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JAN 10 2000

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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AZ-101 Mixer Pump Test QTP

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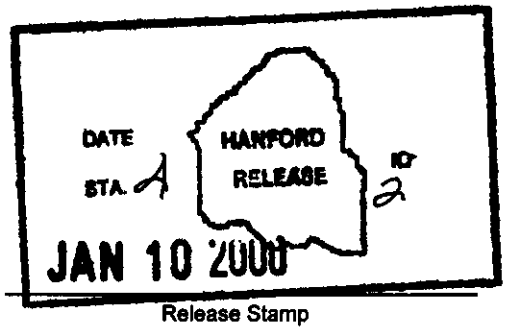
Abstract Describes the Qualification test procedure for the AZ-101 Mixer Pump Data Acquisition System (DAS)

Release Approval 1/6/00
Date



Release Stamp

Approved For Public Release

TEST TITLE AZ-101 Mixer Pump Test QTP

LOCATION 200 East Tank Farms AZ-101

TASK ORDER 65100541/52/9

PROJECT TITLE Tank AZ-101 Waste Retrieval System

Prepared By

Fluor Federal Services
Richland Washington

For CH2M Hill

PROCEDURE APPROVAL

FLUOR FEDERAL SERVICES (FFS)

W K Thomas Author	12-30-99 Date	Mark Manderbach Project Mgmt	12/30/99 Date
E Icayan, Checker	12-30-99 Date	S G Romero Prin Lead Eng	12/30/99 Date

CH2M HILL

Engineering	1-5-00 Date	QA/QC CH2M Hill	1-5-00 Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

Test Director (Recorder)/Organization	Date	Test Performer/Organization	Date
Test Performer/Organization	Date		

WITNESS

QA/QC CH2M Hill	Date
Authorized Inspector/Fluor Daniel Hanford	Date

A-E APPROVAL

FLUOR FEDERAL SERVICES (FFS)

Without Exception _____ With Exceptions resolved _____ With Exceptions outstanding _____

Design Engineer	Date

TABLE OF REVISIONS

Rev	Date of Issue	Description	Remarks
A	12/6/99	First Issue to Client	Comment Copy
B	12/14/99	Second Issue to Client	Incorporated Gary Tardiff's and Jim Bellomy s comments about modification of QTP and testing procedures
0	12/29/99	Issue ready for testing	

TABLE OF CONTENTS

1 INTRODUCTION

1 1 PURPOSE

The purpose of this Qualification Test Procedure (QTP) is to confirm that the AZ-101 Mixer Pump System has been properly programmed and hardware configured correctly This QTP will test the software setpoints for the alarms and also check the wiring configuration from the SIMcart to the HMI An Acceptance Test Procedure (ATP), similar to this QTP will be performed to test field devices and connections from the field

1 2 OVERVIEW

SIMCart Architecture

The QTP testing is to be performed with the assistance of advanced FFS testing tools referred to collectively as the Simulator Cart (SIMCart) In summary, the SIMCart is a field I\O simulator that generates actual signals from a testing database into a target PLC system via a set of wiring harnesses, and can accept responses from the target system The SIMCart can generate and accept both analog and discrete data to and from a target control system, and can accept operator responses and test exceptions via a personal computer Human Machine Interface (HMI)

The SIMCart is a movable cage containing a generic DIN rail mounted PLC and I/O modules with signal I/O and tester instructions being controlled by the resident Computer Automated Testing System (CATS) program and database that is located on a PC HMI The SIMCart is connected to the Target PLC via cables and quick disconnects The SIMCart Output modules will be connected to the Target PLC's Input modules and vice versa, thus the SIMCart will simulate the field instruments and the water treatment process These devices are configured rapidly for testing and retesting target PLC\HMI control systems

The CATS is a custom PC-based program (i e , engine) and database (DB), that utilizes predefined test case data tables to automatically verify the programming of a Target Control System The CATS DB is a[1] Microsoft® Access DB containing tables and reports The data tables contain information that is used in the varying testing stages of the target control system The information in the data tables is gathered during requirements definition, also referred to as the System Design Description (SDD) and can contain testing for alarms, instrument indications, general requirements, etc Information from these data tables is displayed for the test performers on the SIMCart PC HMI and in CATS DB reports During the QTP process the CATS engine and DB will be installed on the PC connected to the SIMCart, and thus the target system

[1] *Microsoft® is the registered trademark of Microsoft Corp*

SIMCart Description of CATS Engine

The CATS engine utilizes the CATS DB to test and ask for user responses

The CATS test engine has code to test 1) PLC and HMI Alarm Tests, 2) HMI functions, and 3) general system requirements

1) INDICATOR TEST SEQUENCE

a AZ-101 Mixer Pump Test Procedure

Only For Analog Input Test

1 SIMCart sets an analog memory register to maximum value
2 Ask Tester if the correct analog in value was displayed on the HMI
3 SIMCart sets an analog memory register to mid value
4 Ask tester if the correct analog in value was displayed on the HMI
5 SIMCart sets an analog memory register to minimum value
6 Ask tester if the correct analog in value was displayed on the HMI
7 Repeat for next Analog Input tag

Digital Input Test

1 Ask tester to force a digital memory register ON/OFF (depends if the signal is N O or N C) and acknowledge all alarms
2 Ask tester to force a digital memory register OFF/ON (depends if the signal is N O and N C)
3 Ask tester if the piece of equipment became active
4 Repeat for next Digital Input Test
5 After testing all Digital Input tags ask tester to clear all forces on the PLC

2) PLC AND HMI ALARM TEST SEQUENCE

For each alarm

1 AlmTest uses the tagname (from user input) to acquire alarm parameters (all that apply)
  1 1 Analog Alarms
    1 1 1 HiHi Limit
    1 1 2 Hi Limit
    1 1 3 Lo Limit
    1 1 4 LoLo Limit
    1 1 5 Deadband
    1 1 6 Initial (non-alarming) value

  1 2 Discrete Alarms
    1 2 1 Initial (non-alarming) value

2 Test HiHi limit (if it exists)
  2 1 Check for alarm at threshold + 1% of span

2 2 Acknowledge alarm
2 3 Verify alarm is active at threshold – 90% of deadband (if applicable)
2 4 Verify alarm clears outside deadband

3 Test Hi limit (if it exists)
3 1 Check for alarm at threshold + 1% of span
3 2 Acknowledge alarm
3 3 Verify alarm is active at threshold – 90% of deadband (if applicable)
3 4 Verify alarm clears outside deadband

4 Test LoLo limit (if it exists)
4 1 Check for alarm at threshold - 1% of span
4 2 Acknowledge alarm
4 3 Verify alarm is active at threshold + 90% of deadband (if applicable)
4 4 Verify alarm clears outside deadband

5 Test Lo limit (if it exists)
5 1 Check for alarm at threshold - 1% of span
5 2 Acknowledge alarm
5 3 Verify alarm is active at threshold + 90% of deadband (if applicable)
5 4 Verify alarm clears outside deadband

6 Test discrete alarm (if applicable)
6 1 Test for alarm in off-normal state
6 2 Acknowledge alarm
6 3 Verify alarm clears on return to normal

7 Process the next alarm (if batch mode), else exit

Tests for annunciation (a) on a screen, (b) on the CURRENT ALARMS screen Checks acknowledgement (e g flashing red goes to steady) If a deadband exists, verify that the alarm remains active within the deadband Verify the alarm clears when the state returns to normal The system logs all SIMCart output changes and responses to questions about the target system response

SIMCart QTP Usage

The SIMCart is used to test the target system at the CCAD staging facility, located at 1135 Jadwin in Richland, WA

The CATS DB data tables will be configured with information from this SDD that provides test cases composed of test steps (requirements and criteria) These test case data tables form the basis of the CATS DB and the SIMCart testing methodology, as these data tables dictate what signals are sent to the target system PLC and the questions and instructions that are issued to the tester The CATS DB data tables are found in Section 8

- General System Requirements

- PLC Functions including alarms, Logic, Auto/Manual Control, etc
- HMI Functions including alarms, trending, reporting, archives

The CATS first runs an automatic mapping of I/O between the SIMCart and the target system This ensures that the simulated and generated signals arrive at the correct locations
During the testing a Tester will be at the CATS and will operate and oversee the testing The CATS automatically generates signals based on test cases and test steps within the CATS DB and asks for verification from the tester on whether 1) the proper result was obtained (e g , an alarm was triggered) or 2) a preparation step was completed All SIMCart and target system PLC actions and responses are recorded in a log, as are the results from the Tester questions and instructions The test results associated with a test case/step are stored for 1) reporting, 2) verification and validation activities, 3) system diagnosis, and 4) error correction

Reports are generated automatically for all test cases/steps and include a 1) Passing Report and 2) an Exception Report Examples of these reports are found in Appendix A The generated Reports document the date/time of the report, Tester name, test witness, date and time stamp of test case/step, and test case/step description The Passing Report documents all successfully executed tests The Exception Report documents when a test case/step fails, and any comments from the Tester about the error or suspected problem to assist in diagnosis--refer to Section 6 0

The Exception Reports will allow developers to correct any system problems These Exception reports result when expected results stored in the CATS DB tables do not match the testing results recorded for a test step

For example CATS will turn on a digital output on the SIMCart that correlates to a digital alarm on the target system (the target systems digital in) It will then prompt the testing operator "Did the XXX alarm activate?" where XXX would be the alarm name "Yes or No" If the tester clicks on "Yes" then the test case is recorded as passed, if the tester clicks on the "No" button then it will be recorded as failed and an exception report generated There are many other types of test cases, P&ID loops, instrumentation indication, etc , all of which will be contained in the CATS DB

2 REFERENCES

2 1 DOCUMENTS

SYSTEM DESIGN DESCRIPTION (SDD) RPP-5572

2 2 DEFINITIONS

Application Software Application software is the general term applied to the software that will be developed based on the operational requirements set forth in this document The application software performs or supports the performance of the primary functions of the System as described herein

ATP Acceptance Test Procedure is used to demonstrate that a system has been properly installed according to the approved design

Auto Refers to the automatic operation of equipment and/or control sequences in response to inputs from sensors and outputs to effectors by the process control software, without operator intervention (See Manual for comparison)

Critical Alarms Alarms deemed sufficiently important to be communicated to a central operations station These are any alarms signaling immediate safety hazards, critical equipment failures, etc

CPU Central Processing Unit (e g , the Pentium chip)

ECN Engineering Change Notice

HMI Software An HMI (Human-Machine Interface) software package by [1]Citect® is used to create the operator interface portion of the AZ-101 Mixer Pumps [1]Citect® works within the [2]MicroSoft Windows NT® environment to provide graphic displays with user-friendly controls

I/O Inputs and Outputs - The PLC provides the hardware interface for all field inputs and outputs which are typically divided into Discrete (On/Off) and Analog (Process Variable) inputs and outputs Discrete Inputs and Outputs (DI and DO) are represented by devices such as switches and motor starters, respectively Analog Inputs and Outputs (AI and AO) are represented by process variable transmitters, and variable speed drives, respectively

Local Refers to the control capabilities provided at the equipment via the PLC or hardwired controls

[1]Citect® is the registered trademark of Ci Technologies Pty Limited
[2]MicroSoft Windows NT® is the registered trademark of Microsoft Corp

Manual Refers to control by the direct action of the operator Hardwired interlocks are not bypassed under this control scheme, however, software interlocks active under Auto mode may be bypassed (See Auto for comparison)

Menu List A software list displayed on the graphic display screens that provides the various programmed actions available to the operator

Operating System Operating System software directly manages the physical computer resources on behalf of the application software For the AZ-101 Mixer Pumps, this will be [1]Microsoft Windows NT® providing multi-windowing and multi-tasking capability (See HMI Software)

Owner Operations group of CH2M Hill

PC Personal Computer used with operator interface software to provide the HMI

PLC The Programmable Logic Controller is the microprocessor-based industrial controller capable of real-time control The PLC provides all of the discrete and process control logic required for controlling the process Once the PLC program has been loaded into the PLC controller module, the PLC will execute all control functions even if connection to the HMI is severed or interrupted

PID Proportional / Integral / Derivative (Relational aspects between process control error and output)

RAM Random Access Memory is the location where the computer's CPU temporarily stores data as it executes the programs it is running Generally, the more RAM a computer has the faster it can run any of its programs, since access to data in RAM is much faster than access to data on a hard disk

Real-time Indicates that data presented or controls activated are being processed and implemented in an acceptable time frame which is usually after an imperceptible time delay from the process events

Sensor Refers to any instrument or device that detects and inputs signals to provide indication and/or status It may provide an Analog Input (AI) or a Discrete Input (DI)

TCP/IP Transport Control Protocol / Internet Protocol (De facto standard for [2]UNIX® and [1]MicroSoft Windows NT® Ethernet communications)

Window Term used to describe a part or all of a complete screen display

3 RESPONSIBILITIES

[1]Microsoft Windows NT® is a trade mark of Microsoft Corp
[2]UNIX® is the registered trademark of The Open Group

3 1 GENERAL

Each company or organization participating in this QTP will designate personnel to assume the responsibilities and duties as defined herein for their respective roles The designees shall become familiar with this QTP and the systems involved to the extent that they can perform their assigned duties One person can perform many duties, except in cases where independence (e g , test witness, test performer) is required

3 2 FFS Project Lead Engineer

3 2 1 Designates a Test Director

3 2 2 Acts as liaison between the participants in acceptance testing

3 2 3 Schedules and conducts a pretest kickoff meeting with test participants when necessary

3 2 4 Signs Execution and Test Approval page when test is complete and accepted

3 2 5 Signs exception form when all exceptions have been resolved

3 2 6 Provides a distribution list for the approved and accepted QTP

3 3 TEST DIRECTOR

3 3 1 Coordinates and directs acceptance testing

3 3 2 Coordinates testing with the Facility Manager

3 3 3 Distributes the approved testing schedule before start of testing

3 3 4 Notifies the persons performing and witnessing the test 2 days before the start of testing

3 3 5 Schedules a dry run when necessary

3 3 6 Notifies concerned parties when a change is made in the testing schedule

3 3 7 Arranges for craft electrician labor as required

3 3 8 Confirms that field testing and inspection or the system or portion of the system to be tested has been completed

3 3 9 Stops any test which, in his or her judgement, may cause damage to the system until the problem has been resolved

3 3 10 After verifying there is no adverse impact, may alter the sequence in which systems or subsystems are tested

3 3 11 Ensures that required environmental conditions are maintained

3 3 12 If a test is to be suspended for a period of time, ensures that the system is left in a safe mode

3 3 13 Before restarting suspended test, reverifies the test prerequisites

3 3 14 Initiates required changes to the QTP

3 3 15 Reviews recorded data, discrepancies, and exceptions

3 3 16 Obtains information or changes necessary to clear or resolve objections during the performance of the test

3 3 17 Takes necessary action to clear exceptions to the test

3 3 18 Signs Execution and Test Approval page when test has been performed

3 3 19 Obtains required signatures on the QTP Master prior to reproduction and distribution

3 4 WITNESS (AS REQUIRED BY FFS AND CH2M HILL)

3 4 1 Witnesses the tests

3 4 2 Reviews results of testing

3 4 3 Assists the Test Director when requested

3 4 4 Signs Execution and Test Approval page when test has been performed

3 4 5 Records names of all designated personnel on master copy of QTP prior to start of testing

3 4 6 Records test instrument identification numbers and calibration expiration dates, if applicable

3 5 TEST OPERATOR

(One Test Performer will operate the Test Set and the other Test Performer will operate the PLC control system)

