**CACIE Tool #12** – ***Source to STOMP (ca-src2stomp.pl)***

**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 Source to STOMP tool maps sources onto a STOMP grid using waste site geometry (ehsit ArcGIS shapefile converted to csv).

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 Source to STOMP tool are as follows:

FR-1: Open control file and read in arguments

FR-2: load ij surface grid - create elements (polys)

FR-3: Calculate node x, y from surfaces

FR-4: Build polygon elements from STOMP surfaces

FR-5: Load top file

FR-6: Load clip file if specified

FR-7: Load ehsit ascii csv file

FR-8: For each site…???

…

FR-9: Create separate node list constrained by site area

FR-10: Site area is not limited for ancillary equipment surrounding tanks

FR-11: Calculate distance to polygon centroids

FR-12: Sort duplicate fractional areas based on distance to centroid

FR-13: Get nodes to fill clipped wastesite area

FR-14: Replace all nodes with these based on ranking (potentially shorter)

FR-15: Calculate percentage of area for multipolygon waste site

FR-16: Lump sources into groups (if possible)

FR-17: Output STOMP cards (details pending)

…

1. **Software Requirements Specifications**

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

PERL

Required modules:  
Data::Dumper  
Math::Geometry::Planar  
Math::Polygon::Calc

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:  
Argv1: control file name (cf) [rads1-ipp.ctl, rads2-ipp.ctl, buffer\_aq-ipp.ctl (if model includes buffer zone)]

Control file arguments:  
STOMP Grid file name (surface IJ) [sgrid]  
STOMP Grid .top file (K of uppermost Active IJ) [gtop]  
Polygon for sources (to clip domain if needed or buffer) or "Grid" keyword [clippolyname]   
ehsit ascii csv file (shapefile of waste sites, converted to csv from shapefile) [ehsit]  
source term file (SAC 2006 for now - CA-Ref-A\_inv1.res) [radinv]  
"Solid" or "No Solid" or "Only Solid" [solidflag]  
"Limited" or "Unlimited" (based on Area of nodes in polygon) [limarg]  
Output file prefix [outpref]  
Number of rads [ninc]

Outputs:  
output\_file\_prefix.log  
output\_file\_prefix-active.log  
output\_file\_prefix.ref  
output\_file\_prefix-sum.csv  
toss.card

.sh file: run-ca-src2stomp.sh

* perl ../../tools/ca-src2stomp/ca-src2stomp.pl rads1-ipp.ctl
* perl ../../tools/ca-src2stomp/ca-src2stomp.pl rads2-ipp.ctl
* #perl ../../tools/ca-src2stomp/ca-src2stomp.pl cie-ipp.ctl
* perl ../../tools/ca-src2stomp/ca-src2stomp.pl buffer\_aq-ipp.ctl
* If there is no aqueous-only buffer, comment out the line with buffer\_aq.ctl

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 Source to STOMP tool.

| **Table 1. Source 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 |  |  |
| FR-7 |  |  |
| FR-8 |  |  |
| FR-9 |  |  |
| FR-10 |  |  |
| FR-11 |  |  |
| FR-12 |  |  |
| FR-13 |  |  |
| FR-14 |  |  |
| FR-15 |  |  |
| FR-16 |  |  |
| FR-17 |  |  |

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 Source to STOMP tool is as follows.

| **Table 2. Source 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.