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Page 1 of 1

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3		J. J. Irwin			H0-33						
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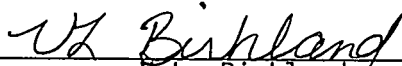
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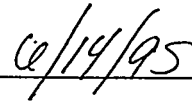
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105-KE ISOLATION BARRIER LEAK RATE
ACCEPTANCE TEST REPORT
WHC-SD-SNF-ATR-005
REV 0

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May 17, 1995

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FOREWORD

This Acceptance Test Report (ATR), WHC-SD-SNF-ATR-005, revision 0, contains the completed and signed Acceptance Test Procedure (ATP) for the 105-KE Isolation Barrier Leak Rate Test. The Test Engineer's log, the completed sections of the ATP in the Appendix for Repeat Testing (Appendix K), the approved WHC J-7s (Appendix H), the data logger files (Appendices T and U), and the post test calibration checks (Appendix V) are included. Results from these tests will be reported in the 105-KE Isolation Barriers Acceptance Test Results, WHC-SD-SNF-RPT-006.

ACCEPTANCE TEST PROCEDURE FOR THE 105-KE ISOLATION BARRIER LEAK RATE

1.0 INTRODUCTION

1.1 PURPOSE

This acceptance test procedure shall be used to: First establish a basin water loss rate prior to installation of the two isolation barriers between the main basin and the discharge chute in K-Basin East. Second, perform an acceptance test to verify an acceptable leakage rate through the barrier seals. This Acceptance Test Procedure (ATP) has been prepared in accordance with CM-6-1 EP 4.2, Standard Engineering Practices.

1.2 SCOPE

This ATP will establish a baseline Basin water loss rate prior to barrier installation by measuring basin water loss minus the effects of evaporation. After barrier installation, the same test will be repeated to determine if the isolation barriers adequately perform their leak tightness design function. Leakage is unacceptable when the leak rate exceeds the ^(100 gph/5000 cfm; see section 4.2.3 for acceptance criteria) post seismic event limit specified in the Safety Analysis Report (SAR). The Test Specification/Test Plan for the K Basin Isolation Barriers (WHC-SD-SNF-TP-009) establishes both the leak requirements and overall plan for conducting this ATP. /chg 1
18
4/8/85

Basin leakage and basin water surface evaporation accounts for the total basin water loss. Two tests will be conducted. Test 1 will be performed prior to the installation of the barriers. This test will establish a baseline reading for the existing basin water loss, characterize the baseline for the probable test evaporation rate, verify acceptable performance of the instrumentation network and the zero adjusting of the basin and discharge chute level detectors.

^{through the isolation barrier doors} Test 2 will be performed after the isolation barrier installation. This test will measure the leak rate past the isolation barriers. Loss of water from the basin is ^{through} two routes: One route is loss from surface evaporation and the other route is seal leakage. An eleven inch (28 cm) level differential (initial) imposed across the Isolation Barriers will be the driving force for leakage. ~~Basin level drop and evaporation will be factored into an isolation barrier leakage equation developed from these tests.~~ /chg 1
18
4/8/85

By establishing this initial eleven inch (28cm) level differential across the isolation barriers, the leak tight performance will be characterized. The leakage determined at the eleven inch (28cm) differential will be used to project the leakage at the full sixteen foot (4.9m) differential requirement. Therefore, the leak rate for an emptied discharge chute as the result of a Design Basis Earthquake (DBE) post seismic event, can be projected from tests conducted with a smaller head.

2.0 APPLICABLE/REQUIRED DOCUMENTS

- WHC-SD-SNF-TP-009, 105-KE/KW Isolation Barrier Leak Test Specification/Test Plan
- HSRCM-1, Hanford Site Radiological Control Manual
- WHC-CM-4-3, Industrial Safety Manual
- WHC-CM-5-13, K Basins Policy Manual, 16-04
- K Basin Process Standards C-303 and D-403
- WHC-CM-4-2 QR 11.0 WHC Quality Assurance Program Requirements for Test Control. Testing shall be conducted in accordance with the requirements of QR 11.0.
- WHC-CM-6-1 EP 4-2. Testing Requirements.

3.0 DEFINITIONS

- **Control Copy:** The single copy of all record documentation maintained at the K Basin facility and used for all required signatures, approvals, and data recording.
- **Working Copy** - The single copy of all record documentation maintained within the radiation zone used for all required record signatures, approvals, and data recording. Signatures shall be transferred to the "Control Copy".
- **Master Work Plan** - A document to control the overall steps to complete the installation and testing of the isolation barriers.
- **Test Logbook:** A logbook for recording all data and observations by the test performer which are not included in a test procedure.
- **Verify:** This word is used to both check and to adjust, alter or operate to meet the condition required, "Verify valve is open" directs that if the valve is closed, open it, if it is already open, no further action is required.
- **Basin:** That portion of 100-KE and 100-KW used for irradiated fuel storage; is hydraulically connected to the Weasel pit, Filter/Viewing Pits, Dummy Elevator Pit, and South Loadout Pit; and is hydraulically separated from the Discharge Pit, by the isolation barriers, and the North Loadout Pit (Sand Filter). *4.0 AUTHORITY AND ADMINISTRATION* *Backwater Pit* by a separate barrier.
- **Discharge Pit:** That portion of 100-KE and 100-KW that contains no irradiated fuel; is hydraulically separated from the basins by the isolation barriers, but is hydraulically connected to the Reactor Fuel Discharge Pit.

4.1 AUTHORITY

4.1.1 Technical PIC

The Technical PIC is responsible for the overall ATP performance and safety. The WHC Technical PIC directs the Test Director and Test Engineer.

4.1.2 Test Director

The Test Director is responsible for the performance of the ATP and personnel safety. The Test Director is also responsible for all ATP material and personnel resource coordination. The Test Director directs the Test Engineer and reports to the Technical PIC. The Test Director can act as both the Test Director and Test Engineer.

4.1.3 Test Engineer

The Test Engineer is responsible for directing performance of the ATP and for personnel and plant safety as related to the performance of the ATP. The Test Engineer directs personnel assigned to the ATP. The Test Engineer reports to the Test Director and Technical PIC. *The Test Engineers are delineated in the Master Work Plan for Isolation Barrier Installation at KE and KW Basins, and their training records are maintained by WHC Training personnel.* cgy
W
H/HK

4.1.4 Test Performers/Operators

WHC and contractor personnel assigned ATP related tasks are directly responsible for ATP performance, plant and personnel safety. Test performers report to the Test Engineer.

4.1.5 Fluid System Engineering

This WHC organization is responsible for all analytical decisions, test instrument setup and instrument operations. As the originators of the Test Specification/Test Plan WHC-SD-SNF-009, their expertise is required to make critical technical decisions pertaining to test criteria, methodology and performance evaluations. These individuals will report to the Test Engineer.

4.1.6 K Basin Operations Shift Manager

The Shift Operations Manager (SOM) is responsible for any and all activities in the K Basin. The Technical PIC will interface directly with the SOM, or a representative, when operating any equipment that could effect the Basin; e.g., water transfer pump.

4.2 ADMINISTRATION

4.2.1 Tagouts

There are no planned tagouts required by this procedure; however, if one is required refer to WHC-CM-4-3, Section G1, Energy Control Program (Lock and Tag).

4.2.2 Changes

ATP changes required during testing may be made immediately in the field copy, provided that the changes cannot affect operating facility safety, function, or performance and will not compromise or influence test data. Any such change must be recorded in the change log as a change exception. See Appendix F for instructions on how to make such a change.

ATP changes that affect operating facility safety, function, or performance or will compromise or influence test data are made via an ECN to the ATP Supporting Document (SD). See Appendix F for instructions on how to make such a change.

4.2.3 Acceptance Criteria

For any step in the ATP that has a associated acceptance requirement, the value will be so designated in the step. For this procedure the acceptance criteria is a leak rate through the isolation barriers of 1500 gallons (5660 l) per hour (the SAR limit) at a 16 ft (4.9m) level difference. The testing will be over an 11 inch (28cm) level differential. The isolation barrier leak rate shall not exceed 358 gallons (1356 l) per hour at an 11 inch (28cm) level differential.

4.2.4 Test Failure

All steps in the ATP involving equipment operation or data verification must pass their acceptance criteria. Failures must be recorded in the exception log (Appendix I) and in the Test Log (Appendix E) and an ATP exception page (Appendix J). The Test Engineer will decide whether to continue with the ATP in the event ATP steps fail.

4.2.5 Test Log

A narrative log (Appendix E) of testing activities is to be maintained by the Test Engineer. Page numbers and date shall be entered as new pages are added. Each added page will be stamped "CONTROL COPY". Black ink shall be used for all entries.

4.2.6 Exceptions

The ATP may not be closed with open exceptions. All exceptions shall be recorded in the exception log. Prior to the close of the ATP each exception is dispositioned. When all exceptions are dispositioned then the ATP may be closed. The ATP does not have to be changed due to the existence of an exception, however a change may be warranted if the exception causes a significant impact, as determined by the Test Director, to the performance of the ATP.

4.2.7 Exception Dispositioning and Closing

Dispositioning of exceptions can be accomplished in one of two ways, clear the exception or change the requirement/procedure. Exceptions are then closed when they have been dispositioned and signed by the Test Director.

4.2.8 Not Used

4.2.9 Signatures

All personnel entering signatures or initials in the ATP must print their name and provide their signature and initials in Appendix C.

4.2.9 Signatures

All personnel entering signatures or initials in the ATP must print their name and provide their signature and initials in Appendix C.

4.2.10 Repeat Testing

If a repeat test is required, additional copies of applicable procedure sections or data sheets of this test procedure may be used. The addition of procedure sections to be used for repeat testing shall be added as Appendix K (Repeat Testing), noted in the test log, and concurred by the SOM.

4.3 PLANT INTERFACE

Refer to J-7 #1, para. 8

5.0 PRECAUTIONS

5.1 PERSONNEL SAFETY

5.1.1

Safety rules and information are contained in the Industrial Safety Manual, HC-CM-4-3.

5.1.2

A water safety hazard will exist in the basin where sections of handrails and/or grating have been removed. Temporary handrails shall be installed to guard these openings whenever possible. When the temporary handrails must be removed for equipment installation or when their use is not feasible, a fall restraint/arrest system consisting of a body harness and lanyard connected to a suitable anchor point shall be used by all personnel within six feet (4.9m) of the openings.

5.1.3

All removed handrails, as a result of moving equipment and/or materials in and out of an area, will be in place and inspected at the close of business each day.

5.1.4A

Grating surfaces have a high potential for significant removable contamination levels. Use mechanical means for removing grating; i.e., bolt cutters or chisels. Grinding is not permitted. A pre-designated staging area shall be identified and set up for temporary storage of removed grating.

5.1.4B

Immediately notify the SOM if any personnel injury occurs. If the injury also warrants the need for outside assistance, summon medical aid by phoning 911.

5.1.5

All personnel performing ATP related work shall read and sign the Radiation Work Permit (RWP) for this job. The on-shift Test Engineer shall be responsible for ensuring that this requirement is met.

5.1.6

Pre-job briefings for personnel involved in testing shall be conducted and documented in Appendix D.

5.1.7

Comply with lock and tag requirements, see step 4.2.1.

5.1.8

The Ultrasonic Level Detectors (USLDs) must be handled carefully due to the instrument sensitivity. All hand lifting shall be performed in accordance with WHC-CM-6-4.

6.0 PREREQUISITES

All of the following prerequisites must be completed before any testing is performed in the ATP. Other prerequisites must be completed in each major section and are identified as "Special Prerequisites".

6.1

Verify the test instruments, items 1 through 4 in Appendix A, are within their current calibration cycle and that instruments have been calibrated within the past year. Place all current calibration records in Appendix P.

<u>Don E. Craden</u>	<u>13/22/95</u>
Test Engineer	Date
<u>J. T. Little</u>	<u>13-22-95</u>
QC Verify	Date

6.2

Check that the basin HVAC and the chilled water recirculating system, are operating within normal operating limits.

<u>[Signature]</u>	<u>13/22/95</u>
Test Engineer	Date

6.3

Check that the basin makeup water valves are closed. Notify the Technical PIC if any water additions to the basin are necessary.

W. Chan 12-22-95
SOM Date

6.4

Verify communication headphones are available for equipment setup and testing as needed.

N/A W. Chan 3/22/95
Test Engineer Date

7.0 GENERAL INSTRUCTIONS

This section provides general requirements that apply during the entire ATP performance. All Test Engineers and Test Performers must read this section prior to performing any ATP testing.

7.1 INSTRUCTIONS

7.1.1

An exception shall be logged for any step not meeting the requirements of the ATP. An exception number must be obtained and a short description entered in the exception log in Appendix I.

7.1.2

Each section is performed sequentially. The Test Engineer has authority to perform major sections out of sequence (without an ATP change) provided:

1. The "Special Prerequisites" in that section are completed.
2. Performing the section out of sequence will not adversely impact any unfinished (previous or subsequent) sections or adversely impact the ATP performance schedule.
3. The section does not bypass basic equipment control and interlock tests (related to the section) performed in previous sections.
4. Concurrence from the Technical PIC and Test Director are obtained and entered into the Test Log.

7.1.3

The Test Engineer signoff of test steps certify that direct observation or inspection has been made or that a report was received from test personnel signifying that the step was performed.

7.1.4

Prior to the start of any work performed under this ATP, a pre-job briefing will be conducted. The meeting shall be chaired by the Technical PIC. At a minimum, the following topics will be discussed at the meeting. For each pre-job briefing, Appendix D will be filled out.

- a. Expected testing to occur on shift.
- b. Special safety concerns, including lifting precautions and water safety
- c. General plant and ATP status
- d. Review of the RWP

7.1.5

A test logbook will be maintained by the Test Engineer. The Test Engineer shall be the designated logbook custodian. All pertinent observations, off-normal events, sketches, photographs, etc., shall be logged. All logged entries shall be signed and dated in black ink. Additional notes or entries relating to a procedure data sheet entry field or information shall be adequately referenced to the appropriate section of this procedure.

8.0 TEST EQUIPMENT INSTALLATION TEST 1

This section provides installation instructions for the test equipment needed to establish the basin baseline water loss rate prior to isolation barrier installation.

8.1 SPECIAL PREREQUISITES

8.1.1

Prior to Basin area entrance, all parts per Appendix A are assembled and ready for basin entry. Cables may be placed in plastic sleeving to facilitate release from the the basin.

8.1.2

If other work packages have not previously removed the necessary grating, shown of Figure 9 for equipment installation, grating will be removed by this package.

NOTE: No special tools are required to install the thermocouples (TCs), USLDs, or Vernier Evaporation Detector (VED).

When all prerequisites are completed then sign below.

[Signature] / 3/21/95
Test Engineer Date

8.2 INSTRUCTIONS

8.2.1

With the craft, Test Engineer, Fluid System Engineer and a Health Physics Technician (HPT) supervisor determine the best location for installation of the TCs, USLDs and VED equipment and cables. Refer to Figure 2 and Figure 9 for areas of installation. Mark Figures 2 and 9 with actual locations of instrument installation and grating removal locations if different from those shown. See Section 5.1 specific to grating removal and handrails.

[Signature] / 12/22/94
Test Engineer Date

8.2.2

Remove any necessary grating see Section 5.1 specific to grating removal and handrails. Install TCs in basin approximately six inches (15cm) in the water. Install TCs in the discharge chute approximately thirteen inches (33cm) in the water. Field route all TC wiring over the building inter-structure to the data logger location. Refer to Figure 4 for typical TC mounting. Thermocouples mounted on 12/22/94. DISCHARGE CHUTE WIRES ARE FIELD ROUTED. FIVE REMAINING WIRES WILL BE ROUTED TUES 12/27/94 IN THE A.M.

[Signature] / 12-29-94
Craft Date

Grating placed in temporary storage

NA [Signature] / 12-29-94
HPT Date
No grating removed.

8.2.3

The configuration of the four basin ventilation fans must not be changed during the Sections 8, 9 and 10 of this procedure. If circumstances require a change, notify the Test Engineer immediately.

W H Olson / 3-22-95
SOM Date

8.2.4

Measure the air velocity in the basin, in feet per minute, at the air/water interface, close to the water surface, and at the locations shown on the map of Figure 8. Record each velocity at the 45° points around the compass; i.e., N, NW, W, etc. in Appendix M. Record below the status of the four ventilation fans during these readings by circling the correct status.

South 6 ON / OFF North ON / OFF West 10 ON / OFF East 11 ON / OFF

Robert R. Kuntz / 11-18-95
Ventilation and Balance Group Date
3/22/95 RV-10 is on W H Olson

8.2.5

Remove any necessary grating see Section 5.1 specific to grating removal and handrails. Mount USDL and stilling well as shown in Figure 3 approximately fourteen inches (36cm) for the basin and between two (5cm) and fourteen inches (36cm) for the discharge chute. Field route and secure USDL wire to floor to the locations specified in Figure 1.

Mark Peterson / 3/22/95
Craft Date

Grating placed in temporary storage

Sammy O'Riche / 3-22-95
HPT Date

8.2.6

Place the VED/Instrumentation stand on the grating as shown in Figure 1. Power the instrumentation by plugging the power strip into nearest H-18 115V AC outlet. Make sure the heater and cooler are plugged into two separate circuits to equalize the current load.

Mark Peterson / 3/22/95
Craft Date

8.2.7

Wire instruments to data logger as shown in Figure 5. Block diagram and schematic of instrument loops are shown on Figure 6 and 7.

Mark Peterson 3/22/95
Craft Date

8.2.8

Install data computer in a convenient location outside the basin. Contact SOM for this location.

W. A. Dyer 13/22/95
Test Engineer Date

9.0 TEST EQUIPMENT SETUP TEST 1

This section provides the Fluid System Engineer the opportunity to properly setup the test equipment in preparation for Test 1. Appendix B provides a list of signals and the required sample rate.

9.1 SPECIAL PREREQUISITES

None

9.2 INSTRUCTIONS

9.2.1

Verify each sensor is being sent to the Automated Data Acquisition System (ADAS). Each sensor/instrument shall be tested back to the computer, one at a time. Verify that all readings from the ADAS to the computer are reasonable.

W. A. Dyer 13/22/95
Fluid System Eng. Date

J. T. Tule 13-23-95
QC/Verify Date

9.2.2

Verify the data logging software is loaded and ready for start of Test 1.

R. J. Crader / 3/22/95
Fluid System Eng. Date

10.0 LEAK TEST 1 "SETUP VERIFICATION"

10.1 SPECIAL PREREQUISITES

10.1.1

Verify the ADAS, VED, USLDs and computer have been operating for at least the past two hours.

10.1.2

Check that there has been no unplanned water additions to the basin within the past 4 hours prior to the start of ADAS data collection.

10.1.3

Check that the basin ventilation fans are configured the same as for step 8.2.4. If not, contact operations to set the fans to this configuration. If this is not possible re-perform the velocity measurements per step 8.2.4 and record the new configuration.

South 6 ON / OFF North 7 ON / OFF West 18 ON / OFF East 11 ON / OFF

When all prerequisites are completed then sign below.

W. J. Crader / 3/22/95
Test Engineer Date

Basin Vent Fans were same as above, except Fan 10 was off during acceptance test. Baseline test was re-performed 4/18/95 - 4/19/95 w/ Fan 10 off. W. J. Crader 4/19/95

10.2.1

To establish basin leak rate baseline, start ADAS data collection. Run test for at least 8 hours.

Start Time 0800 / 3-22-95

End Time 0800 / 3-23-95

W. J. Crader / 3/22/95
Test Engineer Date

10.2.2

At the computer for the duration of this test, at 60 minute intervals, check VED water temperature against the averaged water temperature from TCs, T-1 through T-5, in the basin and record in Appendix N. From this data verify that the VED temperature is held within $\pm 2^{\circ}\text{F}$ (3.6°C) of the basin's temperature. If necessary adjust the temperature of the VED water (in the basin) to match that of the basin and record all corrections in Appendix N.

[Signature] 1 3/23/95
Test Engineer Date

10.2.3

Basin baseline leak rate established, data collection complete.

20 on 5 cracks 1 3/23/95
Fluid System Eng. Date

10.2.4

Remove any equipment or cables that may interfere with the barrier installation. Record in the Test Log all items affected.

[Signature] 1 3/23/95
Test Engineer Date

10.2.5

Suspend testing until isolation barriers are installed.

[Signature] 1 3/23/95
Test Engineer Date

11.0 TEST EQUIPMENT INSTALLATION TEST 2

This section provides instructions for the reinstallation or repositioning of test equipment that may have been moved during the barrier installation. An "N/A" will be used to indicate step that are not required as the equipment has not been affected.

11.1 SPECIAL PREREQUISITES

11.1.1

Prior to Basin area entrance, all parts per Appendix A are assembled and ready for basin entry.

11.1.2

Verify that a Process Change Authorization (PCA) has been issued which allows the Discharge Chute to be drawn down to the 14'-11" level.

11.1.3

Verify that the high and low cooling pool water level monitoring equipment is in current calibration. (This was performed by 1K-94-00494, installation of new level monitoring equipment, October 3, 1994.)

11.1.4

Verify System Surveillance Procedure, SSP-W07-016, which functionally tests the cooling pool level alarms, has been completed.

11.1.5

At the initiation of the Discharge Chute drawdown, the respective starting water levels of the Discharge Chute and the Basin should be within 1 inch of each other.

11.1.6

Remove the relays of the Discharge Chute's low level alarms.

NA WHC Electrician 14/17/95
Date

NOTE: No special tools are required to install the TCs, USLDs, or VED.

When all prerequisites are completed then sign below.

Test Engineer 14/17/95
Date

11.2 INSTRUCTIONS

11.2.1

Remove any necessary grating see Section 5.1 specific to grating removal and handrails. Reinstall any TC that may have been removed for barrier installation. Reinstall TCs in basin approximately six inches (15cm) in the water. Reinstall TCs in the discharge chute approximately thirteen inches (33cm) in the water. Field route all TC wiring over the building inter-structure to the data logger location. Refer to Figure 4 for typical TC mounting.

Paul Marshall 4-13-95
Craft Date

Grating placed in temporary storage

NA HPT 4/13/95
HPT Date

11.2.2

Remove any necessary grating see Section 5.1 specific to grating removal and handrails. Re-mount, if necessary, the USDL and stilling well as shown in Figure 3 approximately fourteen inches (36cm) for the basin and between two (5cm) and fourteen inches (36cm) for the discharge chute. Field route and secure USLD wire to floor to the locations specified in Figure 1.

Paul Marshall 4-17-95
Craft Date

Grating placed in temporary storage

Dr. Browning 4-17-95
HPT Date

11.2.3

If moved or repositioned, place the VED/Instrumentation stand on the grating as shown in Figure 1. Power the instrumentation by plugging the power strip into nearest H-18 115V AC outlet. Make sure the heater and cooler are plugged into two separate circuits to equalize the current load. Note that the VED equipment is on the grating and not in the basin water.

Paul Marshall 4-17-95
Craft Date

11.2.4

Rewire, as necessary, the instruments to data logger as shown in Figure 5. Block diagram and schematic of instrument loops are shown on Figure 6 and 7.

Paul Marshall 14-17-95
Craft Date

11.2.5

If necessary, remove grating per Figure 9 and install the discharge chute water transfer pump assembly, item 20, Appendix A. Secure both inlet and discharge hose to prevent hose movement during pump operation. Inlet hoses shall be no deeper than six feet (1.8m) to assure no sludge is pumped. Discharge hose shall be at least three feet (0.9m) under the water. Suction hose will be located just to the right of the discharge chute and the discharge hose on the basin side away from the work area. The air line discharge hose shall be above the water, pointed toward the water and secured to prevent it spraying.

* Per previous install &
signature 03/31/95 by
Larry Stubbins & K. K. K.
Grating placed in temporary storage.

Paul Marshall 4/17/95
Craft Date

NA HP 4/17/95 1
HPT Date

11.2.6

Verify that an Alpha and Beta continuous air monitors (CAMs) are in place and in service in the immediate vicinity of the discharge chute. Verify also the pump and associated air/water hoses are configured in such a manner as to reduce the radiological consequences of a liquid spill. Verify the emergency air shutoff valve on the transfer pump is within easy access to the operator.

Paul Marshall 14-17-95
HPT Supervisor Date

11.2.7

Adjust air regulator valve supply to transfer pump to less than 80 psig. Perform a short test run of the discharge chute water transfer pump to the basin by slowly opening the inlet air supply valve. Monitor discharge hose to assure hose is secured properly. Stop pumping if any problem are found. Ensure that water from the discharge chute can be pumped to the basin without any difficulties. Test the emergency air isolation valve for satisfactory operation.

Pumped, tested sat. Cont'd pumping

Paul Marshall 4/17/95
Operations Date

11.2.8

Reinstall data computer (shown in Figure 6) in a convenient location outside the basin. Contact SOM for this location.

W. Hulse 14/17/95
Test Engineer Date

12.0 TEST EQUIPMENT SETUP TEST 2

This section provides the instructions to properly setup the test equipment in preparation for Test 2, isolation barrier leak rate determination.

12.1 SPECIAL PREREQUISITES

None

12.2 INSTRUCTIONS

12.2.1

Verify each sensor is being sent to the ADAS. Each sensor/instrument shall be tested back to the computer, one at a time. Verify that all readings from the ADAS to the computer are reasonable.

W. Hulse 14/17/95
Fluid System Eng. Date
J. Tuttle 14-17-95
QC Verify Date

12.2.2

Verify the data logging software is loaded and ready for start of Test 2.

W. Hulse 14/17/95
Fluid System Eng. Date

13.0 TEST 2 "BARRIER LEAK RATE TEST"

This section provides instructions for actual barrier leak rate after isolation barrier installation.

13.1 SPECIAL PREREQUISITES

13.1.1

Verify the ADAS, VED, USLDs and the computer have been operating for at least the past two hours.

13.1.2

Check that there has been no unplanned water additions to the basin within the past 4 hours prior to the start of ADAS data collection.

13.1.3

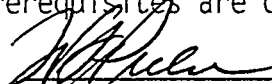
Check that the basin ventilation fans are configured the same as for step 8.2.4. If not, contact operations to set the fans to this configuration. If this is not possible re-perform the velocity measurements per step 8.2.4 and record the new configuration.

South 6 ☒ ON / OFF North 7 ☒ ON / OFF West 10 ON / ☒ OFF East 11 ☒ ON / OFF

13.1.4

Check with the SOM that the installation of the isolation barrier is complete and seals are ready for testing.

When all prerequisites are completed then sign below.

 / 4/17/95
Test Engineer Date

13.2 INSTRUCTIONS

13.2.1

Approximately one hour before this test is started, adjust the VED's water temperature setpoint to the same as the basin water temperature.

 / 4/17/95
Test Engineer Date

13.2.2

Install weighted draped plastic to cover the portion of the discharge chute wall that will be exposed to air, as completely as practical, to preclude emissions from the wall during drawdown. With K-Basins Operations and Engineering concurrence, the Test Director may specify an alternate method to cover the exposed Discharge Chute wall if it will provide equal or superior protection than the weighted plastic curtains. Operations, Engineering and other technical staff agreed on 2/21/95 that the concrete surfaces (as complete as possible) bared in the Discharge Chute would be wetted down every 4 hours during the course of the test. Concurrence with this position was obtained from the Dept. of Health, State of Washington. Date and times will be recorded in the Test Engineer's logbook (for the wetting of concrete surfaces).

P. Shedy / 4/18/95
Operations Date

13.2.3

Start ADAS data collection.

W. Rulise / 4/17/95
Test Engineer Date

13.2.4

For the duration of this test, at 60 minute intervals, check VED water temperature against the averaged water temperature from TCs, T-1 through T-5, in the basin and record in Appendix O. From this data verify that the VED temperature is held within $\pm 2^{\circ}\text{F}$ (3.6°C) of the basin's temperature. If necessary adjust the temperature of the VED water to match that of the basin and record all corrections in Appendix O.

W. Rulise / 4/18/95
Test Engineer Date

13.2.5

Recheck air inlet regulator to transfer pump is set to less than 80 psig. Pump water from the discharge chute to reach a differential water level between the discharge chute and the basin of between 11 (28cm) and 12 (30.5cm) inches by slowly opening the inlet air supply valve. Monitor discharge hose to assure hose is secured properly. Stop pumping if any problem are found. Carefully monitor both levels to keep within the OSR limits and to keep the water seal on the banana wall. Any variance outside the 11 (28cm) to 12 (30.5cm) inch range must be approved by the SOM and Fluid System Eng. for the potential impact to the OSR, water seal and the test data.

B.A. Galt / 4/17/95
Operations Date

13.2.6

Once the desired differential level is reached stop pumping and vent the transfer line to prevent water siphoning from the higher basin water level to the lower discharge chute level.

Don Bouzon / 4-19-95
Operations Date

NOTE: If discharge chute water level rises, more than desired in the first portion of testing, inform the SOM. A 3/8 inch (0.95cm) per hour rise in discharge chute level indicates a failed leak test. It is permissible to continue with or repeat the data run before suspending the test. Once corrective action has been taken, outside this procedure, this procedure may be unsuspended and the test repeated. Entries into the Test Log for suspension, unsuspension and an brief account of work performed on the seals, during suspension, shall be included in the Test Log.

NOTE: Repeating of the data run can be performed at any time as long as both Sections 12.0 and 13.0 are repeated per step 4.2.10.

13.2.7

Perform Basin Isolation Barrier leakage test for at least 24 hours. Record the information below.

	Basin	Discharge Chute
Start Time <u>1536 / 4-17-95</u>	Initial Levels <u>493.058</u>	<u>198673</u>
End Time <u>1536 / 4-18-95</u>	Final Levels <u>2.229</u>	<u>10.233</u>

H. K. Miller / 4/18/95
Test Engineer Date

J. Tittle / 4-19-95
QC Verify Date

R. G. Cracker / 4/18/95
Fluid Systems Eng. Date

13.2.8

ACCEPTANCE LEAK RATE

Determine the Acceptance Leak Rate(Q) at the final basin to discharge chute level differential(ΔH_f). This represents the lowest leak rate based on differential head, during the 24 hour test period. From Appendix Q, find the Acceptance Leak Rate(Q) at the final basin to discharge chute level differential(ΔH_f). Record the value of the Acceptance Leak Rate(Q) 35840 gph. ~~Blank on S&S limits of 150 gph.~~ 4/18/95 4/24/95

ESTIMATED OBSERVED LEAK RATE

From the observed basin level drop determine the estimated average 24 hour leak rate. Observed Leak Rate = actual level drop in basin 0.0691 feet times 8880 ft² times 7.48 gal/ft³ divided by 24 hours. Estimated Observed Leak Rate = 191 gph. Plot this value on Appendix S graph.

EVALUATION

If the Estimated Observed Leak Rate is below the Acceptance Leak Rate(Q) by at least 7 gph, below the lower line on Appendix S, the isolation barriers passes the acceptance test. If not, perform the detailed calculation per step 13.2.9. Indicate below that the test passed or failed the rough calculation.

NOTE: The 7 gph buffer is based on instrument error. (see Appendix S).

Leak test PASSED / FAILED rough calculation.

[Signature] / 4/18/95
Test Engineer Date

[Signature] / 4/18/95
Fluid Systems Eng. Date

13.2.9

If step 13.2.8 did not pass the acceptance criteria immediately perform the detailed analysis of the leak rate to determine if the barriers leak rate is acceptable. If step 13.2.8 did indicate that the barriers passed the acceptance criteria, this step can be performed after Section 14.0, Test Equipment Removal. Write "skipped" in the space below to indicate that this step will be performed after Section 14.0. Record the calculated Leak Rate(L) extrapolated to the 16 foot (4.9m) level differential, the measured Evaporation Rate(E) and Observed Level Change(T) below. Note: The acceptance criteria for this test is 750gph at 16 ft.

Extrapolated Leak Rate 1125 gph
(must be less than 750 gph)

[Signature] / 4/24/95
Test Engineer Date

20 m E. Crocker / 4/24/95
Fluid Systems Eng. Date

13.2.10

Once the leak is determined to be acceptable; i.e., test is completed, restore level in the discharge chute by reversing the hoses on the transfer pump. Pump water from basin back into the discharge chute to the desired level.

[Signature] / 4-18-95
Operations Date

13.2.11

When pumping water from the Main Basin to the Discharge Chute by reversing hoses on the pump, the Discharge Chute level may be raised up to 16'-3" to allow engineering investigations. This will result in a drop of the Main Basin of up to 0.4" which is within the normal control span of the Main Basin. After completion of the drawdown, respective levels will be restored to within one inch or verification shall be made that equalization is occurring through the current hydraulic connection.

Level restored OR Equalization verified

Appropriate mechanism shall be circled and time and date indicated by Test Engineer.

N/A. [Signature] / 4/19/95
Test Engineer Time Date

13.3 KW DISCHARGE CHUTE LEAK LOCATION AND VERIFICATION

PROCEDURE

1. The video system is operating.
2. Nine weighted cords prepared, and six weighted cords placed per engineering direction (three cords are for backup).

NOTE: The cords will have 5-inch strips of surveyor's tapes in alternating colors at 6-inch intervals for a distance of 16 feet. Three additional cord shall be prepared with a 6-inch flag located 1-inch from the weighted end.
3. Individuals with the single flag string are available to make measurements at various heights or locations per engineering direction. Also fixed cords may be moved after recording their relevant flow indication.
4. RCTs will be available to establish radiological conditions for relocation or disposal of the weighted cords.
5. Establish a driving head per the "Test 2 'Barrier Leak Rate Test'" section of the 105-KW Acceptance Test Procedure [WHC-SD-SNF-ATP-004 (rev. 0), section 13].
6. Visually, and with the video camera, record the flag locations that give flow indications.
7. All recorded indications must be documented by signature including location (east or west door); east, west or bottom of door elevations; and strong, moderate or light flow indication.
8. This procedure may be repeated as many times as necessary to support leak location and verification efforts.
9. To check potential leak sites, an additional test method will consist of attaching a light plastic bag to the end of a pole, and positioning the plastic bag at suspect points on the Basin side of the isolation barriers. Water passage from the Basin side into the Discharge Chute will suck the light plastic bag toward the leak site, and more closely pinpoint the site.

14.0 TEST EQUIPMENT REMOVAL

14.1 SPECIAL PREREQUISITES

14.1.1

For the instruments and tubing that has been in the water special handling will be required. All removal of such items must to done with the HPT present.

14.1.2

Contact the SOM to verify that an area has been set up with the necessary equipment to accommodate the used plastic drapes.

14.2 INSTRUCTIONS

14.2.1

With the HPT present, remove the test instruments as listed below. Bag all items, with exception of the plastic drapes, coming from water for transport to K Basin West.

- ~~5 TCs (in water)~~ *MP 4/19/95*
- 2 USLD stilling well (in water) — *contaminated → red waste*
- 2 USLD detectors (near water)
- 1 VED and instruments on table (on grating)
- Data logger and associated equipment (on grating)
- Instrument cables
- Computer and equipment (outside basin)
- Communication equipment used for test
- Associated material used for test (inside and outside basin)

All test equipment and associated material, except plastic drapes, have been removed.

Mat'l has been released
except as noted above. *MP* *4/19/95*
Test Engineer Date
MP 4/19/95

14.2.2

Remove plastic drapes hung along wall of discharge chute and dispose.

NA *W. R. Ruler* *4/19/95*
No drapes Operations Date

used, as per section 13.2.2

NOTE: Grating and handrails will be re-installed by work package 1K-94-686W.

14.2.3

Perform a post-test calibration check on the USLDs, data logger and the VED. Document any deviation and determine significant, if any, to the reported leak rate. If a deviation is found, inform the K Basin Mechanical Design Manager for any required additional action. Document any effects in Acceptance Test Report (ATR). Note that the TCs are not being re-checked due to redundancy and minimal potential impact to calculations.

14.2.4

All testing and data analysis per step 13.2.9 have been completed.

W. R. Ruler *4/24/95*
 Test Director Date

14.2.5

Re-install the relays of the Discharge Chute's low level alarms.

