**CACIE Tool #43** – **CIE Mass Balance STOMP Input File Generator Tool**

**xprt\_mb\_input\_gen\_cie.f**

**Version** **1.0**

**QA**: **QA**

# Description and Purpose

The CIE Mass Balance STOMP Input File Generator Tool generates the mass balance STOMP transport input file. This code reads and modifies the STOMP input file created by the CIE 2018 STOMP Input File Generator Tool. Additional input is taken from the mass balance output control file created by the CIE Transient Output Card Generator Tool.

The STOMP input file generated by this tool is ***input\_XPRT\_MB***.

# Functional Requirements

The following are the functional requirements (FR) of the CIE Mass Balance STOMP Input File Generator Tool:

FR-1: Parse the following command line arguments: 1943-2018 STOMP input file location/name and the mass balance output control file location/name.

FR-2: Copy lines from the 1943-2018 STOMP input file except as noted in the following functional requirements FR-3 to FR-7. Input taken directly from the 1943-2018 STOMP input file includes the following STOMP cards:

* Simulation Title Card (Partial)
* Solution Control Card (Partial)
* Grid Card
* Inactive Nodes Card
* Rock Soil Zonation Card
* Mechanical Properties Card
* Hydraulic Properties Card
* Saturation Function Card
* X-Aqueous Relative Permeability Card
* Y-Aqueous Relative Permeability Card
* Z-Aqueous Relative Permeability Card
* Solute/Fluid Interaction Card (Partial)
* Solute/Porous Media Interaction Card
* Initial Conditions Card
* Boundary Conditions Card
* Surface Flux Card (Partial)
* Source Card

FR-3: In the Simulation Title Card, replace the second Simulation Note Line (“*CIE Transport Simulation (1943-2018),*”) with “*CIE Mass Balance Simulation (1943-3070),*”.

FR-4: Replace lines defining the execution time periods in the Solution Control Card as follows:

* Determine the number of execution time periods from the 1943-2018 STOMP input file.
* If the number of execution time periods from the 1943-2018 STOMP input file is one, the execution time periods will be:

2,

1943,year,2070,year,1.0E-08,year,0.1,year,1.25,16,1.0E-6,

2070,year,3070,year,1.0E-08,year,1.0,year,1.25,16,1.0E-6,

* If the number of execution time periods from the 1943-2018 STOMP input file is two, read the first source year (XXXX) from the 1943-2018 STOMP input file. The execution time periods will be:

4,

1943,year,XXXX,year,1.0E-08,year,0.1,year,1.25,16,1.0E-6,

XXXX,year,2018,year,1.0E-08,year,0.01,year,1.25,16,1.0E-6,

2018,year,2070,year,1.0E-08,year,0.1,year,1.25,16,1.0E-6,

2070,year,3070,year,1.0E-08,year,1.0,year,1.25,16,1.0E-6,

* If the number of execution time periods from the 1943-2018 STOMP input file is three, read the first source year (XXXX) and the last source year (YYYY) from the 1943-2018 STOMP input file. The execution time periods will be:

4,

1943,year,XXXX,year,1.0E-08,year,0.1,year,1.25,16,1.0E-6,

XXXX,year,YYYY,year,1.0E-08,year,0.01,year,1.25,16,1.0E-6,

YYYY,year,2070,year,1.0E-08,year,0.1,year,1.25,16,1.0E-6,

2070,year,3070,year,1.0E-08,year,1.0,year,1.25,16,1.0E-6,

FR-5: Revise the Solute/Fluid Interaction Card from the 1943-2018 STOMP input file, replacing the radionuclide half-life values with “1.000E+20”. All other input for the Solute/Fluid Interaction Card will remain the same as the 1943-2018 STOMP input file.

FR-6: Replace the Output Control Card with the mass balance output control file (path read as Command Line Argument 2) and add an output time at 2018.

FR-7: Reset the Total Number of Surface Flux Inputs to “9” and remove the Surface Flux Card outputs for the P2R Bottom Flux surfaces. This will leave only the nine surfaces that cover the entire model domain.

FR-8: Save the output file (i.e., the complete STOMP mass balance transport input file, which includes all the required cards).

FR-9: The STOMP mass balance transport input file produced by the tool should be formatted for STOMP execution.

# Software Requirements Specifications

FORTRAN, Linux Intel(R) Fortran Intel(R) 64 Compiler

Compiler Options: -o OutputFileName

Special Considerations: None

# Software Design Description

Flow:

The CIE Mass Balance STOMP Input File Generator Tool performs the following steps:

1. Declare variables – Character and array variables are declared.
2. Read command line arguments – See the list defined below.
3. Open the output file.
4. Open the 1943-2018 STOMP input file created by the CIE 2018 STOMP Input File Generator Tool – Portions of this file will be copied to the output file generated by the CIE Mass Balance STOMP Input File Generator Tool (see list in FR-2).
5. Write Simulation Title Card – All lines except the last line are from the 1943-2018 STOMP input file created by the CIE 2018 STOMP Input File Generator Tool; the last line identifies the simulation (CIE mass balance and model years).
6. Write Solution Control Card – Determine the number of execution time periods based on the number of execution time periods in the 1943-2018 STOMP input file and write the Solution Control Card. See FR-4 for details.
7. Write the following cards, which are copied from the 1943-2018 STOMP input file created by the CIE 2018 STOMP Input File Generator Tool:
   1. Grid Card
   2. Inactive Nodes Card
   3. Rock/Soil Zonation Card
   4. Mechanical Properties Card
   5. Hydraulic Properties Card
   6. Saturation Function Card
   7. X-Aqueous Relative Permeability Card
   8. Y-Aqueous Relative Permeability Card
   9. Z-Aqueous Relative Permeability Card
8. Write Solute/Fluid Interaction Card – Revise the Solute/Fluid Interaction Card from the 1943-2018 STOMP input file, replacing the radionuclide half-life values with “1.000E+20”. All other input for the Solute/Fluid Interaction Card will remain the same as the 1943-2018 STOMP input file.
9. Write the following cards, which are copied from the 1943-2018 STOMP input file created by the 2018 STOMP Input File Generator Tool:
   1. Solute/Porous Media Interaction Card
   2. Initial Conditions Card
   3. Boundary Conditions Card
10. Open the mass balance output control file.
11. Replace the Output Control Card with the mass balance output control file, adding an output time at 2018.
12. Reset the Total Number of Surface Flux Inputs to “9”.
13. Skip the Surface Flux Card outputs for the P2R Bottom Flux surfaces.
14. Write the Source Card, which is copied from the 1943-2018 STOMP input file created by the CIE 2018 STOMP Input File Generator Tool.

Arguments:

1943-2018 STOMP input file – Path to the 1943-2018 STOMP input file created by the CIE 2018 STOMP Input File Generator Tool.

Mass balance output control file – Path to the mass balance output control file created by the CIE Transient Output Card Generator Tool.

Input Files:

* 1943-2018 STOMP input file (path read as Command Line Argument 1) – 1943-2018 STOMP input file created by the CIE 2018 STOMP Input File Generator Tool.
* Mass balance output control file (path read as Command Line Argument 2) – Mass balance output control file created by the CIE Transient Output Card Generator Tool.

Output Files:

The output file generated by this tool is a STOMP input for mass balance transport modeling for 1943 through 3070:

input\_CIE\_XPRT\_MB

Execution:

The following is the shell script configuration that will be passed as an argument to the Tool Runner for qualified runs:

{directory path to repository}\tools\cie-modinput\linux\xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe ““$INPUT1 $INPUT2”

Each of the shell script variables (denoted by the “$”) will be set in the shell script with the corresponding variable input (“$INPUT1” for the 1943-2018 STOMP input file location/name and “$INPUT2” for the Mass balance output control file location/name).

Code Review:

A code review was performed by Sara Lindberg on 9/10/2020. No impacts to other repository tools or library dependencies were identified for the CIE Mass Balance STOMP Input File Generator tool.

# Requirements Traceability Matrix

The requirements traceability matrix for the CIE Mass Balance STOMP Input File Generator tool is presented in Table 1.

| Table 1  Requirements Traceability Matrix | | |
| --- | --- | --- |
| **Functional Requirement ID** | **Acceptance Test ID** | **Test Case** |
| QA Level | CACIE-xprt\_mb\_input\_gen\_cie-IT-1 | Installation Test |
| FR-1 | CACIE-xprt\_mb\_input\_gen\_cie-AT-1 | Check the log to see that the STOMP input file location/name and the mass balance output control file location/name were read correctly from the command line input. |
| FR-2 | CACIE-xprt\_mb\_input\_gen\_cie-AT-1 | Check that the following cards are identical to those in the 1943-2018 STOMP input file:   * ~Grid Card * ~Inactive Nodes Card * ~Rock/Soil Zonation Card * ~Mechanical Properties Card * ~Hydraulic Properties Card * ~Saturation Function Card * ~X-Aqueous Relative Permeability Card * ~Y-Aqueous Relative Permeability Card * ~Z-Aqueous Relative Permeability Card * ~Solute/Porous Media Interaction Card * ~Initial Conditions Card * ~Boundary Conditions Card * ~Source Card |
| FR-3 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | ~Simulation Title Card:   * Check that all lines except the last are identical to those in the STOMP input file. * Check that the last line is *CIE Mass Balance Simulation (1943-3070),*. |
| FR-4 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | ~Solution Control Card:   * Check that the Solution Control Card matches the format described in Functional Requirement FR-4. * Check that the first source year and end of aqueous source input date are correct for the test model. |
| FR-5 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | ~ Solute/Fluid Interaction Card:   * Check that the half-life values in the Solute/Fluid Interaction Card are set at 1.000E+20 years. * Check that all other parameters in the Solute/Fluid Interaction Card are identical to those in the 1943-2018 STOMP input file. |
| FR-6 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | ~Output Control Card:   * Check that the Output Control Card is identical to cie\_Mass\_Balance\_Output\_Control.dat, except for the addition of an output time at 2018. |
| FR-7 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | ~Surface Flux Card:   * Check that the Total Number of Surface Flux Inputs is “9”. * Check that the nine surface fluxes (aqueous and the eight solutes) for the entire model domain at the base of the model are identical to the first nine surface fluxes in the the 1943-2018 STOMP input file. |
| FR-8 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | Check that the following cards are included in the generated STOMP mass balance transport input file:   * Simulation Title Card * Solution Control Card * Grid Card * Inactive Nodes Card * Rock Soil Zonation Card * Mechanical Properties Card * Hydraulic Properties Card * Saturation Function Card * X-Aqueous Relative Permeability Card * Y-Aqueous Relative Permeability Card * Z-Aqueous Relative Permeability Card * Solute/Fluid Interaction Card * Solute/Porous Media Interaction Card * Initial Conditions Card * Boundary Conditions Card * Output Control Card * Surface Flux Card * Source Card |
| FR-9 | CACIE-xprt\_mb\_input\_gen\_cie–  AT-1 and AT-2 | Demonstrate that the output file from the tool is a valid, STOMP-formatted file by running it with the STOMP executable. |

