

## SECTION 13875

### I&C SYSTEMS START-UP AND FINAL ACCEPTANCE TESTING

#### PART 1 2. AND 3. COMBINED

##### 1.1 SUMMARY

###### A. Scope

1. Provide all labor and materials necessary to conduct the systems' start-up and final acceptance testing of all monitoring and control systems as specified herein.
2. Satisfactory completion of systems' start-up and testing specified herein is an absolute prerequisite to final acceptance of completed WORK by the Consultant and BNL.
3. This SECTION presupposes satisfactory completion of component and subsystem tests as defined in preliminary testing described in Article "RELATED WORK PERFORMED UNDER THIS CONTRACT".
4. Develop and submit to the Consultant and BNL, for approval, a complete schedule for systems' start-up, and detailed operating test procedures for each system specified. Procedures shall contain step by step operations and shall include all required spaces to enter measured or observed data which, taken as a whole, will verify proper system operation. Items to be measured or observed shall be specifically indicated and the anticipated results listed. Include all points of interface with other contracts and coordinate scheduling effort with Consultant and BNL to properly interface with commissioning WORK.
5. Procedures shall include data sheets which contain all data and operating verification of component and subsystem tests performed prior to final acceptance testing.
6. Provide system start-up and final acceptance testing for the following systems:
  - a. Refrigerant Monitoring System
  - b. ACU-2
  - c. AHU-3
  - d. AHU-4
7. It is the intent of this SECTION to place full instrumentation and control systems' start-up and systems' acceptance testing responsibility on the I & C CONTRACTOR. Where the term interfacing is indicated and the I & C CONTRACT includes the control and/or monitoring of packaged equipment or systems provided under other contracts, it is the intent that the I & C CONTRACTOR shall be responsible for proper interfacing during the start-up and commissioning of those systems. The interfacing work includes providing of detailed operating test procedures for all control and monitoring functions provided, to coordinate the procedures with the system contractors, and assist as required during start up and commissioning to demonstrate proper monitoring and control functions.
8. Start-up and acceptance testing procedures written to interface with systems provided under other contracts shall be written in close cooperation with the system supplier as coordinated through the Consultant and BNL.

- B. Related Work Specified In Other Sections
  - 1. Instrumentation and Control Systems - General - SECTION 13855.
  - 2. Instrumentation and Control Systems - Electrical Work - SECTION 13856.
- C. Related Work Performed Under This Contract
  - 1. Preliminary testing is defined as the completion of tests required by other sections of the specifications to ascertain that equipment and component parts are functioning properly.
  - 2. Where package systems provided under this CONTRACT, or systems provided under other contracts have been specified, preliminary testing shall mean the testing of the system in the local and automatic control mode as far as practical to ascertain that all individual components, indicated interfaces and the system as a whole, performs properly. Preliminary testing shall be the responsibility of the installing contractor. Designated package equipment/systems are as follows:

## 1.2 START-UP AND TESTING PROCEDURE

- A. Before proceeding with any system start-up and testing, submit a start-up procedure for approval by the Consultant and BNL, and confirm that preliminary testing has taken place and equipment/system is ready for automatic operation. Detailed factory and field test procedures shall be submitted for approval at least 30 days before the actual testing begins.
- B. All systems' start-up and final testing shall be coordinated with the Consultant and BNL'S approval, and shall take place in the presence of the Consultant and BNL.
- C. Conduct and/or assist in the systems' start-up and final testing as per approved start-up procedures. Make available, to all parties required to be present for the start-up, copies of the approved start-up procedure.
- D. Closely coordinate with the various equipment/system contractors, and the Consultant and BNL during the scheduling phase and provide all necessary manpower to properly execute the systems' start up and acceptance testing of the systems.

## 1.3 TEST RECORDS AND ACCEPTANCE

- A. Provide completed test procedures with all recorded and observed data entered, and attach, thereto, a written certification that all testing has taken place for the specified system and that it has been demonstrated that the system has operated through its full range of automatic controls with satisfactory results.
- B. Provide to Consultant and BNL, as required, a written report of any equipment or components failure or malfunction which has adversely affected the start-up and testing procedures. Any additional costs for the rescheduling, start-up, and testing of postponed or aborted start-up and final testing procedures shall be the responsibility of the Contractor responsible for the equipment. Responsibility shall be determined by the Consultant and BNL.
- C. Where, in the judgement of the Consultant and BNL, the submitted records do not document satisfactory completion of the specified tests, the Consultant and BNL will identify in writing

the deficient systems, subsystems, and components together with the appropriate references to the requirements of the CONTRACT DOCUMENTS substantiating the deficiencies. Deficiencies so identified shall be corrected and the affected systems retested before satisfactory completion will be acknowledged.

END OF SECTION

Revision History	
Date	Rev. No.
A	0
B	0
C	0
D	0
E	0
F	0
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