***If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.***
***The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are available by contacting the ESSHQ Procedures Coordinator, Bldg. 911A***

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.56.ar RHIC 8z1 Sweep Checklist

Text Pages 1 through 6

Hand Processed Changes

| HPC No. | Date | Page Nos. | Initials |
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Approved by: _____***Signature on File***_____ _____
Collider-Accelerator Department Chairman Date

P. Ingrassia

CA-OPM-ATT 4.56.ar RHIC Zone 8z1 Sweep Checklist -- **TEAM A**

Team Leader (**TLA**)_____ Sweeper#2 (**S2**)_____

Sweeper#3 (**S3**) _____

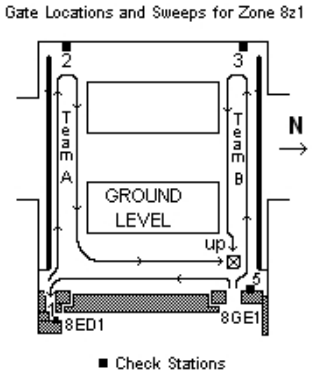
Time:_____ Date:_____

**Note**:
**IF** any workers are encountered during the sweep, **THEN** contact the OC to see if the sweep should be aborted. Workers shall leave the enclosure **WITH** the sweep team. **IF** the workers crash out of the enclosure **AND** do not exit with the sweep team, **THEN** the sweep shall be re-started.

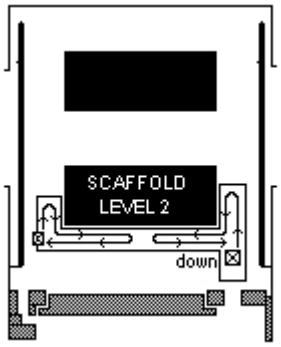
Prerequisites

- Three persons to perform the sweep, one person may be supplied by the Phenix collaboration
- Phenix 8z1 Sweep Checklist (TEAM A) (two pages/ three sides)
- Zones 7z1 and 8z2 should be searched and secured first
- Required Tools: at least three flashlights
- Walkie-talkies (one each for TL), and TLDs (one for each C-AD staff member)
- All Doors closed THEN 8z1 set to Controlled Access
- The lower scaffold (west wall) must be in the down position
- Keys: One Sweep Reset key S/R015 (Team Leader), and two Controlled Access keys CA014 (S2+S3)
- Lock, & Red Tag for Muon Steel South East third level Ladder barricade
- TLA MUST be someone who will readily climb the ladders and walk the upper platforms

**Ground Level**




**Level 2**

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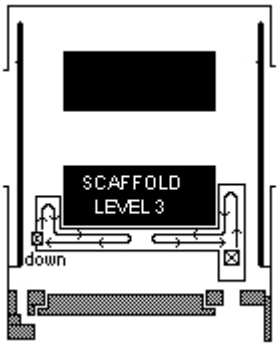
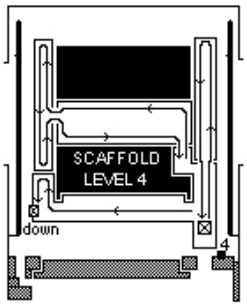



**Level 4**




**CONTINUED ON REVERSE SIDE**

**Note 1:**

Before beginning the sweep:

- Contact the experiment shift leader to tell them a sweep will be performed.
- Ask the experiment to turn off their magnet(s)
- IF magnet(s) cannot be turned off THEN carry no ferrous objects while sweeping near the magnet(s) and obey postings and fencing to stay away from fields greater than 500 gauss.

**Note 2:**

The shield block wall must be completed and inserted before the sweep may begin.

**Note 3:**

**IF EITHER THE EAST OR WEST CARRIAGE, OR BOTH CARRIAGES ARE NOT FULLY INSERTED THEN THE SWEEP TEAMS MUST SWEEP THE INTERIOR "GROUND LEVEL" PORTION OF THE DETECTOR.**

Check

____1. TLA contacts Phenix Shift Leader (person in charge) and gets two Phenix staff members to assist in the sweep. (a total of six Operations group members may be used instead)

____2. TLA instructs the two Phenix staff members that their role is:
- To stand static watch as assigned (**S3** position in the SE corner of the hall), and
- To challenge any person, other than the 4 sweep team members, to come to their position and await to be escorted out of the hall.
- TLA gives each Phenix staff member a CA key and a flashlight.