3 5 1 Perform test under direction of the Test Director

3 5 2 Signs the Execution and Test Approval page

4 CHANGE CONTROL

Required changes to this QTP must be recorded on the exceptions form

5 EXECUTION

5 1 OCCUPATIONAL SAFETY AND HEALTH

5 1 1 Individuals shall carry out their assigned work in a safe manner in accordance with FFS Practice 134 653 1010, to protect themselves and others from undue hazards and to prevent damage to property and environment Facility line managers shall assure the safety of activities within their areas to prevent injury, property damage, or interruption of operation Performance of test activities shall always include safety and health aspects

5 1 2 All equipment will be de-energized prior to any connecting or disconnecting of wiring or hardware

5 1 3 Read and sign the JSA located at the test site

5 2 PERFORMANCE

Perform the test by following the steps and requirements of this procedure Test sections are not required to be performed in order Out of Sequence steps may be performed after notifying test personnel present at the time of the deviation

6 EXCEPTIONS

6 1 GENERAL

Exceptions to the required test results are sequentially numbered and recorded Actions taken to resolve the errors in the QTP shall be documented and approved by the test director Retesting of the step(s) shall be performed and documented on the exception form The exception form is included in Appendix A

6 2 RETEST/RESOLUTION

Record the action taken to resolve each exception The action taken may not necessarily be the same as the planned action

6 2 1 When action taken results in an acceptable retest, sign and date the appropriate procedural step

7 PREREQUISITES

7 1 EQUIPMENT/INSTRUMENTS

7 1 1 Test leads with insulated covers for wire clips

7 1 2 Portable DC power supply, 0 to 15 volts

7 1 3 Portable Potentiometer box with 0-20 ohm potentiometers for Pump Phase Windings and 0-200 ohm potentiometers for Upper and Lower Bearing Temperatures

7 1 4 Portable External Heating Device

7 2 CONDITIONS

7 2 1 Systems inspected for compliance with construction documents

7 2 2 Reference documents verified for latest revision and outstanding ECN's

7 2 3 Prejob safety analysis completed and a prejob safety meeting conducted

7 2 4 Test instruments have a valid calibration stamp attached and instrument identification numbers and expiration dates recorded in 7 1

8 SECTIONS TO BE TESTED FOR QTP

8 1 POWERING UP AND LOGIN

____	8 1 1	Turn on all equipment Verify appropriate power indicators are lighted	Is all appropriate equipment on?
____	8 1 2	On the workstations start Plant Floor Manager and Citect Explorer Select project W 151 to run for Citect	N/A
____	8 1 3	Verify Citect is communicating with the sixnet modules by looking to see if the (ACT) red light is blinking on the sixnet modules and ethernet modules	Is the (ACT) red light blinking on the sixnet modules and ethernet modules?

8 2 SCREEN TO SCREEN MOVEMENT

This section is to verify and test all major screen buttons, keyboard commands and tables when in ready mode The Test Director or Operator will step through each screen and verify it is in Ready mode No activation or changing of setpoints will be done in this section

____	8 2 1	Click on the F1 F6 buttons and verify you can toggle between the different screens (F1 Overview F2 Pump Status F3 Strain F4 Temp Profiles F5 Micon Data, F6 System Alarms)	Can you toggle between the different screens with the F1 F6 buttons?
____	8 2 2	Click on the F7 F10 buttons and verify you can toggle between the different screens (F7 Hardware Alarms F8 Alarm Summary F9 Login click cancel to close login form F10 Information click on book icon button to close popup window)	Can you toggle between the different screens with the F7 F10 buttons?
____	8 2 3	Click on the Information button on the Overview screen located between the two pumps and verify a popup window appears giving a brief description of the project Close the window by clicking the book icon	Does a popup window appear giving a brief description of the project?
____	8 2 4	Click on the Riser 15E button and verify it takes you to the Strain screen	Are you at the Strain screen?
____	8 2 5	Verify that the Internal Operating Temperature status tag to the right of the Riser 15E and to the left of the Riser 15F are displaying approximately the room temperature	Are the Internal Operating Temperature status indicators displaying the room temperature?
____	8 2 6	Return to the Overview screen by clicking on the Overview tab	N/A
____	8 2 7	Click on the Riser 15F button and verify it takes you to the Strain screen	Are you at the Strain screen?
____	8 2 8	Return to the Overview screen by pressing F1	N/A
____	8 2 9	Click on the Mixer 1 button and verify it takes you to the Pump Status screen	Are you at the Pump Status screen?
____	8 2 10	Return to the Overview screen by clicking on the Overview tab	N/A
____	8 2 11	Click on the Mixer 2 button and verify it takes you to the Pump Status screen	Are you at the Pump Status screen?
____	8 2 12	Return to the Overview screen by clicking on the Overview tab	N/A
____	8 2 13	Click on each of the main screen tabs (Overview Pump Status Strain Temp Profiles Micon Data, and Alarms) at the top of the screen and verify the screen for that tagname opens	Do the correct screens open for the tagname selected?

____	8 2 14	Click on the Temp Profiles tab at the top and verify all temperature indicators TE 37 through TE 58 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do TE 37 through TE 58 display a trend chart when clicked on?
____	8 2 15	Click on the Insulation Concrete button and verify temperature indicators TE 1 through TE 13 and TE 15 through TE 24 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do temperature indicators TE 1 through TE 24 display a trend chart when clicked on ?
____	8 2 16	Click on the Sludge (Drywell) button and verify the temperature indicators TE 71 through TE 73 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do the temperature indicators TE 71 through TE 73 display a trend chart when clicked on ?
____	8 2 17	Click on the Tank Foundation button and verify the temperature indicators TE 28 through TE 36 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do the temperature indicators TE 28 through TE 36 display a trend chart when clicked on?
____	8 2 18	Click on the Tank Dome button and verify the temperature indicators TE 74 through TE 85 and TE 25 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do the temperature indicators TE 74 through TE 85 and TE 25 display a trend chart when clicked on?
____	8 2 19	Click on the Tank Wall button and verify the temperature indicators TE 86 through TE 97 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do the temperature indicators TE 86 through TE 97 display a trend chart when clicked on?
____	8 2 20	Click on the Profile Tree button and verify the temperature indicators TE 59 through TE 70 display a trend chart when clicked on Close each trend chart after opening it by clicking on the book icon	Do the temperature indicators TE 59 through TE 70 display a trend chart when clicked on?

8 3 PUMP STATUS

____	8 3 1	Toggle the bit for Pump Status (P #2Running) to ON and verify that the display tag for M2 Pump Status on the pump status screen is yellow and on the Overview screen it is red and says it is running	Does the display tag for M2 Pump Status on the Overview and Pump Status screens say it is running?
____	8 3 2	Verify on the Pump Status screen that the Total Time and Session Time is working for Pump 2 Run Time	Is the Total Time and Session Time working under Pump 2 Run Time?
____	8 3 3	The RESET button is for resetting the Total Time and can be done by an Engineer and above The Session Time is reset every time the pump is stopped and then started again	N/A
____	8 3 4	Click on the Login button located in the bottom left corner of the screen Login with Admin for username and ccadsi for password and click on the RESET button under Pump 2 Run Time and verify the Total Time resets to zero	Does the Total Time reset to zero?
____	8 3 5	Toggle the bit for M2 Pump Status (P #2Running) to OFF and back to ON and verify that the Session Time resets to zero	Does the Session Time reset to zero?
____	8 3 6	Toggle the bit for M2 Pump Status (P #2Running) to OFF and verify that the display tag on the Pump Status and Overview screens for M2 Pump Status say it is stopped and green	Does the display tag for M2 Pump Status on the Overview and Pump Status screens say it is stopped and is green?
____	8 3 7	Toggle the bit for M1 Pump Status (P #1Running) to ON and verify that the display tag for M1 Pump Status on the Pump Status screen is yellow and on the Overview screen it is red and says it is running	Does the display tag for M1 Pump Status on the Overview and Pump Status screens say it is running?
____	8 3 8	Verify on the Pump Status screen that the Total Time and ' Session Time is working under Pump 1 Run Time	Is the Total Time and Session Time working for Pump 1 Run Time?
____	8 3 9	The RESET button is for resetting the Total Time and can be done by an Engineer and above The Session Time time is reset every time the pump is stopped and then started again	N/A
____	8 3 10	Click on the Reset button under Pump 1 Run Time and verify the Total Time resets to zero	Does the Total Time reset to zero?

____	8 3 11	Toggle the bit for M1 Pump Status (P #1Running) to OFF and back to ON and verify that the Session Time resets to zero	Does the Session Time reset to zero?
____	8 3 12	Toggle the bit for M1 Pump Status (P #1Running) to OFF and verify that the display tag on the Pump Status and Overview screens for M1 Pump Status is green and says it is stopped	Does the display tag for M1 Pump Status on the Pump Status and Overview screens say it is stopped and is green?
____	8 3 13	Toggle the bit for M1 Water Pressure (P #1 Water Press Normal) for to the ON position	N/A
____	8 3 14	Verify the bit for M1 Water Pressure (P #1 Water Press Low) for is in the OFF position Verify the display tag for M1 Water Pressure is indicating Normal in green	Is the display tag for M1 Water Pressure for on the Pump Status screen indicating Normal in green?
____	8 3 15	Toggle the bit for M1 Water Pressure (P #1 Water Press Normal) to the OFF position and verify the display tag for M1 Water Pressure is indicating a Fault in yellow	Is the display tag for M1 Water Pressure on the Pump Status screen indicating Fault in yellow?
____	8 3 16	Toggle the bit for M1 Water Pressure (P #1 Water Press Normal) to the ON position The display tag for M1 Water Pressure should turn to a green Normal	Is the display tag M1 Water Pressure indicating green Normal
____	8 3 17	Toggle the bit for M1 Water Pressure (P #1 Water Press Low) to the ON position and verify the display tag for M1 Water Pressure is indicating Fault in yellow and the alarm clock icon is flashing red	Is the display tag for M1 Water Pressure on the Pump Status screen indicating Fault and is the alarm clock icon flashing red?
____	8 3 18	Toggle the bit for M1 Water Pressure (P #1 Water Press Normal) to the OFF position	N/A
____	8 3 19	Verify the display tag M1 Water Pressure is flashing red and says LOW Next go to the alarm page and verify there is a flashing message indicating that an alarm has been activated for AZ 101 P1 Water Pressure	Is there a flashing red alarm message displayed on the alarm page for AZ 101 P1 Water Pressure?
____	8 3 20	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 21	Toggle the bit for M1 Water Pressure (P #1 Water Press Low) to the OFF position and verify the display tag M1 Water Pressure is indicating Fault in yellow	Is the display tag for M1 Water Pressure on the Pump Status screen indicating Fault in yellow?
____	8 3 22	Toggle the bit for M1 Water Pressure (P #1 Water Press Normal) I to the ON position The display tag M1 Water Pressure should turn to a green Normal	Is the display tag M1 Water Pressure indicating green Normal
____	8 3 23	Toggle the bit for M2 Water Pressure (P #2 Water Press Normal) to the ON position	
____	8 3 24	Verify the bit for M2 Water Pressure (P #2 Water Press Low) is in the OFF position Verify the display tag for M2 Water Pressure is indicating green Normal	Is the display tag for M2 Water Pressure on the Pump Status screen indicating Normal in green?
____	8 3 25	Toggle the bit for M2 Water Pressure (P #2 Water Press Normal) to the OFF position and verify the display tag M2 Water Pressure is indicating a Fault in yellow	Is the display tag for M2 Water Pressure on the Pump Status screen indicating Fault in yellow?
____	8 3 26	Toggle the bit for M2 Water Pressure (P #2 Water Press Normal) to the ON position The display tag M2 Water Pressure should turn to a green Normal	Is the display tag M2 Water Pressure on the Pump Status screen indicating Normal in green
____	8 3 27	Toggle the bit for M2 Water Pressure (P #2 Water Press Low) to the ON position and verify the display tag M2 Water Pressure is indicating a Fault in yellow and the alarm clock icon at the top is flashing red	Is the display tag for M2 Water Pressure indicating Fault in yellow and is the alarm clock icon at the top flashing red?
____	8 3 28	Toggle the bit for M2 Water Pressure (P #2 Water Press Normal) to the OFF position	N/A

____	8 3 29	Verify the display tag M2 Water Pressure is flashing red and says LOW Next go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P2 Water Pressure	Is there a flashing red alarm message displayed on the alarm page for AZ 101 P2 Water Pressure?
____	8 3 30	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 31	Toggle the bit for M2 Water Pressure (P #2 Water Press Low) to the OFF position and verify the display tag M2 Water Pressure is indicating a Fault in yellow	Is the display tag M2 Water Pressure indicating Fault in yellow?
____	8 3 32	Toggle the bit for M2 Water Pressure (P #2 Water Press Normal) 2 to the ON position The display tag M2 Water Pressure should turn to a green Normal	Is the display tag M2 Water Pressure on the Pump Status screen indicating Normal in green
____	8 3 33	Toggle the bit for Bearing Water Filter DP (Water DP Norm) to the ON position	
____	8 3 34	Toggle the bit for Bearing Water Filter DP (Water DP High) to the OFF position Verify the display tag for Bearing Water Filter DP is indicating Normal in green	Is the display tag for Bearing Water Filter DP on the Pump Status screen indicating Normal in green?
____	8 3 35	Toggle the bit for Bearing Water Filter DP (Water DP Norm) to the OFF position and verify the display tag for Bearing Water Filter DP is indicating a Fault in yellow	Is the display tag for Bearing Water Filter DP on the Pump Status screen indicating 'Fault in yellow?
____	8 3 36	Toggle the bit for Bearing Water Filter DP (Water DP Norm) to the ON position The display tag Bearing Water Filter DP should turn to a green Normal	Is the display tag Bearing Water Filter DP indicating Normal in green
____	8 3 37	Toggle the bit for Bearing Water Filter DP (Water DP High) to the ON position and verify the display tag for Bearing Water Filter DP is indicating a Fault in yellow	Is the display tag for Bearing Water Filter DP indicating Fault in yellow?
____	8 3 38	Go to Alarm screen and verify an alarm has been activated for AZ 101 P2 Differential Pressure Acknowledge the alarm by clicking on the flashing red message AZ 101 P2 Differential Pressure Return to Pump Status screen	Has an alarm been activated for AZ-101 P2 Differential Pressure?
____	8 3 39	Toggle the bit for Bearing Water Filter DP (Water DP High) to the OFF position Toggle the bit for Bearing Water Filter DP (Water DP Norm) to the OFF position Toggle the bit for Bearing Water Filter DP (Water DP High) to the ON position	N/A
____	8 3 40	Verify the display tag Bearing Water Filter DP is flashing red and says HIGH Next go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ-101 P2 Differential Pressure	Is there a flashing red alarm message displayed for AZ 101 P2 Differential Pressure on the alarm page?
____	8 3 41	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 42	Toggle the bit for Bearing Water Filter DP (Water DP High) to the OFF position and verify the display tag for Bearing Water Filter DP is indicating a FAULT in yellow	Is the display tag indicating Fault in yellow
____	8 3 43	Toggle the bit for Bearing Water Filter DP (Water DP Norm) to the ON position The display tag Bearing Water Filter DP should turn to a green Normal	Is the display tag indicating Normal in green
____	8 3 44	Toggle the bit for M2 Upper Vibration (P #2 Upper Vibration) to ON and verify that the display tag for M2 Upper Vibration changes from a green Normal to a red High indication	Does the display tag for M2 Upper Vibration change from a green Normal to a red High ?

