3.6. Secure PAB Vent Fans and Prepare for Single Train Operation

NOTE: While performing the next step, the following fans will trip if running:

- *W-30A or B, Auxiliary Building Filter Fan*
- *W-27A or B, Health Physics Exhaust Fan*
- *W-32, PAB Exhaust Fan*
- *W-35, PAB Supply Fan*
- *W-23, Service Building AC Fan*
- *W-29, Service Building AC Fan*

NOTE: While performing the next two steps, Annunciator window B-4-10 "Control Room A/C Units Air Flow Low" will alarm.

3.6.1. Secure Aux Building Stack Ventilation Fans W-21A and W-21B and Aux Bldg Filter Fans W-30A and W-30B in accordance with OI-39 (by stopping the running W-21 fan) and hang the required Danger Tags in accordance with OI 39 while continuing with this procedure.

Record Tag Series Hung: / 480v Iwp 01-128*E-FN (OI-39) Em Rev0-1

OPS

NOTE: When performing the next step, if W-21B is not running, the running W-30 fan will trip when sliders TMK-1 and 2 are opened (ref 499B466 Sh. 810 & 583A/B).

3.6.2. Hang the following Danger Tags that were prepared in step 2.7.6:

Equipment	Description	Position
Slider TMK-1 (Riser 5-1C04)	PAB Stack Fans Aux Relay W-21X	OPEN
Slider TMK-2 (Riser 5-1C04)	PAB Stack Fans Aux Relay W-21X	OPEN

Record Tag Series Hung: / 480v Iwp 01-128*E-FN (W-21X) Em Rev 07

3.6.3. Hang ONLY the following Caution Tags that were prepared in step 2.7.7:

Equipment	Description	Position -Tag Text
W-21A-CS	PAB Exhaust Stack Fan W-21A Control Switch (1C04)	PULL OUT per IWP 01-128 (DAMPER GAGGED)
W-30A-CS	W-30A PAB Exhaust Filter Fan Control Switch (1C-04)	PULL OUT per IWP 01-128 (DAMPER GAGGED)

Record Tag Series Hung: 1 480V IWP 01-128*E-FN (W-21A) Caut Rqd

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3248, and the damper will fail open.

3.6.4. At MCC 1B42, ensure that W-21A breaker 1B52-4211M is OFF.

OPS/EM

3.6.5. At MCC 1B42, remove the 1B52-4211M control power fuse, bag it, label the bag "Do not reinstall until directed to in IWP 01-128*E-FN" and tape the bag securely to the inside wall of the MCC Bucket.

OPS/EM

3.6.6. Place a PBNP Maintenance Work Site Sign (PBF-9181) on the outside of the 1B52-4211M door.

EM

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3265, and the damper will fail open.

3.6.7. At MCC 1B42, ensure that W-30A breaker 1B52-4212M is OFF.

OPS/EM

3.6.8. At MCC 1B42, remove the 1B52-4212M control power fuse, bag it, label the bag "Do not reinstall until directed to in IWP 01-128*E-FN" and tape the bag securely to the inside wall of the MCC Bucket.

OPS/EM

3.6.9. Place a PBNP Maintenance Work Site Sign (PBF-9181) on the outside of the 1B52-4212M door.

EM

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3266, and the damper will fail open.

3.6.10. At MCC 2B32, ensure that W-30B breaker 2B52-3213M is OFF.

OPS/EM

NOTE: Steps 3.7.1 through 3.7.4 may be performed concurrently with the next FIVE steps.

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3249, and the damper will fail open.

BREAKER FOUND IN ON POSITION AT 1733 REPOSITIONED BREAKER TO OFF 4/23/04

3.6.11. At MCC 2B32, ensure that W-21B breaker 2B52-3211M is OFF.

OPS/EM

3.6.12. Verify that the Danger Tag series required per OI-39 is hanging.

OPS

W-21 IS NOT A CONFINED SPACE PER NP 1.9.4 4-23-04

* 3.6.13. After RP survey is completed, enter the W-21 fan room ~~using NP-1.9.4 Confined Space Procedure instructions and~~ clamp the VNPAB-3248 W-21A PAB Exh Stack Fan Discharge Control Damper SHUT to prevent "short circuiting" the W-21B discharge when the fan is started.

