

**TRANSMITTAL OF MEETING HANDOUT MATERIALS FOR
IMMEDIATE PLACEMENT IN THE PUBLIC DOMAIN**

*This form is to be filled out (typed or hand-printed) by the person who announced the meeting (i.e., the person who issued the meeting notice). The completed form, and the attached copy of meeting handout materials, will be sent to the Document Control Desk on the same day of the meeting; under no circumstances will this be done later than the working day after the meeting.
Do not include proprietary materials.*

DATE OF MEETING

11/12/2003

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s)	<u>05000482</u>
Plant/Facility Name	<u>Callaway Plant</u>
TAC Number(s) (if available)	<u>0500 M89875, M89876, and M89879</u>
Reference Meeting Notice	<u>October 28, 2003 (ADAMS ML032960521)</u>
Purpose of Meeting (copy from meeting notice)	<u>To discuss (1) the licensee's RAI responses on two</u> <u>applications dated 06/26/03 and (2) potential</u> <u>instrumentation digital upgrades.</u>

NAME OF PERSON WHO ISSUED MEETING NOTICE

Jack Donohew

TITLE

Senior Project Manager

OFFICE

Office of Nuclear Reactor Regulation

DIVISION

Division of Licensing Project Management

BRANCH

Project Directorate IV-2

Distribution of this form and attachments:

Docket File/Central File
PUBLIC

DF01

NRC STAFF'S HANDOUT

.

**AGENDA
NRC/UNION ELECTRIC COMPANY MEETING
CALLAWAY PLANT, UNIT 1**

NOVEMBER 12, 2003

- Introduction
- MFW/AFW Mods and SGTR Accident Re-Analysis Application (ADAMS ML031950570) – Information Needed by Staff
- Shield Wall Penetration and LBB Methodology Application (ADAMS ML031920631) – Information Needed by Staff

PUBLIC COMMENT

- *Potential Instrumentation Digital Upgrades for Callaway Plant*

PUBLIC COMMENT

- *Adjourn Meeting*

Acronyms: AFW = auxiliary feedwater
 LBB = leak before break
 MFW = main feedwater
 Mods = modifications
 SGTR = steam generator tube rupture

