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FEB 2 8 1997   **ENGINEERING DATA TRANSMITTAL**

Page 1 of 1

1. EDT 621131

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) WESF Capsule Management Team	4. Related EDT No.: 606997
5. Proj./Prog./Dept./Div.: W-452/Capsule Management/01600	6. Design Authority/ Design Agent/Cog. Engr.: R. Hernandez Jr.	7. Purchase Order No.: N/A
8. Originator Remarks: WPMCS Operability Test Report of configuration software and field devices		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: WPMCS/225B/WESF
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(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted		Approval Desig- nator	Reason for Trans- mittal	Origi- nator Dispo- sition	Receiv- er Dispo- sition
1	HNF-SD-W452-OTR-001		0	Operability Test Report Project W452-WESF Control Area		S, Q			

16.			KEY		
Approval Designator (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)		1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged	

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Rea-son	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN	(G) Rea-son	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN
		Design Authority	6		J.A. Pennock S6-51
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		Env.			

18. R. Hernandez JR *Paul Sauerssig 2/28/97* Signature of EDT Date Originator	19. J.A. Pennock *Pennock 2-08-97* Authorized Representative Date for Receiving Organization	20. P.T. Sauerssig *Paul Sauerssig 2/28/97* Design Authority/ Date Cognizant Manager	21. DOE APPROVAL (if required) Ctrl. No. [] Approved N/A [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (05/96) GEF097

BD-7400-172-1

Operability Test Report
Project W-452 - WESF Control Area

E. L. Vodopest
Flour Daniel Northwest, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT-621131   UC: 541
Org Code: 01600   Charge Code: KN30D
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Key Words: WESF Process Monitor and Control System, Bailey INFI 90, Distributed Control System, Operating Interface Stations, Optical Disk, Engineering Work Station, Process Control Unit, Printers, Software
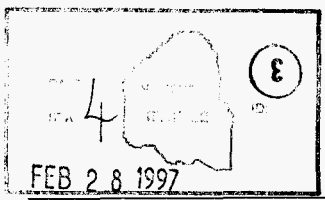
Abstract: Test operation of WESF Process Monitor and Control System, Bailey INFI 90 Distributed Control System, for software configuration and field device operation.

Release Approval   Date   Release Stamp

FEB 2 8 1997

Approved for Public Release

A-6400-073 (01/97) GEF321

ACCEPTANCE/OPERABILITY TEST PROCEDURE PROJECT W-452 - WESF CONTROL AREA

Prepared by

Fluor Daniel Northwest
Richland, Washington

for

B & W Hanford Company

November 1996

PROCEDURE APPROVAL

Fluor Daniel Northwest (FDNW)

Ghul Volget	11-19-96	_Robert B Hoffmann_	11-19-96
Author	Date	Technical Documents	Date
_NA_		_NA_	
Checker	Date	Safety	Date
_NA_		_NA_	
Environmental	Date	Quality Engineering	Date
Condro	11/20/96		
Project Manager	Date		

B & W Hanford Company (BWHC)

Ray Hernandz	11/20/96	_Chalmre for m.Hill Per Phone call_	11/21/86
System Engineer	Date	Quality Assurance	Date
mMel	11/20/96	_Paul Someress / KAb_	11/20/96
Safety	Date	Operations	Date

W452-OTP

EXECUTED BY

R. Hernandez   _1/27/97_   _Jay Kalim / Jim Roluise_   _11-22-96_
Test Director/BWHC   Date   Instrument Technician/   Date
                              Fluor Daniel Hanford   _1-15-97_

G. Vought   _1-27-97_
Recorder/FDNW   Date

WITNESSES

R. Hernandez   _1/15/97_   _NA_
Witness/BWHC   Date   Acceptance Inspection/FDNW   Date

Jay Cox   _1/15/97_   _Timothy R. William_   _11/22/96_
Witness/FDNW   Date   Witness/Bailey Controls   Date

A-E APPROVAL

Fluor Daniel Northwest

Without   With exceptions   With exceptions   X
exceptions ___   resolved ___   outstanding

_NA_   _G. Vought_   _1/27/97_
Acceptance Inspection   Date   Design Engineer   Date

M Condro   _1/27/97_
Project Manager   Date

TEST APPROVAL AND ACCEPTANCE

B & W Hanford Company

Without   X   With exceptions   With exceptions
exceptions   resolved ___   outstanding ___

R. Hernandez   _2/25/97_   _M.A.Hill_   _2.25.97_
System Engineer   Date   Quality Assurance   Date
                                  M.A.Hill

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NOTE: At completion of test, enter pages added during performance of test.

