

Enclosure II to ET 07-0008

MSFIS Quality Assurance Plan, Rev. 0

MAIN STEAM & FEEDWATER ISOLATION SYSTEM (MSFIS) CONTROLS REPLACEMENT



MSFIS QUALITY ASSURANCE PLAN

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REVISION 0

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Table of Content

1 Introduction..... 3

1.1 Executive Summary 3

1.2 Project Description..... 3

1.3 Scope of Work 3

1.4 Project Organization 4

2 Quality Assurance Plan..... 5

2.1 Purpose..... 5

2.2 Managemant..... 5

2.3 Documentation..... 5

2.4 Standards, Practices and Conventions..... 6

2.5 Reviews and Audits 6

2.6 Test 6

2.7 Problem Reporting and Corrective Action..... 6

2.8 Records Collection, Maintenance, and Retention 6

2.9 Training..... 6

2.10 Risk Management 6

1

Introduction

1.1 Executive Summary

The purpose of the Main Steam and Feedwater Isolation System (MSFIS) Controls Replacement Project is to replace the existing Consolidated Controls MSFIS controls system with an Advanced Logic System (ALS). The replacement installation is scheduled for Refuel 16, Spring 2008. The MSFIS Controls Replacement Project is one aspect of an overall project to replace the existing Main Steam Isolation Valve (MSIV) bodies and actuators as well as the Main Feedwater Isolation Valve (MFIV) bodies and actuators. The existing MSFIS controls system does not support the operation of the replacement MSIV and MFIV actuators. A modified or replacement controls system is required to operate the new valve actuators. In addition to the lack of capability, the existing MSFIS controls system is based on obsolete technology and that has become less reliable as the system ages. A recent plant trip (August 2003) was due to a failed circuit card in the existing MSFIS control system. Several single point failures exist in the existing MSFIS Controls system.

1.2 Project Description

The MSFIS Controls Replacement Project is replacing the existing Consolidated Controls system with an Advanced Logic System (ALS). The ALS provides several advantages over the existing system; 1) Non-obsolete, based on a technology to mitigate future obsolescence 2) Increase reliability, no single point of failure will cause a false actuation 3) Modular design to allow additional safety-related controls systems to be replaced with the ALS. This provides benefits in the form of common spares and reduced training for plant personnel 4) Reduced manual testing due to automated and interactive automated testing inherent to the ALS.

The design and implementation of the replacement MSFIS Controls System is being accomplished by three independent entities working under the oversight of Wolf Creek project management and Wolf Creek design change and QA Program. The three independent entities are; 1) Platform Owner and System Design Consultant, CS Innovations 2) Qualification & Dedication Services, Nutherm International 3) IV&V Consultant, Baseline Engineering. A diagram of the project organization is provided in Section 1.4.