____	8 3 45	Verify the alarm clock icon at the top is flashing red and in motion Next go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P2 Upper Vibration	Is there a flashing red alarm message for AZ 101 P2 Upper Vibration displayed on the alarm page?
____	8 3 46	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 47	Toggle the bit for M2 Upper Vibration (P #2 Upper Vibration) to OFF and verify that the display tag for M2 Upper Vibration changes from a red High indication to a green Normal	Does the display tag for M2 Upper Vibration change from a red High indication to a green Normal ?
____	8 3 48	Go to the alarm page and verify the alarm for AZ 101 P2 Upper Vibration has been deleted from the alarm page	Has the alarm for AZ 101 P2 Upper Vibration been cleared from the alarm page?
____	8 3 49	Toggle the bit for M1 Upper Vibration (P #1 Upper Vibration) to ON and verify that the display tag for M1 Upper Vibration changes from a green Normal to a red High indication	Does the display tag for M1 Upper Vibration change from a green Normal to a red High ?
____	8 3 50	Verify the alarm clock icon at the top is flashing red and in motion Next go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P1 Upper Vibration	Is the alarm clock icon flashing red and is there an alarm message displayed for AZ 101 P1 Upper Vibration on the alarm page?
____	8 3 51	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 52	Toggle the bit for M1 Upper Vibration (P #1 Upper Vibration) to OFF and verify that the display tag for M1 Upper Vibration changes from a red High indication to a green Normal indication	Does the display tag for M1 Upper Vibration change from a red High indication to a green Normal indication?
____	8 3 53	Go to the alarm page and verify the alarm for AZ 101 P1 Upper Vibration has been cleared from the alarm page	Has the alarm for AZ 101 P1 Upper Vibration been cleared from the alarm page?
____	8 3 54	Toggle the bit for M2 Lower Vibration (P #2 Lower Vibration) to ON and verify that the display tag for M2 Lower Vibration on the pump status screen changes from a green Normal to a red High indication	Does the display tag for M2 Lower Vibration change from a green Normal to a red High ?
____	8 3 55	Verify the alarm clock icon at the top is flashing red and in motion Next go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P2 Lower Vibration	Is the alarm clock icon flashing red and is there an alarm message displayed for AZ 101 P2 Lower Vibration on the alarm page?
____	8 3 56	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 57	Toggle the bit for M2 Lower Vibration (P #2 Lower Vibration) to OFF and verify that the display tag for M2 Lower Vibration on the pump status screen changes from a red High indication to a green Normal	Does the display tag for M2 Lower Vibration change from a red High indication to a green Normal ?
____	8 3 58	Go to the alarm page and verify the alarm for AZ 101 P2 Lower Vibration has been cleared from the alarm page	Has the alarm for AZ 101 P2 Lower Vibration been cleared from the alarm page?
____	8 3 59	Toggle the bit for M1 Lower Vibration (P #1 Lower Vibration) to ON and verify that the display tag for M1 Lower Vibration changes from a green Normal to a red High indication	Does the display tag for M1 Lower Vibration change from a green Normal to a red High ?
____	8 3 60	Verify the alarm clock icon at the top is flashing red and in motion Next go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P1 Lower Vibration	Is the alarm clock icon flashing red and is there an alarm message displayed for AZ 101 P1 Lower Vibration on the alarm page?

____	8 3 61	Acknowledge the alarm by clicking on the alarm clock icon on the side (which consists of a green check mark inside it) or click on the flashing alarm message Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 62	Toggle the bit for M1 Lower Vibration (P #1 Lower Vibration) to OFF and verify that the display tag for M1 Lower Vibration on the pump status screen changes from a red High indication to a green Normal	Do the display indication tag for M1 Lower Vibration change from a red High to a green Normal ?
____	8 3 63	Go to the alarm page and verify the alarm for AZ 101 P1 Lower Vibration has been cleared from the alarm page	Has the alarm for AZ 101 P1 Lower Vibration been cleared from the alarm page?
____	8 3 64	Toggle the bit for Pump Status (P #2 Fault) to ON	N/A
____	8 3 65	Verify the display tag Pump Status changes from a green OK to a red Fault on the Overview screen and a green STOPPED to a red Fault on the Pump Status screen	Do the status indicators indicate the mentioned states (red Fault)
____	8 3 66	Go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P2	Has an alarm been activated for AZ 101 P2?
____	8 3 67	Acknowledge the alarm by clicking on the alarm clock icon on the side which consists of a green check mark inside it Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 68	Toggle the bit for Pump Status (P #2 Fault) to OFF	N/A
____	8 3 69	Verify the display tag Pump Status changes from a red Fault to a green OK on the Overview screen and a red Fault to a green STOPPED on the Pump Status screen	Do the status indicators indicate the mentioned states?
____	8 3 70	Go to alarm page and verify the alarm has cleared for AZ 101 P2	Has the alarm cleared for AZ 101 P2?
____	8 3 71	Toggle the bit for Pump Status (P#1 Fault) to ON	N/A
____	8 3 72	Verify the display tag changes from a green OK to a red Fault on the Overview screen and a green STOPPED to a red Fault on the Pump Status screen	Do the status tags indicate the mentioned states?
____	8 3 73	Go to the alarm page and verify there is a message indicating that an alarm has been activated for AZ 101 P1	Has an alarm been activated for AZ 101 P1?
____	8 3 74	Acknowledge the alarm by clicking on the alarm clock icon which consists of a green check mark inside it Verify the alarm message stops flashing when acknowledged Return to the Pump Status screen	Does the message stop flashing when acknowledged?
____	8 3 75	Toggle the bit for Pump Status (P #1 Fault) to OFF	N/A
____	8 3 76	Verify the display tags change from a red Fault to a green OK on the Overview screen and a red Fault to a green STOPPED on the Pump Status screen	Do the status indicators for Pump Status indicate the mentioned states?
____	8 3 77	Go to alarm page and verify the alarm has cleared for AZ 101 P1	Has the alarm cleared for AZ 101 P1?
____	8 3 78	The following steps will be testing the Internal Operating Temperature alarm setpoints for 15E and 15F	N/A
____	8 3 79	Go to the Strain screen and using an external heating device increase the temperature of WT 15E 1 (15E Internal Temp) until the Internal Operating Temperature status tag reads above 80 degrees F	N/A
____	8 3 80	Verify the Internal Operating Temperature status tag turns from a red to a white Remove the external heat source and let WT 15E 1 cool	Does the Internal Operating Temperature status tag turn from a red to a white?
____	8 3 81	Verify the status tag for 15E Internal Operating Temperature is flashing red when the temperature reaches below 80 degrees F Go to the alarm page and verify an alarm has been activated for 15E internal Temperature	Is there an alarm for 15E Internal Temperature on the alarm page?
____	8 3 82	Acknowledge the 15E Internal Temperature message on the alarm screen	N/A

____	8 3 83	Go to the Strain screen and using an external heating device increase the temperature of WT 15F 1 (15F Internal Temp) until the Internal Operating Temperature status tag reads above 80 degrees F	N/A
____	8 3 84	Verify the Internal Operating Temperature status tag turns from a red to a white Remove the external heat source and let WT 15E 1 cool	Does the Internal Operating Temperature status tag turn from a red to a white?
____	8 3 85	Verify the status tag for 15F Internal Operating Temperature is flashing red when the temperature reaches below 80 degrees F Go to the alarm page and verify an alarm has been activated for 15F internal Temperature	Is there an alarm for 15F Internal Temperature on the alarm page?
____	8 3 86	Acknowledge the 15F Internal Temperature message on the alarm screen	N/A

8 4 15E STRAIN GAUGES

The following table will be used to enter a Pass/Fail for the strain gauges as they are verified The following calculations were used to determine what raw value to use

Electrical Ranges of Equipment
4 – 20mA for Sixnet
0 – 10mV for Signal Conditioner

Calculations for raw data input
10mV/20 4 = 625uV/per mA
1 6mA = 1 000uV
So for range of Sixnet would be 4mA to 5 6mA

For 500uV and –500uV
(4 8mA – 4mA/20 – 4)(32767)= 1638 raw data input

For 1000uV and –1000uV
(5 6mA – 4mA/20 – 4)(32767) = 3277 raw data input

If Range from 0 to 62,000
16(625uV) = 10 000uV max
10 000/62 000 = 16 12%

When the Tester sets the strain gauge to 0 the reading on the status tag will vary slightly due to noise

SCREEN NAME	TAG NAME	PASS/FAIL 0uV	PASS/FAIL 500uV	PASS/FAIL –500uV	PASS/FAIL 1000uV	PASS/FAIL –1000uV
WT 101 01	WI_AZ1_15 E_701A					
WT 101 02	WI_AZ1_15 E_702A					
WT 101 03	WI_AZ1_15 E_703A					
WT 101 04	WI_AZ1_15 E_704A					
WT 101 05	WI_AZ1_15 E_705A					
WT 101 06	WI_AZ1_15 E_706A					

____	8 4 1	Start out at the Strain screen	
____	8 4 2	The following is going to test the Riser 15E Strain Gauge modules from 0 to 1000uV	N/A
____	8 4 3	To simulate the strain gauge a raw data input from 0 to 3277 will be used Refer to QTP document Section 8 4 for calculations	N/A

____	8 4 4	Set WI_AZ1_15E_701A (WT 101 01) to 0 and verify the status tag (WT 101 01) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 01) read approximately 0 uV?
____	8 4 5	Set WI_AZ1_15E_701A (WT 101 01) to 1638 and verify the status tag (WT 101 01) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 01) read approximately 500 uV?
____	8 4 6	Set WI_AZ1_15E_701A (WT 101 01) to 3277 and verify the status tag (WT 101 01) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 01) read approximately 1000 uV?
____	8 4 7	Set WI_AZ1_15E_702A (WT 101 02) to 0 and verify the status tag (WT 101 02) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 02) read approximately 0 uV?
____	8 4 8	Set WI_AZ1_15E_702A (WT 101 02) to 1638 and verify the status tag (WT 101 02) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 02) read approximately 500 uV?
____	8 4 9	Set WI_AZ1_15E_702A (WT 101 02) to 3277 and verify the status tag (WT 101 02) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 02) read approximately 1000 uV?
____	8 4 10	Set WI_AZ1_15E_703A (WT 101 03) to 0 and verify the status tag (WT 101 03) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 03) read approximately 0 uV?
____	8 4 11	Set WI_AZ1_15E_703A (WT 101 03) to 1638 and verify the status tag (WT 101 03) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 03) read approximately 500 uV?
____	8 4 12	Set WI_AZ1_15E_703A (WT 101 03) to 3277 and verify the status tag (WT 101 03) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 03) read approximately 1000 uV?
____	8 4 13	Set WI_AZ1_15E_704A (WT 101 04) to 0 and verify the status tag (WT 101 04) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 04) read approximately 0 uV?
____	8 4 14	Set WI_AZ1_15E_704A (WT 101 04) to 1638 and verify the status tag (WT 101 04) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 04) read approximately 500 uV?
____	8 4 15	Set WI_AZ1_15E_704A (WT 101 04) to 3277 and verify the status tag (WT 101 04) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 04) read approximately 1000 uV?
____	8 4 16	Set WI_AZ1_15E_705A (WT 101 05) to 0 and verify the status tag (WT 101 05) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 05) read approximately 0 uV?
____	8 4 17	Set WI_AZ1_15E_705A (WT 101 05) to 1638 and verify the status tag (WT 101 05) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 05) read approximately 500uV?
____	8 4 18	Set WI_AZ1_15E_705A (WT 101 05) to 3277 and verify the status tag (WT 101 05) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 05) read approximately 1000 uV?
____	8 4 19	Set WI_AZ1_15E_706A (WT 101 06) to 0 and verify the status tag (WT 101 06) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 06) read approximately 0 uV?
____	8 4 20	Set WI_AZ1_15E_706A (WT 101 06) to 1638 and verify the status tag (WT 101 06) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 06) read approximately 500 uV?
____	8 4 21	Set WI_AZ1_15E_706A (WT 101 06) to 3277 and verify the status tag (WT 101 06) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 06) read approximately 1000 uV?

____	8 4 22	To test the range of the strain gauges from 0 to 1000uV the leads for each strain gauge on WT 15E 1 will need to be reversed	N/A
____	8 4 23	All terminals will be on WT 15E 1 Switch terminal 2 with terminal 1 Switch terminal 4 with terminal 3 Switch terminal 6 with terminal 5 Switch terminal 8 with terminal 7 Switch terminal 10 with terminal 9 Switch terminal 12 with terminal 11	N/A
____	8 4 24	Set WI_AZ1_15E_701A (WT 101 01) to 1638 and verify the status tag (WT 101 01) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 01) read approximately 500 uV?
____	8 4 25	Set WI_AZ1_15E_701A (WT 101 01) to 3277 and verify the status tag (WT 101 01) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 01) read approximately 1000 uV?
____	8 4 26	Set WI_AZ1_15E_702A (WT 101 02) to 1638 and verify the status tag (WT 101 02) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 02) read approximately 500 uV?
____	8 4 27	Set WI_AZ1_15E_702A (WT 101 02) to 3277 and verify the status tag (WT 101 02) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 02) read approximately 1000 uV?
____	8 4 28	Set WI_AZ1_15E_703A (WT 101 03) to 1638 and verify the status tag (WT 101 03) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 03) read approximately 500 uV?
____	8 4 29	Set WI_AZ1_15E_703A (WT 101 03) to 3277 and verify the status tag (WT 101 03) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 03) read approximately 1000 uV?
____	8 4 30	Set WI_AZ1_15E_704A (WT 101 04) to 1638 and verify the status tag (WT 101 04) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 04) read approximately 500 uV?
____	8 4 31	Set WI_AZ1_15E_704A (WT 101 04) to 3277 and verify the status tag (WT 101 04) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 04) read approximately 1000 uV?
____	8 4 32	Set WI_AZ1_15E_705A (WT 101 05) to 1638 and verify the status tag (WT 101 05) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 05) read approximately 500 uV?
____	8 4 33	Set WI_AZ1_15E_705A (WT 101 05) to 3277 and verify the status tag (WT 101 05) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 05) read approximately 1000 uV?
____	8 4 34	Set WI_AZ1_15E_706A (WT 101 06) to 1638 and verify the status tag (WT 101 06) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 06) read approximately 500 uV?
____	8 4 35	Set WI_AZ1_15E_706A (WT 101 06) to 3277 and verify the status tag (WT 101 06) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 06) read approximately 1000 uV?