N/A CAD 4/23/04
MTN

3.6.14. Ensure tools have been removed, exit the W-21 fan room, and close the enclosure door.

N/A CAD 4/23/04
MTN

W-30A IS NOT A CONFINED SPACE PER NP 1.9.4 4-23-04

3.6.15. After RP survey is completed, enter the W-30 fan room ~~using NP-1.9.4 Confined Space Procedure instructions and~~ clamp the VNPAB-3265 W-30A PAB Exhaust Filter Fan Discharge CTL Damper SHUT to prevent "short circuiting" the W-21B discharge when the fan is started.

N/A CAD 4/23/04
MTN

3.6.16. Ensure tools have been removed, exit the W-30 fan room, and close the enclosure door.

N/A CAD 4/23/04
MTN

* Due to breaker mispositioning (see CAP ...), Outage Management has decided not to complete the modification during C1R23. MCC 1B42 Bus Bracing Installation per IWP 01-128*E-BR will not be performed during C1R23. Remaining steps necessary to restore all equipment to pre-modification condition, will be performed. All other steps will be N/Aed accordingly.

3.7. Disconnect and Bypass PAB Exhaust Stack Fan W-21B Interlock with W-21A

3.7.1. At MCC 2B32, OPEN the 2B52-3211M cubicle door.

N/A CAD 4/23/04
EM

3.7.2. Check for both AC and DC Voltages. If any terminals EXCEPT the line side of the breaker (480 V) AND TP-9/TP-10 (120 V) are found to be energized, contact Supervision immediately for resolution.

N/A CAD 4/23/04
EM

HOLD POINT: Do not proceed without a concurrent checker present to ensure proper wire selection.

3.7.3. At 2B52-3211M, lift and tape the following two conductors (Ref. Bech E-2092 Sh. 10 and West 499B466 sh. 582B):

Cable No.	Color	From (Terminal Block)	Label As
23211M-E	BLK	TP-3	3
23211M-E	WHT	TP-3A	3A

N/A CAD 4/23/04
EM

N/A CAD 4/23/04
Concurrent Check (EM)

3.7.4. At 2B52-3211M, install and land the following external side jumper using # 14 AWG gray SIS wire (Ref. Bech E-2092 Sh. 10 and West 499B466 sh. 582B):

From (Terminal Block)	To (Terminal Block)	Torque (in/lbs)	Performed By (EM) Landed	Verified
TP-3	TP-3A	Snug Tight	N/A	N/A CAD 4/23/04

NOTE: When the next step is performed, position indication will be restored for damper VNPAB-3249, and the damper may close.

NOTE: The bucket door must be open during the performance of the next step to allow observation of the contactor.

NOTE: The following two steps shall be worked concurrently.

3.7.5. At MCC 2B32, CLOSE breaker 2B52-3211M.

N/A CAD
OPS/EM

3.7.6. If W-21B starts (contactor pulls in), immediately OPEN breaker 2B52-3211M and contact RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

FOREIGN MATERIAL EXCLUSION

3.7.7. Verify that the area in and around 2B52-3211M has been cleaned and all loose parts and debris have been removed. Document on PBF-9158 Checklist.

N/A CAD
I.S. (MTN)

3.7.8. At MCC 2B32, Close the 2B52-3211M door.

N/A CAD
OPS/EM

3.8. Disconnect PAB Supply Fan W-35 Interlock With W-30A

3.8.1. At 1C04, place W-35-CS in the PULL OUT position.

N/A CAD
OPS

NOTE: When the next step is performed, power will be lost for SV-4824, and W-35 PAB Supply Fan Outside Air Suct Ctl Damper VNPAB-4824 will fail closed.