W452 OTP

ACCEPTANCE/OPERABILITY TEST PROCEDURE
PROJECT W-452

1.0 TEST PLAN

The system provides a control area in Rooms 108A and 108B. The WESF master alarm annunciator is replaced by the WESF Process Monitor and Control System (WPMCS). An additional tie-in to the existing B-Plant Facility Process Monitor and Control System (FPMCS) is included. An additional transformer and uninterruptable power supply (UPS) provides power to the system.

The WPMCS utilizes Bailey Controls INFI 90 distributed control system (DCS) and the FPMCS utilizes Bailey Controls NET 90 DCS. The WPMCS includes two operating interface stations (OIS-1 and OIS-2), an optical disk (OD-1), an engineering work station (EWS-1), a process control unit (PCU-6) and printers (PR-1, PR-2, PR-3, and PR-4). The FPMCS utilizes operator interface units (OIU) and EWS.

NOTE: Steps of this procedure may be performed out of sequence at the direction of the Test Director. No step sequence change shall void previously performed steps.

1.1 WPMCS Test (WESF)

The Acceptance/Operability Test is intended to ensure that the system operates as required. A controlled copy of the test will be maintained, and any required changes will be noted on this master test copy. In addition, a log of any action items or necessary changes will be kept by the Test Director. Prior to conducting the test, the equipment will have undergone hardware tests, including functional testing of each input or output channel.

NOTE: Familiarize the personnel involved with the system and any test equipment to be used during the test.

    1.1.1   Software for modules using EWS-1.

    1.1.2   Consoles OIS-1 and 2 tag list, symbols, and configuration software.

NOTE: Demonstration of logic operation will occur. This includes operation of any associated logic as well as indications, alarms, and logs from the console. Since there are no analog outputs, any logic associated with the inputs is expected to be focused on operator displays and alarms. Screen printouts of the displays will be used to mark acceptance of the display function for each point.

    1.1.3   Console operation will be ensured for each tested input. This includes:

        a. Proper display operation.

        b. Alarm annunciation.

    c. Logging.

    d. Archiving and archive data retrieval.

1.1.4 General console operating characteristics will be demonstrated. These features include:

    a. Database loading and maintenance.

    b. Console configuration utilities, including display transfer, printer configuration and operation, log generation, and operator keyboard (mylar) usage and configuration.

    c. Console diagnostic messages.

1.1.5 System hardware failure handling, including:

    a. MFP failure and transfer to backup.

    b. Slave failure and status reporting.

    c. Failure of one of the plant loops and automatic transfer to second loop.

    d. Failure of a console computer interface unit (CIU) and operation of console redundancy feature.

    e. Power supply failure.

1.2 FPMCS Test (B-Plant)

1.2.1 Failure of one of the plant loops and automatic transfer to second loop.

1.2.2 Analog input point failure (AMMO3).

2.0 SAFETY

See attached Appendix A WESF control area modification QUALITATIVE JOB HAZARD ANALYSIS ID 2B-9611-316.

3.0 TOOLS, EQUIPMENT, AND SUPPLIES

3.1 Test Drawings

The test will be conducted using a controlled copy of the following:

3.1.1 Bailey Drawing D8129973 Sheets 0 through 9 (System Overview and Cabinet Assembly)

3.1.2 Bailey Drawing D8129974 Sheets 0 and 1 (1060400 and 1060401) (Analog Master Module Configuration)

3.1.3   D8129975 Sheets 0, 1, 11, and 12 (2060400, 2060401, 2060411, 2060412) (MFP Configuration)

3.1.4   ICF KH Drawing H-2-826287 Rev. 0.

3.2   **Specifications**

W-452-P1, WESF Process Monitoring and Control System. (EDT 615527)

3.3   **Vendor Information**

3.3.1   Westinghouse Hanford Company Factory Acceptance Test Plan, Rev. C, dated September 6, 1996.

3.3.2   Bailey Instruction Book Technical Manual Volume 1.

3.3.3   Bailey Instruction Book Technical Manual Volume 2.

3.3.4   Bailey Function Code Reference Manual E96-200.

3.3.5   Bailey Function Code Quick Reference Manual E96-200-1.

3.3.6   Bailey NET-90 User Manual SD-RE-TI-208, Rev. 0.
~~3.3.7   Bailey Technical Service Bulletin TB96051A, August 1996.~~ *WC 2/27/97*

