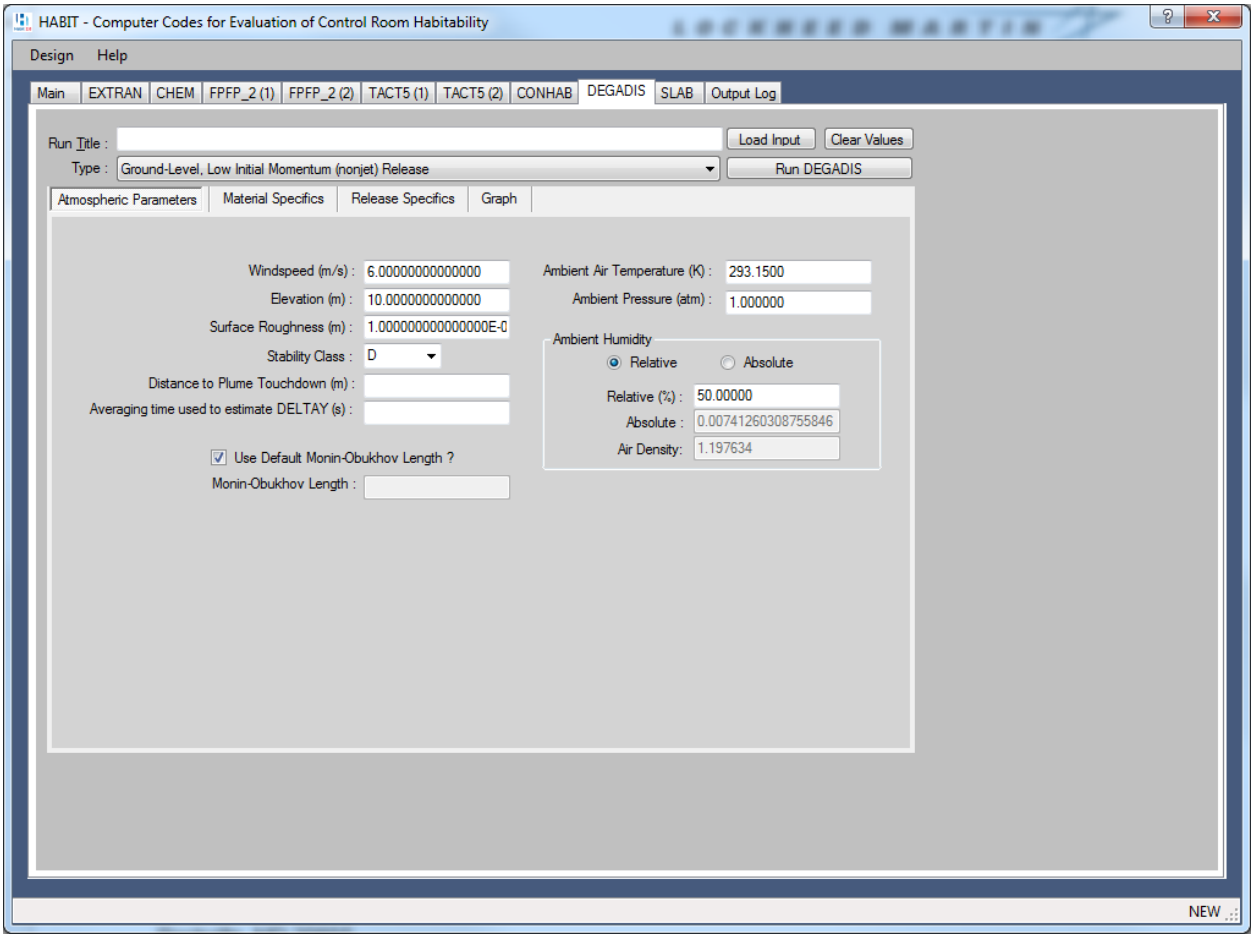

Figure 5-24: DEGADIS Tab

Once the design computation ran, the Design Model will indicate its completion on the models tab (in green).

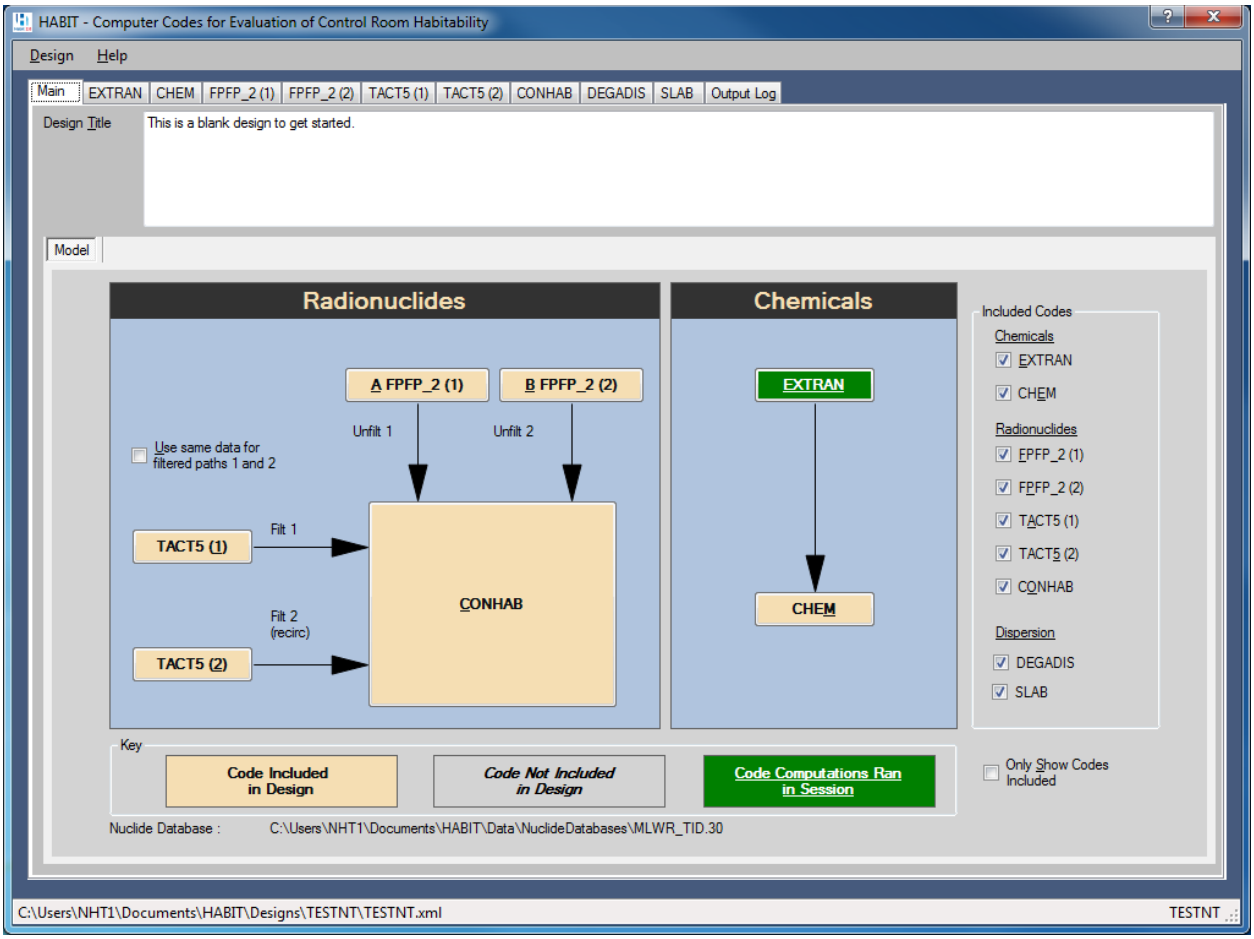

Figure 5-25: Main Tab

The Output Log will display the MS-DOS output of the running designed packages. The Output is appended to this log (for the session), but can be cleared by clicking on Clear Log button.

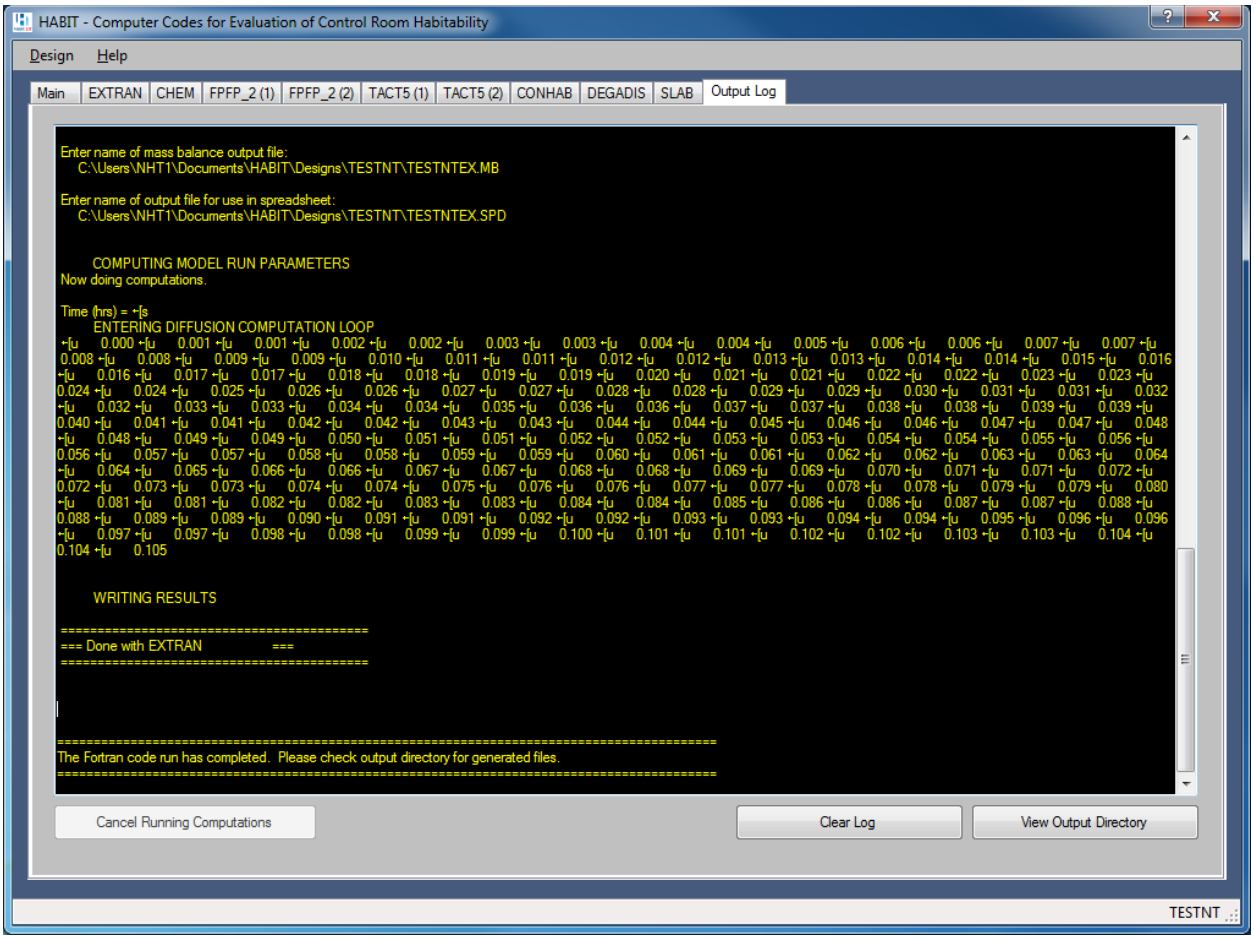

Figure 5-26: Output Log Tab

To view the Output Directory and the files created from the FORTRAN code, click on View Output Directory button.

