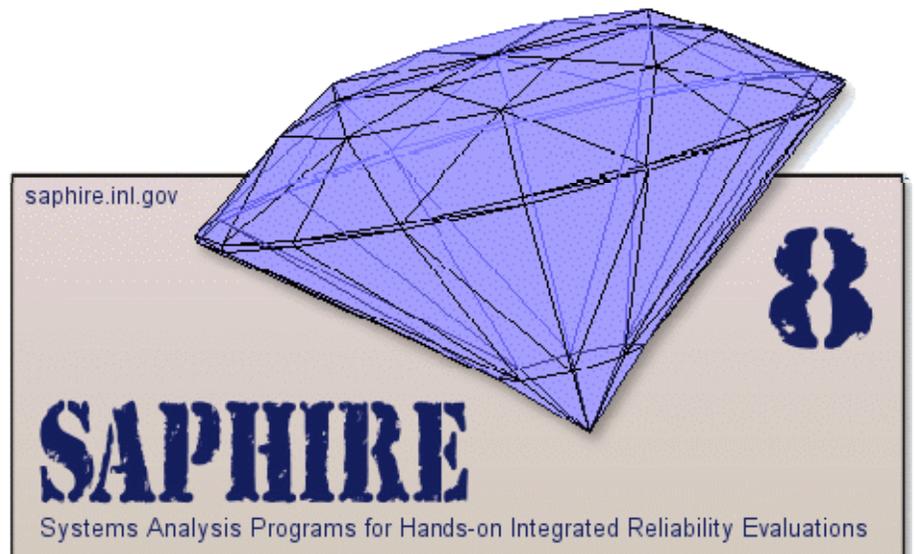


SAPHIRE 8 Software Quality Assurance Oversight

Kurt G. Vedros

September 2011



The INL is a U.S. Department of Energy National Laboratory
operated by Battelle Energy Alliance

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**Prepared for the
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Project No. V6059**

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1 Executive Summary

The software quality assurance oversight consists of updating and maintaining revision control of the SAPHIRE 8 quality assurance program documentation and of monitoring revision control of the SAPHIRE 8 source code. This report summarizes the oversight efforts through description of the revision control system (RCS) setup, operation and contents. Documents maintained under revision control include the Acceptance Test Plan (ATP), Configuration Management Plan, Quality Assurance Plan, Software Project Plan, Requirements Traceability Matrix (RTM), System Test Plan, SDP Interface Training Manual, and the SAPHIRE 8, “New Features and Capabilities Overview”.

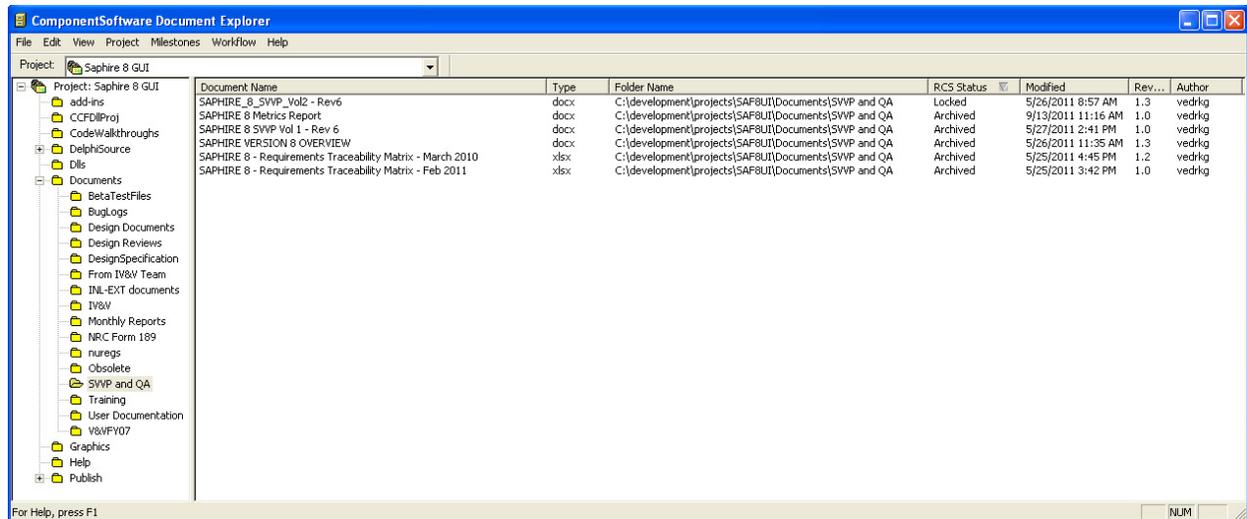
2 Background Information

Many revision control packages have become available for software and documentation since we chose the Component Software Document Explorer when developing SAPHIRE 8. Most applications are now integrated into a complete system where the code is checked out into a built in editor and returned. There are advantages and disadvantages to these integrated packages. The greatest advantage is the all-in-one nature of the system. The greatest disadvantage is the inflexibility in design tools for the developer. For our purposes, we track many documents and not just software code modules. Our current RCS is very good at revision control and allows the developer to continue to use the editors they are familiar with. Although it is not as integrated or “fancy” as other industry leader’s software revision control packages such as that provided by Microsoft, we choose to remain with this RCS software from Component Software.

