S

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
TWRS Technical Operations	TWRS Technical Operations	NA

5. Proj./Prog./Dept./Div.:	6. Design Authority/ Design Agent/Cog. Engr.:	7. Purchase Order No.:
702AZ/TWRS	WD Winkelman	NA

8. Originator Remarks:	9. Equip./Component No.:
Original release for testing of Year 2000 compliance of equipment in 702AZ Ventilation System. *USQ-TF-98-0707*	Micon/Chiller/UPS/VSD
	10. System/Bldg./Facility:
	241-AZ-702

11. Receiver Remarks: 11A. Design Baseline Document? [ ] Yes [X] No	12. Major Assm. Dwg. No.:
	NA
	13. Permit/Permit Application No.:
	NA
	14. Required Response Date:
	7/20/98

15.				DATA TRANSMITTED	(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Desig- nator	Reason for Trans- mittal	Origi- nator Dispo- sition	Receiv- er Dispo- sition
1	HNF-2981	all	0	702AZ Aging Waste Ventilation Facility Year 2000 Test Procedure	Q	2		

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

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)										
(G) Rea- son	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Rea- son	(H) Disp.	(J) Name	(K) Signature (L) Date (M) MSIN	
1	1	Design Authority W.M. Harty	*W M Harty*	7/4/8						
1	1	Design Agent WD Winkelman	*WD Winkelman*	7/20/98	R2-12					
1	1	Cog.Eng. GR Tardiff	*GR Sudd*	7/20/98	S5-12					
1	1	Cog. Mgr. D. Baide	*W M Harty*	7/20/98						
1	1	QA C.A.Sams	*C.A. Sams*	7-20-98	S5-12					
		Safety								
		Env.								

18.	19.	20.	21. DOE APPROVAL (if required)
WD Winkelman *WD Winkelman* 7/20/98	*for* D. Baide *um Harty* 7/20/98	*for* D Baide *um Harty* 7/20/98	Ctrl. No.
Signature of EDT Date Originator	Authorized Representative Date for Receiving Organization	Design Authority/ Date Cognizant Manager	[ ] Approved [ ] Approved w/comments [ ] Disapproved w/comments

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

702AZ Aging Waste Ventilation Facility Year 2000 Test Procedure

W. D. Winkelman
Lockheed Martin Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

Abstract: This document describes the procedure to test the Year 2000 susceptable components for compliance. It includes testing procedures for the Micon DCS, Cutler Hammer VSD, Durham Bush Chiller, IHD UPS and other ventilation facility equipment.
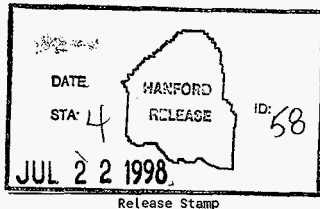
Micon is a trademark of Powell Industry Inc.

SPARCStation is a trademark of Sun Systems Inc.

ASVIEW is a trademark of Powell Industry Inc.

DATE.   HANFORD
STA· 4   RELEASE   ID: 58

JUL 2 2 1998

Release Approval   Date

Release Stamp

Approved for Public Release

702AZ Aging Waste Ventilation Facility
Year 2000 Test Procedure
(Project W-030)

July 1998

Issued by:
Lockheed Martin Hanford Corporation
for the
United States Department of Energy, Richland Operations Office
Richland, WA

LIST OF ABBREVIATIONS

Acceptance Test - Formal testing conducted to determine whether a system satisfies its acceptance criteria and to enable the customer to determine whether to accept the system (IEEE Std. 610.12-1990).

Engineering Workstation (EWS) – This Operator Control System(OCS) is designated as Master and is responsible for setting the system time to all OCS.

General Purpose LAN Interface (GPLI) - The interface between the dual data highway and either modems or OCS. An OCS connects to the Thinnet port. One or more modems connect to Terminal Block 2 with a three-wire connection.

Local Control Unit (LCU) – Houses a combination of RCM(Remote Control Module) controllers and U32 controllers.

Cognizant MCS (Micron Control Station)engineer - The engineer responsible for the 702AZcontrol system who is assigned the principal responsibility for the development of changes to existing computer software.

