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C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

11.4.3.b STAR Power Supply START-UP Check Off List

C-A-OPM Procedures in which this Attachment is used.		
11.4.3		

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: \_\_\_\_\_ *Signature on File* \_\_\_\_\_  
 Collider-Accelerator Department Chairman Date

P. Rosas

## **STAR Power Supply START-UP Check Off List**

1. Request permission from the *STAR Power Supply Operator* to energize the STAR Main Magnet Power Supplies. [ ]

Authorized By: \_\_\_\_\_, Time: \_\_\_\_\_, Date: \_\_\_\_\_.

2. Request permission from *C-A Main Control Room Operations Coordinator* to energize the STAR Main Magnet Power Supplies. [ ]

Authorized By: \_\_\_\_\_, Time: \_\_\_\_\_, Date: \_\_\_\_\_.

3. Request *STAR Power Supply Operator* to set all power supplies set-points to zero:
- Space Trim East PS. [ ]
  - Space Trim West PS. [ ]
  - Pole Tip Trim East (PTT-EAST) PS. [ ]
  - Pole Tip Trim West (PTT-WEST) PS. [ ]
  - Main Magnet PS. [ ]

4. Request the *Pump Room Operator* to turn on the *STAR* power supply water system. [ ]

5. Switch all power supplies to local control:
- Switch Space Trim East PS Local/Remote switch to **LOCAL** [ ]
  - Switch Space Trim West PS Local/Remote switch to **LOCAL** [ ]
  - Switch Pole Tip Trim East PS Local/Remote switch to **LOCAL** [ ]
  - Switch Pole Tip Trim west PS Local/Remote switch to **LOCAL** [ ]
  - Switch Main Magnet PS Local/Remote switch to **LOCAL** [ ]

6. Review the power supply logbook for any work done on the power supply system. Verify that if any system was tagged or locked, these tags or locks have been properly removed from these systems. [ ]

7. The review of the power supply logbook shows that work was done on the power section of the power supplies, then a visual inspection of the transformers must be done to ensure that any shorting bus was removed from the transformers properly. [ ]

8. Lock all power supply doors and return door Kirk lock keys to Power Supply transfer locks:
- 4.3 MW Main Magnet PS: Lock all PS and external capacitor bank cabinet doors and return Kirk lock keys (**4 each, 1D**) to Transfer Lock '**D**'. [ ]
  - Remove Kirk lock key **1B** from Transfer lock '**D**' and insert the **1B** key into transfer lock '**B**'. [ ]
  - PTT-EAST PS: Lock all PS doors and return Kirk lock keys (**3 each, 2C**) to Transfer Lock '**C**'. [ ]

- Remove Kirk lock key **2B** from Transfer lock ‘C’ and insert the **2B** key into transfer lock ‘B’. [ ]
- PTT-WEST PS: Lock all PS doors and return Kirk lock keys (**3 each, 3E**) to Transfer Lock ‘E’. [ ]
- Remove Kirk lock key **3B** from Transfer lock ‘E’ and insert the **3B** key into transfer lock ‘B’. [ ]
- SPACE TRIM-EAST: Lock PS door and return Kirk lock key **5B** to Transfer Lock ‘B’. [ ]
- SPACE TRIM-WEST: Lock PS door and return Kirk lock key **4B** to Transfer Lock ‘B’. [ ]
- Remove the **PS Access Control key 6B** from Transfer Lock ‘B’. The **6B** key shall remain with CAS Watch Operations. [ ]
- Remove Kirk lock key **7X** from Transfer Lock ‘B’ and insert the key into transfer lock ‘A’. [ ]

9. Energize 120 VAC control circuit breakers on **PSCP** panel and within each Power Supply control compartment:

Verify that each power supply is clear of all personnel prior to energizing the 120 Vac control power.