# Installation Test Plan and Acceptance Test Plan Cases

The installation test plan for CIE Mass Balance STOMP Input File Generator is presented in Table 2 and the acceptance test plan cases for CIE Mass Balance STOMP Input File Generator are presented in Table 3 and Table 4.

| Table 2  **CIE Mass Balance STOMP Input File Generator Installation Test Plan** | | | |
| --- | --- | --- | --- |
| **CIE Mass Balance STOMP Input File Generator Installation Testing**  **CACIE-CIE Mass Balance STOMP Input File Generator – IT-1** | | **Date:** | |
| **Tool Runner File Location for this test:** | | **Test Performed By: [FIRST & LAST NAME]** | |
| **Testing Directory:** | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| Tools Code Repository Directory: | | | |
| Navigate to the testing directory | | | |
| 1 | Invoke Tool runner and test installation of the tool as follows:  Open a Linux terminal, navigate to the testing directory and type *./runner\_run\_IT-1\_MB-Input-Gen\_cie.sh* | | |
| 2 | Verify Tool Runner is invoked and executed. | Verify that the following file has been created and has the appropriate output corresponding with a “Tool Runner” execution:  ***./IT/runner\_run\_IT-1\_MB-Input-Gen\_cie.log*** |  |
| 3 | Verify tool is invoked and executed. | A new file should have been created: ***./IT/mass\_balance\_model\_screen\_cie.log***  The following program error should be found: “forrtl: severe (29): file not found” |  |

| Table 3  **CIE Mass Balance STOMP Input File Generator Acceptance Test Plan Case 1** | | | |
| --- | --- | --- | --- |
| **CIE Mass Balance STOMP Input File Generator Acceptance Testing**  **CACIE-CIE Mass Balance STOMP Input File Generator – AT-1** | | **Date:** | |
| **Tool Runner File Location for this test:**  \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at1\xprt-mb | | **Test Performed By:** | |
| **Testing Directory:** \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at1\xprt-mb | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| 1 | Ensure the following files are in the testing directory, as they are needed for the execution of the CIE Mass Balance STOMP Input File Generator tool:   * input\_cie\_SS in the /ss/ directory * cie\_Mass\_Balance\_Output\_Control.dat in the /trOCcards/ directory * cie-src.card in the /sources/ directory * buffer-aq-src.card in the /sources/ directory * ***input\_XPRT\_2018*** in the /xprt-2018/ directory   Other files to complete the Acceptance Test:   * The ***input.bot***, ***input.zone***, and ***estomp-run.sh*** files are present in the /xprt-mb/ directory. | The expected files are present in the listed directories. |  |
| 2 | Execute, using a Linux terminal, the shell script ***run\_cie\_input\_xprt\_mb.sh*** located in /xprt-mb/ subdirectory of the testing directory. | Script executes. |  |
| 3 | Using a diff merge or file comparison utility, open and compare the following files:   * ***input\_XPRT\_2018*** in the /xprt-2018/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Verify in the comparison that there are no differences (additional white space at the end of lines is negligible) in the following cards (look for the tilde “~” indicator for each card):   * Grid * Inactive Nodes * Rock/Soil Zonation * Mechanical Properties * Hydraulic Properties * Saturation Function * X-Aqueous Relative Permeability * Y-Aqueous Relative Permeability * Z-Aqueous Relative Permeability * Solute/Porous Media Interaction * Initial Conditions * Boundary Conditions * Source | There will be no differences between the two input files for the listed cards. |  |
| 4 | For the steps that follow open and use the ***input\_XPRT\_MB*** file in a preferred text editor. | | |
| 4.1 | Verify the Simulation Title Card final line (the second Simulation Note Line) states *CIE Mass Balance Simulation (1943-3070),* | The last line of the Simulation Title Card states the simulation years are 1943 to 3070. |  |
| 4.2 | Navigate to the Solution Control Card. Verify that execution time period lines report the correct information detailed in FR-4 of Section 2 in this document. | The changes to the Solution Control Card are present in the ***input\_XPRT\_MB*** file. |  |
| 4.3 | Navigate to the Solute/Fluid Interaction Card. Verify the half-life for all 8 RAD/Chems is *1.000E+20*. | The Solute/Fluid Interaction Card has the correctly reported half-life values for the 8 RAD/Chems. |  |
| 4.4 | Navigate to the Surface Flux Card. Verify the inputs are reduced to “9” and the output for the P2R Bottom Flux surfaces are not present. Confirm only the nine surfaces at the base of the model (aqueous volumetric and RADS/Chems) are present. | The Surface Flux Card of the ***input\_XPRT\_MB*** file was altered to have only the nine inputs. |  |
| 5 | Using a diff merge or file comparison utility, open and compare the following files:   * ***cie\_Mass\_Balance\_Output\_Control.dat*** in the /trOCcards/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Navigate to the Output Control Card and verify (white spaces ignored) all of the card is the same with the exception of:   * The total number of plot years is increased by 1 and the plot year *2018* is added to the ***input\_XPRT\_MB*** file | The two files match except for the total plot times and additional plot year. |  |
| 6 | If all the Test Steps above pass, proceed to the next steps.  Navigate to the //olive/backups/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-mb/ directory, make a copy of the ***input\_XPRT\_MB*** file. Paste it into the same directory, and rename it ***input***. | | |
| 6.1 | Open the ***input*** file in the //olive/backups/CAVE/ v4-4Test/afarms\_xprt\_mb\_at1/xprt-mb/ directory and change the line in the Solution Control Card that reads *1000000*, to *1,*. Save the file.  This modifies the time step of the input file so it will only run for one time step. | The ***input*** file was modified successfully to run for a single time step. |  |
| 6.2 | In a Linux terminal navigate to the //olive/backups/CAVE/ v4-4Test/ afarms\_xprt\_mb\_at1/xprt-mb/ directory and type *sh estomp-run.sh* to run the ***input*** file.  Once the model simulation has completed, open the generated ***output*** file, scroll to the bottom, and verify the last line indicates the simulation completed. | The eSTOMP run executed successfully with the ***input*** file. The ***output*** file indicates the simulation completed. |  |