Operator Control Station (OCS) - The operator interface to the process that connects to the GPLI via ethernet port.

Remote Control Module (RCM) – The interface between the analog and/or discrete instrumentation and the control system, which is connected to the U32 via fieldbus. This device contains programming that it receives from the EWS.

U32 Controller (U32) – Provides and interface between RCMs and the rest of the control system. This device can contain programming that it receives from the EWS.

1.0 INTRODUCTION

1.1 Purpose

This test procedure was developed to determine if the 702AZ Tank Ventilation Facility system is Year 2000 Compliant. The procedure provides detailed instructions for performing the operations necessary and documenting the results. This verification procedure will document that the 702AZ Facility Systems are year 2000 compliant. and will correctly meet the criteria established in this procedure.

1.2 Scope

The Aging Waste Facility (AWF) provides underground tank storage of high-level radioactive waste at the Hanford Site. The four tanks in the AWF require ventilation for confinement, cooling, and flammable gas mitigation. The scope of this document is limited to the 702AZ Tank Ventilation Facility (W-030 Project) equipment and interfaces of the AWF.

1.3 Assumptions

If no adverse symptoms are observed when the test is executed, it will be assumed that the system will operate successfully during the year 2000 changeover.

1.4 Overview

This document addresses testing of the vendor software for the 702AZ Ventilation facility equipment control systems. The system is comprised of many instruments, local system controllers and the MICON Measurement and Control System (MCS). An assessment was made of system equipment and although many of the system instruments have digital components, they are not aware of time or date and therefore not subject to the Year 2000 changeover issue. The system assessment identified eight subsystems of the 702AZ ventilation facility that require Y2K evaluation and testing. These sub-systems are:

- The MICON DCS
- The Continuous Air Monitor (CAM)
- The primary process Chiller
- The fire alarm control system
- The diesel generator
- The Un-interruptible Power System's
- The Control Room HVAC.
- The primary fan Variable Speed Drive (VSD) control.

The preliminary assessment identified the diesel generator as being time and date aware, however further investigation has determined that it is not and will therefore not be tested. These systems (with the exception of the diesel generator) are time and date aware with provisions for inputting and display. However, in all cases, no system functions are initiated based on time or date. The time and date information is used for "STAMPING" process information with time and date information. These system all work independently and do not share their individual time and date information with the other systems.

2.0 GENERAL TESTING INSTRUCTIONS

The following guidelines should be followed in the performance of testing of each of the 702AZ subsystems being checked for year 2000 operation.

2.1 Responsibilities

The cognizant MCS engineer is responsible for documenting, managing, designing, preparing the tests, and resolving test-related issues. Operations and maintenance personnel will assist in performing equipment configuration operations.

2.2 Staffing and Training

This procedure shall be managed and documented by engineering personnel experienced in the operation and maintenance of the equipment. Operational and maintenance personnel will be responsible for operation of equipment as required.

2.3 Logging Test Results.

The performance of each step of the test will be documented by initialing and indicating the time and date of completion. All test data will be incorporated into an acceptance test report and released as a supporting document in accordance with engineering procedures. Test data will include the signed procedure steps in this document, all test discrepancy log sheets (Attachment 2), and where possible, any test results which can be captured from screen displays or data files.

2.4 Test Setup

Before performing tests, consult with Operations Engineering personnel on duty to assure facility is properly configured to minimize potential impact. This may include configuration of process overrides and/or local operation of critical components.

2.5 Test Start

Each test will begin by using the equipment interface to enter the desired date. The following dates will be tested on each of the facility sub-systems.

December 31, 1999, 11:55pm	to	January 1, 2000, 12:05am
February 28, 2000, 11:55pm	to	February 29, 2000, 12:05am
February 29, 2000, 11:55pm	to	March 1, 2000, 12:05am
December 30, 2000, 11:55pm	to	December 31, 2001, 12:05am
December 31, 2000, 11:55pm	to	January 1, 2001, 12:05am
February 28, 2001, 11:55pm	to	March 1, 2001, 12:05am

2.6 Proceed with Test

Each sub-system will be allowed to operate through the assigned time frame. Typically this will be at least 10 minutes from the time of setting the test time.

