ISCBatch Version 1.0 Validation Report

Executive Summary

This validation report details the efforts U.S. Environmental Protection Agency (U.S. EPA) Region 6 made to ensure ISCBatch Version 1.0 operates according to its design. U.S. EPA developed ISCBatch under the Regional Air Impact Modeling Initiative (RAIMI) to meet the functional need to execute the ISCST3 air model on multiple sources in a single batch run. This allows for evaluating large numbers of sources as required to support RAIMI applications.

This validation effort tested the core capabilities of ISCBatch. These core capabilities constitute the required functionality to meet project objectives. This test was a pass/fail with successful execution of multiple ISCST3 runs with a single setup for numerous sources. The test demonstration was initially on 10 sources to demonstrate batching capability. Then, 1,000 sources were executed to demonstrate ISCBatch's capacity for implementing the capability to support RAIMI applications. Validation did not include regression testing or error handling verification. Since ISCBatch was designed to perform air modeling on up to 1,000 sources in a single batch run, using ISCBatch for more than 1,000 sources may produce unpredictable results.

Note: ISCBatch was developed assuming that the latest version of Net Framework (version 1.1 or later) is successfully installed on the system.

Testing validated the output ISCBatch generated.

Validation Criteria

Validation efforts tested the following functional elements:

1.   Windows-based user interface for selecting sources to execute using the "browse" function.
2.   Support processing of up to 1,000 sources in a single batch run.

Execution

The validation effort consisted of the following activities.

•   From the Windows-based user interface, use the "browse" function to select 10 sources.
•   Run the 10-source batch run.
•   Verify results.
•   Run single batch runs on 273 and 1088 sources.
•   Verify results.
•   Install ISCBatch and test functionality on multiple Windows platforms, including Windows 98, ME, 2000, NT, XP-Home and XP-Professional.

Conclusions and Considerations

ISCBatch successfully executed ISCST3 runs on the 10-source test case.

ISCBatch was tested on multiple Windows platforms, including 98, ME, 2000, NT, XP-Home and XP-Professional. Only Windows ME on two systems tested indicated some problems related to the 'Net Framework' functionality of the Operating System. ISCBatch was developed assuming that the latest version of Net Framework (version 1.1 or later) is successfully installed on the system. As few users are anticipated to be using Windows ME, or the user should have access to a system with another Operating System, no further resources were expended to resolve the Windows ME problem observed on these two systems. ISCBatch successfully operates on the other Windows platforms tested that are in most wide use.

ISCBatch was further tested successfully in single batch runs on 273 and 1088 sources. Therefore, ISCBatch correctly implements the core capability to perform ISCST3 air modeling on up to 1,000 sources in a single batch run to support risk analysis for large and complex studies.

Note: Since ISCBatch was designed to perform air modeling on up to 1,000 sources in a single batch run, using ISCBatch for more than 1,000 sources could produce unpredictable results.