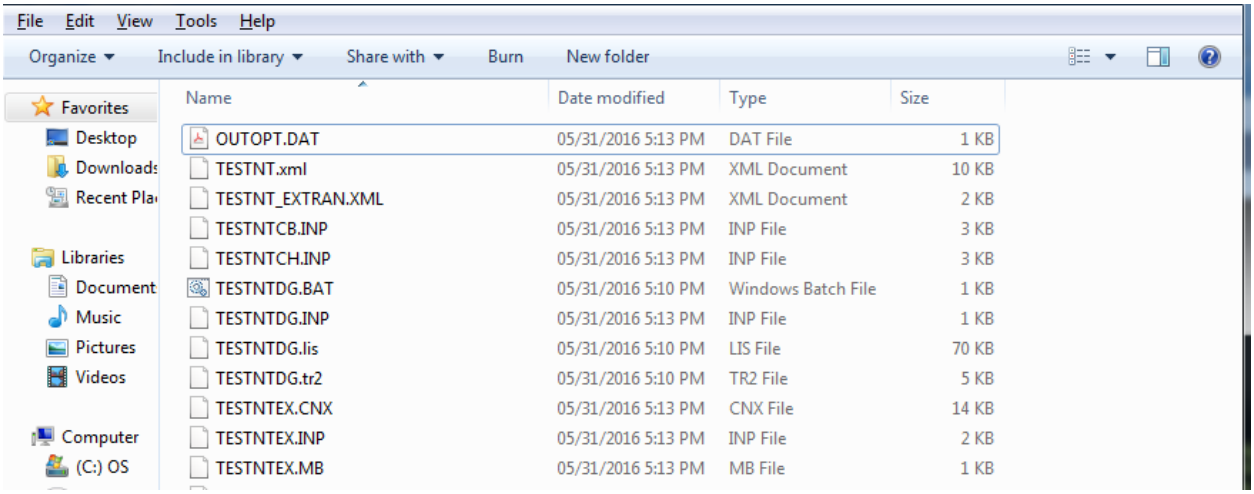

Figure 5-27: Output Directory

6 HABIT 2.0 Modules

6.1 Chemical Modules

6.1.1 EXTRAN

EXTRAN determines the release rate of a chemical in the event of release due to leaks or ruptures of liquid or gas tanks. The EXTRAN tab displays the design of the EXTRAN module with required fields indicated by a red 'R' label. The values for the parameters will be pre-populated when importing from previous design; else the user can enter in the appropriate values. When hovering the mouse over the field, the system will display the valid range for that field.

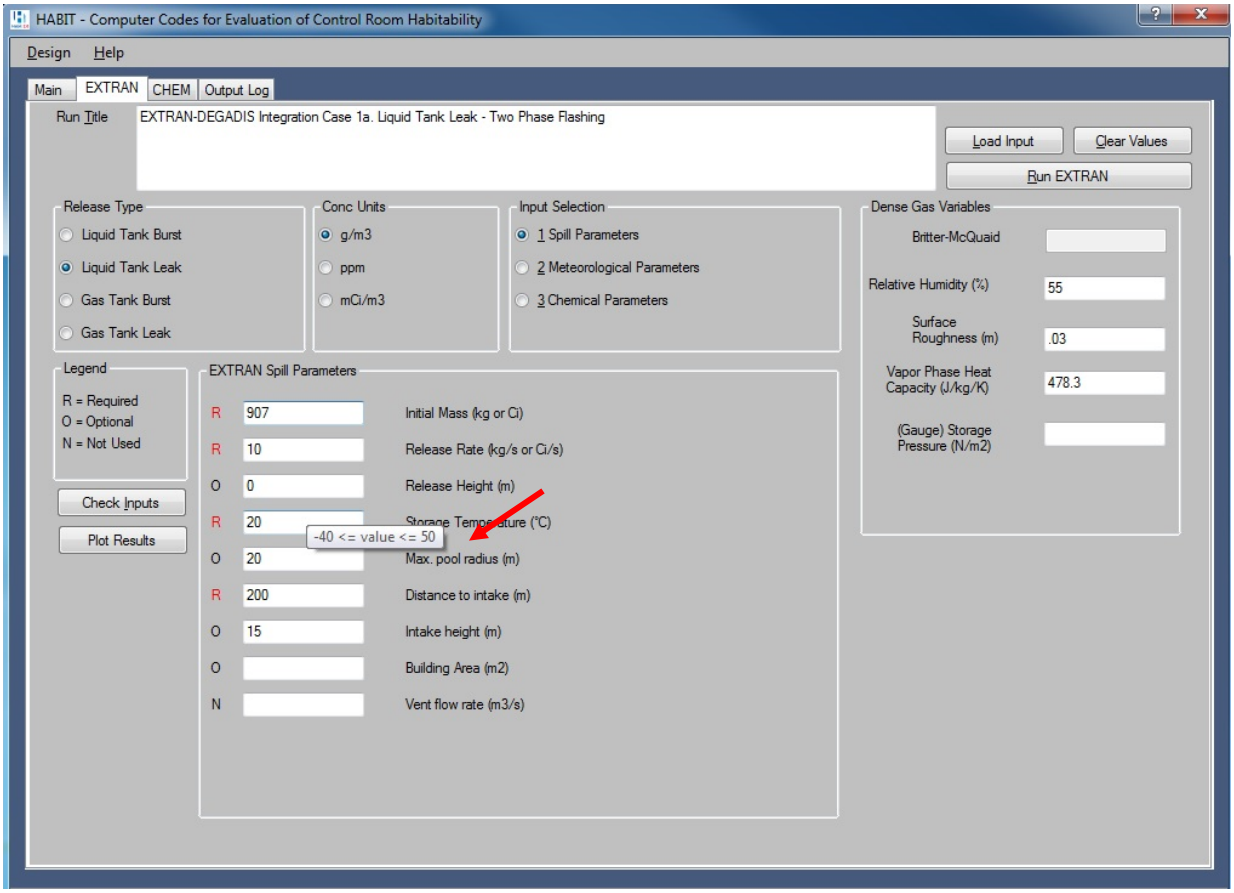

Figure 6-1: EXTRAN Tab

- The Load Input button allows the user to load EXTRAN input variables from a valid EXTRAN input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design.

- The Clear Values button will clear the EXTRAN input variables.

- The Run button will execute the EXTRAN FORTRAN code against the variables inputted in this tab.

- The Check Inputs button will perform required field validation on the input variables and provide a report to the user of required fields (Figure 6-2: Design Report (Required Parameters)).

- The Plot Results button will create a graph plotted with the concentration output. Time scale and Toxic Limit can be adjusted by using the slider (Figure 6-3: EXTRAN).

- Clicking on Release Type will change the fields which are required for proper EXTRAN FORTRAN code computations.

- Clicking on Input Selection radio button to enter the EXTRAN values for Spill Parameters, Meteorological Parameters and Chemical Parameters.

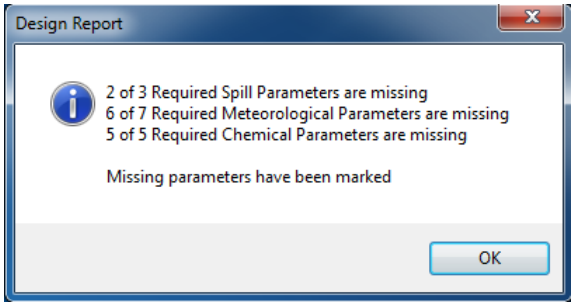

Figure 6-2: Design Report (Required Parameters)

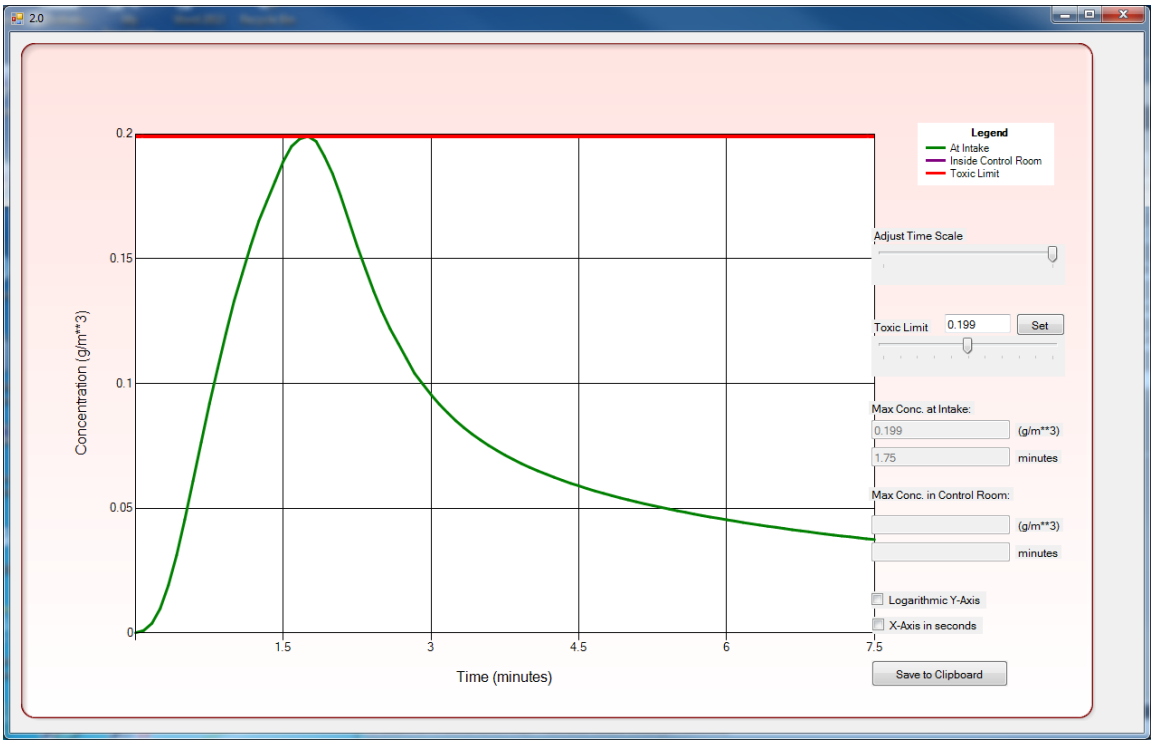

Figure 6-3: EXTRAN Graph

Once all required values are entered, click on Run EXTRAN button to save the design and module input variables and run the EXTRAN FORTRAN code with the entered input variables. A popup indicating all required fields have been entered will display.

