**CACIE Tool #NN** – **CIE Steady State STOMP Input File** **Generator Tool**

**SS\_input\_gen\_cie.f**

**Version** **1.0**

**QA**: **QA**

1. **Description and Purpose**

The CIE Steady State STOMP Input File Generator Tool reads information from the following files

* CAST generated ***input*** file located in the …/ModelName/build directory;
* ***cie\_ss\_boundary\_card.dat*** file located in the .../ModelName/ret directory;
* ***SS\_Output\_Control.dat*** file in the .../ModelName/ss directory

and generates the STOMP Input file ***input\_cie\_SS*** for the steady-state simulation.

In constructing the steady state STOMP input file ***input\_cie\_SS***, the following cards are written from the ***input*** file:

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;

Initial Conditions Card;

Source Card;

Surface Flux Card.

The Boundary Conditions Card information is taken from the ***cie\_ss\_boundary\_card.dat*** which replaces recharge rates Boundary Conditions in the ***input*** file.

The Output Control Card information is written from the ***SS\_Output\_Control.dat*** which replaces the Output Control Card in the ***input*** file.

1. **Functional Requirements**

The following are the functional requirements of the CIE Steady State STOMP Input File Generator tool:

FR-1: Read the following command line arguments: the model name and modeler name to be printed in the Simulation Title Card.

FR2: Generate the Simulation Title Card using inputs described in FR-1 and the current date/time.

FR-3: Copy the following cards from the input file (generated by the CAST tool and located in the ../build/ directory) into the ***input\_cie\_SS*** output file: 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, Initial Conditions Card, Source Card and Surface Flux Card.

FR-4: Generate the Boundary Conditions Card from the ../ret/***cie\_ss\_boundary\_card.dat*** file. The Boundary Conditions Card will be identical to ***cie\_ss\_boundary\_card.dat*** except for increasing the number of boundary conditions by one and adding the following lines at the end of the Boundary Conditions Card:

file, input.bot, Dirichlet Aqueous,

1,

0, year, 101325, Pa,

FR-5: Insert Output Control Card from ***SS\_Output\_Control.dat***.

FR-6: Save the output file (i.e., the complete STOMP transport input file, which includes all the required cards).

1. **Software Requirements Specifications**

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

Compiler Options: -o OutputFileName

Special Considerations: None

1. **Software Design Description**

Flow:

The CIE Steady State STOMP Input File Generator Tool performs the following steps:

1. Declare variables – Character variables are declared.
2. Read command line arguments (see list below).
3. Assign input files (see list below).
4. Open the output file.
5. Open the input file generated by CAST (../build/input) – Portions of this file will be copied to the output file generated by the CIE Steady State STOMP Input File Generator Tool.
6. Write the Simulation Title Card – This card will be written as:  
     
   1’  
   Cumulative Impact Evaluation (CIE),  
   [ModelerName],  
   INTERA,  
   [CreationDate],  
   [CreationTime],  
   2,  
   [ModelName],  
   Steady-state simulation,  
     
   Where:  
    ModelerName is the name of the modeler  
    CreationDate is the date the file was created  
    CreationTime is the time the file was created  
    ModelName is the full name of the model.
7. Write the following cards – Copy from the ../build/***input*** STOMP file:  
   a. Solution Control Card  
   b. Grid Card  
   c. Inactive Nodes Card  
   d. Rock/Soil Zonation Card  
   e. Mechanical Properties Card  
   f. Hydraulic Properties Card  
   g. Saturation Function Card  
   h. X-Aqueous Relative Permeability Card  
   i. Y-Aqueous Relative Permeability Card  
   j. Z-Aqueous Relative Permeability Card  
   k. Initial Conditions Card
8. Write Boundary Conditions Card – Copy lines from the ../ret/***cie\_ss\_boundary\_card.dat*** file, increasing the number of boundary conditions by one. Then add the boundary condition for the base of the model.
9. Write the Source Card – Copy from the ../build/***input*** STOMP input file.
10. Write the Output Control Card – Copy all lines from ../ss/***SS\_Output\_Control.dat***.
11. Write the Surface Flux Card – Copy from the ../build/***input*** STOMP input file.

Arguments:

Model name – Full name of the model; to be included in the Simulation Title Card.

Modeler name – Name of the modeler; to be included in the Simulation Title Card.