3.4   **Engineering Change Notices (ECN)**

621121	621126	630752	632287	632999	___
621122	625614	630753	632871	633639	___
621123	627736	630754	632992	632929	___
621124	628891	630757	632996	___	___
621125	630649	630757	632998	___	___

3.5   **Test Equipment**

The following test equipment shall be included:

3.5.1   PCU-6 cabinet, as detailed in Drawing D8129973 Sheets 0 through 9.

3.5.2   Calibrated transmitter 4-20 mA simulator
Manufacturer: _Transmation_
Model: _1080_
Calibrated: _Expires 8-15-97_

3.5.3   Calibrated digital voltmeter
Manufacturer: _Fluke_
Model: _23 or 77_
Calibrated: _Not Used_

3.5.4   WPMCS Bailey LAN-90 Operator consoles OIS-1 and OIS-2, including optical disk OD-1, color ink-jet printer PR-4, and line printer PR-1.

3.5.5   WPMCS Bailey LTEWS Engineering Workstation (EWS-1) with laser
printer PR-3.

3.5.6   FPMCS Bailey NET-90 Operator Interface Unit (OIU-1) with line
printer PR-2.

4.0   PRE-TEST INSPECTION REQUIREMENTS

ELV 4.1   Bailey Power and Grounding Check, see Appendix B.

ELV 4.2   Verify configuration software is loaded.

5.0   WPMCS FUNCTIONAL TESTS

5.1   Power Tests

NOTE: Turn on power to EWS-1, consoles OIS-1 and 2, printers PR-1, 2, 3 and 4,
optical disk OD-1, and PCU-6 cabinet.

ELV 5.1.1   Verify EWS-1 boots up to DOS prompt.

ELV 5.1.2   Verify both console boot up operator log-in prompt.

ELV 5.1.3   Log in as SYSOP on both consoles.

ELV 5.1.4   Verify all PCU power supplies display green status lights.

ELV 5.1.5   Verify AC monitor LEDs in rear of PCU indicate power on both AC
feeds.

ELV 5.1.6   Verify power monitor module in power supply chassis indicates no
alarms.

ELV 5.1.7   Disconnect one modular power supply and verify that the
remaining supplies indicate green status.

ELV 5.1.8   Continue to disconnect power supplies until the remaining
supplies are no longer able to provide adequate power. Note the
number of power supplies required to power the equipment: __2__.

ELV 5.1.9   Re-secure all modular power supplies.

5.2   Super-Loop PCU Tests

ELV 5.2.1   Using the EWS-1, compile the logic for the Super-Loop node
(loop 2).

ELV 5.2.2   Using the TEXT program on the EWS-1, load the configuration into
loop 2, PCU 6, module 4, and place the module in EXECUTE mode.

ELV 5.2.3   Verify that the module goes into EXECUTE mode (steady green
light) and that the associated slaves do not indicate errors via
the top red LED indicators on their front panel.

ELU 5.2.4 Call up drawing D8129974 Sheet 1 (2060401) into the EWS-1, and select the Monitor/Tune mode to display the outputs of the function blocks.

ELU 5.2.5 Confirm automatic transfer to second communication loop by disconnecting one of the cables from loop 1. Cycle one of the digital inputs and verify the response on the operator console.

ELU 5.2.6 Re-connect the loop, and disconnect a cable from loop 2. Again, cycle a digital input and verify the response on the operator consoles. Re-connect the cable when the test is complete.

ELU 5.2.7 Verify MFP01 module fail-over by determining the primary module (LEDs 7 and 8 on). Verify continued operation by again cycling any of the digital inputs and observing the response on the operator consoles.

ELU 5.2.8 Reset the halted module and after waiting until LED 8 only is on, repeat step 5.2.7 for the other module. Reset the halted module after the test is completed.

5.3 Operation Console OIS-1 and OIS-2 Tests

ELU 5.3.1 Verify redundant console operation by disconnecting one of the serial cables to the selected console PCU-6 CIU. Cycle any of the digital inputs and verify response on both consoles.

ELU 5.3.2 Re-connect the cable and repeat the test of step 5.3.1 above for the other cable. Re-connect the cable when the test is complete.

ELU 5.3.3 Verify operation of the color ink-jet printer by selecting a screen or window print from each of the consoles and obtaining a color printout of the selection.

RN 5.3.4 Confirm operation of the optical disk drive as follows (see Bailey T696057A).
RN 1/31/97
    RN 1/31/97 a. Initialize the volume in the drive.

    RN 1/31/97 b. Configure events to be archived at the shortest interval possible (1 hr).