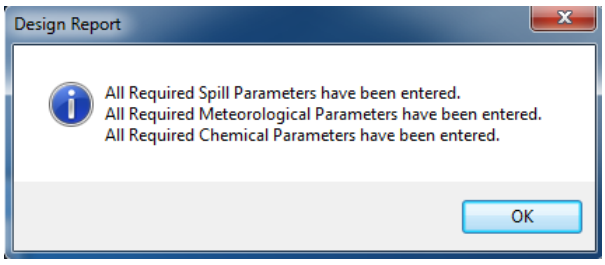

Figure 6-4: Design Report (All required entered)

Click OK and user will be taken to the Output Log tab where a popup will display with the option to run the DEGADIS dense gas computation code.

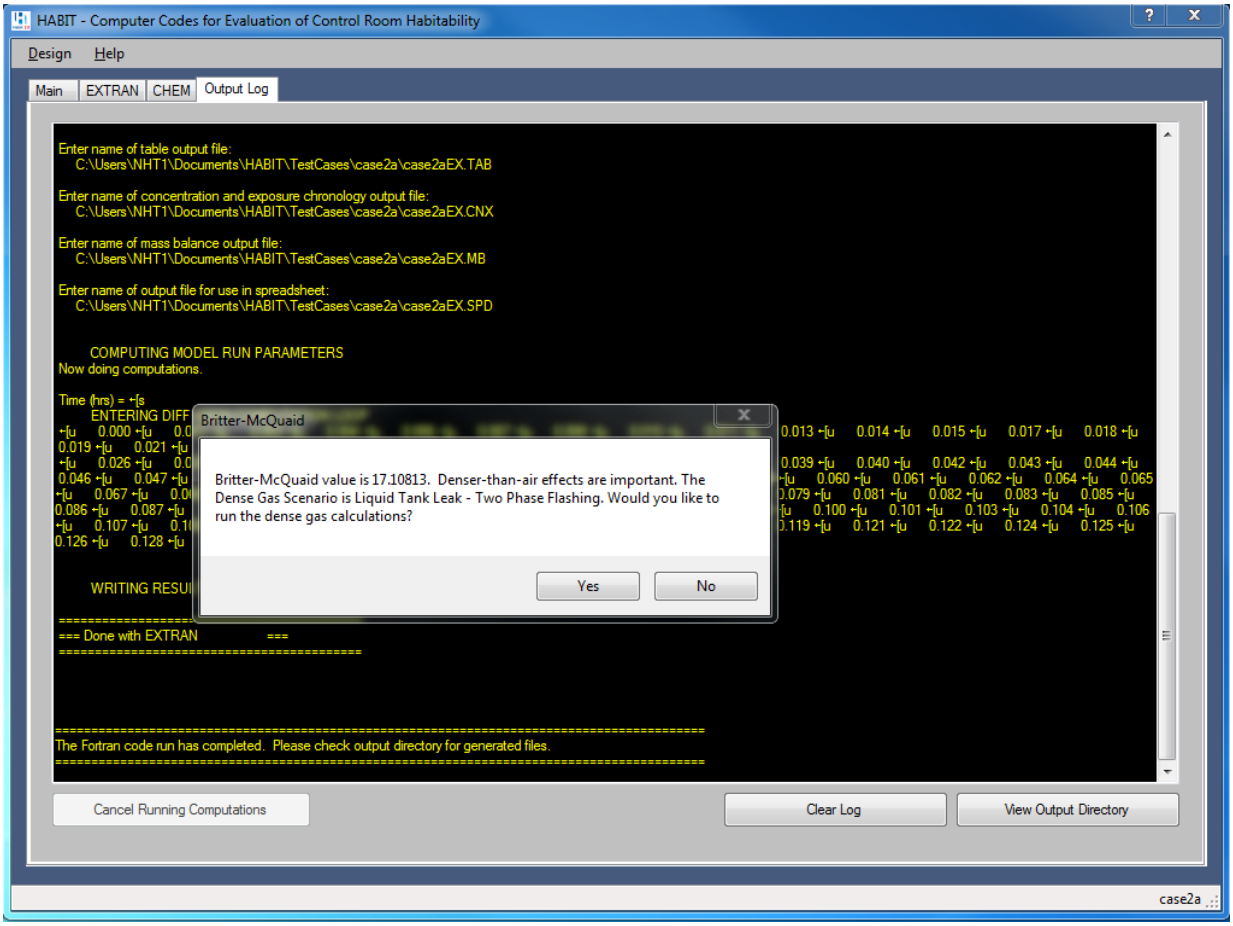

Figure 6-5: EXTRAN Output Log

An appropriately plotted graph will display based on user's preference to run the dense gas calculations (Figure 6-6: Example of graph using DEGADIS dense gas).

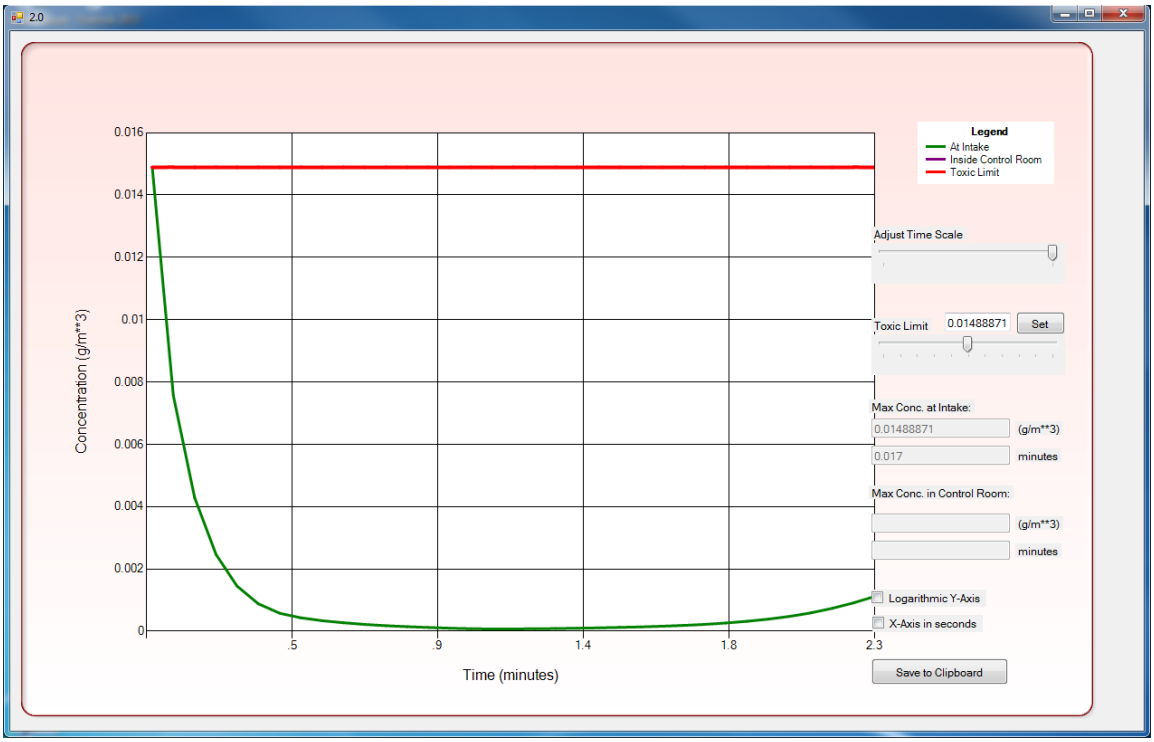

Figure 6-6: Example of graph using DEGADIS dense gas computation

6.1.2 CHEM

CHEM is used for estimating chemical exposures, models the dilution of the chemical by flows in the control room, and determines the chemical exposure to control room personnel. The CHEM tab displays the design of the CHEM module. The values for the parameters will be pre-populated when importing from previous design; else the user can enter in the appropriate values.

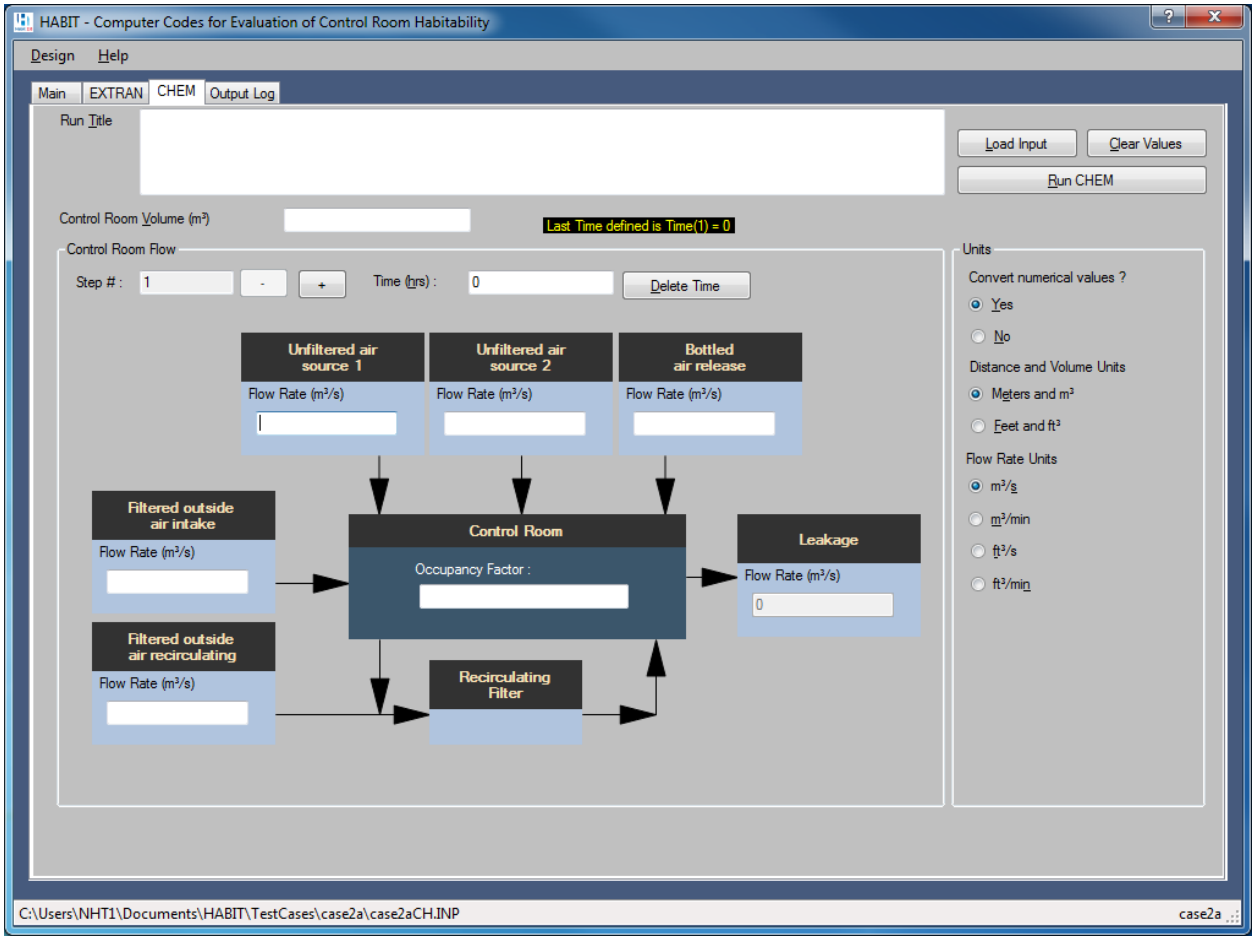

Figure 6-7: CHEM Tab

- The Load Input button allows the user to load a CHEM input variables from a valid CHEM input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design.