3.8.2. At MCC 1B31, ensure that W-35 breaker 1B52-3110M is OPEN.

N/A CAD
OPS/EM

3.8.3. At MCC 1B31, OPEN the 1B52-3110M cubicle door.

N/A CAD
OPS/EM

3.8.4. Check for both AC and DC Voltages. If any terminals EXCEPT the line side of the breaker (480 V) AND TP-9/TP-10 (120 V) are found to be energized, contact Supervision immediately for resolution.

N/A CAD
EM

NOTE: While performing the next step, record the conductor color in the space provided.

HOLD POINT: Do not proceed without a concurrent checker present to ensure proper wire selection.

3.8.5. At 1B52-3110M, lift and tape the following conductor (Ref. Bech E-92 Sh. 6 and West 499B466 sh. 585):

Cable No.	Color	From (Terminal Block)	Label
13110M-C	_____	TP-1	1

N/A CAD
EM

N/A CAD
Concurrent Check (EM)

3.8.6. Hang the first tag prepared in step 2.7.5 for 1B52-3110M:

Breaker	Description	Position
1B52-3110M	W-35 Aux Bldg Supply Fan	OFF

Record Tag Series Hung: 1 480V IWP 01-128*E-FN (W-35) EM Rev 01

N/A CAD
OPS

NOTE: When the next step is performed, power will be lost for SV-3256-S, and W-32 PAB Exhaust Fan Discharge Damper VNPAB-3256 will fail closed.

3.8.7. At MCC B33, ensure that W-32 breaker B52-331F is OFF.

N/A CAD
OPS/EM

3.8.8. At MCC B33, OPEN the B52-331F cubicle door.

N/A CAD
OPS/EM

3.8.9. Check for both AC and DC Voltages. If any terminals EXCEPT the line side of the breaker (480 V) are found to be energized, contact Supervision immediately for resolution.

N/A CAD
EM

NOTE: While performing the next step, record the conductor color in the space provided.

HOLD POINT: **Do not proceed without a concurrent checker present to ensure proper wire selection.**

3.8.10. At B52-331F, lift and tape the following conductor (Ref. Bech E-92 Sh. 26 and West 499B466 sh. 585):

Cable No.	Color	From (Terminal Block)	Label
13110M-F	_____	TP-10	1B

N/A CAD
EM

N/A CAD
Concurrent Check (EM)

3.8.11. At MCC 1B31, CLOSE W-32 breaker B52-331F.

N/A CAD
OPS/EM

NOTE: When performing the next step, other tags may have been hung. Those tags shall remain hung unless directed otherwise at the discretion of operations. ONLY the tags listed below shall be removed.

3.8.12. Remove the Danger Tags from ONLY the following equipment and place the equipment in the listed position:

Breaker	Description	Position
1B52-3110M	W-35 Aux Bldg Supply Fan	OFF

Record Tag Series Removed: 4kV Iwp 01-128*E-FN (W-35) Em Rm

N/A CAD
OPS

NOTE: The following two steps shall be worked concurrently.

3.8.13. At MCC 1B31, CLOSE breaker 1B52-3110M.

N/A CAD
OPS/EM

3.8.14. If W-35 starts, immediately OPEN 1B52-3110M and contact the RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

3.9. Start PAB Ventilation Fans W-21B, W-30B, and W-35

3.9.1. Verify that the following dampers are clamped SHUT (steps 3.6.12 and 3.6.14 completed):

VNPAB-3248	W-21A PAB Exh Stack Fan Discharge Control Damper
VNPAB-3265	W-30A PAB Exhaust Filter Fan Discharge CTL Damper

N/A CAD
EM

3.9.2. Notify Operations that all tags that were hung per OI-39 for personnel protection while working in the W-21 and W-30 fan rooms may now be cleared (work may continue following this notification).

