**CACIE Tool #04** – ***RET to STOMP (CA\_RET2STOMP.py)***

**Version** **1.0**

**QA**: **TEST** or **NA** or **QA**

1. **Description and Purpose**

One or two paragraphs describing the tool’s function and purpose.

The RET to STOMP tool generates boundary condition cards using RET output.

1. **Functional Requirements**
2. The functional requirements of the tool will be documented in this section. Each requirement will have an ID, such as: FR-N, where N starts at 1 and increments for each Functional Requirement. Each of the Functional Requirement IDs will have a corresponding test ID listed in the RTM.

The functional requirements for the RET to STOMP tool are as follows:

FR-1: read in .nij file and .top file

FR-2: generate nodes as a dictionary of points

FR-3: Create a shapefile of the model boundary

FR-4: Create a shapefile of points in memory

FR-5: Create a list of the paths for each shapefile with the keyword 'recharge' in the name of the shapefile

FR-6: Perform a spatial join on the recharge estimates using the nodes geodataframe

…

1. **Software Requirements Specifications**

The software requirements specification of the tool will be documented in this section.

PYTHON 3.6.2

Library dependencies:  
datetime  
geopandas  
os  
pandas  
psutil  
sys  
numpy   
from os.path import expanduser  
from shapely.geometry import Point, Polygon  
from copy import deepcopy

from itertools import chain (non P2R version only)

from numpy import cumsum, average (P2R version only—applicable?)  
from numbers import Number (P2R version only—applicable?)  
from scipy.interpolate import interp1d (P2R version only—applicable?)

1. **Software Design Description**

The software design description of the tool will be documented in this section. The results of a Code Walkthrough with an independent third party will be summarized in this section.

1. **Requirements Traceability Matrix**

A requirements traceability matrix for the tool will be documented in this section. At a minimum, the matrix will include IDs of: Functional Requirements and the corresponding Acceptance Test, along with an indication of the test result (Pass/Fail).

Table 1 presents the requirements traceability matrix for the RET to STOMP tool.

| **Table 1. RET to STOMP Tool Requirements Traceability Matrix** | | |
| --- | --- | --- |
| **Functional Requirement** | **Acceptance Test** | **Test Result (Pass/Fail)** |
| FR-1 |  |  |
| FR-2 |  |  |
| FR-3 |  |  |
| FR-4 |  |  |
| FR-5 |  |  |
| FR-6 |  |  |
| … |  |  |

1. **Test Plan and Cases**

The test plan for the tool will be documented in this section. Each test will have a unique ID and criteria for determining if the test result is pass or fail. The TEST ID will be referenced in the RTM and ATR. An installation test, labeled **IT-1**, will be used by the Tool Runner to confirm the version of the tool being used is running correctly before launching it with the user’s parameters.

The Unit Testing done on the tool will be documented here, also.

The test plan for the RET to STOMP tool is as follows.

| **Table 2. RET to STOMP Tool Test Plan** | | |
| --- | --- | --- |
| **TEST ID** | **Test Case** | **Test Result (Pass/Fail)** |
| IT-1 | Installation Test |  |
| ATC-X |  |  |
| ATC-X |  |  |

See attachments for the acceptance test case test logs.

1. **Acceptance Test Report**

The test report will state whether the tool is qualified for use, summarize test case results, and report all resolved incidents and resolution of unresolved incidents.

1. **User Guide**

A guide for using the tool will be documented in this section.