- The Clear Values button will clear the CHEM input variables and reset the number of CHEM Steps.

- The Run CHEM button will execute the CHEM Fortran code against the variables inputted in this tab.

- The Step "**+**" and "**–**" buttons allows the user to add and navigate through the variables for each time step of the CHEM simulation. In order to enter add a time step, a time value must be entered in the Time (hrs.) textbox, then the + will be clickable.

- The Delete Time button allows the user to delete the currently displayed time step

- The Units radio buttons allows the user to change measurement units from English units to SI units. Selections here will affect the display of the Control Room Flow.

The CHEM module uses the results of EXTRAN so EXTRAN needs to be run as a prerequisite. An error message will display if attempting to run CHEM module without EXTRAN.

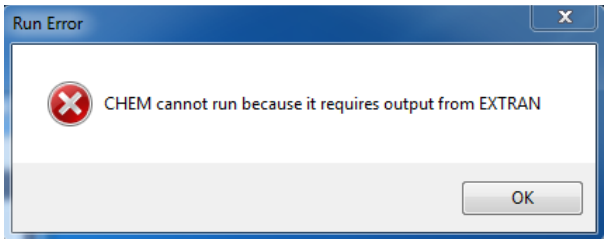

Figure 6-8: CHEM Tab Error Message

As with EXTRAN module, a Concentration versus Time graph will be plotted and displayed based on input entered or loaded.

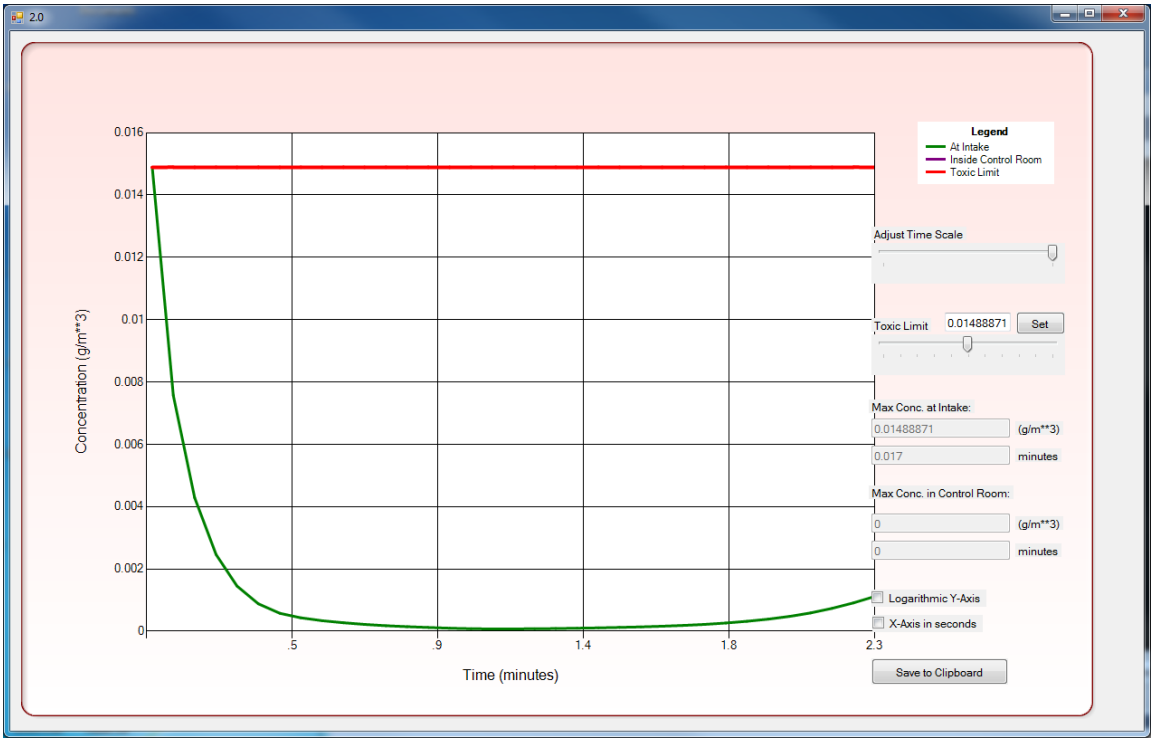

Figure 6-9 CHEM Graph (Concentration vs Time with Linear Toxic Limits)

6.1.3 DEGADIS

The DEGADIS tab provides the functionality of the DEGADIS (Dense Gas Dispersion Model) modules and contains four tabs: Atmospheric Parameters, Material Specifics, Release Specifics, and Graph. The values for the parameters will be pre-populated when importing from previous design; from running EXTRAN module, else the user can enter in the appropriate values.

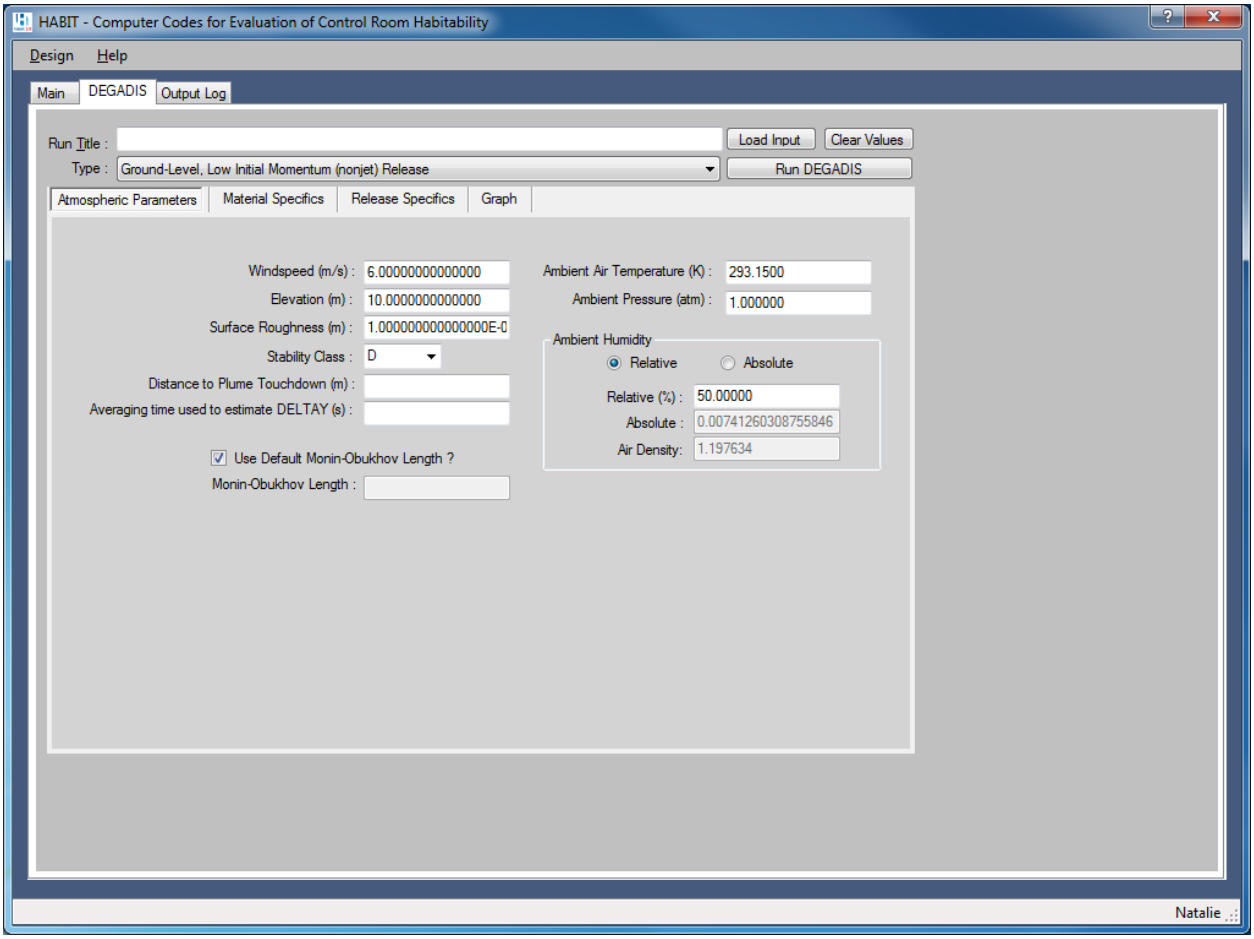

Figure 6-10: DEGADIS Tab

- The Load Input button allows the user to load DEGADIS input variables from a valid DEGADIS input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design or from the EXTRAN module's run.

- The Clear Values button will clear the DEGADIS input variables

- The Run DEGADIS button will execute the DEGADIS FORTRAN code against the variables entered in this tab.

6.1.4 SLAB

The SLAB tab provides the functionality of the SLAB (Dense Gas Model) modules that simulates the atmospheric dispersion of denser-than-air releases.

