PROCEDURE	NUMBER: UTI-I-0043
	DATE: 04-01-19
	REVISION: 1

SUBJECT **HVAC SYSTEM , TEL IV**
N6-2296, KSC

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PURPOSE

This document provides instruction to operate the HVAC System at the Central Telemetry Building, N6-2296, at Kennedy Space Center.

SCOPE AND APPLICABILITY

There are two package Chiller plants located north of N6-2296 that are comprised of one 190 Ton chiller and two each CHW pumps per package chiller. These chillers provide chilled water to the nine (9) AHU's listed in Figure 1 that provide cooling to the N6-2296. The Majority of the AHU's as well as the DDC control system that manages both the chillers as well as the AHU's is located in the basement area that is accessible via the Mech room doors located on the North side of the facility.

PROCESS

1. EQUIPMENT

- Tools, Air Conditioning Personnel
- Log Book
- A/C Refrigeration Gauges
- Flashlight
- 8 foot ladder

2. PPE

- Flash protection gear
- Hearing protection
- Eye protection
- Gloves
- Hardhat with chin strap
    - Any time there is a hazard to the head from falling debris, such as when a task is being performed overhead, open structures above the work or the work area is congested with bumping hazards.
- Body harness and lanyard
    - Required for all identified fall hazards.

3. PRE-OPERATIONS

- For Routine non-hazardous operations, verify a pre-operations briefing has been given at least once per shift by supervision or designated personnel that discusses objectives of the task to be performed, safety aspects, potential hazards, outages, Lockout/tagout requirements, communication means and contingency responses for each.

- A Pre-task briefing and walkdown shall be conducted if more than one performing organization is required to work simultaneously at a job site on the same system.

- Report Equipment / System failures or anomalies according to SMA-P-0016, Event Notification and Reporting.

- Verify all personnel involved in the operation are familiar with the work site.

4. NOTIFICATIONS

- The following support agencies shall be notified prior to operations as indicated:
  - HVAC Shift Supervisor- If HVAC service is disrupted to any portion of the facility, notify immediately.
  - Duty Officer and Tel IV Site Manager- For first shift on weekdays, the shift supervisor will notify the duty officer and Tel IV Site Manager of any unscheduled outage.
  - Duty Officer – for off-shift, weekends and holidays, the shift supervisor will notify the Duty Officer. In the event that there is no HVAC Shift Supervisor on Duty, the HVAC Mechanic is authorized to notify the Duty Officer.

5. OPERATIONS

- Start up
  - Ensure that the manual stop valves are open at the selected chillers and the selected pump to permit chilled water to flow.
  - Start the seven Air Handler Units
  - The DDC Building management system located in the AHU mechanical room will open the valves and start the chilled water pump. When chilled water flow is established, the selected chiller will start. The chillers will load and unload as necessary to maintain the set chilled water temperature in response to their automatic controls. Conditions can be maintained with only one chiller on line.

- After equipment is in operation and running normally, maintain log book in the control room.

- Ensure the temperatures and pressures are within the following operating ranges:

  - Chilled water return to chiller: 50°F to 55°F
  - Chilled water supply to building: 41°F to 44°F 42.5°F nominal

  - Chilled water Pumps suction: 20 psig
  - Chilled water Pumps discharge: 50 psig

- Report any unusual conditions to the HVAC shift supervisor immediately.

- **BACKUP AIR HANDLER UNIT OPERATIONS**

NOTE: *In the event of an AHU failure due to loss of belt, bearing failure, or other similar event for AHU 3-7 , the Backup AHU (BAHU-1) can supply conditioned air for the single failed AHU.*

- To use the BAHU-1 to supply air for AHU 3-7, perform the following procedure:

  - Shut off the electric disconnect to the failed AHU.

  - Open the backup air damper on the failed AHU, which is located on the supply duct of the affected AHU.

  - BAHU-1 has a VFD Drive that is modulated based on the supply pressure of the backup air duct. As a result, verify BAHU-1 ramps up in speed to supply the additional air required after opening the backup damper on the affected AHU. This VFD is automatically controlled by the building automation system and should require no additional adjustment.