____3. Sweep team goes to 8GE1 (inner chain link fence gate) in the Phenix experimental hall building and TL asks MCR for simultaneous release

____4. TLA opens 8GE1 gate by turning the CA014 key in the Controlled Access key-switch AT THE INNER CHAIN LINK FENCE GATE while operator in MCR presses simultaneous release for 8GE1.

____5. Sweep Team passes through 8GE1.

____6. Sweep Team splits up – Team A to the South, Team B to the North.

____7. TLA and S2 and S3 walk to mouth of labyrinth for gate 8ED1.

____8. TLA instructs S3 to stand static watch at the mouth of the labyrinth for gate 8ED1.

____9. TLA walks through "parafin door" to gate 8ED1.

____10. TLA resets gate 8ED1 by turning the S/R015 key in the RESET keyswitch next to the gate.

____11 TLA observes the gate reset lamp lights.

____12. TLA STARTS SWEEP by turning the S/R015 key CW in the SWEEP key-switch on 8XCS1 next to 8ED1 gate. (The PASS box in step 11 contains both SWEEP and RESET keyswitches).

____13. TLA observes AREA SECURED lamp blink once.

____14. TLA sweeps up the labyrinth and joins S2 & S3.

____15. TLA instructs S2 to go to the muon steel panels in the SE corner of the hall. TLA walks to the southwest side of the experimental hall while S3 remains static in SE corner.

____16. TLA goes to the SW corner of the hall and shines the flashlight in between each muon steel panel to search for personnel. TL instructs S2 to do the same flashlight search between the steel panels.

____17. TLA instructs S2 to search SE corner tower ladder and the floors above.

____18. S2 looks to see if the barricade is in place on the top floor to block access to the top of the muon steel.

____19. IF the barricade is not in place, THEN S2 climbs the ladder, searches the top of the south muon steel, installs and locks the barricade in place, then returns to ground level

____20. TLA instructs S2 to walk to map position 2 in the SW corner of the hall and to stand static watch.

____21. TLA searches the muon steel ladder in the SW corner of the hall and searches the top decks for personnel.

____22. TLA searches exhaust/supply fan vent port in the southwest area of the hall and verifies the vent barrier is secured.

**CONTINUED ON NEXT SHEET**

**Note 4:**

IF the west carriage is opened or the walkways not accessible, THEN TLA sweeps level 2 platform in the South West Corner.

____23. TLA climbs ladder to second level platform of west carriage and walks north to meet TLB
____24. TLA and TLB climb ladder to third level platform of west carriage.
____25. TLA sweeps third level platform while TLB climbs to fourth level and sweeps
____26. TLA joins TLB in north west corner of third level and TLA and TLB sweep down to level 2.
____27. TLA sweeps south on level two and down the southwest ladder to the southwest corner of the hall.
____28. TLA sets second check station by turning S/R015 key CW in the SWEEP key-switch on 8XCS2 in SW corner of Phenix hall.
____29. TLA observes AREA SECURED lamp blink once.
____30. **TLA SHOUTS to TLB that check station TWO is reset and that check station THREE may be reset**
____31. TLA sweeps east, looking under the floor grating. **IF the East or West carriage is withdrawn, THEN he/she enters the detector to search for personnel**
____32. TLA sweeps to NE corner at 8GE1 and joins TLB.
____33. TLA AND TLB climb the scaffold to the fourth level
____34. TLA stands static watch while TLB walks west on the platform that runs parallel to the north muon steel
____35. TLA proceeds to the junction of the south landing and the south platform parallel to the south muon steel AFTER TLB returns to the ladder.
____36. TLA stands static watch while TLB sweeps the central platform and the south platform parallel to the south muon steel.
____37. TLA sweeps the south landing and the east catwalk while TLB does the same at the north end.
____38 TLA and TLB go down to level three on their respective ladders.
____39. TLA sweeps the south landing, while TLB does the same at the north end.
____40. TLA and TLB go down to level two on their respective ladders.
____41. TLA sweeps the south landing, while TLB does the same at the north end.
____42. TLA and TLB go down to ground level on their respective ladders.
____43. TLA calls to TEAM A (S2 & S3) and tells them to sweep 8GE1. Team A meets Team B at the gate
____44. TLA ENDS SWEEP at fifth check station (8XCS5) by turning S/R015 key in the SWEEP keyswitch on the box inside the gate
____45. TLA observes AREA SECURED lamp remains lit.
____46. TLA calls MCR for simultaneous release at 8GE1 (inner chain link gate).
____47. Sweep Team sweeps out 8GE1.
____48. TLA closes the 8GE1 plug door by doing the following:
  ____ set plug drive motor energy disconnect switch to the ON position
  ____ insert and turn the S/R015 key in the drive motor enable keyswitch (RHIC Safety Systems 8GE1 Plug Door Lockout)
  ____ PRESS AND HOLD the close pushbutton
  ____ IF the door does not move THEN pull the red crash button on the detector side of the plug door.
____49. WHEN the plug is closed, TL resets the 8GE1 gate by turning the S/R015 key in the RESET keyswitch.
____50. TLA observes Gate Reset lamp light
____51. TLA contacts MCR to verify 8z1 sweep is good and gates (8GE1 and 8ED1) are reset