N/A CAD
EM

Record Tag Series to be Removed: 1480 IWP 01-128*E-FN (OI-39)
EM Rev 17

NOTE: Prior to performing the following four steps, ensure that personnel are positioned at Control Room panel 1C04, at 2B52-3213M and outside the W-30B cubicle (with the cubicle door closed) with radio contact available.

NOTE: The bucket door must be open during the performance of the next step to allow observation of the contactor.

NOTE: The following two steps shall be worked concurrently.

3.9.3. At MCC 2B32, CLOSE breaker 2B52-3213M.

N/A CAD
OPS/EM

3.9.4. If W-30B starts, immediately OPEN 2B52-3213M and contact the RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

NOTE: The following two steps shall be worked concurrently.

3.9.5. "Red Flag" W-30B by moving W-30B-CS to the START position and releasing.

N/A CAD
OPS

3.9.6. If W-30B starts, immediately OPEN 2B52-3213M and contact the RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

3.9.7. At MCC 2B32, Close the 2B52-3213M door.

N/A CAD
OPS/EM

NOTE: While performing the next step, the Aux Bldg Filter Air Flow Low amber status light on 1C04 may go on and then should go OFF remain OFF.

3.9.8. At 1C04, START W-21B and W-30B by moving W-21B-CS at 1C04 to START and releasing.

N/A CAD
OPS

3.9.9. On 1C04, verify that the W-30B red light is ON and the green light is OFF.

N/A CAD
OPS

3.9.10. On 1C04, verify that the W-21B red light is ON and the green light is OFF.

N/A CAD
OPS

3.9.11. On 1C04, verify that the VNPAB-3266 damper position indication shows the red light ON and green light OFF.

N/A CAD
OPS

3.9.12. On 1C04, verify that the VNPAB-3249 damper position indication shows the red light ON and green light OFF.

N/A CAD
OPS

3.9.13. Ensure that PAB Exhaust Fan W-32 is running.

N/A CAD
OPS

3.9.14. At 1C04, START W-35 by moving W-35-CS to START and releasing.

N/A CAD
OPS

3.9.15. On 1C04, verify that the W-35 red light is ON and the green light is OFF.

N/A CAD
OPS

3.10. Exit to IWP 01-128*E-BR

3.10.1. Ensure that the required PAB and Control Room Ventilation Fans are running.

N/A CAD
OPS

3.10.2. Verify that fans W-21A, W-30A, and W-13B2 are OFF.

N/A CAD
OPS

3.10.3. Add W-21A and W-30A to the Out of Service List (dampers gagged shut).

N/A CAD
OPS

3.10.4. Verify all PBNP Maintenance Work Site signs (PBF-9181), EXCEPT 1B42 cubicles 8M, 11M, and 12M have been removed from work areas.

N/A CAD
EM

3.10.5. Exit this IWP to perform IWP 01-128*E-BR.

N/A CAD
OPS

N/A ① CAD
RE

① IWP 01-128*E-BR will not be performed. CAD 4/28/04

3.11. Return from IWP 01-128*E-BR

3.11.1. Verify that the installation and PMT performed under IWP 01-128*E-BR for MCC 1B42 bracing is complete through step 4.3.14.

N/A CAD
OPS

N/A CAD
RE

3.11.2. Verify that Chemistry and RP are prepared for a PAB ventilation outage.

N/A CAD
OPS

3.11.3. Verify that plant conditions will support turning off the CR and PAB ventilation fans listed in step 2.7.3 to allow restoring interlocks and performing PMT for fans W-13B1/B2, W-21A/B, and W-30A/B.

N/A CAD
OPS

3.11.4. Perform the remaining steps in this IWP to restore the interlocks for W-13B1/B2, ~~W-21A/B, W-30A/B, and W-35 and to complete PMT demonstrating proper operation of these fans following both restoration of interlocks (all 5 fans) and bucket removal for 1B42 bracing installation (rotation checks for W-21A, W-30A, and W-13B2 only).~~ W-21A/B and W-30A/B will be returned to service.