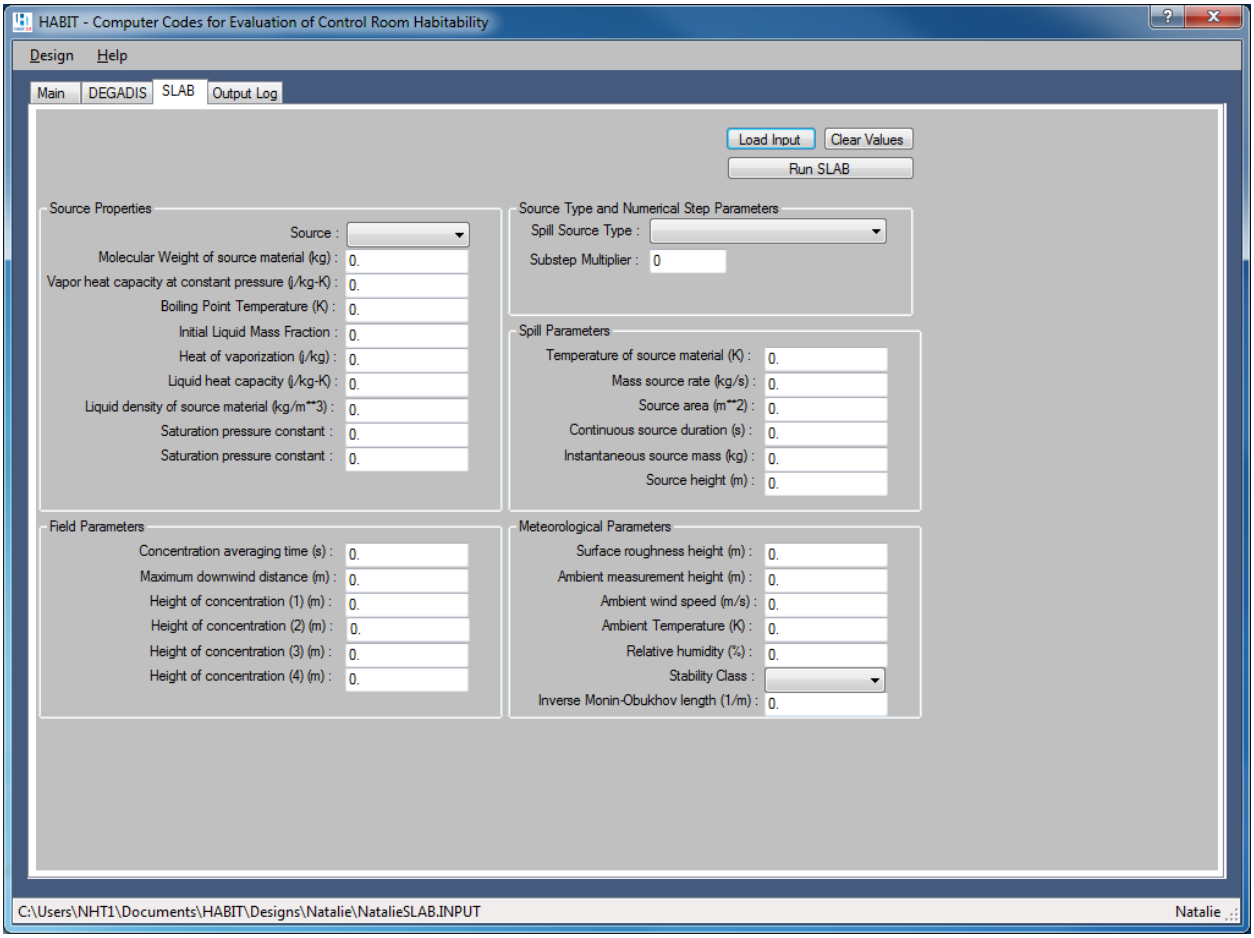

Figure 6-11: SLAB Tab

- The Load Input button allows the user to load SLAB input variables from a valid SLAB input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design or from the EXTRAN module's run.

- The Clear Values button will clear the SLAB input variables

- The Run SLAB button will execute the SLAB FORTRAN code against the variables entered in this tab.

6.2 Radiological Modules

6.2.1 FPFP_2

The FPFP_2 is used to model radioactive flow through the plant and determine doses in the control room associated with the accidental releases of radionuclides. The design allows for two separate instances of FPFP_2; each of these instances has its own tab. Within each FPFP modules are Spaces and Flow Rates tab. The values for the parameters will be pre-populated when importing from previous design; else the user can enter in the appropriate values.

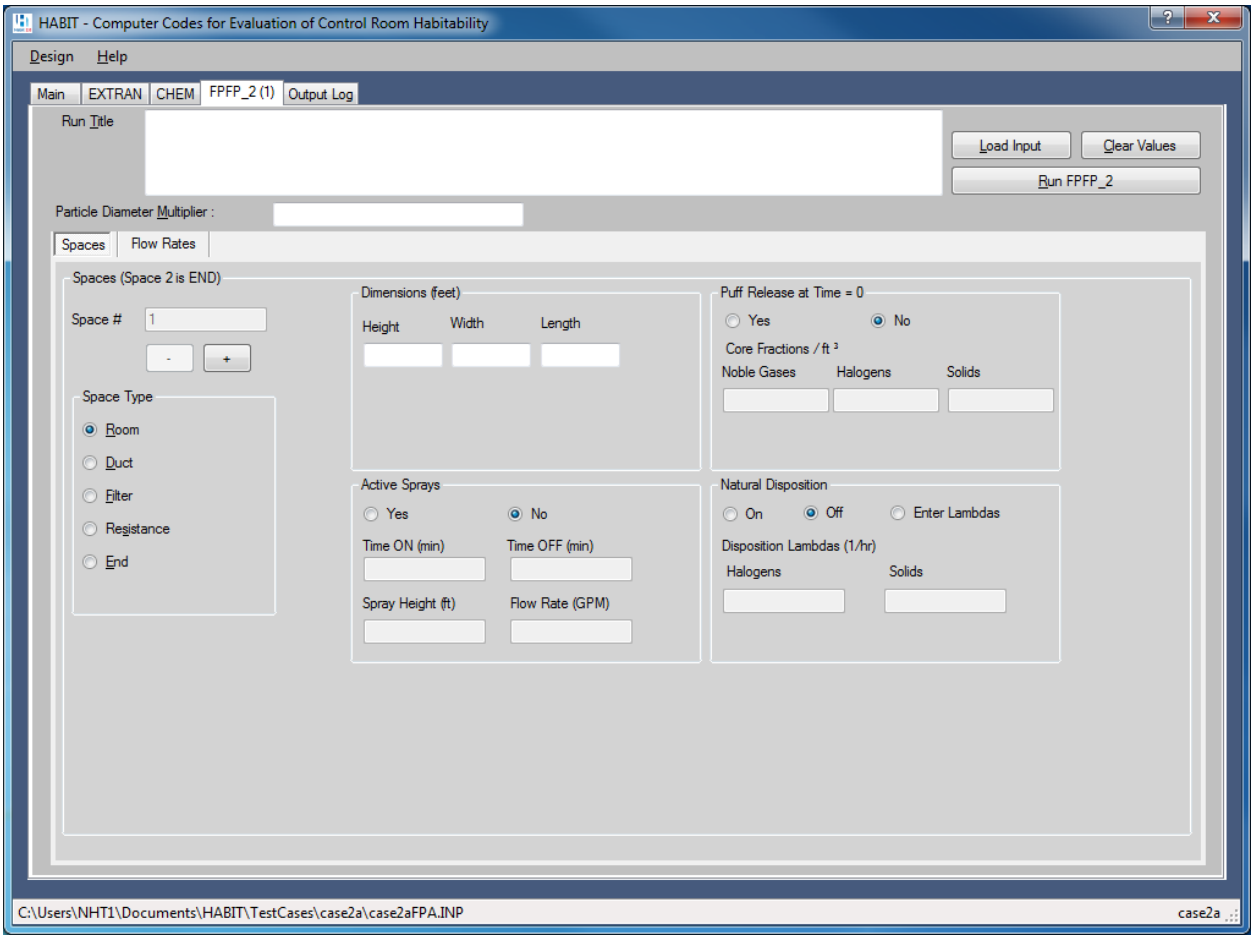

Figure 6-12: FPFP_2 Tab (Spaces)

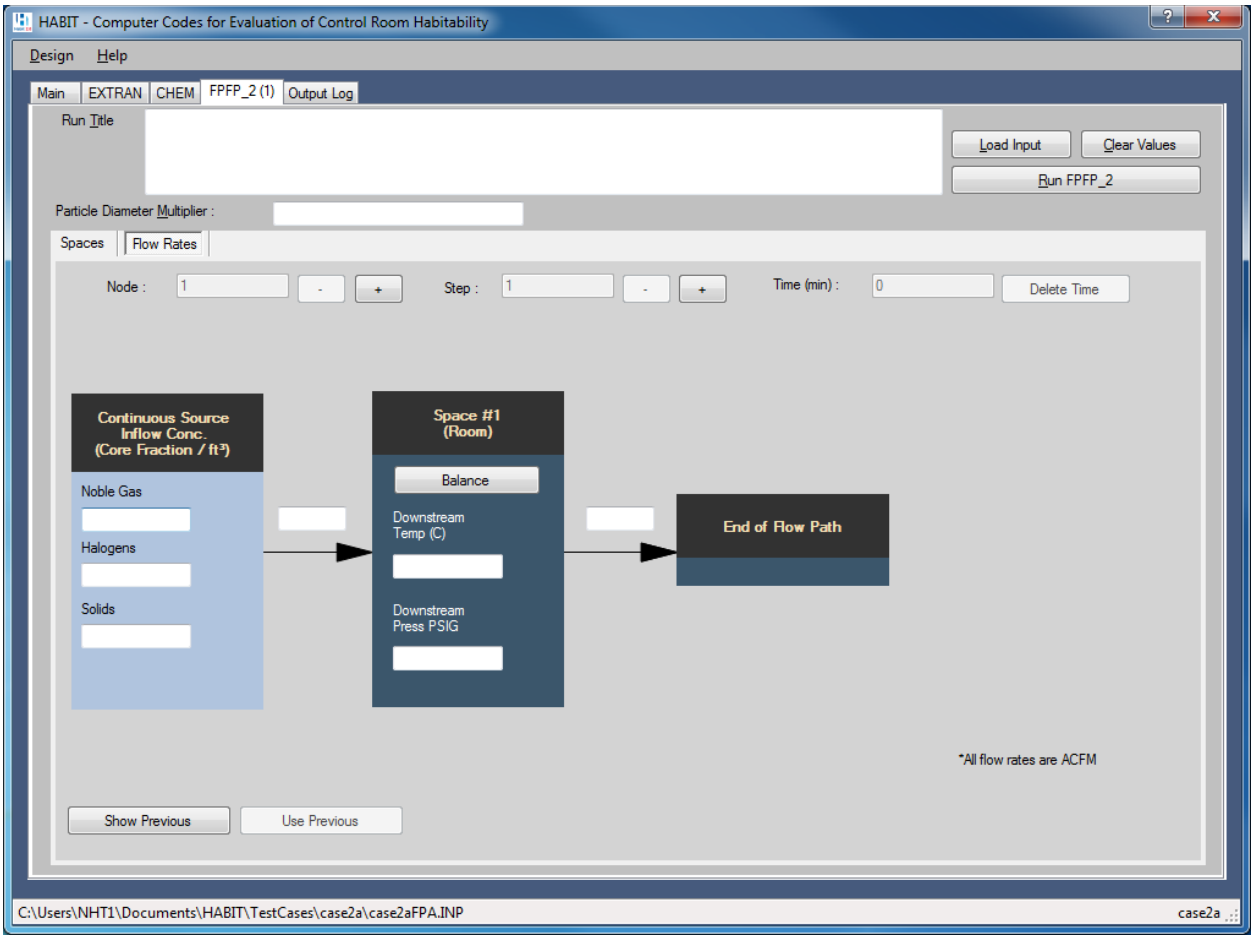

Figure 6-13: FPFP_2 Tab (Flow Rates)

- The Load Input button allows the user to load an FPFP_2 input variables from a valid FPFP_2 input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design.

- The Clear Values button will clear the FPFP_2 input variables and reset the number of Spaces and Flow Rate Steps.

- The Run FPFP_2 button will execute the FPFP_2 Fortran code against the variables inputted in this tab.

- The Spaces **+** and **–** buttons allows the user to add Spaces to the FPFP_2 simulation and allows navigation of the entered space data. Each space is selected through the Space Type radiobutton. The last space is always the “End Space”

- The Flow Rates tab is dependent on the Spaces entered. Each space creates a Node on the Flow Rates tab.