- 4.3 MW Main Magnet PS and **PSCP Breaker No.2.** [ ]
- PTT-EAST PS and **PSCP Breaker No.1.** [ ]
- PTT-WEST PS and **PSCP Breaker No.3.** [ ]
- Space-Trim East & West PS rack **PSCP Breaker No.4.** [ ]
- 13.8 KV SwitchGear **PSCP Breaker No.5.** [ ]
- Fiber Optic PLC Module Box **PSCP Breaker No.6.** [ ]

10. Main Magnet 13.8 KV circuit breaker:

- Unlock 13.8 KV circuit breaker door with **UEB-19** key. [ ]
- Remove the Kirk lock **1A** key from the ‘A’ Transfer lock. [ ]
- Unlock the 13.8 KV Circuit Breaker with Kirk lock **1A key**, the **1A** key will now remain captive in the **1A** lock. [ ]
- Connect drive shaft to motor. [ ]
- Connect the remote control box to the 13.8 KV circuit breaker motor drive [ ]
- Connect the AC line of the 13.8 KV circuit breaker motor drive. [ ]
- Turn the selector switch to the IN Position. [ ]
- Push the selector switch until the 13.8 KV circuit breaker is in the Run position and the motor clutch spins free, (fully inserted). [ ]
- Disconnect the AC line of the 13.8 KV circuit breaker motor drive. [ ]

- Disconnect the remote control box to the 13.8 KV circuit breaker Motor drive. [ ]
  - Disconnect motor drive shaft. [ ]
  - Lock away the 13.8 KV circuit breaker remote control box and Motor drive shaft. [ ]
  - Lock the 13.8 KV circuit breaker door with **UEB-19**. [ ]
11. PTT-EAST AC Fused Disconnect Switch:
- Remove key **2A** from Transfer Lock ‘A’ and insert the key in PTT-EAST Disconnect Switch Kirk Lock **2A**. [ ]
  - Move the PTT-EAST switch handle to the **ON** position. [ ]
12. PTT-WEST AC Fused Disconnect Switch:
- Remove key **3A** from Transfer Lock ‘A’ and insert the key in PTT-WEST Disconnect Switch Kirk Lock **3A**. [ ]
  - Move the PTT-WEST switch handle to the **ON** position. [ ]
13. SPACE TRIM-WEST AC Fused Disconnect Switch:
- Remove key **4A** from Transfer Lock ‘A’ and insert the key in Space Trim-West Disconnect Switch Kirk Lock **4A**. [ ]
  - Move the Space Trim-West switch handle to the **ON** position. [ ]
  - Move the Space Trim-West Disconnect Switch handle to the **ON** position at the power supply. [ ]
14. SPACE TRIM-EAST AC Fused Disconnect Switch:
- Remove key **5A** from Transfer Lock ‘A’ and insert the key in Space Trim-East Disconnect Switch Kirk Lock **5A**. [ ]
  - Move the Space Trim-East switch handle to the **ON** position. [ ]
  - Move the Space Trim-East Disconnect Switch handle to the **ON** position at the power supply. [ ]
15. Verify Magnet Crash switch operation:
- Set all power supply Local /Remote switches to ‘**Local**’. [ ]
  - Bring all power supplies to **Stand-By** condition. [ ]
  - Reset all system interlocks. [ ]
  - Turn on the 4.3 MW power supply. [ ]
  - Press the power supply **Magnet Crash Switch**, the power supply should change from an **ON** state to the **Stand-By** state and the **Lock-Out Relay** should be tripped on the 4.3 MW PS and each PTT power supply. [ ]
  - Reset all system interlocks and turn ON the 4.3 MW PS. [ ]
  - Press the **Magnet Crash Switch** on the wall, the power supply should change from an **ON** state to the **Stand-By** state and the **Lock-Out Relay** the should be tripped on the 4.3 MW PS and each PTT power supply. [ ]

- 16. Reset **Lock-Out relays** on all Power Supplies. [ ]
- 17. Set all power supplies to **STAND-BY** and reset all interlocks. [ ]
- 18. Set all power supply Local / Remote switches to the Remote position. [ ]
- 19. Verify that the Polarity indicator lights show the same polarity for each power supply and are in the correct polarity. [ ]
- 20. Notify the **STAR Power Supply Operator** that the power supplies are ready for remote operation. [ ]
- 21. Record on the Power Supply logbook, the Star-Up completion [ ]

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**NOTES:**

Completed By: \_\_\_\_\_