NA *W. R. Ruler* *4/19/95*
 WHC Electrician Date

*No alarm relays were removed
 W. R. Ruler*

FIGURE 1 TEST INSTRUMENT TABLE

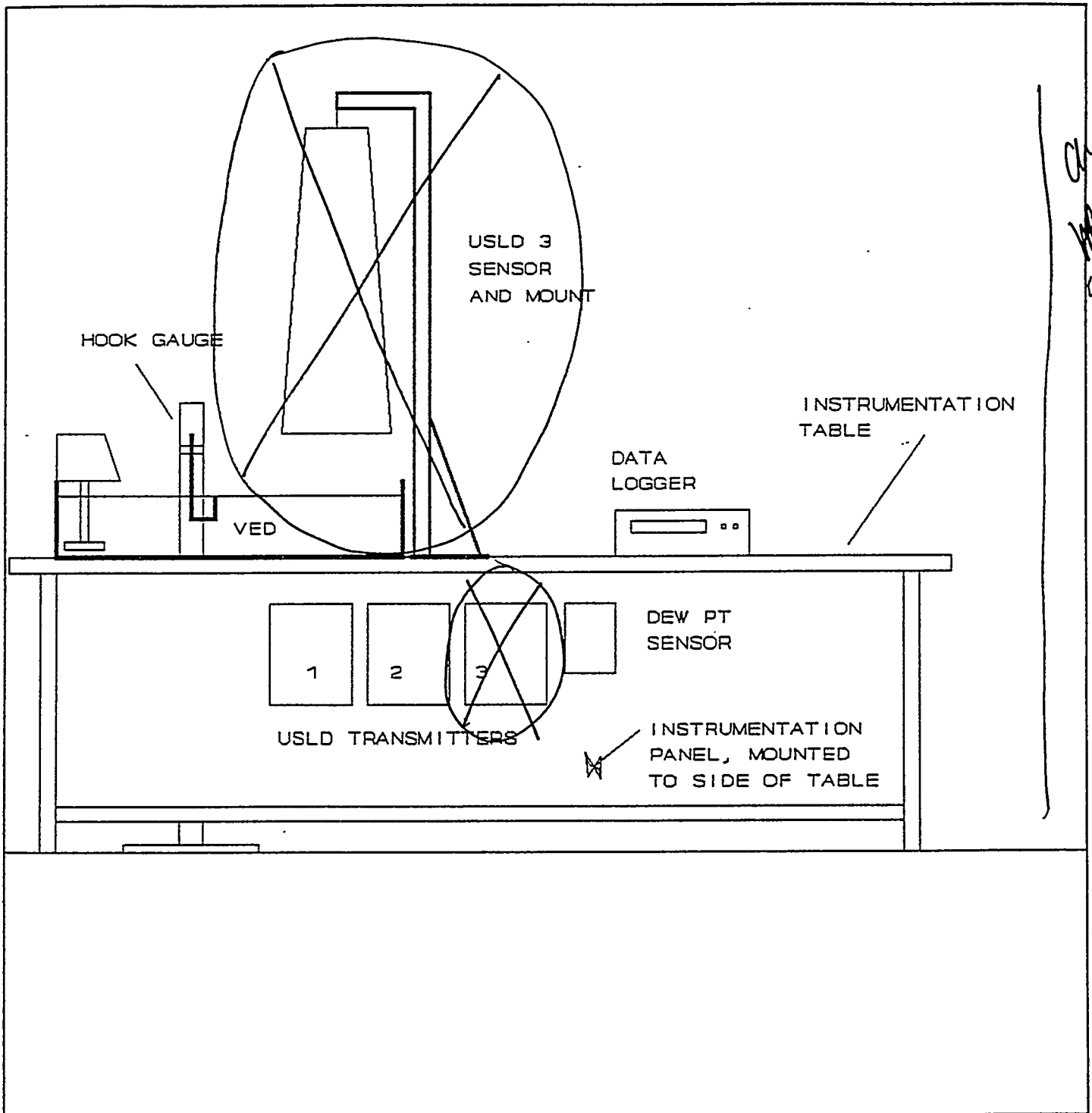


FIGURE 2 TEST INSTRUMENT LOCATION

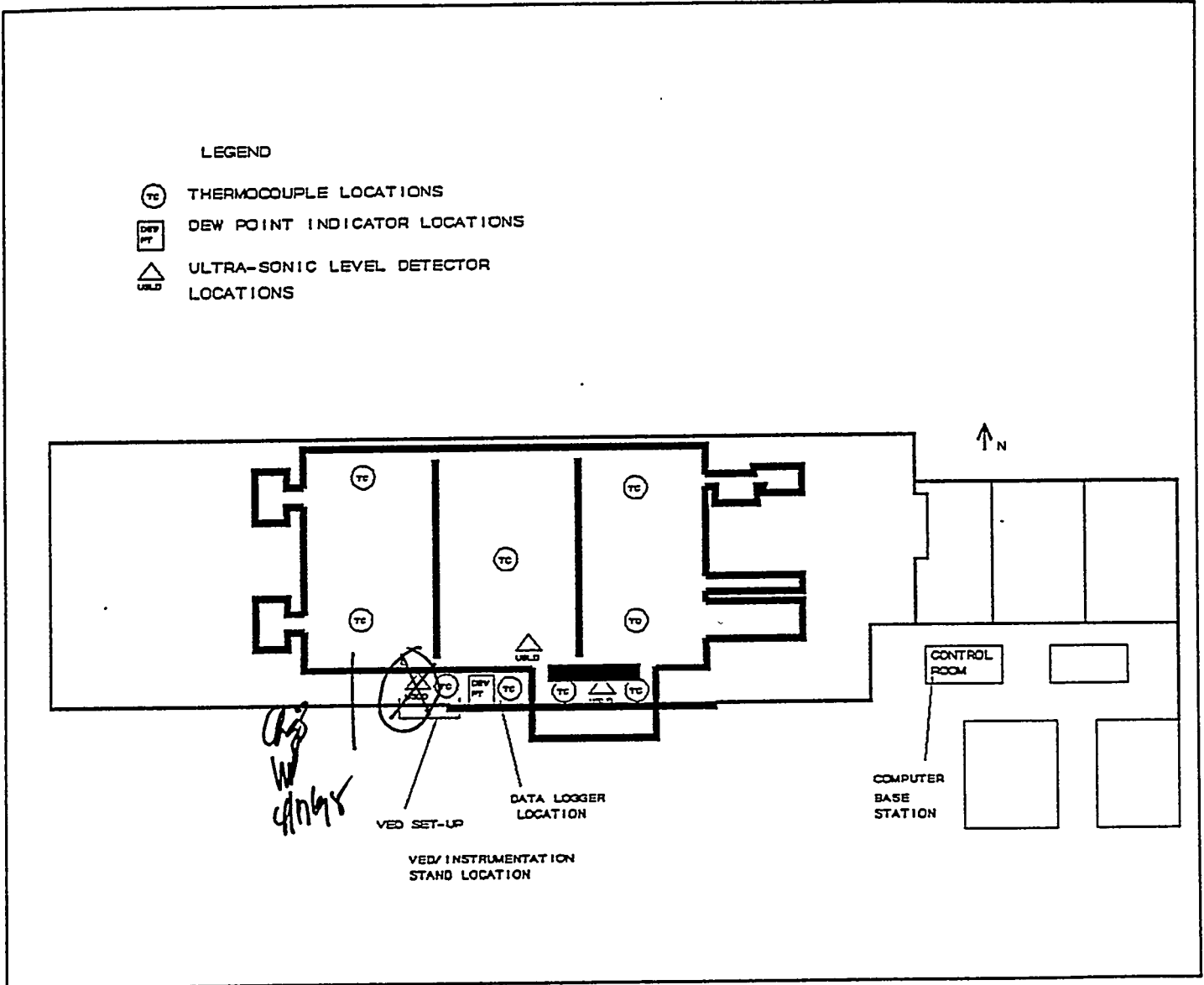


FIGURE 3 USDL AND STILLING WELL MOUNT

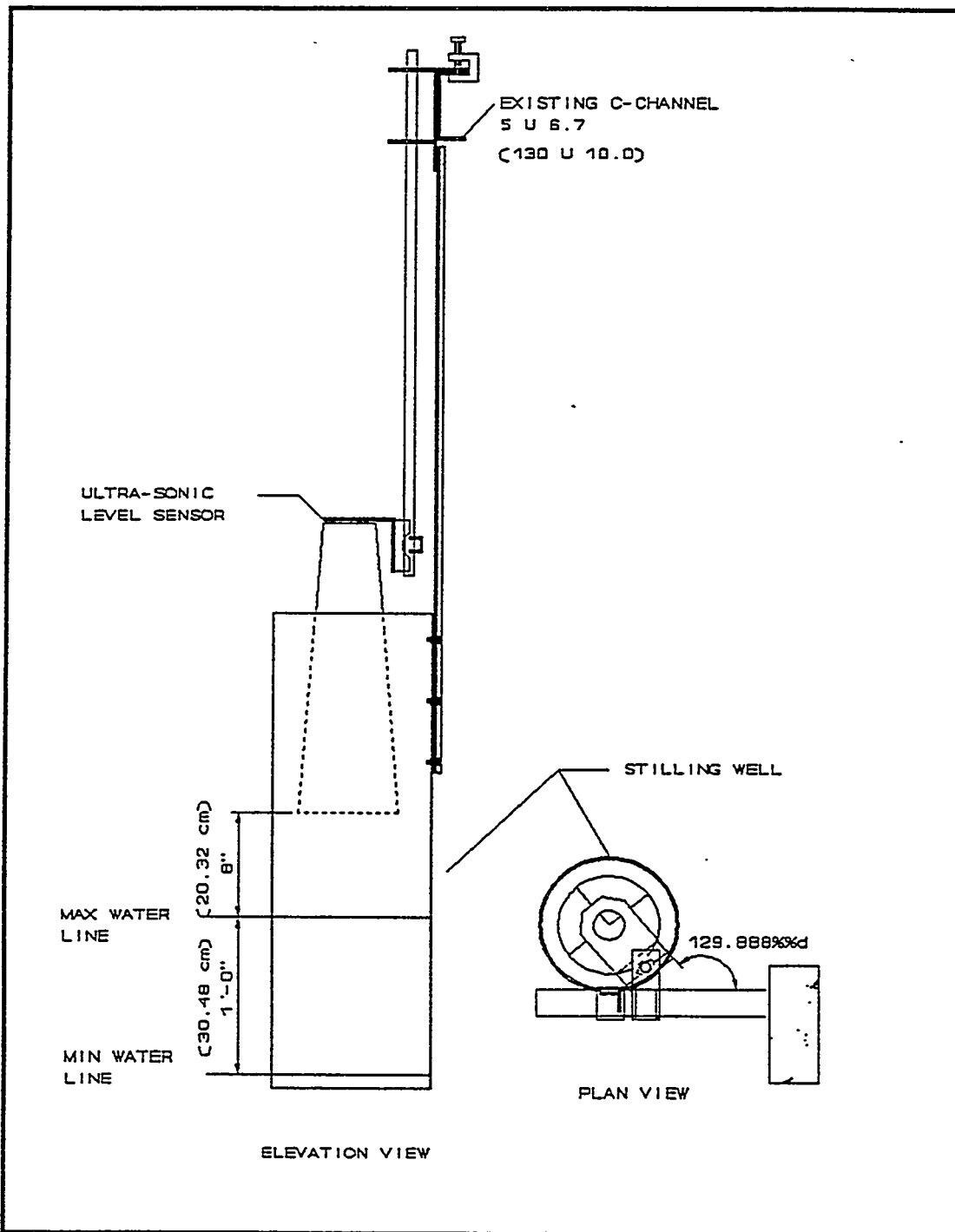


FIGURE 4 TYPICAL THERMOCOUPLE (TCs) MOUNT

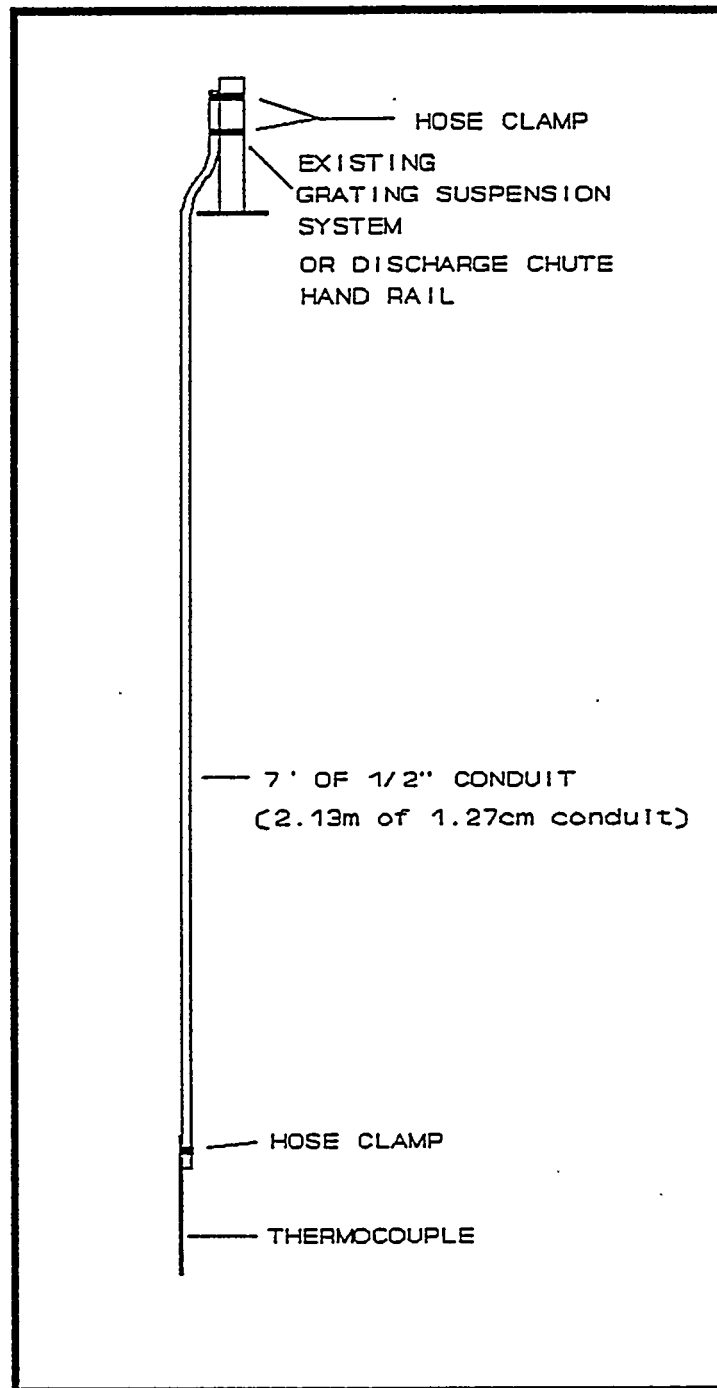


FIGURE 5 DATA LOGGER INPUT WIRING

NOTES:

1. THERMOCOUPLES -- LOW (L) = RED
2. ULTRASONICS -- LOW (L) = GREY

Ans 3
W
11/15/81

- 1 BASIN USLD
- 2 DISCHARGE USLD
- ~~3 VED USLD~~
- 4 DEW POINT
- 5 AIR T/C

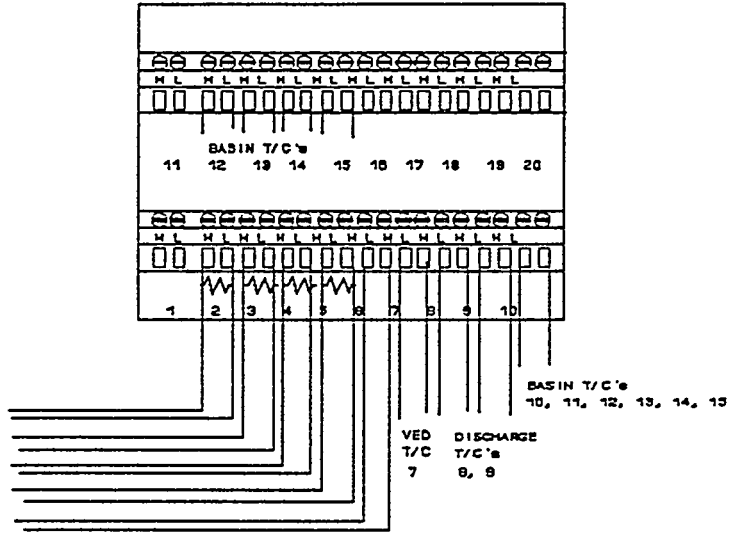


FIGURE 6 TEST INSTRUMENT BLOCK DIAGRAM

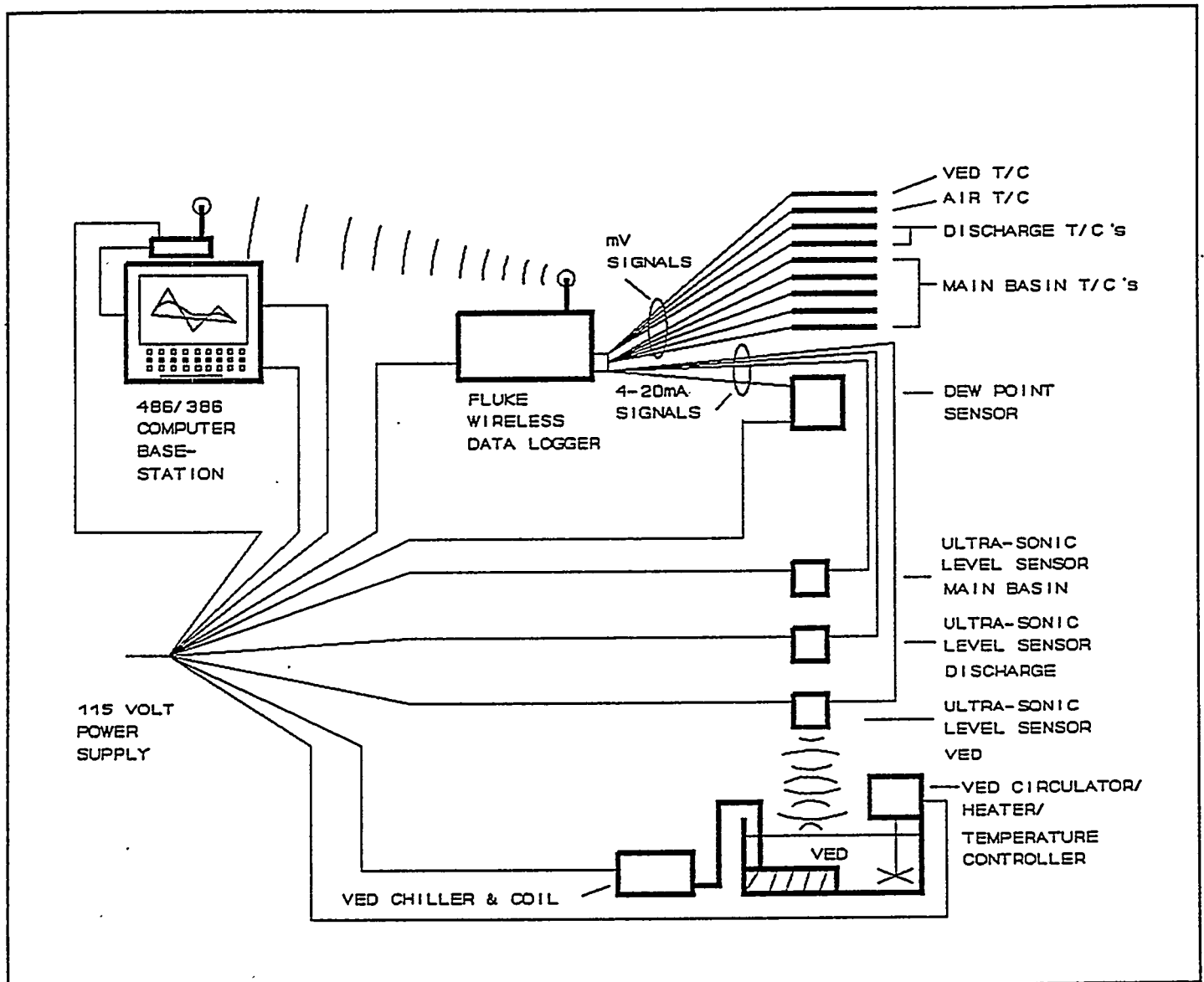


FIGURE 7 TEST INSTRUMENT SCHEMATIC

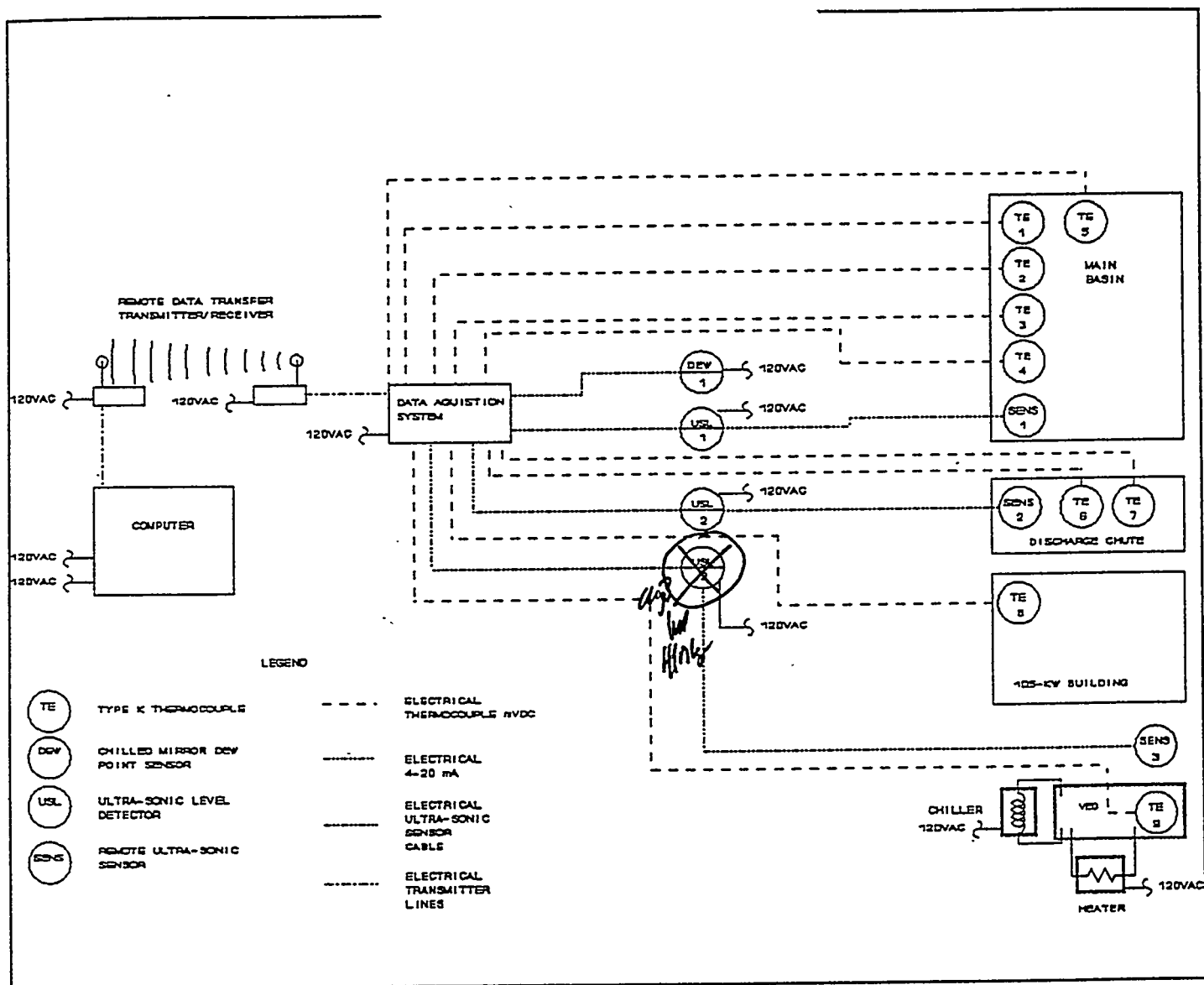


FIGURE 8 AIR VELOCITY READING MAP

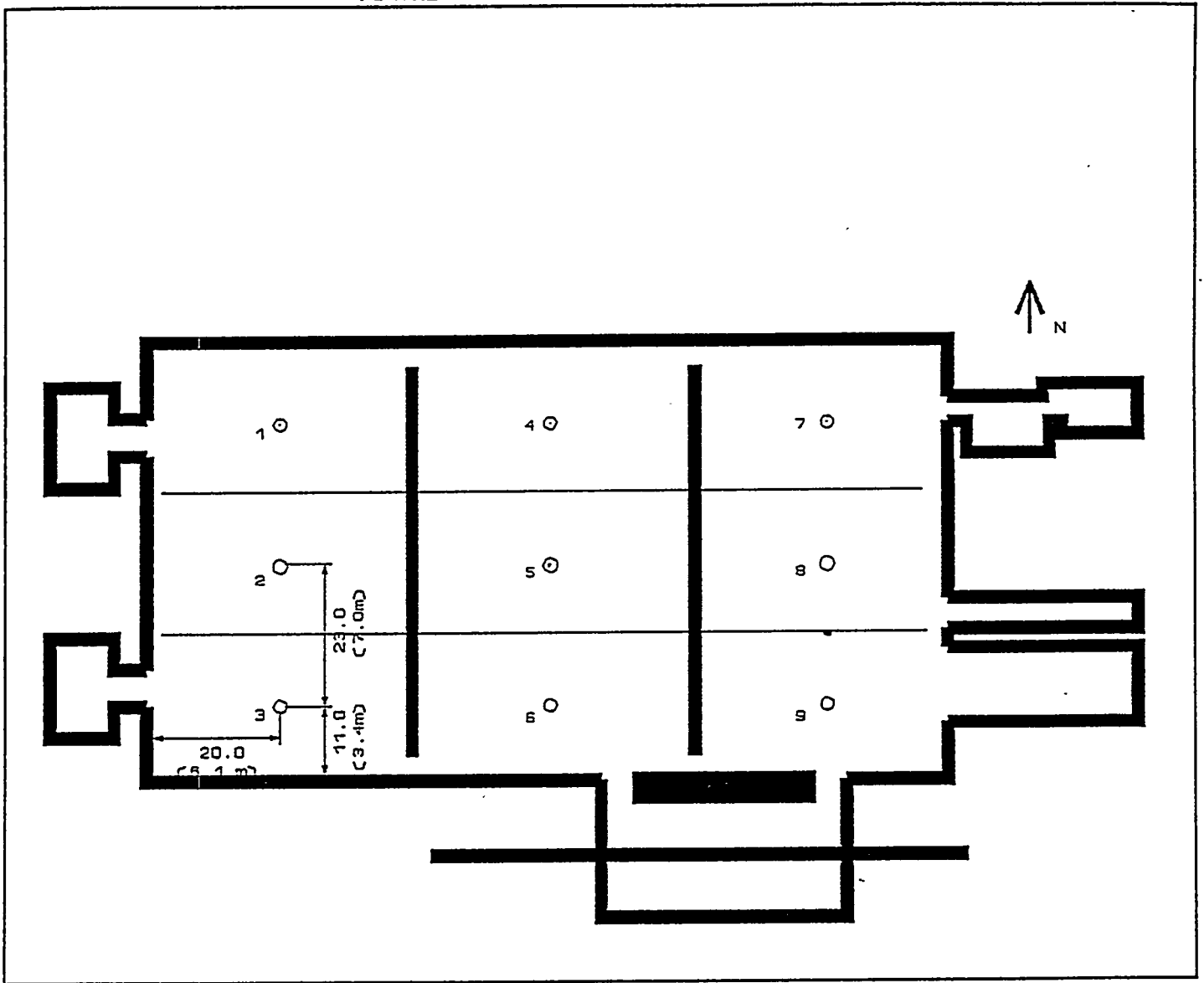
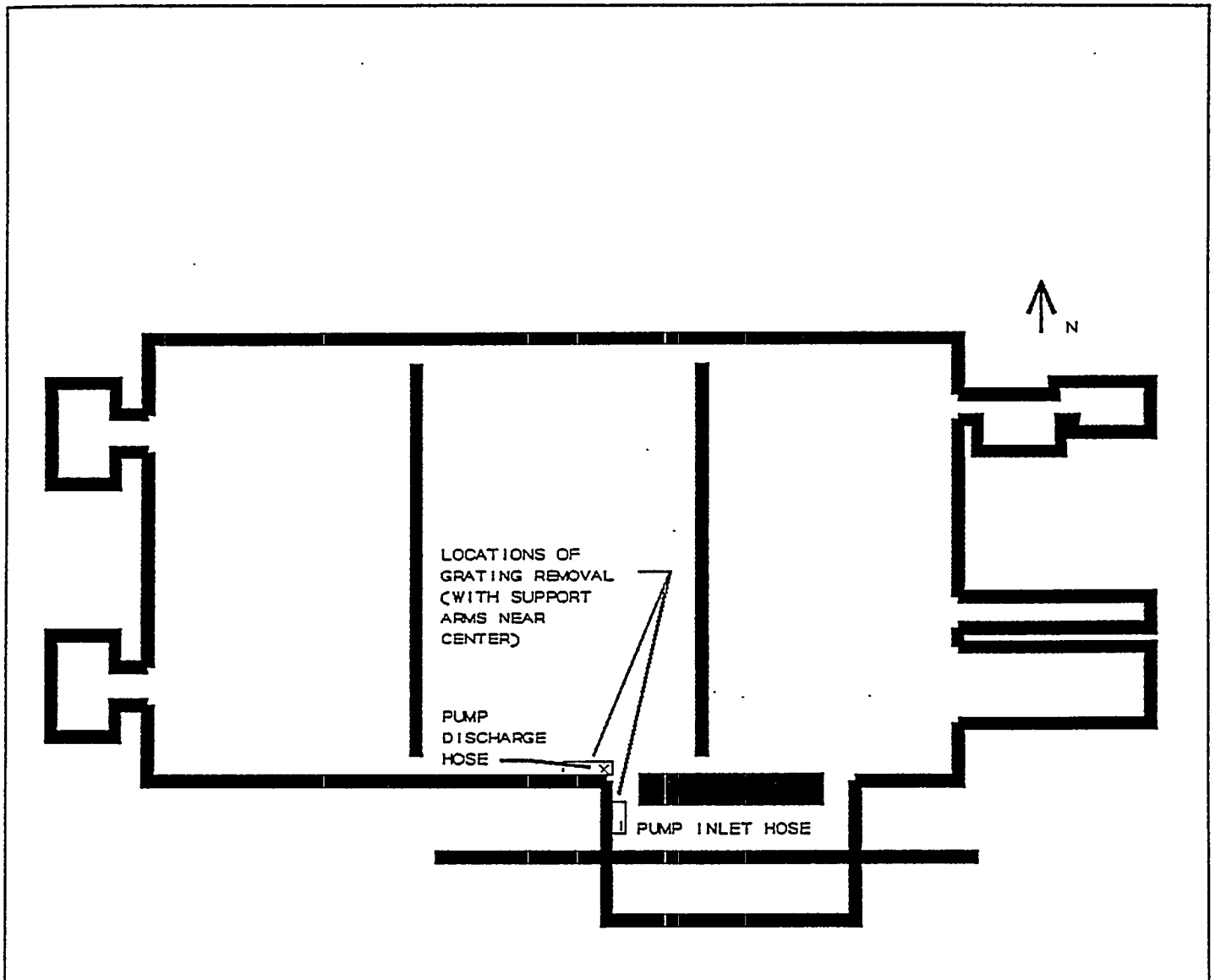


FIGURE 9 GRATING REMOVAL LOCATION



APPENDIX A TEST EQUIPMENT MATERIAL LIST

Item No.	QTY	Description	Spec	Certs Required
1	9	Thermocouple (TC) Heavy duty transition joint probe, type K (chromega-alomega), 304 stainless steel sheath, and 1/16" (1.587mm) outside diameter, grounded junction, 12" (30.5cm) long with stripped ends.	TJ36-CASS-116G-12	NIST
2	2 2	Ultra-sonic Level Detector (USLD) breaks up a 4" (10.2cm) dynamic range into 200 equal segments providing 0.02" (0.5mm) resolution, local level indication, a linear 4-20mA output, and 115V AC input power.	50US3115BBB	NIST
3	1	Dew Point Sensor (DEW) with chilled mirror technology. The dewpoint sensor shall be wall mounted with 115V AC input power and 4-20mA output for the 0 to 100°F range.	DEW-10-2-B-0	NIST
4	1	Automated Data Acquisition System (ADAS) Wireless logger transmitter has capabilities of 20 input channels which will accept TCs, RTD, any 4-20 mA and any voltage inputs.	2625A/WL	NIST
5	1	ADAS Wireless base station receiver modem.	2625A/WL-700	N/A
6	1	386 Computer	WC31297	N/A
7	1	VED bath/circulator. A 30 liter acrylic tank with a 22 3/8" x 18" (56.6cm x 45.7cm) length x width dimensions and a 7" (17.8cm) working depth. The circulator shall have a digital temperature setting, PID temperature controller, platinum 100 Ω RTD, and with a 1000 Watt heater. The operating condition which the bath must simulate is controlling water temperature between 40°F and 85°F within +/- 1°F.	G-12700-40	N/A
8	1	VED chiller. Operating range between -45°F and 104°F with a 8" x 3" (20.3cm x 7.6cm) O.D. immersion probe and environmentally safe refrigerant.	L-01283-70	N/A
9	1	VED/instrumentation table	See Figure 1	N/A
10	3	USLD/stilling well Support Channel Mount	See Figure 3	N/A

Item No.	QTY	Description	Spec	Certs Required
11	6	TC Support Mount	See Figure 4	N/A
12	4	Beam Hanger Clamp	N/A	N/A
13	6	1" (2.54cm) Hose Clamps	N/A	N/A
14	12	8" (20.3cm) Hose Clamps	N/A	N/A
15	4	10 Ω Precision Shunt Resistor $\pm$ 1%	N/A	N/A
16	2000	Type K thermocouple (TC) extension wire	N/A	N/A
17	1	Portable Air Compressor	N/A	N/A
18	2	2" (5.1cm) Non-Collapsible flex hose 10' (3.048m) long	N/A	N/A
19	2	3" (7.6cm) Hose Clamp	N/A	N/A
20	1	Welded air operated diaphragm pump assembly. Includes discharge pressure gauge, air discharge header to direct air into basin, pump platform, 2 inch (5.1cm) suction and discharge hose and air hose as required.	N/A	N/A

APPENDIX B TEST EQUIPMENT SETUP AND DESCRIPTION

INSTRUMENT SETUP

Set the data logging system to sample at one minute intervals on the following data:

- o Date
- o Time
- o Basin Water Temperature from TCs, T-1 through T-5
- o Water Level from Ultra-Sonic Level Sensor Main Basin USLD-1
- o Water Level from Ultra-Sonic Level Sensor Discharge Chute USLD-2
- o Dewpoint Temperature
- o VED Water Temperature from T-6
- o ~~VED Water Level from USLD-3~~

ITEM 1 - AUTOMATED DATA ACQUISITION SYSTEM (ADAS) DESCRIPTION

The ADAS, consisting of a data logger, computer base station, data logger transmitter and receiver is the cornerstone of the test instrumentation. All data generated from the tests in this procedure passes through the ADAS. Figures 6 and 7 shows how the ADAS is tied to the test instrumentation.

The transmitter of the ADAS (Fluke Hydra wireless data logger Model 2625A/WL) is a data acquisition tool. This tool converts the millivolt signals from the type K thermocouple, and 4-20mA signals from the dew-point sensors and USLDs to voltage signals, logs them in a buffer changes the data to 8 bits of binary coded decimal information plus one stop bit, and sends the information bits to the base station receiver via a wireless modem. This modem operates the same way as a cellular phone.

The receiver of the Wireless Base Station is another part of the Fluke Hydra Data Acquisition system, model 2625A/WL-700. This receiver is connected to a 386 (or 486) computer through a COM port. At the base station information can be stored in a data file on the hard drive or the data can be viewed, in real time, on the CRT. All of this can be set-up and accomplished by software.

ITEM 2 - VERNIER EVAPORATION DETECTOR (VED) DESCRIPTION

The VED is a thermostatically controlled temperature water bath with an USLD, a refrigerated cooling coil, an electric heater, and a recirculator on the instrumentation stand. The bath/circulator is a Cole-Parmer model G-122700 and the chiller is a Cole Parmer model L-01283-70. A manually adjusted thermostat controls the VED water temperature to any set point. Temperature adjustments impose cooling or heating loads on the cooling coil and the heater.

Under a given set of air conditions and water temperatures evaporation (or condensation) rates can be calculated from the change in water levels per time period. Accordingly, current basin air and water temperatures can be simulated in the VED. With this simulation basin evaporation (or condensation) rates at the basin water surface interface is duplicated in the VED. Multiplying the VED evaporation (or condensation) by the basin/VED surface ratio to results in basin total evaporation (or condensation) rate. The output from the VED to the data logger is a level signal in milliamps generated by the USDL see description below.

ITEM 3 - ULTRA SONIC LEVEL DETECTOR (USLD) DESCRIPTION

The USLDs are located in the following:

- USLD-1 in the basin
- USLD-2 in the Discharge Chute
- ~~USLD-3 mounted on the VED~~

Fisher & Porter 50U3115BBB USLDs are used for detecting water surface levels. A USLD consists of a transducer and a transmitter that employs an ultrasonic beam to detect a level. The transducer contains a crystal, that generates the ultrasonic signal and receives the echo from the water (target) surface. The transmitter unit contains a microprocessor and electronic circuits for level measurement, and compensates for air temperature and humidity changes. The USLD measures the water level over a given span and sends a 4-20 mA dc representation of that span to the data logger.

ITEM 4 - CHILLED MIRROR DEWPOINT INDICATOR DESCRIPTION

The Chilled Mirror Dewpoint Indicator uses moisture sensing technology to measure and display the dewpoint temperature. A thermoelectric cooler chills a condensation detection mirror illuminated by a LED. A photo detector monitors the light from the mirror. A photodetector optically detects the first signs of condensation on the mirror. A separate LED/photodetector pair wired into a sample gas/electrical bridge configuration provides a reference (bias optics). A resistance thermometer detector (RTD) automatically and continuously controls the mirror surface at the temperature where the first sign of condensation temperature is detected. This condensation is the dew point temperature as represented by the 4-20 mA dc signal sent to the data logger.

ITEM 5 - HOT WIRE ANEMOMETER DESCRIPTION

This is a hand held instrument with a local velocity display. A hot wire anemometer uses a very fine heated wire as a RTD. The RTD is heated electrically at a fixed rate and when exposed to the air stream, the temperature difference between the element and the air is a measure of the air velocity.

ITEM 6 - THERMOCOUPLE

The thermocouple arrangement consists of:

- One in the VED water.
- Two in the Discharge Chute water near each of the Isolation Barriers.
- Five in the Basin water.
- One in the Basin air space approximately 8' - 0" above the grating level.

ITEM 7 - TRANSFER PUMP

The Weldon pump is an air-operated, diaphragm pump with a history of use at the K Basins. An emergency shutoff air valve is provided for rapid response to a pump problem. Since a diaphragm leak could lead to potentially radioactive water being sprayed, an air discharge hose was added to direct this water back to the basin. A discharge pressure gauge is provided to give an indication of pump performance. The pump will be mounted on a skid for placement on the grating and for ease of transport.

APPENDIX C SIGNATURE VERIFICATION DATA SHEET

Instructions: Anyone entering their signature or initials in this test procedure must complete the information below.

NAME (PRINT)	POSITION	COMPANY	SIGNATURE	INITIALS	DATE
WILLIAM L. PULSE	TEST ENG	COLUMBIA ENERGY	<i>W. Pulse</i>	WP	1/18/95
KNUTSON R.G.	CHIEF VEB Supp	WHC	<i>R.G. Knutson</i>	RA	1-18-95
TITTLER J.A.	QA ENGR	WHC	<i>J.A. Tittler</i>	JAT	3-23-95
W.H. CHOOS	Shift mgr.	WHC	<i>W.H. Choos</i>	WAC	3-24-95
Robert F. Haisitt	Test Eng	Columbia Energy	<i>R. Haisitt</i>	RH	3-30-95
Verna Klippert	Operator	WHC	<i>Verna Klippert</i>	VK	4-3-95
Craig Sperline	Operator	WHC	<i>C. Sperline</i>	C.S.	4-3-95
Tammy D Ritchie	Health Physics Tech.	WHC	<i>Tammy D Ritchie</i>	JDR	4/5/95
Linda Knowles	Operator	WHC	<i>L. Knowles</i>	LK	4-5-95
KJ MCCRACKEN	FLUID SYSTEMS	KEH	<i>KJ McCracken</i>	KJm	4-5-95
LR STUBBS	SUPERVISOR	KEH	<i>LR Stubbs</i>	LS	3/31/95
DT Southerland	RC manager	WHC	<i>D.T. Southerland</i>	TS	4-17-95
D.R. Browning	RCT	WHC	<i>D.R. Browning</i>	DRB	4-17-95
Don Benson	Operator	WHC	<i>Don Benson</i>	DB	4-17-95
PHILIP SHEET	ASM	WHC	<i>Philip Sheet</i>	PS	4/20/95
BRUCE A. EKSTROM	Operator	WHC	<i>B.A. Ekstrom</i>	BE	4/17/95

APPENDIX C SIGNATURE VERIFICATION DATA SHEET

Instructions: Anyone entering their signature or initials in this test procedure must complete the information below.

[illegible]

APPENDIX D

PRE-JOB BRIEFING ATTENDANCE RECORD

(NOT USED)

APPENDIX E

TEST LOG

DON'T SAY IT --- Write It!

DATE: November 16, 1994

TO: Vent and Balance Technicians

FROM: K.J. McCracken *KJM*

Telephone: 373-6653

SUBJECT: 105 KW Air Flow Velocity Readings

The air flow velocities are needed throughout the 105 KW basin area. The idea for these measurements is to investigate if the air currents below the grating are different than above the grating. At each designated location in the test procedure, air velocities shall be taken at three different heights: 3' below the grating, at the grating, and 3-4' above the grating.

If there are any questions or additional requirements, please follow Fluid Systems Engineer instructions, as needed.

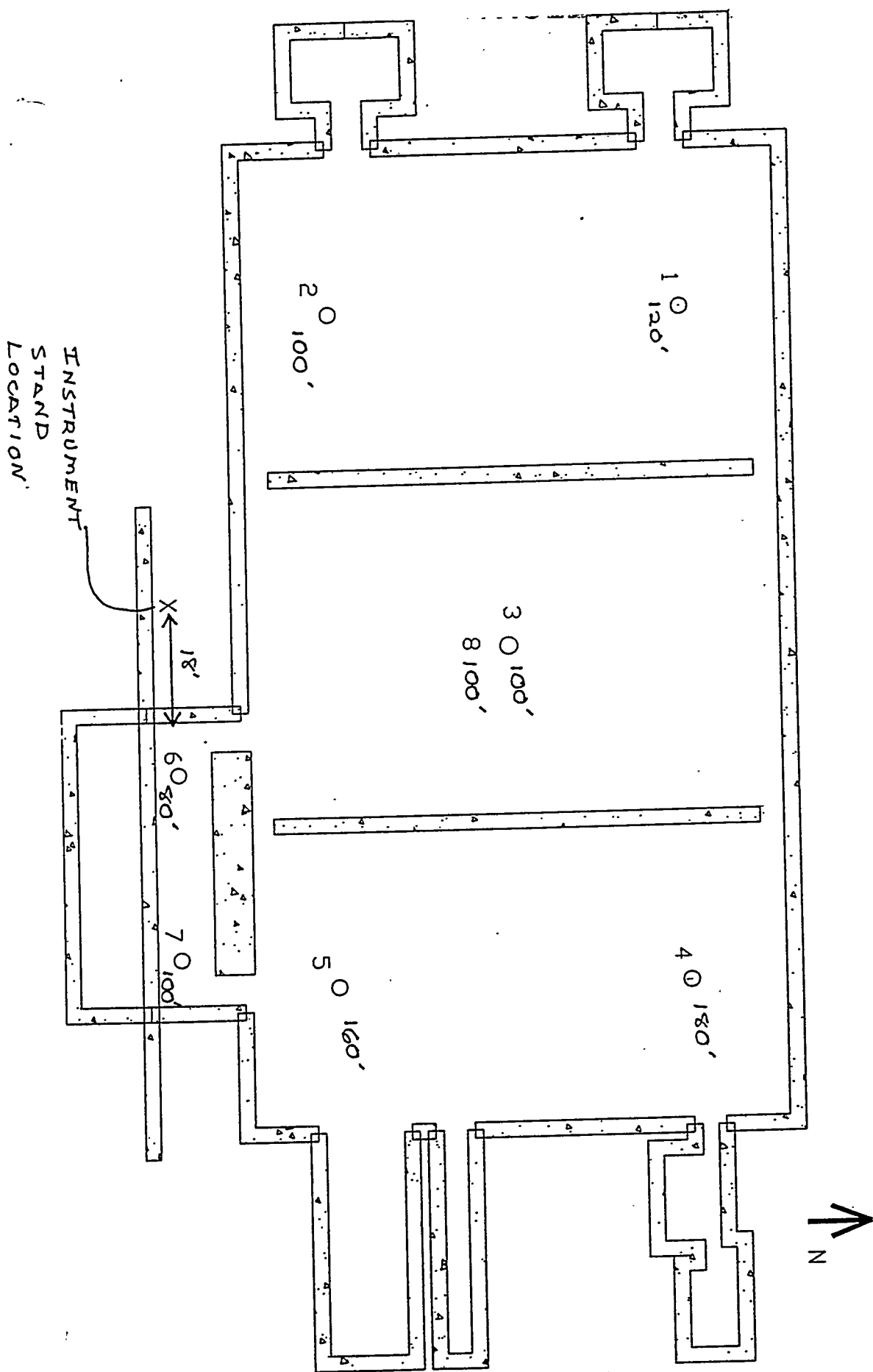
Thank you.

