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Revision 0

CH2M HILL Hanford Group, Inc., Standards/Requirements Identification Document, Requirements Management System, Requirements Specification

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
Hanford Group, Inc.

Richland, Washington

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC06-99RL14047

Approved for Public Release

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CONTENTS

1.0 INTRODUCTION

The current Tank Farm Contractor (TFC) for the U. S. Department of Energy, Office of River Protection (ORP), River Protection Project (RPP), CH2M Hill Hanford Group, Inc. (CHG), will use a computer based requirements management system. The system will serve as a tool to assist in identifying, capturing, and maintaining the Standards/Requirements Identification Document (S/RID) requirements and links to implementing procedures and other documents. By managing requirements as one integrated set, CHG will be able to carry out its mission more efficiently and effectively.

CHG has chosen the Dynamic Object Oriented Requirements System (DOORS)[1] as the preferred computer based requirements management system. Accordingly, the S/RID program will use DOORS™. DOORS™ will replace the Environmental Requirements Management Interface (ERMI) system as the tool for S/RID data management.

The DOORS™ S/RID test project currently resides on the DOORS™ test server. The S/RID project will be migrated to the DOORS™ production server. After the migration the S/RID project will be considered a production project and will no longer reside on the test server.

1.1 PURPOSE

The purpose of this document is to define the functional requirements for the S/RID production project within DOORS™.

1.2 SCOPE

The scope of this document is limited to the functional requirements management needs of the S/RID project for a computer system to manage the requirements. Manual business process requirements will not be included in this document. S/RID functional business processes are described in *Standards/Requirements Identification Document Process*, HNF-IP-0842, Volume 1, Section 6.4.

Computer system requirements, such as reliability, availability, and portability, were defined during the ORP RPP Program Office (PGO) implementation of DOORS™. The S/RID project will apply those system requirements, and no additional requirements will be defined for the project (refer to the *Office of River Protection, Project Integration Office, Requirements Management System, Requirements Specification,* RPP-5865, for computer system requirements).

1.3 OVERVIEW

CHG is tasked to identify, capture, and maintain requirements imposed upon them. CHG has published and received approval for the S/RID. Requirements, performance objectives and

[1] DOORS is a trademark of QSS, Limited, Mt. Arlington, New Jersey

criteria, lines of inquiry, and Phase 1 and 2 Assessment data will be entered into DOORS™ within the S/RID project.

1.4 ACRONYM DEFINITIONS

CHG	CH2M HILL Hanford Group
COTS	Commercial Off-The-Shelf
DOORS	Dynamic Object Oriented Requirements System
ERMI	Environmental Requirements Management Interface
HLAN	Hanford Local Area Network
LMSI	Lockheed Martin Services, Incorporated
LOI	Lines of Inquiry
ORP	U. S. Department of Energy, Office of River Protection
PGO	Program Office
PO&C	Performance Objectives and Criteria
RPP	River Protection Project
RTF	Rich Text Format
S/RID	Standards/Requirements Identification Document
TFC	Tank Farm Contractor

2.0 GENERAL DESCRIPTION

The S/RID process identifies certain requirements applicable to the TFC. The S/RID database provides information on these requirements, including traceability to source documents, traceability to implementing procedures and evidence of assessments.

The S/RID will be entered into the system as one module. The individual requirements in the S/RID will be parsed into objects. User defined attributes will be assigned to each requirement. The attributes will be used for filtering, sorting and manipulating the requirements set.

2.1 PRODUCT PERSPECTIVE

DOORS™ is a commercial-off-the-shelf (COTS) product. The DOORS™ baseline design entities are documented in the vendor provided documentation. Refer to vendor provided documentation in \\AP006\DOORS\VendorDocs.

2.2 PRODUCT FUNCTIONS

DOORS™ provides the following functionality:

- File Format and Development
- History
- Access Controls
- Tailored Data Display
- Traceability
- On-line Change Proposal

The S/RID project will use DOORS™ functions to maximize the ease and efficiency of managing the S/RID requirements.

2.3 USER CHARACTERISTICS

The following is a summary of the users of the S/RID project.

2.3.1 TFC S/RID Users

Users of the S/RID project will include facility management, working unit management, assessment personnel, database administration, S/RID Functional Area appointees, S/RID program coordination, and guests that wish to access information contained within the database. In general, all users, other than administrators, will have read-only access.