- Electrical Circuits

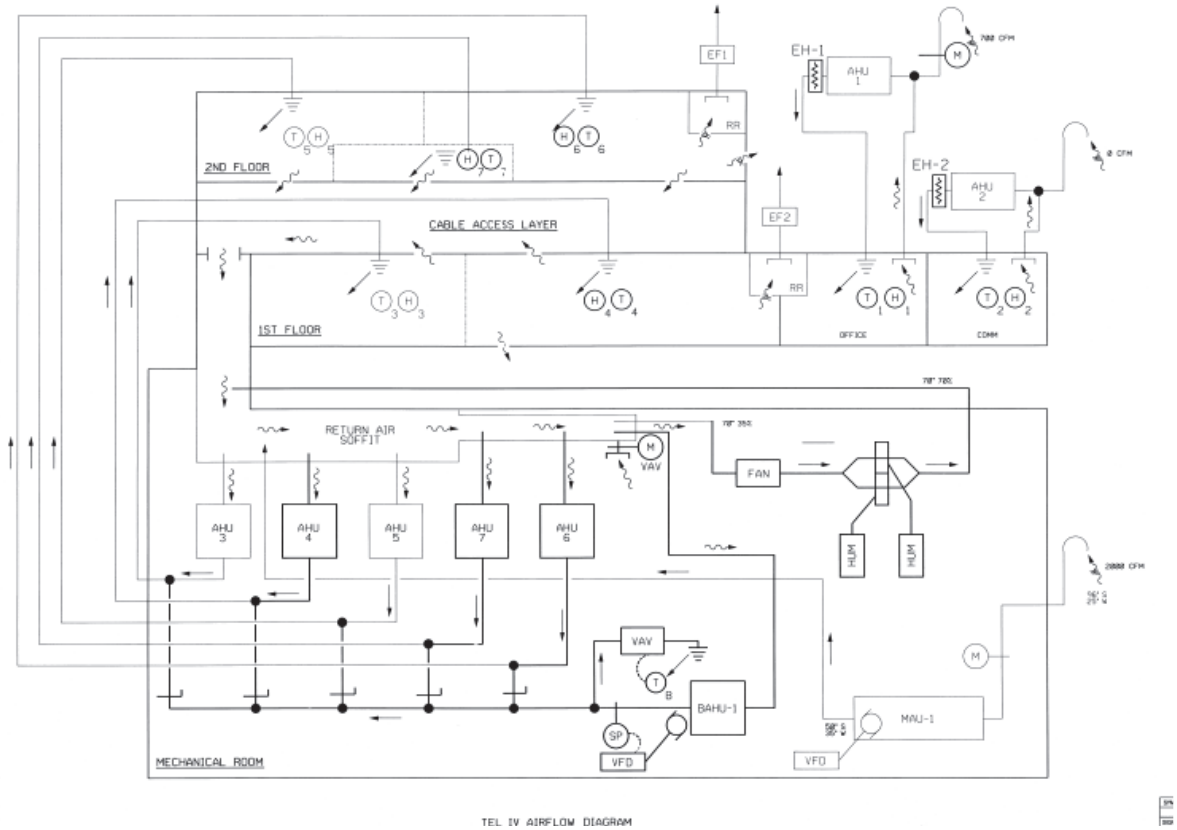
  - All AHU's are fed from the MCC located in the southwest corner of the AHU Mechanical room.

  - The pumps and chillers are fed from the MCC located in the specific chiller plant pump room south wall.

  - The DDC control work station is fed from PNL-LEM circuit #6 located in the northwest corner of the AHU mechanical room.

□

FIGURE 1: HVAC Distribution N6-2296



ASSETS

AHU 1	TCA1001	AHU 5	TCA10005
AHU 2	TCAIAAH002	AHU 6	TCA10006
AHU 3	TCA10003	AHU 7	TCA10007
AHU 4	TCA10004	MAU 1	TCA10009
		BAHU-1	TCA10008

RECORDS

The following records are retained by the organizations listed below:

Record	Responsible Organization
N/A	

AFFECTED DIVISIONS/OFFICES

FSEU and OM&E

MANAGEMENT ROLES AND RESPONSIBILITIES

Division Manager: Ensures compliance within the Division to the requirements stated in this procedure.

Branch Manager: Ensures compliance at the branch level to the requirements stated in this procedure.

FUNCTIONAL ROLES AND RESPONSIBILITIES

HVAC Mechanic: Perform steps as instructed by the IACP Supervision and this document.

Industrial Area Plant Supervision: Provide leadership and instruction for operation of the N6-2296 HVAC assets,

System Engineer: Provide technical information to the HVAC mechanics and supervision as required.

REFERENCE DOCUMENTS

The following documents are referenced in this procedure:

Document Number	Title
KNPR 8715.3	KSC SAFETY PRACTICES PROCEDURAL REQUIREMENTS
SMA-P-0016	EVENT AND NEAR MISS REPORTING
SHP-P-0147	HAZARDOUS ENERGY CONTROL PROGRAM (LOCKOUT/TAGOUT)
SHP-P-0132	PERSONAL PROTECTIVE EQUIPMENT PROGRAM
SHP-P-0095	NOISE AND HEARING CONSERVATION
SMA-EMP	EMERGENCY MANAGEMENT PLAN
SMA-SHP	SAFETY AND HEALTH PLAN
SMA-TCP	TRAINING AND CERTIFICATION PLAN

ADDITIONAL RESOURCES

Document Number	Title
98K01600	HVAC Replacement Phase I (KEDS)
98K01748	HVAC Replacement Phase II (KEDS)
98K01736	Chiller Replacement (KEDS)

ACRONYMS

AHU Air Handler Unit
BAHU Back Up Air Handler Unit
MAU Make Up Air Handler Unit

DEFINITIONS

N/A

REVISION RECORD

The following revisions have been applied to this document:

Revision Number	Change Description	Date
0	Initial Release	xx/xx/xx
1	Administrative change only. Document updated to remove branding of previous contract	04/01/19

DOCUMENT APPROVALS

X

Manager, FSEU O&M

Signature on File