DATE: 12-2 -94

Time	Comments
1000	Entered Basri to install TCs at locations on following

1300	Completed installing TCS. Cables field routed. No further entries this date. J. H. Warner for Rollie D. Warner
------	---

TC NUMBERS, LOCATIONS & CABLE LENGTHS



APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 1-18-95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
0805	Vent and Balance Team arrives with K. McCracken at KE.
0855	R Warner and W. Pule arrive at KE.
0835	Completed Pre-Job Brief for air velocity measurements in the Basin.
0908	V&B team entering Basin with K. McCracken and Mike from K-Basin Ops.
0810	R. Warner departs.
1005	V&B, K McCracken and Mike (Ops) leave basin. Work completed satisfactory.
1015	All testing personnel departed K Basin. SOM. informed.
	<i>[Signature]</i>
No further entries this date. <i>[Signature]</i> 1/18/95	

C

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 03/21/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
1430	Entered KE Basin for walkdown of layout near Discharge Chute. Removed piece of grating near South Wall of DC on West side and inside the temporary handrails. <i>W. Hulse 3/21/95</i>
1450	Exited Basin. Test eqpt. from KW arrived. Clean eqpt. put in room 1, and unarmwed eqpt. put in room 3.
1530	Personnel depart KE for the day. No further entries this date. <i>W. Hulse 03/21/95</i>
No further entries this date. <i>W. Hulse 3/21/95</i>	

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 03/22/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
0810	Pu - job completed.
1000	Completed assembly of eqpt. (re-rigging the chiller unit outside the instrument table), awaiting for another electrician (from N)
1100	Entered Basin to stage eqpts. at West end of the DC.
1135	Exited Basin.
1210	Left 105KE (for lunch).
1245	Returned to 105KE.
1300	Mark (KEH Electrician) entered to install eqpts.
1310	Spent in staging well through airlock. Awaiting arrival of Kurt McCracken for installing the computer at KE.
1430	Personnel out due to Operations/RCT Safety brief at 1500. Difficulty was experienced installing the USD and installing staging well on the I-beam on the West corner of the Discharge Chute. Must wait until Operation / RCT support is available (~1630) to return and complete the job.
1505	Computer moved from KW to KE, and running satisfactorily.
1715	Personnel entered basin to finish wiring of the instrument table.
1900	People out of Basin. Work completed.
1906	Started baseline tests. Initial Vermin reading 83.070°.
1915	Personnel left Basin. No further entries. Left before 3/22/95

TEST LOG

ATP TEST LOG PAGE

DATE: 03/23/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
0800	Pre-job brief completed. Data collection completed satisfactory.
0825	Data setup QC set up 2/23/95 QC signoff obtained on pre-tests.
0900	Electrician (Mark Peterson) and Data Analyst (Kurt McChen) entered Basin to remove eqpt. Fan 10 placed back on service a few weeks ago, so V&B must redo the airflow measurements for all fans on service.
1015	Electrician & laborers exited Basin and then re-entered Basin dressed in rain gear. Current plan is to coordinate move of chut out of the Basin through Corridor 7 Corridor 7. Then move everything to KW.
1120	All personnel out of Basin. Eqpt. staged at Corridor 7 for removal after lunch.
1300	Personnel enter Basin to move eqpt. to KW.
1430	Eqpt. loaded on truck and sent. to KW ^{KW} KW. No further entries this day. W. Chiles
No further entries this day. W. Chiles 3/28/95	

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 3-30-95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
16:20	Pre Job brief completed
18:00	Started Pump Installation
18:35	Pump Installation Terminated for evening
	1. Pump has been secured to grating
	2. Hoses Attached but not secured or placed in water. Pipe either not gone which was inlet and outlet Pdes to secure hoses still outside zone
	3. Air line to pump was installed on Manifold

Mr. [unclear] enters This Day
Robert [unclear]
3-30-95

DATE: 3/31/95

Time	Comments
1310	MWP change for spraying slides during draw down, has been approved and placed in MWP.
1315	Weldon Pump Installation resuming. Pump is to be mounted on skid and skid fastened to slating. Hose are to be secured.
1800	Pump Installed No Further Entry 10/1/95 3/31/95.

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 4/3/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
1141	Left basin for after inspecting, left layout and in hose configuration. John 4/3/95
1342	Commenced pumpdown. In-toil USLD level 11.94", initial electrical (basin) 16' 2 $\frac{5}{8}$ " ; initial manual (basin) 16' 3 $\frac{1}{2}$ ". NP 4/3/95
1502	Secured pumpdown. USLD level = 1.92" ; Level after venting hoses 1.97". NP 4/3/95
1512	USLD level = 2.04". NP 4/3/95
1634	Level after delay [used] 2.80". Hoses switched.
1647	Commenced pumping from Basins to DC.
1747	Pumped secured. USLD level 11.92". Rough leak rate calculated by Kurt McCracken = 5.8 gpm. Electronic Basin level = 16' 3 $\frac{1}{8}$ ". Secured for the day. No further entries: John
No further entries. John 4/3/95	

APPENDIX E TEST LOG II

ATP TEST LOG PAGE

DATE: 4/5/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
1235	Pre-job completed. WP 415hr
1307	Pumpdown started. USLD reading 12.04, float indication 16'-3". WP 415hr.
1425	Pumpdown completed. Line vented. USLD level 2.04" WP 415hr
1445	USLD level 2.33" Personnel exited beam, excopt operator who is spraying down DC wells. Excopt leak rate 5.7gpm according to Kurt McCracken. WP 415hr
1800	Equilization completed. Personnel departed. No further entries this date WP 415hr

No further
WP 415hr
4/5/95

DATE: 4/12/95

Time	Comments
1405	Commenced pumpdown. WP 411.12.
1730	Sealed pumpdown. Dye check w/ pergon WP 411.15
1520	Completed Wet Down
1758	Completed Draw Down and Wet Down
2002	Completed Wet Down
	No further entries this date.
	R. R. B. B.

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 4/11/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
0230	Completed Draw Down and Wet Down
0600	Wet Down of DC completed
0830	Pre Job Briefing
0855	Operator in Basin to Start Draw Down
	Level = 5.44032
9:25	Level = 5.62186
9:45	Pumping Started Level = 5.7
	Reason pump not pumping earlier was insufficient closure of vacuum valve
1010	Informed Operator to Stop Pumping
	Unable to get signal since 09:57
	Level at 0950 = 3.77490 estimate level between 2-3
11:17	Level Indicators Restored. Datalogger was replaced
1122	Level = 2.62506
1324	Level = 3.71200
1352	Started to increase DC level to 4" head
	Not using Pump
1355	Level = 5.37682
1411	Level = 5.31281 Valve to DC Closed
1450	Raising DC Level
1508	Shutting Down DC Leveling Level = 11.77
1515	Excess injection stopped - Basin level 11.75
	No Further Action
	- This Page Redlight 4/11/95

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 04/12/95.

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
0830	Pre-job brief completed. Awaiting completion of HPT & Operations' morning patrols to commence pumpdown. WP 4/12/95
0945	Pump started. Actual USCO (at computer) = 12.0190". Stack level and DC = 16' 2 ³ / ₄ ". WP 4/12/95
1100	Pumping secured. Lowwater DC level = 2.17948". WP 4/12/95.
1220	DC level = 2.87970". Estimated leak rate $\hat{=}$ 5.0 gpm. Requested permission from Shift Mgr. to have the recirc pump secured, to see if leak by from ^{the} isolation valves for the downcomer to the DC was a problem. WP 4/12/95
1328	Recirc Pump Shut down Level = 3.3902
1340	DC walls sprayed down by Operations. WP 4/12/95.
1425	Refilling DC using recirculator ^{computer} classified output. WP 4/12/95
1502	Stopped Filling DC Level = 11.2525

No further action
J. H. Hester
4/12/95
then later

APPENDIX E TEST-LOG

ATP TEST LOG PAGE

DATE: 4/13/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time

Comments

0845

Electronics control basin to re-write TC WP 4/13/95

100

Electronics control basin. Work complete WP 4/13/95

100 Hunter Sherida
continued
4/13/95

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 04/17/95.

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
0730	Permission granted to install remaining eqpt., and conduct leak test. Plan is to start pumping after lunch (~1300). WP 4/17/95
0900	Awaiting KELL Electricians to arrive from their monthly safety meeting. WP 4/17/95
0935	Pre-jobs brief completed. WP 4/17/95
1040	One grating & lead shield reported in the way of installing the beam used. KELL & RCTs informed of needed support. WP 4/17/95
1140	Electricians exit beam. Ironworker arrived. East volume of grating work discussed & planned, to be completed night after lunch
1300	Ironworkers, electricians, RCTs, HPT, laborer, and operator entered beam to complete work and start leak rate test. WP 4/17/95
1345	Grating removed. WP 4/17/95
1345	Personnel depart beam, except HPT & Operator. WP 4/17/95
1420	Pump started for drawdown. WP 4/17/95
1536	Pumping resumed. Vent valve opened. WP 4/17/95
1536	Leak test started. WP 4/17/95
1545	Initial levels before pumping: Beam used ^{measured} 3.05811", Beam level: 16'-3 1/8"; levels after pumping: ^{DC} Beam used = 1.98693"; Beam used = 3.05811". WP 4/17/95
1645	Verified VED temperature is within 2°F of average Beam temperature. WP 4/17/95
1820	VED temp within 2°F of Avg Beam temp. WP 4/17/95

APPENDIX E TEST LOG

ATP TEST LOG PAGE

DATE: 04/17/95

Instructions: Fill in the test log describing all significant events and plant status changes.

Time	Comments
1820	DC sprayed down by Operations. WP 4/17/95.
1843	DC level from stock 15'-5 3/8". WP 4/17/95.
1900	Test Engineer turnover complete RD Wan 4/17/95
1945	Rough calc of leak rate = 4.5 gpm RD Wan 4/17/95
2220	Operators washed exposed concrete in Disch Chute ROW 4/17/95
2400	Received briefing on test activities, assumed duties as Test Engineer RD Wan 4/17/95
0215	Operators washed down DC, sub-PD 4/18/95
0600	Operations washed down DC, sub-PD 4/18/95
0800	Briefed on test operations and resumed duties as Test Engineer. WP 4/18/95.
1006	DC Walls sprayed down by Operations. WP 4/18/95.
1400	DC Walls sprayed down by Operations. WP 4/18/95.
1536	Test completed. DC = 10.2327"; Basin = 2.22926". WP 4/18/95
1615	Pre-job completed, to restore/level the water level between the Basin & the DC. WP 4/18/95.
1639	Commenced refilling DC, using the clarifier system. Initial level (OC) = 10.4". WP 4/18/95.
1651	Completed refilling DC. Final level = 12.0200". WP 4/18/95.
1653	Personnel emptying the Basin. WP 4/18/95.
1655	Initial vernier reading for water bath = 86.350". Final vernier reading is 86.280". WP 4/18/95.
1658	Commencing baseline test, since Fan 10 is currently down for repair. Close 4/18/95 and prior baseline had Fan 10 up. WP 4/18/95.
1900	No further activity this date. WP 4/18/95.

DATE: 4/19/95

Time

Comments

0830	Pre job briefing done. WSD 4/19/75.
------	-------------------------------------

0900 Personnel entering base. 11/4/1951.

1015	Final VED level = 86.210' W ₄₄₂₃₅
------	--

1125	Exp 3 personnel out of Basin. Only sliding wall w/ support brackets were contaminated & lost to rad waste. / M 4/19/75
------	--

1130 Secured Test Engine. No further entries this date.
JH Pulver 4/19/95

APPENDIX F ATP CHANGE INSTRUCTIONS

Instructions

- 1 Determine the approval designator for the change per WHC-CM-3-5 section 12.7 "Approval Of Environmental, Safety, And Quality Affecting Documents".
- 2 If the change affects function or performance or compromises or influences test data then the change must be marked as requiring an ECN. One ECN will be produced covering all changes upon conclusion of testing and prior to issuing the ATR. Prior to this ECN, the change notice form will meet the same signature requirements necessary for an ECN.
- 3 The ATP change is performed per the following instructions using the ATP Change Approval form Appendix H.
- 4 Enter the next ATP change serial number obtained from Appendix G. Make an entry in the Test Log.
- 5 Enter the approval designator.
- 6 Make a test exception entry in Appendix I. The exception must be signed by the Test Engineer. The exception description is "ATP Change XXX" where XXX is the ATP change serial number obtained from Appendix I.
- 7 Enter the test exception number on the ATP change form.
- 8 Enter a detailed description of the change including section, page etc. or the change may be attached to the form that shows the "as is" conditions and the "should be" conditions (Appendix H).
- 9 Enter the justification of the change.
- 10 Based on the impact level and change contents obtain the required ATP change approvals.
- 11 Enter the change in the ATP. New typewritten pages may be substituted for pages that do not contain data or signatures. Pages being replaced that contain data or signatures must be saved in Appendix L. The ATP change number, date and initials of the person making the change must appear on each page or in the vicinity of the change. All replace pages shall be mark "REPLACED" and retained in the Control Copy of the ATP.
- 12 Sign the ATP change form indicating the change has been made and insert the form in Appendix H.

Instructions: Enter the next sequential serial number i.e 001 and a short description of the change. Fill out the change form in appendix D using the serial number obtained from this log.

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APPENDIX H

ATP CHANGE SHEETS

*** RECORD COPY ***

*** RECORD COPY ***

J-7 WORK CHANGE NOTICE - Detail (W175)

Page: 1

8:21:36 17 APR 1995

1. Document Number 1K-94-01044/W *GENERIC WORK ITEM*
 Work Item Title K-EAST BASIN ISOLATION BARRIER LEAK TEST

2. Originator Signature Date Telephone No.
 X WARNER, RD 04/11/95 373-3494

3. WCN Number 03 Non-ADP WCN Number

4. Change Instructions

Page Step/Para Description

105-KE ATP - MAKE THE FOLLOWING CHANGES:

- 1. PAGE 34, APPENDIX A: CHANGE ITEM 2 QUANTITY FROM 3 TO 2.
- 2. PAGE 36, APPENDIX B, INSTRUMENT SETUP: DELETE "VED WATER LEVEL FROM USLD-3."
- 3. PAGE 37, APPENDIX B, ITEM 3: DELETE "USLD-3 MOUNTED ON THE VED."
- 4. PAGE 25, FIGURE 1: REMOVE USLD-3 SENSOR AND MOUNT, AND USLD TRANSMITTER FROM FIGURE 1.
- 5. PAGE 26, FIGURE 2: REMOVE USLD FROM THE VED SET-UP FROM FIGURE 2.
- 6. PAGE 29, FIGURE 5: REMOVE "CHANNEL 3, USLD-3" FROM THE WIRING DIAGRAM.
- 7. PAGE 31, FIGURE 7: REMOVE "USLD-3" FROM THE SCHEMATIC.

5. Reason for Change

- 1. THE VED HOOK GAGE PROVIDES THE VED WATER BATH DEPTH MORE ACCURATELY THAN THE USLD-3 FOR THE AMOUNT OF EVAPORATION DETECTED IN PAST ATTEMPTS.
- 2. THE VED USLD-3 IS A SPARE, AND NOT REQUIRED FOR COMPLETING THE LEAK RATE TEST.

6. Approval Designators -E S Q

7. Approval Signatures	Signature	Date
Cognizant Engineer	X WARNER, RD	04/11/95
Cognizant Manager	X KUHTA, RJ	04/17/95
Environmental Assurance	X GANT, RG	04/11/95
Health/Safety Assurance	X VISTICA, JT	04/11/95
Quality Assurance	X TITTLE, JA	04/12/95
Operations	X RUANE, TJ	04/11/95
PIC	X KUHTA, RJ	04/17/95
Other	X MEIGS, JC	04/17/95

8. Incorporated By Signature Date Telephone No.
 [Signature] 4/17/95 916-1111

J-7 WORK CHANGE NOTICE - Detail (W175)

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*** RECORD COPY ***

J-7 WORK CHANGE NOTICE - Detail (W175)

Page: 1

18:49:19 30 MAR 1995

1. Document Number 1K-94-01044/W GENERIC WORK ITEM
Work Item Title K-EAST BASIN ISOLATION BARRIER LEAK TEST

2. Originator	Signature X WARNER, RD	Date 03/20/95	Telephone No. 373-3494
---------------	---------------------------	------------------	---------------------------

3. WCN Number 02 Non-ADP WCN Number

4. Change Instructions

- | | | |
|-------------|-----------|--|
| Page | Step/Para | Description |
| 105-KE ATP: | | INSERT THE FOLLOWING CHANGE #2 VIA ATP CHANGE PAGES 1 AND 2 (PAGES 1 AND 2). THIS CHANGE ADDS THE FOLLOWING: |
| 1. | | REMOVE THE CURRENT SECTION 11, 12, 13, AND/OR 14 OF THE ATP PAGES 14 THROUGH 24). |
| 2. | | File these pages in Appendix K (Repeat Testing). |
| 3. | | INSERT A NEW SECTION 11, 12, 13, AND/OR 14 (PAGES 14 THROUGH 24) IN THE APPROPRIATE SPOT(S) IN THE ATP. |

5. Reason for Change

TO ALLOW THE FLEXIBILITY TO SUPPORT MULTIPLE MOVES OF THE TEST EQUIPMENT, AND TO SUPPORT ANY "POTENTIAL" LEAK LOCALIZATION EFFORTS AT 105-KE.

6. Approval Designators -E S Q

7. Approval Signatures	Signature	Date
Cognizant Engineer	X WARNER, RD	03/20/95
Cognizant Manager	X KUHTA, RJ	03/28/95
Environmental Assurance	X GANT, RG	03/27/95
Health/Safety Assurance	X VISTICA, JT	03/27/95
Quality Assurance	X DIEHL, JI	03/28/95
Operations	X RUANE, TJ	03/24/95
PIC	X COOLEY, DL	03/28/95
Other	X OMLIN, FA	03/30/95

8. Incorporated By

Signature

[Signature]

4/6/95

Date

Telephone No.

[Handwritten: 373-3494]

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J-7 WORK CHANGE NOTICE - Detail (W175)

Page: 1

08:48:37 30 MAR 1995

1. Document Number 1K-94-01044/W ~~GENERIC WORK ITEM~~
 Work Item Title K-EAST BASIN ISOLATION BARRIER LEAK TEST

	Signature	Date	Telephone No.
2. Originator	X WARNER, RD	03/23/95	373-3494
3. WCN Number 01	Non-ADP WCN Number		

4. Change Instructions

- | | | |
|---|------|-----------------------|
| ✓ | Page | Step/Para Description |
|---|------|-----------------------|
- ✓1. On page ii, change the title for section 4.0 to "4.0 AUTHORITY, ADMINISTRATION AND PLANT INTERFACE".
 - ✓2. Add "through the isolation barrier doors" at the end of the third sentence of the third paragraph of section 1.2 ending with "the other route is seal leakage."
 - ✓3. Insert the following after "the safe limit" and before "specified" of the third sentence of the first paragraph of section 1.2 of the ATP: "(1500 gph/5600 lph; see section 4.2.3 for acceptance criteria)."
 - ✓4. Delete the last sentence from the third paragraph of the ATP, section 1.2.
 - ✓5. On page 2 of the ATP, add the following definitions at the end of section 3.0 definitions: "BASIN - That portion of 100-KE and 100-KW used for irradiated fuel storage; is hydraulically connected to the Weasel Pit, Filter/Viewing Pits, Dummy Elevator Pit, and South Loadout Pit; and is hydraulically separated from the Discharge Pit, by the isolation barriers, and the North Loadout Pit (Sand Filter Backwash Pit) by a separate barrier. DISCHARGE PIT - That portion of 100-KE and 100-KW that contains no irradiated fuel; is hydraulically separated from the basin by the isolation barriers; but is hydraulically connected to the Reactor Fuel Discharge Pit."
 - ✓6. Add the following to section 4.1.3: "The Test Engineers are delineated in the Master Work Plan for Isolation Barrier Installation at KE and KW Basins, and their training records are maintained by WHC Training personnel."
 - ✓7. On page 4, in section 4.2.3, delete the last two sentences and add the following "For this procedure the acceptance criteria is a leak rate through the isolation barriers of 750 gallons (2830 l) per hour (a 2x safety factor to the SAR limit) at a 16 foot (4.9m) level differential. The testing will be over an 11 inch (28cm) level differential. The isolation barrier leak rate shall not exceed 179 gallons (678 l) per hour at an 11 inch (28cm) level differential."
 - ✓8. On page 5 of the ATP, add the following for section 4.3.
- ✓4.3 PLANT INTERFACE
 As developed in the Appendix of the Test Specification/Test Plan [WHC-SD-SNF-TP-009, Rev. 0-A, (1/31/95)], the performance of leak rate tests for the isolation barriers is consistent with the current OSRs. For the test, the minimum level of the basin will be:

J-7 WORK CHANGE NOTICE - Detail (W175)

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J-7 WORK CHANGE NOTICE - Detail (W175)

Page: 2

08:48:37 30 MAR 1995

1. Document Number ~~1K-94-01044/W~~ ~~GENERIC WORK ITEM~~
Work Item Title K-EAST BASIN ISOLATION BARRIER LEAK TEST

- * above 15' 8" (4.8m) prior to initiating the test;
- * remain above 15' 8" (4.8m) at all time during the test
- * the discharge chute level will be no less than 14' 11" (4.5m) during the test, and no less than 15' 6" (4.7m) following completion of section 13.2.10.

This is a permissive condition for the discharge chute. The actual test levels may differ from these in the test procedure, but they must remain consistent with these level restrictions. Prior to initiating the test, the ATP will verify that the Process Standards have been revised to reflect these limits and that plant logkeeping is in place."

- ✓9. Renummer the two 5.1.4 sections as 5.1.4.a and 5.1.4.b respectively.
- ✓10. Replace section 11.1.2 with the following: "Verify that a Process Change Authorization (PCA) has been issued which allows the Discharge Chute to be drawn down to the 14'-11" level." The PCA will specify that both a physical and electronic level method will be in place for the test.
- ✓11. Replace "8882 ft2 in section 13.2.8, page 21 of the ATP with "8880 ft2 (per current revision of WHC-SD-SNF-TP-009, section 6.1)."
- ✓12. Add the following on page 14 of the ATP: "11.1.5 At the initiation of the Discharge Chute drawdown, the respective starting water levels of the Discharge Chute and the Basin should be within 1 inch of each other."
- ✓13. Insert the following on page 14 of the ATP: "11.1.6 Remove the relays of the Discharge Chute's low level alarms." Add a signature and date block underneath this section for a WHC Electrician to complete.
- ✓14. Add the following at the end of section 13.2.2: "With K-Basins Operations and Engineering concurrence, the Test Director may specify an alternate method to cover the exposed Discharge Chute wall if it will provide equal or superior protection than the weighted plastic curtains. Operations, Engineering, and other technical staff agreed on 2/21/95 that the concrete surfaces bared in the discharge chute would be wetted down, as completely as practicable, every 4 hours during the course of the test. Concurrence with this position was obtained from the Department of Health, State of Washington. Date and times will be recorded in the Test Engineer's logbook (for wetting of concrete surfaces)."
- ✓15. Insert the following on page 24 of the ATP: "14.2.5 Re-install the relays of the Discharge Chute's low level alarms." Add a signature and date block underneath this section for a WHC Electrician to complete.
- 16. Sections 11, 12, 13, and 14 may be completed as many times as necessary to support leak rate testing by performing the following:

J-7 WORK CHANGE NOTICE - Detail (W175)

1. Document Number 1K-94-01044/W ~~GENERIC WORK ITEM~~
Work Item Title K-EAST BASIN ISOLATION BARRIER LEAK TEST

- a. Remove, as appropriate, the current Section 11, 12, 13 and/or 14 of the ATP.
 - b. File these pages in Appendix K (Repeat Testing).
 - c. Insert a new Section 11, 12, 13, and/or 14 of the ATP, as appropriate.
17. Add the following section:
"13.3 KE DISCHARGE CHUTE LEAK LOCATION AND VERIFICATION
1. Ensure the video system is operating.
 2. Nine weighted cords are prepared, and six weighted cords placed per engineering direction (three cords are for backup).
NOTE: The cords will have 5-inch strips of surveyor's tapes in alternating colors at 6-inch intervals for a distance of 16 feet. Three additional cord shall be prepared with a 6-inch flag located 1-inch from the weighted end.
 3. Individuals with the single flag string are available make measurements at various heights or locations per engineering direction. Also fixed cords may be moved after recording their relevant flow indication.
 4. RCTs will be available to establish radiological conditions for relocation or disposal of the weighted cords.
 5. Establish a driving head per the "Test 2 'Barrier Leak Rate Test'" section of the 105-KE Acceptance Test Procedure [WHC-SD-SNF-ATP-005 (rev. 0), section 13].
 6. Visually, and with the video camera, record the flag locations that give flow indications.
 7. All recorded indications must be documented by signature including location (east or west door); east, west or bottom of door elevations; and strong, moderate or light flow indication.
 8. This procedure may be repeated as many times as necessary to locate and verify the leak between the Basin and the Discharge Chute."
 9. To check potential leak sites, an additional test method will consist of attaching a light plastic bag to the end of a pole, and positioning the plastic bag at suspect points on the Basin side of the isolation barriers. Water passage from the Basin side into the Discharge Chute will suck the light plastic bag toward the leak site, and more closely pinpoint the site.
18. Add the following section:
"13.2.11

When pumping water from the Main Basin to the Discharge Chute by reversing hoses on the pump, the Discharge Chute level may be raised to 16'-3" to allow engineering investigations. This

J-7 WORK CHANGE NOTICE - Detail (W175)

Page: 4

08:48:37 30 MAR 1995

1. Document Number 1K-94-010447W ~~GENERIC WORK ITEM~~
Work Item Title K-EAST BASIN ISOLATION BARRIER LEAK TEST

will result in a drop in the Main Basin of up to 0.4" which is within the normal control span of the Main Basin. After completion of the drawdown, respective levels will be restored to within one inch or verification shall be made that equalization is occurring through the current hydraulic connection.

Level restored OR Equalization verified

Appropriate mechanism shall be circled and time and date indicated by Test Engineer.

Test Engineer / Time / Date"

5. Reason for Change

TO CLARIFY SEVERAL STEPS IN THE ATP. NONE OF THE CHANGES INVALIDATES ANY OF THE TEST ASSUMPTIONS OR PROCESSES.

6. Approval Designators -E S Q

7. Approval Signatures	Signature	Date
Cognizant Engineer	X WARNER, RD	03/23/95
Cognizant Manager	X KUHTA, RJ	03/28/95
Environmental Assurance	X GANT, RG	03/27/95
Health/Safety Assurance	X VISTICA, JT	03/27/95
Quality Assurance	X DIEHL, JI	03/28/95
Operations	X RUANE, TJ	03/24/95
PIC	X COOLEY, DL	03/28/95
Other	X OMLIN, FA	03/30/95

8. Incorporated By Signature Date Telephone No.
[Signature] 4/8/95 946-714

J-7 WORK CHANGE NOTICE - Detail (W175)

APPENDIX H ATP CHANGE APPROVAL SHEET 1

ATP CHANGE APPROVAL		DATE:	4/11/98	Page 1 of 2
Change Title:	Deletes reference to USLD for VED			
Approval Designator:	-E, -S, -Q	ECN Required: (Yes/No)	N	
Change #:	003	NOTE: For Approval Designator see WHC-CM-3-5 section 12.7 "Approval Of Environmental, Safety, And Quality Affecting Documents!"		
Exception #:				
CHANGE DESCRIPTION				
Deletes reference to USLD-3 in ATP.				
CHANGE JUSTIFICATION				
USLD-3 is not necessary for test to be run as Verner provides better accuracy for evaporation observed.				

APPENDIX H ATP CHANGE APPROVAL SHEET 2

ATP CHANGE APPROVAL

Change #:

003

NOTE: The Test Engineer & K-Basin Shift Operations Manager are minimum required signatures.

Page

2 of 2

CHANGE INSTRUCTIONS

See J-7 #3 for WHC-SD-SNF-ATR-005,
Work pkg 94-1044.

See J-7 #3

CHANGE APPROVALS

NOTE: The Test Engineer & SOM are minimum required signatures.

Safety
Engineer

Test Director

QA Engineer

Other

Test Engineer

Other

Technical PIC

Other

APPENDIX H ATP CHANGE APPROVAL SHEET 1

ATP CHANGE APPROVAL		DATE:	03/20/95	Page 1 of 2
Change Title:	ADMINISTRATIVE REVISIONS TO 105-KE LEAK TEST ATP			
Approval Designator:	-E, -S, -Q	ECN Required: (Yes/No)	NO	
Change #:	002	NOTE: For Approval Designator see WHC-CM-3-5 section 12.7 "Approval Of Environmental, Safety, and Quality Affecting Documents".		
Exception #:	NA			
CHANGE DESCRIPTION				
Allows completed sections 11, 12, 13, and/or 14 to be filed in Appendix K (Repeat Testing), and new sections 11, 12, 13, and/or 14 (as appropriate) inserted into the ATP.				
CHANGE JUSTIFICATION				
To allow flexibility in moving test equipment to and from 105-KW to 105-KE, and support any "potential" leak localization efforts.				

APPENDIX H ATP CHANGE APPROVAL SHEET 2

ATP CHANGE APPROVAL			
Change #:	002	NOTE: The Test Engineer & K Basin Shift Operations Manager are minimum required signatures.	Page 2 of 2
CHANGE INSTRUCTIONS 1. Remove the current Section 11, 12, 13, and/or 14 of the ATP (pages 14 thru 24). 2. File these pages in Appendix K (Repeat Testing). 3. Insert a new Section 11, 12, 13, and/or 14 (pages 14 through 24) in the appropriate spot(s) in the ATP.			
CHANGE APPROVALS		NOTE: The Test Engineer & SOM are minimum required signatures.	
Safety Engineer	<i>[Signature]</i>	Test Director	<i>R.D. Warner 3-20-95</i>
QA Engineer	<i>[Signature]</i>	Other	
Test Engineer	<i>[Signature] 3/20/95</i>	Other	
Technical PIC	<i>[Signature]</i>	Other	

SEE J-7 #2, PRE 94-1044. *[Signature] 3/24/95*

APPENDIX H ATP CHANGE APPROVAL SHEET 1

ATP CHANGE APPROVAL		DATE:	03/07/95	Page 1 of 5
Change Title:	ADMINISTRATIVE REVISIONS TO 105-KE LEAK TEST ATP			
Approval Designator:	-E, -S, -Q	ECN Required: (Yes/No)	NO	
Change #:	001	NOTE: For Approval Designator see WHC-CM-3-5 section 12.7 "Approval Of Environmental, Safety, and Quality Affecting Documents".		
Exception #:	NA			
CHANGE DESCRIPTION				
Several changes revise portions of the 105-KE ATP to clarify unclear steps or requirements, and make administrative changes. Other changes establish a means of localizing any potential leak that may be determined during leak rate testing. These localization techniques were developed during the 105-KW isolation barriers leak rate testing.				
CHANGE JUSTIFICATION				
To clarify, revise, or add sections to the 105-KE ATP so as to correct administrative errors, or support any future efforts to localize leaks that impair the acceptance testing of the 105-KE isolation barriers. None of these changes invalidates any of the test assumptions or processes.				

APPENDIX H ATP CHANGE APPROVAL SHEET 2

ATP CHANGE APPROVAL			
Change #:	001	NOTE: The Test Engineer & K Basin Shift Operations Manager are minimum required signatures.	Page 2 of 5
CHANGE INSTRUCTIONS			
1. On page ii, change the title for section 4.0 to "4.0 AUTHORITY, ADMINISTRATION AND PLANT INTERFACE". 2. Add "through the isolation barrier doors" at the end of the third sentence of the third paragraph of section 1.2 ending with "the other route is seal leakage." 3. Insert the following after "the safe limit" and before "specified" of the third sentence of the first paragraph of section 1.2 of the ATP: "(1500 gph/5600 lph; see section 4.2.3 for acceptance criteria)." 4. Delete the last sentence from the third paragraph of the ATP, section 1.2. 5. On page 2 of the ATP, add the following definitions at the end of section 3.0 definitions: "BASIN - That portion of 100-KE and 100-KW used for irradiated fuel storage; is hydraulically connected to the Weasel Pit, Filter/Viewing Pits, Dummy Elevator Pit, and South Loadout Pit; and is hydraulically separated from the Discharge Pit, by the isolation barriers, and the North Loadout Pit (Sand Filter Backwash Pit) by a separate barrier. DISCHARGE PIT - That portion of 100-KE and 100-KW that contains no irradiated fuel; is hydraulically separated from the basin by the isolation barriers; but is hydraulically connected to the Reactor Fuel Discharge Pit." 6. Add the following to section 4.1.3: "The Test Engineers are delineated in the Master Work Plan for Isolation Barrier Installation at KE and KW Basins, and their training records are maintained by WHC Training personnel." 7. On page 4, in section 4.2.3, delete the last two sentences and add the following "For this procedure the acceptance criteria is a leak rate through the isolation barriers of 750 gallons (2830 l) per hour (a 2x safety factor to the SAR limit) at a 16 foot (4.9m) level differential. The testing will be over an 11 inch (28cm) level differential. The isolation barrier leak rate shall not exceed 179 gallons (678 l) per hour at an 11 inch (28cm) level differential."			
CHANGE APPROVALS		NOTE: The Test Engineer & SOM are minimum required signatures.	
Safety Engineer	NA	Test Director	NA
QA Engineer	NA	Other	NA
Test Engineer	NA	Other	NA
Technical PIC	NA	Other	NA

APPENDIX H ATP CHANGE APPROVAL SHEET 2

ATP CHANGE APPROVAL

Change #:

001

NOTE: The Test Engineer & K Basin Shift Operations Manager are minimum required signatures.

Page
3 of 5

CHANGE INSTRUCTIONS (cont)

8. On page 5 of the ATP, add the following for section 4.3.

"4.3 PLANT INTERFACE

As developed in the Appendix of the Test Specification/Test Plan [WHC-SD-SNF-TP-009, Rev. 0-A, (1/31/95)], the performance of leak rate tests for the isolation barriers is consistent with the current OSRs. For the test, the minimum level of the basin will be:

- above 15' 8" (4.8m) prior to initiating the test;
- remain above 15' 8" (4.8m) at all time during the test; and
- the discharge chute level will be no less than 14' 11" (4.5m) during the test, and no less than 15' 6" (4.7m) following completion of section 13.2.10.

This is a permissive condition for the discharge chute. The actual test levels may differ from these in the test procedure, but they must remain consistent with these level restrictions. Prior to initiating the test, the ATP will verify that the Process Standards have been revised to reflect these limits and that plant logkeeping is in place."

9. Renumber the two 5.1.4 sections as 5.1.4.a and 5.1.4.b respectively.

10. Replace section 11.1.2 with the following: "Verify that a Process Change Authorization (PCA) has been issued which allows the Discharge Chute to be drawn down to the 14'-11" level." The PCA will specify that both a physical and electronic level method will be in place for the test.

11. Replace "8882 ft2 in section 13.2.8, page 21 of the ATP with "8880 ft2 (per current revision of WHC-SD-SNF-TP-009, section 6.1)."

12. Add the following on page 14 of the ATP: "11.1.5 At the initiation of the Discharge Chute drawdown, the respective starting water levels of the Discharge Chute and the Basin should be within 1 inch of each other."

13. Insert the following on page 14 of the ATP: "11.1.6 Remove the relays of the Discharge Chute's low level alarms." Add a signature and date block underneath this section for a WHC Electrician to complete.

14. Add the following at the end of section 13.2.2: "With K-Basins Operations and Engineering concurrence, the Test Director may specify an alternate method to cover the exposed Discharge Chute wall if it will provide equal or superior protection than the weighted plastic curtains. Operations, Engineering, and other technical staff agreed on 2/21/95 that the concrete surfaces bared in the discharge chute would be wetted down, as completely as practicable, every 4 hours during the course of the test. Concurrence with this position was obtained from the Department of Health, State of Washington. Date and times will be recorded in the Test Engineer's logbook (for wetting of concrete surfaces)."

CHANGE APPROVALS

NOTE: The Test Engineer & SOM are minimum required signatures.

Safety
Engineer

NA

Test Director

NA

QA Engineer

NA

Other

NA

Test Engineer

NA

Other

NA

Technical PIC

NA

Other

NA

APPENDIX H ATP CHANGE APPROVAL SHEET 2

ATP CHANGE APPROVAL			
Change #:	001	NOTE: The Test Engineer & K Basin Shift Operations Manager are minimum required signatures.	Page 4 of 5
CHANGE INSTRUCTIONS (cont)			
15. Insert the following on page 24 of the ATP: "14.2.5 Re-install the relays of the Discharge Chute's low level alarms." Add a signature and date block underneath this section for a WHC Electrician to complete. 16. Sections 11, 12, 13, and 14 may be completed as many times as necessary to support leak rate testing by performing the following: a. Remove, as appropriate, the current Section 11, 12, 13 and/or 14 of the ATP. b. File these pages in Appendix K (Repeat Testing). c. Insert a new Section 11, 12, 13, and/or 14 of the ATP, as appropriate. 17. Add the following section: "13.3 KE DISCHARGE CHUTE LEAK LOCATION AND VERIFICATION 1. Ensure the video system is operating. 2. Nine weighted cords are prepared, and six weighted cords placed per engineering direction (three cords are for backup). NOTE: The cords will have 5-inch strips of surveyor's tapes in alternating colors at 6-inch intervals for a distance of 16 feet. Three additional cord shall be prepared with a 6-inch flag located 1-inch from the weighted end. 3. Individuals with the single flag string are available to make measurements at various heights or locations per engineering direction. Also fixed cords may be moved after recording their relevant flow indication. 4. RCTs will be available to establish radiological conditions for relocation or disposal of the weighted cords. 5. Establish a driving head per the "Test 2 'Barrier Leak Rate Test'" section of the 105-KE Acceptance Test Procedure [WHC-SD-SNF-ATR-005 (rev. 0), section 13]. 6. Visually, and with the video camera, record the flag locations that give flow indications. 7. All recorded indications must be documented by signature including location (east or west door); east, west or bottom of door elevations; and strong, moderate or light flow indication. 8. This procedure may be repeated as many times as necessary to locate and verify the leak between the Basin and the Discharge Chute." 9. To check potential leak sites, an additional test method will consist of attaching a light plastic bag to the end of a pole, and positioning the plastic bag at suspect points on the Basin side of the isolation barriers. Water passage from the Basin side into the Discharge Chute will suck the light plastic bag toward the leak site, and more closely pinpoint the site.			
CHANGE APPROVALS		NOTE: The Test Engineer & SOM are minimum required signatures.	
Safety Engineer	NA	Test Director	NA
QA Engineer	NA	Other	NA
Test Engineer	NA	Other	NA
Technical PIC	NA	Other	NA

APPENDIX H ATP CHANGE APPROVAL SHEET 2

ATP CHANGE APPROVAL			
Change #:	001	NOTE: The Test Engineer & K Basin Shift Operations Manager are minimum required signatures.	Page 5 of 5
CHANGE INSTRUCTIONS (cont)			
18. Add the following section: "13.2.11 When pumping water from the Main Basin to the Discharge Chute by reversing hoses on the pump, the Discharge Chute level may be raised to 16'-3" to allow engineering investigations. This will result in a drop in the Main Basin of up to 0.4" which is within the normal control span of the Main Basin. After completion of the drawdown, respective levels will be restored to within one inch or verification shall be made that equalization is occurring through the current hydraulic connection. Level restored OR Equalization verified Appropriate mechanism shall be circled and time and date indicated by Test Engineer. _____/_____/_____ Test Engineer Time Date"			
CHANGE APPROVALS		NOTE: The Test Engineer & SOM are minimum required signatures.	
Safety Engineer	SEE J-7 #1 FOR 94-1044 <i>[Signature]</i> 3/16/95	Test Director	<i>[Signature]</i> 3/17/95
QA Engineer	SEE J-7 #1 FOR 94-1044. <i>[Signature]</i> 3/16/95	Other	
Test Engineer	<i>[Signature]</i> 3/17/95	Other	
Technical PIC	SEE J-7 #1, 94-1044 <i>[Signature]</i> 3/16/95	Other	

RECEIVED

APPENDIX I

ATP EXCEPTION LOG

(NOT USED)

APPENDIX J

ATP EXCEPTIONS

(NOT USED)

WHC-SD-SNF-ATR-005 Rev. 0

APPENDIX K REPEAT TESTING

11.0 TEST EQUIPMENT INSTALLATION TEST 2

This section provides instructions for the reinstallation or repositioning of test equipment that may have been moved during the barrier installation. An "N/A" will be used to indicate step that are not required as the equipment has not been affected.