| Table 4  **CIE Mass Balance STOMP Input File Generator Acceptance Test Plan Case 2** | | | |
| --- | --- | --- | --- |
| **CIE Mass Balance STOMP Input File Generator Acceptance Testing**  **CACIE-CIE Mass Balance STOMP Input File Generator – AT-2** | | **Date:** | |
| **Tool Runner File Location for this test:**  \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at2\xprt-mb | | **Test Performed By:** | |
| **Testing Directory:** \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at2\xprt-mb | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| 1 | Ensure the following files are in the testing directory, as they are needed for the execution of the CIE Mass Balance STOMP Input File Generator tool:   * input\_cie\_SS in the /ss/ directory * cie\_Mass\_Balance\_Output\_Control.dat in the /trOCcards/ directory * cie-src.card in the /sources/ directory * buffer-aq-src.card in the /sources/ directory * ***input\_XPRT\_2018*** in the /xprt-2018/ directory   Other files to complete the Acceptance Test:   * The ***input.bot***, ***input.zone***, and ***estomp-run.sh*** files are present in the /xprt-mb/ directory. | The expected files are present in the listed directories. |  |
| 2 | Execute, using a Linux terminal, the shell script ***run\_cie\_input\_xprt\_mb.sh*** located in /xprt-mb/ subdirectory of the testing directory. | Script executes. |  |
| 3 | Using a diff merge or file comparison utility, open and compare the following files:   * ***input\_XPRT\_2018*** in the /xprt-2018/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Verify in the comparison that there are no differences (additional white space at the end of lines is negligible) in the following cards (look for the tilde “~” indicator for each card):   * Grid * Inactive Nodes * Rock/Soil Zonation * Mechanical Properties * Hydraulic Properties * Saturation Function * X-Aqueous Relative Permeability * Y-Aqueous Relative Permeability * Z-Aqueous Relative Permeability * Solute/Porous Media Interaction * Initial Conditions * Boundary Conditions * Source | There will be no differences between the two input files for the listed cards. |  |
| 4 | For the steps that follow open and use the ***input\_XPRT\_MB*** file in a preferred text editor. | | |
| 4.1 | Verify the Simulation Title Card final line (the second Simulation Note Line) states *CIE Mass Balance Simulation (1943-3070),* | The last line of the Simulation Title Card states the simulation years are 1943 to 3070. |  |
| 4.2 | Navigate to the Solution Control Card. Verify that execution time period lines report the correct information detailed in FR-4 of Section 2 in this document. | The changes to the Solution Control Card are present in the ***input\_XPRT\_MB*** file. |  |
| 4.3 | Navigate to the Solute/Fluid Interaction Card. Verify the half-life for all 8 RAD/Chems is *1.000E+20*. | The Solute/Fluid Interaction Card has the correctly reported half-life values for the 8 RAD/Chems. |  |
| 4.4 | Navigate to the Surface Flux Card. Verify the inputs are reduced to “9” and the output for the P2R Bottom Flux surfaces are not present. Confirm only the nine surfaces at the base of the model (aqueous volumetric and RADS/Chems) are present. | The Surface Flux Card of the ***input\_XPRT\_MB*** file was altered to have only the nine inputs. |  |
| 5 | Using a diff merge or file comparison utility, open and compare the following files:   * ***cie\_Mass\_Balance\_Output\_Control.dat*** in the /trOCcards/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Navigate to the Output Control Card and verify (white spaces ignored) all of the card is the same with the exception of:   * The total number of plot years is increased by 1 and the plot year *2018* is added to the ***input\_XPRT\_MB*** file | The two files match except for the total plot times and additional plot year. |  |
| 6 | If all the Test Steps above pass, proceed to the next steps.  Navigate to the //olive/backups/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/ directory, make a copy of the ***input\_XPRT\_MB*** file. Paste it into the same directory, and rename it ***input***. | | |
| 6.1 | Open the ***input*** file in the //olive/backups/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/ directory and change the line in the Solution Control Card that reads *1000000*, to *1,*. Save the file.  This modifies the time step of the input file so it will only run for one time step. | The ***input*** file was modified successfully to run for a single time step. |  |
| 6.2 | In a Linux terminal navigate to the //olive/backups/CAVE/ v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/ directory and type *sh estomp-run.sh* to run the ***input*** file.  Once the model simulation has completed, open the generated ***output*** file, scroll to the bottom, and verify the last line indicates the simulation completed. | The eSTOMP run executed successfully with the ***input*** file. The ***output*** file indicates the simulation completed. |  |