2.3.2 Administrators

DOORS™ administration tasks are divided between the following two administrator types.

a. Data Administrator

Data administrators shall have the capability to make changes to the data structures, backup and restore data, and assist users in accessing the data. Data administrators shall be the only S/RID users allowed to change data in the project.

Two data administrators (1 primary, 1 backup) will be assigned to the S/RID project.

b. System Administrator

A system administrator is a computer professional who shall be responsible for managing the hardware and installing new versions of the software. System administrators do not need to be familiar with the data or the internals of any electronic tools. They need to know the computer hardware and execute operating system software and software installation procedures.

Lockheed Martin Services Inc. (LMSI) shall perform system administrator functions.

2.4 GENERAL CONSTRAINTS

The S/RID program team is not aware of any items that will limit the options for designing the system.

2.5 ASSUMPTIONS AND DEPENDENCIES

The S/RID program team is not aware of any assumptions made or dependencies that could affect the requirements, design, implementation, or testing.

3.0 SPECIFIC REQUIREMENTS

Specific requirements for DOORS™ are described below.

3.1 FUNCTIONAL REQUIREMENTS

a. The computer program shall allow input and updating of individual S/RID compliance requirements.

b. Procedure compliance and performance verification data shall be displayed in an easy-to-read manner; suitable for timely assessment. Scheduling information shall be displayed in a like manner.

c. The computer program shall allow input and updating citations of implementing document numbers, such as procedures and manuals.

d. Programs shall allow input of performance objectives and criteria (PO&C).

e. Programs shall allow input of Lines of Inquiry (LOI) and supporting evidence to the LOI.

f. Programs shall allow the user to build assessment packages, edit the packages in draft format, save the packages as final, and revert final packages to draft form, if necessary.

g. Programs shall routinely allow users to view the status of assessment packages and requirements for a user-specified area, or for all areas (in the case of requirement status only).

h. Reports shall be provided for data verification, assessment checklists, and data hard copy display. S/RID program personnel will define reports.

i. The assessment package shall be designed to be able to contain multiple requirements. The requirements shall be available for selection by Elements, Functional Areas, and/or individual requirement statements.

j. Users shall have capabilities to do the following:

   1. View PO&C evidence and the status of the last assessment completed for the requirement

   2. View scheduled assessments in relation to the requirement schedule date.

   3. Copy and edit previous assessment data to aid in the preparation of new assessment packages (editing can be done until the user designates the entire package as complete; no editing can be done thereafter).

   4. Edit an assessment package that includes PO&Cs and LOIs

5. Print an evaluation package

k. Responsible Functional Area Managers shall have the capability to assess each requirement for applicability to their area and assign an assessment frequency to the requirements.

l. Prior to Users gaining access to the software, training shall be provided to familiarize the users with security, access and database setup provisions.

1. Training sessions shall be conducted to familiarize users with the modules, reporting functions and Change Proposal modules.

2. Such training shall include training in planning, scheduling and performing Phase 1 and Phase 2 assessments and Management Assessments using the DOORSNet[2] interface. The Phase 1 and Phase 2 specifics can be found in procedure *Standards/Requirements Identification Document Process*, HNF-IP-0842, Volume 1, Section 6.4, which includes procedure updates, identity of specific implementing procedures which implement the cited S/RID requirement.

3. The Management Assessment portion shall include preparing performance objectives and criteria, developing lines of inquiry, and entering assessment results in DOORS™.

4. Training of Functional Area Owners and Unit Managers shall include identification of missing requirements, designating assessment schedules and updating the management calendar, and linking requirements to the assessment performance objectives.

m. System Administrator training sessions shall be conducted to ensure that users with a system administrator access level are sufficiently educated in all DOORS™ functions. System Administrator training materials shall be produced for use as reference materials.

3.2 EXTERNAL INTERFACE REQUIREMENTS

Interface requirements are described below.

3.2.1 User Interfaces

a. S/RID data shall reside on a Hanford local area network (HLAN) server for access by multiple users.

b. Non-guest users shall provide passwords for access to the project.