11.1 SPECIAL PREREQUISITES

11.1.1

Prior to Basin area entrance, all parts per Appendix A are assembled and ready for basin entry.

11.1.2

~~Verify the Operational Safety Requirements (OSR) interpretation for OSR 3/4.2 Cooling Pool Water Level is in place. Verify that a Process Change Authorization (PCA) has been issued which allows the Discharge Chute to be drawn down to the 14'-11" level.~~

11.1.3

Verify that the high and low cooling pool water level monitoring equipment is in current calibration. (This was performed by 1K-94-00494, installation of new level monitoring equipment, October 3, 1994.)

11.1.4

Verify System Surveillance Procedure, SSP-W07-016, which functionally tests the cooling pool level alarms, has been completed.

11.1.5 At the initiation of the Discharge Chute drawdown, the respective starting water levels of the Discharge Chute and the Basin should be within 1 inch of each other.
NOTE: No special tools are required to install the TCs, USLDs, or VED.

When all prerequisites are completed then sign below.

Test Engineer 1 4/3/95
Date

11.1.6 Remove the relay of the Discharge Chutes: low level alarms.
Will Electronics 1 4/3/95
Date

CONTROLLED COPY

40
REPLACED

11.2 INSTRUCTIONS

11.2.1

Remove any necessary grating see Section 5.1 specific to grating removal and handrails. Reinstall any TC that may have been removed for barrier installation. Reinstall TCs in basin approximately six inches (15cm) in the water. Reinstall TCs in the discharge chute approximately thirteen inches (33cm) in the water. Field route all TC wiring over the building inter-structure to the data logger location. Refer to Figure 4 for typical TC mounting.

Craft

Date

Grating placed in temporary storage

HPT

Date

11.2.2

Remove any necessary grating see Section 5.1 specific to grating removal and handrails. Re-mount, if necessary, the USDL and stilling well as shown in Figure 3 approximately fourteen inches (36cm) for the basin and between two (5cm) and fourteen inches (36cm) for the discharge chute. Field route and secure USDL wire to floor to the locations specified in Figure 1.

Craft

Date

Grating placed in temporary storage

HPT

Date

11.2.3

If moved or repositioned, place the VED/Instrumentation stand on the grating as shown in Figure 1. Power the instrumentation by plugging the power strip into nearest H-18 115V AC outlet. Make sure the heater and cooler are plugged into two separate circuits to equalize the current load. Note that the VED equipment is on the grating and not in the basin water.

Craft

Date

REMOVED

11.2.4

Rewire, as necessary, the instruments to data logger as shown in Figure 5. Block diagram and schematic of instrument loops are shown on Figure 6 and 7.

11.2.5

If necessary, remove grating per Figure 9 and install the discharge chute water transfer pump assembly, item 20, Appendix A. Secure both inlet and discharge hose to prevent hose movement during pump operation. Inlet hoses shall be no deeper than six feet (1.8m) to assure no sludge is pumped. Discharge hose shall be at least three feet (0.9m) under the water. Suction hose will be located just to the right of the discharge chute and the discharge hose on the basin side away from the work area. The air line discharge hose shall be above the water, pointed toward the water and secured to prevent it spraying.

NA for leak
W. H. Hulse / *4/3/95*
Craft / Date

Grating placed in temporary storage.

None moved / *4/4/95*
HPT / Date

11.2.6

Verify that an Alpha and Beta continuous air monitors (CAMs) are in place and in service in the immediate vicinity of the discharge chute. Verify also the pump and associated air/water hoses are configured in such a manner as to reduce the radiological consequences of a liquid spill. Verify the emergency air shutoff valve on the transfer pump is within easy access to the operator.

W. H. Hulse / *4/3/95*
HPT Supervisor / Date

11.2.7

Adjust air regulator valve supply to transfer pump to less than 80 psig. Perform a short test run of the discharge chute water transfer pump to the basin by slowly opening the inlet air supply valve. Monitor discharge hose to assure hose is secured properly. Stop pumping if any problem are found. Ensure that water from the discharge chute can be pumped to the basin without any difficulties. Test the emergency air isolation valve for satisfactory operation.

N/A / *4/3/95*
Operations / Date

Pumping conf'd IAW 13.2.5.

REMOVED

--- 1/ REPLACED

11.2.8

Reinstall data computer (shown in Figure 6) in a convenient location outside the basin. Contact SOM for this location.

N/A for leak localization efforts
Test Engineer _____ Date _____
John Miller 4/3/95

12.0 TEST EQUIPMENT SETUP TEST 2

This section provides the instructions to properly setup the test equipment in preparation for Test 2, isolation barrier leak rate determination.

12.1 SPECIAL PREREQUISITES

None

2.2 INSTRUCTIONS

12.2.1

Verify each sensor is being sent to the ADAS. Each sensor/instrument shall be tested back to the computer, one at a time. Verify that all readings from the ADAS to the computer are reasonable.

Fluid System Eng. _____ Date _____
QC Verify _____ Date _____

12.2.2

Verify the data logging software is loaded and ready for start of Test 2.

Fluid System Eng. _____ Date _____

N/A for leak localization efforts
John Miller 4/3/95

1/ REPLACED

13.0 TEST 2 "BARRIER LEAK RATE TEST"

This section provides instructions for actual barrier leak rate after isolation barrier installation.

13.1 SPECIAL PREREQUISITES

13.1.1

Verify the ADAS, VED, USLDs and the computer have been operating for at least the past two hours.

13.1.2

Check that there has been no unplanned water additions to the basin within the past 4 hours prior to the start of ADAS data collection.

13.1.3

Check that the basin ventilation fans are configured the same as for step 8.2.4. If not, contact operations to set the fans to this configuration. If this is not possible re-perform the velocity measurements per step 8.2.4 and record the new configuration.

South 6 ON / OFF North 7 ON / OFF West 10 ON / OFF East 11 ON / OFF

13.1.4

Check with the SOM that the installation of the isolation barrier is complete and seals are ready for testing.

When all prerequisites are completed then sign below.

_____/_____
Test Engineer Date

13.2 INSTRUCTIONS

13.2.1

Approximately one hour before this test is started, adjust the VED's water temperature setpoint to the same as the basin water temperature.

_____/_____
Test Engineer Date

13.2.2

Install weighted draped plastic to cover the portion of the discharge chute wall that will be exposed to air, as completely as practical, to preclude emissions from the wall during drawdown. With K-Basins Operations and Engineering concurrence, the Test Director may specify an alternate method to cover the exposed Discharge Chute wall if it will provide equal or superior protection than the weighted plastic curtains. Operations, Engineering and other technical staff agreed on 2/21/95 that the concrete surfaces (as complete as possible) bared in the Discharge Chute would be wetted down every 4 hours during the course of the test. Concurrence with this position was obtained from the Dept. of Health, State of Washington. Date and times will be recorded in the Test Engineer's logbook (for the wetting of concrete surfaces).

Operations / Date L. Kowalski / 4-5-95
Operations Date

13.2.3

Start ADAS data collection.

[Signature] / 4/5/95
Test Engineer Date

13.2.4

For the duration of this test, at 60 minute intervals, check VED water temperature against the averaged water temperature from TCs, T-1 through T-5, in the basin and record in Appendix O. From this data verify that the VED temperature is held within $\pm 2^{\circ}\text{F}$ (3.6°C) of the basin's temperature. If necessary adjust the temperature of the VED water to match that of the basin and record all corrections in Appendix O.

NA [Signature] / 4/5/95
Test Engineer Date

13.2.5

Recheck air inlet regulator to transfer pump is set to less than 80 psig. Pump water from the discharge chute to reach a differential water level between the discharge chute and the basin of between 11 (28cm) and 12 (30.5cm) inches by slowly opening the inlet air supply valve. Monitor discharge hose to assure hose is secured properly. Stop pumping if any problem are found. Carefully monitor both levels to keep within the OSR limits and to keep the water seal on the banana wall. Any variance outside the 11 (28cm) to 12 (30.5cm) inch range must be approved by the SOM and Fluid System Eng. for the potential impact to the OSR, water seal and the test data.

Operations / Date L. Kowalski / 4-5-95
Operations Date

[Signature]

REPAIRED

13.2.6

Once the desired differential level is reached stop pumping and vent the transfer line to prevent water siphoning from the higher basin water level to the lower discharge chute level.

Operations / Date Operations / Date
1 / *4-5-95*
R. K...

NOTE: If discharge chute water level rises, more than desired in the first portion of testing, inform the SOM. A 3/8 inch (0.95cm) per hour rise in discharge chute level indicates a failed leak test. It is permissible to continue with or repeat the data run before suspending the test. Once corrective action has been taken, outside this procedure, this procedure may be unsuspended and the test repeated. Entries into the Test Log for suspension, unsuspension and an brief account of work performed on the seals, during suspension, shall be included in the Test Log.

NOTE: Repeating of the data run can be performed at any time as long as both Sections 12.0 and 13.0 are repeated per step 4.2.10.

13.2.7

Perform Basin Isolation Barrier leakage test for at least 24 hours. Record the information below.

Start Time _____ Initial Levels Basin Discharge Chute
 End Time _____ Final Levels _____ _____

Test Engineer _____ / _____ Date

QC Verify _____ / _____ Date

Fluid Systems Eng. _____ / _____ Date

NA 2/1/95 4/5/95

REPAIRED

13.2.8

ACCEPTANCE LEAK RATE

Determine the Acceptance Leak Rate(Q) at the final basin to discharge chute level differential(ΔH_f). This represents the lowest leak rate based on differential head, during the 24 hour test period. From Appendix Q, find the Acceptance Leak Rate(Q) at the final basin to discharge chute level differential(ΔH_f). Record the value of the Acceptance Leak Rate(Q) _____gph.

ESTIMATED OBSERVED LEAK RATE

From the observed basin level drop determine the estimated average 24 hour leak rate. Observed Leak Rate = actual level drop in basin _____feet times 8880 ft² times 7.48 gal/ft³ divided by 24 hours. Estimated Observed Leak Rate = _____gph. Plot this value on Appendix S graph.

EVALUATION

If the Estimated Observed Leak Rate is below the Acceptance Leak Rate(Q) by at least 7 gph, below the lower line on Appendix S, the isolation barriers passes the acceptance test. If not, perform the detailed calculation per step 13.2.9. Indicate below that the test passed or failed the rough calculation.

NOTE: The 7 gph buffer is based on instrument error (see Appendix S).

Leak test PASSED / FAILED rough calculation.

Test Engineer / Date

Fluid Systems Eng. / Date

13.2.9

If step 13.2.8 did not pass the acceptance criteria immediately perform the detailed analysis of the leak rate to determine if the barriers leak rate is acceptable. If step 13.2.8 did indicate that the barriers passed the acceptance criteria, this step can be performed after Section 14.0, Test Equipment Removal. Write "skipped" in the space below to indicate that this step will be performed after Section 14.0. Record the calculated Leak Rate(L) extrapolated to the 16 foot (4.9m) level differential, the measured Evaporation Rate(E) and Observed Level Change(I) below. Note: The acceptance criteria for this test is 750gph at 16 ft.

Extrapolated Leak Rate _____ gph
(must be less than 750 gph)

_____/_____
Test Engineer Date

_____/_____
Fluid Systems Eng. Date

13.2.10

Once the leak is determined to be acceptable; i.e., test is completed, restore level in the discharge chute by reversing the hoses on the transfer pump. Pump water from basin back into the discharge chute to the desired level.

_____/_____
Operations Date

W. P. Low / 4-5-95
Operations Date

13.2.11

When pumping water from the Main Basin to the Discharge Chute by reversing hoses on the pump, the Discharge Chute level may be raised up to 1.6" to allow engineering investigations. This will result in a drop of the Main Basin of up to 0.4" which is within the normal control span of the Main Basin. After completion of the drawdown, respective levels will be restored to within one inch or verification shall be made that equalization is occurring through the current hydraulic connection.

Level restored OR Equalization verified

Appropriate mechanism shall be circled and time and date indicated by Test Engineer.

Moan Evacker / 18:00 / 4/5/95
Test Engineer Time Date

REPLACES

13.3 KW DISCHARGE CHUTE LEAK LOCATION AND VERIFICATION

PROCEDURE

1. The video system is operating.
2. Nine weighted cords prepared, and six weighted cords placed per engineering direction (three cords are for backup).

NOTE: The cords will have 5-inch strips of surveyor's tapes in alternating colors at 6-inch intervals for a distance of 16 feet. Three additional cord shall be prepared with a 6-inch flag located 1-inch from the weighted end.
3. Individuals with the single flag string are available to make measurements at various heights or locations per engineering direction. Also fixed cords may be moved after recording their relevant flow indication.
4. RCTs will be available to establish radiological conditions for relocation or disposal of the weighted cords.
5. Establish a driving head per the "Test 2 'Barrier Leak Rate Test'" section of the 105-KW Acceptance Test Procedure [WHC-SD-SNF-ATP-004 (rev. 0), section 13].
6. Visually, and with the video camera, record the flag locations that give flow indications.
7. All recorded indications must be documented by signature including location (east or west door); east, west or bottom of door elevations; and strong, moderate or light flow indication.
8. This procedure may be repeated as many times as necessary to support leak location and verification efforts.
9. To check potential leak sites, an additional test method will consist of attaching a light plastic bag to the end of a pole, and positioning the plastic bag at suspect points on the Basin side of the isolation barriers. Water passage from the Basin side into the Discharge Chute will suck the light plastic bag toward the leak site, and more closely pinpoint the site.

REPLACES

13.0 TEST 2 "BARRIER LEAK RATE TEST"

This section provides instructions for actual barrier leak rate after isolation barrier installation.

13.1 SPECIAL PREREQUISITES

13.1.1

Verify the ADAS, VED, USLDs and the computer have been operating for at least the past two hours.

13.1.2

Check that there has been no unplanned water additions to the basin within the past 4 hours prior to the start of ADAS data collection.

13.1.3

Check that the basin ventilation fans are configured the same as for step 8.2.4. If not, contact operations to set the fans to this configuration. If this is not possible perform the velocity measurements per step 8.2.4 and record the new configuration.

South 6 ON / OFF North 7 ON / OFF West 10 ON / OFF East 11 ON / OFF

13.1.4

Check with the SOM that the installation of the isolation barrier is complete and seals are ready for testing.

When all prerequisites are completed then sign below.

Test Engineer

Date

13.2 INSTRUCTIONS

13.2.1

Approximately one hour before this test is started, adjust the VED's water temperature setpoint to the same as the basin water temperature.

Test Engineer

Date

13.2.2

Install weighted draped plastic to cover the portion of the discharge chute wall that will be exposed to air, as completely as practical, to preclude emissions from the wall during drawdown. (See J-7 #1 to 94-1044. (para. 14))

to air, as completely as practical, to preclude en-
See J-7 #1 for 94-1094. (para. 14)
w/ll Law 14-7-95
Operations Date

13.2.3

Start ADAS data collection.

Test Engineer _____ Date _____

NA for leak localization
efforts. NA also
4/3/95

13.2.4

For the duration of this test, at 60 minute intervals, check VED water temperature against the averaged water temperature from TCs, T-1 through T-5, in the basin and record in Appendix O. From this data verify that the VED temperature is held within $\pm 2^{\circ}\text{F}$ (3.6°C) of the basin's temperature. If necessary adjust the temperature of the VED water to match that of the basin and record all corrections in Appendix O.

Test Engineer _____ Date _____

13.2.5

Recheck air inlet regulator to transfer pump is set to less than 80 psig. Pump water from the discharge chute to reach a differential water level between the discharge chute and the basin of between 11 (28cm) and 12 (30.5cm) inches by slowly opening the inlet air supply valve. Monitor discharge hose to assure hose is secured properly. Stop pumping if any problem are found. Carefully monitor both levels to keep within the OSR limits and to keep the water seal on the banana wall. Any variance outside the 11 (28cm) to 12 (30.5cm) inch range must be approved by the SOM and Fluid System Eng. for the potential impact to the OSR, water seal and the test data.

C. Spierline / 14-3-95
Operations Date

Refused

13.2.6

Once the desired differential level is reached stop pumping and vent the transfer line to prevent water siphoning from the higher basin water level to the lower discharge chute level.

C. Spulene / 4-3-95
Operations Date

NOTE: If discharge chute water level rises, more than desired in the first portion of testing, inform the SOM. A 3/8 inch (0.95cm) per hour rise in discharge chute level indicates a failed leak test. It is permissible to continue with or repeat the data run before suspending the test. Once corrective action has been taken, outside this procedure, this procedure may be unsuspended and the test repeated. Entries into the Test Log for suspension, unsuspension and an brief account of work performed on the seals, during suspension, shall be included in the Test Log.

NOTE: Repeating of the data run can be performed at any time as long as both Sections 12.0 and 13.0 are repeated per step 4.2.10.

13.2.7

Perform Basin Isolation Barrier leakage test for at least 24 hours. Record the information below.

	<u>Basin</u>	<u>Discharge Chute</u>
Start Time _____	Initial Levels _____	_____
End Time _____	Final Levels _____	_____

Test Engineer Date

QC Verify Date

Fluid Systems Eng. Date

*NA for leak
localization effort
C. Spulene
4/3/95*

REPLACED

PERACED

13.2.8

ACCEPTANCE LEAK RATE

Determine the Acceptance Leak Rate(Q) at the final basin to discharge chute level differential(ΔH_f). This represents the lowest leak rate based on differential head, during the 24 hour test period. From Appendix Q, find the Acceptance Leak Rate(Q) at the final basin to discharge chute level differential(ΔH_f). Record the value of the Acceptance Leak Rate(Q) _____ gph.

ESTIMATED OBSERVED LEAK RATE

From the observed basin level drop determine the estimated average 24 hour leak rate. Observed Leak Rate = actual level drop in basin _____ feet times 8882 ft^2 times 7.48 gal/ft^3 divided by 24 hours. Estimated Observed Leak Rate = _____ gph. Plot this value on Appendix S graph. *Plot 4/2/95*

EVALUATION

If the Estimated Observed Leak Rate is below the Acceptance Leak Rate(Q) by at least 7 gph, below the lower line on Appendix S, the isolation barriers passes the acceptance test. If not, perform the detailed calculation per step 13.2.9. Indicate below that the test passed or failed the rough calculation.

NOTE: The 7 gph buffer is based on instrument error (see Appendix S).

Leak test PASSED / FAILED rough calculation.

Test Engineer / Date

Fluid Systems Eng. / Date

*OK for
leak localization
efforts. M. H. H. 4/2/95*

PERACED

REPAID
NA for leak localization
efforts
W. H. Hulse
4/3/95

13.2.9

If step 13.2.8 did not pass the acceptance criteria immediately perform the detailed analysis of the leak rate to determine if the barriers leak rate is acceptable. If step 13.2.8 did indicate that the barriers passed the acceptance criteria, this step can be performed after Section 14.0, Test Equipment Removal. Write "skipped" in the space below to indicate that this step will be performed after Section 14.0. Record the calculated Leak Rate(L) extrapolated to the 16 foot (4.9m) level differential, the measured Evaporation Rate(E) and Observed Level Change(T) below. Note: The acceptance criteria for this test is 750gph at 16 ft.

Extrapolated Leak Rate _____ gph
 (must be less than 750 gph)

_____/_____
 Test Engineer Date

_____/_____
 Fluid Systems Eng. Date

13.2.10

Once the leak is determined to be acceptable; i.e., test is completed, restore level in the discharge chute by reversing the hoses on the transfer pump. Pump water from basin back into the discharge chute to the desired level.

Heena Klyson *4.3.95*
 Operations *3.3.95* or *4.3.95*
 Date

13.2.11. See J-7 #1, para 18.

13.3 KE Discharge Chute Leak Location & Verification

REPAID

APPENDIX L

CHANGED PAGES

(NOT USED)

APPENDIX M. BASIN AIR VELOCITIES AT AIR / WATER INTERFACE

Map Point	Direction and velocity							
	N fpm	NE fpm	E fpm	SE fpm	S fpm	SW fpm	W fpm	NW fpm
1 below	0	0	0	0	0	0	0	0
1 level	0	0	0	0	0	0	0	0
1 above	0	0	0	0	0	0	0	0
2 below	0	0	0	0	0	0	0	0
2 level	0	0	0	0	0	0	0	0
2 above	0	0	0	0	0	0	0	0
3 below	0	0	0	0	0	0	0	0
3 level	0	0	0	0	0	0	0	0
3 above	0 23	0 19	0	0	0 23	0	0	0
4 below	23	19	0	0	23	19	0	0
4 level	24	22	0	18	24	22	0	18
4 above	13	0	0	0	13	0	0	0
5 below	0	0	0	0	0	0	0	0
5 level	0	0	0	0	0	0	0	0
5 above	0	0	0	0	0	0	0	0
6 below	0	0	0	0	0	0	0	0
6 level	0	0	0	0	0	0	0	0
6 above	0	0	0	0	0	0	0	0

APPENDIX M. BASIN AIR VELOCITIES AT AIR / WATER INTERFACE

Map Point	Direction and velocity							
	N fpm	NE fpm	E fpm	SE fpm	S fpm	SW fpm	W fpm	NW fpm
7 below	0	0	0	0	0	0	0	0
7 level	0	0	0	0	0	0	0	0
7 above	0	0	0	0	0	0	0	0
8 below	0	0	0	0	0	0	0	0
8 level	0	0	0	0	0	0	0	0
8 above	0	0	0	0	0	0	0	0
9 below	0	0	0	0	0	0	0	0
9 level	0	0	0	0	0	0	0	0
9 above	0	0	0	0	0	0	0	0
VED VELOCITIES								
ved level	30	37	32	22	30	37	32	22
ved above	0	0	0	0	0	0	0	0
Data taken by: <i>KNUTSON - MERGEL SPARKS 1-18-95</i> Instrument info: <i>ALNDR # 799-28-01-005</i>								

CAL. DATE 11-11-94

DUE DATE 12-11-95

VED vs BASIN WATER
TEMPERATURE TRACKING RECORD
TEST 1

Date 03/22/95

No further data
this date. K. H. Baker
3/22/65

Date 03 / 23 / 95

100

APPENDIX 0 DATA TABLE TEST 2

VED vs BASIN WATER
TEMPERATURE TRACKING RECORD
TEST 2

Date 04 / 17 / 95

Time	Basin Temp °F	VED Temp °F	Adjust Set Point Δ °F
1451	48.1	47.1	-0+
1551	48.0	47.1	-0-
1651	48.0	47.0	-0-
1751	48.0	47.1	-0-
1851	48.2	47.3	-0-
1951	48.1	47.1	-0-
2051	48.1	47.2	-0-
2151	48.1	47.2	-0-
2251	48.1	47.1	-0-
2351	48.1	47.1	-0-
No further entries this date. A. Wilson 4/17/95			

APPENDIX O DATA TABLE TEST 2

VED vs BASIN WATER
TEMPERATURE TRACKING RECORD
TEST 2Date 04/18/95

Time	Basin Temp °F	VED Temp °F	Adjust Set Point Δ °F
0051	48.2	47.2	-0-
0100 0151	48.1	47.1	-0-
0251	48.0	47.2	-0-
0351	48.0	47.1	-0-
0451	48.0	47.1	-0-
0551	48.2	47.2	-0-
0651	48.1	47.1	-0-
0751	48.2	47.2	-0-
0851	48.1	47.0	-0-
0951	48.1	47.1	-0-
1051	48.2	47.2	-0-
1151	48.1	47.2	-0-
1251	48.3	47.2	-0-
1351	48.1	47.1	-0-
1451	48.0	47.1	-0-
1551	48.1	47.1	-0-
1651	48.1	46.7	-0-
1751	48.1	47.1	-0-
1851	48.0	47.0	-0-
1951	48.1	47.0	-0-
No further data this date. <i>[Signature]</i>			

WHC-SD-SNF-ATR-005 Rev. 0

APPENDIX P CALIBRATION RECORDS

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ	STANDARDS CODE NUMBER 444-80-04-002	NEW MODIFY ☒	REFERENCE NUMBER 384505
L5-07 TRUMENT	SERIAL NUMBER	PROPERTY NUMBER	RECALL STATUS 1 ACTIVE
ORGANIZATION CODE W8D310		WORK ORDER J803A	
RECALL CYCLE		TOLERANCE HISTORY	

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ	STANDARDS CODE NUMBER 444-80-04-001	NEW MODIFY	REFERENCE NUMBER 384308
L5-07 STRUMENT	SERIAL NUMBER	PROPERTY NUMBER	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&TE
ULTRASONIC TRANSDUCER F&P 50US3115BBB	94W102008	N/A	1
ROOM	BUILDING	SERVICE DEPARTMENT	DATE RECEIVED
N/A	3765	4	360
SENDER K MCCracken 3-6653	COMMENTS 2 PARTS	SHIPPING DAY	TOLERANCE AS RECEIVED
		MO	1 IN 2 OUT 3 NA 4 FAILED

INSTRUMENT SPECIFICATIONS ± 1% SPAN	TRAINING HOURS
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐	CALIBRATION HOURS 4.0
EXPIRATION DATE	REPAIR HOURS
0 02-50-02-001 6-15-95	OTHER HOURS 6.0
4 44-67-11-001 9-7-95	MATERIALS
REMARKS PROCEDURE 040405 PERMIT	TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL
PROCEDURE NUMBER W4C-6-FP-50US3000 REV 0	DATE CALIBRATED 9-13-94
	DATE DUE 9-13-95
	AMBIENT TEMPERATURE = 20.2°C

INCHES	NOMINAL	AS FOUND	RUN1 DIG. READOUT	FINAL DIG. READOUT	TOL
0	40	40.45	70.00	40.46	± 1.6 mV
3	80	80.36	2.99	81.35	
6	120	120.27	5.99	120.27	
9	160	160.13	8.99	160.13	
12	200	200.05	11.98	200.05	
0	40	40.45	70.00	40.46	
1	80	80.35	00.99	80.35	
2	120	120.27	02.00	120.26	
3	160	160.13	02.99	160.13	
4	200	200.05	04.00	200.05	
0	40	40.46	00.01	40.46	
0.5	80	80.36	00.50	80.36	
0	120	120.27	00.99	120.27	
1.5	160	160.14	01.50	160.14	
2.0	200	200.05	02.00	200.06	

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-32-02-002		NEW MODIFY	REFERENCE NUMBER 385101
L5-07				ORGANIZATION CODE W8D310	WORK ORDER J803A
INSTRUMENT W POINT TRANSMITTER OMEGA DEW-10-2B0		SERIAL NUMBER 12607G3	PROPERTY NUMBER N/A	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 1 4 DELETED 5 PM 6 NONDATA MATE	RECALL CYCLE 360
SENDER K MCCracken 3-6653		ROOM N/A	BUILDING 3765	SERVICE DEPARTMENT 4	DATE RECEIVED 940926
INSTRUMENT SPECIFICATIONS 1 Year $\pm 1^\circ F$ Dew Point		COMMENTS		SHIPPING DAY MO	TOLERANCE HISTORY F 1 IN 2 OUT 3 NA 4 FAILED
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS				TRAINING HOURS	
EXPIRATION DATE 001-32-01-004 128-96				CALIBRATION HOURS 4.5	
EXPIRATION DATE 002-45-08-036 214-95				REPAIR HOURS	
REMARKS				OTHER HOURS	
PROCEDURE NUMBER VM-4-DEW-10-2B0-GENERAL EASTERN (7-92)				MATERIALS	
Standard DEW-10-2B0 Indication MFG'S				TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL	
°F Dew Point AS FOUND FINAL SPEC'S				DATE CALIBRATED DATE DUE	
36.8 36.5 $\pm 1^\circ F$				1-4-95 1-4-96	
49.9 49.4				AMBIENT TEMPERATURE - 25°C	

APPROVED BY D. Nelson	DATE 1-4-95	CALIBRATED BY VAC SIDL	DATE 39	Hanford Operations and Engineering Contract for the United States Department of Energy	Westinghouse Hanford Company, Subsidiary of Westinghouse Electric Corporation, Box 170, Richland, WA 99362	PAGE 1 OF 1
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-80-04-003		NEW ☒ REFERENCE NUMBER 384506	
J5-07 TRUMENT		SERIAL NUMBER 94W102009		MODIFY ☒ ORGANIZATION CODE W8D310	
ULTRASONIC TRANSDUCER F&P 50US3000		PROPERTY NUMBER N/A		WORK ORDER J803A	
SENDER K MCCracken 3-6653		ROOM N/A		RECALL CYCLE 360	
INSTRUMENT SPECIFICATIONS X $\pm 1\%$ of SPAN DIGITAL READOUT NOT SPEC'D		BUILDING 3765		TOLERANCE HISTORY 1 IN 2 OUT 3 NA 4 FAILED	
COMMENTS 2 PARTS X 4 to 20 mA INTO 10 Ω PRECISION		SERVICE DEPARTMENT 6		DATE RECEIVED 940908	
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		EXPIRATION DATE 002-50-02-001 6-15-95		EXPIRATION DATE 777-45-03-120 2-14-95	
REMARKS MY READS IN DL		TRAINING HOURS		CALIBRATION HOURS 4.5	
PROCEDURE NUMBER WHC-6-FP-50US3000 REV-0		REPAIR HOURS		OTHER HOURS	
		MATERIALS		TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL	
		DATE CALIBRATED 9-13-94		DATE DUE 9-13-95	
		AMBIENT TEMPERATURE = 20.2°C			

RUN 1						
INCHES	N/m mV	mV	DIGITAL	mV	DIGITAL	TOL
0	40	40.41	00.00	41.32	00.00	± 1.6 mV
3	80	80.35	02.99	80.34	02.99	
6	120	120.34	05.99	121.19	06.05	
9	160	161.09	09.05	161.09	09.05	
12	200	200.8	12.04	200.8	12.04	
0	40	40.41	00.00	40.02	00.00	
1	80	80.34	00.99	80.34	00.99	
2	120	120.35	02.00	120.35	02.00	
3	160	160.24	02.99	160.25	02.99	
4	200	200.8	04.01	200.8	04.00	
0	40	40.41	00.00	40.41	00.00	
1.5	80	80.34	00.50	80.34	00.50	
1	120	120.34	00.99	120.34	00.99	
1.5	160	160.25	01.50	160.24	01.50	
2.0	200	200.8	02.01	200.8	02.01	

APPROVED BY J. R. Ralston 9-14-94	CALIBRATED BY B. R.	Hanford Operations and Engineering Contractor for the United States Department of Energy	Westinghouse Hanford Company Subsidiary of Westinghouse Electric Corporation Box 1970, Richland, WA 99352	PAGE 1 OF 1
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-67-11-001		NEW MODIFY ☒	REFERENCE NUMBER 384439
INSTRUMENT TA LOGGER FLUKE 2625A HYDRA		SERIAL NUMBER 6102614	PROPERTY NUMBER N/A	ORGANIZATION CODE W8D310	WORK ORDER J803A
SENDER K MCCracken 3-6653		ROOM N/A	BUILDING 3765	RECALL CYCLE 360	TOLERANCE HISTORY AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED
INSTRUMENT SPECIFICATIONS See Tolerance Column		SERVICE DEPARTMENT 4		DATE RECEIVED 940901	SHIPPING DAY MO
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		4:1 RATIO ☒ Y ☐ N ☐		TRAINING HOURS	
EXPIRATION DATE 002-14-01-035 10-1-94		EXPIRATION DATE		CALIBRATION HOURS 2.0	
REMARKS (WP-123)				REPAIR HOURS	
PROCEDURE NUMBER WHC-JFC-2620A REV.0				OTHER HOURS	
				MATERIALS	
				TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL	
				DATE CALIBRATED 9-7-94	DATE DUE 9-7-95
				AMBIENT TEMPERATURE -21°C	

DATA LOGGER
4 PAGES

APPROVED BY

CALIBRATED BY



Hanford Operations and Westinghouse Hanford Company
Engineering Contract Subsidiary of Westinghouse
for the United States Electric Corporation
Department of Energy Box 190 Richland, WA 99354

PAGE 4 OF 4

PROCEDURE NAME - 123

STANDARD'S CODE NUMBER

REFERENCE NUMBER

WHC-JFC-2620A REV.0

444-67-11-001

384439

DATA SHEET

FUNCTION & RANGE	STD SETTING		2620A INDICATION		TOLERANCES
			AS FOUND	FINAL	
DCV 300mv	0.000 MV		0.00	same	± .02 MV
300mv	150.00 MV		150.00		± .07 MV
300mv	290.00 MV		290.00		± .11 MV
3V	2.9000 V				± .0012 V
3V	-2.9000 V				± .0012 V
30V	29.000 V				± .01 V
150V	150.00 V				± .06 V
150V	-150.00 V				± .06 V
CHO, 1, 11 300V ONLY	290.00V				± .1 V
ACV 300MV	20.00MV	1KHz			± .29 MV
300MV	20.00MV	100KHz		same	± 1.5 MV
300MV	290.00MV	1KHz			± .74 MV
300MV	290.00MV	100KHz			± 15.0 MV
3V	2.9000V	1KHz			± .0066 V
30V	29.000V	1KHz			± .069 V
150V	150.00V	1KHz			± .46 V
300V	290.00V	1KHz			± .66 V
Ohms 300Ω	SHORT				± .04 OHMS
300Ω	300.00Ω				± .22 OHMS
3KΩ	SHORT				± .0004K OHMS

APPROVED BY

J. H. B. 9894

CALIBRATED BY

J. H. B. 39

Page

2 of 4

PROCEDURE NAME - 123 WHC-JFC-2620A REV.0	STANDARDS CODE NUMBER 444-67-11-001	REFERENCE NUMBER 384439
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DATA SHEET

PROCEDURE NAME - 123 WHC-JFC-2620A REV.0	STANDARDS CODE NUMBER 444-67-11-001	REFERENCE NUMBER 384439
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DATA SHEET

FUNCTION & RANGE	STD SETTING		2620A INDICATION		TOLERANCES
			AS FOUND	FINAL	
30KΩ	30.000KΩ				± .02 KΩ
300KΩ	300.00KΩ				± .2 KΩ
3MΩ	3.0000MΩ				± .0021 MΩ
10MΩ	10.000MΩ				± .014 MΩ
FREQ. Hz	900 KHz	2V P-P			± 616 Hz
TEMP TYPE K	TEMP °C	EQ. MV			10-27-94 ± 0.6°C
°C	-100.00	-3.553	-100.2		± .°C
	0.00	0.000	-0.2		± .44°C
	500.00	20.640	499.7		± .65°C
	1000.00	41.269	999.6		± .8°C
	1370.00	54.807	1369.8		± 1.05°C
TEMP TYPE T	-150.00	-4.648			± .84°C
°C	0.00	0.000			± .45°C
	200.00	9.286			± .45°C
	400.00	20.869			± .4°C
TEMP RTC	100Ω	0°C			± 0.24°C
4-WIRE	200Ω	266.58°C			± 0.48°C
	300Ω	558.00°C			± 0.75°C
TEMP TYPE J	-99.0°C	-4.591 mV			± .6°C
°C	0.0°C	0.0 mV			± .4°C
	200.0°C	10.777 mV			"
	400.0°C	21.846 mV			"
	600.0°C	33.096 mV			"
	760.0°C	42.922 mV			± .6°C

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-08-01-001		NEW ☒	REFERENCE NUMBER 382892
BATH ETHYLN GLYCOL COLE-PARMER POLYSTAT		SERIAL NUMBER 0243	PROPERTY NUMBER N/A	MODIFY ☐	ORGANIZATION CODE W8D310
SENDER KURT 3-6653		ROOM N/A	BUILDING 3765	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED	WORK ORDER E31285
INSTRUMENT SPECIFICATIONS NOT KNOWN		COMMENTS SPEC'S NOT KNOWN		RECALL CYCLE 360	TOLERANCE HISTORY AS RECEIVED
				DATE RECEIVED 940719	TOLERANCE 1 IN 2 OUT 3 NA 4 FAILED
				SHIPPING DAY MO	
				TRAINING HOURS	
				CALIBRATION HOURS	3.5
				REPAIR HOURS	
				OTHER HOURS	
				MATERIALS	
				TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIALS	
				DATE CALIBRATED	DATE DUE
				7-22-94	7-22-95
				AMBIENT TEMPERATURE = 21°C	
PROCEDURE NUMBER WHC-79-06-THERMO REV. 1					
I. Temperature Readout Calibration					
Standard					
°C AS FOUND FINAL Tolerance					
0°C 1.1 0.0 NOT KNOWN					
90.4°C 7-22-94 90.4					
II 50°F Set-up					
Standard Target Set					
°F (with Flow as Set)					
50.03 51.5°F					
BATH/HEATER/CHILLER FOR VED					

APPROVED BY DL Ball 7-25-94	CALIBRATED BY JFH	Hanford Operations and Engineering Contractor for the United States Department of Energy	Westinghouse Hanford Company Subsidiary of Westinghouse Electric Corporation Box 1970, Richland, WA 99352	PAGE 1 OF 1
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-50-03-001		NEW MODIFY	REFERENCE NUMBER 382869
L5-07				ORGANIZATION CODE W8D310	WORK ORDER E31285
INSTRUMENT THERMOMETER		SERIAL NUMBER 962	PROPERTY NUMBER 1543100	RECALL STATUS 1 ACTIVE 2 NO RECALL 3 SUSPENDED 4 DELETED	RECALL CYCLE 360
GAERTNER		ROOM N/A	BUILDING 3765	SERVICE DEPARTMENT 6	DATE RECEIVED 940719
0-102 IN		COMMENTS			SHIPPING DAY MO
SENDER KURT 3-6653					TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED
INSTRUMENT SPECIFICATIONS See below				TRAINING HOURS	
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS				CALIBRATION HOURS 4.0	
EXPIRATION DATE 002-50-02-002 06-28-95				REPAIR HOURS	
4:1 RATIO Y ☒ N ☐				OTHER HOURS	
				MATERIALS	
REMARKS				TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL	
				DATE CALIBRATED 072694 DATE DUE 072695	
PROCEDURE NUMBER WHC-66-02-RULE (11-18-86)				AMBIENT TEMPERATURE = 68°F	

TEST POINTS	AS FOUND	FINAL	TOLERANCE
95.00 cm = 0.00	0.000	SAME	±.01/cm
95.20 " = 0.20	0.199	"	"
95.40 " = 0.40	0.398	"	"
95.60 " = 0.60	0.599	"	"
95.80 " = 0.80	0.797	"	"
96.00 " = 1.00	0.997	"	"
75.00 " = 20.00	19.994	"	"
55.00 " = 40.00	39.993	"	"
35.00 " = 60.00	59.992	"	"
15.00 " = 80.00	79.990	"	"

VERNIER
SCALE
FOR VED

APPROVED BY 7-26-94 D. J. Nelson	CALIBRATED BY MEC	WHC STDLAB 50	Hanford O Engineer for the U.S. Department of Energy	Box 70, Richland, WA 99354	2 OF 11
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RUSH