# Acceptance Test Report

To complete the Acceptance Testing use Appendix A. The two test cases are described as follows:

* Acceptance Test 1 is in Table A-1. This test is the A Farms Area Model that checks the ***input\_XPRT-MB*** file. This input file is built with a buffer, aqueous sources, radionuclide and chemical sources, and has two execution time periods from 1943-2018.
* Acceptance Test 2 is in Table A-2. This test is the A Farms Area Model that checks the ***input\_XPRT-MB*** file. This input file is built with no buffer, aqueous sources, radionuclide and chemical sources, and has three execution time periods from 1943-2018.

Details of these tests, when they were conducted, by whom, and if they Passed or Failed are in each table of Appendix A.

# User Guide

To run this code you will need to execute the program in a Linux environment. The command to put into the terminal should be like the following:

$ <path/to/repository>/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe <path/to/STOMP/input/file>/input.file <path/to/output/control/card>/oc\_card.file

# Tool Versions

This section details changes incorporated into each version of the CIE Mass Balance STOMP Input File Generator tool.

* 1.0 – Tool was developed.

# Appendix A

**Completed Acceptance Test Cases**

**Tool Runner Log**

###Executing 2018 Mass Balance Input Generator###

###Executing Fingerprint Tool###

INFO--09/22/2020 12:39:01 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 12:39:01 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 12:39:01 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--09/22/2020 12:39:01 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 12:39:01 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--09/22/2020 12:39:01 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-2018/input\_XPRT\_2018 --output ./xprt-mb\_afarms.log --outputmode a"

INFO--09/22/2020 12:39:01 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

Fingerprint generated at 2020-09-22 12:39:01.613669

/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-2018/input\_XPRT\_2018 0c2b963fbcb333f81cb137a3a3ab25bc97f96524d342925298f7dc5ba84716cf

###Finished Process###

###Executing Fingerprint Tool###

INFO--09/22/2020 12:39:01 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 12:39:01 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 12:39:01 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--09/22/2020 12:39:01 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 12:39:01 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--09/22/2020 12:39:01 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/trOCcards/cie\_Mass\_Balance\_Output\_Control.dat --output ./xprt-mb\_afarms.log --outputmode a"

INFO--09/22/2020 12:39:01 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

Fingerprint generated at 2020-09-22 12:39:01.887958

/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/trOCcards/cie\_Mass\_Balance\_Output\_Control.dat 9feaf46f9fa542a3e6c4fe57e9124374f96c4d79e4e58c17229b9e74747bac56

###Finished Process###

###Executing 2018 Mass Balance Input Generator for: /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-2018/input\_XPRT\_2018 ###

INFO--09/22/2020 12:39:02 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 12:39:02 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 12:39:02 PM--Code Version: 83706e50a0560eb9a56e93954e990c160184b5d7 Local repo SHA-1 has does not correspond to a remote repo release version: ../../../CA-CIE-Tools-TestRepos/repo\_xprt\_mb\_input\_gen\_cie.f/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe<--baf98e50cf6b66885113befa5a84f09c20472f18

INFO--09/22/2020 12:39:02 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 12:39:02 PM--QA Status: TEST : ../../../CA-CIE-Tools-TestRepos/repo\_xprt\_mb\_input\_gen\_cie.f/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe

INFO--09/22/2020 12:39:02 PM--Invoking Command:"../../../CA-CIE-Tools-TestRepos/repo\_xprt\_mb\_input\_gen\_cie.f/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe" with Arguments:"/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-2018/input\_XPRT\_2018 /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/trOCcards/cie\_Mass\_Balance\_Output\_Control.dat "

INFO--09/22/2020 12:39:02 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

###Finished Process###

###Executing Fingerprint Tool###

INFO--09/22/2020 12:39:02 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 12:39:02 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 12:39:02 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--09/22/2020 12:39:02 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 12:39:02 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--09/22/2020 12:39:02 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-mb/input\_XPRT\_MB --output ./xprt-mb\_afarms.log --outputmode a"

INFO--09/22/2020 12:39:02 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

Fingerprint generated at 2020-09-22 12:39:02.495452

/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-mb/input\_XPRT\_MB 7b1af60cda62e1ae96484a9d8f48bc7356d666f34f7b53c491261ee84f3f4e7b

