**CACIE Tool #07.5** – ***ca-retplot (ret\_plot\_multi\_tec\_change.exe)***

**Version** **1.0**

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

1. **Description and Purpose**

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

Program reads RET transient recharge file (ca\_tr\_boundary\_card.dat) and extracts recharge for each node for 1943-2571. Outputs a Tecplot file for plotting recharge for years 1943, 2570, 2571, and all other years where recharge changes.

1. **Functional Requirements**

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.

FR-1: Read command line arguments

FR-2: Read model name

FR-3: Open ret\_recharge.dat as outfile1 with STATUS=REPLACE and write header to outfile1

FR-4: Open “../build/input.sij” with STATUS=OLD

FR-5: Read input.sij for coordinates and then close input.sij

FR-6: Open “../ret/ca\_tr\_boundary\_card.dat” with STATUS=OLD

FR-7: Read ca\_tr\_boundary\_card.dat one line at a time, extract year and other information

FR-8: Open retfile (declared as a segment of a line read by ca\_tr\_boundary\_card.dat) with STATUS=OLD

FR-9: Read retfile, set recharge year (?)

FR-10: Select years with recharge changes (1943, 2570, 2571, and others read from retfile)

FR-11 Write out tecplot file, one zone per year with recharge changes (Recharge is cell centered, one less than I and J)

1. **Software Requirements Specifications**

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

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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.

Arguments:

ModelName

Outputs:

ret\_recharge.dat

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 ca-retplot tool.

| **Table 1. ca-retplot Tool Requirements Traceability Matrix** | | |
| --- | --- | --- |
| **Functional Requirement** | **Acceptance Test** | **Test Result (Pass/Fail)** |
| FR-1 |  |  |
| FR-2 |  |  |
| FR-3 |  |  |
| FR-4 |  |  |
| FR-5 |  |  |
| FR-6 |  |  |
| FR-7 |  |  |
| FR-8 |  |  |
| FR-9 |  |  |
| FR-10 |  |  |
| FR-11 |  |  |

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 ca-retplot tool is as follows.

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

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.