2.7 Test Measurements

Each sub-system will be required to continue operations throughout the test. Each sub-systems handling of the date will be monitored and recorded for each date function. Anomalies will be recorded.

2.8 Shut Down

At the completion of each test sequence,(if appropriate as indicated in the individual test), the sub-system will be shut-down and restarted to determine if normal operations will continue upon a loss of power or system restart. Assure that the process is properly configured to allow a sub-system shutdown.

2.9 Restart

After the successful completion of date test of interest, the procedure will be iterated on the next date of interest. If for some reason the tests do not proceed as planned, the sub-system should be reset and the test for that date should be started again from the beginning before going on to the next date.

2.10 Stop Testing of Sub-System

The current date will be reentered into the sub-system and the system will be monitored for a normal return to operations. Any data files generated during the testing phase should be removed from the system.

2.11 Test Contingencies

If for any reason the sub-system being tested fails during the test, every effort possible to return the sub-system to current date and operation should be made. Manufacturers documentation should be used as necessary to return the system to functionality.

If other portions of the Ventilation Facility fail during sub-system testing, at the discretion and need of the Operations Engineer on duty, return the sub-system to normal operation. Testing can continue at a later date as appropriate.

3.0 SUB-SYSTEM TESTS

'The following tests should be performed individually on the listed equipment. No date information is shared between sub-systems and therefore no overall system test is required.

3.1 Micon Distributed Control System

The MICON distributed control system consists of the following components. The operator control station (OCS) is a Sun SPARC STATION 5 computer system. The OCS are interconnected on an Ethernet LAN and also interconnected to the Remote controllers on a separate token ring LAN. There are 33 remote computer controllers connected to the 4 OCS stations. See HNF-SD-WM-CSWD-071 for detailed information on the system organization. The OCS are running SunOS 4.1.4 as the computer operating system. Custom MICON interface software is referred to as ASView and is currently version 3.1.58a.

All features to be tested involve the time and date stamp that the OCS attaches to various displays, data, and files. The information recorded will be either the value of the date and time stamp or an affirmation that the clock correctly advanced to the proper date and time. In cases where appropriate, the directory listings and ASCII files containing file date and time stamps can be exported and printed as support information and included in the acceptance test report as required.

3.1.1 Startup and Prerequisite Conditions:

step	Prerequisite action	Initials and date
1	Create a revision file of current application files and release versions. Use rev name "Y2K" and include in records. Verify ASVIEW™ version__3.1.58a_____.	
2	Move all (except current date and time) Historian and Message files to storage directory. (For retrieval at end of testing.)	
3	Print the following files. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/Ahf??????.Txt Message history file — /home/Data/Message/Mhf??????.Txt Operator Action File — /home/Data/Message/Ohf??????.Txt ASCII Historian file --- /home/Data/History/a_?????? (1 page)	
4	Verify date and time are correct.	
5	Verify operation of pictorial historian	
	Verify System is operational and functioning properly:	
6	Activate event	
7	Acknowledge Alarm	
8	Verify creation date and time stamp of event --Message History	
9	Verify creation date and time stamp of event — Operator Action	
10	Verify creation date and time of event — recent alarm display	
11	Verify creation date and time of event — alarm history display	

3.1.2 Test transition from December 31, 1999 11:55 PM to January 1, 2000 12:05 AM.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to December 31, 1999 11:55 PM	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait at least 10 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verify system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received at OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged and cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.1.3 Test transition from February 28, 2000 11:55 PM to February 29, 2000 12:05 AM.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to February 28, 2000 11:55 PM	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait at least 10 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verify system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received a OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged and cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.1.4 Test transition from February 29, 2000 11:55 PM to March 1, 2000 12:05 AM.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to February 29, 2000 11:55 PM	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait at least 10 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verify system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received a OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged anc cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.1.5 Test transition from December 30, 2000 11:55 PM to December 31, 2001 12:05 AM.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to December 30, 2000 11:55 PM	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait at least 10 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verify system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received a OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged and cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.1.6 Test transition from December 31, 2000 11:55 PM to January 1, 2001 12:05 AM.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to December 31, 2000 11:55 PM	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait at least 10 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verify system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received a OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged and cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.1.7 Test transition from February 28, 2001 11:55 PM to March 1, 2001 12:05 AM.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to February 28, 2001 11:55 PM	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait at least 10 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verity system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received a OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged anc cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.1.8 Return System to current Time and Date.