Expected File Structure:

Note: This tools expects inputs to be in directories relative to the execution directory. Below is an example of the expected directory structure.

ModelName/ss/ = Execution directory, Output Control Card Input, and output directory

ModelName/build/ =CAST Input

ModelName/ret/ = RET Input

Input Files:

**input** (../build/ directory) Steady state STOMP input file generated by the CAST tool.

**cie\_ss\_boundary\_card.dat** (../ret/ directory) - RET steady-state boundary conditions.

**SS\_Output\_Control.dat** (/ss/ directory) - Output Control Card for the steady-state simulation.

Output file:

The output file (ss/**input\_cie\_SS**) generated by this tool is a STOMP input file for steady-state modeling.

Execution:

The following is the shell script configuration that will be passed as an argument to the Tool Runner for qualified runs (this needs to be run from the directory containing the input directories specified in the input files above):

SS\_input\_gen\_cie\_linux-intel-64.exe ModelName ModelerName

Code Review:

Code walkthrough was performed by Sara Lindberg on 08/25/2020. No impacts to other repository tools or shared library dependencies were identified for the CIE Steady State STOMP Input File GeneratorTool.

1. **Requirements Traceability Matrix**

Table 1 presents the requirements traceability matrix for the CIE Steady State STOMP Input File Generator Tool.

| **Table 1.**  **CIE Steady State STOMP Input File Generator Tool Requirements Traceability Matrix** | | |
| --- | --- | --- |
| **Functional Requirement ID** | **Acceptance Test ID** | **Test Case** |
| QA Level | CACIE-SS\_input\_gen\_cie  IT-1 | Installation Test |
| FR-1  FR-2 | CACIE-SS\_input\_gen\_cie  AT-1 | Check that the Simulation Title Card is of the form:  1,  Cumulative Impact Evaluation (CIE),  *[ModelerName]*,  INTERA,  *[CreationDate]*,  *[CreationTime]*,  2,  *[ModelName]*,  Steady-state simulation,  Where:  *ModelerName* is the name of the modeler  *CreationDate* is the date the file was created  *CreationTime* is the time the file was created  *ModelName* is the full name of the model |
| FR-3 | CACIE-SS\_input\_gen\_cie  AT-1 | Check that the following cards are written correctly to the ***input\_cie\_SS*** file and are identical to the information in the ../build/***input***file:  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  Initial Conditions Card  Source Card  Surface Flux Card |
| FR-4 | CACIE-SS\_input\_gen\_cie  AT-1 | Check that the Boundary Card information in the ***input\_cie\_SS*** card corresponds to the information in the../ret/***cie\_ss\_boundary\_card.dat*** file, and that the bottom model boundary condition is added:  file, input.bot, Dirichlet Aqueous,  1,  0, year, 101325, Pa, |
| FR-5 | CACIE-SS\_input\_gen\_cie  AT-1 | Check that the Output Control Card information in the ***input\_cie\_SS*** file corresponds to the information in thess/***SS\_Output\_Control.dat*** file. |
| FR-6 | CACIE-SS\_input\_gen\_cie  AT-1 | Check that the output file ***input\_cie\_SS*** is generated. |

1. **Test Plan and Cases**

The installation test plan for the CIE Steady State STOMP Input File Generator Tool is presented in Table 2 and the acceptance test plan for the CIE Steady State STOMP Input File Generator Tool is presented in Table 3.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 2**  **CIE Steady State STOMP Input File Generator Tool** **Installation Test Plan** | | | |
| **CIE Steady State STOMP Input File Generator Installation Testing**  **CACIE-CIE Steady State STOMP Input File – IT-1** | | **Date:** | |
| **Tool Runner File Location for this test:** | | **Test Performed By:** | |
| **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 the tool as follows:  ***CACIE\_SS\_input\_gen\_cie\_IT-1.sh*** | | |
| 2 | Verify Tool Runner is invoked and executed | Tool runner log is created |  |
| 3 | Verify tool is invoked and executed | The output file ***input\_cie\_SS*** is generated. |  |