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-78-02-001		NEW MODIFY	REFERENCE NUMBER 383590
INSTRUMENT THERMOCOUPLES TYPE E K 9 EACH		SERIAL NUMBER N/A	PROPERTY NUMBER N/A	ORGANIZATION CODE W8D310	WORK ORDER J803A
SENDER K MCCracken 3-6653		ROOM N/A	BUILDING 3765	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&E	RECALL CYCLE 360
INSTRUMENT SPECIFICATIONS Standard K $\pm 2.2^\circ$ or $\pm 0.75\%$ Reading (which ever is Greater)		COMMENTS Customer: 32, 50, +100°F		DATE RECEIVED 940804	TOLERANCE HISTORY 1 IN 2 OUT 3 NA 4 FAILED
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		EXPIRATION DATE 002-79-06-036 3-18-95		TRAINING HOURS	
		EXPIRATION DATE 002-67-11-005 8-1-95		CALIBRATION HOURS 3.0	
		EXPIRATION DATE 002-14-01-036 10-1-94		REPAIR HOURS	
REMARKS				OTHER HOURS	
				MATERIALS	
				TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL	
				DATE CALIBRATED 8-17-94	DATE DUE 8-17-95

PROCEDURE NUMBER WHC-4-TC-CAL REV.3

AMBIENT TEMPERATURE = 20°C

SERIAL NUMBER	STANDARD °C	AS FOUND	SERIAL NUMBER	STANDARD °C	AS FOUND
383	0°	0.2	← Same	9.9°	10.2
384		"			"
385		"			"
386		"			"
387		0.3			"
388		"			"
389		"			10.3
390		0.2			"
391	↓	"	↓	↓	"
					END
383	37.8°	37.6			
384		"			
385		"			
386		"			
387		37.5			
388		37.7			
389		"			
390		"			
391	↓	37.6			
		END			

APPROVED BY D.J. Nelson	8-17-94	CALIBRATED BY WHC STDLAB 20	Hanford Operations and Engineering Contractor for the United States Department of Energy	Westinghouse Hanford Corporation Electric Corporation P.O. Box 1970, Richland, WA 99352	PAGE 4
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT				STANDARDS CODE NUMBER 444-32-02-001		NEW MODIFY ☒		REFERENCE NUMBER 383923	
CUSTODIAN/ADDRESS MCCRACKEN KJ		SERIAL NUMBER 12607G3		PROPERTY NUMBER N/A		RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&E		ORGANIZATION CODE W8D310	
INSTRUMENT DEW POINT TRANSMITTER OMEGA RHCM-10		BUILDING 3765		SERVICE DEPARTMENT 4		RECALL CYCLE 360		TOLERANCE HISTORY 1 IN 2 OUT 3 NA 4 FAILED	
SENDER K MCCRACKEN 3-6653		ROOM N/A		COMMENTS		DATE RECEIVED 940805		TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED	
INSTRUMENT SPECIFICATIONS 1 Year Derated To 1.2% ($\pm 2.16^{\circ}\text{F}$)		TRAINING HOURS		CALIBRATION HOURS		REPAIR HOURS		OTHER HOURS	
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		4:1 RATIO Y ☒ N ☐		EXPIRATION DATE		MATERIALS		TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIALS	
EXPIRATION DATE		002-79-06-001 9-23-94		002-79-06-034 3-18-95		002-79-06-035 3-18-95		DATE CALIBRATED 8-22-94	
REMARKS		DATE DUE 8-22-95		AMBIENT TEMPERATURE -20°C		PROCEDURE NUMBER VM-4-DEW-10-2B0-General Eastern 7-92		EQUIVALENT	
Standard		Current Output		Dew Point		FINAL		FINAL	
46.0°F/27%		11.387 ma		46.1°F					
50.8°F/63.4%		12.014 "		50.08°F					
57.2°F/78.6%		13.032 "		56.45°F		57.2°F		46.54°F	
46.2°F/34.3%		11.446 "		11.446 ma					
		JF 8-							

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PAGE

1 OF 1

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-79-04-001		NEW MODIFY	REFERENCE NUMBER 383534
INSTRUMENT DIAL THERMOMETER OMEGA -25 TO 125 F		SERIAL NUMBER N/A	PROPERTY NUMBER N/A	ORGANIZATION CODE W8D310	WORK ORDER J803A
SENDER K MCCracken 3-6653		ROOM N/A	BUILDING 3765	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA MATE	RECALL CYCLE 360
INSTRUMENT SPECIFICATIONS NOT KNOWN AS FOUND Readings		COMMENTS SPEC'S NOT KNOWN		DATE RECEIVED 940805	TOLERANCE HISTORY 1 IN 2 OUT 3 NA 4 FAILED
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		4:1 RATIO Y ☐ N ☒		TRAINING HOURS 1.5	
EXPIRATION DATE 002-79-06-034 3-18-95		EXPIRATION DATE		REPAIR HOURS	
REMARKS				OTHER HOURS	
PROCEDURE NUMBER WHC-79-06-THERMO REV.1				MATERIALS	
STANDARD RANGE		AS FOUND		TOTAL CHARGE = (\$120 x SUM OF HOURS) + MATERIAL	
32	32	Same		DATE CALIBRATED	
75	75			8-16-94	
90	89.5			DATE DUE	
120	118.5			8-16-95	
				AMBIENT TEMPERATURE -20°C	
				TOLERANCE	
				NOT KNOWN	

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Hanford Operations and
Engineering Contractor
for the United States
Department of Energy

RUSH

[illegible]

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-79-04-003		NEW ☒	REFERENCE NUMBER 383536
INSTRUMENT 07 DIAL THERMOMETER OMEGA -25 TO 125 F		SERIAL NUMBER N/A	PROPERTY NUMBER N/A	ORGANIZATION CODE W8D310	WORK ORDER J803A
SENDER K MCCracken 3-6653		ROOM N/A	BUILDING 3765	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA MATE	RECALL CYCLE 360
INSTRUMENT SPECIFICATIONS NOT KNOWN		COMMENTS SPEC'S NOT KNOWN		DATE RECEIVED 940805	TOLERANCE HISTORY TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED
				SHIPPING DAY MO	

STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☐ N ☒

EXPIRATION DATE
202-79-06-034 3-18-95

REMARKS

PROCEDURE NUMBER WHC-79-06-THERMO REV.1

STANDARD RANGE

AS FOUND

FINAL

TOLERANCE

32

32

75

76

90

91

120

121

SAME

NOT KNOWN

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Westinghouse Hanford Company
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Bldg 1970, Richland, WA 99222

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

STANDARD/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444678-02-000200V		NEW MODIFY ☒		REFERENCE NUMBER 385368	
5-07		SERIAL NUMBER N/A		PROPERTY NUMBER N/A		ORGANIZATION CODE W8D310	
INSTRUMENT THERMOCOUPLE		ROOM N/A		BUILDING 3765		TOLERANCE HISTORY 360	
EACH		SERVICE DEPARTMENT 4		RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&T		DATE RECEIVED 941011	
MCCRACKEN 3-6653		COMMENTS 0, 10, 37.7 + 48.9°C		SHIPPING DAY MO		TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED	
INSTRUMENT SPECIFICATIONS 1 Year ± 2.2°C				TRAINING HOURS			
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐				CALIBRATION HOURS 3.5			
EXPIRATION DATE 002-79-03-002 4-28-95				REPAIR HOURS			
002-67-11-004 6-10-95				OTHER HOURS			
MARKS				MATERIALS			
				TOTAL CHARGE = (\$ 79 x SUM OF HOURS) + MATERIAL			
				DATE CALIBRATED 10-18-94		DATE DUE 10-18-95	
PROCEDURE NUMBER WHC-4-TC-CAL REV.3				AMBIENT TEMPERATURE -21°C			

SERIAL NUMBER	STANDARD	AS FOUND	SERIAL NUMBER	STANDARD	AS FOUND
304	-0.27	-0.1	304	38.14	38.2
305		"	305		"
306		"	306		"
307		-0.2	307		"
308		"	308		"
309		"	309		"
310		"	310		"
311		"	311		"
312	✓	"	312	✓	"
304	10.16°C	10.2	304	49.48	49.5
305		"	305		"
306		"	306		"
307		"	307		"
308		"	308		49.4
309		10.3	309		"
310		"	310		"
311		"	311		49.5
312	✓	10.2	312	✓	"

APPROVED BY H. H. Chubb	CALIBRATED BY J. F. J.	Hanford Operations and Engineering Contractor for the United States Department of Energy	Westinghouse Hanford Company Subsidiary of Westinghouse Electric Corporation Box 1970, Richland, WA 99352	PAGE 1 OF 1
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

[illegible]

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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

[illegible]

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

STODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-67-11-002			NEW MODIFY	V V	REFERENCE NUMBER 385388
5-07					ORGANIZATION CODE W8D310		WORK ORDER J803A
INSTRUMENT T-1000 LOGGER		SERIAL NUMBER 5893600	PROPERTY NUMBER N/A	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&T	RECALL CYCLE 360	TOLERANCE HISTORY	
J-1 2620A		ROOM N/A	BUILDING 3765	SERVICE DEPARTMENT 4	DATE RECEIVED 941011	TOLERANCE AS RECEIVED	
HYDRA					SHIPPING DAY MO		1 IN 2 OUT / 3 NA 4 FAILED
ORDER MCCRACKEN 3-6653		COMMENTS 4:1 Yes 2000M-CL8300					

INSTRUMENT SPECIFICATIONS		TRAINING HOURS	
1 Year See Tolerance Column			
Slow Sample Rate		CALIBRATION HOURS 3.0	
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY		REPAIR HOURS	
NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐			
EXPIRATION DATE		EXPIRATION DATE	
002-14-01-035 12-1-95		OTHER HOURS	
002-14-01-036 3-14-95		MATERIALS	
		TOTAL CHARGE =	
		(\$ 79 x SUM OF HOURS) + MATERIAL	
MARKS		DATE CALIBRATED	
WP-123) Resistors Installed Chan 1-12		DATE DUE	
		10-18-94 10-18-95	

[illegible]

APPROVED BY K.L. 2/12/10/19/94	CALIBRATED BY 1/1/1	WHC STD LAB 39	Hanford Operations and Engineering Contractor for the United States Department of Energy	Westinghouse Hanford Company Subsidiary of Westinghouse Electric Corporation BOX 1970, Richland, WA 99352	PAGE 1 OF 5
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PROCEDURE NAME - 17

STANDARDS CODE NUMBER

444-67-11-002

REFERENCE NUMBER

385388

DATA SHEET

CHANNEL #	STANDARD INDICATION	HYDRA INDICATION		MANUFACTURER SPECIFICATION
		AS FOUND	FINAL	
1 ↓	1 ma	10.00		10mv $\pm$ 30uv
	4 "	40.00		40mv $\pm$ 70uv
	8 "	80.01		80mv $\pm$ 110uv
	12 "	120.02		120mv $\pm$ 160uv
	16 "	160.04		160mv $\pm$ 200uv
	20 "	200.05		200mv $\pm$ 240uv
2 ↓	30 "	300.07		300mv $\pm$ 350uv
	1 "	10.00		
	4 "	40.00		
	8 "	80.01		
	12 "	120.03		
	16 "	160.04		
3 ↓	20 "	200.05		
	30 "	300.08		
	1 "	10.00		
	4 "	40.01		
	8 "	80.02		
	12 "	120.03		
	16 "	160.05		
	20 "	200.06		
	30 "	300.10		

APPROVED BY KL Cull 10/19/94	CALIBRATED BY VHC STDLAB 30	Page 2 of 5
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PROCEDURE NAME - 17

STANDARDS CODE NUMBER

REFERENCE NUMBER

444-67-11-002

385388

DATA SHEET

CHANNEL #	STANDARD INDICATION	HYDRA INDICATION		MANUFACTURER SPECIFICATION
		AS FOUND	FINAL	
4	1 ma	10.00		10mv $\pm$ 30uV
	4 "	40.01		40mv $\pm$ 70uV
	8 "	80.02		80mv $\pm$ 110uV
	12 "	120.03		120mv $\pm$ 160uV
	16 "	160.04		160mv $\pm$ 200uV
	20 "	200.04		200mv $\pm$ 240uV
↓	30 "	300.09		300mv $\pm$ 350uV
5	1 "	10.00		
	4 "	40.00		
	8 "	80.02		
	12 "	120.03		
	16 "	160.05		
	20 "	200.04		
↓	30 "	300.10		
6	1 "	10.00		
	4 "	40.01		
	8 "	80.02		
	12 "	120.03		
	16 "	160.04		
	20 "	200.06		
↓	30 "	300.09		

APPROVED BY

CALIBRATED BY

STDLAB

Page

3 of 5

PROCEDURE NAME - 17

STANDARDS CODE NUMBER

REFERENCE NUMBER

444-67-11-002

385388

DATA SHEET

CHANNEL #		STANDARD INDICATION	HYDRA INDICATION		MANUFACTURER SPECIFICATION
			AS FOUND	FINAL	
7		1 ma	10.00		10mv $\pm$ 30uv
		4 "	40.01		40mv $\pm$ 70uv
		8 "	80.02		80mv $\pm$ 110uv
		12 "	120.04		120mv $\pm$ 160uv
		16 "	160.06		160mv $\pm$ 200uv
		20 "	200.08		200mv $\pm$ 240uv
		30 "	300.11		300mv $\pm$ 350uv
8		1 "	10.00		
		4 "	40.01		
		8 "	80.01		
		12 "	120.01		
		16 "	160.02		
		20 "	200.02		
		30 "	300.03		
9		1 "	10.00		
		4 "	40.00		
		8 "	80.00		
		12 "	120.01		
		16 "	160.01		
		20 "	200.02		
		30 "	300.02		

APPROVED BY KL [Signature]	10/19/94	CALIBRATED BY [Signature]	WHC STD LAB 39	Page 4 of 5
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PROCEDURE NAME - 17	STANDARDS CODE NUMBER 444-67-11-002	REFERENCE NUMBER 385388
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DATA SHEET

CHANNEL #	STANDARD INDICATION	HYDRA INDICATION		MANUFACTURER SPECIFICATION
		AS FOUND	FINAL	
10	1 ma	10.00		10mv $\pm$ 30uv
	4 "	40.00		40mv $\pm$ 70uv
	8 "	80.01		80mv $\pm$ 110uv
	12 "	120.02		120mv $\pm$ 160uv
	16 "	160.03		160mv $\pm$ 200uv
	20 "	200.04		200mv $\pm$ 240uv
✓	30 "	300.07		300mv $\pm$ 350uv
11	1 "	10.00	Same	
	4 "	40.01		
	8 "	80.01		
	12 "	120.01		
	16 "	160.02		
	20 "	200.02		
✓	30 "	300.02		SAME
12	1 "	10.00		
	4 "	40.01		
	8 "	80.01		
	12 "	120.03		
	16 "	160.03		
	20 "	200.04		
✓	30 "	300.06		✓

APPROVED BY	CALIBRATED BY JTH 39	Page 5 of 5
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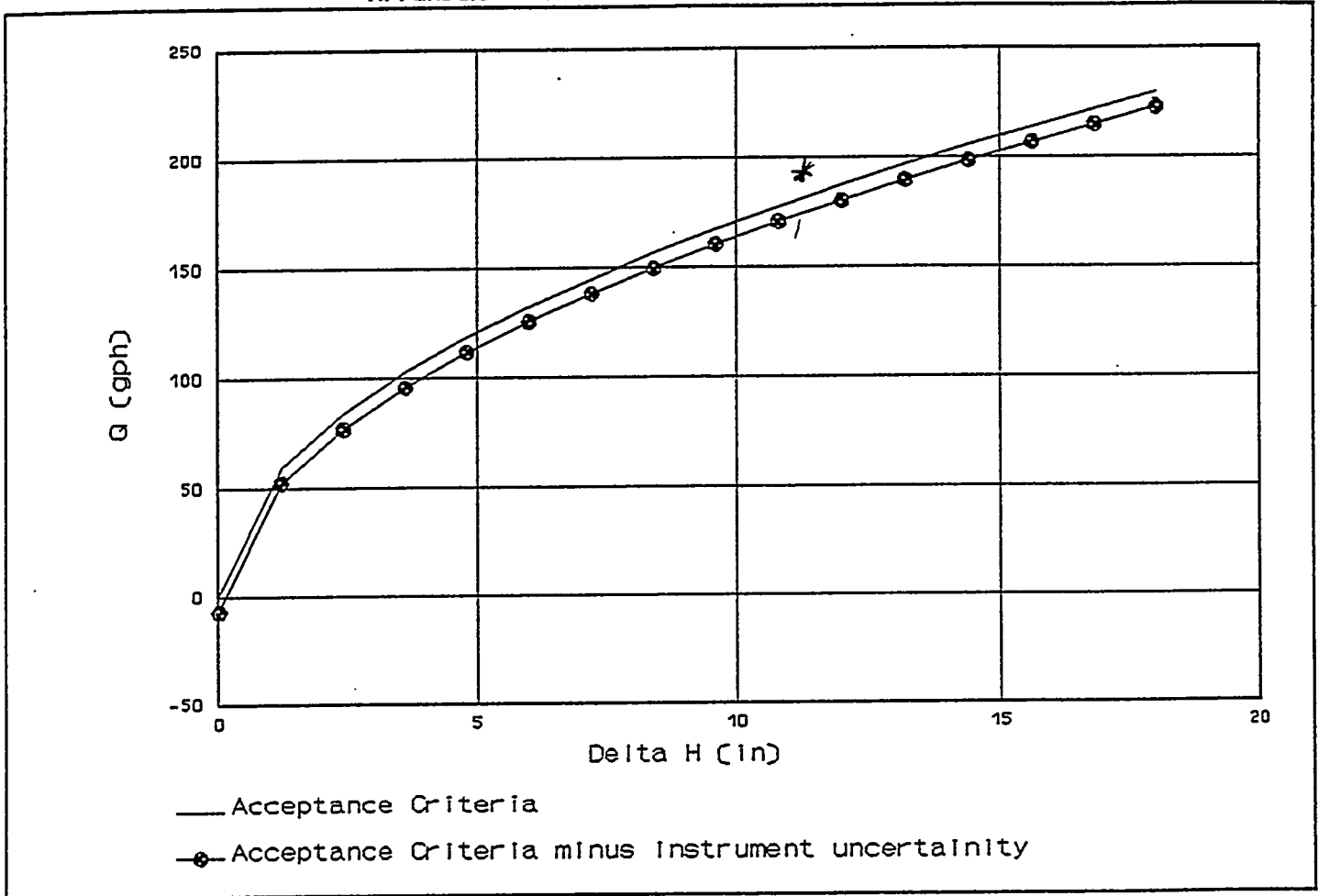
APPENDIX Q ACCEPTANCE CRITERIA TABLE

Delta H (in)	Q (gph)
0	0
1.2	59.2
2.4	83.7
3.6	102.5
4.8	118.4
6.0	132.3
7.2	144.9
8.4	156.6
9.6	167.4
10.8	177.5
12.0	187.1
13.2	196.3
14.4	205.0
15.6	213.4
16.8	221.4
18.0	229.2
multiply in by 2.54 to obtain cm and multiply gph by 3.785 to obtain l/hr.	

APPENDIX R ESTIMATED INSTRUMENT ERROR

Instrument	Basin ± gallons per 1st hour	Discharge Chute ± gallons per 1st hour	Basin per 24 hours ± gph	Discharge Chute per 24 hours ± gph
Basin Area	0.8	0.8	0.8	0.8
USLD	110.8	36.6	4.6	1.5
TC	31.5	3.5	1.3	0.2
VED	0.2	0.02	0.2	0.02
Dew Point	n/a	n/a	n/a	n/a
Total	143.3	40.9	6.9	2.5
multiply gph by 3.785 to obtain lph				

APPENDIX S ACCEPTANCE CRITERIA GRAPH



NOTE: Delta H is the difference between the basin and discharge chute water levels.

APPENDIX T

FLUKE WIRELESS DATA LOGGER FILES (TEST 1)

time	dc(in)	ved(in)	deupt(F)	Alr(F)	AlrVED(F)	B2(F)	B3(F)	B4(F)	B5(F)	DC1(F)	DC2(F)	VED(F)
------	--------	---------	----------	--------	-----------	-------	-------	-------	-------	--------	--------	--------

[illegible]

time	dc(in)	vd(in)	dewpt(F)	Air(F)	AI/VED(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
7857	0	0	0	0	0	0	0	0	0	0	0	0
7917	0	0	0	0	0	0	0	0	0	0	0	0
7977	0	0	0	0	0	0	0	0	0	0	0	0
8037	0	0	0	0	0	0	0	0	0	0	0	0
8096	0	0	0	0	0	0	0	0	0	0	0	0
8156	0	0	0	0	0	0	0	0	0	0	0	0
8216	0	0	0	0	0	0	0	0	0	0	0	0
8276	0	0	0	0	0	0	0	0	0	0	0	0
8336	0	0	0	0	0	0	0	0	0	0	0	0
8396	0	0	0	0	0	0	0	0	0	0	0	0
8456	0	0	0	0	0	0	0	0	0	0	0	0
8516	0	0	0	0	0	0	0	0	0	0	0	0
8576	0	0	0	0	0	0	0	0	0	0	0	0
8636	0	0	0	0	0	0	0	0	0	0	0	0
8696	0	0	0	0	0	0	0	0	0	0	0	0
8756	0	0	0	0	0	0	0	0	0	0	0	0
8816	0	0	0	0	0	0	0	0	0	0	0	0
8876	0	0	0	0	0	0	0	0	0	0	0	0
8936	0	0	0	0	0	0	0	0	0	0	0	0
8996	0	0	0	0	0	0	0	0	0	0	0	0
9056	0	0	0	0	0	0	0	0	0	0	0	0
9116	0	0	0	0	0	0	0	0	0	0	0	0
9176	0	0	0	0	0	0	0	0	0	0	0	0
9236	0	0	0	0	0	0	0	0	0	0	0	0
9296	0	0	0	0	0	0	0	0	0	0	0	0
9356	0	0	0	0	0	0	0	0	0	0	0	0
9416	0	0	0	0	0	0	0	0	0	0	0	0
9476	0	0	0	0	0	0	0	0	0	0	0	0
9536	0	0	0	0	0	0	0	0	0	0	0	0
9596	0	0	0	0	0	0	0	0	0	0	0	0
9656	0	0	0	0	0	0	0	0	0	0	0	0
9716	0	0	0	0	0	0	0	0	0	0	0	0
9776	0	0	0	0	0	0	0	0	0	0	0	0
9836	0	0	0	0	0	0	0	0	0	0	0	0
9896	0	0	0	0	0	0	0	0	0	0	0	0
9956	0	0	0	0	0	0	0	0	0	0	0	0
10016	0	0	0	0	0	0	0	0	0	0	0	0
10076	0	0	0	0	0	0	0	0	0	0	0	0
10136	0	0	0	0	0	0	0	0	0	0	0	0
10196	0	0	0	0	0	0	0	0	0	0	0	0
10256	0	0	0	0	0	0	0	0	0	0	0	0
10316	0	0	0	0	0	0	0	0	0	0	0	0
10376	0	0	0	0	0	0	0	0	0	0	0	0
10436	0	0	0	0	0	0	0	0	0	0	0	0
10496	0	0	0	0	0	0	0	0	0	0	0	0
10556	0	0	0	0	0	0	0	0	0	0	0	0
10616	0	0	0	0	0	0	0	0	0	0	0	0
10676	0	0	0	0	0	0	0	0	0	0	0	0
10736	0	0	0	0	0	0	0	0	0	0	0	0
10796	0	0	0	0	0	0	0	0	0	0	0	0
10856	0	0	0	0	0	0	0	0	0	0	0	0
10916	0	0	0	0	0	0	0	0	0	0	0	0
10976	0	0	0	0	0	0	0	0	0	0	0	0
11035	0	0	0	0	0	0	0	0	0	0	0	0
11095	0	0	0	0	0	0	0	0	0	0	0	0
11155	0	0	0	0	0	0	0	0	0	0	0	0
11215	0	0	0	0	0	0	0	0	0	0	0	0
11275	0	0	0	0	0	0	0	0	0	0	0	0
11335	0	0	0	0	0	0	0	0	0	0	0	0
11395	0	0	0	0	0	0	0	0	0	0	0	0
11455	0	0	0	0	0	0	0	0	0	0	0	0
11515	0	0	0	0	0	0	0	0	0	0	0	0
11575	0	0	0	0	0	0	0	0	0	0	0	0
11635	0	0	0	0	0	0	0	0	0	0	0	0
11695	0	0	0	0	0	0	0	0	0	0	0	0
11755	0	0	0	0	0	0	0	0	0	0	0	0
11815	0	0	0	0	0	0	0	0	0	0	0	0
11875	0	0	0	0	0	0	0	0	0	0	0	0

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time	dc(in)	vd(in)	dewpt(F)	Air(F)	AIrVED(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)	
20083	0	0	0	2.06962	0	5.25921	39.645	52.4259	60.3027	0	48.6078	48.4188	0
20143	0	0	0	2.06955	0	5.28447	39.5942	52.4944	60.2191	0	48.6384	48.3328	0
20203	0	0	0	2.06955	0	5.33741	39.6552	52.4756	60.2004	0	48.5431	48.3138	0
20263	0	0	0	2.06962	0	5.23136	39.5789	52.4758	60.2767	0	48.6198	48.3905	0
20323	0	0	0	2.06955	0	5.28616	39.6315	52.4211	60.1841	0	48.6032	48.3356	0
20383	0	0	0	2.0703	0	5.17859	39.5923	52.5138	60.2385	0	48.5814	48.3903	0
20443	0	0	0	2.06962	0	5.25812	39.6332	52.402	60.1271	0	48.6222	48.2782	0
20503	0	0	0	2.06962	0	5.23187	39.5857	52.3526	60.1539	0	48.4963	48.3051	0
20563	0	0	0	2.06962	0	5.23127	39.6391	52.4605	60.1854	0	48.4988	48.3751	0
20623	0	0	0	2.06955	0	5.25821	39.5925	52.4068	60.1698	0	48.5176	48.283	0
20683	0	0	0	2.06962	0	5.25812	39.5739	52.4521	60.177	0	48.4741	48.4049	0
20743	0	0	0	2.06962	0	5.23136	39.6687	52.4778	60.1646	0	48.5453	48.3924	0
20803	0	0	0	2.06962	0	5.23136	39.7246	52.4368	60.0858	0	48.5425	48.2749	0
20863	0	0	0	2.06962	0	5.26438	39.5671	52.3814	60.0867	0	48.5433	48.2757	0
20923	0	0	0	2.06962	0	5.20823	39.5095	52.4588	60.1836	0	48.5645	48.3351	0
20983	0	0	0	2.06962	0	5.2588	39.584	52.4309	60.1179	0	48.6512	48.2689	0
21043	0	0	0	2.06962	0	5.20485	39.5501	52.4742	60.123	0	48.7328	48.3506	0
21103	0	0	0	2.06962	0	5.26447	39.6196	52.3903	60.1434	0	48.5622	48.3711	0
21163	0	0	0	2.06962	0	5.25821	39.5603	52.4143	60.1014	0	48.5964	48.3288	0
21223	0	0	0	2.06962	0	5.23181	39.562	52.4909	60.1776	0	48.6349	48.3673	0
21283	0	0	0	2.06955	0	5.26507	39.6179	52.4817	60.1685	0	48.6257	48.3581	0
21343	0	0	0	2.07084	0	5.23153	39.6179	52.4447	60.2078	0	48.5988	48.4357	0
21403	0	0	0	2.06962	0	5.20493	39.5806	52.4708	60.1956	0	48.653	48.4237	0
21463	0	0	0	2.06962	0	5.25829	39.5691	52.4458	60.1707	0	48.5897	48.4402	0
21523	0	0	0	2.06962	0	5.24483	39.6281	52.4568	60.1396	0	48.5387	48.3603	0
21583	0	0	0	2.06962	0	5.31088	39.5925	52.4986	60.1863	0	48.7201	48.4143	0
21643	0	0	0	2.06962	0	5.27032	39.5451	52.4953	60.182	0	48.6393	48.41	0
21703	0	0	0	2.06955	0	5.20493	39.5451	52.4146	60.1396	0	48.5202	48.3673	0
21763	0	0	0	2.0705	0	5.24474	39.5485	52.3975	60.1226	0	48.503	48.3501	0
21823	0	0	0	2.06962	0	5.25829	39.5676	52.4355	60.0845	0	48.5783	48.3882	0
21883	0	0	0	2.06962	0	5.31089	39.6196	52.4872	60.098	0	48.5165	48.4018	0
21943	0	0	0	2.06962	0	5.29031	39.6434	52.4811	60.2059	0	48.6242	48.3566	0
22003	0	0	0	2.06962	0	5.23136	39.6044	52.4421	60.1281	0	48.5989	48.3957	0
22063	0	0	0	2.06962	0	5.24813	39.6044	52.4023	60.0895	0	48.5844	48.355	0
22123	0	0	0	2.06955	0	5.28726	39.5823	52.3774	60.1026	0	48.5593	48.4064	0
22183	0	0	0	2.06962	0	5.25821	39.5197	52.3372	60.1386	0	48.6338	48.4426	0
22243	0	0	0	2.06962	0	5.28455	39.4773	52.3359	60.0613	0	48.5942	48.3649	0
22303	0	0	0	2.06962	0	5.28464	39.4942	52.3488	60.0751	0	48.6081	48.3405	0
22363	0	0	0	2.06962	0	5.25812	39.4824	52.465	60.0759	0	48.6472	48.4178	0
22423	0	0	0	2.06955	0	5.25914	39.501	52.3742	59.9855	0	48.5179	48.2885	0
22483	0	0	0	2.06962	0	5.23136	39.518	52.4345	60.0455	0	48.6168	48.349	0
22543	0	0	0	2.06955	0	5.28455	39.5112	52.3108	59.9983	0	48.6455	48.3015	0
22603	0	0	0	2.06962	0	5.23195	39.5322	52.3133	59.9628	0	48.6002	48.4091	0
22663	0	0	0	2.06955	0	5.28455	39.5332	52.3133	59.9628	0	48.6098	48.304	0
22723	0	0	0	2.07037	0	5.2163	39.5468	52.4053	60.0545	0	48.6256	48.358	0
22783	0	0	0	2.06955	0	5.25838	39.5874	52.3047	60.0682	0	48.5629	48.3336	0
22843	0	0	0	2.06962	0	5.23153	39.6586	52.3597	60.047	0	48.5798	48.2689	0
22903	0	0	0	2.06962	0	5.20501	39.6213	52.4152	60.1023	0	48.6355	48.4444	0
22963	0	0	0	2.06962	0	5.26507	39.5773	52.2663	59.954	0	48.5245	48.3334	0
23023	0	0	0	2.06962	0	5.23144	39.6332	52.376	59.9493	0	48.5579	48.3668	0
23083	0	0	0	2.06962	0	5.20493	39.6196	52.3424	59.9918	0	48.5243	48.2949	0
23143	0	0	0	2.06962	0	5.25821	39.667	52.2715	59.9592	0	48.5297	48.3003	0
23203	0	0	0	2.06955	0	5.28455	39.6349	52.266	59.9537	0	48.5624	48.3713	0
23263	0	0	0	2.06962	0	5.25829	39.6315	52.3421	59.9536	0	48.6769	48.3329	0
23323	0	0	0	2.06955	0	5.28455	39.6457	52.3244	59.9559	0	48.6974	48.3916	0
23383	0	0	0	2.06962	0	5.28447	39.6772	52.3043	59.9159	0	48.5243	48.3332	0
23443	0	0	0	2.06962	0	5.28438	39.6281	52.2984	59.872	0	48.5184	48.2829	0
23503	0	0	0	2.06955	0	5.23136	39.6589	52.3359	59.9893	0	48.5983	48.4454	0
23563	0	0	0	2.06962	0	5.25821	39.6721	52.3352	59.9467	0	48.5171	48.3642	0
23623	0	0	0	2.06955	0	5.25821	39.7196	52.2883	59.862	0	48.4701	48.3171	0
23683	0	0	0	2.07016	0	5.28447	39.6942	52.256	59.9438	0	48.6288	48.2848	0
23743	0	0	0	2.06962	0	5.23441	39.7077	52.3928	59.9281	0	48.6131	48.3425	0
23803	0	0	0	2.06955	0	5.25812	39.7314	52.2758	59.8495	0	48.534	48.3429	0
23863	0	0	0	2.06962	0	5.23153	39.7145	52.3021	59.8757	0	48.4839	48.2546	0
23923	0	0	0	2.06955	0	5.28557	39.7467	52.2857	59.8593	0	48.5056	48.238	0
23983	0	0	0	2.06955	0	5.23136	39.7111	52.3664	59.9018	0	48.663	48.319	0
24043	0	0	0	2.06955	0	5.23144	39.728	52.268	59.8798	0	48.5262	48.2968	0
24103	0	0	0	2.07159	0	5.25838	39.7162	52.3416	59.9151	0	48.6	48.2942	0

time	dc(in)	vd(in)	dewpt(F)	Air(F)	AIWED(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
24162	0	0	0	0	0	5.23144	39.7263	52.3969	59.8941	48.5024	48.3877	0
24222	0	0	0	0	0	5.36639	39.745	52.3378	59.8353	48.4815	48.3286	0
24282	0	0	0	0	0	5.25829	39.745	52.3339	59.8331	48.5175	48.3263	0
24342	0	0	0	0	0	5.25812	39.7568	52.3339	59.7935	48.4776	48.3545	0
24402	0	0	0	0	0	5.29133	39.7772	52.3913	59.8506	48.535	48.3821	0
24462	0	0	0	0	0	5.29501	39.8127	52.3453	59.8428	48.5654	48.3978	0
24522	0	0	0	0	0	5.29844	39.8127	52.343	59.8025	48.5631	48.3719	0
24582	0	0	0	0	0	5.20501	39.8212	52.3254	59.861	48.5455	48.3544	0
24642	0	0	0	0	0	5.23136	39.8043	52.3356	59.7852	48.5557	48.2882	0
24702	0	0	0	0	0	5.21255	39.8076	52.4412	59.9383	48.5851	48.3557	0
24762	0	0	0	0	0	5.20493	39.8009	52.4024	59.8237	48.5462	48.2404	0
24822	0	0	0	0	0	5.25804	39.828	52.3398	59.8742	48.6353	48.253	0
24882	0	0	0	0	0	5.20612	39.8432	52.4011	59.9363	48.6395	48.2537	0
24942	0	0	0	0	0	5.2466	39.8364	52.3253	59.8228	48.6395	48.2537	0
25002	0	0	0	0	0	5.23153	39.8403	52.3114	59.771	48.6843	48.3021	0
25062	0	0	0	0	0	5.2765	39.8246	52.3201	59.7797	48.5784	48.3108	0
25122	0	0	0	0	0	5.26482	39.8432	52.31	59.7696	48.5683	48.2624	0
25182	0	0	0	0	0	5.25804	39.8297	52.3554	59.7769	48.5755	48.2697	0
25242	0	0	0	0	0	5.25829	39.8195	52.2846	59.7823	48.6192	48.3134	0
25302	0	0	0	0	0	5.28455	39.872	52.3929	59.7763	48.6514	48.3638	0
25362	0	0	0	0	0	5.2588	39.828	52.3764	59.8737	48.6348	48.305	0
25422	0	0	0	0	0	5.23127	39.8348	52.3505	59.8099	48.7284	48.3854	0
25482	0	0	0	0	0	5.23463	39.8348	52.3564	59.7778	48.5127	48.3598	0
25542	0	0	0	0	0	5.28126	39.8195	52.2545	59.7144	48.6641	48.3713	0
25602	0	0	0	0	0	5.25821	39.8771	52.3875	59.7259	48.606	48.3713	0
25662	0	0	0	0	0	5.28455	39.8771	52.3875	59.7259	48.5953	48.4042	0
25722	0	0	0	0	0	5.23144	39.857	52.2607	59.7206	48.537	48.3459	0
25782	0	0	0	0	0	5.25812	39.8696	52.3169	59.7765	48.5448	48.3155	0
25842	0	0	0	0	0	5.23463	39.8696	52.2866	59.7463	48.1322	48.2851	0
25902	0	0	0	0	0	5.28455	39.9025	52.3707	59.7542	48.1712	48.2395	0
25962	0	0	0	0	0	5.25812	39.8771	52.4016	59.8228	48.1603	48.275	0
26022	0	0	0	0	0	5.23161	39.8602	52.2852	59.7549	48.1588	48.3117	0
26082	0	0	0	0	0	5.25812	39.8364	52.2844	59.8201	48.1464	48.2248	0
26142	0	0	0	0	0	5.23136	39.8398	52.3592	59.8188	48.1464	48.2248	0
26202	0	0	0	0	0	5.23119	39.856	52.2725	59.7323	48.1464	48.2248	0
26262	0	0	0	0	0	5.23127	39.872	52.2327	59.6928	48.1464	48.2248	0
26322	0	0	0	0	0	5.23136	39.8696	52.3172	59.7009	48.1464	48.2248	0
26382	0	0	0	0	0	5.23136	39.8696	52.2727	59.7705	48.1464	48.2248	0
26442	0	0	0	0	0	5.23127	39.8076	52.3428	59.8023	48.1464	48.2248	0
26502	0	0	0	0	0	5.23119	39.9059	52.2334	59.8934	48.1464	48.2248	0
26562	0	0	0	0	0	5.25795	39.8602	52.1921	59.6902	48.1464	48.2248	0
26622	0	0	0	0	0	5.26068	39.8974	52.2209	59.7189	48.1464	48.2248	0
26682	0	0	0	0	0	5.28455	39.9059	52.2877	59.7095	48.1464	48.2248	0
26742	0	0	0	0	0	5.20493	39.9076	52.3401	59.7238	48.1464	48.2248	0
26802	0	0	0	0	0	5.25795	39.9059	52.2316	59.6536	48.1464	48.2248	0
26862	0	0	0	0	0	5.25795	40.0143	52.2577	59.7555	48.1464	48.2248	0
26922	0	0	0	0	0	5.25804	40.0025	52.278	59.6818	48.1464	48.2248	0
26982	0	0	0	0	0	5.23127	39.9279	52.2728	59.6566	48.1464	48.2248	0
27042	0	0	0	0	0	5.25143	39.9127	52.2774	59.7752	48.1464	48.2248	0
27102	0	0	0	0	0	5.23144	39.9245	52.2369	59.6539	48.1464	48.2248	0
27162	0	0	0	0	0	5.20493	39.972	52.2858	59.7076	48.1464	48.2248	0
27222	0	0	0	0	0	5.25795	40.0143	52.2577	59.7555	48.1464	48.2248	0
27282	0	0	0	0	0	5.25812	40.0025	52.278	59.6818	48.1464	48.2248	0
27342	0	0	0	0	0	5.23127	39.9279	52.2728	59.6566	48.1464	48.2248	0
27402	0	0	0	0	0	5.25143	39.9584	52.1798	59.64	48.1464	48.2248	0
27462	0	0	0	0	0	5.23424	39.9584	52.1798	59.64	48.1464	48.2248	0
27522	0	0	0	0	0	5.26524	39.9872	52.3224	59.668	48.1464	48.2248	0
27582	0	0	0	0	0	5.25812	39.9567	52.1698	59.6291	48.1464	48.2248	0
27642	0	0	0	0	0	5.21842	39.9652	52.2412	59.6251	48.1464	48.2248	0
27702	0	0	0	0	0	5.25812	39.984	52.2461	59.744	48.1464	48.2248	0
27762	0	0	0	0	0	5.28428	40.0397	52.222	59.692	48.1464	48.2248	0
27822	0	0	0	0	0	5.23161	39.9804	52.151	59.5733	48.1464	48.2248	0
27882	0	0	0	0	0	5.28455	39.9872	52.2872	59.709	48.1464	48.2248	0
27942	0	0	0	0	0	5.17859	39.955	52.1847	59.6446	48.1464	48.2248	0
28002	0	0	0	0	0	5.20493	39.9698	52.1051	59.6036	48.1464	48.2248	0
28062	0	0	0	0	0	5.22145	40.008	52.1924	59.6146	48.1464	48.2248	0
28122	0	0	0	0	0	5.25812	39.9821	52.2289	59.6509	48.1464	48.2248	0
28182	0	0	0	0	0	5.28447	40.055	52.1636	59.6398	48.1464	48.2248	0

time	dc(ln)	ved(ln)	dewpt(F)	Ar(F)	AIrVED(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
28241	0	0	0	0	0	0	0	0	0	0	0	0
28301	0	0	0	0	0	0	0	0	0	0	0	0
28361	0	0	0	0	0	0	0	0	0	0	0	0
28421	0	0	0	0	0	0	0	0	0	0	0	0
28481	0	0	0	0	0	0	0	0	0	0	0	0
28541	0	0	0	0	0	0	0	0	0	0	0	0
28601	0	0	0	0	0	0	0	0	0	0	0	0
28661	0	0	0	0	0	0	0	0	0	0	0	0
28721	0	0	0	0	0	0	0	0	0	0	0	0
28781	0	0	0	0	0	0	0	0	0	0	0	0
28841	0	0	0	0	0	0	0	0	0	0	0	0
28901	0	0	0	0	0	0	0	0	0	0	0	0
28961	0	0	0	0	0	0	0	0	0	0	0	0
29020	0	0	0	0	0	0	0	0	0	0	0	0
29080	0	0	0	0	0	0	0	0	0	0	0	0
29140	0	0	0	0	0	0	0	0	0	0	0	0
29200	0	0	0	0	0	0	0	0	0	0	0	0
29260	0	0	0	0	0	0	0	0	0	0	0	0
29320	0	0	0	0	0	0	0	0	0	0	0	0
29380	0	0	0	0	0	0	0	0	0	0	0	0
29440	0	0	0	0	0	0	0	0	0	0	0	0
29500	0	0	0	0	0	0	0	0	0	0	0	0
29560	0	0	0	0	0	0	0	0	0	0	0	0
29620	0	0	0	0	0	0	0	0	0	0	0	0
29680	0	0	0	0	0	0	0	0	0	0	0	0
29740	0	0	0	0	0	0	0	0	0	0	0	0
29800	0	0	0	0	0	0	0	0	0	0	0	0
29860	0	0	0	0	0	0	0	0	0	0	0	0
29920	0	0	0	0	0	0	0	0	0	0	0	0
29980	0	0	0	0	0	0	0	0	0	0	0	0
30040	0	0	0	0	0	0	0	0	0	0	0	0
30100	0	0	0	0	0	0	0	0	0	0	0	0
30160	0	0	0	0	0	0	0	0	0	0	0	0
30220	0	0	0	0	0	0	0	0	0	0	0	0
30280	0	0	0	0	0	0	0	0	0	0	0	0
30340	0	0	0	0	0	0	0	0	0	0	0	0
30400	0	0	0	0	0	0	0	0	0	0	0	0
30460	0	0	0	0	0	0	0	0	0	0	0	0
30520	0	0	0	0	0	0	0	0	0	0	0	0
30580	0	0	0	0	0	0	0	0	0	0	0	0
30640	0	0	0	0	0	0	0	0	0	0	0	0
30700	0	0	0	0	0	0	0	0	0	0	0	0
30760	0	0	0	0	0	0	0	0	0	0	0	0
30820	0	0	0	0	0	0	0	0	0	0	0	0
30880	0	0	0	0	0	0	0	0	0	0	0	0
30940	0	0	0	0	0	0	0	0	0	0	0	0
31000	0	0	0	0	0	0	0	0	0	0	0	0
31060	0	0	0	0	0	0	0	0	0	0	0	0
31120	0	0	0	0	0	0	0	0	0	0	0	0
31180	0	0	0	0	0	0	0	0	0	0	0	0
31240	0	0	0	0	0	0	0	0	0	0	0	0
31300	0	0	0	0	0	0	0	0	0	0	0	0
31360	0	0	0	0	0	0	0	0	0	0	0	0
31420	0	0	0	0	0	0	0	0	0	0	0	0
31480	0	0	0	0	0	0	0	0	0	0	0	0
31540	0	0	0	0	0	0	0	0	0	0	0	0
31600	0	0	0	0	0	0	0	0	0	0	0	0
31660	0	0	0	0	0	0	0	0	0	0	0	0
31720	0	0	0	0	0	0	0	0	0	0	0	0
31780	0	0	0	0	0	0	0	0	0	0	0	0
31840	0	0	0	0	0	0	0	0	0	0	0	0
31900	0	0	0	0	0	0	0	0	0	0	0	0
31960	0	0	0	0	0	0	0	0	0	0	0	0
32020	0	0	0	0	0	0	0	0	0	0	0	0
32080	0	0	0	0	0	0	0	0	0	0	0	0
32140	0	0	0	0	0	0	0	0	0	0	0	0
32200	0	0	0	0	0	0	0	0	0	0	0	0
32260	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]

time	dc(in)	ved(in)	dewpt(F)	Air(F)	AIWED(F)	B2(F)	B3(F)	B4(F)	B5(F)	DC1(F)	DC2(F)	VED(F)
40477	0	0	0	0	0	0	0	0	0	48.3969	48.2722	0
40537	0	0	0	0	0	0	0	0	0	48.1301	48.2448	0
40597	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
40657	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
40717	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
40777	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
40837	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
40897	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
40957	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41017	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41077	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41137	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41197	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41257	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41317	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41377	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41437	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41497	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41557	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41617	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41677	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41737	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41797	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41857	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41917	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
41977	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42037	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42097	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42157	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42217	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42277	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42337	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42397	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42456	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42516	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42576	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42636	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42696	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42756	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42816	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42876	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42936	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
42996	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43056	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43116	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43176	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43236	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43296	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43356	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43416	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43476	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43536	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43596	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43656	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43716	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43776	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43836	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43896	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
43956	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44016	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44076	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44136	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44196	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44256	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44316	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44376	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44436	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0
44495	0	0	0	0	0	0	0	0	0	48.1804	48.2551	0