###Finished Process###

| Table A-1  **CIE Mass Balance STOMP Input File Generator Acceptance Test Plan Case 1** | | | |
| --- | --- | --- | --- |
| **CIE Mass Balance STOMP Input File Generator Acceptance Testing**  **CACIE-CIE Mass Balance STOMP Input File Generator – AT-1** | | **Date: 09-22-2020** | |
| **Tool Runner File Location for this test:**  \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at1\xprt-mb | | **Test Performed By: Praveena Allena** | |
| **Testing Directory:** \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at1\xprt-mb | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| 1 | Ensure the following files are in the testing directory, as they are needed for the execution of the CIE Mass Balance STOMP Input File Generator tool:   * input\_cie\_SS in the /ss/ directory * cie\_Mass\_Balance\_Output\_Control.dat in the /trOCcards/ directory * cie-src.card in the /sources/ directory * buffer-aq-src.card in the /sources/ directory * ***input\_XPRT\_2018*** in the /xprt-2018/ directory   Other files to complete the Acceptance Test:   * The ***input.bot***, ***input.zone***, and ***estomp-run.sh*** files are present in the /xprt-mb/ directory. | The expected files are present in the listed directories. | Pass |
| 2 | Execute, using a Linux terminal, the shell script ***run\_cie\_input\_xprt\_mb.sh*** located in /xprt-mb/ subdirectory of the testing directory. | Script executes. | Pass |
| 3 | Using a diff merge or file comparison utility, open and compare the following files:   * ***input\_XPRT\_2018*** in the /xprt-2018/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Verify in the comparison that there are no differences (additional white space at the end of lines is negligible) in the following cards (look for the tilde “~” indicator for each card):   * Grid * Inactive Nodes * Rock/Soil Zonation * Mechanical Properties * Hydraulic Properties * Saturation Function * X-Aqueous Relative Permeability * Y-Aqueous Relative Permeability * Z-Aqueous Relative Permeability * Solute/Porous Media Interaction * Initial Conditions * Boundary Conditions * Source | There will be no differences between the two input files for the listed cards. | Pass |
| 4 | For the steps that follow open and use the ***input\_XPRT\_MB*** file in a preferred text editor. | | |
| 4.1 | Verify the Simulation Title Card final line (the second Simulation Note Line) states *CIE Mass Balance Simulation (1943-3070),* | The last line of the Simulation Title Card states the simulation years are 1943 to 3070. | Pass |
| 4.2 | Navigate to the Solution Control Card. Verify that execution time period lines report the correct information detailed in FR-4 of Section 2 in this document. | The changes to the Solution Control Card are present in the ***input\_XPRT\_MB*** file. | Pass |
| 4.3 | Navigate to the Solute/Fluid Interaction Card. Verify the half-life for all 8 RAD/Chems is *1.000E+20*. | The Solute/Fluid Interaction Card has the correctly reported half-life values for the 8 RAD/Chems. | Pass |
| 4.4 | Navigate to the Surface Flux Card. Verify the inputs are reduced to “9” and the output for the P2R Bottom Flux surfaces are not present. Confirm only the nine surfaces at the base of the model (aqueous volumetric and RADS/Chems) are present. | The Surface Flux Card of the ***input\_XPRT\_MB*** file was altered to have only the nine inputs. | Pass |
| 5 | Using a diff merge or file comparison utility, open and compare the following files:   * ***cie\_Mass\_Balance\_Output\_Control.dat*** in the /trOCcards/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Navigate to the Output Control Card and verify (white spaces ignored) all of the card is the same with the exception of:   * The total number of plot years is increased by 1 and the plot year *2018* is added to the ***input\_XPRT\_MB*** file | The two files match except for the total plot times and additional plot year. | Pass |
| 6 | If all the Test Steps above pass, proceed to the next steps.  Navigate to the //olive/backups/CAVE/v4-4Test/afarms\_xprt\_mb\_at1/xprt-mb/ directory, make a copy of the ***input\_XPRT\_MB*** file. Paste it into the same directory, and rename it ***input***. | | |
| 6.1 | Open the ***input*** file in the //olive/backups/CAVE/ v4-4Test/afarms\_xprt\_mb\_at1/xprt-mb/ directory and change the line in the Solution Control Card that reads *1000000*, to *1,*. Save the file.  This modifies the time step of the input file so it will only run for one time step. | The ***input*** file was modified successfully to run for a single time step. | Pass |
| 6.2 | In a Linux terminal navigate to the //olive/backups/CAVE/ v4-4Test/ afarms\_xprt\_mb\_at1/xprt-mb/ directory and type *sh estomp-run.sh* to run the ***input*** file.  Once the model simulation has completed, open the generated ***output*** file, scroll to the bottom, and verify the last line indicates the simulation completed. | The eSTOMP run executed successfully with the ***input*** file. The ***output*** file indicates the simulation completed. | Pass |

**Tool Runner Log**

###Executing 2018 Mass Balance Input Generator###

###Executing Fingerprint Tool###

INFO--09/22/2020 02:50:16 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 02:50:16 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 02:50:16 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--09/22/2020 02:50:16 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 02:50:16 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--09/22/2020 02:50:16 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-2018/input\_XPRT\_2018 --output ./xprt-mb\_afarms.log --outputmode a"

INFO--09/22/2020 02:50:16 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

Fingerprint generated at 2020-09-22 14:50:16.852646

/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-2018/input\_XPRT\_2018 d2fbfdcec2be4aac868ca87f6166fe9570bf5ab5a1283f6a1a344f5a590677dd