CAD 9/26/01

3.12. Secure PAB Vent Fans and Prepare to Restore Both Trains to Operation

NOTE: While performing the next step, the following fans will trip if running:

- *W-30A or B, Auxiliary Building Filter Fan*
- *W-27A or B, Health Physics Exhaust Fan*
- *W-32, PAB Exhaust Fan*
- *W-35, PAB Supply Fan*
- *W-23, Service Building AC Fan*
- *W-29, Service Building AC Fan*

NOTE: While performing the next two steps, Annunciator window B-4-10 "Control Room A/C Units Air Flow Low" will alarm.

3.12.1. Secure Aux Building Stack Ventilation Fan W-21B and Aux Bldg Filter Fan W-30B (by stopping the running W-21 fan) and hang the required Danger Tags in accordance with OI 39 while continuing with this procedure.

Record Tag Series Hung: IWP 01-128*E-FN (OI-39) Rev 0-1

N/A CAD
OPS

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3248.

3.12.2. At MCC 1B42, ensure that W-21A breaker 1B52-4211M is OFF.

N/A CAD
OPS/EM

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3265.

3.12.3. At MCC 1B42, ensure that W-30A breaker 1B52-4212M is OFF.

N/A CAD
OPS/EM

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3249, and the damper will fail open.

3.12.4. At MCC 2B32, ensure that W-21B breaker 2B52-3211M is OFF.

N/A CAD
OPS/EM

NOTE: When the next step is performed, position indication will be lost for damper VNPAB-3266, and the damper will fail open.

3.12.5. At MCC 2B32, ensure that W-30B breaker 2B52-3213M is OFF.

N/A CAD
OPS/EM

NOTE: Steps 3.13.1 through 3.13.5 may be performed concurrently with the next FIVE steps.

3.12.6. Verify that the Danger Tag series required per OI-39 is hanging.

N/A CAD
OPS

3.12.7. After RP survey is completed, enter the W-21 fan room using NP 1.9.4 Confined Space Procedure instructions and remove the clamp holding the VNPAB-3248 W-21A PAB Exh Stack Fan Discharge Control Damper SHUT and restore the damper to normal operation.

N/A CAD
MTN

3.12.8. Ensure tools have been removed, exit the W-21 fan room, and close the enclosure door.

N/A CAD
MTN

3.12.9. After RP survey is completed, enter the W-30 fan room using NP 1.9.4 Confined Space Procedure instructions and remove the clamp holding the VNPAB-3265 W-30A PAB Exhaust Filter Fan Discharge CTL Damper SHUT and restore the damper to normal operation.

N/A CAD
MTN

3.12.10. Ensure tools have been removed, exit the W-30 fan room, and close the enclosure door.

N/A CAD
MTN

3.13. Restore PAB Exhaust Stack Fan W-21B Interlock with W-21A

3.13.1. At MCC 2B32, OPEN the 2B52-3211M cubicle door.

N/A CAD
EM

3.13.2. Check for both AC and DC Voltages. If any terminals EXCEPT the line side of the breaker (480 V) AND TP-9/TP-10 (120 V) are found to be energized, contact Supervision immediately for resolution.

N/A CAD
EM

3.13.3. At 2B52-3211M, remove the following external side jumper (Ref. Bech E-2092 sh. 10 & West 499B466 sh. 582B):

From (Terminal Block)	To (Terminal Block)	Performed By (EM)	
		Removed	Verified
TP-3	TP-3A	N/A	N/A CAD

HOLD POINT: (E.14.1) (G.7) Do not proceed without QC Inspector present to ensure proper wire labeling and landing in the next step.

3.13.4. At 2B52-3211M, remove the tape from, disconnect, and land the following two conductors (Ref. Bech E-2092 sh. 10 & West 499B466 sh. 582B):

Cable No.	Color	To (Terminal Block)	Label	Torque (in/lbs)	Performed By (EM)	
					Landed	Verified
23211M-E	BLK	TP-3	3	Snug Tight	N/A	N/A
23211M-E	WHT	TP-3A	3A	Snug Tight	N/A	N/A CAD

Wire labeling and landing requirements are satisfactory.