step	Procedure	Expected output	Witness
1	Power Down Master Station	Verify off condition	
2	Power Up Master Station	System will boot and bring operating system on line.	
3	Logon as root and Set Station Date to Current.	Verify date/time entered as specified	
4	Logoff and Logon as Micon	Verify display of basic Micon screen, load monitor and proper date/time clock display	
5	Perform Device Definition and start AS/View	Verify all controllers are on line and existence of alarm panel in lower screen.	
6	Wait 15 minutes	No Action	
7	Monitor operation of Complete System	Verify system continued to work during time span	
8	Monitor operation of display clock/date	Verity system clock/date display continue to operate and correctly display time and date	
9	Activate event	Verify Alarm received a OCS	
10	Acknowledge Alarm	Verify Alarm Acknowledged anc cleared	
11	Verify date and time stamp of event	Verify Time Stamp in Message History file of event	
		Verify Time Stamp in Operator Action file of event	
		Verify Time Stamp in recent alarm history window	
		Verify Time Stamp in Alarm History file.	
12	Print the following files and verify correct time and date stamps. TPSI file— /home/Date/Tpsi/ W320.csv .. Alarm history file — /home/Data/Message/AHF??????.Txt Message history file — /home/Data/Message/DMF??????.Txt Operator Action File — /home/Data/Message/opact.??????t ASCII Historian file --- /home/Data/History/a_?????? (1 page)		

3.2 Fire Control Station Simplex Time Recording Co. Model 4100-8001.

The 702AZ Ventilation Facility Fire Control system is made by Simplex Time Recording Co. A year 2000 compliance statement is provided on the Internet at http://www.simplexnet.com/products/Y2KFire.htm. There is no date related functionality in this system and it therefore does not need to be tested.

Simplex provides the following statement in regards to the model 4001 Year 2000 compatibility.

"The processor's used in these panels have on board timers that measure elapsed time in the micro or milli second range. Via software these timers can be used to implement date functions, if required. These panels do not support date functionality and none is implemented in them, therefore they are not sensitive to year 2000.

Simplex is making every effort to provide accurate and up-to-date information on the Year 2000 readiness of its products. The information in the Simplex Home Page reflects the current results of compliance tests and may be updated or changed without notice as testing continues. This information is published for your assistance only. An overall Year 2000 assessment and plan based on your particular needs is your responsibility.

Simplex disclaims the implied warranties of merchantability and fitness for a particular purpose and makes no express warranties except as may be stated in its written agreement with its customers. In no event is Simplex liable to anyone for any indirect, special or consequential damages."

Because the Fire Alarm system is not part of the Ventilation Process system and it provides no date related functionalityk, it will not be formally tested.

3.2 Fire Control Station Simplex Time Recording Co. Model 4100-8001.

The 702AZ Ventilation Facility Fire Control system is made by Simplex Time Recording Co. A year 2000 compliance statement is provided on the Internet at http://www.simplexnet.com/products/Y2KFire.htm. There is no date related functionality in this system and it therefore does not need to be tested.

Simplex provides the following statement in regards to the model 4001 Year 2000 compatibility.

"The processor's used in these panels have on board timers that measure elapsed time in the micro or milli second range. Via software these timers can be used to implement date functions, if required. These panels do not support date functionality and none is implemented in them, therefore they are not sensitive to year 2000.

Simplex is making every effort to provide accurate and up-to-date information on the Year 2000 readiness of its products. The information in the Simplex Home Page reflects the current results of compliance tests and may be updated or changed without notice as testing continues. This information is published for your assistance only. An overall Year 2000 assessment and plan based on your particular needs is your responsibility.

Simplex disclaims the implied warranties of merchantability and fitness for a particular purpose and makes no express warranties except as may be stated in its written agreement with its customers. In no event is Simplex liable to anyone for any indirect, special or consequential damages."

Because the Fire Alarm system is not part of the Ventilation Process system and it provides no date related functionality, it will not be formally tested.