**Note:**

If Area Secured Lamp Is Not Lit Then contact MCR to verify if sweep is good.

____52. TLA collects CA keys and flashlights from Phenix staff members and sends them on their way
____53. After returning to MCR and verifying that all checklist information is filled out completely, TLA files the TEAM A and TEAM B checklists in FYxx Sweep Log binder.

CA-OPM-ATT 4.56.ar RHIC Zone 8z1 Sweep Checklist -- **TEAM B**

Team Leader (**TLB**)_____ Sweeper#2 (**S2**)_____

Sweeper#3 (**S3**)_____

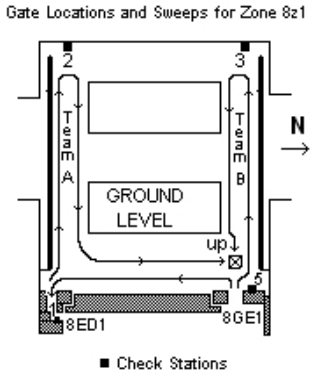
Time:_____ Date:_____

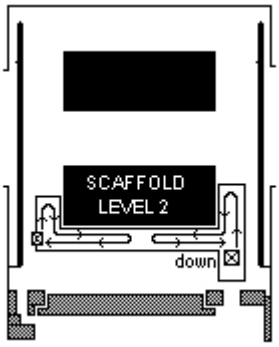
**Note**:
**IF** any workers are encountered during the sweep, **THEN** contact the OC to see if the sweep should be aborted. Workers shall leave the enclosure **WITH** the sweep team. **IF** the workers crash out of the enclosure **AND** do not exit with the sweep team, **THEN** the sweep shall be re-started.

Prerequisites

- Three persons to perform the sweep, one person may be supplied by the Phenix collaboration
- Phenix 8z1 Sweep Checklist (TEAM B) (one page/two sides)
- Zones 7z1 and 8z2 should be searched and secured first
- Required Tools: at least two flashlights
- Walkie-talkies (one each for TL) and TLDs (one for each C-AD staff member)
- All Doors closed THEN 8z1 set to Controlled Access
- The lower scaffold (west wall) must be in the down position
- Keys: One Sweep Reset key S/R015 (Team Leader), and Two Controlled Access keys CA014 (S2 +S3)
- Lock, & Red Tag for Muon Steel North East third level Ladder barricade
- TLB MUST be someone who will readily climb the ladders and walk the upper platforms