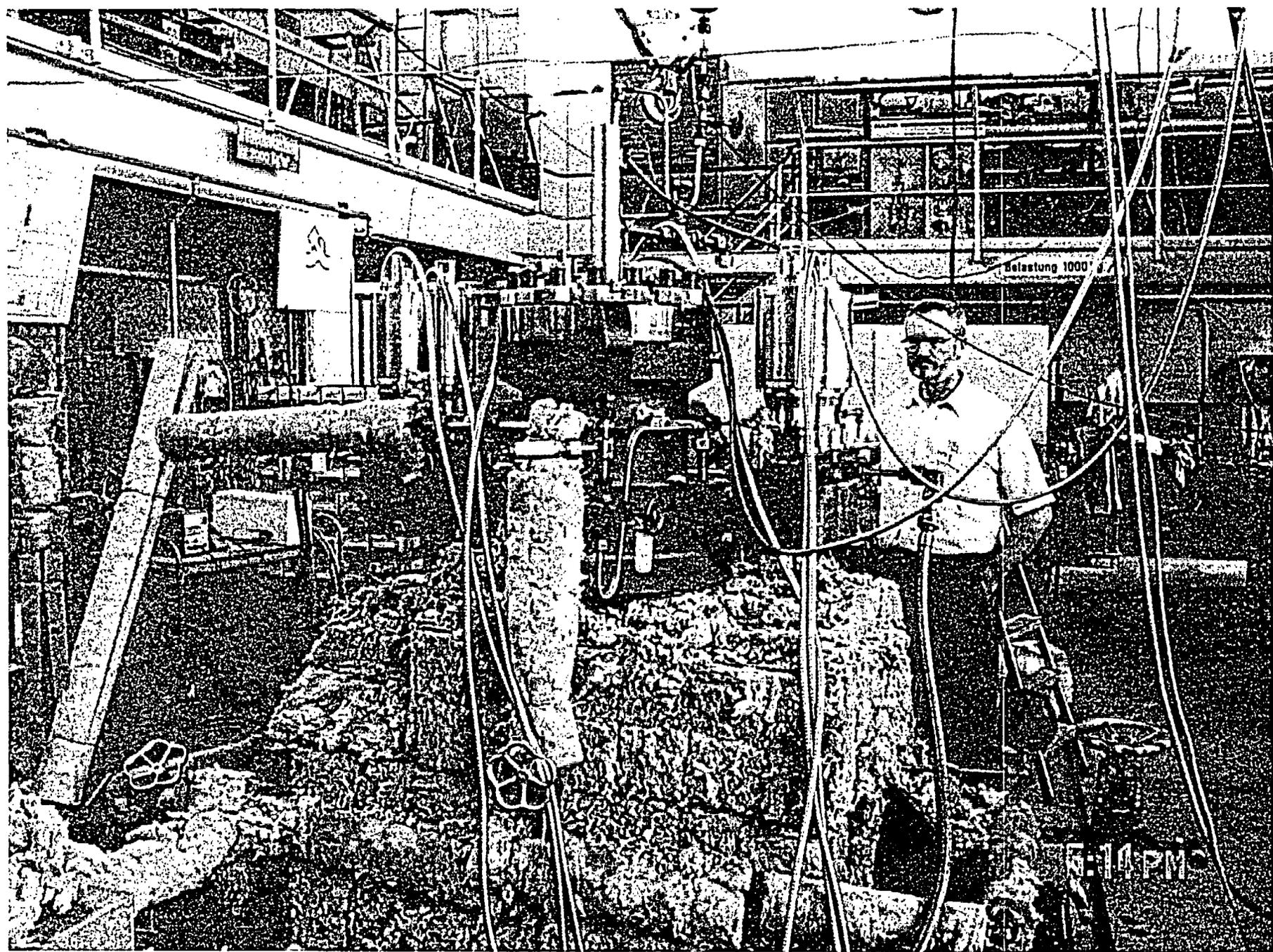
CALLAWAY MEETINGS ON NOVEMBER 12, 2003

- | | | | |
|----|--|---------------|------------------------|
| 1. | MFW/AFW MODs AND SGTR RE-ANALYSIS LARs | | (08:30 - 10:30) |
| | Richard Eckenrode | 08:30 - | (response received) |
| | Chu-yu Liang | 09:00 - | (response received) |
| | Richard Lobel | 09:30 - | (response received) |
| | Joseph Golla | 10:00 - 10:30 | (response received) |
| 2. | SHIELD WALL PENETRATION AND LBB METHODOLOGY | | (10:30 - noon) |
| | Roger Pedersen | 10:30 - | (response received) |
| | Mark Hartzman | 11:00 - | (no response received) |
| | Pat Patnaik | 11:30 - | (no response received) |
| 3. | INSTRUMENTATION DIGITAL UPGRADES | | (13:00 - 15:30) |
| | Angelos Marinos | | |
| | Matt Chiramal | | |

LICENSEE'S HANDOUT

CMP 00-1009A

Replacement of
Feedwater Isolation Valve
(FWIV) Actuators





IMPACT ALLIANCE



Callaway and Wolf Creek Plants

I&C Digital Upgrade Plan/ Diversity & Defense in Depth Analysis

NRC Status Meeting
November 12, 2003

I&C Digital Upgrade





PURPOSE



Callaway (AUE), Wolf Creek (WCNOC) and Framatome ANP (FANP) are planning a comprehensive Digital upgrade of Major I&C Systems. This meeting is to present the following items to the NRC and obtain feedback:

- An Overview of the AUE/WCNOC Digital Upgrade Plan
- An Overview of how the Diversity & Defense in Depth (D3) Analysis demonstrates that the FANP design meets the guidance of NUREG/CR-6303 and BTP-19

I&C Digital Upgrade





Agenda



- | | |
|--|-------------------|
| I. Introduction | Dave Shafer |
| II. Objectives | Tim Herrmann |
| III. Digital Upgrade Overview | Dan Wingbermuehle |
| IV. LSELS/BOP ESFAS/MSFIS Modification | Paul Bisges |
| V. Diversity & Defense in Depth Analysis | Phil Liddle |
| VI. Licensing Activities | Dave Shafer |
| VII. Summary | Dave Shafer |
| VIII. NRC Informal Feedback | |