3 The SAPHIRE 8 Revision Control System

3.1 Operation of the Revision Control System

The SAPHIRE 8 RCS consists of the Component Software Document Explorer. It is set up with the same look and feel of the Microsoft Windows Explorer with one major difference; it restricts access to revising the documents. The way it works is that the repository is located on a server that is backed up nightly. A local working directory is created on the user’s computer (developers, SQA, managers) in which a copy is checked out to and locked from other users changing on the server. Once revisions are made, the new document is checked back in and the Revision number will increase by one, such as from 1.2 to 1.3. Only the newest revisions are used for the SAPHIRE 8 Quality Assurance documentation, however; the older revisions can be viewed and used if necessary. The same applies to the software source code modules. The newest revisions are used for building the latest version of SAPHIRE 8, but the older ones are available for retro use if necessary. A view of the SVVP and QA documents in the repository is provided below.



3.2 Contents of the Revision Control System

The RCS contains the Modula-2 and Delphi source codes that SAPHIRE 8 consists of. It also contains design and quality assurance documentation. A list of the modules and documents controlled is provided below.

Directory	Content Descriptions
add-ins	Delphi development tools which are used to facilitate Delphi usage. SAPHIRE 8 Data Dictionary
CCFDIIProj	SAPHIRE 7 CCF code modules. Not part of SAPHIRE 8.
CodeWalkthroughs	Software standards reviews of Modula-2 and Delphi modules.
DelphiSource	The Delphi source modules that are the majority of the SAPHIRE 8 software. These end in .dfm or .pas such as FormMain.dfm and FormMain.pas
Dlls	The libraries files that are part of the SAPHIRE 8 program.
Documents/BetaTestFiles	Feedback from Beta testers in 2008
Documents/BugLogs	IV&V validation log from 2009.
Documents/Design Documents	Design Documents of major changes that are tracked in the Requirements

Directory	Content Descriptions
	Traceability Matrix
Documents/Design Reviews	<p>Historical design review documents from the initial release of SAPHIRE 8.</p> <p>This directory will contain the living design documents according to the Preliminary Design Review and Critical Design Review process developed in FY11.</p>
Documents/DesignSpecification	Archived folder which consists of a mixture of design reviews and specifications prior to 2010.
Documents/From IV&V Team	IV&V reports from the initial SAPHIRE 8 release
Documents/INL-EXT documents	<p>Quality Assurance documents passed through the INL's Scientific and Technical Information Management System for external release.</p> <p>These include most plans except the SV&V.</p>
Documents/IV&V	The SAPHIRE 8 IV&V final reports
Documents/Monthly Reports	Monthly reports throughout early SAPHIRE 8 development.
Documents/NRC Form 189	Form 189s relating to SAPHIRE
Documents/nuregs	NUREGs relating to SAPHIRE 8
Documents/Obsolete	Collection of obsolete quality assurance documents not a part of an official document or revision of one. Basically this is a junk drawer where a rejected idea may come up again and this would save time.
Documents/SVVP and QA	Contains SVVP volumes 1 and 2, and produced RTMs
Documents/Training	Basics and Advanced Manuals, workshops and SDP training.
Documents/User Documentation	Old NUREGs, SAPHIRE 8 Overview
Documents/V&VFY07	SAPHIRE 7 V&V
Graphics	Graphic files used in SAPHIRE 8

Directory	Content Descriptions
Help	Users Guide
Publish	Sample developed reports output with sub-directories for more graphics, icons, scripts and styles relating to reports

4 Quality Assurance Oversight Activities

The SQA has created and maintained the quality assurance documentation in the RCS as new documents are created, such as the Preliminary Design Review and Critical Design Review documents or when there is a new revision of the quality assurance documents warranted by procedure or design changes. The following are some of the documents reviewed and updated where necessary over the course of FY11:

- Acceptance Test Plan
- Configuration Management Plan
- QA Plan
- Project Plan
- RTM
- System Test Plan
- SDP Interface Training Manual
- SAPHIRE 8, “New Features and Capabilities Overview”

These documents will be provided along with this cover letter report. Activities on the current SV&V volumes 1 and 2 will be discussed in a separate report.

5 Conclusions

SAPHIRE 8 Quality Assurance oversight is greatly facilitated by the RCS program. The maintenance of this filing and repository system keeps the SAPHIRE 8 software program running smoothly and provides a history and point of use fallback for both code modules and quality assurance documentation if necessary. The SQA oversight activities maintain this RCS through monitoring its use as a code repository and organizing its use as a document repository.