[illegible]

APPENDIX U

FLUKE WIRELESS DATA LOGGER FILES (TEST 2)

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time	dc(in)	bsn(in)	dewpt(F)	Air(F)	AIWED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
3779		0	0	0	2.11588	3.0529	0	41.7159	55.2236	64.9746	48.0571	48.0953	47.8661
3839		0	0	0	2.11618	3.06873	0	41.7007	55.1678	65.2975	48.0775	48.1539	47.9247
3899		0	0	0	2.11598	3.06075	0	41.7396	55.1718	65.2258	48.1197	47.8904	47.8904
3959		0	0	0	2.11598	3.0502	0	41.8039	55.2639	65.6778	48.1558	48.1176	47.9266
4019		0	0	0	2.11638	3.07982	0	41.7633	55.1008	65.3065	48.0102	47.8955	47.8955
4079		0	0	0	2.1803	3.07942	0	41.8275	55.3042	64.9791	48.0234	48.0616	47.7942
4139		0	0	0	2.1803	3.0688	0	41.9155	55.246	64.6553	48.0414	47.965	47.7358
4198		0	0	0	2.1803	3.07955	0	41.9849	55.2505	64.5471	48.0077	48.0459	47.8168
4258		0	0	0	2.1805	3.05554	0	42	55.1366	64.7387	48.0844	47.7023	47.7023
4318		0	0	0	2.1805	3.03715	0	41.9763	55.5336	65.1694	48.2156	48.292	48.0248
4378		0	0	0	2.1803	3.05369	0	42.0203	55.3169	64.8025	47.9216	48.0362	47.7687
4438		0	0	0	2.1805	3.05831	0	42.0913	55.5193	65.0039	48.1163	47.8958	47.8958
4498		0	0	0	2.24279	3.05831	0	42.1454	55.326	64.6601	48.1217	48.2745	47.8161
4558		0	0	0	2.2401	3.05865	0	42.1437	55.2882	64.8118	48.0837	48.0455	47.7399
4618		0	0	0	2.24299	3.05825	0	42.186	55.417	65.0157	48.2131	48.2131	47.7399
4678		0	0	0	2.24299	3.03708	0	42.1606	55.3679	64.8532	48.1256	48.0492	47.8552
4738		0	0	0	2.24299	3.05811	0	42.1657	55.4607	64.8699	48.1042	48.1042	47.875
4798		0	0	0	2.24279	3.01591	0	42.2891	55.51	65.3352	48.1919	48.1919	48.1155
4858		0	0	0	2.24299	3.05811	0	42.3027	55.4463	64.8556	48.0897	48.0515	47.8605
4918		0	0	0	2.24299	3.05811	0	42.2435	55.466	64.6132	48.0743	48.1125	47.8451
4978		0	0	0	2.30731	3.05946	0	42.3229	55.4309	64.8403	48.0361	48.0743	47.9597
5038		0	0	0	2.30731	3.05811	0	42.3635	55.6438	65.1278	48.2117	48.2469	48.0971
5098		0	0	0	2.30732	3.05818	0	42.3348	55.6727	65.3835	48.1261	48.2025	48.0497
5158		0	0	0	2.30752	3.05804	0	42.2756	55.589	64.8461	48.0802	48.0802	47.9274
5218		0	0	0	2.30711	3.07915	0	42.306	55.497	64.9346	48.0549	48.0931	47.8257
5278		0	0	0	2.30752	3.05811	0	42.2418	55.668	64.8112	48.1596	48.1978	47.9304
5337		0	0	0	2.30731	3.04736	0	42.3348	55.6355	64.8546	48.127	48.1652	47.8978
5398		0	0	0	2.37042	3.07935	0	42.2519	55.706	65.3769	48.1596	48.236	47.8922
5458		0	0	0	2.37062	3.07935	0	42.2181	55.6299	65.4545	48.2359	48.1595	47.9685
5517		0	0	0	2.37042	3.07928	0	42.2063	55.6282	65.2638	48.1961	48.2343	48.0815
5577		0	0	0	2.37062	3.05277	0	42.1589	55.53	65.2794	48.0592	48.2502	48.212
5637		0	0	0	2.37082	3.05953	0	42.1775	55.6228	65.0691	48.0378	48.1142	49.3743
5697		0	0	0	2.37062	3.01598	0	42.1471	55.7198	65.3928	48.2881	48.2117	49.1281
5757		0	0	0	2.37082	3.05188	0	42.2012	55.7453	65.6828	48.2372	48.39	48.3136
5817		0	0	0	2.37062	3.02883	0	42.1589	55.6963	65.8233	48.2263	48.3027	48.0735
5877		0	0	0	2.37042	3.05397	0	42.1572	55.7503	65.3851	48.1277	48.0895	48.0895
5937		0	0	0	2.37042	3.03284	0	42.12	55.5841	65.144	47.9989	48.0753	48.1517
5997		0	0	0	2.37042	3.03701	0	42.1437	55.7325	65.4431	48.0716	48.1098	48.3008
6057		0	0	0	2.43494	3.03701	0	42.0896	55.6588	65.3319	48.1121	48.1121	48.4559
6117		0	0	0	2.43494	3.05818	0	42.0964	55.6835	65.2051	48.0606	48.0606	48.4043
6177		0	0	0	2.43514	3.05818	0	42.0744	55.8767	65.7757	48.2164	48.2928	48.331
6237		0	0	0	2.43473	3.03701	0	42.1065	55.7509	65.5749	48.2811	48.1283	48.2811
6297		0	0	0	2.43494	3.03708	0	42.0609	55.721	65.3938	48.1746	48.0982	48.1384
6357		0	0	0	2.43473	3.05804	0	42.1522	55.743	65.4535	48.0821	48.1339	48.1339
6417		0	0	0	2.43473	3.05925	0	42.071	55.7185	65.467	48.4013	48.1339	48.1585
6477		0	0	0	2.49763	3.06853	0	42.022	55.8462	65.622	48.1377	48.1377	48.0231
6537		0	0	0	2.50311	3.03708	0	42.0304	55.969	65.7919	48.271	48.1584	48.0777
6597		0	0	0	2.49743	3.03172	0	42.0389	55.73	65.4027	48.1073	48.1455	48.1073
6657		0	0	0	2.49743	3.05818	0	42.0473	55.9457	65.6174	48.2658	48.324	48.133
6717		0	0	0	2.49763	3.05825	0	42.0457	55.809	65.2922	48.3013	48.1485	48.0339
6777		0	0	0	2.49763	3.04242	0	42.0152	55.6689	65.1906	48.0077	48.0459	47.8931
6837		0	0	0	2.49743	3.01604	0	41.9408	55.7509	65.083	48.1665	48.1665	48.1283
6897		0	0	0	2.49763	3.01598	0	42	55.7767	65.26	48.1541	48.1159	48.0777
6957		0	0	0	2.56216	2.99447	0	41.8831	55.8004	65.8889	48.2162	48.0634	48.1778
7017		0	0	0	2.56236	2.99447	0	41.951	55.7455	65.683	48.0847	48.0465	48.0465
7077		0	0	0	2.56216	2.99521	0	41.9391	55.8791	65.9532	48.3575	48.2811	48.2047
7137		0	0	0	2.56175	3.03715	0	41.9682	55.8486	65.5984	48.1119	48.15	48.0355
7197		0	0	0	2.56216	3.03857	0	41.9543	55.761	65.7362	48.1384	48.062	48.0238
7257		0	0	0	2.56256	3.03715	0	41.9273	55.9018	65.5356	48.2796	48.2032	48.0122
7317		0	0	0	2.56216	3.03715	0	41.8548	55.8788	65.7778	48.3332	48.2568	47.9894
7377		0	0	0	2.56216	3.03715	0	41.8512	55.8963	65.2278	48.2361	48.1215	47.8541
7437		0	0	0	2.62607	3.03735	0	41.8089	55.8234	65.5335	48.2011	48.2011	48.0101
7497		0	0	0	2.62607	3.01604	0	41.8174	55.9211	65.7442	48.3757	48.3375	48.0319
7557		0	0	0	2.62607	3.03715	0	41.8478	55.8604	65.4947	48.1619	47.8945	47.8945
7617		0	0	0	2.62607	3.01604	0	41.7819	55.8398	65.2093	48.1794	48.103	47.7974
7677		0	0	0	2.6278	3.03721	0	41.7853	55.8794	65.2965	48.2574	48.1428	47.8754
7737		0	0	0	2.62607	3.01598	0	41.7886	55.9038	65.7287	48.2434	48.1671	47.8614
7797		0	0	0	2.62607	3.03708	0	41.7312	55.8516	65.8883	48.3302	48.3683	47.8664

time	dc(in)	bsr(in)	dewpt(F)	Air(F)	AIrVED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5(F)	DC1(F)	DC2(F)	VED(F)
7857	0	0	2.62597	3.01598	0	41.6787	55.8335	66.111	48.1349	47.9438	47.9438	47.9438	47.9438
7917	0	0	2.69019	2.99454	0	41.6886	55.9666	65.6759	48.2558	48.3067	48.1157	48.1157	48.1157
7977	0	0	2.69019	2.99447	0	41.6432	55.9159	65.7012	48.2558	48.1738	48.1157	48.1157	48.1157
8037	0	0	2.69039	3.01834	0	41.6449	55.8546	65.6023	48.2324	48.1178	47.9268	47.9268	47.9268
8097	0	0	2.69039	2.97343	0	41.6392	55.772	65.6715	48.2259	47.9585	47.7282	47.7282	47.7282
8157	0	0	2.69039	3.01598	0	41.601	55.8008	66.4189	48.1402	47.9874	47.7582	47.7582	47.7582
8217	0	0	2.69039	3.01611	0	41.5722	55.9697	65.7926	48.2717	48.1199	47.9648	47.9648	47.9648
8277	0	0	2.69039	3.00906	0	41.601	55.8944	65.6041	48.1578	48.1186	47.9668	47.9668	47.9668
8336	0	0	2.69038	2.99562	0	41.5688	55.9629	65.9371	48.2266	48.1502	47.9974	47.9974	47.9974
8396	0	0	2.75309	3.01604	0	41.5232	55.7048	65.4155	48.0819	48.0055	47.7763	47.7763	47.7763
8456	0	0	2.75674	3.01604	0	41.5268	55.892	65.6018	48.1554	48.0218	48.0026	48.0026	48.0026
8516	0	0	2.75329	3.02396	0	41.5298	55.9576	66.6504	48.2213	48.1067	48.0303	48.0303	48.0303
8576	0	0	2.75309	3.00522	0	41.4877	55.8933	65.7544	48.1587	47.9275	47.9275	47.9275	47.9275
8636	0	0	2.75309	3.03424	0	41.4877	55.9068	65.9191	48.2467	48.1703	48.0557	48.0557	48.0557
8696	0	0	2.75309	3.03444	0	41.4505	55.8137	66.6373	48.0767	47.9621	47.9621	47.9621	47.9621
8756	0	0	2.75309	3.02125	0	41.4048	55.9435	66.1447	48.2453	48.0825	48.0161	48.0161	48.0161
8816	0	0	2.81781	2.99446	0	41.3845	55.9038	65.1973	48.2818	48.0527	47.9381	47.9381	47.9381
8876	0	0	2.81781	3.01631	0	41.3678	55.849	65.3698	48.2288	48.074	47.9976	47.9976	47.9976
8936	0	0	2.81761	2.97337	0	41.3862	55.7674	65.4021	48.0303	47.9157	47.8393	47.8393	47.8393
8996	0	0	2.81761	3.00258	0	41.3321	55.8758	65.4342	48.1391	48.0245	47.7953	47.7953	47.7953
9056	0	0	2.81761	2.97343	0	41.2719	55.7354	65.6929	48.2325	48.2471	48.0561	48.0561	48.0561
9116	0	0	2.81741	2.9731	0	41.2814	55.9314	65.6409	48.2332	48.195	47.8894	47.8894	47.8894
9176	0	0	2.81761	2.9846	0	41.234	55.86	65.8348	48.0851	48.0469	47.8941	47.8941	47.8941
9236	0	0	2.81802	3.00631	0	41.1884	55.7735	66.0135	48.0746	48.0364	47.8072	47.8072	47.8072
9296	0	0	2.80951	3.02862	0	41.2273	55.8643	65.9147	48.1658	48.0894	47.9368	47.9368	47.9368
9356	0	0	2.80951	2.99454	0	41.1749	55.9419	65.8135	48.2055	48.2055	47.9381	47.9381	47.9381
9416	0	0	2.80951	3.01314	0	41.1461	56.006	65.8693	48.2618	48.1472	47.918	47.918	47.918
9476	0	0	2.80951	3.01604	0	41.158	55.9768	65.8859	48.2785	48.3167	48.0494	48.0494	48.0494
9536	0	0	2.80951	2.9896	0	41.1258	55.9396	65.6232	48.2534	48.2634	48.1006	48.1006	48.1006
9596	0	0	2.80951	3.00529	0	41.0903	58.1259	65.7588	48.3139	48.1993	48.1612	48.1612	48.1612
9656	0	0	2.80951	3.01672	0	41.07	55.93	65.8287	48.079	47.9282	47.8116	47.8116	47.8116
9716	0	0	2.80971	3.01604	0	41.0633	56.0224	65.7315	48.2482	48.1336	48.0954	48.0954	48.0954
9776	0	0	2.84503	2.99454	0	41.0693	55.8964	66.2252	48.2462	48.1356	48.0592	48.0592	48.0592
9836	0	0	2.84483	2.97343	0	41.0835	58.0425	66.2432	48.192	48.0392	47.9628	47.9628	47.9628
9896	0	0	2.84483	2.99454	0	41.0835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
9956	0	0	3.00753	2.97343	0	41.0971	56.0448	65.6025	48.2707	48.2325	47.9651	47.9651	47.9651
10016	0	0	3.00732	2.97458	0	41.0768	56.0913	65.9136	48.2793	48.2793	48.0501	48.0501	48.0501
10076	0	0	3.00732	2.97343	0	41.0328	56.0632	65.8098	48.1364	48.251	47.8307	47.8307	47.8307
10135	0	0	3.00732	2.97343	0	41.0024	56.0556	65.7647	48.2435	48.1671	47.8233	47.8233	47.8233
10195	0	0	3.01301	2.97465	0	40.9872	55.9607	66.0765	48.2146	48.1363	47.9472	47.9472	47.9472
10255	0	0	3.00753	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10315	0	0	3.00753	2.97458	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10375	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10435	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10495	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10555	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10615	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10675	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10735	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10795	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10855	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10915	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
10975	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11035	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11095	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11155	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11215	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11275	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11335	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11395	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11455	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11514	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11574	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11634	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11694	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11754	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11814	0	0	3.00732	2.97343	0	40.9835	55.9635	66.089	48.1508	48.0744	47.9598	47.9598	47.9598
11874	0	0	3.00732	2.97404	0	41.2087	56.2597	65.8919	48.2956	48.181	48.0664	48.0664	48.0664

[illegible]

time	dc(in)	bsn(in)	dewpt(F)	air(F)	airVED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
16012	0	0	0	3.71302	2.88682	0	0	41.5824	56.1013	65.9613	48.1747	48.0601	48.0601
16072	0	0	0	3.77572	2.90965	0	0	41.6468	56.3253	66.1088	48.247	48.2088	48.247
16132	0	0	0	3.77572	2.88689	0	0	41.6094	56.0948	66.0305	48.0918	47.9772	47.9772
16192	0	0	0	3.77551	2.86752	0	0	41.6246	56.272	66.2825	48.117	48.2316	48.117
16252	0	0	0	3.77551	2.86759	0	0	41.5824	56.0757	66.0871	48.1842	48.1469	48.0725
16312	0	0	0	3.77551	2.86752	0	0	41.5824	56.2629	66.0096	48.1842	48.1469	48.0696
16372	0	0	0	3.77551	2.90926	0	0	41.5391	56.185	65.8932	48.2205	47.9531	47.9531
16432	0	0	0	3.77572	2.90886	0	0	41.6551	56.1161	66.0895	48.1131	48.0387	47.9603
16492	0	0	0	3.77572	2.88686	0	0	41.6669	56.042	66.2049	48.115	48.0387	47.9622
16552	0	0	0	3.77551	2.90979	0	0	41.6868	56.0703	65.7413	48.1818	48.0672	48.0672
16612	0	0	0	3.84044	2.90968	0	0	41.6869	56.0866	65.5683	48.1599	48.0071	48.0071
16672	0	0	0	3.84024	2.90979	0	0	41.6398	56.1467	65.5903	48.1439	48.1057	48.0675
16732	0	0	0	3.84004	2.91343	0	0	41.6906	56.0414	65.9774	48.2291	47.9853	47.9853
16792	0	0	0	3.84004	2.90979	0	0	41.7227	56.2667	65.8511	48.3307	48.2637	47.962
16852	0	0	0	3.84024	2.90963	0	0	41.7531	56.1938	65.5994	48.3058	48.2678	47.962
16912	0	0	0	3.84004	2.91013	0	0	41.7968	56.2449	65.668	48.3355	48.2425	48.1279
16972	0	0	0	3.90294	2.89505	0	0	41.7819	56.8336	65.6053	48.0825	48.0061	47.8915
17032	0	0	0	3.90294	2.86238	0	0	41.7819	56.1078	65.8543	48.1812	48.143	47.952
17092	0	0	0	3.90314	2.90249	0	0	41.777	56.0988	65.966	48.0958	48.134	47.9812
17152	0	0	0	3.90294	2.86959	0	0	41.777	56.1231	65.4912	48.2348	48.1584	48.1584
17212	0	0	0	3.90314	2.86231	0	0	41.8657	56.1399	66.151	48.2698	48.2135	48.0225
17272	0	0	0	3.90314	2.86765	0	0	41.8106	56.154	65.6355	48.2658	48.0368	48.113
17332	0	0	0	3.90334	2.86078	0	0	41.8715	56.1663	65.799	48.3545	48.2399	48.1253
17392	0	0	0	3.90314	2.86952	0	0	41.8715	56.278	66.1749	48.4285	48.2758	48.1894
17452	0	0	0	3.90314	2.86952	0	0	41.8657	56.1399	66.151	48.2698	48.2135	48.0225
17512	0	0	0	3.96746	2.84662	0	0	41.923	56.2868	65.7298	48.552	48.2848	48.2464
17572	0	0	0	3.96768	2.88689	0	0	41.9121	56.1861	66.0078	48.4508	48.289	48.1071
17632	0	0	0	3.96768	2.88689	0	0	41.9138	56.0869	65.4551	48.313	48.1602	48.0838
17692	0	0	0	3.96768	2.88676	0	0	41.8918	55.9669	65.8196	48.3754	48.1462	47.9934
17752	0	0	0	3.96768	2.90979	0	0	41.8657	56.0968	65.9568	48.2465	48.0937	48.0555
17812	0	0	0	3.96768	2.90837	0	0	41.8657	56.3041	65.5956	48.4166	48.2638	48.1492
17872	0	0	0	3.96746	2.86759	0	0	41.9138	56.148	66.4239	48.298	48.1452	48.107
17932	0	0	0	3.96746	2.86759	0	0	41.9205	56.0635	65.8481	48.1749	48.1367	48.0221
17992	0	0	0	3.9705	2.90868	0	0	41.9222	56.0256	66.3777	48.2514	48.2514	48.0222
18052	0	0	0	4.03016	2.90963	0	0	41.9273	55.9561	66.1951	48.1815	48.067	47.9141
18112	0	0	0	4.03036	2.89099	0	0	41.982	56.2144	66.3398	48.3265	48.2119	48.0556
18172	0	0	0	4.03016	2.86759	0	0	41.982	56.0208	66.2216	48.2465	48.2465	48.0556
18232	0	0	0	4.03016	2.87347	0	0	42.0398	56.1433	66.3435	48.2551	48.1405	48.1405
18292	0	0	0	4.03016	2.86765	0	0	42.0398	56.0236	66.9051	48.2494	48.2878	48.0594
18352	0	0	0	4.03016	2.84662	0	0	42.0457	55.9373	66.6681	48.1628	48.201	48.0864
18412	0	0	0	4.03016	2.86765	0	0	42.065	55.9372	66.4789	48.1628	48.0098	48.2008
18472	0	0	0	4.09468	2.84655	0	0	42.1031	56.0816	66.2065	48.3459	48.0785	48.1549
18532	0	0	0	4.09488	2.84662	0	0	42.1138	55.9443	66.4481	48.2461	48.1697	48.0551
18592	0	0	0	4.09488	2.84662	0	0	42.1708	56.0789	66.8477	48.2678	48.0386	48.0386
18652	0	0	0	4.09488	2.84662	0	0	42.2333	56.2444	66.5953	48.3184	48.2802	48.2802
18712	0	0	0	4.09529	2.89306	0	0	42.2824	55.9635	66.6762	48.2474	48.2474	48.0946
18772	0	0	0	4.09529	2.89306	0	0	42.3196	55.9376	66.2145	48.0868	48.0484	48.0484
18832	0	0	0	4.09488	2.86765	0	0	42.3365	56.031	65.9292	48.1422	47.913	48.0658
18892	0	0	0	4.09508	2.86765	0	0	42.3534	55.9635	65.7863	48.0744	48.0362	48.0362
18952	0	0	0	4.159	2.90972	0	0	42.399	56.0672	66.1543	48.1786	48.1404	48.1022
19012	0	0	0	4.159	2.88689	0	0	42.3957	56.067	66.1542	48.2166	48.1402	48.0256
19072	0	0	0	4.159	2.88689	0	0	42.3659	56.1597	66.0572	48.1187	48.1951	48.1187
19132	0	0	0	4.1598	2.88682	0	0	42.421	56.0997	65.9219	48.173	48.173	48.1348
19192	0	0	0	4.1598	2.88689	0	0	42.4072	56.1834	66.2421	48.1144	48.229	48.1144
19252	0	0	0	4.1592	2.88689	0	0	42.4092	56.0259	66.0376	48.0989	48.0225	47.9843
19312	0	0	0	4.1594	2.88206	0	0	42.4176	56.0112	65.9095	48.1987	48.0841	48.0841
19372	0	0	0	4.1598	2.86914	0	0	42.4443	56.2033	65.9115	48.3153	48.1625	48.1625
19432	0	0	0	4.159	2.86765	0	0	42.4295	56.1203	65.6019	48.1555	48.0027	48.0027
19492	0	0	0	4.159	2.81767	0	0	42.4227	56.1802	65.8129	48.2158	48.063	48.1012
19552	0	0	0	4.22433	2.84662	0	0	42.4633	56.0391	65.6725	48.0358	47.9212	48.0358
19612	0	0	0	4.22352	2.89352	0	0	42.4592	56.2174	65.7364	48.0621	48.2531	47.9857
19672	0	0	0	4.22352	2.86328	0	0	42.5056	56.3536	65.7584	48.1226	48.199	48.1226
19732	0	0	0	4.22352	2.84669	0	0	42.5191	56.38	65.8225	48.3019	48.2637	48.2265
19792	0	0	0	4.22372	2.86765	0	0	42.563	56.4988	66.092	48.4594	48.4212	48.2303
19852	0	0	0	4.22332	2.86772	0	0	42.5732	56.3712	65.8137	48.2166	48.102	48.102
19912	0	0	0	4.22332	2.8893	0	0	42.6121	56.2438	65.9139	48.2414	48.1268	48.1268
19972	0	0	0	4.22332	2.90968	0	0	42.629	56.431	66.2893	48.3913	48.2385	48.2385
20030	0	0	0	4.22352	2.88689	0	0	42.6814	56.0616	65.7326	47.982	48.0202	47.8673

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time	dc(in)	bsn(in)	dewpt(F)	Air(F)	AIrVED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5(F)	DC1(F)	DC2(F)	VED(F)
24168	0	0	0	4.73392	2.80401	0	0	43.3983	56.8313	65.8555	48.4879	48.2206	48.1824
24228	0	0	0	4.73392	2.80518	0	0	43.3121	56.8188	65.5404	48.399	48.1698	48.2462
24288	0	0	0	4.79611	2.80516	0	0	43.3544	56.8578	65.9955	48.2373	48.0081	48.0845
24348	0	0	0	4.79611	2.80504	0	0	43.3459	56.6592	65.6842	48.315	48.124	48.0478
24408	0	0	0	4.79591	2.80394	0	0	43.3239	56.7182	65.743	48.2216	48.2216	48.0688
24468	0	0	0	4.79631	2.80394	0	0	43.3391	56.6928	65.6041	48.3488	48.196	48.1198
24528	0	0	0	4.79611	2.82504	0	0	43.378	56.8948	66.1834	48.339	48.3228	48.1698
24588	0	0	0	4.79631	2.84682	0	0	43.378	56.7763	65.7629	48.3181	48.1653	48.0507
24647	0	0	0	4.79631	2.84655	0	0	43.3814	56.5193	65.5828	48.1362	47.907	47.9452
24707	0	0	0	4.79898	2.82504	0	0	43.3493	56.5795	65.34	47.9868	47.9678	47.9367
24767	0	0	0	4.79611	2.82525	0	0	43.2835	56.7409	65.9925	48.1679	48.0151	47.9678
24827	0	0	0	4.86104	2.80394	0	0	43.3544	56.6863	65.6375	48.1533	48.1151	47.9623
24887	0	0	0	4.86104	2.82504	0	0	43.3036	56.7188	65.7188	48.2736	48.0828	48.1972
24947	0	0	0	4.86004	2.82653	0	0	43.2895	56.8071	65.3774	48.2727	48.0817	48.1581
25007	0	0	0	4.86104	2.79291	0	0	43.2884	56.7803	65.3507	48.2839	48.1311	48.1693
25067	0	0	0	4.86104	2.7798	0	0	43.3527	56.6928	65.7893	48.2342	48.005	48.0814
25127	0	0	0	4.86004	2.78291	0	0	43.2732	56.7458	65.8838	48.2492	48.0964	48.211
25187	0	0	0	4.86104	2.78473	0	0	43.2343	56.7224	66.1254	48.1494	48.264	48.264
25247	0	0	0	4.86004	2.79616	0	0	43.2191	56.7019	65.9159	48.1614	48.0142	48.0142
25307	0	0	0	4.86104	2.78298	0	0	43.2343	56.6401	65.4003	48.1812	48.0284	48.0284
25367	0	0	0	4.86124	2.7988	0	0	43.1582	56.7598	65.633	48.2633	48.2251	48.1105
25427	0	0	0	4.92374	2.8013	0	0	43.1616	56.6572	65.6444	48.1985	47.9693	47.9311
25487	0	0	0	4.92374	2.78298	0	0	43.1687	56.7748	65.6101	48.2784	48.3166	48.0874
25547	0	0	0	4.92495	2.80401	0	0	43.1599	56.8189	65.9587	48.2092	48.2846	48.17
25607	0	0	0	4.92353	2.79055	0	0	43.2123	56.5605	65.9643	48.1395	48.1013	48.1013
25667	0	0	0	4.92374	2.78298	0	0	43.2428	56.624	65.4978	48.0505	48.0123	48.0123
25727	0	0	0	4.92374	2.82504	0	0	43.1447	56.7773	65.8893	48.09	48.09	48.09
25787	0	0	0	4.92353	2.82498	0	0	43.2022	56.5735	65.4097	48.0761	48.0379	47.9997
25847	0	0	0	4.92881	2.78291	0	0	43.2174	56.4932	65.2542	47.8809	47.8809	47.8809
25907	0	0	0	4.98806	2.81449	0	0	43.1143	56.675	65.4572	47.8948	48.14	48.0638
25967	0	0	0	4.98806	2.78311	0	0	43.1954	56.4691	65.4572	47.9713	47.8948	47.8184
26027	0	0	0	4.98806	2.78298	0	0	43.2614	56.5916	65.8419	48.0247	48.0943	48.0179
26087	0	0	0	4.98806	2.78304	0	0	43.1633	56.7601	65.3306	48.3019	48.2637	48.1873
26147	0	0	0	4.98826	2.78291	0	0	43.2005	56.6409	65.439	48.1821	48.1057	47.9911
26207	0	0	0	4.98826	2.77594	0	0	43.2478	56.6279	66.4474	48.169	48.2072	48.0928
26267	0	0	0	4.98826	2.80394	0	0	43.1838	56.6762	66.0794	48.2679	48.1793	48.1793
26327	0	0	0	4.98867	2.76201	0	0	43.2039	56.7057	65.7683	48.209	48.2472	48.209
26387	0	0	0	4.98826	2.78298	0	0	43.2548	56.4754	65.3878	47.9776	47.8394	47.9776
26447	0	0	0	5.05075	2.78304	0	0	43.2528	56.6858	65.8419	48.2069	48.2451	48.1305
26506	0	0	0	5.05096	2.78304	0	0	43.3019	56.7065	65.8069	48.1716	48.0952	48.0952
26567	0	0	0	5.05096	2.78304	0	0	43.2715	56.5954	65.8964	48.2127	48.0981	47.9453
26627	0	0	0	5.05075	2.78304	0	0	43.2343	56.7464	65.7332	48.2681	48.1735	48.1735
26687	0	0	0	5.05075	2.82504	0	0	43.2833	56.5621	65.701	48.2556	48.1029	48.141
26746	0	0	0	5.05096	2.80401	0	0	43.2715	56.6124	65.5819	48.2298	48.2298	48.268
26807	0	0	0	5.05096	2.80394	0	0	43.2563	56.4962	65.3328	48.1895	48.0367	48.0367
26866	0	0	0	5.05096	2.80401	0	0	43.2783	56.5367	65.6379	48.2301	48.1919	48.1155
26926	0	0	0	5.05096	2.80398	0	0	43.0991	56.6121	65.8265	48.3059	48.115	48.2296
26986	0	0	0	5.05096	2.78304	0	0	43.1718	56.7699	65.4538	48.3498	48.2353	48.2353
27046	0	0	0	5.05096	2.80398	0	0	43.1599	56.726	65.675	48.2675	48.3439	48.2675
27106	0	0	0	5.11568	2.76184	0	0	43.0771	56.5806	65.3212	48.3305	48.2541	48.2923
27166	0	0	0	5.11609	2.76187	0	0	43.1312	56.6153	66.0188	48.3474	48.271	48.2328
27226	0	0	0	5.11588	2.76215	0	0	43.0689	56.623	65.1941	48.2404	48.1259	48.2404
27286	0	0	0	5.11609	2.76194	0	0	43.0416	56.6418	66.6418	48.2212	48.183	48.2212
27346	0	0	0	5.11609	2.76194	0	0	43.0449	56.6402	65.1355	48.2577	48.2577	48.1813
27406	0	0	0	5.11609	2.76208	0	0	42.9435	56.467	65.3038	48.0838	48.0458	48.122
27466	0	0	0	5.11609	2.76187	0	0	43.0044	56.5134	65.3499	48.0539	48.0157	48.1303
27526	0	0	0	5.18549	2.75633	0	0	43.0145	56.6335	65.3181	48.1364	48.1746	48.2892
27586	0	0	0	5.1867	2.74503	0	0	42.957	56.517	66.1101	48.2867	48.1721	48.3631
27646	0	0	0	5.1867	2.77337	0	0	42.9739	56.4779	65.6929	48.2856	48.1329	48.362
27706	0	0	0	5.1867	2.76431	0	0	42.9401	56.6106	65.1439	48.3044	48.1898	48.419
27766	0	0	0	5.1869	2.76194	0	0	42.957	56.4514	65.4017	48.2209	48.1445	48.1827
27826	0	0	0	5.1867	2.78298	0	0	42.8336	56.4458	64.7528	48.177	47.9096	48.1388
27886	0	0	0	5.1867	2.78298	0	0	42.8657	56.461	65.4491	48.2686	48.1158	48.0394
27946	0	0	0	5.1867	2.78291	0	0	42.8167	56.5509	65.1224	48.2444	48.1298	48.168
28006	0	0	0	5.1867	2.78291	0	0	42.9131	56.5586	65.1679	48.214	48.1758	48.023
28066	0	0	0	5.1869	2.78291	0	0	42.886	56.474	65.1985	48.2831	48.1303	48.1303
28126	0	0	0	5.25122	2.78291	0	0	42.886	56.5648	64.7956	48.2584	48.182	48.0674
28186	0	0	0	5.25102	2.76184	0	0	42.8488	56.6842	65.0837	48.511	48.2054	48.2054

time	dc(in)	bsn(in)	dwpt(F)	A1(F)	A1wED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5(F)	DC1(F)	DC2(F)	VED(F)
28246	0	0	0	5.25122	2.76343	0	0	42.9012	56.426	64.9602	48.1571	47.9661	47.9279
28306	0	0	0	5.25061	2.76194	0	0	42.8573	56.5327	64.9907	48.3025	48.1115	48.0351
28366	0	0	0	5.25102	2.76395	0	0	42.7592	56.4914	64.8936	48.0318	47.9554	47.9554
28426	0	0	0	5.25061	2.76221	0	0	42.7474	56.4343	64.7792	48.2036	48.2036	48.0126
28485	0	0	0	5.25548	2.73942	0	0	42.8668	56.5491	65.0449	48.2426	48.1622	48.0896
28545	0	0	0	5.25102	2.71832	0	0	42.7609	56.4488	64.7936	48.1418	47.9699	48.0634
28605	0	0	0	5.25082	2.70756	0	0	42.7541	56.4479	65.5595	48.3419	48.2655	48.3037
28666	0	0	0	5.25102	2.69722	0	0	42.7444	56.5929	64.9271	48.2384	48.2002	48.2384
28726	0	0	0	5.31514	2.73935	0	0	42.7321	56.5522	64.8206	48.2455	48.0927	48.2455
28785	0	0	0	5.31371	2.73935	0	0	42.6892	56.4509	64.8714	48.1821	48.1821	48.1821
28846	0	0	0	5.31432	2.76194	0	0	42.7118	56.6669	65.2778	48.2867	48.2867	48.2867
28906	0	0	0	5.31351	2.76194	0	0	42.6459	56.442	65.1653	48.0968	47.9822	47.9822
28965	0	0	0	5.31351	2.76194	0	0	42.6442	56.443	65.5826	48.2506	48.0596	48.0596
29025	0	0	0	5.31371	2.76201	0	0	42.6121	56.4931	64.9134	48.3009	48.1863	47.9953
29085	0	0	0	5.31351	2.76201	0	0	42.6713	56.5543	64.823	48.4398	48.3242	48.095
29145	0	0	0	5.31351	2.76201	0	0	42.5512	56.4187	64.7258	48.1879	48.0351	47.9823
29205	0	0	0	5.31371	2.76194	0	0	42.5901	56.5833	64.3976	48.277	48.3534	48.1242
29265	0	0	0	5.31371	2.76111	0	0	42.5478	56.4098	64.3374	48.1398	48.1016	47.9488
29325	0	0	0	5.31351	2.77506	0	0	42.5056	56.3993	64.7443	48.1303	48.1685	48.0157
29385	0	0	0	5.37763	2.73935	0	0	42.5625	56.3608	64.4769	48.0152	48.0152	48.0152
29445	0	0	0	5.37763	2.73942	0	0	42.5614	56.4457	64.3741	48.2049	48.2049	48.0139
29505	0	0	0	5.37763	2.73942	0	0	42.6324	56.4577	64.3615	48.1259	48.1641	47.9349
29565	0	0	0	5.37763	2.73942	0	0	42.5988	56.371	64.4512	48.14	48.0636	48.0254
29625	0	0	0	5.37763	2.73935	0	0	42.5628	56.3212	64.4394	48.0136	48.0136	48.0136
29685	0	0	0	5.37763	2.73935	0	0	42.5684	56.2763	64.5209	48.1203	48.0057	48.0057
29745	0	0	0	5.37763	2.71818	0	0	42.5428	56.3778	64.6472	47.9941	47.9941	47.8794
29805	0	0	0	5.37864	2.71818	0	0	42.5428	56.4588	64.8792	48.1136	48.2684	48.1136
29865	0	0	0	5.37763	2.72042	0	0	42.4599	56.4852	64.4892	48.2929	48.1784	48.102
29925	0	0	0	5.44114	2.73928	0	0	42.5715	56.4118	64.2269	48.1811	47.9901	47.9901
30045	0	0	0	5.44114	2.71812	0	0	42.4533	56.469	64.6245	48.203	48.1239	48.0857
30105	0	0	0	5.44114	2.73922	0	0	42.5478	56.6271	64.4034	48.2084	48.321	48.13
30165	0	0	0	5.44134	2.76228	0	0	42.5763	56.4683	64.6995	48.2378	48.1996	48.085
30225	0	0	0	5.44134	2.73942	0	0	42.5916	56.4303	65.078	48.276	48.1996	47.9704
30285	0	0	0	5.44134	2.73928	0	0	42.5988	56.371	64.4512	48.14	48.0636	48.0254
30345	0	0	0	5.44094	2.73933	0	0	42.5628	56.3212	64.4394	48.0136	48.0136	48.0136
30405	0	0	0	5.44094	2.74402	0	0	42.5684	56.2763	64.5209	48.1203	48.0057	48.0057
30465	0	0	0	5.50546	2.73935	0	0	42.5273	56.3391	64.4573	48.108	48.2698	48.108
30525	0	0	0	5.50546	2.73935	0	0	42.5225	56.3767	64.7218	48.184	48.1076	48.1076
30585	0	0	0	5.50546	2.71818	0	0	42.5446	56.1539	64.4622	48.0365	47.9219	47.9601
30645	0	0	0	5.50525	2.71825	0	0	42.5669	56.431	65.1922	48.1621	48.0475	48.0475
30705	0	0	0	5.50568	2.69722	0	0	42.6222	56.5274	64.8854	48.45	48.2972	48.2972
30765	0	0	0	5.50568	2.71825	0	0	42.5394	56.4018	64.4061	48.2855	48.2473	48.0181
30825	0	0	0	5.50546	2.67841	0	0	42.6273	56.2968	64.7114	48.3252	48.0512	48.0206
30885	0	0	0	5.50568	2.71818	0	0	42.6845	56.4967	64.3871	48.3046	48.19	47.954
30945	0	0	0	5.56815	2.71812	0	0	42.6628	56.1305	64.6454	48.1832	47.9922	47.954
31005	0	0	0	5.56815	2.71812	0	0	42.6628	56.3397	64.4948	48.184	48.1076	48.1076
31065	0	0	0	5.56815	2.70432	0	0	42.6848	56.333	65.019	48.1019	48.1401	48.1783
31125	0	0	0	5.56815	2.73962	0	0	42.7288	56.4223	65.4106	48.3062	48.3444	48.1152
31184	0	0	0	5.57343	2.71818	0	0	42.7254	56.2072	64.7045	48.1684	48.09	47.899
31244	0	0	0	5.56795	2.73928	0	0	42.7208	56.4536	65.0633	48.1849	48.2994	48.1084
31305	0	0	0	5.56815	2.71825	0	0	42.8015	56.3028	65.2538	48.1479	47.9951	47.9569
31365	0	0	0	5.56815	2.71818	0	0	42.7628	56.2773	64.7742	48.3514	48.275	47.9694
31424	0	0	0	5.56815	2.71818	0	0	42.7628	56.289	65.3536	48.2869	48.1723	48.2869
31485	0	0	0	5.56815	2.71825	0	0	42.7664	56.4232	65.1844	48.3463	48.1161	48.0295
31545	0	0	0	5.56815	2.71825	0	0	42.8167	56.223	64.3416	48.1823	48.1441	48.0295
31604	0	0	0	5.63268	2.71812	0	0	42.8285	56.3643	64.9744	48.1333	48.1333	48.1333
31664	0	0	0	5.63247	2.69715	0	0	42.8437	56.3151	64.774	48.313	48.0839	48.1985
31724	0	0	0	5.63268	2.69722	0	0	42.8302	56.3568	64.437	48.2765	48.1258	48.1639
31784	0	0	0	5.63247	2.69715	0	0	42.768	56.4786	65.2396	48.2492	48.21	48.21
31844	0	0	0	5.63247	2.69715	0	0	42.768	56.245	64.25	48.1663	48.0517	47.9371
31904	0	0	0	5.63247	2.65461	0	0	42.8065	56.3994	64.9994	48.3977	48.3113	48.1967
31964	0	0	0	5.63247	2.67611	0	0	42.8488	56.2778	64.8991	48.1992	48.161	47.97
32024	0	0	0	5.63227	2.68903	0	0	42.837	56.2652	64.8379	48.2629	48.1101	48.0719
32084	0	0	0	5.69984	2.71812	0	0	42.8522	56.3206	65.0823	48.2422	48.1658	48.1276
32144	0	0	0	5.69659	2.71812	0	0	42.8522	56.2865	65.124	48.1697	48.1315	48.0169
32204	0	0	0	5.69659	2.69722	0	0	42.8657	56.2823	64.7055	48.1655	48.1273	48.0127

