

NATIONAL WEATHER SERVICE
OFFICE of HYDROLOGIC DEVELOPMENT

**Distributed Hydrologic Model for AWIPS OB8.2 Test Plan
Document**

Version 1.0

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1. Introduction

The Distributed Hydrologic Model (DHM) for AWIPS OB8.2 is being changed and the Grid Editor Program is being implemented to satisfy requirements as stated in the Operational Requirements Document- Operational Implementation of a Distributed Hydrologic Model Build 1 OB8.2 Version 5.5 for the complete Distributed Hydrologic Model - OSIP 04-007. Described herein is a plan for independently testing the new DHM against the requirements stated in Appendix B

1.1 Identification

| OSIP Project ID : | Project Name or Title | | |
|-------------------|------------------------------------|-------------------------|-------------|
| 04-007 | Distributed Hydrologic Model (DHM) | | |
| DCS | 3416 | | |
| Project Lead | Ai Vo | Project Area Lead | Chris Dietz |
| System | AWIPS OB8.2 | Target Build or Release | OB8.2 |

1.2 Scope

The purpose of the Test Plan is to provide a plan of action, the scope, approach, resources, and schedule of intended activities that the Office of Hydrologic Development’s Hydrologic Software Engineering Branch (OHD-HSEB) for testing the requirements that meet the specific criteria for the Operational Implementation of a Distributed Hydrologic Model project.

1.2.1 References

(1) Requirements Specifications: <S:\OHD-1\HOSIP\Distributed Hydrologic Modeling\HOSIP Documents\DHM OSIP Concept of Operations V 5-5.doc>

1.2.2 Test objectives

This test plan document addresses all expected testing for DHM in AWIPS Build 8.2. DHM development for OB8.2 consists of three major components, each developed by OHD

1. DHM functionality in the National Weather Service River forecasting System (NWSRFS) OFS programs
2. DHM functionality in the NWSRFS Interactive Forecast Program (IFP)
3. Grid Editing capabilities through a new utility (DhmGridEditor)

1.2.3 Features to be tested

In IFP Program

- ? Precipitation Modifications
- ? Sac State Modifications
- ? Model a Basin with Multiple Upstream Inflows
- ? Request grid output during interactive runs of DHM through IFP
- ? Edit DHM grids for transferring calibration work to operations

- ? Improve precip grid copying when running IFP

1.2.4 Test Acceptance Criteria

Successful testing of DHM in OB8.2 requires all tests listed in the test procedures to pass. In the case of automated tests, a summary of all the tests in the form below will be displayed. It's expected for 0 tests to fail

X Passed X Failed

For the manual tests, the expected results shown in the test procedures (e.g. expected text output or expected graphical displays) should appear as shown in the test procedure.

1.2.5 Test Constraints and Limitations

The testing must be performed on an AWIPS OB8.2 machine. Complete end-to-end testing of DHM (i.e. viewing grids through D2D) will require the D2D program localized to FWR (West Gulf River Forecast Center).

2. Methodology

2.1 Test Strategy

Using the requirements document referenced in Appendix B, OHD will use a suite of automated and manual tests to verify the requirements are satisfied. The nature of the requirement (i.e. whether or not it involves a GUI) will dictate whether an automated or manual test is used.

Automated tests, comparing results of scenarios first run through the science prototype, will be used for testing DHM in batch mode through OFS. Manual step-by-step tests will be used for the IFP and DHM Grid Editor program.

As part of a separate review, OHD-HSEB developers not part of DHM development team will review the code to verify compliance with OHD/HSEB standards. Following the review, the code will be updated as needed.

The DHM will be tested in the following ways:

- ? OB82 PIT Testing at NWS HQ
- ? Raytheon Software Testing Team

2.2 Test Input Conditions and Data Requirements

DHM test inputs consist of actual and generated data sets for WGRFC area.

2.3 Test Output/Test Results

Test Procedures document will be used to track test results.

- ? Requirement number
- ? Qualification Method, identifying the specific test used to verify that the software satisfied the requirement.
- ? Result/Comments

Note overall pass/fail conclusion; if any steps in the procedure failed or otherwise behaved

differently than expected, this must be noted.

2.4 Test Tools and Environmental Requirements

Test Systems – OHD will use NHDR development and test machines for internal testing, and will use an AWIPS OB8.2 provided test machine (NHDA) after checking into AWIPS.

2.5 Deliverables

The deliverables associated with the DHM testing effort include:

- ? The DHM Test Plan (delivered with AWIPS Build)
- ? The DHM Test Procedures (delivered with AWIPS Build)
- ? The DHM Grid Editor User's Manual (delivered with AWIPS Build)
- ? The AWIPS Release Notes (delivered with AWIPS Build)