- The Node **+** and **–** buttons allows the user to navigate the Flow Rate variables for each node (space) of the FPFP_2 simulation.

- The Step + and – buttons allows the user to add and navigate the Flow Rate variables for each time step of the current node. In order to enter add a time step, a time value must be entered in the Time (hrs.) textbox, then the "**+**" will be clickable.

- Delete time allows the user to delete the current time step from the Flow Rate variables.

6.2.2 TACT(5)

The TACT5 code is used to model situations in which contamination is released to the atmosphere and subsequently enters the control room. The TACT5 tab provides the functionality of the TACT5 module and allows for two separate instances of TACT5; each of these instances receives its own tab. TACT5 contains two tabs, Nuclides and Time steps. Nuclides must be selected to open the Node Design and Plant Parameters tabs.

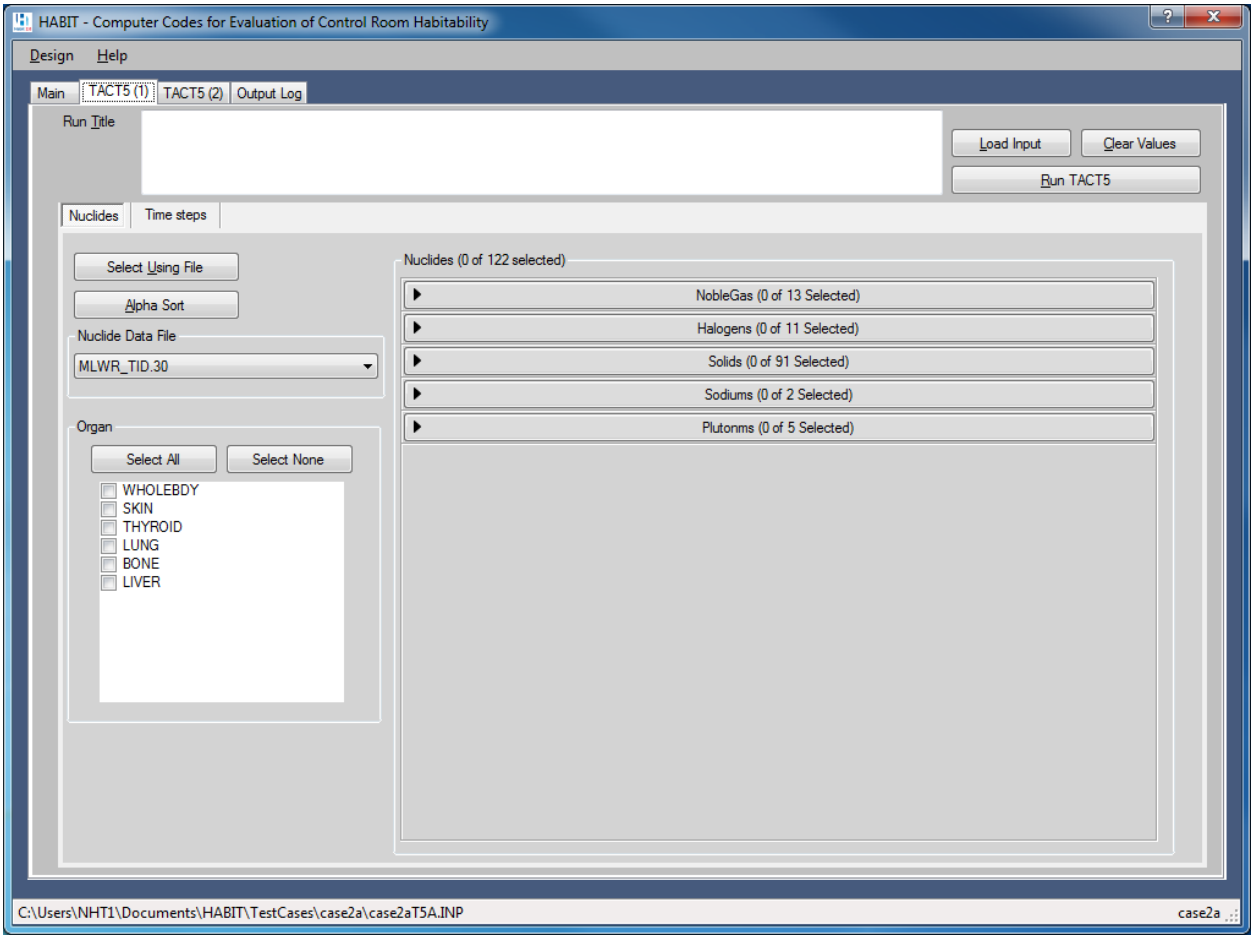

Figure 6-14: TACT5 Tab (Nuclides)

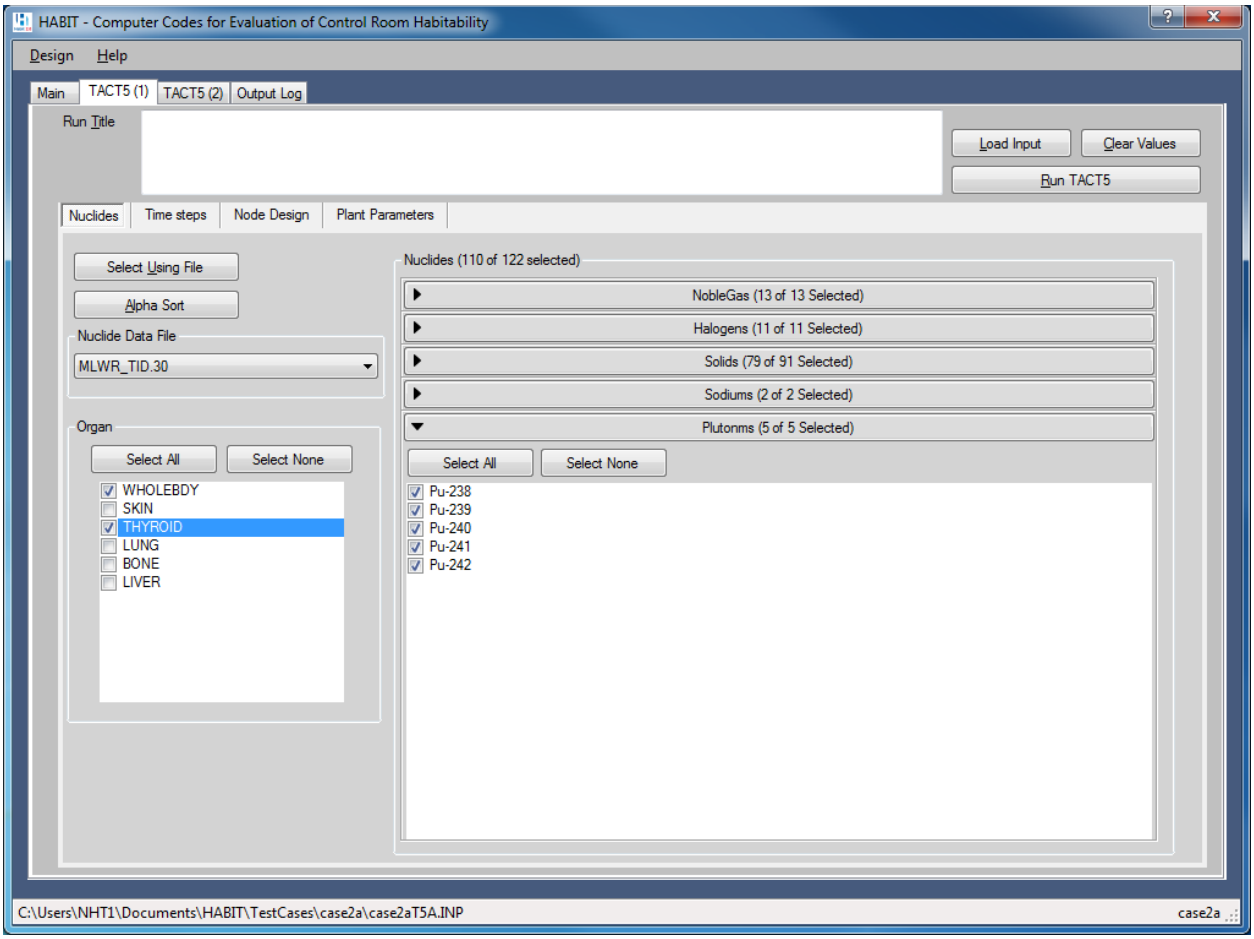

Figure 6-15: TACT5 (Nuclides selections)

- The Load Input button allows the user to load TACT5 input variables from a valid TACT5 input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design.

- The Clear Values button will clear the TACT5 input variables

- The Run TACT5 button will execute the TACT5 Fortran code against the variables inputted in this tab.

- The Select Using File button allow the user to load the nuclide selections based from a valid nuclide selection file (.nuc file). The selected nuclide database for the design must be the same as the one from the inputted nuclide selection file.

- The Alpha Sort button sorts the Nuclides items alphabetically

- The Nuclides selection area contains the Nuclide Groups and their related nuclides. To select individual nuclides, click on the Nuclide group. The group will expand and display the nuclides in that group. Each nuclide group contains a Select All and Select None button which allows the user to choose all the nuclides in the group or none of the

nuclides in the group.

- At least one organ and one nuclide must be selected before the Node Design and Plant Parameter tabs are available for data entry. At least one node must be entered before the Time Dependent Data tab is available for data entry.

- The Plant Parameters data entry is based on the selected element groups from the Nuclides tab.

- On the Time Dependent Data tab, the Insert Time button allows the user to instantiate a new time value for the simulation. After the time is entered, the time dependent variables can be entered (Initial Activity Distribution, Removal Rate Coefficients, Filtered Transfer Rates, etc.). The Delete Time button allows the user to delete the variables for the current time step. The Delete All button allows the user to delete all the time variables entered. The checkboxes on each time variable group is used to include or exclude the variable group from the simulation. The First, Previous, Next, Last buttons allows the user to navigate through each set of entered time variable group. The variable group currently displayed is highlighted on the user interface.

To populate fields from a file, click on Select Using File button.

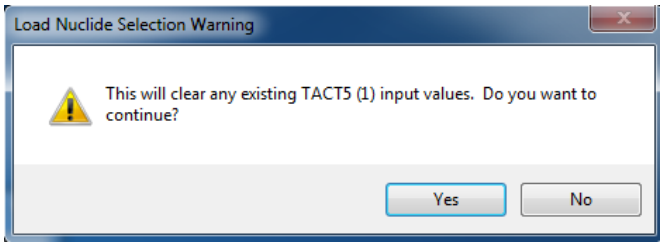

Figure 6-16: Select Using File warning message

Click “Yes” to remove the pop-up message and to bring up TACT5 Nuclide Selection File window.