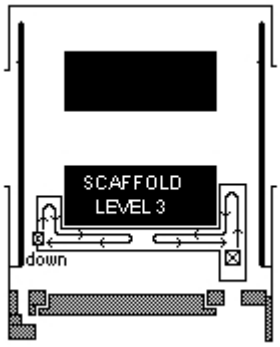
**Ground Level**

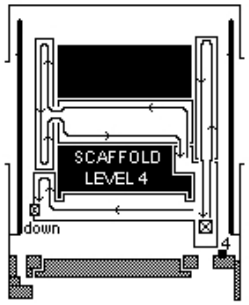



**Level 2**

**Level 3**




**Level 4**

**CONTINUED ON REVERSE SIDE**

**Note 1:**
**IF EITHER THE EAST OR WEST CARRIAGE, OR BOTH CARRIAGES ARE NOT FULLY INSERTED THEN THE SWEEP TEAMS MUST SWEEP THE INTERIOR "GROUND LEVEL" PORTION OF THE DETECTOR.**
**Note 2:**
TLB MUST NOT reset check station THREE until he/she hears it is ok to do so from TLA

Check

____1. Team B enters 8z1 through 8GE1 along with Team A
____2. Sweep teams split up, Team A to the South, Team B to the North
____3. TLB instructs S3 to stand static watch "at ground level" inside 8GE1 (map position 5).
____4. TLB instructs S2 to walk to the NE corner of the hall to search between steel panels
____5. TLB walks to NW corner (map position 3) of the enclosure.
____6. TLB shines the flashlight between each muon steel panel to search for personnel.
TLB instructs S2 to do the same flashlight search between the steel panels.
____7. S2 looks up the NE ladder to search for personnel on the floors above.
____8. S2 looks to see if the barricade is locked in place on the third floor to block access to the top of the muon steel
____9. IF the barricade is not in place THEN S2 climbs the ladder, searches the top of the north muon steel, installs and locks the barricade in place, then returns to ground level.
____10. TLB calls S2 to come to the NW corner of the enclosure.
____11. S2 stands static watch in the NW corner.
____12. TLB searches the back of the detector along the west wall of the enclosure.
____13. TLB looks up tower ladder in NW corner of enclosure to search the floors next to north muon steel panels

**Note 3:**
**IF the west carriage is opened or the walkways not accessible, THEN TLB sweeps levels 2 & 3 platforms as well as the level 4 walkway**

____14. TLB climbs ladder to second level platform of west carriage and waits to meet TLA
____15. TLB and TLA climb ladder to third level platform of west carriage.
____16. TLB climbs to fourth level and sweeps fourth level while TLA sweeps third level
____17. TLB climbs down and meets TLA in north west corner of third level and TLA and TLB sweep down to level 2.
____18. TLB sweeps down to level 1 using the ladder in the northwest corner.
____19. TLB resets check station **3** after hearing form TLA that check station **2** was reset.
____20. TLB sets third check station by turning the S/R015 key CW in the SWEEP key-switch on 8XCS3 in the NW corner of the Phenix hall.
____21. TLB observes AREA SECURED lamp blink once.
____22. TLB sweeps to NE corner of the enclosure – **IF the East or West carriage is withdrawn, THEN he/she enters the detector to search for personnel**
____23. TLB sweeps to NE corner and joins TLA.
____24. TLA and TLB climb the ladder in the NW corner to level four.
____25. TLB walks west on the catwalk that is parallel to the north muon steel while TLA stands static watch
____26. TLB searches then entire enclosure from the catwalk then sweeps back and joins TLA.
____27. TLB proceeds to the north entrance of the central platform over the detector.
____28. TLB sweeps the central platform and the south platform parallel to the south muon steel.
____29. TLB sweeps the north landing, and the east catwalk while TLA does the same at the south end
____30 TLB resets check station 4 (8xCS4).
____31 TLB sets fourth check station by turning the S/R015 key CW in the SWEEP key-switch on 8XCS4 on the east wall above 8GE1.
____32. TLB observes AREA SECURED lamp blink once.
____33. TLB and TLA go down to level three on their respective ladders.
____34. TLB sweeps the north landing, while TLA does the same at the south end.
____35. TLB and TLA go down to level two on their respective ladders.
____36. TLB sweeps the north landing, while TLA does the same at the south end.
____37. TLB and TLA go down to ground level on their respective ladders.
____38. TLB sweeps to 8GE1 and calls S2 to join him/her and S3 at 8GE1.
____39. Team B awaits Team A so that all will exit together.