    RN 2/25/97 c. Verify that the ~~following~~ Input changes are archived: ~~Input change, alarm and alarm acknowledgement~~. *R.N. 2/25/97 per ECN 640982*

    RN 2/20/97 d. After the assigned time has expired, examine the contents of the optical disk and verify information has been stored.

    5.3.5 Verify console OIS-1 alarm annunciation features (flashing symbols, alarm summary, audio alert) and acknowledgement.

ELV   b. Copy the ASCII file to a floppy disk for loading into the
          console.

ELV   c. Insert the floppy disk containing the tag list into one of
          the operator console floppy disk drives.

ELV   d. Select the TAG DATABASE LOADER option on the console.

ELV   e. Load the tag database, deleting the existing tags first.

ELV   f. Examine the tag list to verify proper loading. /dos/c/tags
                                                                    JPE
                                                                    3/27/97
ELV   g. Shut down the redundant console, and perform a REDUNDANT
          RESTORE to that console to update its hard disk.

ELV   h. Shut down the primary console and re-start the redundant
          console. Examine the tag list on the redundant console to
          verify proper loading. When complete, re-start the other
          console so that both are running.

5.3.8 Demonstrate loading a graphic file into the console as follows:

ELV   a. Copy one of the display (.DR) files from the EWS-1 to a
          floppy disk.

ELV   b. Insert the floppy disk into one of the consoles.

ELV   c. Delete any existing copies of the file (in GOFdisplays and
          displays directories) using the console graphic
          configuration file management.

ELV   d. Import and convert the display file to the server level on
          the console.

ELV   e. Call up the display on the console and verify proper loading
          and operation.

5.3.9 Demonstrate console diagnostic messages:

ELV   a. Select the diagnostic message screen from the console main
          menu.

ELV   b. Disconnect the serial cables to the PCU-6 cabinet and note
          that the display indicates the error and the communication
          retry counters increment.

ELV   c. Reconnect the serial cables and note the exception report
          activity is restored and the communication retry counters
          cease to increment.
          10 JPE 3/27/97
5.3.9' Review the operation of each of the following screens and verify
          acceptance:

ELV   a. WPMSCANN (digital annunciator display)

7   W452-OTP

EcV   b.   V90STAT (node status display)

ELV   c.   PCU6STAT (cabinet PCU-6 hardware status display)

5.4   Engineering Workstation (EWS) Tests

EcV 5.4.1   Print out two CAD drawings D8129974 sheet 1 and D8129975 Sheet 1 (1060401 and 2060401) to the laser printer using the CAD drawing print feature.

ELV 5.4.2   Demonstrate drawing editing features of the EWS-1 by creating a temporary drawing file. Delete the drawing when done.

ELV 5.4.3   Demonstrate the cross-referencing, block number tracing, and compilation functions of the EWS-1.

5.5   Master Alarm Tests

ELV 5.5.1   Select the annunciator display on one of the consoles to monitor the status of the digital input points.

ELV 5.5.2   For each of the 14 digital input points, cycle the field annunciator retransmit relay contact (unplug relay), and verify that the output of the function block on the EWS-1 indicates the correct state and that the operator console displays the alarm. Ensure that digital output DO-1 provides output to two horns, one located in the 225-B hallway and the second in the MO863 lunchroom. Verify logging of each alarm. Before proceeding to the next point, acknowledge the alarm.

FIELD CONTACT	PCU POINT	OFF-STATE	ON-STATE	ALARM/HORNS	LOG
K3 EXH FLTR PNL ALM	DI-01	ELV	ELV	ELV	ELV
K1-K3 FLTR PNL ALM	DI-02	ELV	ELV	RLV	ELV
AMU PNL ALM	DI-03	ELV	RLV	ELV	ELV
SUPR PNL ALM	DI-04	ELV	ELV	ELV	ELV
PNL G2 ALM	DI-05	ELV	ELV	ELV	ELV
A-CELL PNL ALM	DI-06	ELV	ELV	ELV	ELV
B-CELL PNL ALM	DI-07	ELV	ELV	ELV	ELV
C-CELL PNL ALM	DI-09	ELV	BLV	ELV	ELV
D-CELL PNL ALM	DI-10	RLV	ELV	ELV	ELV
E-CELL PNL ALM	DI-11	ELV	ELV	ELV	ELV

FIELD CONTACT	PCU POINT	OFF-STATE	ON-STATE	ALARM/HORNS	LOG
F-CELL PNL ALM	DI-12	Anv	Eiv	Biv	Biv
G-1 PNL ALM	DI-13	Biv	Eiv	Eiv	Biv
POOL CELLS PNL ALM	DI-14	Biv	Biw	Biv	Eiv
K1 TEMP LOW	DI-15	Eiv	Biv	Biv	Biv

6.0 FPMCS TESTS

6.1 The analog master module is to be connected to the existing FPMCS plant loop and will be accessed at a B-Plant OIU.

ELV 6.1.1 Compile the configuration on the WPMCS EWS-1, drawing D8129974 Sheets 1 and 2 (1060400 and 1060401), and load the configuration into the AMM03 from the EWS-1 using the TEXT utility.