8 5 15F STRAIN GAUGES

The following table will be used to enter a Pass/Fail for the given strain gauges as they are verified

SCREEN NAME	TAG NAME	PASS/FAIL OuV	PASS/FAIL 500uV	PASS/FAIL 1000uV	PASS/FAIL -500uV	PASS/FAIL -1000uV
WT 101 07	WI_AZ1_15 F_701A					
WT 101 08	WI_AZ1_15 F_702A					
WT 101 09	WI_AZ1_15 F_703A					
WT 101 010	WI_AZ1_15 F_704A					
WT 101 011	WI_AZ1_15 F_705A					
WT 101 012	WI_AZ1_15 F_706A					

____	8 5 1	To test the Riser 15F Strain Gauge you will need to unplug the 15 Pin omniconnector for 15E from the connector interface on the cart and plug in the 15 Pin omniconnector for 15F to the connector interface on the cart	Has 15E been unplugged and 15F been plugged into the connector interface?
____	8 5 2	The following is going to test the 15F Strain Gauge modules from 0 to 1000uV	N/A
____	8 5 3	Set WI_AZ1_15F_707A (WT 101 07) to 0 and verify the status tag (WT 101 07) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101-07) read approximately 0 uV?
____	8 5 4	Set WI_AZ1_15F_707A (WT 101 07) to 1638 and verify the status tag (WT 101 07) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 07) read approximately 500 uV?
____	8 5 5	Set WI_AZ1_15F_707A (WT 101 07) to 3277 and verify the status tag (WT 101 07) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 07) read approximately 1000 uV?
____	8 5 6	Set WI_AZ1_15F_708A (WT 101 08) to 0 and verify the status tag (WT 101 08) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 08) read approximately 0 uV?
____	8 5 7	Set WI_AZ1_15F_708A (WT 101 08) to 1638 and verify the status tag (WT 101 08) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 08) read approximately 500 uV?
____	8 5 8	Set WI_AZ1_15F_708A (WT 101 08) to 3277 and verify the status tag (WT 101 08) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 08) read approximately 1000 uV?
____	8 5 9	Set WI_AZ1_15F_709A (WT 101 09) to 0 and verify the status tag (WT 101 09) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 09) read approximately 0 uV?
____	8 5 10	Set WI_AZ1_15F_709A (WT 101 09) to 1638 and verify the status tag (WT 101 09) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 09) read approximately 500 uV?

____	8 5 11	Set WI_AZ1_15F_709A (WT 101 09) to 3277 and verify the status tag (WT 101 09) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 09) read approximately 1000 uV?
____	8 5 12	Set WI_AZ1_15F_710A (WT 101 10) to 0 and verify the status tag (WT 101 10) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 10) read approximately 0 uV?
____	8 5 13	Set WI_AZ1_15F_710A (WT 101 10) to 1638 and verify the status tag (WT 101 10) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 10) read approximately 500 uV?
____	8 5 14	Set WI_AZ1_15F_710A (WT 101 10) to 3277 and verify the status tag (WT 101 10) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 10) read approximately 1000 uV?
____	8 5 15	Set WI_AZ1_15F_711A (WT 101 11) to 0 and verify the status tag (WT 101 11) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 11) read approximately 0 uV?
____	8 5 16	Set WI_AZ1_15F_711A (WT 101 11) to 1638 and verify the status tag (WT 101 11) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 11) read approximately 500uV?
____	8 5 17	Set WI_AZ1_15F_711A (WT 101 11) to 3277 and verify the status tag (WT 101 11) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 11) read approximately 1000 uV?
____	8 5 18	Set WI_AZ1_15F_712A (WT 101 12) to 0 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 0uV	Does the status tag (WT 101 12) read approximately 0uV?
____	8 5 19	Set WI_AZ1_15F_712A (WT 101 12) to 1638 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 12) read approximately 500uV?
____	8 5 20	Set WI_AZ1_15F_712A (WT 101 12) to 3277 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 12) read approximately 1000uV?
____	8 5 21	To test the range of the strain gauges from 0 to 1000uV the leads for each strain gauge on WT 15F 1 will need to be reversed	N/A
____	8 5 22	All terminals will be on WT 15F 1 Switch terminal 2 with terminal 1 Switch terminal 4 with terminal 3 Switch terminal 6 with terminal 5 Switch terminal 8 with terminal 7 Switch terminal 10 with terminal 9 Switch terminal 12 with terminal 11	N/A
____	8 5 23	Set WI_AZ1_15E_707A (WT 101 07) to 1638 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 12) read approximately 500 uV?
____	8 5 24	Set WI_AZ1_15E_707A (WT 101 07) to 3277 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 07) read approximately 1000 uV?
____	8 5 25	Set WI_AZ1_15E_708A (WT 101 08) to 1638 and verify the status tag (WT 101 08) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 08) read approximately 500 uV?
____	8 5 26	Set WI_AZ1_15E_708A (WT 101 08) to 3277 and verify the status tag (WT 101 08) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 08) read approximately 1000 uV?
____	8 5 27	Set WI_AZ1_15E_709A (WT 101 09) to 1638 and verify the status tag (WT 101 09) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 09) read approximately 500 uV?
____	8 5 28	Set WI_AZ1_15E_709A (WT 101 09) to 3277 and verify the status tag (WT 101 09) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 09) read approximately 1000 uV?

____	8 5 29	Set WI_AZ1_15E_710A (WT 101 10) to 1638 and verify the status tag (WT 101 10) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 10) read approximately 500 uV?
____	8 5 30	Set WI_AZ1_15E_710A(WT 101 10) to 3277 and verify the status tag (WT 101 10) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 10) read approximately 1000 uV?
____	8 5 31	Set WI_AZ1_15E_711A (WT 101 11) to 1638 and verify the status tag (WT 101 11) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 11) read approximately 500 uV?
____	8 5 32	Set WI_AZ1_15E_711A (WT 101 11) to 3277 and verify the status tag (WT 101 11) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 11) read approximately 1000 uV?
____	8 5 33	Set WI_AZ1_15E_712A (WT 101 12) to 1638 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 500uV	Does the status tag (WT 101 12) read approximately 500 uV?
____	8 5 34	Set WI_AZ1_15E_712A (WT 101 12) to 3277 and verify the status tag (WT 101 12) on the Overview and Strain screens read approximately 1000uV	Does the status tag (WT 101 12) read approximately 1000 uV?

8 6 AVERAGE TEMPERATURE

____	8 6 1	The following will test Temperature indicators selected by the operator and average them The only indicators that can be selected will have a green button above the indicator on the Airlift Circulator Sludge (Drywell) and Profile Tree screens	
____	8 6 2	The following steps are for Supervisor and above Make sure you are logged in as a Supervisor Engineer or Administrator	N/A
____	8 6 3	Start at the Airlift Circulator screen and click on the green button above all the indicators Verify the button turns red after selected	Does the button above the indicator turn red when selected?
____	8 6 4	Start at the Sludge (Drywell) screen and click on the green button above all the indicators Verify the button turns red after selected	Does the button above the indicator turn red when selected?
____	8 6 5	Start at the Profile Tree screen and click on the green button above all the indicators Verify the button turns red after selected	Does the button above the indicator turn red when selected?
____	8 6 6	To deselect the indicators click on the red button above all the indicators for the Airlift Circulators Sludge (Drywell) and Profile Trees screens Verify the button turns green after selected	Does the button above all the indicators turn green when selected?
____	8 6 7	The following will allow the operator to average the temperature indicators he has selected	N/A
____	8 6 8	Verify by selecting any temperature indicators from the Airlift Circulator Sludge (Drywell) and Profile Tree screens that the average numeric value is correct in the upper right hand corner of the screen under Running Average Temperature	Is the average value correct?

8 7 AIRLIFT CIRCULATORS TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input
TE 37	
TE 38	
TE 39	
TE 40	
TE 41	
TE-42	
TE 43	
TE-44	
TE 45	
TE 46	
TE-47	
TE-48	
TE 49	
TE 50	
TE 51	
TE 52	
TE 53	
TE 54	
TE 55	
TE 56	
TE-57	
TE 58	

____	8 7 1	To verify the temperature indicators for the following sections a person will need to be on the phone with a person in 1135 Jadwin and compare the temperature values	
____	8 7 2	Click on the Airlift Circulators button on the Temperature Profiles screen	N/A
____	8 7 3	Verify sensors TE 37 through TE 58 are displayed	Are sensors TE 37 through TE 58 displayed?
____	8 7 4	Have the person in communication verify that TE 37 is reading the equivalent scaled value as PLC Addr N13 244	Is TE 37 reading the equivalent scaled value as PLC Addr N13 244?
____	8 7 5	Have the person in communication verify that TE 38 is reading the equivalent scaled value as PLC Addr N13 245	Is TE 38 reading the equivalent scaled value as PLC Addr N13 245?
____	8 7 6	Have the person in communication verify that TE 39 is reading the equivalent scaled value as PLC Addr N13 246	Is TE 39 reading the equivalent scaled value as PLC Addr N13 246?
____	8 7 7	Have the person in communication verify that TE 40 is reading the equivalent scaled value as PLC Addr N13 247	Is TE 42 reading the equivalent scaled value as PLC Addr N13 247?
____	8 7 8	Have the person in communication verify that TE 41 is reading the equivalent scaled value as PLC Addr N13 248	Is TE 41 reading the equivalent scaled value as PLC Addr N13 248?
____	8 7 9	Have the person in communication verify that TE-42 is reading the equivalent scaled value as PLC Addr N13 249	Is TE 42 reading the equivalent scaled value as PLC Addr N13 249?
____	8 7 10	Have the person in communication verify that TE 43 is reading the equivalent scaled value as PLC Addr N13 250	Is TE-43 reading the equivalent scaled value as PLC Addr N13 250?
____	8 7 11	Have the person in communication verify that TE 44 is reading the equivalent scaled value as PLC Addr N13 251	Is TE 44 reading the equivalent scaled value as PLC Addr N13 251?

____	8 7 12	Have the person in communication verify that TE 45 is reading the equivalent scaled value as PLC Addr N13 252	Is TE-45 reading the equivalent scaled value as PLC Addr N13 252?
____	8 7 13	Have the person in communication verify that TE-46 is reading the equivalent scaled value as PLC Addr N13 253	Is TE 46 reading the equivalent scaled value as PLC Addr N13 253?
____	8 7 14	Have the person in communication verify that TE-47 is reading the equivalent scaled value as PLC Addr N13 254	Is TE 47 reading the equivalent scaled value as PLC Addr N13 254?
____	8 7 15	Have the person in communication verify that TE-48 is reading the equivalent scaled value as PLC Addr N13 255	Is TE 48 reading the equivalent scaled value as PLC Addr N13 255?
____	8 7 16	Have the person in communication verify that TE 49 is reading the equivalent scaled value as PLC Addr N13 256	Is TE 49 reading the equivalent scaled value as PLC Addr N13 256?
____	8 7 17	Have the person in communication verify that TE 50 is reading the equivalent scaled value as PLC Addr N13 257	Is TE 50 reading the equivalent scaled value as PLC Addr N13 257?
____	8 7 18	Have the person in communication verify that TE 51 is reading the equivalent scaled value as PLC Addr N13 258	Is TE 51 reading the equivalent scaled value as PLC Addr N13 258?
____	8 7 19	Have the person in communication verify that TE 52 is reading the equivalent scaled value as PLC Addr N13 259	Is TE 52 reading the equivalent scaled value as PLC Addr N13 259?
____	8 7 20	Have the person in communication verify that TE 53 is reading the equivalent scaled value as PLC Addr N13 260	Is TE 53 reading the equivalent scaled value as PLC Addr N13 260?
____	8 7 21	Have the person in communication verify that TE 54 is reading the equivalent scaled value as PLC Addr N13 261	Is TE 54 reading the equivalent scaled value as PLC Addr N13 261?
____	8 7 22	Have the person in communication verify that TE 55 is reading the equivalent scaled value as PLC Addr N13 262	Is TE 55 reading the equivalent scaled value as PLC Addr N13 262?
____	8 7 23	Have the person in communication verify that TE 56 is reading the equivalent scaled value as PLC Addr N13 263	Is TE 56 reading the equivalent scaled value as PLC Addr N13 263?
____	8 7 24	Have the person in communication verify that TE 57 is reading the equivalent scaled value as PLC Addr N13 264	Is TE 57 reading the equivalent scaled value as PLC Addr N13 264?
____	8 7 25	Have the person in communication verify that TE 58 is reading the equivalent scaled value as PLC Addr N13 265	Is TE 58 reading the equivalent scaled value as PLC Addr N13 265?

8 8 AIRLIFT CIRCULATOR ALARM SETPOINT TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail High Alarm	Pass/Fail HighHigh Alarm	Comments	Pass/Fail
TE 37				
TE 38				
TE 39				
TE 40				
TE-41				
TE 42				
TE 43				
TE 44				
TE 45				
TE 46				
TE-47				
TE 48				
TE 49				
TE 50				
TE 51				
TE 52				
TE-53				
TE 54				
TE 55				
TE 56				
TE-57				
TE 58				

____ 8 8 1 Using the Test button located on the Overview screen input a value of 190 for TE 37 (TI_101_AZ_37) — Is a message displayed in upper left corner saying an analog alarm been activated?

____ 8 8 2 Verify the status tag for TE 37 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 1 Temp on the alarm screen — Is the status tag for TE 37 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 1 Temp?

____ 8 8 3 Using the Test button input a value of 200 for TE 37 (TI_101_AZ_37) Verify a HIGHHIGH alarm is displayed — Does a HIGHHIGH alarm activate?

____ 8 8 4 Using the Test button input a value of 190 for TE 38 (TI_101_AZ_38) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen — Is a message displayed in upper left corner saying an analog alarm been activated?

____ 8 8 5 Verify the status tag for TE 38 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 2 Temp — Is the status tag for TE 38 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 2 Temp?

____ 8 8 6 Using the Test button input a value of 200 for TE 38 (TI_101_AZ_38) Verify a HIGHHIGH alarm is displayed on the alarm page — Does a HIGHHIGH alarm activate?

____ 8 8 7 Using the Test button input a value of 190 for TE 39 (TI_101_AZ_39) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen — Is a message displayed in upper left corner saying an analog alarm been activated?

____ 8 8 8 Verify the status tag for TE 39 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 3 Temp — Is the status tag for TE 39 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 3 Temp?

____	8 8 9	Using the Test button input a value of 200 for TE 39 (TI_101_AZ_39) Verify a HIGHHIGH alarm is displayed on the alarm screen	Does a HIGHHIGH alarm activate?
____	8 8 10	Using the Test button input a value of 190 for TE 40 (TI_101_AZ_40) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 11	Verify the status tag for TE-40 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 4 Temp	Is the status tag for TE-40 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 4 Temp?
____	8 8 12	Using the Test button input a value of 200 for TE 40 (TI_101_AZ_40) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 13	Using the Test button input a value of 190 for TE 41 (TI_101_AZ_41) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 14	Verify the status tag for TE 41 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 5 Temp	Is the status tag for TE 41 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 5 Temp?
____	8 8 15	Using the Test button input a value of 200 for TE 41 (TI_101_AZ_41) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 16	Using the Test button input a value of 190 for TE 42 (TI_101_AZ_42) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 17	Verify the status tag for TE-42 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 6 Temp	Is the status tag for TE-42 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 6 Temp?
____	8 8 18	Using the Test button input a value of 200 for TE 42 (TI_101_AZ_42) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 19	Using the Test button input a value of 190 for TE 43 (TI_101_AZ_43) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 20	Verify the status tag for TE-43 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 7 Temp	Is the status tag for TE-43 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 7 Temp?
____	8 8 21	Using the Test button input a value of 200 for TE 43 (TI_101_AZ_43) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 22	Using the Test button input a value of 190 for TE 44 (TI_101_AZ_44) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 23	Verify the status tag for TE-44 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 8 Temp	Is the status tag for TE-44 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 8 Temp?
____	8 8 24	Using the Test button input a value of 200 for TE 44 (TI_101_AZ_44) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 25	Using the Test button input a value of 190 for TE 45 (TI_101_AZ_45) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 26	Verify the status tag for TE-45 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 9 Temp	Is the status tag for TE-45 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 9 Temp?
____	8 8 27	Using the Test button input a value of 200 for TE 45 (TI_101_AZ_45) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 28	Using the Test button input a value of 190 for TE 46 (TI_101_AZ_46) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?