I&C Digital Upgrade





I - INTRODUCTION



Representatives

AUE Tim Herrmann
Dan Wingbermuehle
Dave Shafer
Paul Bisges

FANP Phil Liddle
Joerg Pflugbeil
Jerry Mauck
Paul Mangano

WCNOC Bill Eales
Steve Wideman

I&C Digital Upgrade





II - OBJECTIVES



- Outline AUE/WCNOG DCS upgrade program
- Describe the LSELS/BOP ESFAS/MSFIS upgrade and schedule
- Describe the Diversity & Defense in Depth (D3) design approach
- Describe near term licensing activities
- NRC Feedback and Resources
 - Feedback on D3 design approach
 - Forecast future resource requirements
 - Support AUE's Refuel 14 (2005) schedule

I&C Digital Upgrade





III - DIGITAL UPGRADE OVERVIEW



The DCS Upgrade Solution – Why?

- Obsolescence
- Increasing inventory costs
- Aging workforce
- Antiquated analog systems
- Recruiting issue for I&C and electrical
- Best in class – stand alone experts
- Data availability limited
- Reduce manual work
 - Reduce Frequency of Surveillance Tests
 - Design Provisions to Automate Select Surveillance Tests
 - Simplified and Common Testing Methods for TXS Platform
 - Reduce Troubleshooting Time
 - Reduce Time to Perform Surveillance Tests
 - Reduce Manpower Required to Perform Surveillance Tests
- Human Performance issues in the plant
- Loss of current system knowledge
- Improve Safety Analysis Margin
- Improve Plant Efficiency
- Reduce Uncertainties

I&C Digital Upgrade





III - DIGITAL UPGRADE OVERVIEW



DCS ARCHITECTURE

Bus Architecture

- Fault tolerant
- Redundant Processors
 - Option available for SR and NSR platforms
- Integrated Non-Safety Related Soft Controls
 - NSR component control and status
 - SR component control and status
 - Safety Signal priority
- Enhances Human Performance
 - Information Availability
 - Event Logging
 - Troubleshooting
- Integration and Automation of Processes

I&C Digital Upgrade





III - DIGITAL UPGRADE OVERVIEW

DCS Migration Path



2003

- Condensate Polisher System (AUE)
- Non-Safety Operation and Monitoring System Backbone (OM690) (AUE)
- BCMS (AUE)

2004

- Fire Protection (AUE)
- Plant Computer Conversion to OM690 (AUE)
- Flux Mapping System (AUE)
- Plant Computer Conversion to OM690 (WCNOC)
- Supervisory Controls (WCNOC)

2005

- Load Shedding Emergency Load Sequencing System (LSELS) (WCNOC 2006)
- Balance of Plant Engineered Safety Features Act. System (BOP ESFAS) (WCNOC 2006)
- Main Steam and Feedwater Isolation System (MSFIS) (WCNOC 2006)

2007

- Main Turbine Controls/EHC
- Feedwater Heater Controls/ Performance Monitoring
- Main Control Board (Turbine/EHC, FW Htr. Controls)
- TCCM/RVLIS

2008

- Westinghouse 7300 NSSS Controls
- BOP Controls Foxboro N1E
- BOP Controls Foxboro 1E
- Main Control Board (Turbine, 1E/N1E, NSSS Controls)
- Emergency Diesel Generator Controls
- Main Feed Pump Controls

2010

- Solid State Protection System (SSPS)
- Westinghouse 7300 Protection
- Nuclear Instrumentation System (NIS)
- Main Control Board (W7300 1E, SSPS, NIS)

I&C Digital Upgrade





IV - LSELS/BOP ESFAS/MSFIS MODIFICATION



2005 System Modifications

- Load Shedder and Emergency Load Sequencer (LSELS)
- Balance of Plant Engineered Safety Features Actuation System (BOP ESFAS)
- Main Steam and Feedwater Isolation System (MSFIS)

Why?