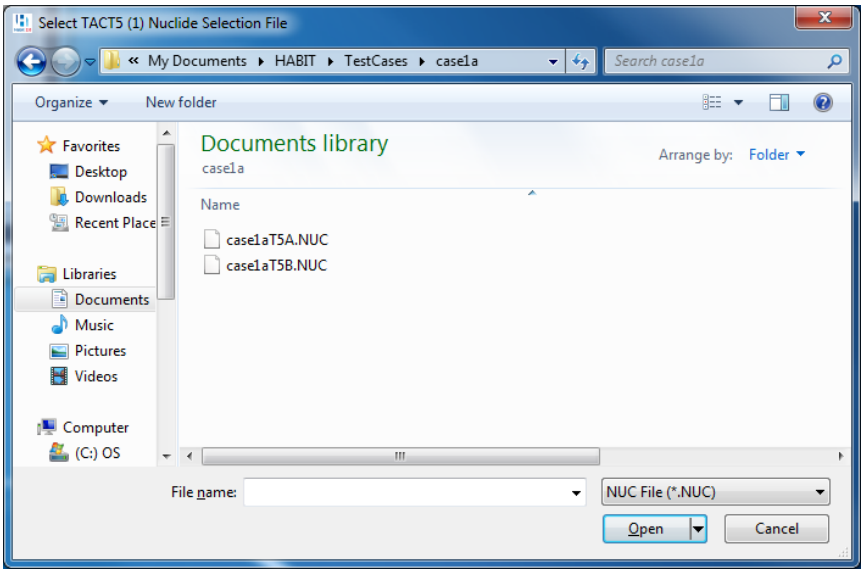

Figure 6-17: Nuclide Selection File

Select a file and click Open. Data from the selected file will be processed and displayed on the window.

Enter data in Node Design tab in order to open Time Dependent Data tab

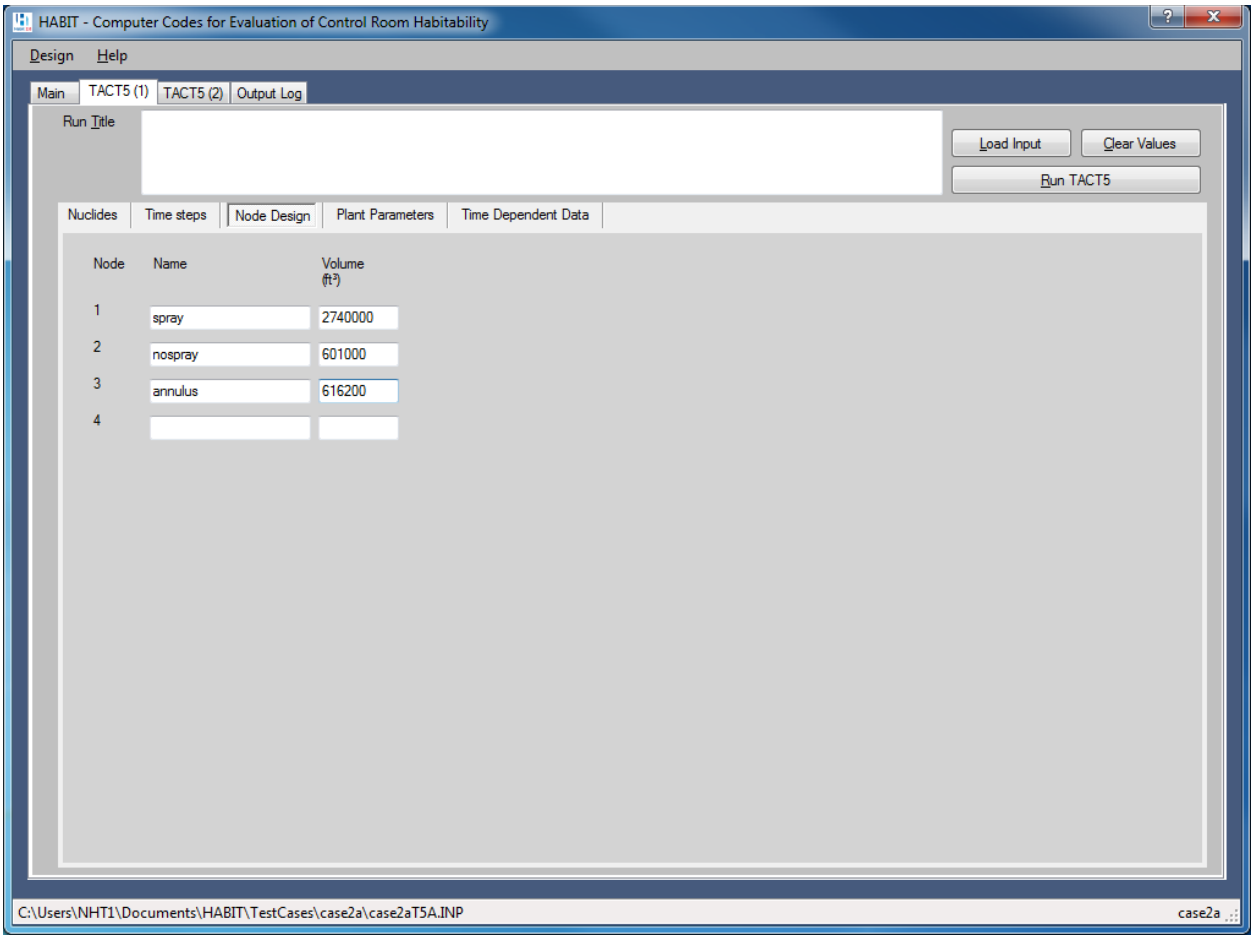

Figure 6-18: TACT5 (Node Design)

6.2.3 CONHAB

The CONHAB tab provides the functionality of the CONHAB modules and contains four tabs, each for Plant Data, Meteorology or X/Q Data, Control Room Flow Data, and Units. The values for the parameters will be pre-populated when importing from previous design; else the user can enter in the appropriate values. When hovering the mouse over the field, the system will display the valid range for that field. Before running CONHAB, TACT5 and FPFP_2 must be run.

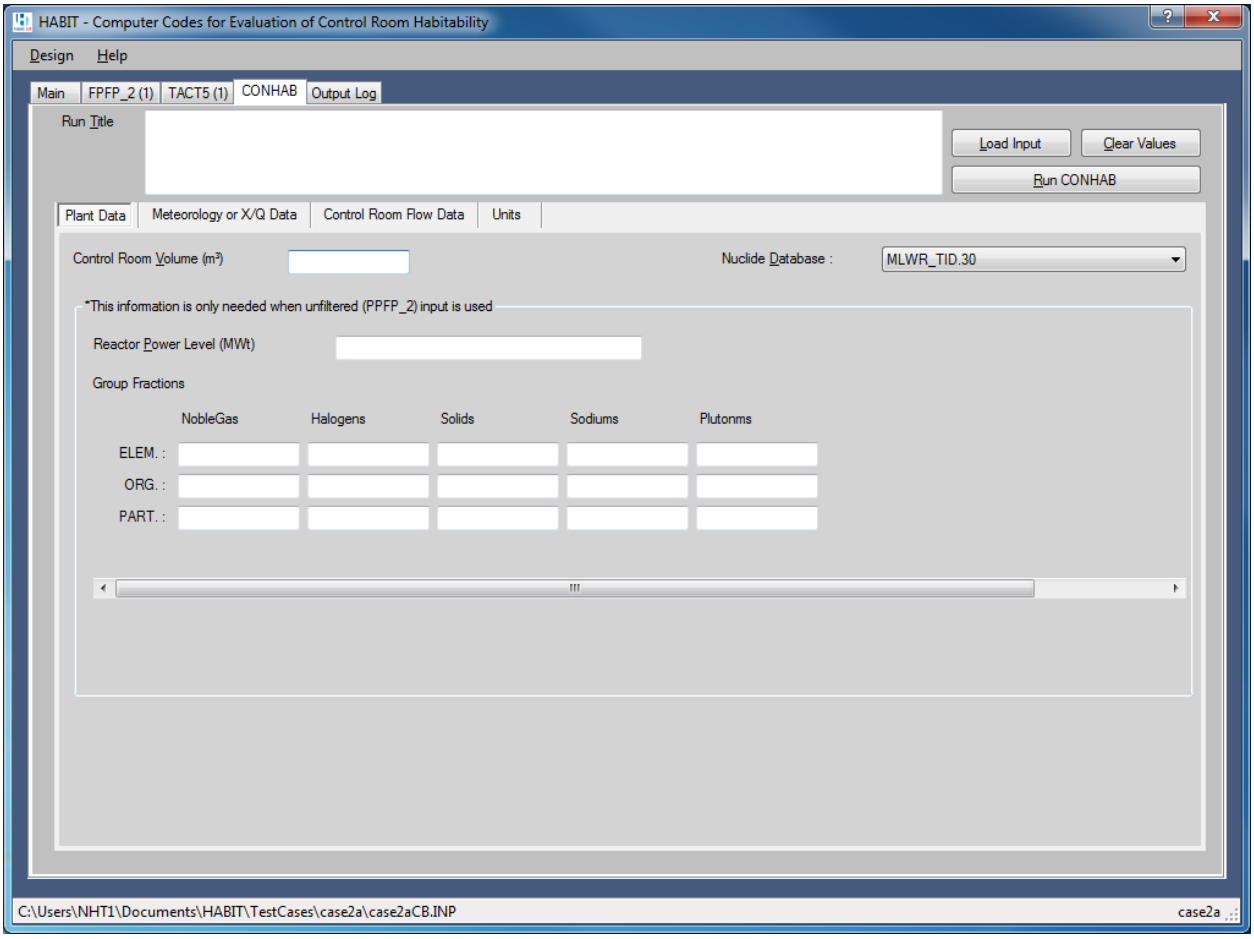

Figure 6-19: CONHAB Tab (Plant Data)