____	8 8 29	Verify the status tag for TE-46 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 10 Temp	Is the status tag for TE-46 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 10 Temp?
____	8 8 30	Using the Test button input a value of 200 for TE 46 (TI_101_AZ_46) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 31	Using the Test button input a value of 190 for TE 47 (TI_101_AZ_47) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 32	Verify the status tag for TE-47 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 11 Temp	Is the status tag for TE 47 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 11 Temp?
____	8 8 33	Using the Test button input a value of 200 for TE 47 (TI_101_AZ_47) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 34	Using the Test button input a value of 190 for TE 48 (TI_101_AZ_48) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 35	Verify the status tag for TE-48 is flashing red and click on the alarm page and verify there is a HIGH alarm flashing for Airlift Circulator 12 Temp	Is the status tag for TE 48 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 12 Temp?
____	8 8 36	Using the Test button input a value of 200 for TE 48 (TI_101_AZ_48) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 37	Using the Test button input a value of 190 for TE 49 (TI_101_AZ_49) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 38	Verify the status tag for TE 49 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 13 Temp	Is the status tag for TE-49 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 13 Temp?
____	8 8 39	Using the Test button input a value of 200 for TE 49 (TI_101_AZ_49) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 40	Using the Test button input a value of 190 for TE 50 (TI_101_AZ_50) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 41	Verify the status tag for TE 50 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 14 Temp	Is the status tag for TE 50 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 14 Temp?
____	8 8 42	Using the Test button input a value of 200 for TE 50 (TI_101_AZ_50) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 43	Using the Test button input a value of 190 for TE 51 (TI_101_AZ_51) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 44	Verify the status tag for TE 51 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 15 Temp	Is the status tag for TE 51 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 15 Temp?
____	8 8 45	Using the Test button input a value of 200 for TE 51 (TI_101_AZ_51) Verify a HIGHHIGH alarm	Does a HIGHHIGH alarm activate?
____	8 8 46	Using the Test button input a value of 190 for TE 52 (TI_101_AZ_52) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 47	Verify the status tag for TE 52 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 16 Temp	Is the status tag for TE 52 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 16 Temp?
____	8 8 48	Using the Test button input a value of 200 for TE 52 (TI_101_AZ_52) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?

____	8 8 49	Using the Test button input a value of 190 for TE 53 (TI_101_AZ_53) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 50	Verify the status tag for TE 53 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 17 Temp	Is the status tag for TE 53 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 17 Temp?
____	8 8 51	Using the Test button input a value of 200 for TE 53 (TI_101_AZ_53) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 52	Using the Test button input a value of 190 for TE 54 (TI_101_AZ_54) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 53	Verify the status tag for TE 54 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 18 Temp	Is the status tag for TE 54 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 18 Temp?
____	8 8 54	Using the Test button input a value of 200 for TE 54 (TI_101_AZ_54) Verify a HIGHHIGH alarm	Does a HIGHHIGH alarm activate?
____	8 8 55	Using the Test button input a value of 190 for TE 55 (TI_101_AZ_55) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 56	Verify the status tag for TE 55 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 19 Temp	Is the status tag for TE 55 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 19 Temp?
____	8 8 57	Using the Test button input a value of 200 for TE 55 (TI_101_AZ_55) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 58	Using the Test button input a value of 190 for TE 56 (TI_101_AZ_56) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 59	Verify the status tag for TE 56 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 20 Temp	Is the status tag for TE 56 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 20 Temp?
____	8 8 60	Using the Test button input a value of 200 for TE 56 (TI_101_AZ_56) Verify a HIGHHIGH alarm	Does a HIGHHIGH alarm activate?
____	8 8 61	Using the Test button input a value of 190 for TE 57 (TI_101_AZ_57) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 62	Verify the status tag for TE 57 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 21 Temp	Is the status tag for TE 57 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 21 Temp?
____	8 8 63	Using the Test button input a value of 200 for TE 57 (TI_101_AZ_57) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 8 64	Using the Test button input a value of 190 for TE 58 (TI_101_AZ_58) Verify a analog alarm has been activated by reading the text in the upper left portion of the screen	Is a message displayed in upper left corner saying an analog alarm been activated?
____	8 8 65	Verify the status tag for TE 58 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Airlift Circulator 22 Temp	Is the status tag for TE 58 flashing red and is the alarm message a HIGH alarm for Airlift Circulator 22 Temp?
____	8 8 66	Using the Test button input a value of 200 for TE 58 (TI_101_AZ_58) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?

8 9 PROFILE TREE TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input	Pass/Fail High Alarm	Pass/Fail HighHigh Alarm	Comments	Pass/Fail
TE 59					
TE 60					
TE 61					
TE 62					
TE 63					
TE-64					
TE-65					
TE-66					
TE 67					
TE 68					
TE-69					
TE-70					

____ 8 9 1 Click on the Tree Profile button located on the Temp Profiles screen

____ 8 9 2 Verify sensors TE 59 through TE 70 are displayed — Are sensors TE 59 through TE 70 displayed?

____ 8 9 3 Have the person in communication verify that TE 59 is reading the equivalent scaled value as PLC Addr N13 266 — Is TE 59 reading the equivalent scaled value as PLC Addr N13 266?

____ 8 9 4 Have the person in communication verify that TE 60 is reading the equivalent scaled value as PLC Addr N13 267 — Is TE 60 reading the equivalent scaled value as PLC Addr N13 267?

____ 8 9 5 Have the person in communication verify that TE 61 is reading the equivalent scaled value as PLC Addr N13 268 — Is TE 61 reading the equivalent scaled value as PLC Addr N13 268?

____ 8 9 6 Have the person in communication verify that TE 62 is reading the equivalent scaled value as PLC Addr N13 269 — Is TE 62 reading the equivalent scaled value as PLC Addr N13 269?

____ 8 9 7 Have the person in communication verify that TE 63 is reading the equivalent scaled value as PLC Addr N13 270 — Is TE 63 reading the equivalent scaled value as PLC Addr N13 270?

____ 8 9 8 Have the person in communication verify that TE 64 is reading the equivalent scaled value as PLC Addr N13 271 — Is TE 64 reading the equivalent scaled value as PLC Addr N13 271?

____ 8 9 9 Have the person in communication verify that TE 65 is reading the equivalent scaled value as PLC Addr N13 272 — Is TE 65 reading the equivalent scaled value as PLC Addr N13 272?

____ 8 9 10 Have the person in communication verify that TE 66 is reading the equivalent scaled value as PLC Addr N13 273 — Is TE 66 reading the equivalent scaled value as PLC Addr N13 273?

____ 8 9 11 Have the person in communication verify that TE 67 is reading the equivalent scaled value as PLC Addr N13 274 — Is TE 67 reading the equivalent scaled value as PLC Addr N13 274?

____ 8 9 12 Have the person in communication verify that TE 68 is reading the equivalent scaled value as PLC Addr N13 275 — Is TE 68 reading the equivalent scaled value as PLC Addr N13 275?

____ 8 9 13 Have the person in communication verify that TE 69 is reading the equivalent scaled value as PLC Addr N13 276 — Is TE 69 reading the equivalent scaled value as PLC Addr N13 276?

____ 8 9 14 Have the person in communication verify that TE 70 is reading the equivalent scaled value as PLC Addr N13 277 — Is TE 70 reading the equivalent scaled value as PLC Addr N13 277?

____ 8 9 15 Using the Test button located on the Overview screen input a value of 190 for TE 59 (TI_101_AZ_59)

____ 8 9 16 Verify the status tag for TE 59 is flashing red and click on the alarm page and verify there is HIGH alarm for AZ 101 Profile SE 300 — Is the status tag for TE 59 flashing red and is the alarm message on the alarm page a HIGH alarm?

____	8 9 17	Using the Test button input a value of 200 for TE 59 (TI_101_AZ_59) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 18	Using the Test button input a value of 190 for TE 60 (TI_101_AZ_60) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 19	Verify the status tag for TE 60 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile SE 158	Is the status tag for TE 60 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 20	Using the Test button input a value of 200 for TE 60 (TI_101_AZ_60) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 21	Using the Test button input a value of 190 for TE 61 (TI_101_AZ_61) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 22	Verify the status tag for TE 61 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile SE 4	Is the status tag for TE 61 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 23	Using the Test button input a value of 200 for TE 61 (TI_101_AZ_61) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 24	Using the Test button input a value of 190 for TE 62 (TI_101_AZ_62) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 25	Verify the status tag for TE 62 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile SW 300	Is the status tag for TE 62 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 26	Using the Test button input a value of 200 for TE 62 (TI_101_AZ_62) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 27	Using the Test button input a value of 190 for TE 63 (TI_101_AZ_63) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 28	Verify the status tag for TE 63 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile SW 158	Is the status tag for TE 63 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 29	Using the Test button input a value of 200 for TE 63 (TI_101_AZ_63) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 30	Using the Test button input a value of 190 for TE 64 (TI_101_AZ_64) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 31	Verify the status tag for TE 64 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile SW 4	Is the status tag for TE 64 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 32	Using the Test button input a value of 200 for TE 64 (TI_101_AZ_64) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 33	Using the Test button input a value of 190 for TE 65 (TI_101_AZ_65) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 34	Verify the status tag for TE 65 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile NW 300	Is the status tag for TE 65 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 35	Using the Test button input a value of 200 for TE 65 (TI_101_AZ_65) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 36	Using the Test button input a value of 190 for TE 66 (TI_101_AZ_66) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?

____	8 9 37	Verify the status tag for TE-66 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile NW 158	Is the status tag for TE 66 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 38	Using the Test button input a value of 200 for TE 66 (TI_101_AZ_66) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 39	Using the Test button input a value of 190 for TE 67 (TI_101_AZ_67) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 40	Verify the status tag for TE 67 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile NW 4	Is the status tag for TE 67 flashing red and is the alarm message on the alarm page a "HIGH alarm?
____	8 9 41	Using the Test button input a value of 200 for TE 67 (TI_101_AZ_67) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 42	Using the Test button input a value of 190 for TE 68 (TI_101_AZ_68) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 43	Verify the status tag for TE 68 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile NE 300	Is the status tag for TE 68 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 44	Using the Test button input a value of 200 for TE 68 (TI_101_AZ_68) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 45	Using the Test button input a value of 190 for TE 69 (TI_101_AZ_69) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 46	Verify the status tag for TE 69 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile NE 158	Is the status tag for TE-69 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 47	Using the Test button input a value of 200 for TE 69 (TI_101_AZ_69) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 9 48	Using the Test button input a value of 190 for TE 70 (TI_101_AZ_70) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 9 49	Verify the status tag for TE 70 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for AZ 101 Profile NE 4	Is the status tag for TE 70 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 9 50	Using the Test button input a value of 200 for TE 70 (TI_101_AZ_70) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?

8 10 SLUDGE (DRYWELL) TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input	Pass/Fail High Alarm	Pass/Fail HighHigh Alarm	Comments	Pass/Fail
TE 71					
TE 72					
TE 73					

____	8 10 1	Click on the Sludge (Drywell) button located on the Temp Profiles screen	
____	8 10 2	Verify sensors TE 71 through TE 73 are displayed	Are sensors TE 71 through TE 73 displayed?
____	8 10 3	Have the person in communication verify that TE 71 is reading the equivalent scaled value as PLC Addr N13 278	Is TE 71 reading the equivalent scaled value as PLC Addr N13 278?
____	8 10 4	Have the person in communication verify that TE 72 is reading the equivalent scaled value as PLC Addr N13 279	Is TE 72 reading the equivalent scaled value as PLC Addr N13 279?
____	8 10 5	Have the person in communication verify that TE 73 is reading the equivalent scaled value as PLC Addr N13 280	Is TE 73 reading the equivalent scaled value as PLC Addr N13 280?
____	8 10 6	Using the Test button input a value of 190 for TE 71 (TI_101_AZ_71) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 10 7	Verify the status tag for TE 71 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Sludge SE Temp	Is the status tag for TE 71 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 10 8	Using the Test button input a value of 200 for TE 71 (TI_101_AZ_71) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 10 9	Using the Test button input a value of 190 for TE 72 (TI_101_AZ_72) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 10 10	Verify the status tag for TE 72 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Sludge SW Temp	Is the status tag for TE 72 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 10 11	Using the Test button input a value of 200 for TE 72 (TI_101_AZ_72) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?
____	8 10 12	Using the Test button input a value of 190 for TE 73 (TI_101_AZ_73) Verify a analog alarm has been activated by reading the text in the upper portion of the screen	Has a analog alarm been activated?
____	8 10 13	Verify the status tag for TE 73 is flashing red and click on the alarm page and verify there is HIGH alarm flashing for Sludge N Temp	Is the status tag for TE 73 flashing red and is the alarm message on the alarm page a HIGH alarm?
____	8 10 14	Using the Test button input a value of 200 for TE 73 (TI_101_AZ_71) Verify a HIGHHIGH alarm is displayed	Does a HIGHHIGH alarm activate?

8 11 INSULATING CONCRETE TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input	Comments	Pass/Fail
TE-1			
TE 2			
TE 3			
TE 4			
TE-5			
TE-6			
TE 7			
TE 8			
TE 9			
TE 10			
TE 11			
TE 12			
TE-13			
TE 15			
TE-16			
TE 17			
TE 18			
TE 19			
TE 20			
TE 21			
TE 22			
TE 23			
TE 24			

____ 8 11 1 Click on the Insulating Concrete button located on the Temp Profiles screen

____ 8 11 2 Verify sensors TE 1 through TE 13 and TE 15 through TE 24 are displayed — Are sensors TE 1 through TE 13 and TE 15 through TE 24 displayed?

____ 8 11 3 Have the person in communication verify that TE 1 is reading the equivalent scaled value as PLC Addr N13 210 — Is TE 1 reading the equivalent scaled value as PLC Addr N13 210?

____ 8 11 4 Have the person in communication verify that TE 2 is reading the equivalent scaled value as PLC Addr N13 211 — Is TE 2 reading the equivalent scaled value as PLC Addr N13 211?

____ 8 11 5 Have the person in communication verify that TE 3 is reading the equivalent scaled value as PLC Addr N13 212 — Is TE 3 reading the equivalent scaled value as PLC Addr N13 212?

____ 8 11 6 Have the person in communication verify that TE 4 is reading the equivalent scaled value as PLC Addr N13 213 — Is TE 4 reading the equivalent scaled value as PLC Addr N13 213?

____ 8 11 7 Have the person in communication verify that TE 5 is reading the equivalent scaled value as PLC Addr N13 214 — Is TE 5 reading the equivalent scaled value as PLC Addr N13 214?

____ 8 11 8 Have the person in communication verify that TE 6 is reading the equivalent scaled value as PLC Addr N13 215 — Is TE 6 reading the equivalent scaled value as PLC Addr N13 215?

____ 8 11 9 Have the person in communication verify that TE 7 is reading the equivalent scaled value as PLC Addr N13 216 — Is TE 7 reading the equivalent scaled value as PLC Addr N13 216?

____ 8 11 10 Have the person in communication verify that TE 8 is reading the equivalent scaled value as PLC Addr N13 217 — Is TE 8 reading the equivalent scaled value as PLC Addr N13 217?

____ 8 11 11 Have the person in communication verify that TE 9 is reading the equivalent scaled value as PLC Addr N13 218 — Is TE 9 reading the equivalent scaled value as PLC Addr N13 218?