| **Table 3**  **CIE Steady State STOMP Input File Generator Acceptance Test Plan** | | | |
| --- | --- | --- | --- |
| **CIE Steady State STOMP Input File Generator Acceptance Testing**  **CACIE-CIE Steady State STOMP Input File – AT-1** | | **Date:** | |
| **Tool Runner File Location for this test:**  **//**olive/backups/CAVE/v4-4Test/afarms-ss-tests/ss | | **Test Performed By:** | |
| **Testing Directory: //**olive/backups/CAVE/v4-4Test/afarms-ss-tests/ss | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| 1 | Navigate to the Testing Directory. Ensure the following files are in the following directories relative to the testing directory:   * ***input*** in ../build * ***cie\_ss\_boundary\_card.dat*** in ../ret * ***SS\_Output\_Control.dat*** in the testing directory | The expected files are present in the listed directories. |  |
| 2 | Navigate in a Linux terminal to the testing directory. Execute the shell script ***run\_cie\_ss\_input\_file.sh***. | Script executes. |  |
| 3 | Confirm that output file ***input\_cie\_SS*** was generated by the tool in the /ss/ directory. | The output file ***input\_cie\_SS*** is generated. |  |
| 4 | Open the ***input\_cie\_SS*** file and navigate to the Simulation Title Card. Ensure it states:   * 1, * Cumulative Impact Evaluation (CIE), * [Tester’s Name], * INTERA, * [Input File Creation Date], * [Input File Create Time], * 2, * A Farms Area Model, * Steady-state simulation, | The Simulation Title Card matches the details in the Test Instructions. |  |
| 5 | Confirm that the following cards are written correctly to the ***input\_cie\_SS*** file and are identical to the information in the ../build/input file:   * 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 * Initial Conditions Card * Source Card * Surface Flux Card | The information in the ***input\_cie\_SS*** file for the specified cards is identical to the information in the source file ***input*** located in the ../build directory. |  |
| 6 | Confirm that the *Boundary Conditions Card* information in the ***input\_cie\_SS*** card contains the information from the../ret/***cie\_ss\_boundary\_card.dat****.*  Verify the number of boundary conditions reads the following below the line #Number of COCs: 8:   * 332,   There will be an additional boundary condition at the end of the *Boundary Conditions Card* corresponding to the bottom model boundary condition*.* Ensure it reads:   * File, input.bot, Dirichlet Aqueous, * 1, * 0, year, 101325, Pa, | Information in the *Boundary Conditions Card* generated in the ***input\_cie\_SS*** card contains the information from the../ret/***ca\_ss\_boundary\_card.dat*** and has the addition of the bottom model boundary condition. The bottom model boundary condition is described in FR-4 above.  Number of boundary conditions will be 332. |  |
| 7 | Confirm that the *Output Control Card* information in the ***input\_cie\_SS*** card corresponds to the information in thess/***SS\_Output\_Control.dat***. | Information in the *Output Control Card* generated in the ***input\_cie\_SS*** card is identical to the information in thess/***SS\_Output\_Control.dat***. |  |

1. **Acceptance Test Report**

To complete the Acceptance Testing use Appendix A. Acceptance Test 1 is in Table A-1 and uses the A Farms Area model to test the CIE Steady State STOMP Input File Generator tool. Details of this test, when it was conducted, by whom, and if it Passed or Failed is present in Appendix A.

1. **User Guide**

To run this code:

1. You need to have the inputs in the appropriate directory structure. Specified in Section 4: Software Design Description, under input files.
2. From a Linux prompt in the ModelName/ss/ directory of the input files execute the tool as specified in Section 4: software Design Description, under Execution.
3. Check that the file ***input\_cie\_SS*** was created in the /ss/ subdirectory.

**Appendix A**

**Completed Acceptance Test Case**

**Tool Runner Log**

###Executing Fingerprint Tool###

INFO--08/24/2020 03:19:17 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:17 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:17 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--08/24/2020 03:19:17 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--08/24/2020 03:19:18 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--08/24/2020 03:19:18 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms-ss-tests/build/input --output ss\_afarms.log --outputmode a"

INFO--08/24/2020 03:19:18 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 2020-08-24 15:19:18.121526

/home/pallena/CAVE/v4-4Test/afarms-ss-tests/build/input f7e90db10ab9998290f77588c3f4073df30cf8bf2eb1e2061e2d177960764153

###Finished Process###

###Executing Fingerprint Tool###

INFO--08/24/2020 03:19:18 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:18 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:18 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--08/24/2020 03:19:18 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--08/24/2020 03:19:18 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--08/24/2020 03:19:18 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms-ss-tests/ret/cie\_ss\_boundary\_card.dat --output ss\_afarms.log --outputmode a"