QC Inspector _____ Date _____

FOREIGN MATERIAL EXCLUSION

3.13.5. Verify that the area in and around 2B52-3211M has been cleaned and all loose parts and debris have been removed. Document on PBF-9158 Checklist.

N/A CAD
I.S. (MTN)

NOTE: When the next step is performed, position indication will be restored for damper VNPAB-3249, and the damper may close.

~~*NOTE: The bucket door must be open during the performance of the next step to allow observation of the contactor.*~~

CAD 4/24/01

~~*NOTE: The following two steps shall be worked concurrently.*~~

BTS 4/24/01

3.13.6. At MCC 2B32, CLOSE breaker 2B52-3211M PWR to W-21B PAB Exhaust Stack Fan

// FOC
L. PERCY
OPS/~~EM~~

//
R. KU

3.13.7. If W-21B starts (contactor pulls in), immediately OPEN breaker 2B52-3211M and contact RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

BTS 4/24/01

3.13.8. Close the 2B52-3211M PWR to W-21B PAB Exhaust Stack Fan cubicle door.

N/A CAD
EM

3.14. Restore PAB Supply Fan W-35 Interlock With W-30A

3.14.1. At 1C04, place W-35-CS in the PULL OUT position.

N/A CAD
OPS

NOTE: When the next step is performed, power will be lost for SV-4824, and W-35 PAB Supply Fan Outside Air Suct Ctl Damper VNPAB-4824 will fail closed.

3.14.2. At MCC 1B31, ensure that W-35 breaker 1B52-3110M is OPEN.

N/A CAD
OPS/EM

3.14.3. At MCC 1B31, OPEN the 1B52-3110M cubicle door.

N/A CAD
OPS/EM

3.14.4. Check for both AC and DC Voltages. If any terminals EXCEPT the line side of the breaker (480 V) AND TP-9/TP-10 (120 V) are found to be energized, contact Supervision immediately for resolution.

N/A CAD
EM

3.14.5. Copy the conductor color recorded for the conductor lifted in step 3.8.5 to the space provided in the table for the next step.

N/A CAD
EM

HOLD POINT: **(E.14.1) (G.7) Do not proceed without QC Inspector present to ensure proper wire labeling and landing in the next step.**

3.14.6. At 1B52-3110M, remove the tape from and land the following conductor (Ref. Bech E-92 sh. 6 & West 499B466 sh. 585):

Cable No.	Color	To (Terminal Block)	Label	Torque (in/lbs)	Performed By (EM) Landed	Performed By (EM) Verified
13110M-C	______	TP-1	1	Snug Tight	N/A	N/A CAD

Wire labeling and landing requirements are satisfactory.

QC Inspector ____________________ **Date** ________________

*****FOREIGN MATERIAL EXCLUSION*****

3.14.7. Verify that the area in and around 1B52-3110M has been cleaned and all loose parts and debris have been removed. Document on PBF-9158 Checklist.

N/A CAD
I.S. (MTN)

3.14.8. Hang the second tag prepared in step 2.7.5 for 1B52-3110M:

Breaker	Description	Position
1B52-3110M	W-35 Aux Bldg Supply Fan	OFF

Record Tag Series Hung: / 480V Iwp 01-128*E-FN (W-35) EM R-00-2

N/A CAD
OPS

NOTE: When the next step is performed, power will be lost for SV-3256-S, and W-32 PAB Exhaust Fan Discharge Damper VNPAB-3256 will fail closed.

3.14.9. At MCC B33, ensure that W-32 breaker B52-331F is OFF.

N/A CAD
OPS/EM

3.14.10. Check for both AC and DC Voltages. If any terminals EXCEPT the line side of the breaker (480 V) are found to be energized, contact Supervision immediately for resolution.

N/A CAD
EM

3.14.11. Copy the conductor color recorded for the conductor lifted in step 3.8.9 to the space provided in the table for the next step.