____	8 11 12	Have the person in communication verify that TE 10 is reading the equivalent scaled value as PLC Addr N13 219	Is TE 10 reading the equivalent scaled value as PLC Addr N13 219?
____	8 11 13	Have the person in communication verify that TE 11 is reading the equivalent scaled value as PLC Addr N13 220	Is TE 11 reading the equivalent scaled value as PLC Addr N13 220?
____	8 11 14	Have the person in communication verify that TE 12 is reading the equivalent scaled value as PLC Addr N13 221	Is TE 12 reading the equivalent scaled value as PLC Addr N13 221?
____	8 11 15	Have the person in communication verify that TE 13 is reading the equivalent scaled value as PLC Addr N13 222	Is TE 13 reading the equivalent scaled value as PLC Addr N13 222?
____	8 11 16	Have the person in communication verify that TE 15 is reading the equivalent scaled value as PLC Addr N13 223	Is TE 15 reading the equivalent scaled value as PLC Addr N13 223?
____	8 11 17	Have the person in communication verify that TE 16 is reading the equivalent scaled value as PLC Addr N13 224	Is TE 16 reading the equivalent scaled value as PLC Addr N13 224?
____	8 11 18	Have the person in communication verify that TE 17 is reading the equivalent scaled value as PLC Addr N13 225	Is TE 17 reading the equivalent scaled value as PLC Addr N13 225?
____	8 11 19	Have the person in communication verify that TE 18 is reading the equivalent scaled value as PLC Addr N13 226	Is TE 18 reading the equivalent scaled value as PLC Addr N13 226?
____	8 11 20	Have the person in communication verify that TE 19 is reading the equivalent scaled value as PLC Addr N13 227	Is TE 19 reading the equivalent scaled value as PLC Addr N13 227?
____	8 11 21	Have the person in communication verify that TE 20 is reading the equivalent scaled value as PLC Addr N13 228	Is TE 20 reading the equivalent scaled value as PLC Addr N13 228?
____	8 11 22	Have the person in communication verify that TE 21 is reading the equivalent scaled value as PLC Addr N13 229	Is TE 21 reading the equivalent scaled value as PLC Addr N13 229?
____	8 11 23	Have the person in communication verify that TE 22 is reading the equivalent scaled value as PLC Addr N13 230	Is TE 22 reading the equivalent scaled value as PLC Addr N13 230?
____	8 11 24	Have the person in communication verify that TE 23 is reading the equivalent scaled value as PLC Addr N13 231	Is TE 23 reading the equivalent scaled value as PLC Addr N13 231?
____	8 11 25	Have the person in communication verify that TE 24 is reading the equivalent scaled value as PLC Addr N13 232	Is TE 24 reading the equivalent scaled value as PLC Addr N13 232?

8 12 TANK FOUNDATION TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input	Comments	Pass/Fail
TE 28			
TE 29			
TE 30			
TE 31			
TE 32			
TE-33			
TE 34			
TE-35			
TE 36			

____	8 12 1	Click on the Tank Foundation button located on the Temp Profiles screen	
____	8 12 2	Verify sensors TE 28 through TE 36 are displayed	Are sensors TE 28 through TE 36 displayed?
____	8 12 3	Have the person in communication verify that TE 28 is reading the equivalent scaled value as PLC Addr N13 235	Is TE 28 reading the equivalent scaled value as PLC Addr N13 235?

____	8 12 4	Have the person in communication verify that TE 29 is reading the equivalent scaled value as PLC Addr N13 236	Is TE 29 reading the equivalent scaled value as PLC Addr N13 236?
____	8 12 5	Have the person in communication verify that TE 30 is reading the equivalent scaled value as PLC Addr N13 237	Is TE 30 reading the equivalent scaled value as PLC Addr N13 237?
____	8 12 6	Have the person in communication verify that TE 31 is reading the equivalent scaled value as PLC Addr N13 238	Is TE 31 reading the equivalent scaled value as PLC Addr N13 238?
____	8 12 7	Have the person in communication verify that TE 32 is reading the equivalent scaled value as PLC Addr N13 239	Is TE 32 reading the equivalent scaled value as PLC Addr N13 239?
____	8 12 8	Have the person in communication verify that TE 33 is reading the equivalent scaled value as PLC Addr N13 240	Is TE 33 reading the equivalent scaled value as PLC Addr N13 240?
____	8 12 9	Have the person in communication verify that TE 34 is reading the equivalent scaled value as PLC Addr N13 241	Is TE 34 reading the equivalent scaled value as PLC Addr N13 241?
____	8 12 10	Have the person in communication verify that TE 35 is reading the equivalent scaled value as PLC Addr N13 242	Is TE 35 reading the equivalent scaled value as PLC Addr N13 242?
____	8 12 11	Have the person in communication verify that TE 36 is reading the equivalent scaled value as PLC Addr N13 243	Is TE 36 reading the equivalent scaled value as PLC Addr N13 243?

8 13 TANK DOME TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input	Comments	Pass/Fail
TE 25			
TE 74			
TE 75			
TE 76			
TE-77			
TE 78			
TE 79			
TE 80			
TE 81			
TE 82			
TE 83			
TE 84			
TE 85			

____	8 13 1	Click on the Tank Dome button located on the Temp Profiles screen	
____	8 13 2	Verify sensors TE 74 through TE 85 and Tank Knuckle TE 25 are displayed	Are sensors TE 74 through TE 85 and Tank Knuckle TE 25 displayed?
____	8 13 3	Have the person in communication verify that TE 74 is reading the equivalent scaled value as PLC Addr N13 281	Is TE-74 reading the equivalent scaled value as PLC Addr N13 281?
____	8 13 4	Have the person in communication verify that TE 75 is reading the equivalent scaled value as PLC Addr N13 282	Is TE 75 reading the equivalent scaled value as PLC Addr N13 282?
____	8 13 5	Have the person in communication verify that TE 76 is reading the equivalent scaled value as PLC Addr N13 283	Is TE 76 reading the equivalent scaled value as PLC Addr N13 283?
____	8 13 6	Have the person in communication verify that TE 77 is reading the equivalent scaled value as PLC Addr N13 284	Is TE 77 reading the equivalent scaled value as PLC Addr N13 284?
____	8 13 7	Have the person in communication verify that TE 78 is reading the equivalent scaled value as PLC Addr N13 285	Is TE 78 reading the equivalent scaled value as PLC Addr N13 285?

____	8 13 8	Have the person in communication verify that TE 79 is reading the equivalent scaled value as PLC Addr N13 286	Is TE 79 reading the equivalent scaled value as PLC Addr N13 286?
____	8 13 9	Have the person in communication verify that TE 80 is reading the equivalent scaled value as PLC Addr N13 287	Is TE 80 reading the equivalent scaled value as PLC Addr N13 287?
____	8 13 10	Have the person in communication verify that TE 81 is reading the equivalent scaled value as PLC Addr N13 288	Is TE 81 reading the equivalent scaled value as PLC Addr N13 288?
____	8 13 11	Have the person in communication verify that TE 82 is reading the equivalent scaled value as PLC Addr N13 289	Is TE 82 reading the equivalent scaled value as PLC Addr N13 289?
____	8 13 12	Have the person in communication verify that TE 83 is reading the equivalent scaled value as PLC Addr N13 290	Is TE 83 reading the equivalent scaled value as PLC Addr N13 290?
____	8 13 13	Have the person in communication verify that TE 84 is reading the equivalent scaled value as PLC Addr N13 291	Is TE 84 reading the equivalent scaled value as PLC Addr N13 291?
____	8 13 14	Have the person in communication verify that TE 85 is reading the equivalent scaled value as PLC Addr N13 292	Is TE 85 reading the equivalent scaled value as PLC Addr N13 292?
____	8 13 15	Have the person in communication verify that TE 25 is reading the equivalent scaled value as PLC Addr N13 233	Is TE 25 reading the equivalent scaled value as PLC Addr N13 233?

8 14 TANK WALL TEMPERATURE SENSOR TESTING

The following table will be used to record the status of the indicator

Sensor Name	Pass/Fail Live Input	Comments	Pass/Fail
TE 86			
TE 87			
TE 88			
TE 89			
TE 90			
TE 91			
TE 92			
TE 93			
TE-94			
TE 95			
TE 96			
TE 97			

____	8 14 1	Click on the Tank Wall button located on the Temp Profiles screen	
____	8 14 2	Verify sensors TE 86 through TE 97 are displayed	Are sensors TE 86 through TE 97 displayed?
____	8 14 3	Have the person in communication verify that TE 86 is reading the equivalent scaled value as PLC Addr N13 293	Is TE 86 reading the equivalent scaled value as PLC Addr N13 293?
____	8 14 4	Have the person in communication verify that TE 87 is reading the equivalent scaled value as PLC Addr N13 294	Is TE 87 reading the equivalent scaled value as PLC Addr N13 294?
____	8 14 5	Have the person in communication verify that TE 88 is reading the equivalent scaled value as PLC Addr N13 295	Is TE 88 reading the equivalent scaled value as PLC Addr N13 295?
____	8 14 6	Have the person in communication verify that TE 89 is reading the equivalent scaled value as PLC Addr N13 296	Is TE 89 reading the equivalent scaled value as PLC Addr N13 296?
____	8 14 7	Have the person in communication verify that TE 90 is reading the equivalent scaled value as PLC Addr N13 297	Is TE 90 reading the equivalent scaled value as PLC Addr N13 297?
____	8 14 8	Have the person in communication verify that TE 91 is reading the equivalent scaled value as PLC Addr N13 298	Is TE 91 reading the equivalent scaled value as PLC Addr N13 298?

____	8 14 9	Have the person in communication verify that TE 92 is reading the equivalent scaled value as PLC Addr N13 299	Is TE 92 reading the equivalent scaled value as PLC Addr N13 299?
____	8 14 10	Have the person in communication verify that TE 93 is reading the equivalent scaled value as PLC Addr N13 300	Is TE 93 reading the equivalent scaled value as PLC Addr N13 300?
____	8 14 11	Have the person in communication verify that TE 94 is reading the equivalent scaled value as PLC Addr N13 301	Is TE 94 reading the equivalent scaled value as PLC Addr N13 301?
____	8 14 12	Have the person in communication verify that TE 95 is reading the equivalent scaled value as PLC Addr N13 302	Is TE 95 reading the equivalent scaled value as PLC Addr N13 302?
____	8 14 13	Have the person in communication verify that TE 96 is reading the equivalent scaled value as PLC Addr N13 303	Is TE 96 reading the equivalent scaled value as PLC Addr N13 303?
____	8 14 14	Have the person in communication verify that TE 97 is reading the equivalent scaled value as PLC Addr N13 304	Is TE 97 reading the equivalent scaled value as PLC Addr N13 304?

8 15 ANALOG ALARM TESTING

The following calculations are to show how data was converted from engineering units to raw data

Current

Electrical Ranges of Equipment
0 – 10 Volts Sixnet
0 – 400 Amps Mixer

Calculations for raw data input
400A/10V = 40A per 1V

120 Amps
(3 – 0/10 – 0)(32767) = 9830

320 Amps
(8 – 0/10 – 0)(32767) = 26214

364 Amps
(9 1 – 0/10 – 0)(32767) = 29818

Speed

Electrical Range of Equipment
0 – 10 Volts Sixnet
0 – 1230 rpm Mixer

Calculations for data input
1230rpm/10V = 123 rpm per 1V

1200 rpm
(10 – 0/10 – 0)(32767) = 32767

1107 rpm
(9 – 0/10 – 0)(32767) = 29490

861 rpm
(7 – 0/10 – 0)(32767) = 22937

700 rpm
(5 691 – 0/10 – 0)(32767) = 18648

Voltage

Electrical Range of Equipment
0 – 10 Volts Sixnet
0 – 460 Volts Mixer

Calculations for data input
460V/10V = 46V per 1V

368 Volts
(10 – 2/10 – 0)(32767) = 26214

460 Volts
(10 – 10/10 – 0)(32767) = 32767

Nozzle Position

Electrical Range of Equipment
0 – 10 Volts Sixnet
100 – 100 degrees Mixer

Calculations for data input
100deg/10V = 10 deg per 1V

30 Degrees
(3 – 0/10 – 0)(32767) = 9830

70 Degrees
(7 – 0/10 – 0)(32767) = 22937

100 Degrees
(10 – 0/10 – 0)(32767) = 32767

To get the –30 70 and –100 degrees just enter the negative raw data value as it was for the positive value (ex 9830 to –9830)

Frequency

Electrical Range of Equipment
0 – 10 Volts Sixnet
0 – 62 Hertz Mixer

Calculations for data input
62Hz/10V = 6 2 Hz per 1V

35 Hertz
(5 69 – 0/10 0)(32767) = 18648

43 Hertz
(7 – 0/10 – 0)(32767) = 22937

56 Hertz
(9 – 0/10 0)(32767) = 29490

62 Hertz
(10 – 0/10 0)(32767) = 32767

____	8 15 1	The following tests will be verifying the alarm setpoints for the analog alarms	
____	8 15 2	Using Plant Floor Manager set the value for Mixer 2 Current (P #2 Current) to 0 and verify on the Pump Status screen that the Mixer 2 current status tag reads 0 amps	Does the status tag read 0 amps?
____	8 15 3	Input 9 830 using Plant Floor Manager and verify the Mixer 2 Current status tag reads 120 amps	Does the status tag read 120 amps?
____	8 15 4	Input 26 214 and verify the Mixer 2 Current status tag read 320 amps Verify the status tag turns red and flashes	Does the status tag read 320 amps and has an alarm been activated?
____	8 15 5	Go to the alarm page and verify there is red flashing text for AZ 101 P2 Ampere	Is there red flashing text for AZ 101 P2 Ampere?
____	8 15 6	Input 29 818 and verify the Mixer 2 Current status tag reads 364 amps Verify the HIGH alarm changes to a HIGHHIGH alarm	Does the alarm change to a HIGHHIGH alarm?
____	8 15 7	Acknowledge the HIGHHIGH alarm for AZ 101 P2 and verify the text turns solid red Return to Pump Status screen	Does the text turn solid red?
____	8 15 8	Input 9830 and verify the status tag reads 120 amps Go to alarm screen and verify the text for the alarm disappears for AZ 101 P2	Does the status tag read 120 amps and does the alarm text disappear for AZ 101 P2?
____	8 15 9	Using Plant Floor Manager set the value for Mixer 1 Current (P #1 Current) to 0 and verify on the Pump Status screen that the Mixer 1 current status tag reads 0 amps	Does the Mixer 1 Current status tag read 0 amps?
____	8 15 10	Input 9830 using Plant Floor Manager and verify the Mixer 1 Current status tag reads 120 amps	Does the status tag read 120 amps?
____	8 15 11	Input 26214 using Plant Floor Manager and verify the status tag reads 320 amps Verify the Mixer 1 Current status tag turns red and flashes	Does the status tag read 320 amps and has an alarm been activated?
____	8 15 12	Go to the alarm page and verify there is red flashing text for AZ 101 P1 Ampere	Is there red flashing text for AZ 101 P1 Ampere?