###Finished Process###

###Executing Fingerprint Tool###

INFO--09/22/2020 02:50:16 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 02:50:16 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 02:50:17 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--09/22/2020 02:50:17 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 02:50:17 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--09/22/2020 02:50:17 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/trOCcards/cie\_Mass\_Balance\_Output\_Control.dat --output ./xprt-mb\_afarms.log --outputmode a"

INFO--09/22/2020 02:50:17 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

Fingerprint generated at 2020-09-22 14:50:17.142504

/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/trOCcards/cie\_Mass\_Balance\_Output\_Control.dat 9feaf46f9fa542a3e6c4fe57e9124374f96c4d79e4e58c17229b9e74747bac56

###Finished Process###

###Executing 2018 Mass Balance Input Generator for: /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-2018/input\_XPRT\_2018 ###

INFO--09/22/2020 02:50:17 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 02:50:17 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 02:50:17 PM--Code Version: 83706e50a0560eb9a56e93954e990c160184b5d7 Local repo SHA-1 has does not correspond to a remote repo release version: ../../../CA-CIE-Tools-TestRepos/repo\_xprt\_mb\_input\_gen\_cie.f/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe<--baf98e50cf6b66885113befa5a84f09c20472f18

INFO--09/22/2020 02:50:17 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 02:50:17 PM--QA Status: TEST : ../../../CA-CIE-Tools-TestRepos/repo\_xprt\_mb\_input\_gen\_cie.f/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe

INFO--09/22/2020 02:50:17 PM--Invoking Command:"../../../CA-CIE-Tools-TestRepos/repo\_xprt\_mb\_input\_gen\_cie.f/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe" with Arguments:"/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-2018/input\_XPRT\_2018 /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/trOCcards/cie\_Mass\_Balance\_Output\_Control.dat "

INFO--09/22/2020 02:50:17 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

###Finished Process###

###Executing Fingerprint Tool###

INFO--09/22/2020 02:50:17 PM--Starting CA-CIE Tool Runner. Logging to "./xprt-mb\_afarms.log"

INFO--09/22/2020 02:50:17 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/22/2020 02:50:17 PM--Code Version: d70bcf3b0cdf0a2ad65cd974e7b47965f7708c19 v5.8: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--09/22/2020 02:50:17 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/22/2020 02:50:17 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--09/22/2020 02:50:17 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/input\_XPRT\_MB --output ./xprt-mb\_afarms.log --outputmode a"

INFO--09/22/2020 02:50:17 PM--Username:pallena Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

Fingerprint generated at 2020-09-22 14:50:17.671635

/home/pallena/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/input\_XPRT\_MB 1e2a6a88069011e8bcf9a9706ee903ebcfa99e9a642102f42a817147076c1918

###Finished Process###

| Table A-2  **CIE Mass Balance STOMP Input File Generator Acceptance Test Plan Case 2** | | | |
| --- | --- | --- | --- |
| **CIE Mass Balance STOMP Input File Generator Acceptance Testing**  **CACIE-CIE Mass Balance STOMP Input File Generator – AT-2** | | **Date:09-22-2020** | |
| **Tool Runner File Location for this test:**  \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at2\xprt-mb | | **Test Performed By: Praveena Allena** | |
| **Testing Directory:** \\olive\backups\CAVE\v4-4Test\afarms\_xprt\_mb\_at2\xprt-mb | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| 1 | Ensure the following files are in the testing directory, as they are needed for the execution of the CIE Mass Balance STOMP Input File Generator tool:   * input\_cie\_SS in the /ss/ directory * cie\_Mass\_Balance\_Output\_Control.dat in the /trOCcards/ directory * cie-src.card in the /sources/ directory * buffer-aq-src.card in the /sources/ directory * ***input\_XPRT\_2018*** in the /xprt-2018/ directory   Other files to complete the Acceptance Test:   * The ***input.bot***, ***input.zone***, and ***estomp-run.sh*** files are present in the /xprt-mb/ directory. | The expected files are present in the listed directories. | Pass |
| 2 | Execute, using a Linux terminal, the shell script ***run\_cie\_input\_xprt\_mb.sh*** located in /xprt-mb/ subdirectory of the testing directory. | Script executes. | Pass |
| 3 | Using a diff merge or file comparison utility, open and compare the following files:   * ***input\_XPRT\_2018*** in the /xprt-2018/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Verify in the comparison that there are no differences (additional white space at the end of lines is negligible) in the following cards (look for the tilde “~” indicator for each card):   * Grid * Inactive Nodes * Rock/Soil Zonation * Mechanical Properties * Hydraulic Properties * Saturation Function * X-Aqueous Relative Permeability * Y-Aqueous Relative Permeability * Z-Aqueous Relative Permeability * Solute/Porous Media Interaction * Initial Conditions * Boundary Conditions * Source | There will be no differences between the two input files for the listed cards. | Pass |
| 4 | For the steps that follow open and use the ***input\_XPRT\_MB*** file in a preferred text editor. | | |
| 4.1 | Verify the Simulation Title Card final line (the second Simulation Note Line) states *CIE Mass Balance Simulation (1943-3070),* | The last line of the Simulation Title Card states the simulation years are 1943 to 3070. | Pass |
| 4.2 | Navigate to the Solution Control Card. Verify that execution time period lines report the correct information detailed in FR-4 of Section 2 in this document. | The changes to the Solution Control Card are present in the ***input\_XPRT\_MB*** file. | Pass |
| 4.3 | Navigate to the Solute/Fluid Interaction Card. Verify the half-life for all 8 RAD/Chems is *1.000E+20*. | The Solute/Fluid Interaction Card has the correctly reported half-life values for the 8 RAD/Chems. | Pass |
| 4.4 | Navigate to the Surface Flux Card. Verify the inputs are reduced to “9” and the output for the P2R Bottom Flux surfaces are not present. Confirm only the nine surfaces at the base of the model (aqueous volumetric and RADS/Chems) are present. | The Surface Flux Card of the ***input\_XPRT\_MB*** file was altered to have only the nine inputs. | Pass |
| 5 | Using a diff merge or file comparison utility, open and compare the following files:   * ***cie\_Mass\_Balance\_Output\_Control.dat*** in the /trOCcards/ directory * ***input\_XPRT\_MB*** in the /xprt-mb/ directory   Navigate to the Output Control Card and verify (white spaces ignored) all of the card is the same with the exception of:   * The total number of plot years is increased by 1 and the plot year *2018* is added to the ***input\_XPRT\_MB*** file | The two files match except for the total plot times and additional plot year. | Pass |
| 6 | If all the Test Steps above pass, proceed to the next steps.  Navigate to the //olive/backups/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/ directory, make a copy of the ***input\_XPRT\_MB*** file. Paste it into the same directory, and rename it ***input***. | | |
| 6.1 | Open the ***input*** file in the //olive/backups/CAVE/v4-4Test/afarms\_xprt\_mb\_at2/xprt-mb/ directory and change the line in the Solution Control Card that reads *1000000*, to *1,*. Save the file.  This modifies the time step of the input file so it will only run for one time step. | The ***input*** file was modified successfully to run for a single time step. | Pass |
| 6.2 | In a Linux terminal navigate to the //olive/backups/CAVE/v4-4Test/ afarms\_xprt\_mb\_at2/xprt-mb/ directory and type *sh estomp-run.sh* to run the ***input*** file.  Once the model simulation has completed, open the generated ***output*** file, scroll to the bottom, and verify the last line indicates the simulation completed. | The eSTOMP run executed successfully with the ***input*** file. The ***output*** file indicates the simulation completed. | Pass |