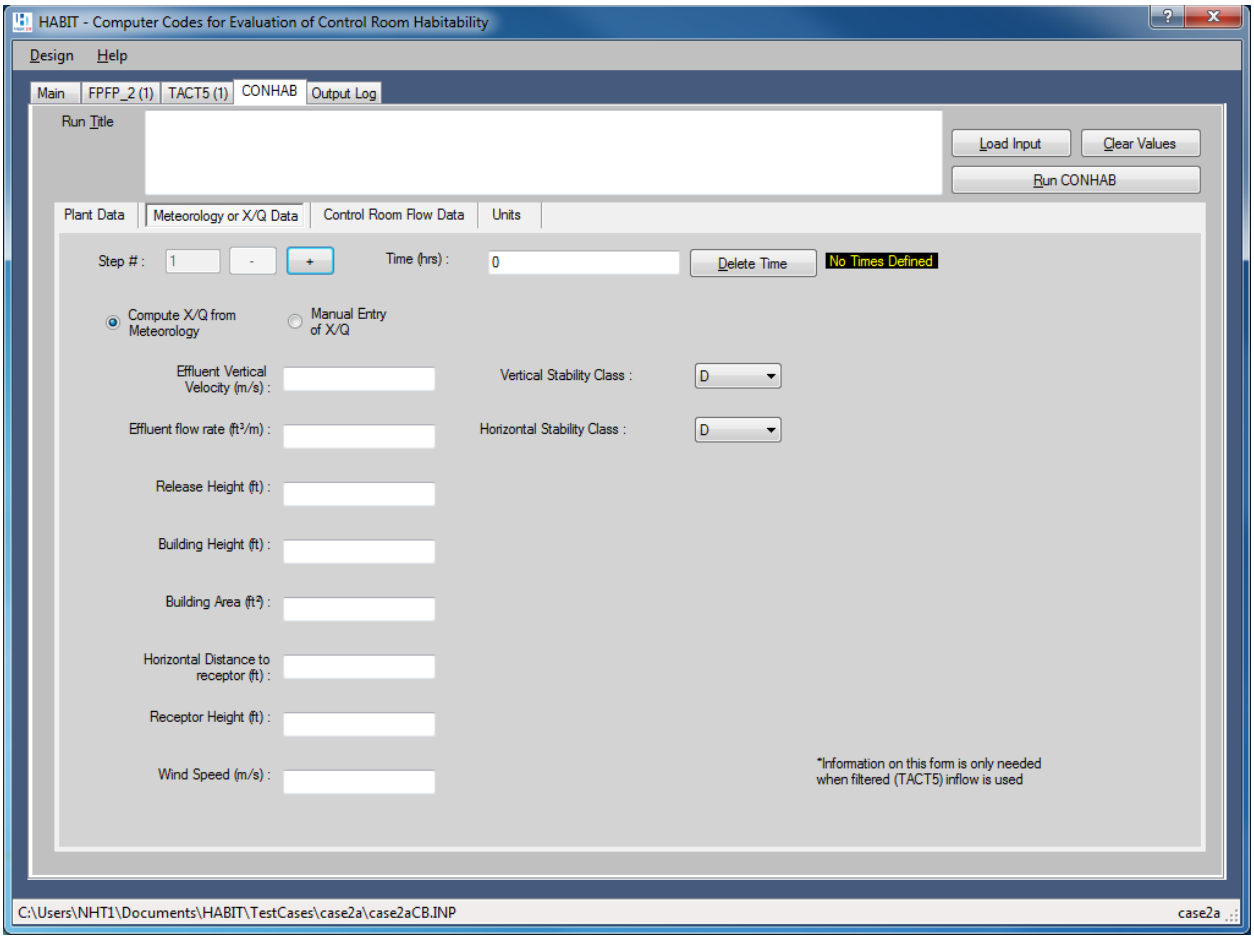

Figure 6-20: CONHAB Tab (Meteorology or X/Q Data)

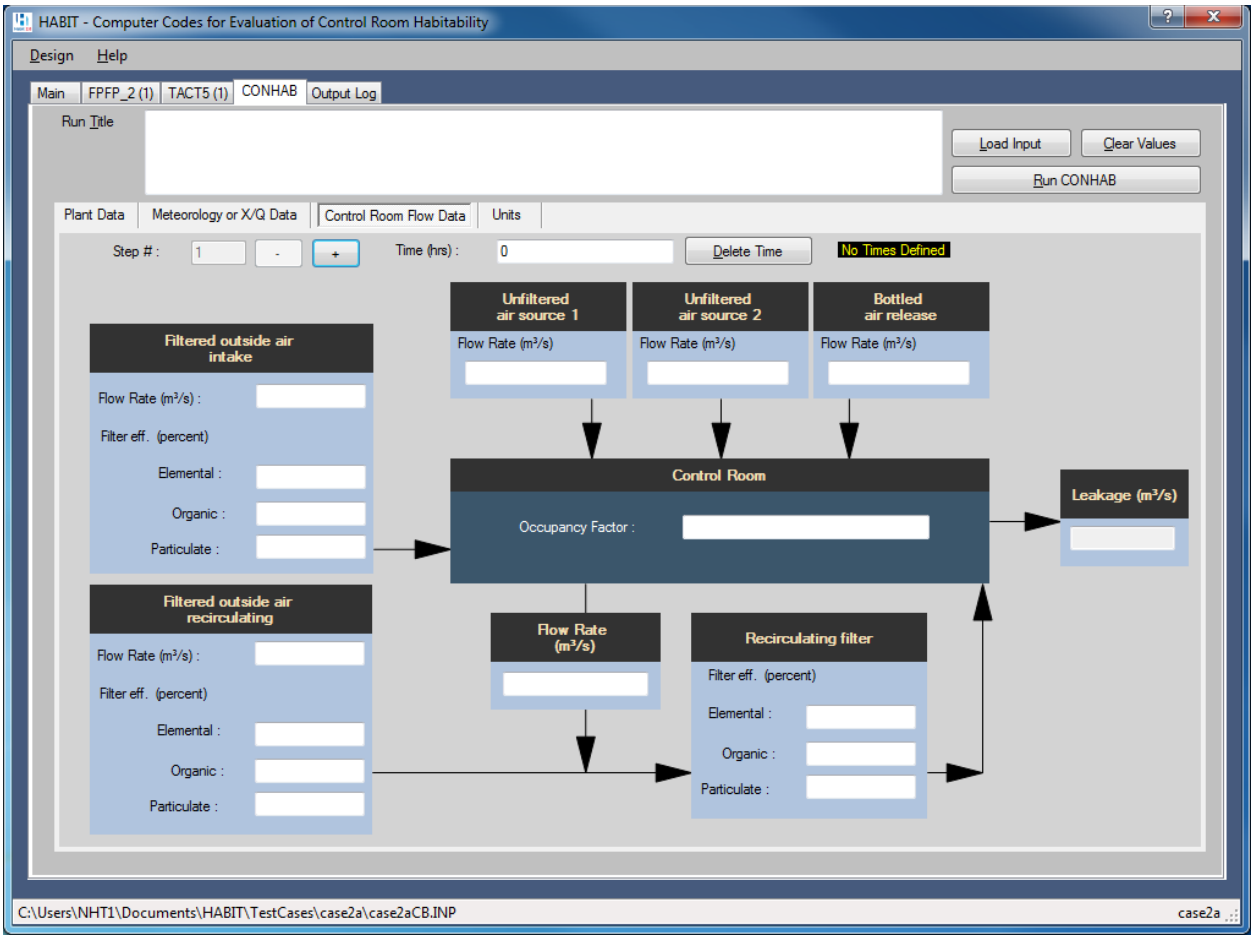

Figure 6-21: CONHAB Tab (Control Room Flow Data)

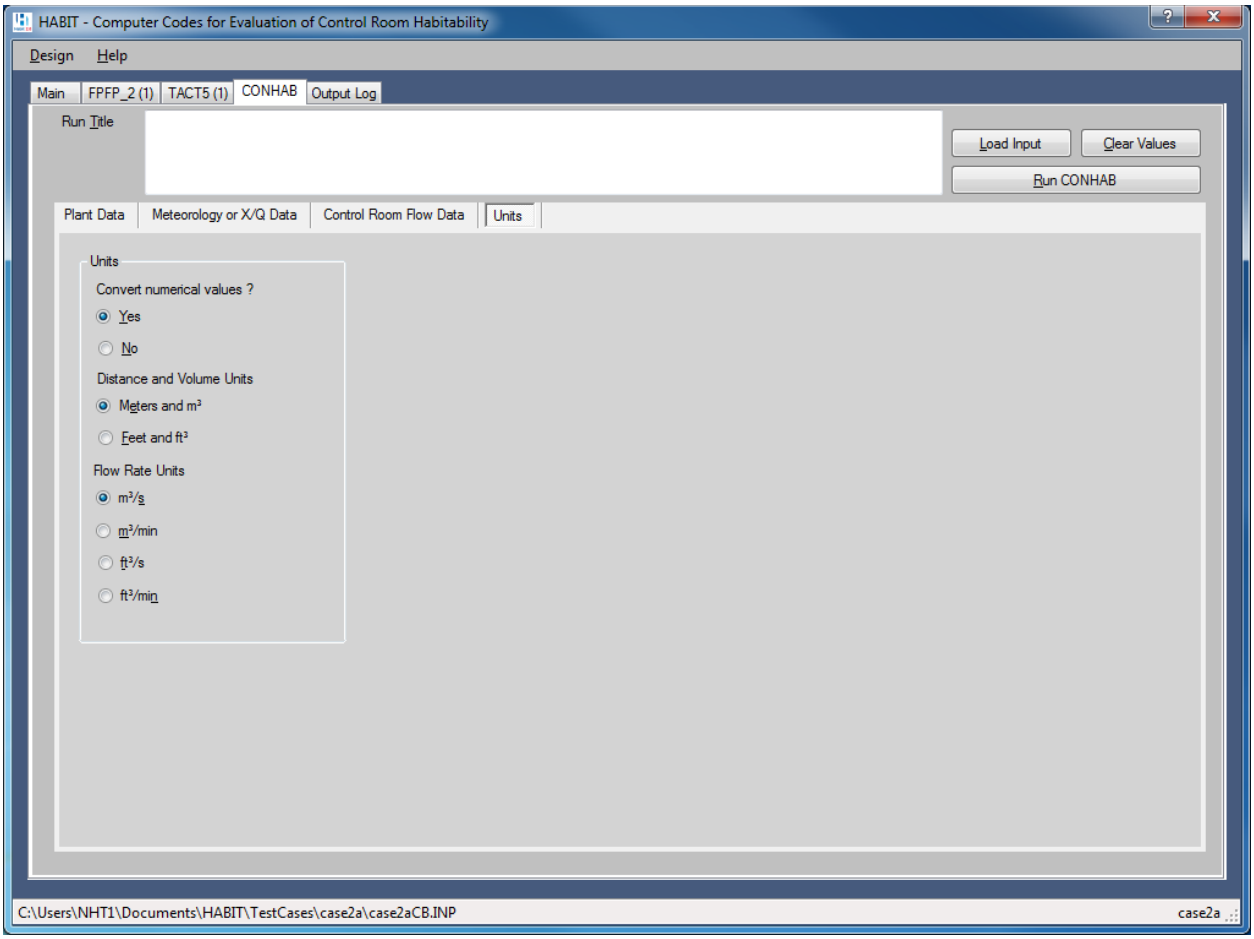

Figure 6-22: CONHAB Tab (Units)

- The Load Input button allows the user to load CONHAB input variables from a valid CONHAB input file (inp). This function is generally not necessary since the input variables are automatically loaded for any previously saved design.

- The Clear Values button will clear the CONHAB input variables

- The Run CONHAB button will execute the CONHAB FORTRAN code against the variables inputted in this tab.

- The Plant Data tab contains a nuclide database selection dropdown. The selected nuclide database will change the Group Fractions data entry to the element groups contained in the database.

- The Meteorology or X/Q Data tab is used to enter meteorological variables which affect the simulation. The Step "**+**" and "**–**" buttons are used to add and navigate the meteorological variables for each time step of the simulation. In order to enter add a time step, a time value must be entered in the Time (hrs.) textbox, then the "+" will be clickable. The Delete Time button is used to delete a time step. The user has the option

to enter meteorological variables to compute the X/Q value or enter the X/Q value directly.

- The Control Room Flow Data tab is used to enter control room inflows and concentration values as part of the simulation. The Step + and – buttons are used to add and navigate the control room flow variables for each time step of the simulation. The Delete Time button is used to delete a time step from the simulation.

- The Units tab allows the user to change measurement units from English units to SI units. Selections here will affect the values used in the Control Room Flow Data and Plant Data tabs.