ELV 6.1.3 Copy the compiled file (10604.CFG) from WPMCS EWS-1 to a 3.5-inch floppy disk and using a personal computer with both 3.5-inch and 5.25-inch drives, copy to a 5.25-inch disk. Load the configuration into the AMM03 using the FPMCS EWS.

ELV 6.1.3 Place the AMM03 in the EXECUTE mode.

ELV 6.1.4 Load the AMM03 configuration drawing D8129974 Sheet 1 (file 1060401) into the ~~FPMCS EWS~~ and place it in the MONITOR/TUNE mode. WPMCS EWS-1 *JDC 2/27/97*

ELV 6.1.5 For each analog input connect the transmitter simulator and cycle through the inputs listed in the table below. Verify that the slave indicates the values in the second line of the table, +/- .05%. Check off successful completion of each step in the table below.

CHANNEL Expected Reading	0.000 mA -25.0% (Bad Quality)	4.000 mA 0.0%	12.000 mA 50.0%	20.000 mA 100.0%	24.000 mA 125.0% (Bad Quality)
		JDC 2/27/97			
AI-1	-24.9912	0.0~~445~~	50.0	100.0	125.0
AI-2	-24.9912	0.0	50.0	100.0	125.0
AI-3	-24.9912	0.0	50.0	100.0	125.0
AI-4	-24.9912	0.0	50.0	100.0	125.0
AI-5	-24.9912	0.0	50.0	100.0	125.0

Note: Turn off transmitter simulator prior to switching between points. *JDC 2/27/97*

7.0 DATA/VERIFICATION SHEETS

7.1 General

Each company or organization participating in this ATP/OTP will designate personnel to assume the responsibilities and duties as defined herein for their respective roles. The designees shall become familiar with this ATP/OTP and the systems involved to the extent that they can perform their assigned duties.

7.2 Project Manager

7.2.1   Designates a Test Director.

7.2.2   Coordinates testing with the Building Managers.

7.2.3   Acts as liaison between the participants in acceptance testing.

7.2.4   Distributes the approved testing schedule before start of testing.

7.2.5   Schedules and conducts a pretest kickoff meeting with test participants when necessary.

7.2.6   Notifies the persons supporting the test 2 days before the start of testing.

7.2.7   Notifies concerned parties when a change is made in the testing schedule.

7.2.8   Signs Execution and Test Approval page when test is approved and accepted.

7.2.9   Takes necessary action to clear exceptions to the test.

7.2.10   Signs Exception Form when exception has been resolved.

7.2.11   Provides a distribution list for the approved and accepted ATP(ATR).

7.3 Test Director

7.3.1   Coordinates and directs acceptance/operational testing.

7.3.2   Confirms that field testing and inspection of the system or portion of the system to be tested has been completed.

7.3.3   Stops any test which, in his or her judgment, may cause damage to the system until the problem has been resolved.

7.3.4   After verifying there is no adverse impact, may alter the sequence in which systems or subsystems are tested.

7.3.5   Ensures that required environmental conditions are maintained.

7.3.6   If a test is to be suspended for a period of time, ensures that the system is left in a safe mode.

7.3.7   Before restarting suspended test, reverifies the test prerequisites.

7.3.8   Initiates ECNs to document required changes to the ATP/OTP.

7.3.9   Reviews recorded data, discrepancies, and exceptions.

7.3.10   Obtains information or changes necessary to clear or resolve objections during the performance of the test.

7.3.11   Signs Execution and Test Approval page when test has been performed.

7.3.12   Signs Exception Form when exception has been resolved.

7.3.13   Obtains required signatures on the ATP/OTP Master prior to reproduction and distribution.

7.4   Witnesses

7.4.1   Witness the tests.

7.4.2   Review results of testing.

7.4.3   Assist the Test Director when requested.

7.4.4   Sign Execution and Test Approval page when test has been performed.

7.4.5   Sign Exception Form when exception has been resolved.

7.5   Recorder

7.5.1   Prepares a Field copy from the ATP/OTP Master.

7.5.2   Records names of all designated personnel on Field copy of ATP/OTP prior to start of testing.

7.5.3   Records test instrument identification numbers and calibration expiration dates, as required.

7.5.4   Initials and dates every test step on the Field copy as it is completed next to the step number or on a data sheet, when provided. Records test data. On data sheets where there is not room for both the initial and date, date may be entered at bottom of column.