[illegible]

time	dc(in)	bst(in)	dewpt(F)	Air(F)	AIWED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
36402		0	0	6.07805	2.66901	0	0	41.8072	55.7048	55.2263	48.2347	48.0819	47.9291
36462		0	0	6.14298	2.67571	0	0	41.7396	55.9338	64.0579	48.3926	48.1634	48.1252
36522		0	0	6.14298	2.67582	0	0	41.8986	55.8367	64.9791	48.2145	48.0617	48.0235
36581		0	0	6.1444	2.66524	0	0	41.6906	55.7018	63.747	48.3081	47.9644	48.0026
36641		0	0	6.14298	2.67855	0	0	41.7971	55.7861	63.9067	48.3164	48.24	48.0872
36702		0	0	6.14845	2.69728	0	0	41.6937	55.9297	64.0118	48.4225	48.3461	48.1551
36761		0	0	6.14277	2.69722	0	0	41.5688	55.7137	64.1374	48.2437	48.1673	47.9763
36821		0	0	6.14277	2.69674	0	0	41.393	55.6757	63.3422	48.1673	48.0527	47.8959
36881		0	0	6.14277	2.69715	0	0	41.3051	55.6321	62.7684	48.2381	48.0089	47.8943
36941		0	0	6.14277	2.65447	0	0	41.1749	55.6849	62.5937	48.1768	48.253	47.9474
37001		0	0	6.2073	2.64128	0	0	41.2391	55.8769	62.3303	48.2168	48.3312	48.1784
37061		0	0	6.2073	2.65474	0	0	41.1089	55.635	61.8997	48.241	47.9737	47.8972
37121		0	0	6.2073	2.65549	0	0	41.0159	55.6875	61.6109	48.2938	47.9882	47.95
37181		0	0	6.2073	2.65454	0	0	41.1157	55.7142	61.827	48.2823	48.015	47.9768
37241		0	0	6.2075	2.65454	0	0	40.8773	55.6411	62.5122	48.209	48.0562	48.0562
37301		0	0	6.2075	2.64778	0	0	40.7978	55.7121	63.4921	48.2803	47.9747	48.0893
37361		0	0	6.2075	2.61247	0	0	40.8333	55.7182	63.8011	48.2984	48.2984	48.0954
37421		0	0	6.2075	2.63168	0	0	40.7031	55.5734	63.1267	48.2558	47.9118	47.9882
37481		0	0	6.2075	2.63351	0	0	40.6188	55.8205	63.1455	48.3509	48.3127	48.2384
37541		0	0	6.2075	2.65454	0	0	40.627	55.7548	63.4968	48.2468	48.1094	48.2468
37601		0	0	6.27324	2.69722	0	0	40.8976	55.7066	63.1457	48.4657	48.1983	48.3129
37661		0	0	6.27162	2.67611	0	0	40.7792	55.507	62.6439	48.1507	48.0361	48.1889
37721		0	0	6.27162	2.65461	0	0	40.7388	55.5628	63.7222	48.245	48.0922	48.1686
37781		0	0	6.27709	2.67625	0	0	40.5425	55.6623	63.0637	48.3066	48.2302	48.1921
37841		0	0	6.27182	2.67618	0	0	40.6152	55.719	64.0292	48.3636	48.2202	48.1344
37901		0	0	6.27182	2.67618	0	0	40.5391	55.5333	63.3898	48.1389	47.9861	47.9479
37961		0	0	6.27162	2.65454	0	0	40.4578	55.4142	62.5514	48.0193	47.9429	47.9811
38021		0	0	6.27162	2.65454	0	0	40.4343	55.5317	62.4411	48.2901	48.0991	47.9845
38081		0	0	6.27162	2.65454	0	0	40.4681	55.5684	62.2503	48.4034	48.327	48.0214
38141		0	0	6.27162	2.65454	0	0	40.382	55.5209	61.8377	48.3175	48.2411	48.0119
38201		0	0	6.27182	2.63344	0	0	40.2905	55.4109	62.5481	48.2075	48.0924	47.9014
38260		0	0	6.33431	2.63405	0	0	40.2212	55.5647	61.6264	48.3615	48.2469	48.1323
38321		0	0	6.33411	2.63351	0	0	40.2347	55.6256	62.0799	48.2698	48.1834	48.117
38381		0	0	6.33431	2.63344	0	0	40.3311	55.4912	62.2113	48.173	48.1348	47.9438
38440		0	0	6.33431	2.63344	0	0	40.3734	55.4409	62.2369	48.1607	48.0843	48.0079
38501		0	0	6.33431	2.65447	0	0	40.255	55.3906	62.3684	48.1394	48.1002	47.9474
38560		0	0	6.33431	2.67287	0	0	40.1316	55.4938	62.5168	48.1754	48.099	48.0608
38620		0	0	6.33452	2.63351	0	0	40.1806	55.5713	63.1625	48.3681	48.1389	48.1007
38680		0	0	6.33431	2.65454	0	0	40.0944	55.2944	62.8489	48.281	48.0136	47.9372
38740		0	0	6.33452	2.66523	0	0	40.0454	55.3554	62.2654	48.3804	48.0368	48.113
38800		0	0	6.33431	2.67605	0	0	40.1654	55.3656	62.503	48.5053	48.1997	48.1233
38860		0	0	6.33452	2.65454	0	0	40.255	55.5132	61.93	48.5389	48.1187	48.2333
38920		0	0	6.39863	2.67611	0	0	40.1671	55.3251	62.0458	48.2737	47.8916	48.0827
38980		0	0	6.39884	2.65461	0	0	40.0388	55.4183	62.4249	48.4336	48.2908	48.3872
39040		0	0	6.40026	2.6567	0	0	39.9693	55.3195	62.4571	48.3926	48.1534	48.2298
39100		0	0	6.39884	2.65447	0	0	39.9152	55.4909	62.9688	48.4783	48.2491	48.3637
39160		0	0	6.39884	2.61369	0	0	39.8222	55.3614	62.082	48.3463	48.1191	48.2719
39220		0	0	6.39863	2.61254	0	0	39.7647	55.3826	61.9514	48.2167	48.1021	48.2931
39280		0	0	6.39884	2.62803	0	0	39.67	55.3433	61.609	48.2155	48.1009	48.1391
39340		0	0	6.39884	2.62823	0	0	39.6041	55.3561	61.4701	48.2665	48.1519	47.9691
39400		0	0	6.40026	2.63344	0	0	39.5787	55.4057	61.1025	48.2782	48.049	48.1638
39460		0	0	6.39884	2.60456	0	0	39.5905	55.43	61.5437	48.2643	48.1497	48.0733
39520		0	0	6.39884	2.6124	0	0	39.555	55.3969	62.2968	48.1447	48.2211	47.9919
39580		0	0	6.46173	2.59685	0	0	39.5398	55.2894	61.8964	48.1613	48.0849	48.0467
39640		0	0	6.46214	2.61254	0	0	39.4113	55.3849	61.6128	48.2955	48.0663	48.0663
39700		0	0	6.46194	2.62566	0	0	39.3082	55.4128	61.2989	48.3233	48.0677	48.0941
39760		0	0	6.46194	2.65461	0	0	39.3065	55.3093	60.9684	48.1431	48.1049	47.9139
39820		0	0	6.46194	2.65461	0	0	39.2	55.3667	61.1394	48.1626	48.239	48.048
39880		0	0	6.46194	2.63946	0	0	39.2033	55.2623	60.9974	48.1723	48.0195	48.0195
39940		0	0	6.46458	2.65454	0	0	39.2794	55.3335	62.443	48.2635	47.91	48.0628
40000		0	0	6.46194	2.65454	0	0	39.2219	55.3307	61.8618	48.241	48.1264	48.2028
40060		0	0	6.46194	2.65454	0	0	39.1763	55.4004	61.5521	48.2728	48.0818	48.2346
40120		0	0	6.52606	2.67618	0	0	39.0089	55.3524	60.8976	48.301	48.0718	48.0718
40180		0	0	6.52606	2.61247	0	0	39.0224	55.4786	61.251	48.3132	48.3514	48.275
40240		0	0	6.52646	2.61247	0	0	39.0968	55.3363	62.7789	48.2487	48.1341	48.0959
40300		0	0	6.52606	2.61254	0	0	38.992	55.3232	61.3615	48.2335	48.2335	48.2335
40359		0	0	6.52606	2.61254	0	0	39.1002	55.328	61.4042	48.2001	48.0473	47.9709
40419		0	0	6.52606	2.61247	0	0	39.1628	55.4616	61.9165	48.2961	48.1051	48.1815

time	dc(in)	bst(in)	air(F)	airVED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5(F)	DC1(F)	DC2(F)	VED(F)
40478	0	0	6.52646	2.61247	0	39.3471	55.3266	62.0851	48.2751	48.0077	48.1223	48.0077
40539	0	0	6.52626	2.63344	0	39.4113	55.173	61.1359	48.1209	48.0435	48.0063	48.0435
40599	0	0	6.52606	2.63351	0	40.0437	55.2736	61.6912	48.1455	48.1937	48.1073	48.1937
40659	0	0	6.52646	2.63357	0	39.7901	55.2072	61.208	48.0789	48.1171	48.1171	48.0789
40719	0	0	6.54148	2.6124	0	39.3471	55.3865	60.704	48.297	48.2206	48.2588	48.2206
40778	0	0	6.58959	2.61247	0	39.2439	55.2878	60.7192	48.2359	48.2741	48.2741	48.2359
40839	0	0	6.58916	2.5915	0	39.1881	55.287	61.8182	48.2353	48.1971	48.1589	48.1971
40899	0	0	6.58959	2.5915	0	38.9937	55.1768	61.0259	48.1629	48.1629	48.1247	48.1629
40959	0	0	6.58985	2.5915	0	38.8483	55.1748	60.8722	48.1981	48.1609	48.1227	48.1609
41019	0	0	6.58985	2.59698	0	38.7451	55.2101	60.9833	48.2345	48.1189	48.0647	48.1189
41079	0	0	6.58985	2.61344	0	38.7147	55.1932	61.6489	48.3321	48.2175	48.1928	48.2175
41139	0	0	6.58916	2.59671	0	38.6081	55.0609	60.8725	48.1611	48.1611	48.1611	48.1611
41199	0	0	6.65368	2.59688	0	38.5304	55.1652	61.1282	48.2659	48.1131	48.0603	48.1131
41259	0	0	6.65368	2.5915	0	38.642	55.2362	61.8058	48.2608	48.3371	48.2608	48.3371
41319	0	0	6.65368	2.5915	0	38.6538	55.15	62.705	48.3269	48.2505	48.2505	48.3269
41379	0	0	6.65368	2.61247	0	38.5895	55.2348	62.1832	48.2975	48.1829	48.0683	48.1829
41439	0	0	6.65348	2.63344	0	38.478	55.2225	61.1852	48.3233	48.3233	48.2087	48.3233
41499	0	0	6.65368	2.65454	0	38.4932	55.0583	60.794	48.1585	48.1203	48.0439	48.1585
41559	0	0	6.65327	2.63438	0	38.4205	55.2895	60.797	48.4298	48.2379	48.2379	48.4298
41619	0	0	6.65348	2.63344	0	38.412	55.0159	61.0931	48.1923	48.1159	48.1159	48.1923
41678	0	0	6.65368	2.63344	0	38.4391	55.102	60.3824	48.2406	48.128	48.0114	48.2406
41739	0	0	6.65348	2.63344	0	38.4002	55.1229	60.4412	48.2987	48.1852	48.0706	48.2987
41798	0	0	6.71739	2.62072	0	38.4594	55.0258	61.2928	48.3551	48.0877	48.0877	48.3551
41859	0	0	6.71739	2.63357	0	38.3697	54.9475	60.3422	48.1618	48.0472	48.0472	48.3422
41918	0	0	6.71719	2.62285	0	38.4272	54.9598	60.9222	48.2112	48.0968	48.0584	48.0968
41978	0	0	6.71719	2.61463	0	38.3308	54.9646	60.8527	48.37	48.1409	48.1791	48.1409
42038	0	0	6.71719	2.60097	0	38.3647	55.0784	62.1411	48.4078	48.2169	48.2169	48.4078
42098	0	0	6.71719	2.61247	0	38.4069	54.8424	61.3752	48.2855	48.0563	48.0945	48.2855
42158	0	0	6.72267	2.61288	0	38.4968	54.9247	61.9501	48.2154	48.0244	48.0628	48.0244
42218	0	0	6.71739	2.63344	0	38.319	55.0451	60.7809	48.4508	48.1452	48.3362	48.1452
42278	0	0	6.71739	2.5915	0	38.27	55.0523	60.7881	48.4982	48.1907	48.2289	48.1907
42338	0	0	6.71719	2.6124	0	38.2717	54.9476	60.3803	48.4676	48.1238	48.3148	48.1238
42398	0	0	6.78191	2.58959	0	38.1804	55.0729	60.1959	48.3965	48.2437	48.1673	48.2437
42458	0	0	6.78171	2.56971	0	38.1449	54.8907	60.4374	48.3341	48.0285	48.0687	48.0285
42518	0	0	6.78196	2.59137	0	38.0569	54.8377	60.043	48.3954	47.937	48.0516	47.937
42578	0	0	6.78496	2.58393	0	38.1009	55.0157	60.5999	48.3831	48.0776	48.2304	48.0776
42638	0	0	6.78171	2.57595	0	38.0214	54.7768	60.3615	48.334	47.8903	47.9139	47.8903
42698	0	0	6.78171	2.59671	0	37.9555	54.7732	60.0925	48.2925	48.1015	48.0251	48.1015
42758	0	0	6.78354	2.5915	0	37.8912	54.9814	60.1863	48.4633	48.2341	48.2723	48.2341
42818	0	0	6.78151	2.63351	0	37.8946	54.9573	60.2761	48.4391	48.2098	48.1335	48.2098
42878	0	0	6.78191	2.59684	0	37.8016	55.0395	60.0549	48.4937	48.2164	48.1782	48.2164
42938	0	0	6.78191	2.60206	0	37.7238	55.0229	60.3036	48.4079	48.2169	48.2169	48.4079
42998	0	0	6.78151	2.63344	0	37.6782	55.0229	60.3036	48.3903	48.1123	48.1612	48.1123
43058	0	0	6.78151	2.6124	0	37.6528	55.0139	60.4843	48.4577	48.114	48.2668	48.114
43118	0	0	6.78151	2.61247	0	37.6156	55.0299	60.7278	48.4355	48.0536	48.321	48.0536
43178	0	0	6.78171	2.61247	0	37.6393	54.9012	61.9267	48.2682	47.848	48.1536	47.848
43238	0	0	6.78171	2.61254	0	37.6376	54.8958	60.5562	48.1864	47.919	48.1482	47.919
43298	0	0	6.78151	2.61247	0	37.6596	55.0924	61.1314	48.3073	48.1927	48.2691	48.1927
43358	0	0	6.84421	2.59144	0	37.619	54.7645	61.7904	48.1691	47.9399	47.9399	48.1691
43418	0	0	6.84624	2.59144	0	37.5345	54.8392	60.6894	48.2823	48.2823	48.1295	48.2823
43477	0	0	6.84461	2.59177	0	37.526	54.8047	60.3516	48.2095	48.0567	48.0185	48.0567
43537	0	0	6.84441	2.59144	0	37.5564	55.0881	61.203	48.3794	48.3187	48.2266	48.3187
43597	0	0	6.84441	2.59157	0	37.5896	55.1038	60.5359	48.6243	48.3076	48.2042	48.3076
43657	0	0	6.84461	2.59218	0	37.5531	54.8779	60.2349	48.3594	48.3976	48.092	48.3976
43717	0	0	6.84441	2.59175	0	37.5175	54.8622	60.1434	48.3818	48.1145	47.9617	48.1145
43777	0	0	6.84441	2.56968	0	37.4719	54.6774	59.9971	48.3109	47.9671	47.8525	47.9671
43837	0	0	6.84421	2.56973	0	37.5243	54.8991	61.5834	48.1481	47.9605	47.9987	47.9605
43897	0	0	6.84441	2.59157	0	37.3704	54.9915	60.2343	48.4352	48.1678	48.015	48.1678
43957	0	0	6.84421	2.57182	0	37.3163	54.8333	60.0386	48.1236	48.0472	47.8944	48.0472
44017	0	0	6.90913	2.59144	0	37.2487	54.8155	59.9071	48.1821	48.0293	48.0728	48.0293
44077	0	0	6.91339	2.59144	0	37.2233	54.8968	60.064	48.302	48.1492	48.0283	48.1492
44136	0	0	6.90853	2.56979	0	37.1202	54.7768	60.172	48.2197	48.0689	48.0287	48.0689
44196	0	0	6.90974	2.61247	0	37.225	54.922	62.0231	48.3654	48.2389	48.1352	48.2389
44257	0	0	6.90873	2.61497	0	37.0559	54.8447	60.8466	48.2497	48.1733	48.1733	48.2497
44316	0	0	6.90913	2.6124	0	37.1134	54.8824	60.3152	48.1347	48.0583	47.9437	48.0583
44376	0	0	6.90873	2.61342	0	37.1828	54.8085	60.6968	48.2133	48.0223	48.0223	48.2133
44437	0	0	6.90873	2.63344	0	37.1574	54.7956	60.3425	48.2385	48.1621	48.1621	48.2385
44496	0	0	6.90873	2.63344	0	37.127	55.0821	60.1729	48.4497	48.1824	48.2588	48.1824

time	dc(in)	bsn(in)	dewpt(F)	Air(F)	AIWED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
44556	0	0	6.97163	2.63351	0	37.0892	54.8428	60.3136	48.3623	48.2095	48.2859	48.3623	48.2095
44616	0	0	6.97183	2.5915	0	37.0103	54.9349	61.3157	48.4547	48.0728	48.302	48.4547	48.0728
44676	0	0	6.97183	2.6124	0	37.0695	54.9368	61.5451	48.3803	48.1893	48.3039	48.3803	48.1893
44736	0	0	6.97183	2.5888	0	37.0018	54.8233	60.8253	48.3427	48.3045	48.2281	48.3427	48.3045
44796	0	0	6.97163	2.5725	0	36.9849	54.8563	60.5927	48.414	48.414	48.2613	48.414	48.414
44856	0	0	6.97203	2.5862	0	36.8835	54.7516	60.3745	48.309	48.2708	48.118	48.309	48.2708
44916	0	0	6.97165	2.53002	0	36.9004	54.8892	60.0944	48.1798	48.1034	48.1034	48.1798	48.1034
44976	0	0	6.97163	2.56066	0	36.87	54.8738	60.4205	48.3171	48.2407	48.2789	48.3171	48.2407
45036	0	0	6.97163	2.54862	0	36.7972	54.8964	60.2533	48.2634	48.1106	48.1488	48.2634	48.1106
45096	0	0	6.97163	2.56979	0	36.8226	54.8353	60.2303	48.2784	48.1256	48.0974	48.2784	48.1256
45156	0	0	6.97183	2.56966	0	36.8091	54.8472	60.1684	48.405	48.2904	48.1376	48.405	48.2904
45216	0	0	7.03595	2.56959	0	36.7499	54.7254	60.1208	48.2827	48.0535	48.0535	48.2827	48.0535
45276	0	0	7.03615	2.56966	0	36.7565	54.7615	60.6878	48.2807	48.0133	48.1661	48.2807	48.0133
45336	0	0	7.03595	2.56973	0	36.6975	54.8353	60.1545	48.3166	47.9728	48.202	48.3166	47.9728
45396	0	0	7.03615	2.57013	0	36.711	54.8052	59.8588	48.2482	48.0654	48.21	48.2482	48.0654
45456	0	0	7.03595	2.5915	0	36.6485	54.8459	60.5065	48.2127	48.0217	48.1745	48.2127	48.0217
45516	0	0	7.03615	2.5915	0	36.6214	54.9012	60.0684	48.3927	48.0118	48.23	48.3927	48.0118
45576	0	0	7.03615	2.61247	0	36.6704	54.9631	60.2819	48.3303	48.1775	48.2921	48.3303	48.1775
45636	0	0	7.03635	2.59144	0	36.5149	54.9391	60.3338	48.3062	48.2298	48.3826	48.3062	48.2298
45696	0	0	7.03615	2.63344	0	36.3948	54.7173	59.8471	48.1981	48.2363	48.3263	48.1981	48.2363
45756	0	0	7.03615	2.6124	0	36.3052	54.7097	59.8395	48.2669	48.0759	48.2287	48.2669	48.0759
45816	0	0	7.03615	2.6124	0	36.3407	54.7834	59.7612	48.3027	48.0735	48.1881	48.3027	48.0735
45876	0	0	7.03575	2.61335	0	36.2866	54.7378	59.4501	48.257	48.1424	48.1424	48.257	48.1424
45936	0	0	7.09865	2.59144	0	36.1344	54.8398	59.9314	48.283	48.263	48.2066	48.283	48.2066
45996	0	0	7.09885	2.5915	0	36.1733	54.9388	59.7644	48.3441	48.3059	48.2295	48.3441	48.3059
46056	0	0	7.09905	2.59144	0	36.1666	54.6888	60.0084	48.2841	48.1314	48.0932	48.2841	48.1314
46116	0	0	7.09966	2.56968	0	36.1108	54.8948	60.1379	48.4145	48.2235	48.1853	48.4145	48.2235
46176	0	0	7.09905	2.56959	0	36.1547	54.6905	59.9243	48.2376	48.1613	48.0467	48.2376	48.1613
46236	0	0	7.09865	2.56986	0	36.0567	54.8165	59.8322	48.3359	48.2213	48.145	48.3359	48.2213
46296	0	0	7.09885	2.54856	0	36.1294	54.7325	59.8243	48.328	48.0988	48.137	48.328	48.0988
46355	0	0	7.09865	2.54917	0	36.1395	54.9305	59.87	48.4885	48.4503	48.2594	48.4885	48.4503
46415	0	0	7.10047	2.56966	0	36.1767	54.6976	59.6756	48.3311	48.2547	48.0258	48.3311	48.2547
46475	0	0	7.09865	2.56188	0	36.0888	54.5795	59.5579	48.2127	48.0217	47.9835	48.2127	48.0217
46535	0	0	7.09885	2.54856	0	36.2088	54.8478	61.1055	48.243	47.9756	48.052	48.243	47.9756
46595	0	0	7.09865	2.54862	0	36.219	54.682	60.5327	48.2009	48.0481	47.9717	48.2009	48.0481
46655	0	0	7.16398	2.5539	0	36.1006	54.7421	60.1754	48.414	48.2231	48.1085	48.414	48.2231
46715	0	0	7.16398	2.59144	0	36.0211	54.6121	59.7422	48.359	48.2835	48.1307	48.359	48.2835
46775	0	0	7.16398	2.57	0	35.967	54.6755	59.8813	48.3853	48.2328	48.2328	48.3853	48.2328
46835	0	0	7.16378	2.59144	0	35.9755	54.5604	59.9942	48.1935	47.9261	48.0407	48.1935	47.9261
46895	0	0	7.16378	2.61247	0	36.0854	54.7337	59.7875	48.3292	48.0236	48.1764	48.3292	48.0236
46955	0	0	7.16378	2.59144	0	36.0839	54.7956	59.8113	48.3913	48.1622	48.315	48.3913	48.1622
47015	0	0	7.16398	2.5915	0	36.1158	54.7696	59.7854	48.327	48.3852	48.2124	48.327	48.3852
47075	0	0	7.16337	2.5915	0	36.1243	54.508	59.5245	48.179	48.1026	48.0644	48.179	48.1026
47135	0	0	7.16378	2.6124	0	36.1327	54.6397	59.58	48.3495	48.0821	48.1585	48.3495	48.0821
47195	0	0	7.16357	2.59157	0	36.153	54.6716	59.6497	48.496	48.2287	48.1905	48.496	48.2287
47255	0	0	7.16398	2.59144	0	36.1378	54.7162	59.9219	48.262	48.1206	48.1588	48.262	48.1206
47315	0	0	7.20659	2.5915	0	36.1277	54.9071	59.9605	48.5415	48.3123	48.3505	48.5415	48.3123
47374	0	0	7.23439	2.57033	0	36.1158	54.772	59.9656	48.2411	48.2793	48.2029	48.2411	48.2793
47434	0	0	7.22972	2.59144	0	36.1091	54.5463	59.8663	48.1792	48.1141	48.0647	48.1792	48.1141
47494	0	0	7.22972	2.56959	0	36.1547	54.4774	59.532	48.1865	47.9955	48.1101	48.1865	47.9955
47554	0	0	7.22992	2.54876	0	36.06	54.5595	59.8035	48.3453	48.0779	48.0779	48.3453	48.0779
47614	0	0	7.22992	2.51515	0	35.8975	54.4399	59.5705	48.3017	48.0343	48.1907	48.3017	48.0343
47674	0	0	7.22972	2.54856	0	35.9704	54.5275	59.7337	48.3132	48.0459	48.1887	48.3132	48.0459
47734	0	0	7.22992	2.54935	0	35.8925	54.6632	59.6413	48.4494	48.182	48.2202	48.4494	48.182
47794	0	0	7.22992	2.54031	0	35.8825	54.5149	59.7591	48.2242	48.0714	48.1096	48.2242	48.0714
47854	0	0	7.22982	2.54844	0	35.7709	54.5059	59.4085	48.2533	48.1387	48.1387	48.2533	48.1387
47914	0	0	7.29404	2.54188	0	35.7388	54.4154	59.5461	48.2771	48.0861	48.0861	48.2771	48.0861
47974	0	0	7.29404	2.52773	0	35.6559	54.5371	59.5156	48.2847	48.0937	48.0937	48.2847	48.0937
48034	0	0	7.29404	2.52752	0	35.8047	54.4979	59.5903	48.1307	48.0543	48.0161	48.1307	48.0543
48094	0	0	7.29445	2.59144	0	35.6525	54.5178	59.6482	48.3417	48.1125	48.1507	48.3417	48.1125
48154	0	0	7.29465	2.59144	0	35.6221	54.4449	59.6893	48.3067	48.0394	48.0012	48.3067	48.0394
48214	0	0	7.28445	2.59144	0	35.6103	54.583	59.6372	48.5216	48.1397	48.2543	48.5216	48.1397
48274	0	0	7.28404	2.59157	0	35.612	54.5198	59.7378	48.2291	48.1145	48.0381	48.2291	48.1145
48334	0	0	7.29384	2.59144	0	35.6238	54.4684	60.0163	48.3303	47.9483	47.9101	48.3303	47.9483
48394	0	0	7.28404	2.59137	0	35.6238	54.5644	59.6947	48.6947	48.1211	48.1211	48.6947	48.1211
48454	0	0	7.28404	2.56973	0	35.6221	54.73	59.8597	48.5928	48.4019	48.0963	48.5928	48.4019
48514	0	0	7.28404	2.59144	0	35.5834	54.7307	59.7086	48.6317	48.3644	48.0588	48.6317	48.3644
48574	0	0	7.28404	2.56959	0	35.5223	54.5404	59.6327	48.5171	48.3262	48.0597	48.5171	48.3262

time	dc1(m)	bsn(m)	dewpt(F)	Air(F)	ArVed(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)								
48634	0	0	7.35653	2.59184	0	35.5021	54.3987	59.2138	48.2483	48.1719	47.7899	47.8281	47.9427	52.6732	53.473	47.0638	0	0	0	0	4095
48693	0	0	7.35633	2.54856	0	35.5359	54.2711	59.1748	48.2855	47.7889	47.8271	47.7506	47.9271	52.5579	53.3959	47.0627	0	0	0	0	4095
48754	0	0	7.35633	2.54862	0	35.4429	54.4721	59.4128	48.2958	48.1048	47.8756	47.9138	47.9138	52.5687	53.4062	47.0349	0	0	0	0	4095
48813	0	0	7.381	2.54862	0	35.3989	54.4847	59.5392	48.3468	48.1174	48.041	47.9646	47.9646	52.7332	53.4949	47.124	0	0	0	0	4095
48873	0	0	7.35674	2.52752	0	35.4081	54.405	59.6115	48.3048	48.1139	47.9228	47.8082	47.8082	52.5772	53.3771	47.0439	0	0	0	0	4095
48933	0	0	7.35653	2.50662	0	35.3651	54.444	59.8022	48.4968	48.2676	48.153	48.0384	48.0768	52.8067	53.6065	47.1595	0	0	0	0	4095
48993	0	0	7.35653	2.52827	0	35.2501	54.5434	59.8255	48.482	48.1382	48.1382	47.9247	48.1382	52.7692	53.6298	47.2594	0	0	0	0	4095
49053	0	0	7.35653	2.52752	0	35.2095	54.4451	59.5757	48.0395	48.1541	48.1382	47.9429	48.1382	52.7317	53.5315	47.1224	0	0	0	0	4095
49113	0	0	7.35653	2.54687	0	35.169	54.5315	59.5858	48.3554	48.2408	48.0498	47.9734	48.0498	52.7038	53.5038	47.0945	0	0	0	0	4095
49173	0	0	7.35653	2.53219	0	35.2332	54.3804	59.7009	48.2802	48.1656	48.051	47.9384	47.9384	52.6689	53.4667	47.0574	0	0	0	0	4095
49233	0	0	7.35697	2.53787	0	35.0675	54.3914	59.4842	48.1384	48.062	48.062	47.8328	47.871	52.6398	53.5158	47.145	0	0	0	0	4095
49293	0	0	7.35633	2.54862	0	35.0878	54.2713	59.2885	48.1325	48.0581	47.9787	47.7887	47.9415	52.5858	53.4338	46.9479	0	0	0	0	4095
49353	0	0	7.42085	2.59144	0	35.1436	54.3061	59.4371	48.1292	48.0528	47.9784	47.7894	47.9415	52.5858	53.4338	46.9479	0	0	0	0	4095
49413	0	0	7.42085	2.59144	0	34.9762	54.4258	59.1768	48.2111	48.173	48.0968	47.8291	47.9437	52.6743	53.5122	47.103	0	0	0	0	4095
49473	0	0	7.42085	2.56968	0	34.8156	54.4181	59.2831	48.2798	48.316	48.1653	47.8596	47.8742	52.7047	53.6187	47.0571	0	0	0	0	4095
49533	0	0	7.42187	2.5915	0	34.8325	54.5168	59.3702	48.4552	48.3406	48.2642	47.9969	48.0351	52.8034	53.6793	47.1179	0	0	0	0	4095
49593	0	0	7.42187	2.59144	0	34.7685	54.3052	59.3602	48.1665	48.1665	48.0519	47.8372	48.0137	52.6878	53.4295	46.9819	0	0	0	0	4095
49653	0	0	7.42085	2.59144	0	34.7361	54.3659	59.5348	48.1128	48.1128	47.96	47.8072	47.8936	52.6524	53.5284	47.0428	0	0	0	0	4095
49713	0	0	7.42085	2.59144	0	34.7395	54.2658	59.8143	48.2033	48.0123	48.0123	47.8072	47.8936	52.6524	53.5284	47.0428	0	0	0	0	4095
49773	0	0	7.42511	2.56973	0	34.6651	54.2379	59.4828	48.1753	48.2135	48.0989	47.7061	47.8697	52.4759	53.3901	46.9423	0	0	0	0	4095
49833	0	0	7.42085	2.528	0	34.6955	54.2245	59.3937	48.162	47.9328	48.0474	47.7798	47.8945	52.6252	53.387	47.0538	0	0	0	0	4095
49893	0	0	7.42085	2.54856	0	34.5991	54.4545	59.7748	48.3164	48.3164	48.1636	47.7768	48.0872	52.703	53.6552	47.1701	0	0	0	0	4095
49953	0	0	7.42108	2.52874	0	34.6008	54.3748	59.2396	48.1215	47.9305	48.0069	47.7777	47.8923	52.623	53.499	47.0516	0	0	0	0	4095
50013	0	0	7.42108	2.50656	0	34.5907	54.3362	59.6188	48.1978	48.1594	48.083	47.8538	48.0137	52.5083	53.4225	46.9368	0	0	0	0	4095
50073	0	0	7.48416	2.52231	0	34.5112	54.2508	59.4189	48.2265	48.0355	48.2265	47.8445	47.9209	52.5372	53.4133	47.042	0	0	0	0	4095
50132	0	0	7.48398	2.50385	0	34.4438	54.2683	59.5871	48.2039	48.0129	48.2421	47.8983	47.9365	52.7051	53.543	47.0575	0	0	0	0	4095
50192	0	0	7.48438	2.52759	0	34.4419	54.3208	59.186	48.144	47.9147	48.144	47.8383	47.7237	52.551	53.4452	46.9211	0	0	0	0	4095
50252	0	0	7.48416	2.50656	0	34.4487	54.2011	59.6359	48.1384	47.9474	48.0238	47.871	47.7182	52.4874	53.4396	47.0302	0	0	0	0	4095
50312	0	0	7.48436	2.50656	0	34.4317	54.2321	59.6289	48.0549	48.0187	48.0549	47.8257	47.9021	52.6708	53.4326	47.0613	0	0	0	0	4095
50372	0	0	7.48438	2.50656	0	34.352	54.2749	59.5957	48.0979	47.9451	47.9833	47.8687	47.8305	52.5232	53.3983	47.0682	0	0	0	0	4095
50432	0	0	7.48416	2.52768	0	34.3083	54.328	59.2311	48.0368	48.113	48.113	47.922	47.8938	52.6145	53.5286	47.0812	0	0	0	0	4095
50492	0	0	7.48416	2.52752	0	34.2305	54.5059	59.5604	48.3297	48.1769	48.1769	47.8371	47.9517	52.5298	53.7446	47.1835	0	0	0	0	4095
50552	0	0	7.48416	2.53347	0	34.2745	54.3576	59.3745	48.2955	48.0281	47.9899	47.8371	47.9517	52.5298	53.5963	46.9581	0	0	0	0	4095
50612	0	0	7.48438	2.56959	0	34.3134	54.3842	59.2872	48.284	48.2076	48.0548	47.9402	48.0166	52.6328	53.661	47.0231	0	0	0	0	4095
50672	0	0	7.48416	2.56968	0	34.3269	54.3151	59.5219	48.291	48.1	48.0236	47.909	47.8708	53.6298	47.0682	0	0	0	0	4095	
50732	0	0	7.54848	2.56968	0	34.403	54.4675	60.0913	48.4822	48.253	48.2912	48.062	48.1002	52.7541	53.7823	47.1831	0	0	0	0	4095
50792	0	0	7.54828	2.56959	0	34.2684	54.3095	59.7061	48.4	48.0945	48.1708	47.7888	47.9798	52.596	53.6243	47.1774	0	0	0	0	4095
50852	0	0	7.54848	2.54856	0	34.3016	54.2509	59.5717	48.3412	48.0738	48.0738	47.8446	47.9974	52.6195	53.6037	47.1105	0	0	0	0	4095
50912	0	0	7.54848	2.56973	0	34.3016	54.2793	59.9735	48.3254	48.0581	48.0199	47.7524	47.8288	52.5597	53.5119	47.0645	0	0	0	0	4095
50972	0	0	7.54828	2.52759	0	34.3083	54.2394	59.3326	48.3287	48.0623	48.0241	47.8713	48.0241	52.6401	53.5542	47.1452	0	0	0	0	4095
51032	0	0	7.54848	2.54882	0	34.1714	54.2276	59.2828	48.3178	48.165	48.0504	47.8584	47.8212	52.552	53.5043	47.0951	0	0	0	0	4095
51092	0	0	7.54848	2.52759	0	34.2643	54.3087	59.6284	48.2846	48.1318	48.17	47.9408	48.0554	52.7094	53.5984	47.0238	0	0	0	0	4095
51152	0	0	7.54868	2.50649	0	34.2882	54.2395	59.6743	48.177	48.1006	48.0624	47.8714	47.8714	52.5259	53.5924	47.1835	0	0	0	0	4095
51212	0	0	7.54828	2.52759	0	34.2625	54.2079	59.3012	48.2599	48.0307	48.1835	47.8397	48.0307	52.6088	53.5988	47.19	0	0	0	0	4095
51272	0	0	7.54868	2.50658	0	34.2525	54.2079	59.3012	48.2599	48.0307	48.1835	47.8397	48.0307	52.6088	53.5988	47.19	0	0	0	0	4095
51332	0	0	7.54828	2.48491	0	34.2305	54.2154	59.2327	48.2292	48.1528	48.2874	47.8236	47.8854	52.5389	53.5302	47.0446	0	0	0	0	4095
51392	0	0	7.54848	2.50649	0	34.2643	54.3087	59.6284	48.2846	48.1318	48.17	47.9408	48.0554	52.7094	53.5984	47.0238	0	0	0	0	4095
51452	0	0	7.54848	2.50649	0	34.2407	54.3602	59.1494	48.4509	48.2981	48.3745	47.8005	48.1453	52.761	53.8273	47.3811	0	0	0	0	4095
51512	0	0	7.61077	2.50743	0	34.2088	54.1531	59.2465	48.3195	48.1285	48.1687	47.8993	47.9375	52.6299	53.5821	46.9438	0	0	0	0	4095
51572	0	0	7.61107	2.50649	0	34.1697	54.3109	59.1761	48.2486	48.1722	48.134	47.8284	47.9812	52.5592	53.5875	47.064	0	0	0	0	4095
51632	0	0	7.61118	2.52745	0	34.2153	54.2567	59.5017	48.3852	48.1561	48.1178	47.965	48.0415	52.6955	53.6476	47.1243	0	0	0	0	4095
51692	0	0	7.61097	2.50743	0	34.1984	54.1607	59.6337	48.2597	48.0979	48.1361	47.9451	47.9451	52.6613	53.5516	47.0662	0	0	0	0	4095
51752	0	0	7.61097	2.50662	0	34.0902	54.169	59.7477	48.3273	48.2127	48.2127	48.0217	47.9835	52.6377	53.5989	47.181	0	0	0	0	4095
51812	0	0	7.61097	2.50704	0	34.2001	54.2235	59.6962	48.3901	48.3137	48.2373	47.9699	48.0463	52.6241	53.7286	47.2056	0	0	0	0	4095
51872	0	0	7.61118	2.50757	0	34.1578	54.0162	59.4137	48.1439	48.1439	48.0293	47.8001	47.7619	52.4548	53.5974	46.9975	0	0	0	0	4095
51932	0	0	7.61138	2.52752	0	34.102	54.0579	59.0377	48.1093	48.0329	48.0329	47.8037	47.7655	52.4965	53.563	46.9628	0	0	0		