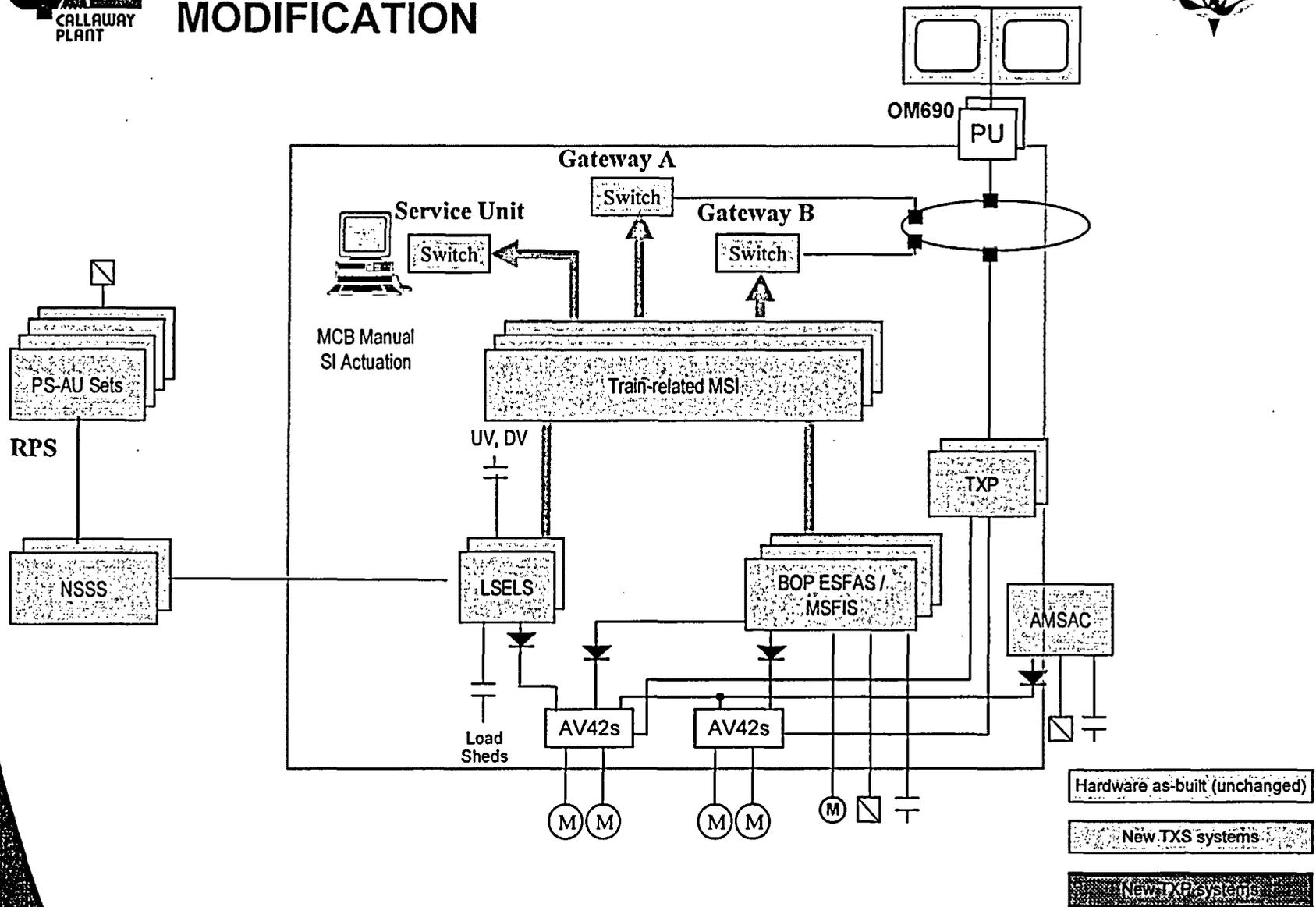
- Consolidated Controls Obsolescence
- MSIV/FWIV Actuator Upgrade

I&C Digital Upgrade





IV - LSELS/BOP ESFAS/MSFIS MODIFICATION



I&C Digital Upgrade





V - Diversity & Defense in Depth Analysis



See FANP Proprietary Insert

I&C Digital Upgrade



FRAMATOME ANP



VII - SUMMARY



Licensing Actions Schedule

Milestone	Submission/Completion Date
Licensee Submittals	
•D3 Topical	2/2004
- Priority Logic Module	
•Lic. Amend. Request Submittal	
- AUE	9/2004
- WCNOG	9/2005
NRC Approval Required	
- Topical	12/2004
- Amendment Approval	7/2005
Implementation	9/2005
	I&C Digital Upgrade





NRC INFORMAL FEEDBACK

- Feedback on D3 design approach
- Forecast future resource requirements
- Support AUE's Refuel 14 (2005) schedule

I&C Digital Upgrade



PACKAGE DIVIDER