7.5.5   Records objections and exceptions on an Exception Form. Uses additional Exception forms as needed. Notifies the Test Director at time the objection is made.

7.5.6   Signs Execution and Test Approval page when test has been performed.

7.5.7   After test is finished, assigns alpha numeric page numbers to added data sheets and Exception forms. Records page numbers in the Table of Contents.

7.5.8   Transfers Field copy entries for each step to the Master in ink or type, signs, and dates. Transmits the completed Master to the Test Director for approval signature routing. Transmits the Field copy to Document Control for inclusion in the official project file.

7.5.9   Signs Exception Form when exception has been resolved and transmits to Test Director.

7.6   Instrument Technician

7.6.1   Performs test under direction of the Test Director.

7.6.2   Confirms that all equipment required for performing test will be available at the start of testing.

7.6.3   Signs the Execution and Test Approval page.

7.7   A-E Acceptance Inspection, Design Engineer and Project Manager

7.7.1   Evaluate results.

7.7.2   Sign for Approval on Execution and Test Approval page.

8.0   INTERFACE AREAS

8.1   Failure of either the WPMCS or FPMCS located in WESF does not impact plant safety.

8.2   For the WPMCS and FPMCS located in WESF power originates at MCC-2 to panelboard 225B-LEP-OG-1. Power for the horns in the 225B hallway and trailer MO863 originates from panelboard C circuit 21 in the 225B operating gallery. No lock and tag work is required as part of this test.

9.0 TEST RESULTS

9.1 The WPMCS portion of the tests confirmed the configuration software and functional operation of the hardware provided by Bailey Controls. The FPMCS portion of the tests confirmed the configuration software and functional operation of the hardware provided by Bailey Controls.

9.2 The EWS-1 configuration software for the WPMCS master alarm tests, step 5.5.2, permitted easy modification to the Bailey Controls digital input function blocks to indicate the correct off-state and alarm on-state. The EWS-1 configuration software for the alarm horns also permitted easy modification to the Bailey Controls digital output function block. With proper preplanning and excellent teaming, the remainder of the field input/output work did not require troubleshooting prior to operation.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 The operability test confirmed that the WPMCS Bailey Controls INFI 90 distributed control system with the LAN-90 Process Control View man-machine interface and improved software configuration tools will provide enhanced WESF operation and maintenance. The WPMCS self-diagnostic capability provides improved operation of the WESF facility.

10.2 The WPMCS will enhance operations in the WESF facility. WESF master alarms will easily acknowledged by operations. With the alarm logging and archiving utility, maintenance or modification requirements will be clearly identified.

11.0 DISPOSITION OF TEST ITEM

11.1 With the correction of Exception 1 for Step 5.3.4, the operation of the WPMCS as required by the project W-452 criteria is successfully confirmed. No outstanding project requirements remain.

EXCEPTION TO ACCEPTANCE/OPERABILITY TEST

Document Number: <u>WHC-SD-W452-OTR-002</u>

Serial or Test Number: _____

Title of Test: <u>Acceptance/Operability Test Procedure Project W452 - WESF Control Area</u>

	EXCEPTIONS			CORRECTION APPROVAL		
Paragraph No.	Date	Description	Org.	Initials	Date
# 1 5.3.4	11/21/96	See Attached	BWHC/KEN TECH SUPPORT See ECN 640987 Satisfactory	RN MH	2/25/97 2.25.97

NO OTHERS

MHill 3PLANT/WESF QA 1.28.97

TEST APPROVED WITH EXCEPTIONS

R. Kennard   1/29/97
System Engineer/BWHC   Date

M.A. Hill   1.29.97
Quality Assurance/BWHC   Date

Paul Semeressie   1/29/97
User/BWHC   Date

19
~~18~~ clm 2/28/97

W452 OTP

EXCEPTION TO ACCEPTANCE/OPERABILITY TEST (Continued)

EXCEPTION #1: PARAGRAPH 5.3.4, DESCRIPTION

Step 5.3.4, "Confirm operation of the optical disk drive as follows:" was not completed satisfactorily. The hardware provided did not respond as required by the Operational Test Plan in that communications with the optical disk were not possible. The condition precluded the demonstration of archival utility and related process.