time	dc(in)	ban(in)	dewpt(F)	Air(F)	AirVed(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
52711	0	0	0	7.67551	2.54856	0	0	34.0158	53.937	58.9931	48.4082	48.1408	48.1408
52771	0	0	0	7.6757	2.52745	0	0	33.9127	54.0265	59.1203	48.307	48.1542	48.2306
52831	0	0	0	7.6757	2.56648	0	0	33.8585	54.1973	59.1387	48.3256	48.1346	48.211
52891	0	0	0	7.6755	2.50689	0	0	33.8822	53.9892	59.0072	48.1932	48.0786	48.0404
52951	0	0	0	7.73961	2.52752	0	0	33.8366	53.9328	59.3684	48.213	48.0602	48.1748
53011	0	0	0	7.74002	2.52671	0	0	33.8197	54.1367	59.0783	48.3411	48.1502	48.0819
53071	0	0	0	7.73961	2.48491	0	0	33.8129	54.1067	59.3141	48.1965	48.1583	48.0819
53131	0	0	0	7.73961	2.49898	0	0	33.7858	53.9949	60.1893	48.1889	48.0843	48.1889
53191	0	0	0	7.73961	2.49438	0	0	33.8619	54.1141	59.3594	48.3185	48.1657	48.3185
53251	0	0	0	7.73961	2.48491	0	0	33.9718	54.1542	60.5757	48.2442	48.206	48.206
53310	0	0	0	7.73961	2.45319	0	0	34.1375	54.0678	62.0063	48.3102	48.1192	48.1574
53370	0	0	0	7.73961	2.50658	0	0	34.2593	54.0702	62.238	48.3128	48.1216	48.188
53430	0	0	0	7.73961	2.49837	0	0	34.2728	54.0916	61.9163	48.2577	47.9903	48.1431
53490	0	0	0	7.73961	2.48485	0	0	34.3675	54.2218	60.8706	48.2738	48.121	48.2356
53550	0	0	0	7.73961	2.48491	0	0	34.381	54.1731	60.5565	48.3777	48.2249	48.2631
53610	0	0	0	7.73961	2.50658	0	0	34.3661	54.1634	60.0537	48.1769	48.1769	48.1769
53670	0	0	0	7.80353	2.48478	0	0	34.4064	54.1342	60.7454	48.2623	48.0331	48.0331
53730	0	0	0	7.80353	2.50658	0	0	34.4267	54.0767	60.5743	48.281	48.09	48.0331
53790	0	0	0	7.80353	2.48491	0	0	34.4689	54.0396	60.4894	48.1291	47.9763	47.9763
53850	0	0	0	7.80353	2.46381	0	0	34.5028	54.3512	60.2409	48.48	48.3654	48.4418
53910	0	0	0	7.80353	2.48735	0	0	34.5095	54.1423	60.6017	48.194	48.0412	48.1176
53970	0	0	0	7.80353	2.48485	0	0	34.7615	54.1431	60.7163	48.2712	48.042	48.0802
54030	0	0	0	7.86158	2.48478	0	0	34.7429	54.2337	61.0721	48.2475	48.4003	48.0947
54090	0	0	0	7.80393	2.48491	0	0	34.8088	54.1769	59.9534	48.1906	48.287	48.1142
54150	0	0	0	7.83498	2.48485	0	0	35.0607	54.167	59.7538	48.1424	48.1424	48.066
54210	0	0	0	7.86643	2.48491	0	0	35.1419	54.0477	61.3797	48.2137	48.0227	47.9845
54269	0	0	0	7.86643	2.48485	0	0	34.9931	54.2157	60.2956	48.4586	48.2295	48.1149
54329	0	0	0	7.86643	2.48485	0	0	35.0728	54.3374	59.7339	48.428	48.2752	48.0752
54389	0	0	0	7.86622	2.48491	0	0	35.1808	54.3073	61.0696	48.3978	48.0923	48.1304
54449	0	0	0	7.87109	2.48388	0	0	35.0878	54.0048	60.6921	48.3232	48.0176	47.9794
54509	0	0	0	7.86643	2.50658	0	0	35.0895	54.1278	60.208	48.4086	48.1785	48.0649
54569	0	0	0	7.86643	2.48485	0	0	35.2062	54.2008	60.7359	48.2909	48.0618	48.0618
54629	0	0	0	7.86643	2.50027	0	0	35.1625	54.2765	60.3562	48.5197	48.2523	48.2905
54689	0	0	0	7.86683	2.52759	0	0	35.2687	54.2168	61.3963	48.5359	48.154	48.1922
54749	0	0	0	7.86683	2.54856	0	0	35.3078	54.1695	61.7195	48.3651	48.0595	48.0213
54809	0	0	0	7.86643	2.50689	0	0	35.4006	54.2537	60.6369	48.3822	48.1148	48.1148
54869	0	0	0	7.93075	2.52752	0	0	35.2552	54.2678	60.8743	48.4164	48.3401	48.2255
54929	0	0	0	7.92365	2.52752	0	0	35.245	54.2273	59.8898	48.2783	48.0883	48.0501
54989	0	0	0	7.93075	2.48769	0	0	35.3837	54.0367	60.231	48.3936	48.2409	48.0499
55049	0	0	0	7.93075	2.50649	0	0	35.3593	54.0284	60.2616	48.3099	48.1189	48.0807
55109	0	0	0	7.93075	2.50658	0	0	35.4141	53.9809	60.4669	48.2493	48.0201	48.0201
55169	0	0	0	7.93075	2.48491	0	0	35.3688	54.1745	59.6094	48.4937	48.2263	48.2263
55229	0	0	0	7.93075	2.47429	0	0	35.3499	54.1316	60.022	48.4124	48.2596	48.2978
55289	0	0	0	7.93075	2.50257	0	0	35.4902	54.0887	61.1172	48.4458	48.2166	48.2166
55349	0	0	0	7.93115	2.50879	0	0	35.3363	54.2292	59.626	48.3958	48.052	48.1688
55409	0	0	0	7.93075	2.46902	0	0	35.3668	54.2295	59.7781	48.396	48.0905	48.1287
55469	0	0	0	7.93075	2.50658	0	0	35.426	54.2431	59.9434	48.3715	48.2951	48.3333
55529	0	0	0	7.93095	2.46388	0	0	35.3955	54.3088	59.9331	48.4757	48.3811	48.3229
55589	0	0	0	7.93095	2.48485	0	0	35.4429	54.1964	61.6415	48.4011	48.3247	48.3247
55649	0	0	0	7.93075	2.48424	0	0	35.404	54.1206	60.7318	48.325	48.1722	48.2668
55709	0	0	0	7.93075	2.48491	0	0	35.3549	54.1985	60.4302	48.5178	48.2886	48.2504
55769	0	0	0	7.99426	2.50658	0	0	35.3446	53.8343	60.0292	48.1523	47.8949	47.9231
55828	0	0	0	7.99385	2.528	0	0	35.4496	53.8443	60.3048	48.468	48.2006	48.1242
55888	0	0	0	7.99405	2.52745	0	0	35.5122	54.0096	59.8384	48.3664	48.2518	48.1754
55948	0	0	0	7.99405	2.52745	0	0	35.5477	54.065	60.335	48.3938	48.1165	48.0783
56008	0	0	0	7.99405	2.52752	0	0	35.5342	53.9158	59.6931	48.1577	48.0813	47.9285
56068	0	0	0	7.99405	2.52752	0	0	35.5139	53.9845	59.7996	48.4177	48.1885	48.1121
56128	0	0	0	7.99405	2.52752	0	0	35.5595	53.9066	59.57	48.4158	48.2248	48.0338
56188	0	0	0	7.99405	2.52752	0	0	35.5223	54.0213	59.4567	48.3782	48.149	48.1872
56248	0	0	0	7.99385	2.50658	0	0	35.4277	54.1218	59.405	48.5171	48.2116	48.288
56308	0	0	0	7.99405	2.52752	0	0	35.4243	53.7671	59.3171	48.1613	48.0467	48.1231
56368	0	0	0	8.05837	2.48485	0	0	35.5426	54.0191	59.8719	48.3377	48.2231	48.2613
56428	0	0	0	8.05837	2.50658	0	0	35.4682	53.9602	59.3958	48.2787	48.0877	48.0877
56488	0	0	0	8.05837	2.48491	0	0	35.4682	53.9213	59.9642	48.3542	48.0486	48.0104
56548	0	0	0	8.05817	2.46388	0	0	35.4395	53.9003	59.2881	48.2568	48.104	48.1422
56608	0	0	0	8.05817	2.46388	0	0	35.5004	54.0098	59.559	48.3668	48.1756	48.1374
56668	0	0	0	8.05837	2.48469	0	0	35.4818	53.9744	60.3206	48.3693	48.0638	48.0638
56728	0	0	0	8.05837	2.48469	0	0	35.4818	53.9744	60.3206	48.3693	48.0638	48.0638

time	dc(in)	bsn(in)	dewpt(F)	Air(F)	AI/VED(F)	B1(F)	B2(F)	B3(F)	B4(F)	B5 (F)	DC1(F)	DC2(F)	VED(F)
56788	0	0	8.05817	2.46395	0	0	35.4953	53.93	59.7452	48.363	48.172	47.981	47.981
56848	0	0	8.05837	2.46485	0	0	35.5122	54.0644	59.3858	48.4977	48.3068	48.154	48.154
56908	0	0	8.05857	2.46588	0	0	35.5291	53.7961	59.6117	48.2668	48.0376	47.9994	47.9994
56968	0	0	8.05797	2.46491	0	0	35.5731	54.0098	59.7855	48.2508	48.1744	48.0598	48.0598
57028	0	0	8.05817	2.50601	0	0	35.5173	53.9798	59.0736	48.2983	48.2218	48.1455	48.1455
57088	0	0	8.05837	2.46491	0	0	35.4533	53.92	59.09	48.3529	48.4293	48.0855	48.0855
57148	0	0	8.06395	2.50656	0	0	35.4158	53.9363	59.2201	48.2928	48.2547	48.2165	48.2165
57208	0	0	8.12107	2.50656	0	0	35.5071	53.7027	59.8981	48.2877	48.2113	48.0203	48.0203
57268	0	0	8.12107	2.50649	0	0	35.5443	53.5735	59.1621	48.0053	47.8907	47.7761	47.7761
57328	0	0	8.12127	2.50656	0	0	35.431	53.9827	59.2284	48.2176	48.3012	48.2248	48.2248
57388	0	0	8.12127	2.48545	0	0	35.3972	53.709	59.2212	48.2176	48.2176	48.1412	48.1412
57448	0	0	8.12208	2.52488	0	0	35.4124	53.6889	58.9075	48.2075	48.1693	48.0547	48.0547
57508	0	0	8.12087	2.50656	0	0	35.3465	53.7178	59.4957	48.341	48.15	48.15	48.15
57568	0	0	8.12107	2.50791	0	0	35.3008	53.8092	59.1693	48.3563	48.2798	48.089	48.089
57628	0	0	8.12107	2.47544	0	0	35.4209	53.7354	58.6401	48.2823	48.0913	47.9767	47.9767
57688	0	0	8.12107	2.48465	0	0	35.3313	53.8951	59.1031	48.3279	48.2515	48.2133	48.2133
57748	0	0	8.12168	2.48465	0	0	35.289	53.8294	59.2512	48.3623	48.1331	48.0949	48.0949
57808	0	0	8.12107	2.48498	0	0	35.2704	53.7213	59.0437	48.2681	48.0771	48.1153	48.1153
57868	0	0	8.12107	2.46388	0	0	35.3482	53.8565	59.4621	48.3274	48.2274	48.251	48.251
57928	0	0	8.12107	2.44284	0	0	35.2806	53.8166	59.0628	48.2109	48.3255	48.2109	48.2109
57988	0	0	8.18924	2.46381	0	0	35.2518	53.7654	59.7709	48.1596	48.1978	48.1214	48.1214
58048	0	0	8.18559	2.44284	0	0	35.2518	53.8428	59.3546	48.3136	48.2372	48.159	48.159
58108	0	0	8.18579	2.46381	0	0	35.3347	53.7926	59.1148	48.2633	48.1105	48.1869	48.1869
58167	0	0	8.18559	2.44291	0	0	35.2721	53.8963	59.1043	48.2909	48.1381	48.1381	48.1381
58227	0	0	8.18579	2.48491	0	0	35.2738	53.793	59.1911	48.3401	48.2255	48.3401	48.3401
58286	0	0	8.18559	2.48468	0	0	35.2941	53.8796	59.3913	48.3506	48.2742	48.1596	48.1596
58348	0	0	8.18579	2.47267	0	0	35.2434	53.8614	59.0695	48.4097	48.2841	48.3323	48.3323
58407	0	0	8.1862	2.46388	0	0	35.1943	53.8694	58.8467	48.3464	48.2248	48.1866	48.1866
58467	0	0	8.18539	2.48465	0	0	35.1808	53.8045	58.709	48.2752	48.237	48.1938	48.1938
58528	0	0	8.18559	2.50656	0	0	35.2349	53.606	60.4467	48.0379	48.0379	47.8851	47.8851
58587	0	0	8.18924	2.48478	0	0	35.2653	53.7357	59.5894	48.168	48.1298	48.0534	48.0534
58647	0	0	8.18559	2.50656	0	0	35.2772	53.8335	59.0417	48.4189	48.2279	48.1133	48.1133
58708	0	0	8.18559	2.50656	0	0	35.1892	53.684	58.8167	48.1543	48.1161	48.0397	48.0397
58768	0	0	8.18579	2.5073	0	0	35.1876	53.606	58.8908	48.1525	47.8997	48.0379	48.0379
58827	0	0	8.25012	2.49621	0	0	35.2095	53.7627	58.8771	48.2533	48.1005	48.1906	48.1906
58887	0	0	8.25012	2.50649	0	0	35.2315	53.7963	58.9268	48.3434	48.1524	48.1906	48.1906
58947	0	0	8.25032	2.46388	0	0	35.3177	53.6031	59.2296	48.3024	48.1114	48.1878	48.1878
59007	0	0	8.24991	2.46381	0	0	35.3194	53.6211	59.0577	48.3566	48.0912	48.244	48.244
59067	0	0	8.24991	2.46381	0	0	35.2992	53.8261	59.0343	48.3351	48.2205	48.1441	48.1441
59127	0	0	8.24991	2.44284	0	0	35.3634	53.6464	59.4245	48.3078	48.0402	48.0784	48.0784
59187	0	0	8.25012	2.46381	0	0	35.3059	53.7247	58.9712	48.3098	48.1357	48.2334	48.2334
59247	0	0	8.25235	2.44278	0	0	35.3333	53.6835	59.0819	48.3448	48.2302	48.3068	48.3068
59307	0	0	8.24991	2.42181	0	0	35.2586	53.702	58.9106	48.1724	48.0196	48.0578	48.0578
59367	0	0	8.25012	2.44284	0	0	35.267	53.6765	59.8658	48.376	48.2996	48.2996	48.2996
59427	0	0	8.25012	2.4278	0	0	35.245	53.7161	59.494	48.3393	48.1868	48.1868	48.1868
59487	0	0	8.31423	2.42484	0	0	35.1859	53.6427	58.8514	48.2657	48.0747	48.1129	48.1129
59547	0	0	8.31484	2.42188	0	0	35.1842	53.709	58.8036	48.3322	48.1794	48.1878	48.1878
59607	0	0	8.31444	2.46381	0	0	35.1588	53.7424	59.0646	48.2893	48.1748	48.1748	48.1748
59667	0	0	8.31545	2.42188	0	0	35.1714	53.7489	59.0712	48.1813	48.1431	47.9903	47.9903
59727	0	0	8.31444	2.44284	0	0	35.2129	53.6867	59.189	48.1952	48.1188	48.1188	48.1188
59787	0	0	8.31687	2.46381	0	0	35.2112	53.7919	60.0629	48.3008	48.1862	48.1862	48.1862
59847	0	0	8.31423	2.48579	0	0	35.1436	53.7621	59.1223	48.3655	48.1181	48.1593	48.1593
59907	0	0	8.31565	2.46381	0	0	35.1487	53.6661	58.7609	48.3274	48.06	48.0982	48.0982
59967	0	0	8.31444	2.48485	0	0	35.1132	53.7068	59.1431	48.2536	48.0244	47.948	47.948
60027	0	0	8.31403	2.48491	0	0	35.1064	53.9358	58.8779	48.4069	48.216	48.2542	48.2542
60087	0	0	8.31403	2.48491	0	0	35.0861	53.6878	58.9344	48.2346	48.0818	48.0818	48.0818
60147	0	0	8.31403	2.46422	0	0	35.0776	53.7166	58.7733	48.4544	48.3016	48.3016	48.3016
60207	0	0	8.31444	2.46388	0	0	35.0709	53.5835	58.8683	48.2063	48.0153	48.0153	48.0153
60267	0	0	8.31444	2.44278	0	0	35.0286	53.6939	59.0923	48.3935	48.2789	48.1643	48.1643
60327	0	0	8.37693	2.46381	0	0	35.076	53.5078	59.2104	48.2068	48.0922	48.1304	48.1304
60387	0	0	8.37693	2.46388	0	0	35.0083	53.7747	59.059	48.3589	48.2453	48.2071	48.2071
60447	0	0	8.37652	2.42931	0	0	35.0303	53.6554	59.2057	48.3166	48.011	48.1256	48.1256
60507	0	0	8.39018	2.46381	0	0	34.9187	53.8525	58.9088	48.5143	48.247	48.247	48.247
60567	0	0	8.37693	2.43248	0	0	35.0337	53.7561	59.1543	48.4176	48.1502	48.1884	48.1884
60626	0	0	8.37693	2.39888	0	0	35.0844	53.8112	59.0574	48.4729	48.2437	48.1673	48.1673
60686	0	0	8.37693	2.42188	0	0	35.0116	53.7495	59.1098	48.5638	48.2964	48.1437	48.1437
60747	0	0	8.37693	2.42188	0	0	34.8868	53.6763	58.9608	48.3758	48.1084	48.0702	48.0702
60806	0	0	8.37693	2.39875	0	0	34.8392	53.6408	58.6597	48.2638	48.0728	48.11	48.11

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APPENDIX V

POST-TEST CALIBRATIONS

WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-80-04-003		NEW MODIFY ☒	REFERENCE NUMBER 390726
INSTRUMENT ULTRASONIC TRANSDUCER F&P 50US3000		SERIAL NUMBER 94W102009	PROPERTY NUMBER N/A	ORGANIZATION CODE W57400	WORK ORDER E27527
SENDER K MCCracken 3-6653		ROOM N/A	BUILDING 3765	RECALL CYCLE 360	TOLERANCE HISTORY I
INSTRUMENT SPECIFICATIONS ±.7% OF SPAN FOR 2" RANGE ± 1% OF SPAN " 4" RANGE 2" RANGE NOT SPEC'D		COMMENTS 2 PARTS, 4TO20MA INTO 10 PRECISION		DATE RECEIVED 950420	TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		EXPIRATION DATE 002-50-02-001 6-15-95 777-45-08-120 2-9-96		TRAINING HOURS CALIBRATION HOURS 6.0 REPAIR HOURS OTHER HOURS MATERIALS TOTAL CHARGE = (\$ 84 x SUM OF HOURS) + MATERIAL	
REMARKS		PROCEDURE NUMBER WHC-6-FP-50US3000 REV.0		DATE CALIBRATED 4-25-95 DATE DUE 4-25-96 AMBIENT TEMPERATURE = 20.0 °C	

	NOM	RUN 1		RUN 2		
INCHES	MV	MV DC	DIGITAL	MV DC	DIGITAL	TOL
0	40	40.44	-0.00	40.44	-0.00	± 1.2 mV
3	80	80.37	02.99	80.37	02.99	
6	120	120.38	05.99	120.39	05.99	
9	160	160.28	08.99	160.28	08.99	
12	200	200.0	11.98	200.00	11.98	↓
0	40	39.60	-0.00	39.60	-0.00	± 1.6 mV
1	80	80.36	00.99	79.53	00.98	
2	120	119.54	01.97	119.54	01.97	
3	160	160.27	02.99	160.27	02.99	
4	200	200.0	04.00	200.0	04.00	↓
0	40	40.44	-0.00	40.44	-0.00	N/A
.5	80	79.53	00.49	80.37	00.50	
1	120	119.54	00.99	120.38	00.99	
1.5	160	157.74	01.47	159.42	01.48	
2.0	200	198.50	06.98	199.34	01.98	↓

APPROVED BY 4-26-95

D.J. Nelson

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PAGE

OF 1

WHC SD SNE-ATR-005 Rev. 0 WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ		STANDARDS CODE NUMBER 444-80-04-002		NEW ☒	REFERENCE NUMBER 390725
L5-07				MODIFY ☒	WORK ORDER E27527
INSTRUMENT ULTRASONIC TRANSDUCER F&P 50US3000		SERIAL NUMBER 94W102010	PROPERTY NUMBER N/A	ORGANIZATION CODE W57400	TOLERANCE HISTORY I
ROOM N/A		BUILDING 3765	SERVICE DEPARTMENT 3 45 8 420 95	RECALL CYCLE 360	DATE RECEIVED 950420
SENDER K MCCracken 3-6653		COMMENTS 2 PARTS, 4 TO 20 MA THROUGH 10 PRECISION		SHIPPING DAY MO	TOLERANCE 1 IN
INSTRUMENT SPECIFICATIONS 5.7% F.R. 12" RANGE; ±1% FOR 4" RANGE 2" RANGE NOT SPEC'D				TRAINING HOURS	

STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		CALIBRATION HOURS 6.0
EXPIRATION DATE 002-50-20-001 6-15-95		REPAIR HOURS
EXPIRATION DATE 777-45-08-120 2-09-96		OTHER HOURS
REMARKS		MATERIALS
		TOTAL CHARGE = (S 84 x SUM OF HOURS) + MATERIAL
		DATE CALIBRATED 4-21-95
		DATE DUE 4-21-96
PROCEDURE NUMBER WHC-6-FP-50US3000 REV.0		AMBIENT TEMPERATURE = 19.6°C

Nom		RUN1		RUN2		
INCHES	mV	mV	DIGITAL	mV	DIGITAL	TOL
0	40	39.89	-0.00	39.92	-0.00	± 1.12mV
3	80	79.89	02.99	79.90	02.99	
6	120	119.91	05.99	119.91	05.99	
9	160	159.82	08.99	159.83	08.99	
12	200	199.83	11.99	199.83	11.99	
0	40	39.91	-0.00	39.92	-0.00	± 1.6mV
1	80	79.90	00.99	79.90	00.99	
2	120	119.92	02.00	119.91	02.00	
3	160	159.83	02.99	159.83	02.99	
4	200	199.84	04.00	199.84	04.00	
0	400	39.92	-0.00	39.92	-0.00	NOT SPEC'D
.5	80	79.90	00.50	79.90	00.50	
1	120	119.91	00.99	119.90	00.99	
1.5	160	159.82	01.50	159.83	01.50	
2	200	199.84	02.00	199.84	02.00	

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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-80-04-001		NEW MODIFY		REFERENCE NUMBER 390554	
INSTRUMENT ULTRASONIC TRANSDUCER F&P 50US3115BBB		SERIAL NUMBER 94W102008		PROPERTY NUMBER N/A		RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 1 4 DELETED 5 PM 6 NONDATA M&E	
SENDER K MCCRACKEN 3-6653		ROOM N/A		BUILDING 3765		SERVICE DEPARTMENT 4	
INSTRUMENT SPECIFICATIONS 2 PARTS. 4 to 20 mA through 150 Ω resistor $\pm 7\%$ OF SPAN FOR 12" RANGE DIGITAL READOUT NOT SPEC'D; 2" RANGE NOT SPEC'D		COMMENTS		DATE RECEIVED 360 950418		TOLERANCE HISTORY I AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED	
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		EXPIRATION DATE 777-15-08-122 2-9-96 002-50-02-001 6-15-95		EXPIRATION DATE		TRAINING HOURS	
REMARKS # OUT OF 10000 SPEC 4-19-95		PROCEDURE NUMBER PROCEDURE DEVELOPMENT WHC-6-FP-50US3000		TOTAL CHARGE = (\$ 84 x SUM OF HOURS) + MATERIAL		DATE CALIBRATED 4-19-95	
				DATE DUE 4-19-96		AMBIENT TEMPERATURE = 20°C	
NOM		RUN 1		RUN 2			
INCHES	mv	mv	DIGITAL	mv	DIGITAL	TOL	
0	40	40.43	-0.00	40.43	-0.00	$\pm .7\%$ OR	
3	80	79.48	2.94	79.48	2.94	1.12 mv	
6	120	120.23	5.99	120.24	5.99		
9	160	160.10	8.99	160.10	8.99		
12	200	199.9	11.98	199.9	11.98		
0	40	40.43	00.00	40.44	-0.00	$\pm 10\%$ OR	
1	80	80.33	00.99	80.33	00.99	1.6 mv	
2	120	120.23	02.00	120.24	02.00		
3	160	160.11	02.99	160.11	2.99		
4	200	200.7	04.01	200.7	04.01		
0	40	40.44	00.00	39.57	-0.00	NOT SPEC'D	
.5	80	80.33	00.50	77.80*	00.46		
1.0	120	117.68*	00.97	119.37	00.99		
1.5	160	159.29	01.49	157.57*	01.47		
2.0	200	197.46*	01.97	197.46*	01.97		

RUSH

APPROVED BY
4-20-95
D. J. Nelson

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PAGE

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WHC-SD-SNH-ATK-005 REV.0
WESTINGHOUSE STANDARD INSTRUMENT CALIBRATION AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-67-11-001		NEW MODIFY ☒		REFERENCE NUMBER 390555	
INSTRUMENT DATA LOGGER FLUKE 2625A HYDRA		SERIAL NUM 6102614	PROPERTY NUMBER N/A	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&TE	ORGANIZATION CODE W57400	WORK ORDER L1175	RECALL CYCLE 360
SENDER K MCCRACKEN 3-6653		ROOM N/A	BUILDING 3765	SERVICE DEPARTMENT 4	DATE RECEIVED 950418		TOLERANCE HISTORY I
INSTRUMENT SPECIFICATIONS 1 Year See Tolerance Column		COMMENTS CUSTOMER TYPE "K" & 300 MV RNG				TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED	
						SHIPPING DAY MO	

STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		4:1 RATIO Y ☒ N ☐		TRAINING HOURS	
EXPIRATION DATE		EXPIRATION DATE		CALIBRATION HOURS	
002-14-01-026 11-7-95				1.5	
002-14-01-038 1-12-96				REPAIR HOURS	
002-79-06-040 3-13-96				OTHER HOURS	
				MATERIALS	
				TOTAL CHARGE =	
				(\$ 84 x SUM OF HOURS) + MATERIALS	

REMARKS (WP-123)		DATE CALIBRATED 4-19-95		DATE DUE 4-19-96	
PROCEDURE NUMBER WHC-JFC-2620A REV.0				AMBIENT TEMPERATURE -21°C	

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PROCEDURE NAME - 123

STANDARDS CODE NUMBER

REFERENCE NUMBER

WHC-JFC-2620A REV.0

444-67-11-001

390555

DATA SHEET

FUNCTION & RANGE	STD SETTING		2620A INDICATION		TOLERANCES
			AS FOUND	FINAL	
30K Ω	30.000K Ω				$\pm .02$ K Ω
300K Ω	300.00K Ω				$\pm .2$ K Ω
3M Ω	3.0000M Ω				$\pm .0021$ M Ω
10M Ω	10.000M Ω				$\pm .014$ M Ω
FREQ. Hz	900 KHz	2V P-P			± 616 Hz
TEMP TYPE K	TEMP $^{\circ}$ C	EQ. MV			
$^{\circ}$ C	-100.00	-3.553	-99.9		$\pm .6^{\circ}$ C
	0.00	0.000	0.0		$\pm .44^{\circ}$ C
	500.00	20.640	500.1		$\pm .65^{\circ}$ C
	1000.00	41.269	1000.1		$\pm .8^{\circ}$ C
	1370.00	54.807	1370.3		$\pm 1.05^{\circ}$ C
TEMP TYPE T	-150.00	-4.648			$\pm .84^{\circ}$ C
$^{\circ}$ C	0.00	0.000			$\pm .45^{\circ}$ C
	200.00	9.286			$\pm .45^{\circ}$ C
	400.00	20.869			$\pm .4^{\circ}$ C
TEMP RTC	100 Ω	0° C			$\pm 0.24^{\circ}$ C
4-WIRE	200 Ω	266.58 $^{\circ}$ C			$\pm 0.48^{\circ}$ C
	300 Ω	558.00 $^{\circ}$ C			$\pm 0.75^{\circ}$ C
TEMP TYPE J	-99.0 $^{\circ}$ C	-4.591 mv			$\pm .6^{\circ}$ C
$^{\circ}$ C	0.0 $^{\circ}$ C	0.0 mv			$\pm .4^{\circ}$ C
	200.0 $^{\circ}$ C	10.777 mv			"
	400.0 $^{\circ}$ C	21.846 mv			"
	600.0 $^{\circ}$ C	33.096 mv			"
	760.0 $^{\circ}$ C	42.922 mv			$\pm .6^{\circ}$ C

APPROVED BY

D. J. Nelson

4-19-95

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STD LAB

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PROCEDURE NAME - 123 WHC-JFC-2620A REV.0	STANDARDS CODE NUMBER 444-67-11-001	REFERENCE NUMBER 390555
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DATA SHEET

[illegible]

APPROVED BY <i>D. A. Nelson</i>	4-19-95	CALIBRATED BY <i>WMC</i> STD LAB <i>20</i>	Page <u>4</u> of <u>4</u>
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WESTINGHOUSE STANDARD INSTRUMENT REPAIR AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS MCCRACKEN KJ L5-07		STANDARDS CODE NUMBER 444-67-11-002		NEW MODIFY	REFERENCE NUMBER 390723
INSTRUMENT DATA LOGGER LUKE 2620A HYDRA		SERIAL NUMBER 5893600	PROPERTY N/A	ORGANIZATION CODE W57400	WORK ORDER E27527
SENDER K MCCRACKEN 3-6653	ROOM N/A	BUILDING 3765	SERVICE DEPARTMENT 4	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 1 4 DELETED 5 PM 6 NONDATA M&T	RECALL CYCLE 360
INSTRUMENT SPECIFICATIONS 1 Year See Tolerance Column		COMMENTS 4:1 (YES) 2000M-CL8300		DATE RECEIVED 950420	TOLERANCE HISTORY I
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		4:1 RATIO Y ☒ N ☐		SHIPPING DAY MO	TOLERANCE AS RECEIVED 1 IN 2 OUT / 3 NA 4 FAILED
EXPIRATION DATE		EXPIRATION DATE		TRAINING HOURS	
002-14-01-038 1-12-96				CALIBRATION HOURS 2.0	
002-79-06-040 3-13-96				REPAIR HOURS	
002-14-01-026 8-23-95				OTHER HOURS	
REMARKS (WP-123)				MATERIALS	
PROCEDURE NUMBER WHC-JFC-2620A REV.0				TOTAL CHARGE = (\$ 84 x SUM OF HOURS) + MATERIALS	
				DATE CALIBRATED 4-24-95	DATE DUE 4-24-96
				AMBIENT TEMPERATURE = 21°C	

APPROVED BY 4-24-95 D. J. Nelson	CALIBRATED BY SIDU 30	Hanford Operations and Engineering Contractors, a subsidiary of Westinghouse Electric Corporation Department of Energy Box 1970, Richland, WA 99352	PAGE 1 OF 3
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OF

Physical and Electrical Standards Laboratory
NOTICE OF DISCREPANCY MEASURING AND TEST EQUIPMENTTo: MccrackinL5-07Instrument Name Omega RHCM-10Standards Code No. 444-32-02-001Property No. N/ADate 4-24-95

While performing "as found" calibration on the above M&TE, out-of-tolerance readings were noted as seen on the attached report. The disposition of the item is as follows:



Repaired and calibrated to original manufacturer specifications



* Conditionally accept item "as is".



* Repaired to acceptable conditions within the following limits:

REJECT:



- Beyond economical repair at Standards Laboratory



- No parts available at Standards Laboratory



- No manual, prints, etc., available at Standards Laboratory

*Attach Limited Calibration Label

If your investigations into situations where material inspected or data collected by the discrepant item since last calibrated may have been erroneously accepted; notify Quality Assurance of actions initiated to control such material or data.

Stds Lab: *[Signature]*D. J. Nelson
4-24-95

Distribution: Custodian
Quality Assurance
File

Hanford Operations and
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WESTINGHOUSE STANDARD INSTRUMENT INSPECTION AND ELECTRICAL REPORT										
CUSTODIAN/ADDRESS MCCRACKEN KJ			STANDARDS CODE NUMBER 444-32-02-001			NEW MODIFY		REFERENCE NUMBER 390728		
L5-07						ORGANIZATION CODE W57400		WORK ORDER E27527		
INSTRUMENT DEW POINT TRANSMITTER MEGA RHCM-10			SERIAL NUMBER 12607G3		PROPERTY NUMBER N/A		RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA M&T		RECALL CYCLE 360	
SENDER K MCCRACKEN 3-6653			ROOM N/A		BUILDING 3765		SERVICE DEPARTMENT 4		DATE RECEIVED 950420	
INSTRUMENT SPECIFICATIONS 1 YR DERATED TO 1.2C (+/-2.16F)			COMMENTS				SHIPPING DAY MO		TOLERANCE HISTORY 1 IN 2 OUT 3 NA 4 FAILED	
REMARKS / See Tolerance Column							TRAINING HOURS			
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐							CALIBRATION HOURS 3.0			
EXPIRATION DATE 201-32-01-004 12-8-96							REPAIR HOURS			
EXPIRATION DATE 002-79-04-040 3-13-96							OTHER HOURS			
MATERIALS							TOTAL CHARGE =			
REMARKS							(\$ 84 x SUM OF HOURS) + MATERIAL			
PROCEDURE NUMBER VM-4-DEW-10-2BO-GENERAL EASTERN (7-92)							DATE CALIBRATED 4-24-95			
							DATE DUE 4-24-96			
5 Standard							Assigned			
DP °F AS FOUND FINAL							Tolerance			
43.4 11.340 ma * N/A							10.929 ma ± 347 ua			
66.1 14.816 ma 14.621 ma							14.615 ma "			
44.8 11.206 ma 11.206 ma							11.194 ma "			
4-24-95										
APPROVED BY D. Nelson							CALIBRATED BY 39			
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INSTRUMENT SPECIFICATIONS

REMARKS**PROCEDURE NUMBER**

WHC-79-06-THERMO REV.1

STANDARD RANGE $\sigma =$

STANDARD RANGE	AS FOUND
100	100
200	200
300	300
400	400
500	500
600	600
700	700
800	800
900	900
1000	1000
1100	1100
1200	1200
1300	1300
1400	1400
1500	1500
1600	1600
1700	1700
1800	1800
1900	1900
2000	2000
2100	2100
2200	2200
2300	2300
2400	2400
2500	2500
2600	2600
2700	2700
2800	2800
2900	2900
3000	3000
3100	3100
3200	3200
3300	3300
3400	3400
3500	3500
3600	3600
3700	3700
3800	3800
3900	3900
4000	4000
4100	4100
4200	4200
4300	4300
4400	4400
4500	4500
4600	4600
4700	4700
4800	4800
4900	4900
5000	5000
5100	5100
5200	5200
5300	5300
5400	5400
5500	5500
5600	5600
5700	5700
5800	5800
5900	5900
6000	6000
6100	6100
6200	6200
6300	6300
6400	6400
6500	6500
6600	6600
6700	6700
6800	6800
6900	6900
7000	7000
7100	7100
7200	7200
7300	7300
7400	7400
7500	7500
7600	7600
7700	7700
7800	7800
7900	7900
8000	8000
8100	8100
8200	8200
8300	8300
8400	8400
8500	8500
8600	8600
8700	8700
8800	8800
8900	8900
9000	9000
9100	9100
9200	9200
9300	9300
9400	9400
9500	9500
9600	9600
9700	9700
9800	9800
9900	9900
10000	10000

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10/11/19

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390723

DATA SHEET

FUNCTION & RANGE	STD SETTING	Channel #	2620A INDICATION		TOLERANCES
			AS FOUND	FINAL	
DC 300mv	1 ma	2	10.00	Same as Found	10mv $\pm$ 30uv
		3	"		"
		4	"		"
		5	"		"
	4 ma	2	40.01		40mv $\pm$ 70uv
		3	"		"
		4	"		"
		5	"		"
	8 ma	2	80.02		80mv $\pm$ 110uv
		3	"		"
		4	"		"
		5	80.03		"
	12 ma	2	120.03		120mv $\pm$ 160uv
		3	"		"
		4	120.02		"
		5	"		"
	16 ma	2	160.04		160mv $\pm$ 200uv
		3	"		"
		4	"		"
		5	160.03		"
	20 ma	2	200.05		200mv $\pm$ 240uv
		3	"		"
		4	"		"
		5	200.04		"

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4-24-95
W. J. Nelson

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J. J. Nelson

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