3.3 Control Room Air Conditioner DA Data Aire Inc. DTAU-0332

The control room air conditioner provides heating/cooling and humidity control for the Control room building. There is only one of these systems. The system will not be shut down after each section of the test. The ability of the system to restart at the correct time is unimportant.

step	Procedure	Expected output	Witness
1	Enter authorization password and set Time and Date to December 31, 1999 11:55 PM	Verify date/time entered as specified	
2	Wait at least 10 minutes	No Action	
3	Monitor operation of System	Verify system continued to work during time span	
4	Enter authorization password and set Time and Date to February 28, 2000 11:55 PM	Verify date/time entered as specified	
5	Wait at least 10 minutes	No Action	
6	Monitor operation of System	Verify system continued to work during time span	
7	Logon as root and Set Station Date to February 29, 2000 11:55 PM	Verify date/time entered as specified	
8	Wait at least 10 minutes	No Action	
9	Monitor operation of System	Verify system continued to work during time span	
10	Enter authorization password and set Time and Date to December 30, 2000 11:55 PM	Verify date/time entered as specified	
11	Wait at least 10 minutes	No Action	
12	Monitor operation of System	Verify system continued to work during time span	
13	Enter authorization password and set Time and Date to December 31, 2000 11:55 PM	Verify date/time entered as specified	
14	Wait at least 10 minutes	No Action	
15	Monitor operation of System	Verify system continued to work during time span	
16	Enter authorization password and set Time and Date to February 28, 2001 11:55 PM	Verify date/time entered as specified	
17	Wait at least 10 minutes	No Action	
18	Monitor operation of System	Verify system continued to work during time span	
19	Enter authorization password and set Time and Date to current	Verify system continues to work	

3.4 Primary Process Air Chiller Dunham Bush model ACDR-55-B

The primary process Air Chiller provides cooling to the main process air stream. There is only one chiller in the system and although important, the process can be run without it. The chiller will not be shut down between testing each time since the ability to restart at the correct time is unimportant.

step	Procedure	Expected output	Witness
1	Enter authorization password and set Time and Date to December 31, 1999 11:55 PM	Verify date/time entered as specified	
2	Wait at least 10 minutes	No Action	
3	Monitor operation of System	Verify system continued to work during time span	
4	Enter authorization password and set Time and Date to February 28, 2000 11:55 PM	Verify date/time entered as specified	
5	Wait at least 10 minutes	No Action	
6	Monitor operation of System	Verify system continued to work during time span	
7	Logon as root and Set Station Date to February 29, 2000 11:55 PM	Verify date/time entered as specified	
8	Wait at least 10 minutes	No Action	
9	Monitor operation of System	Verify system continued to work during time span	
10	Enter authorization password and set Time and Date to December 30, 2000 11:55 PM	Verify date/time entered as specified	
11	Wait at least 10 minutes	No Action	
12	Monitor operation of System	Verify system continued to work during time span	
13	Enter authorization password and set Time and Date to December 31, 2000 11:55 PM	Verify date/time entered as specified	
14	Wait at least 10 minutes	No Action	
15	Monitor operation of System	Verify system continued to work during time span	
16	Enter authorization password and set Time and Date to February 28, 2001 11:55 PM	Verify date/time entered as specified	
17	Wait at least 10 minutes	No Action	
18	Monitor operation of System	Verify system continued to work during time span	

19	Enter authorization password and set Time and Date to current	Verify system continues to work	

3.5 Continuous Air Monitor Eberline model AMS-4 Software version 3.0

The Continuous Air Monitor provides real time monitoring of stack radioactive particulates. There are two CAMS in the system. One CAM monitors the building stack and one monitors the primary process stack. Testing will be performed on the Spare CAM which is identical to the other two. Verification that each CAM is operating with V 3.0 firmware will be performed.