# Appendix B

# Completed Installation Test

**Tool Runner Log**

###Executing Mass Balance Input Generator for: IT-1/not\_an\_input\_file ###

INFO--09/24/2020 09:41:51 AM--Starting CA-CIE Tool Runner. Logging to ".././IT-1/runner\_run\_IT-1\_MB-Input-Gen\_cie.log"

INFO--09/24/2020 09:41:51 AM--Code Version: ae81462742b0e41afc9b54ac47ccee1d21e98683 v5.9: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--09/24/2020 09:41:51 AM--Code Version: ae81462742b0e41afc9b54ac47ccee1d21e98683 v5.9: /opt/tools/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe<--baf98e50cf6b66885113befa5a84f09c20472f18

INFO--09/24/2020 09:41:51 AM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--09/24/2020 09:41:51 AM--QA Status: QUALIFIED : /opt/tools/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe

INFO--09/24/2020 09:41:51 AM--Invoking Command:"/opt/tools/tools/cie-modinput/linux/xprt\_mb\_input\_gen\_cie\_linux-intel-64.exe" with Arguments:"not\_an\_input\_file not\_an\_oc\_file"

INFO--09/24/2020 09:41:51 AM--Username:slindberg Computer:olive Platform:Linux 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43 UTC 2016

###Finished Process###

| Table B-1  **CIE Mass Balance STOMP Input File Generator Installation Test Plan** | | | |
| --- | --- | --- | --- |
| **CIE Mass Balance STOMP Input File Generator Installation Testing**  **CACIE-CIE Mass Balance STOMP Input File Generator – IT-1** | | **Date: 9/24/2020** | |
| **Tool Runner File Location for this test: OLIVE\backups\CAVE\CA-CIE-Tools-TestEnv\CA-CIE-Tools\_cie\_v5.X\_install\_tests\xprt\_mb\_input\_gen\_cie\IT-1** | | **Test Performed By: Sara Lindberg** | |
| **Testing Directory: OLIVE\backups\CAVE\CA-CIE-Tools-TestEnv\CA-CIE-Tools\_cie\_v5.X\_install\_tests\xprt\_mb\_input\_gen\_cie\** | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| Tools Code Repository Directory: : /opt/tools | | | |
| Navigate to the testing directory | | | |
| 1 | Invoke Tool runner and test installation of the tool as follows:  Open a Linux terminal, navigate to the testing directory and type *./runner\_run\_IT-1\_MB-Input-Gen\_cie.sh* | | |
| 2 | Verify Tool Runner is invoked and executed. | Verify that the following file has been created and has the appropriate output corresponding with a “Tool Runner” execution:  ***./IT/runner\_run\_IT-1\_MB-Input-Gen\_cie.log*** | *PASS* |
| 3 | Verify tool is invoked and executed. | A new file should have been created: ***./IT/mass\_balance\_model\_screen\_cie.log***  The following program error should be found: “forrtl: severe (29): file not found” | *PASS* |

**Appendix C**

**QA Checklist**

