

**SOFTWARE VALIDATION TEST PLAN FOR  
ARCVIEW, VERSION 3.2, 3.2a**

*Prepared for*

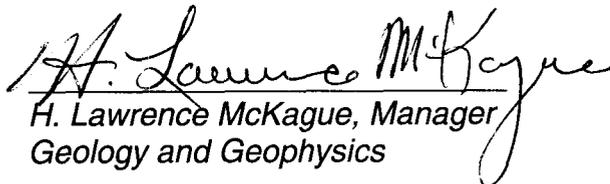
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## **1 SCOPE OF THE VALIDATION**

This document establishes the Software Validation Test Plan for validating the functionality of the code ArcView, Version 3.2, 3.2a, through comparisons of digitally created data with known mapping data available in the literature. ArcView, Version 3.2, 3.2a, is a standard geographical information system (GIS) program that is used by many government, industrial and research agencies to create, display, query and analyze geographic data. Data sets are maintained in discrete data files; attributes can be assigned geographic coordinates that reference common spatial coordinate systems.

## **2 REFERENCES**

Environmental Systems Research Institute, Inc. "Using ArcView GIS."  
Redlands, California. 1996.

## **3 ENVIRONMENT**

### **3.1 Software**

ArcView, Version 3.2, 3.2a, is commercial software developed by Environmental Systems Research Institute (ERSI). Version 3.2 runs in Windows NT 4.0 operating system. The following software items are required to perform the testing activities:

- (i) ArcView, Version 3.2, 3.2a software
- (ii) Windows NT 4.0 operating system

### **3.2 Hardware Requirements**

ArcView, Version 3.2, 3.2a, runs on a Pentium or higher Intel-based microprocessor PC. The program requires a minimum of 32Mb of computer memory and at least 17Mb of swap space. Input information is in existing raster file format and ArcView shape files. Output information is saved on the computer hard drive. No peripherals (e.g. tape drives, printers, plotters) are necessary to perform testing activities.

## **4 PREREQUISITES**

Running ArcView, Version 3.2, 3.2a, requires installation of the commercially available software, per the developers' User's Manual.

## **5 ASSUMPTIONS AND CONSTRAINTS**

The user of ArcView, Version 3.2, 3.2a, is assumed to be familiar with GIS and geospatial data sets.

## **6 TEST CASES**

The test cases described in this section involve comparisons of maps provided by the United States Geological Survey (USGS) to electronic data coverage provided by the USGS.

### **6.1 Test Case 1 – Verifying Contour Locations**

The contour locations for a detailed vector coverage map from the USGS will be compared with a digital raster graphic 7.5-foot quadrangle map purchased from the USGS on a CD-ROM.

#### **6.1.1 Test Input**

The USGS-produced digital line graph (DLG) vector coverage map is of the Crater Flat 7.5-foot quadrangle detailed 20-foot contour locations (file: cf20cont). The USGS digital raster graphic is of the Crater Flat, Nevada, 7.5-foot quadrangle map (file: O36116g5.tif).

#### **6.1.2 Test Procedure**

After opening ArcView, the user can open a copy of the USGS created vector data coverage containing contour 20-foot interval lines for a detailed map of the Crater Flat region (file: cf20cont). The user then opens a digital raster graphic of the Crater Flat, Nevada, 7.5-foot quadrangle map. The USGS control map is overlain by the contour coverage.

#### **6.1.3 Test Results**

Once the two coverages overlay, elevation contour lines can be compared. No visually apparent discrepancies in the contours should be noted.

### **6.2 Test Case 2 – Verifying Coordinate System**

The coordinate system of a detailed map created from ArcView will be compared with a digital raster graphic 7.5-foot quadrangle map purchased from the USGS on CD-ROM.

#### **6.2.1 Test Input**

The USGS-produced DLG vector coverage is of the Crater Flat 7.5-foot quadrangle 20-foot contour lines (file: cf20cont). The USGS digital raster graphic is of the Crater Flat, Nevada, 7.5-foot quadrangle map (file: O36116g5.tif).

### **6.2.2 Test Procedure**

After opening ArcView, the user can open a copy of the USGS vector coverage of 20-foot interval elevation contours of the Crater Flat region (file: cf20cont) and the USGS digital raster graphic map (file: O36116g5.tif) for the same 7.5-foot quadrangle. In ArcView, the View window is opened in a printing view, called a Layout. A coordinate grid, selected in the same coordinate system as the raster and vector coverages, is added to the layout utilizing the Graticules and Measured Grids extension.

### **6.2.3 Test Results**

The coordinate grid tic marks on the USGS vector coverage map should be compared to the USGS digital raster map's UTM grid. No visually apparent discrepancies in the coordinate grids should be noted.