step	Procedure	Expected output	Witness
1	Power Down CAM	Verify off condition	
2	Power UP CAM	Verify correct date, time and operation of system.	
3	Enter authorization password and set Time and Date to December 31, 1999 11:55 PM	Verify date/time entered as specified	
4	Wait at least 10 minutes	No Action	
5	Monitor operation of System	Verify system continued to work during time span	
6	Power Down CAM	Verify off condition	
7	Power UP CAM	Verify correct date, time and operation of system.	
8	Enter authorization password and set Time and Date to February 28, 2000 11:55 PM	Verify date/time entered as specified	
9	Wait at least 10 minutes	No Action	
10	Monitor operation of System	Verify system continued to work during time span	
11	Power Down CAM	Verify off condition	
12	Power UP CAM	Verify correct date, time and operation of system.	
13	Logon as root and Set Station Date to February 29, 2000 11:55 PM	Verify date/time entered as specified	
14	Wait at least 10 minutes	No Action	
15	Monitor operation of System	Verify system continued to work during time span	
16	Power Down CAM	Verify off condition	
17	Power UP CAM	Verify correct date, time and operation of system.	
18	Enter authorization password and set Time and Date to December 30, 2000 11:55 PM	Verify date/time entered as specified	
19	Wait at least 10 minutes	No Action	

step	Procedure	Expected output	Witness
20	Monitor operation of System	Verify system continued to work during time span	
21	Enter authorization password and set Time and Date to December 31, 2000 11:55 PM	Verify date/time entered as specified	
22	Wait at least 10 minutes	No Action	
23	Monitor operation of System	Verify system continued to work during time span	
24	Power Down CAM	Verify off condition	
25	Power UP CAM	Verify correct date, time and operation of system.	
26	Enter authorization password and set Time and Date to February 28, 2001 11:55 PM	Verify date/time entered as specified	
27	Wait at least 10 minutes	No Action	
28	Monitor operation of System	Verify system continued to work during time span	
29	Power Down CAM	Verify off condition	
30	Power UP CAM	Verify correct date, time and operation of system.	
31	Enter authorization password and set Time and Date to current	Verify system continues to work	

3.6 Variable Speed Drive Cutler Hammer Model AF95

The Variable Speed Drive is used to adjust fan speed and control the pressure and thus the flow of the Ventilation system. Their are two Variable Speed Drives. One for each of the System Fans. The tests will only be run on one of the VSD's in that they are identical. The test will be run on the off line VSD and not the one currently providing flow for the process.

step	Procedure	Expected output	Witness
1	Power Down VSD	Verify off condition	
2	Power UP VSD	Verify correct date, time and operation of system.	
3	Enter authorization password and set Time and Date to December 31, 1999 11:55 PM	Verify date/time entered as specified	
4	Wait at least 10 minutes	No Action	
5	Monitor operation of System	Verify system continued to work during time span	
6	Power Down VSD	Verify off condition	
7	Power UP VSD	Verify correct date, time and operation of system.	
8	Enter authorization password and set Time and Date to February 28, 2000 11:55 PM	Verify date/time entered as specified	
9	Wait at least 10 minutes	No Action	
10	Monitor operation of System	Verify system continued to work during time span	
11	Power Down VSD	Verify off condition	
12	Power UP VSD	Verify correct date, time and operation of system.	
13	Logon as root and Set Station Date to February 29, 2000 11:55 PM	Verify date/time entered as specified	
14	Wait at least 10 minutes	No Action	
15	Monitor operation of System	Verify system continued to work during time span	
16	Power Down VSD	Verify off condition	
17	Power UP VSD	Verify correct date, time and operation of system.	
18	Enter authorization password and set Time and Date to December 30, 2000 11:55 PM	Verify date/time entered as specified	
19	Wait at least 10 minutes	No Action	
20	Monitor operation of System	Verify system continued to work during time span	

step	Procedure	Expected output	Witness
21	Power Down VSD	Verify off condition	
22	Power UP VSD	Verify correct date, time and operation of system.	
23	Enter authorization password and set Time and Date to December 31, 2000 11:55 PM	Verify date/time entered as specified	
24	Wait at least 10 minutes	No Action	
25	Monitor operation of System	Verify system continued to work during time span	
26	Power Down VSD	Verify off condition	
27	Power UP VSD	Verify correct date, time and operation of system.	
28	Enter authorization password and set Time and Date to February 28, 2001 11:55 PM	Verify date/time entered as specified	
29	Wait at least 10 minutes	No Action	
30	Monitor operation of System	Verify system continued to work during time span	
31	Power Down VSD	Verify off condition	
32	Power UP VSD	Verify correct date, time and operation of system.	
33	Enter authorization password and set Time and Date to current	Verify system continues to work	