____	8 15 13	Input 29 818 using Plant Floor Manager and verify the Mixer 1 Current status tag reads 364 amps Go to alarm screen and verify the HIGH alarm changes to a HIGHHIGH alarm	Does the alarm change to a HIGHHIGH alarm?
____	8 15 14	Acknowledge the alarm and verify the text turns solid red	Does the text turn solid red?
____	8 15 15	Input 9 830 using Plant Floor Manager and verify the status tag reads 120 amps Verify the text for AZ 101 P1 Ampere disappears	Does the status tag read 120 amps and does the alarm text for AZ 101 P1 Ampere disappear?
____	8 15 16	Using Plant Floor Manager set the value for Mixer 2 Speed (P #2 Speed) to 32767 and verify on the Pump Status screen that the Mixer 2 speed status tag reads 1230 rpm	Does the status tag read 1230 rpm for pump 2?
____	8 15 17	Verify the Mixer 2 Frequency status tag for is reading 62 Hz	Is the Mixer 2 Frequency status tag reading 62 Hertz?
____	8 15 18	Input 22937 and verify the Mixer 2 Speed status tag reads 861 rpm	Does the Mixer 2 Speed status tag read 861 rpms?
____	8 15 19	Verify the Mixer 2 Frequency status tag is reading 43 Hz	Is the Mixer 2 Frequency status tag reading 43 Hertz?
____	8 15 20	Input 18 648 and verify the Mixer 2 Speed status tag reads 700 rpm	Does the Mixer 2 Speed status tag read 700 rpm?
____	8 15 21	Verify the Mixer 2 Frequency status tag is reading 35 Hz	Is the Mixer 2 Frequency status tag reading 35 Hertz?
____	8 15 22	Input 29490 and verify the Mixer 2 Speed status tag reads 1107 rpm	Does the Mixer 2 Speed status tag read 1107 rpm?
____	8 15 23	Verify the Mixer 2 Frequency status tag is reading 56 Hz	Is the Mixer 2 Frequency status tag reading 56 Hertz?
____	8 15 24	Using Plant Floor Manager set the value for Mixer 1 Speed (P #1 Speed) to 32767 and verify on the Pump Status screen that the Mixer 1 speed status tag reads 1230 rpm	Does the Mixer 1 Speed status tag read 1230 rpms?
____	8 15 25	Verify the Mixer 1 Frequency status tag is reading 62 Hz	Is the Mixer 1 Frequency status tag reading 62 Hertz?
____	8 15 26	Input 22937 and verify the Mixer 1 Speed status tag reads 861 rpm	Does the Mixer 1 Speed status tag read 861 rpms?
____	8 15 27	Verify the Mixer 1 Frequency status tag is reading 43 Hz	Is the Mixer 1 Frequency status tag reading 43 Hertz?
____	8 15 28	Input 18 648 and verify the Mixer 1 Speed status tag reads 700 rpm	Does the Mixer 1 Speed status tag read 700 rpm?
____	8 15 29	Verify the Mixer 1 Frequency status tag is reading 35 Hz	Is the Mixer 1 Frequency status tag reading 35 Hertz?
____	8 15 30	Input 29490 and verify the Mixer 1 Speed status tag reads 1107 rpm	Does the Mixer 1 Speed status tag read 1107 rpm?
____	8 15 31	Verify the Mixer 1 Frequency status tag is reading 56 Hz	Is the Mixer 1 Frequency status tag reading 56 Hertz?
____	8 15 32	Using Plant Floor Manager set the value for Mixer 2 Voltage (P #2 Voltage) to 0 and verify on the Pump Status screen that the Mixer 2 Voltage status tag reads 0 volts	Does the Mixer 2 Voltage status tag read 0 volts?
____	8 15 33	Input 26 214 and verify the Mixer 2 Voltage status tag for voltage reads 368 volts	Does the Mixer 2 Voltage status tag read 368 volts?
____	8 15 34	Input 32767 and verify the Mixer 2 Voltage status tag for voltage reads 460 volts	Does the Mixer 2 Voltage status tag read 460 volts?
____	8 15 35	Input 0 to set Mixer 2 Voltage back to zero volts	N/A
____	8 15 36	Using Plant Floor Manager set the value for Mixer 1 Voltage (P #1 Voltage) to 0 and verify on the Pump Status screen that the Mixer 1 Voltage status tag reads 0 volts	Does the Mixer 1 Voltage status tag read 0 volts?
____	8 15 37	Input 26 214 and verify the Mixer 1 Voltage status tag reads 368 volts	Does the Mixer 1 Voltage status tag read 368 volts?

____	8 15 38	Input 32 767 and verify the Mixer 1 Voltage status tag reads 460 volts	Does the Mixer 1 Voltage status tag read 460 volts?
____	8 15 39	Input 0 to set Mixer 1 Voltage back to zero volts	N/A
____	8 15 40	Using Plant Floor Manager set the value for Nozzle Orientation for M2 (P #2 Nozzle Orientation) to 0 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) read 0 degrees	Do the status tags read 0 degrees?
____	8 15 41	Input 9830 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 30 degrees	Do the status tags read 30 degrees?
____	8 15 42	Input 9830 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 30 degrees	Do the status tags read 30 degrees?
____	8 15 43	Input 22937 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 70 degrees	Do the status tags read 70 degrees?
____	8 15 44	Input 22937 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 70 degrees	Do the status tags read 70 degrees?
____	8 15 45	Input 32767 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 100 degrees	Do the status tags read 100 degrees?
____	8 15 46	Input 32767 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 100 degrees	Do the status tags read 100 degrees?
____	8 15 47	Input 0 and verify on the Overview (below Mixer 2) Pump Status (Nozzle Orientation) and Strain screen (M2 Nozzle) the status tags read 0 degrees	Do the status tags read 0 degrees?
____	8 15 48	Using Plant Floor Manager set the value for Nozzle Orientation for M1 (P #1 Nozzle Orientation) to 0 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) read 0 degrees	Do the status tags read 0 degrees?
____	8 15 49	Input 9830 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) the status tags read 30 degrees	Do the status tags read 30 degrees?
____	8 15 50	Input 9830 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) the status tags read 30 degrees	Do the status tags read 30 degrees?
____	8 15 51	Input 22937 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) the status tags read 70 degrees	Do the status tags read 70 degrees?
____	8 15 52	Input 22937 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) the status tags read 70 degrees	Do the status tags read 70 degrees?
____	8 15 53	Input 32767 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) the status tags read 100 degrees	Do the status tags read 100 degrees?
____	8 15 54	Input 32767 and verify on the Overview (below Mixer 1) Pump Status (Nozzle Orientation) and Strain screen (M1 Nozzle) the status tags read 100 degrees	Do the status tags read 100 degrees?

8 16 MICON ALARM TESTING

Since the Micon data has live inputs being fed to it it is continuously being updated This will affect how long the alarm for each status tag will stay flashing Using the Test Button inputs will be fed into the tag to simulate an alarm until the tag is updated

____	8 16 1	For this section you will need to start at the Micon screen The Test Button on the Overview screen will be used to enter values on the Micon screen to test the alarm setpoints	
____	8 16 2	Input a value of 200 for FI_AZ1_K1_2 and verify the status tag displays 200	Does the status tag display 200?
____	8 16 3	Input a value of 100 for FI_AZ1_K1_2 and verify the status tag displays 100 and a analog alarm has been activated	Has a analog alarm been activated?
____	8 16 4	Go to the alarm page and verify the alarm is for AZ 101 Outlet Flow and it is a LOW alarm	Is the alarm for AZ 101 Outlet Flow a LOW alarm?
____	8 16 5	Input a value of 50 for FI_AZ1_K1_2 and verify the LOW alarm changes to a LOWLOW alarm Return to the Micon Data screen	Does the alarm change to a LOWLOW alarm?
____	8 16 6	Input a value of 6 for PDI_AZ_K18_1 and verify the status tag displays 6	Does the status tag display 6?
____	8 16 7	Input a value of 11 for PDI_AZ_K18_1 and verify the status tag displays 11 and an alarm has been activated	Has an alarm been activated?
____	8 16 8	Go to the alarm page and verify the alarm is for Condenser Differential Pressure and it is a HIGH alarm Return to the Micon Data screen	Is the alarm for Condenser Differential Pressure a 'HIGH alarm?
____	8 16 9	Input a value of 2 for PDI_AZ_K14_1A and verify the status tag displays 2	Does the status tag display 2?
____	8 16 10	Input a value of 3 for PDI_AZ_K14_1A and verify the status tag displays 3 and an alarm has been activated	Has an alarm been activated?
____	8 16 11	Go to the alarm page and verify the alarm is for Hepa 1A Differential Pressure and it is a HIGH alarm	Is the alarm for Hepa 1A Differential Pressure a HIGH alarm?
____	8 16 12	Input a value of 5 for PDI_AZ_K14_1A and verify the HIGH alarm changes to a HIGHHIGH alarm Return to the Micon Data screen	Does the alarm change to a HIGHHIGH alarm?
____	8 16 13	Input a value of 2 for PDI_AZ_K14_2A and verify the status tag displays 2	Does the status tag display 2?
____	8 16 14	Input a value of 3 for PDI_AZ_K14_2A and verify the status tag displays 3 and an alarm has been activated	Has an alarm been activated?
____	8 16 15	Go to the alarm page and verify the alarm is for Hepa 2A Differential Pressure and it is a HIGH alarm	Is the alarm for Hepa 2A Differential Pressure a HIGH alarm?
____	8 16 16	Input a value of 5 for PDI_AZ_K14_2A and verify the HIGH alarm changes to a HIGHHIGH alarm Return to the Micon Data screen	Does the alarm change to a HIGHHIGH alarm?
____	8 16 17	Input a value of 1 for PDI_AZ_K110_1A and verify the status tag displays 1	Does the status tag display 1?
____	8 16 18	Input a value of 2 for PDI_AZ_K110_1A and verify the status tag displays 2 and an alarm has been activated	Has an alarm been activated?
____	8 16 19	Go to the alarm page and verify the alarm is for Hega 1A Differential Pressure and it is a High alarm	Is the alarm for Hega 1A Differential Pressure a HIGH alarm?
____	8 16 20	Input a value of 2 25 for PDI_AZ_K110_1A and verify the HIGH alarm changes to a HIGHHIGH alarm Return to the Micon Data screen	Does the alarm change to a HIGHHIGH alarm?
____	8 16 21	Input a value of 600 for FI_AZ_K1_3 and verify the status tag displays 600	Does the status tag display 600?
____	8 16 22	Input a value of 400 for FI_AZ_K1_3 and verify the status tag displays 400 and an alarm has been activated	Has an alarm been activated?
____	8 16 23	Go to the alarm page and verify the alarm is for Stack Flow and it is a LOW alarm Return to the Micon Data screen	Is the alarm for Stack Flow a LOW' alarm?

____	8 16 24	Input a value of 5000 for RI_AZ_K1_1 and verify the status tag displays 5000	Does the status tag display 5000?
____	8 16 25	Input a value of 10000 for RI_AZ_K1_1 and verify the status tag displays 10000 There is no alarm associated with this tag	Does the status tag display 10000?
____	8 16 26	Input a value of 2 for PDI_AZ_K14_1B and verify the status tag displays 2	Does the status tag display 2?
____	8 16 27	Input a value of 3 for PDI_AZ_K14_1B and verify the status tag displays 3 and an alarm has been activated	Has an alarm been activated?
____	8 16 28	Go to the alarm page and verify the alarm is for Hepa 1B Differential Pressure and it is a HIGH alarm	Is the alarm for Hepa 1B Differential Pressure a HIGH' alarm?
____	8 16 29	Input a value of 5 for PDI_AZ_K14_1B and verify the HIGH alarm changes to a HIGHHIGH alarm Return to the Micon Data screen	Does the alarm change to a HIGHHIGH alarm?
____	8 16 30	Input a value of 2 for PDI_AZ_K14_2B and verify the status tag displays 2	Does the status tag display 2?
____	8 16 31	Input a value of 3 for PDI_AZ_K14_2B and verify the status tag displays 3 and an alarm has been activated	Has an alarm been activated?
____	8 16 32	Go to the alarm page and verify the alarm is for Hepa 2B Differential Pressure and it is a HIGH alarm	Is the alarm for Hepa 2B Differential Pressure a HIGH alarm?
____	8 16 33	Input a value of 5 for PDI_AZ_K14_2B and verify the HIGH alarm changes to a HIGHHIGH alarm Return to the Micon Data screen	Does the alarm change to a HIGHHIGH alarm?
____	8 16 34	Input a value of 1 for PDI_AZ_K110_1B and verify the status tag displays 1	Does the status tag display 1?
____	8 16 35	Input a value of 2 for PDI_AZ_K110_1B and verify the status tag displays 2 and an alarm has been activated	Has an alarm been activated?
____	8 16 36	Go to the alarm page and verify the alarm is for Hega 1B Differential Pressure and it is a HIGH alarm	Is the alarm for Hega 1B Differential Pressure a HIGH alarm?
____	8 16 37	Input a value of 2 25 for PDI_AZ_K110_1B and verify the HIGH alarm changes to a HIGHHIGH alarm Return to the Micon Data screen	Does the alarm change to a HIGHHIGH alarm?
____	8 16 38	Input a value of 100 for TI_AZ_K18_1A and verify the status tag displays 100 Input a value of 150 for TI_AZ_K18_1A and verify the status tag displays 150 There is no alarm associated with this tag	Does the status tag display 100 and 150 each time?
____	8 16 39	Input a value of 50 for TI_AZ_K18_1B and verify the status tag displays 50 Input a value of 100 for TI_AZ_K18_1B and verify the status tag displays 100 There is no alarm associated with this tag	Does the status tag display 50 and 100 each time?
____	8 16 40	Input a value of 99 for RI_AZ_K19_1 and verify the status tag displays 99	Does the status tag display 99?
____	8 16 41	Input a value of 225 for RI_AZ_K19_1 and verify the status tag displays 225	Does the status tag display 225?
____	8 16 42	Input a value of 270 for RI_AZ_K19_1 and verify the status tag displays 270 and an alarm has been activated	Has an alarm been activated?
____	8 16 43	Go to the alarm page and verify the alarm is for Heme Radiation and it is a HIGH alarm	Is the alarm for Heme Radiation a HIGH alarm?
____	8 16 44	Return to the Micon Data screen	
____	8 16 45	Input a value of 7 for PDI_AZ_K19_1 and verify the status tag reads 7	Does the status tag for PDI_AZ_K19_1 read 7?
____	8 16 46	Input a value of 10 for PDI_AZ_K19_1 and verify the status tag displays 270 and an alarm has been activated	Has an alarm been activated?
____	8 16 47	Go to the alarm page and verify the alarm is for Heme Radiation and it is a HIGH alarm	Is the alarm for Heme Radiation a HIGH alarm?
____	8 16 48	Input a value of 15 for PDI_AZ_K19_1 and verify the HIGH alarm changes to a HIGHHIGH alarm on the alarm page	Does the HIGH alarm change to a HIGHHIGH alarm?