INFO--08/24/2020 03:19:18 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 2020-08-24 15:19:19.058456

/home/pallena/CAVE/v4-4Test/afarms-ss-tests/ret/cie\_ss\_boundary\_card.dat b8435e7a68c89308f6762c0ee6d39cd9ee6739f1faacd5e3b70049e1bc742a48

###Finished Process###

###Executing Fingerprint Tool###

INFO--08/24/2020 03:19:19 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:19 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:19 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--08/24/2020 03:19:19 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--08/24/2020 03:19:19 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--08/24/2020 03:19:19 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms-ss-tests/ss/SS\_Output\_Control.dat --output ss\_afarms.log --outputmode a"

INFO--08/24/2020 03:19:19 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 2020-08-24 15:19:19.961531

/home/pallena/CAVE/v4-4Test/afarms-ss-tests/ss/SS\_Output\_Control.dat 195b85666badfb9dfb1711a4c8bd03b7afcbcd320009306d9795611c7e0f1353

###Finished Process###

### Preserving Whitespace Characters in Arguments###

INFO--08/24/2020 03:19:20 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:20 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:20 PM--Code Version: Not a valid tool path : <--fatal: Cannot open '': No such file or directory

INFO--08/24/2020 03:19:20 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

INFO--08/24/2020 03:19:20 PM--Manual Mode: Changing all whitespace characters in the user-provided arguments to '$', which will prevent the argument(s) being split and losing the white space characters

###Executing Create SS Input Tool###

INFO--08/24/2020 03:19:20 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:20 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:20 PM--Code Version: e3cbd53b79fa08db1f7002375ad9506b46e24a93 Local repo SHA-1 has does not correspond to a remote repo release version: ../../../CA-CIE-Tools-TestRepos/repo\_SS\_input\_gen\_cie/tools/cie-modinput/linux/SS\_input\_gen\_cie\_linux-intel-64.exe<--86aa0acfbbf96ce1955bbc212a67f52c508f51e5

INFO--08/24/2020 03:19:20 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--08/24/2020 03:19:20 PM--QA Status: TEST : ../../../CA-CIE-Tools-TestRepos/repo\_SS\_input\_gen\_cie/tools/cie-modinput/linux/SS\_input\_gen\_cie\_linux-intel-64.exe

INFO--08/24/2020 03:19:20 PM--Invoking Command:"../../../CA-CIE-Tools-TestRepos/repo\_SS\_input\_gen\_cie/tools/cie-modinput/linux/SS\_input\_gen\_cie\_linux-intel-64.exe" with Arguments:"A$Farms$Area$Model P.$Allena"

INFO--08/24/2020 03:19:20 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

### Restoring Whitespace Characters in Arguments###

INFO--08/24/2020 03:19:20 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:20 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:20 PM--Code Version: Not a valid tool path : <--fatal: Cannot open '': No such file or directory

INFO--08/24/2020 03:19:20 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

INFO--08/24/2020 03:19:20 PM--Manual Mode: Changing all '$' characters back to whitespace characters in /home/pallena/CAVE/v4-4Test/afarms-ss-tests/ss/input\_cie\_SS

###Executing Fingerprint Tool###

INFO--08/24/2020 03:19:20 PM--Starting CA-CIE Tool Runner. Logging to "ss\_afarms.log"

INFO--08/24/2020 03:19:20 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/runner/runner.py<--1bcfd6779e9cbdb82673405873a8e5e81514ae27

INFO--08/24/2020 03:19:20 PM--Code Version: 7293bef5cb896dc81fb4086e3d1e0e34746cd800 v5.0: /opt/tools/pylib/fingerprint/fingerprint.py<--e9692a4faec2ee264fe50417b6b6a516ba82b2f6

INFO--08/24/2020 03:19:21 PM--QA Status: QUALIFIED : /opt/tools/pylib/runner/runner.py

INFO--08/24/2020 03:19:21 PM--QA Status: QUALIFIED : /opt/tools/pylib/fingerprint/fingerprint.py

INFO--08/24/2020 03:19:21 PM--Invoking Command:"python3.6" with Arguments:"/opt/tools/pylib/fingerprint/fingerprint.py /home/pallena/CAVE/v4-4Test/afarms-ss-tests/ss/input\_cie\_SS --output ss\_afarms.log --outputmode a"