NOTE:

An optical disk designed for 1048 bytes/sector was shipped with the WPMCS. A Bailey Technical Bulletin has now specified that 524 bytes/sector disk is the correct hardware for this application. Bailey will provide the new disk media which is required for historical archiving and retrieval. This media is required for the completion of the test and for compliance with the contract for materials as provided.

After optical disk was replaced the system operated as required. The optical disk now archives trend data as required. The archival was verified to Step 5.3.4 and ECN 640782. RN 2/25/97

2.25.97

PHSA Rank: 8   Qualitative Job Analysis   *12-Nov-96*

JHA ID: 2B-9611-316.	**Work Request ID:** 2B-96-00505/K

Work Title: WESF CONTROL AREA MODIFICATION
Facility/Area 225B/200E   **Walk-Through Conducted:** ☐
Description: PERFORM OTP OF MONITORING SYSTEM, WHC-SD-W452-TC-001

Other
Activities: NONE

Involvement

Industrial Safety ☐	Fire Protection ☐	RadCon ☐	Quality Assurance ☐
Industrial Hygien ☐	Environmental ☐	Nuclear Safety ☐	Criticality Safety Rep ☐

Determination

☒ If the current activity is fully covered by an RWP check this box. Fully covered means that the RWP must cover all types of activities included in this planned activity (such as breaching lines,tanks,etc.

☒ If the work activity is being performed per an approved (active) procedure, check this box.

☒ If the activity does not involve equipment replacement/repair or if the repair is like for like, check this box.

☒ If the safe completion of this work activity will not require a Caution or a Danger tag, then check this box.

☒ Review the current Safety Equipment List (SEL), if the work activity does not involve any equipment identified on the SEL, then check the box.

☒ If the safe completion of this activity does not require a permit, such as a Confined Space Permit, etc, then check this box.

☒ If all instructions for waste generation, handling and disposal related to materials involved in this work activity are approved, then check this box.

PHSA

TYPE OF PROCESS	TYPE OF OPERATION	EVENT OF CONCERN/SCENARIO
☐ Chemical	☐ Fixed Facility	☐ Single failure
☐ Electrical	☐ Transportation	☐ Loss of function
☐ Physical	☐ Permanent	☐ Procedure
☐ Electronic	☒ Temporary	☐ Multiple failure
☐ Mechanical	☐ Continuous	☐ Process upset
☒ Computer	☐ Semi-Batch	☐ Software
☐ Biological	☐ Batch	☐ Hardware
☐ Human		☐ Simple loss of containment
		☒ Human event

Complexity/Size	Probability of an Accident	Previous Accidents
2-Simple/Large	1-Low	1-None
Team Experience	**Severity of Consequences**	**Work Performed with**
2-Short	1-Minimum	1-No Changes

☐ Length - With similar proces   ☐ Significant Changes Involved

1

PHSA Rank: 8   **Qualitative Job Analysis**   *12-Nov-96*

ENVIRONMENTAL

AIR
- ☐ New activity
- ☐ New source
- ☐ Modification
- ☐ Involves open burning or training fires

MISCELLANEOUS
- ☐ Involves disposal of inert waste at a non-approved disposal site
- ☐ Includes construction of a solid waste facilit
- ☐ Installs, removes, or modifies an underground storage tank
- ☐ Includes demolition, cleanup and/or renovation involving asbestos

DANGEROUS WASTE
- ☐ Includes treatment, storage, and/or disposal of dangerous waste
- ☐ Generates or manages contaminated equipme

WATER
- ☐ Involves a new or existing liquid discharge to the ground or river
- ☐ Modify an existing, approved wastewater treatment system
- ☐ Modify an existing drinking water system
- ☐ Requires work over, in, or adjacent to a surface water body
- ☐ Installation or modification of a septic syste

WORKER SAFTEY

- ☐ Fall hazards over 6ft.
- ☐ Energy sources
- ☐ Temporary Electrical
- ☐ Electrical hazards
- ☐ De-energize equipment
- ☐ Fire or explosion
- ☐ Walking or working surfaces
- ☐ Excavation
- ☐ Demolition

- ☐ Roof work
- ☐ Pinch points
- ☐ Remote work
- ☐ Mechanized equipment
- ☐ Hand tools
- ☐ Pneumatic tools
- ☐ Electrical tools
- ☐ Hoisting or rigging or critical lif