3.2.2 Hardware Interfaces

[2] DOORSNet is a trademark of QSS, Limited, Mt. Arlington, New Jersey

No specific hardware interface requirements are defined for the S/RID project. The current DOORS™ hardware configuration is satisfactory for the project.

3.2.3 Software Interfaces

a. The requirements management system shall allow import from text files (for requirement input).

b. The requirements management system shall allow output of specified S/RID report information to rich text format (RTF).

c. The computer program shall allow the input of hyperlinks to implementing documents found on the Hanford Intranet.

d. The computer program shall provide the capability to review S/RID requirements via the Hanford Intranet.

3.2.4 Communication Interfaces

No specific network or protocol requirements are defined for the S/RID project. The current DOORS™ network configuration is satisfactory for the project.

3.3 PERFORMANCE REQUIREMENTS

No specific system performance requirements are defined for the S/RID project. The current DOORS™ configuration provides satisfactory performance for the project.

3.4 DESIGN CONSTRAINTS

No specific system design constraints are defined for the S/RID project. The current DOORS™ configuration is satisfactory for the project.

3.5 SYSTEM ATTRIBUTES

No specific system attribute requirements are defined for the S/RID project. System requirements, such as reliability, availability, and portability, were defined during the ORP RPP PGO implementation of DOORS™. The current DOORS™ configuration is satisfactory for the project.

3.6 OTHER REQUIREMENTS

Other requirements for the S/RID project are described below.

3.6.1 Data

a. Facility Experts shall have the capability to input performance objectives, criteria, and lines of inquiry data via the intranet.
b. PO&Cs shall have the capability to link to S/RID elements and requirements.
c. Link information shall be printable for verification.
d. Data commonly used in the program shall be available in "pick-list" form wherever possible.

3.6.2 Operations

No specific operations requirements are defined for the S/RID project. The current DOORS™ operations and maintenance activities are satisfactory for the project.

3.6.3 Site Adaptation

No specific site adaptation requirements are defined for the S/RID project. The current DOORS™ configuration activities are satisfactory for the project.

3.6.4 Options

No other options were considered for the S/RID project. The S/RID project uses DOORS™ in accordance with the CHG direction to use DOORS™ as the requirements management tool of choice. DOORS™ will replace the ERMI system as the tool for S/RID management.

3.6.5 Scheduling

No specific scheduling requirements are defined for the S/RID project. The current DOORS™ operational times are satisfactory for the project. DOORS™ is available during the site working hours of 7:00 a.m. to 4:30 p.m., Monday through Friday.

3.6.6 Reliability and Recovery

No specific reliability and recovery requirements are defined for the S/RID project. The current DOORS™ reliability and recovery processes are satisfactory for the project.

3.6.7 Audit

No specific audit requirements are defined for the S/RID project.

3.6.8 Priorities

No specific priority requirements are defined for the S/RID project. DOORS™ has no preceding, succeeding, or interfacing production systems.

3.6.9 Transferability

No specific transferability requirements are defined for the S/RID project. DOORS™ can be used on HLAN client machines and is not currently needed at other DOE sites.

3.6.10 Conversion

No specific conversion requirements are defined for the S/RID project. The S/RID project will not convert ERMI data directly DOORS™ data.

3.6.11 Testing and Acceptance Criteria

Test results should meet resolution of requirements completely. In any other instance, test cases and results will be reviewed with the customer. Acceptance of test plan, cases, results, and exceptions will be indicated through signatures within the test documentation to be created for the project.

3.6.12 Documentation

User and System Administrator manuals shall be provided.

3.6.13 Training

Overview training on the S/RID project shall be provided to all S/RID Facility Experts.

3.6.14 Security and Privacy

a. The S/RID project shall have the ability to assign the following three levels of DOORS™ access
    - Data Administrator – S/RID program member responsible for data entry and update
    - Read-Only user – S/RID Facility Expert and other interested parties responsible for reviewing S/RID data
    - System Administrator – LMSI technical staff

b. The S/RID project shall allow for requirements challenges to be submitted by all read-only users via the intranet.

4.0 REFERENCES

Augustenborg, E., L. G. Peck, and B. Zadeh, 2000, *Office of River Protection, Project Integration Office, Requirements Management System, Requirements Specification,* RPP-5865, Pacific Northwest National Laboratory, for U.S. Department of Energy, Office of River Protection, Richland, Washington.

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