INFO--08/24/2020 03:19:21 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 2020-08-24 15:19:21.570534

/home/pallena/CAVE/v4-4Test/afarms-ss-tests/ss/input\_cie\_SS 922574355cfc348f03ab8e0a579c5d4e08f5afd0ef2b2edb0b75b223e67a7de7

###Finished Process###

| **Table A-1**  **CIE Steady State STOMP Input File Generator Acceptance Test Plan** | | | |
| --- | --- | --- | --- |
| **CIE Steady State STOMP Input File Generator Acceptance Testing**  **CACIE-CIE Steady State STOMP Input File – AT-1** | | **Date: 08-24-2020** | |
| **Tool Runner File Location for this test:**  **//**olive/backups/CAVE/v4-4Test/afarms-ss-tests/ss | | **Test Performed By: Praveena Allena** | |
| **Testing Directory: //**olive/backups/CAVE/v4-4Test/afarms-ss-tests/ss | | | |
| **Test Step** | **Test Instruction** | **Expected Result** | **Test Result  (Pass/Fail)** |
| 1 | Navigate to the Testing Directory. Ensure the following files are in the following directories relative to the testing directory:   * ***input*** in ../build * ***cie\_ss\_boundary\_card.dat*** in ../ret * ***SS\_Output\_Control.dat*** in the testing directory | The expected files are present in the listed directories. | Pass |
| 2 | Navigate in a Linux terminal to the testing directory. Execute the shell script ***run\_cie\_ss\_input\_file.sh***. | Script executes. | Pass |
| 3 | Confirm that output file ***input\_cie\_SS*** was generated by the tool in the /ss/ directory. | The output file ***input\_cie\_SS*** is generated. | Pass |
| 4 | Open the ***input\_cie\_SS*** file and navigate to the Simulation Title Card. Ensure it states:   * 1, * Cumulative Impact Evaluation (CIE), * [Tester’s Name], * INTERA, * [Input File Creation Date], * [Input File Create Time], * 2, * A Farms Area Model, * Steady-state simulation, | The Simulation Title Card matches the details in the Test Instructions. | Pass |
| 5 | Confirm that the following cards are written correctly to the ***input\_cie\_SS*** file and are identical to the information in the ../build/input file:   * 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 * Initial Conditions Card * Source Card * Surface Flux Card | The information in the ***input\_cie\_SS*** file for the specified cards is identical to the information in the source file ***input*** located in the ../build directory. | Pass |
| 6 | Confirm that the *Boundary Conditions Card* information in the ***input\_cie\_SS*** card contains the information from the../ret/***cie\_ss\_boundary\_card.dat****.*  Verify the number of boundary conditions reads the following below the line #Number of COCs: 8:   * 332,   There will be an additional boundary condition at the end of the *Boundary Conditions Card* corresponding to the bottom model boundary condition*.* Ensure it reads:   * File, input.bot, Dirichlet Aqueous, * 1, * 0, year, 101325, Pa, | Information in the *Boundary Conditions Card* generated in the ***input\_cie\_SS*** card contains the information from the../ret/***cie\_ss\_boundary\_card.dat*** and has the addition of the bottom model boundary condition. The bottom model boundary condition is described in FR-4 above.  Number of boundary conditions will be 332. | Pass |
| 7 | Confirm that the *Output Control Card* information in the ***input\_cie\_SS*** card corresponds to the information in thess/***SS\_Output\_Control.dat***. | Information in the *Output Control Card* generated in the ***input\_cie\_SS*** card is identical to the information in thess/***SS\_Output\_Control.dat***. | Pass |

# Appendix B

# Completed Installation Test

|  |  |  |  |
| --- | --- | --- | --- |
| **Table B-1**  **CIE Steady State STOMP Input File Generator Tool** **Installation Test Plan** | | | |
| **CIE Steady State STOMP Input File Generator Installation Testing**  **CACIE-CIE Steady State STOMP Input File – IT-1** | | **Date:** | |
| **Tool Runner File Location for this test:** | | **Test Performed By:** | |
| **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 the tool as follows:  ***CACIE\_SS\_input\_gen\_cie\_IT-1.sh*** | | |
| 2 | Verify Tool Runner is invoked and executed | Tool runner log is created |  |
| 3 | Verify tool is invoked and executed | The output file ***input\_cie\_SS*** is generated. |  |