____	8 16 49	Input a value of 98 for TI_AZ1_K48_1A and verify the status tag displays 98 Input a value of 200 for TI_AZ1_K48_1A and verify the status tag displays 200 This tag does not have an alarm associated with it	Does the status tag display 98 and 200 each time?
____	8 16 50	Input a value of 67 for TI_AZ1_K48_1B and verify the status tag displays 67 Input a value of 200 for TI_AZ1_K48_1B and verify the status tag displays 200 This tag does not have an alarm associated with it	Does the status tag display 67 and 200 each time?
____	8 16 51	Input a value of 125 for TI_AZ1_EWR_1 and verify the status tag displays 125 Input a value of 150 for TI_AZ1_EWR_1 and verify the status tag displays 150 This tag does not have an alarm associated with it	Does the status tag display 125 and 150 each time?
____	8 16 52	Input a value of 75 for TI_AZ1_EWS_1 and verify the status tag displays 75 Input a value of 150 for TI_AZ1_EWS_1 and verify the status tag displays 150 This tag does not have an alarm associated with it	Does the status tag display 75 and 150 each time?
____	8 16 53	Input a value of 3 for PI_AZ1_K1_1 and verify the status tag displays 3	Does the status tag display 3?
____	8 16 54	Input a value of 3 5 for PI_AZ1_K1_1 and verify the status tag displays the same value and go to the alarm page and verify a LOW alarm has been activated for AZ 101 Tank Pressure	Has a LOW alarm been activated?
____	8 16 55	Input a value of -4 for PI_AZ1_K1_1 and verify a LOWLOW alarm has been activated for AZ 101 Tank Pressure	Has a LOWLOW alarm been activated?
____	8 16 56	Input a value of 25 for PI_AZ1_K1_1 and verify the alarm changes to a HIGHHIGH alarm for AZ 101 Tank Pressure	Does the alarm change to a HIGHHIGH alarm?
____	8 16 57	Input a value of 5 for PI_AZ1_K1_1 and verify the alarm changes to a HIGH alarm for AZ 101 Tank Pressure	Does the alarm change to a HIGH alarm?
____	8 16 58	Return to the Micon Data screen	
____	8 16 59	Input a value of 12 for PDI_AZ1_K45_1 and verify the status tag displays 12 Input a value of 25 for PDI_AZ1_K45_1 and verify the status tag displays 25 There is no alarm tag associated with this tag	Does the status tag display 12 and 25 each time?
____	8 16 60	Input a value of 1 for PDI_AZ1_K48_1 and verify the status tag displays 1 Go to alarm page and verify a LOW alarm has been activated for AZ 101 Rec Condenser DP	Does the status tag display 1 and has a LOW alarm been activated for AZ 101 Rec Condenser DP?
____	8 16 61	Input a value of 18 for PDI_AZ1_K48_1 and verify the status tag displays 18 Go to alarm page and verify a HIGH alarm has been activated for AZ 101 Rec Condenser DP	Has an alarm been activated for AZ 101 Rec Condenser DP?
____	8 16 62	Return to the Micon Data screen	
____	8 16 63	Input a value of 320 for FI_AZ1_EWR_1 and verify the status tag displays 320	Does the status tag display 320?
____	8 16 64	Input a value of 295 for FI_AZ1_EWR_1 and verify the status tag displays 295 Go to alarm page and verify a LOW alarm has been activated for AZ-101 EW Return Flow	Has an alarm been activated for AZ 101 EW Return Flow?
____	8 16 65	Return to the Micon Data screen	

8 17 RTD TESTING

____	8 17 1	Start at the Pump Status screen	
____	8 17 2	A 200 ohm potentiometer will be used for adjusting the alarm setpoints for the Temperature Upper and Lower Bearings Every full turn of the potentiometer will equal 20 ohms	N/A
____	8 17 3	Slowly turn the potentiometer for M1 Temp Lower Bearing (TI_AZ1_P702A_DE) until the status tag reads 129 degrees F	Does the M1 Temp Lower Bearing status tag read 129 degrees F?
____	8 17 4	Keep turning the potentiometer until the status tag for M1 Temp Lower Bearing is reading 195 degrees F Verify status tag is flashing red and go to alarm screen and verify it is a HIGH alarm for AZ 101 P1 Lower Bearing Temp Return to Pump Status screen	Is the status tag for M1 Temp Lower Bearing reading 195 degrees F and has a high alarm been activated on alarm page?
____	8 17 5	Keep turning the potentiometer until the status tag for M1 Temp Lower Bearing is reading 205 degrees F Go to alarm screen and verify a HIGHHIGH alarm has been activated for AZ 101 P1 Lower Bearing Temp	Does the status tag read 205 degrees F and the alarm changes from HIGH to HIGHHIGH ?
____	8 17 6	Acknowledge the alarm and verify the alarm message is solid red Return to Pump Status screen	Is the text for the alarm a solid red?
____	8 17 7	Adjust the potentiometer for M1 Temp Lower Bearing to 125 degrees F and go to alarm screen and verify the alarm has cleared	Does the alarm clear?
____	8 17 8	Slowly turn the potentiometer for M1 Temp Upper Bearing (TI_AZ1_P702A_ODE) until the status tag reads 129 degrees F	Does the M1 Temp Upper Bearing status tag read 129 degrees F?
____	8 17 9	Keep turning the potentiometer until the status tag for M1 Temp Upper Bearing is reading 195 degrees F Verify status tag for M1 Temp Upper Bearing is flashing red Go to alarm screen and verify it is a HIGH alarm for AZ 101 P1 Upper Bearing Temp	Is the status tag for M1 Temp Upper Bearing reading 195 degrees F and a HIGH alarm been activated ?
____	8 17 10	Return to Pump Status screen Keep turning the potentiometer until the status tag for M1 Temp Upper Bearing is reading 205 degrees F and verify a HIGHHIGH alarm has been activated for AZ 101 P1 Upper Bearing Temp on the alarm screen	Does the status tag read 205 degrees F and the alarm changes from HIGH to HIGHHIGH ?
____	8 17 11	Acknowledge the alarm and verify the alarm message is solid red Return to Pump Status screen	Is the alarm text for P1 Upper Bearing Temp a solid red?
____	8 17 12	Adjust the potentiometer for M1 Temp Upper Bearing to 125 degrees F and goto alarm screen and verify the alarm has cleared for AZ 101 P1 Upper Bearing Temp	Does the alarm clear?
____	8 17 13	Slowly turn the potentiometer for M2 Temp Lower Bearing (TI_AZ1_P701A_DE) until the status tag reads 129 degrees F	Does the status tag read 129 degrees F?
____	8 17 14	Keep turning the potentiometer until the status tag for M2 Temp Lower Bearing is reading 195 degrees F Verify status tag M2 Temp Lower Bearing is flashing red Goto alarm screen and verify it is a HIGH alarm for AZ 101 P2 Lower Bearing Temp	Is the status tag for M2 Temp Lower Bearing reading 195 degrees F and a HIGH alarm has been activated ?
____	8 17 15	Return to Pump Status screen Keep turning the potentiometer until the status tag for M2 Temp Lower Bearing is reading 205 degrees F Goto alarm screen and verify a HIGHHIGH alarm has been activated on the alarm screen	Does the status tag read 205 degrees F and the alarm changes from HIGH to HIGHHIGH ?
____	8 17 16	Acknowledge the alarm and verify the alarm message is solid red Return to Pump Status screen	Is the text for P2 Lower Bearing Temp a solid red?
____	8 17 17	Adjust the potentiometer for M2 Temp Lower Bearing to 125 degrees F and goto alarm screen and verify the alarm has cleared for P2 Lower Bearing Temp	Does the alarm clear?
____	8 17 18	Slowly turn the potentiometer for M2 Temp Upper Bearing (TI_AZ1_P701A_ODE) until the status tag reads 129 degrees F	Does the status tag read 129 degrees F?

____	8 17 19	Keep turning the potentiometer until the status tag for M2 Temp Upper Bearing is reading 195 degrees F Verify status tag for M2 Temp Upper Bearing is flashing red Goto alarm screen and verify it is a HIGH alarm for AZ 101 P2 Upper Bearing Temp	Is the status tag for M2 Temp Upper Bearing reading 195 degrees F and a HIGH alarm been activated ?
____	8 17 20	Return to Pump Status screen Keep turning the potentiometer until the status tag for M2 Temp Upper Bearing is reading 205 degrees F	Does the status tag read 205 degrees F?
____	8 17 21	Goto alarm screen and verify a HIGHHIGH alarm has been activated for AZ 101 P2 Upper Bearing Temp Acknowledge the alarm and verify the alarm message is solid red Return to the Pump Status screen	Has a HIGHHIGH alarm been activated for AZ 101 P2 Upper Bearing Temp and the text turn a solid red after being acknowledged?
____	8 17 22	Adjust the potentiometer for M2 Temp Upper Bearing to 125 degrees F and verify P2 Upper Bearing Temp has cleared on the alarm page	Does P2 Upper Bearing Temp clear?
____	8 17 23	A 20 ohm potentiometer will be used for adjusting the alarm setpoints for the Pump Phase Winding Temperatures on the Overview screen Every full turn of the potentiometer will equal 2 ohms	N/A
____	8 17 24	START OF TEST FOR PUMP WINDING TEMPERATURES Terminals for Pump 1 Winding Temp Phase C are 1 2 and 3 of WT 100 2 Slowly turn the potentiometer for Pump 1 Winding Temp Phase A (TI_AZ1_P701A_A) until status tag reads 150 degrees F	Is testing equipment connected to correct SIXTRACK terminals?
____	8 17 25	Increase potentiometer resistance until the status tag for Pump 1 Winding Temp Phase A is reading 330 degrees F	Does text box flash red/white on Pump Status page and is there a HIGH alarm displayed on ALARM page?
____	8 17 26	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 27	Decrease potentiometer resistance until status tag for Pump 1 Winding Temp Phase A is reading 150 degrees F	Did alarms clear on both pages?
____	8 17 28	Increase potentiometer resistance until status tag reads 340 degrees F	Does text box flash red/white on Pump Status page and is there a HIGHHIGH alarm displayed on ALARM page?
____	8 17 29	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 30	Decrease potentiometer resistance to 150 degrees F	Did alarms clear on both pages?
____	8 17 31	Terminals for Pump 1 Winding Temp Phase C are 4 5 and 6 of WT 100 2 Slowly turn the potentiometer for Pump 1 Winding Temp Phase B (TI_AZ1_P701A_B) until status tag reads 150 degrees F	Is testing equipment connected to correct SIXTRACK terminals?
____	8 17 32	Increase potentiometer resistance until the status tag for Pump 1 Winding Temp Phase B is reading 330 degrees F	Does text box flash red/white on Pump Status page and is there a HIGH alarm displayed on ALARM page?
____	8 17 33	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 34	Decrease potentiometer resistance until status tag for Pump 1 Winding Temp Phase B is reading 150 degrees F	Did alarms clear on both pages?
____	8 17 35	Increase potentiometer resistance until status tag reads 340 degrees F	Does text box flash red/white on Pump Status page and is there a HIGHHIGH alarm displayed on ALARM page?
____	8 17 36	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 37	Decrease potentiometer resistance to 150 degrees F	Did alarms clear on both pages?
____	8 17 38	Terminals for Pump 1 Winding Temp Phase C are 7 8 and 9 of WT 100 2 Slowly turn the potentiometer for Pump 1 Winding Temp Phase C(TI_AZ1_P701A_C) until status tag reads 150 degrees F	Is testing equipment connected to correct SIXTRACK terminals?

____	8 17 39	Increase potentiometer resistance until the status tag for Pump 1 Winding Temp Phase C is reading 330 degrees F	Does text box flash red/white on Pump Status page and is there a HIGH alarm displayed on ALARM page?
____	8 17 40	Acknowledge alarm by clicking of alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 41	Decrease potentiometer resistance until status tag for Pump 1 Winding Temp Phase C is reading 150 degrees F	Did alarms clear on both pages?
____	8 17 42	Increase potentiometer resistance until status tag reads 340 degrees F	Does text box flash red/white on Pump Status page and is there a HIGHHIGH alarm displayed on ALARM page?
____	8 17 43	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 44	Decrease potentiometer resistance to 150 degrees F and verify that both alarm indications have cleared	Did alarms clear on both pages?
____	8 17 45	The wires for Pump 1 RTD Phase Windings (WT 100 2) will have to be disconnected and the wires for Pump 2 RTD Phase Windings (WT 101 2) connected	N/A
____	8 17 46	Disconnect the wires for the Phase Temperature Windings of Pump 1 from terminals 1 2 4 5 and 7 8 of the RTD module (WT 100 2)	Are the wires disconnected?
____	8 17 47	The following describes hooking up the wires to the RTD module (WT 101 2)	N/A
____	8 17 48	Connect terminal 1 1 of Potentiometer box to RTD (WT 101 2) terminal 1 Connect terminal 1 W of Potentiometer box to RTD (WT 101 2) terminal 2 Connect terminal 2 1 of Potentiometer box to RTD (WT 101 2) terminal 4	Are wires connected?
____	8 17 49	Connect terminal 2 W of Potentiometer box to RTD (WT 101 2) terminal 5 Connect terminal 3 1 of Potentiometer box to RTD (WT 101 2) terminal 7 Connect terminal 3 W of Potentiometer box to RTD (WT 101 2) terminal 8	Are wires connected?
____	8 17 50	Terminals for Pump 2 Winding Temp Phase A are 1 2 and 3 of WT 101 2 Slowly turn the potentiometer for Pump 2 Winding Temp Phase A(TI_AZ1_P702A_A) until status tag reads 150 degrees F	Is testing equipment connected to correct SIXTRACK terminals?
____	8 17 51	Increase potentiometer resistance until the status tag for Pump 2 Winding Temp Phase A is reading 330 degrees F	Does text box flash red/white on Pump Status page and is there a HIGH alarm displayed on ALARM page?
____	8 17 52	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 53	Decrease potentiometer resistance until status tag for Pump 2 Winding Temp Phase A is reading 150 degrees F	Did alarms clear on both pages?
____	8 17 54	Increase potentiometer resistance until status tag reads 340 degrees F	Does text box flash red/white on Pump Status page and is there a HIGHHIGH alarm displayed on ALARM page?
____	8 17 55	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 56	Decrease potentiometer resistance to 150 degrees F	Did alarms clear on both pages?
____	8 17 57	Terminals for Pump 2 Winding Temp Phase B are 4 5 and 6 of WT 101 3 Slowly turn the potentiometer for Pump 2 Winding Temp Phase B(TI_AZ1_P702A_B) until status tag reads 150 degrees F	Is testing equipment connected to correct SIXTRACK terminals?
____	8 17 58	Increase potentiometer resistance until the status tag for Pump 2 Winding Temp Phase B is reading 330 degrees F	Does text box flash red/white on Pump Status page and is there a HIGH alarm displayed on ALARM page?
____	8 17 59	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?

____	8 17 60	Decrease potentiometer resistance until status tag for Pump 2 Winding Temp Phase B is reading 150 degrees F	Did alarms clear on both pages?
____	8 17 61	Increase potentiometer resistance until status tag reads 340 degrees F	Does text box flash red/white on Pump Status page and is there a "HIGHHIGH alarm displayed on ALARM page?
____	8 17 62	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 63	Decrease potentiometer resistance to 150 degrees F	Did alarms clear on both pages?
____	8 17 64	Terminals for Pump 2 Winding Temp Phase C are 7 8 and 9 of WT 101 3 Slowly turn the potentiometer for Pump 2 Winding Temp Phase C(TI_AZ1_P702A_C) until status tag reads 150 degrees F	Is testing equipment connected to correct SIXTRACK terminals?
____	8 17 65	Increase potentiometer resistance until the status tag for Pump 2 Winding Temp Phase C is reading 330 degrees F	Does text box flash red/white on Pump Status page and is there a HIGH alarm displayed on ALARM page?
____	8 17 66	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 67	Decrease potentiometer resistance until status tag for Pump 2 Winding Temp Phase C is reading 150 degrees F	Did alarms clear on both pages?
____	8 17 68	Increase potentiometer resistance until status tag reads 340 degrees F	Does text box flash red/white on Pump Status page and is there a HIGHHIGH alarm displayed on ALARM page?
____	8 17 69	Acknowledge alarm by clicking on alarming clock icon	Have flashing alarms on Pump Status and ALARMS pages turned to a steady red?
____	8 17 70	Decrease potentiometer resistance to 150 degrees F END OF TESTING FOR PUMP WINDING TEMPERATURES	Did alarms clear on both pages?

APPENDIX A – TEST EXCEPTIONS

STEP NUMBER	DESCRIPTION OF PROBLEM	ACTION TAKEN	RETEST COMPLETED