NUCLEAR

- ☐ Work involving or impacting Criticality Alarm
- ☐ Plant location
- ☐ Fissionable materials in excess of 15g
- ☐ Criticality Prevention Specifications (CPS) or posting
- ☐ OSD/OSR limits
- ☐ Activity to be performed on OSD/OSR System

- ☐ Equipment on SEL
- ☐ System interacts with Safety Equipment
- ☐ > 500 gallons of hazardous materials
- ☐ More than one chemical involved
- ☐ Involves new chemicals or processes
- ☐ Radionuclide content
- ☐ ORR or Radionuclide non-routine or new activity
- ☐ Involves Radionuclide quantities exceeding 0.3 of the HC 3 levels

EXPOSURE

- ☐ Welding or cutting or burning or hot work
- ☐ Hazardous Waste operation
- ☐ Lead handling or abatement
- ☐ Confined space entry
- ☐ Noise or noise producing
- ☐ Contaminated soil or evacuation or disruption
- ☐ Temperature extreme

- ☐ Tank or line or vessel opening or breach
- ☐ Painting
- ☐ Asbestos handling or abatement
- ☐ Chemical/HazMat use/involveme
- ☐ Mercury work
- ☐ Berylium work
- ☐ Carcinogen work
- ☐ Dust Producing

Radiological work

Other exposure hazards

2

| PHSA Rank: | 8 | Qualitative Job Analysis | 12-Nov-96 |

Comments:

1. VOLTAGE MEASUREMENTS WILL BE TAKEN IN THE PCU LOCATED IN 225B BY THE CONSTRUCTION ELECTRICIANS.

PERSONS COMPLETING JHA: Team: CMT

Name	Organization	CWO
RAY HERNANDEZ	ENGINEER	☐
CHUCK CLEMMONS	PLANNER	☐

3

Bailey Controls Company
Customer Service Report

S.E.O. NO.: JOB 10115X   P.O. NO. _____   RELEASE _____

SERVICE FOR: Fluor Daniels Northwest

SERVICE LOCATION Hanford   PLANT NAME: B Plant

CITY Richland   STATE WA   ZIP ____

LOCAL CONTACT: Ed Vodopest   CONTACT PHONE NO.: 509-376-6259

PURCHASE CONTACT: Bob Kitchen 509-376-0501

WORK DESCRIPTION

WORK REQUIRED Perform Power + Ground Audit on PCU Cabinet

CUSTOMER REQUIRED WORK DATE 11/12/96

NOMENCLATURE	SERIAL NO.	BCCO (S.O.) NO.	FIRMWARE REV.	SOFTWARE REV.

ESTIMATED TIME IN SERVICE ____ % RELATIVE HUMIDITY ____ AMBIENT TEMP. F ____ ATMOSPHERE ☐ CLEAN ☐ DIRTY ☐ AVERAGE

WEEKLY SERVICE REPORTING DATA

EMPLOYEE CLOCK NO. 10591   COST CTR. NO. 793   SUNDAY WEEK ENDING DATE: ____

MATERIAL FURNISHED

PART NUMBER	QUANTITY	DESCRIPTION/MANUFACTURE

TRAVEL AND LIVING

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
LIVING EXPENSES ($)		58.50					
NUMBER OF MILES TRAVELED		369					
OTHER EXPENSES							

HOURS

CHARGE ACCOUNT	SYSTEM	ACTIVITY		11/11 MONDAY	11/12 TUESDAY	11/13 WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
10115X		200	REG		6					
			OT							
10115X		292	REG		2	2				
			OT		4					
			REG							
			OT							

EXT. AUTH. NO.

WORK SUMMARY: Performed Pwr + Grnd Audit

DC Common Faults Visual Insp - OK
Step   Impedandce Test - OK
1 .3Ω
2 13MΩ
3 OK

Voltage Test LINE AC UPS
Service 120VAC Line SPL
Dist. L-N 120VAC 123.4 122.9
   N-G 3VAC .5 .5
   L-G 120VAC 123.4 122.9

* True RMS Voltmeter
   Fluke 87

AUTHORIZATION
WORK COMPLETE ☑ YES ☐ NO
SERVICE ENGINEER Dennis Hode

APPROVED BY Ray Hernandez

TITLE Principal Engineer

BAILEY SERVICE OFFICE PHONE NO. 1-800-909-2782
DATE 11/13/96
DATE 11/13/96
COMPANY BWHC

SIGNED PRICE TO 11/13 Travel + Expsenses