3.7 Un-interruptable Power Supply International Power Machines Model IBP+10

The Un-interruptable Power Supply provides power to loads which need to remain powered during the transition to backup power upon a loss of facility power. There are three identical UPS's. Only one UPS will be tested. Select the UPS associated with the Ventilation train which is currently in standby. The UPS should be placed in bypass before testing. Since the UPS has its own backup power, powering down the UPS between test phases is not required.

step	Procedure	Expected output	Witness
1	Enter authorization password and set Time and Date to December 31, 1999 11:55 PM	Verify date/time entered as specified	
2	Wait at least 10 minutes	No Action	
3	Monitor operation of System	Verify system continued to work during time span	
4	Enter authorization password and set Time and Date to February 28, 2000 11:55 PM	Verify date/time entered as specified	
5	Wait at least 10 minutes	No Action	
6	Monitor operation of System	Verify system continued to work during time span	
7	Logon as root and Set Station Date to February 29, 2000 11:55 PM	Verify date/time entered as specified	
8	Wait at least 10 minutes	No Action	
9	Monitor operation of System	Verify system continued to work during time span	
10	Enter authorization password and set Time and Date to December 30, 2000 11:55 PM	Verify date/time entered as specified	
11	Wait at least 10 minutes	No Action	
12	Monitor operation of System	Verify system continued to work during time span	
13	Enter authorization password and set Time and Date to December 31, 2000 11:55 PM	Verify date/time entered as specified	
14	Wait at least 10 minutes	No Action	
15	Monitor operation of System	Verify system continued to work during time span	
16	Enter authorization password and set Time and Date to February 28, 2001 11:55 PM	Verify date/time entered as specified	

step	Procedure	Expected output	Witness
17	Wait at least 10 minutes	No Action	
18	Monitor operation of System	Verify system continued to work during time span	
19	Enter authorization password and set Time and Date to current	Verify system continues to work	

ATTACHMENT 1: 702AZ VENTILATION FACILITY YEAR 2000 TEST CRITERIA

Y2K Program Critical Dates and Justification of exceptions to testing

CURRRENT DATE AND TIME Will be tested
9/30/1998-10/1/1998 --(Tests FY 1999) Not tested. Application does not use FY.
9/8/1998 to 9/9/1999 -- (Tests 9999)
12/31/1999 to 1/1/2000 --- (Change of millennium) **Will be tested**
9/30/99 to 10/1/1999 (Tests FY2000)Not tested. Application does not use FY.
2/28/2000 to 2/29/2000 (Recognition of leap year) **Will be tested**
2/29/2000 to 3/1/2000 (Does not go to Feb. 30 or 31st) **Will be tested**
2/20/2001 (should create error) Not tested. Testing for all data entry errors is not
imporatant.
9/30/2000 to 10/1/2000 (tests FY 2001)Not tested. Application does not use FY.
12/30/2000 to 12/31/2000 (Checks for bad leap year calculation)**Will be tested**
12/31/2000 to 1/1/2001 (Tests leap year 366 days) **Will be tested**
2/28/2001 to 3/1/2001 (tests for none leap year) **Will be tested**

Criteria:

All systems transition to the tested critical dates without failures.
Micon clock transitions to the correct time and date at the above stated critical dates.
Micon file save dates just after time transitions to critical dates are correct.
Data Message files and Alarm History Files are properly issued on critical dates.
The date and time stamps are correct in the Recent Alarms Window and on the various alarm
summaries.
Both the pictorial Historian and ASCII Historian are operational on all dates tested.
The ASCII historian data is correctly time and date stamped.
The Pictorial Historian properly depicts the correct time stamp when selecting a point from the
live display.
The Third Party Report program will update files on the tested dates.
The Third Party Report program correctly time and date stamps data within the resultant text
files.

ATTACHMENT 2: TEST DISCREPANCY LOG SHEET   Page _____ of _____

TEST STEP NUMBER	DESCRIPTION	RESOLUTION	CLOSED DATE