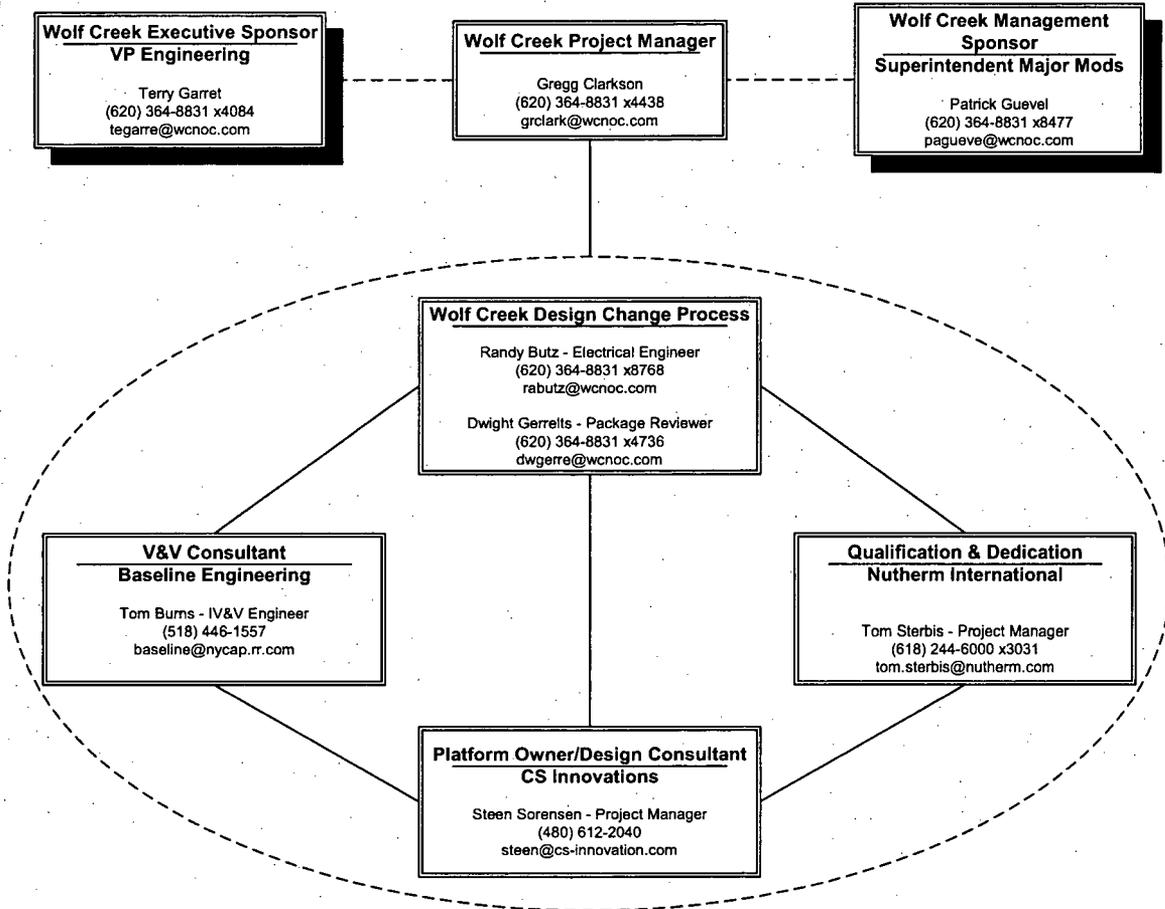
1.3 Scope of Work

The scope of work for the Main Steam & Feedwater Isolation System controls replacement project is to replace the existing Consolidated Controls Corporation system located in cabinets SA075A and SA075B with an Advanced Logic System (ALS). The scope of this project is limited to work within cabinets SA075A and SA075B. The replacement MSFIS Controls are to interface with the replacement MSIV and MFIV actuators. The installation of the replacement controls is to occur during Wolf Creek Refueling Outage 16, which is in April of 2008.

1.4 Project Organization



MSFIS Controls Replacement Project Organization w/Key Contacts



2

Quality Assurance Plan

2.1 Purpose

The purpose of the Quality Assurance Plan (QAP) is to establish the scope of the WCNOG Quality Assurance Program to be applied to the Main Steam and Feedwater Isolation System Replacement. This plan does not specify the scope of Nutherm International's Quality Assurance Program.

2.2 Management

The roles and responsibilities of personnel involved in the development and verification and validation are described in the Configuration Management Plan and the System Verification and Validation Plan.

2.3 Documentation

The development, verification and validation of the design to be applied to MSFIS shall be governed by the following documents

- 1) Specification J-105A (Q) for Replacement MSFIS System shall be prepared by Wolf Creek to define the requirements of the replacement MSFIS controls at WCGS.
- 2) MSFIS Level 1 Specification shall be prepared by CS Innovations to specify the replacement MSFIS utilizing the CS Innovations ALS platform.
- 3) The Verification and Validation Plan shall be prepared by the Wolf Creek Independent Verification and Validation Engineer to clearly specify the process to be used for the verification and validation of the MSFIS ALS design. This plan shall contain the detailed steps to be performed in each phase of the MSFIS ALS development.
- 4) Verification and Validation Report: Based on the results of the reviews, testing, and analysis, the Verification and Validation Report (VVR) shall be prepared and submitted to the Project Manager for approval. The VVR shall provide a description of the results of the execution of the Verification and Validation Plan, and shall include the results of all reviews, audits, and tests performed.
- 5) A Configuration Management Plan shall be prepared and will define the methods to be used to identify and document items, control and implement changes and record and report change implementation status of items submitted to WCGS.

2.4 Standards, Practices and Conventions

The MSFIS ALS design will be implemented using Field Programmable Gate Arrays (FPGAs), which will be burned using the Libero Integrated Design Environment. The Libero Integrated Design Environment is a tool suite supplied by the FPGA manufacturer, Actel, for creating FPGA designs for the Actel FPGAs. These tools will be used to perform the following functions.

- 1) Generating, editing and testing the logic design
- 2) Burning (FLASHing) the FPGAs
- 3) Performing real time monitoring of the FPGA status debugging
- 4) Generation of printed reports

2.5 Reviews and Audits

Both WCNOG and Nutherm International perform audits, managerial reviews, and supplier oversight. Nutherm International's audit process details are provided in the Nutherm International Quality Assurance Manual.

2.6 Test

Verification and Validation Plan shall address the integrated testing to be performed. Each test shall be performed in accordance with a specific test procedure as described in the Verification and Validation Plan.

2.7 Problem Reporting and Corrective Action

Problem reporting and corrective action shall be implemented as specified in WCNOG procedures for implementing 10CFR50, Appendix B, Criterion XVI, "Corrective Action". All design related problems or nonconformance of documentation and/or equipment submitted to WCNOG shall be immediately documented, by the individual identifying the problem, in a nonconformance report. Disposition of these reports, including all corrective actions, shall be reviewed and approved by the Project Manager.

2.8 Records Collection, Maintenance, and Retention

All documentation submitted to WCNOG shall be collected, maintained, and Retained in accordance with WCNOG's Quality Assurance Program

2.9 Training

Training shall be coordinated and implemented in the System Training Plan.

2.10 Risk Management

Risk Management practices shall be an integral part of the test program to be performed in accordance with the Verification and Validation Plan. The results of this testing shall be documented in the Verification and Validation Report.