N/A CAD
EM

HOLD POINT: (E.14.1) (G.7) Do not proceed without QC Inspector present to ensure proper wire labeling and landing in the next step.

3.14.12. At B52-331F, remove the tape from and land the following conductor (Ref. Bech E-92 Sh. 26 and West 499B466 sh. 585):

Cable No.	Color	To (Terminal Block)	Label	Torque (in/lbs)	Performed By (EM)	
					Landed	Verified
13110M-F	_____	TP-10	1B	Snug Tight	N/A	N/A CAD

Wire labeling and landing requirements are satisfactory.

QC Inspector _____ **Date** _____

FOREIGN MATERIAL EXCLUSION

3.14.13. At MCC B33, verify that the area in and around B52-331F has been cleaned and all loose parts and debris have been removed. Document on PBF-9158 Checklist.

N/A CAD
I.S. (MTN)

3.14.14. At MCC B33, CLOSE W-32 breaker B52-331F.

N/A CAD
OPS/EM

NOTE: When performing the next step, other tags may have been hung. Those tags shall remain hung unless directed otherwise at the discretion of operations. ONLY the tags listed below shall be removed.

3.14.15. Remove the Danger Tags from ONLY the following equipment and place the equipment in the listed position:

Breaker	Description	Position
1B52-3110M	W-35 Aux Bldg Supply Fan	OFF

Record Tag Series Removed: 480V Imp 01-128*E-FN (W-35) EM Rev 0-2

N/A CAD
OPS

NOTE: The following two steps shall be worked concurrently.

3.14.16. At MCC 1B31, CLOSE breaker 1B52-3110M.

N/A CAD
OPS/EM

3.14.17. If W-35 starts, immediately OPEN 1B52-3110M and contact the RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

3.14.18. Close the 1B52-3110M cubicle door.

N/A CAD
EM

3.15. Clean up

Any construction debris in or around the location of work has been cleaned up.

I.S. _____ Date 4/24/4

3.16. Installation Complete

3.16.1. The QC requirements of this installation have been completed.

* No QC steps performed; work aborted. BJ

QC Inspector N/A DJ Date _____

3.16.2. As-Built Description

Installation Aborted; recovery in progress

This IWP was installed by: N/A DJ Date 4/24/14

The installation was performed in accordance with this IWP and Working Drawings (list revisions):

_____

_____

_____

ECR(s) No.: None

_____

CR(s) No.: CAP 056010

_____

Other considerations: None

_____

Attach any additional documentation of the as-built description to this IWP.

3.16.3. List all calibrated equipment used during installation of this modification in the Work Order.

3.16.4. Record QAR number(s) in Work Order.

3.16.5. The installation of this IWP is complete.

RE [signature] Date 4/23/14

IS [signature] (*) Date 4/24/14

(*) Work scope Aborted; recovery in progress. BJ 4/24/14

4. TESTING

4.1. Testing Information

4.1.1. The intent of this testing is to verify proper operation of buckets 1B52-428M, ~~1B52-4211M, and 1B52-4212M~~ and to verify proper restoration of the interlocks between W-13B1 and B2, ~~W-21A and B, and W30A/B and W-35.~~ W-21A/B and W-30A/B and associated fans will be returned to service. CAD 4/23/01

4.1.2. Acceptance criteria for this testing is the successful completion of the testing steps included in this IWP.

4.2. Pre-Test Requirements

4.2.1. Perform a pre-test briefing with the testing group representative.

R.E./I.S. N/A CAD 4/23/01 Date _____ Time _____

4.2.2. Initial Conditions

~~W-32 PAB Exhaust Fan is operable and can be run during this testing.~~ CAD 4/23/01

4.2.3. Release for Testing

The W-21A and W-30A discharge damper gags have been removed per steps 3.12.7 and 3.12.9.

N/A CAD
MTN

The Aux Bldg Stack Ventilation Fans, W-21A and W-21B, the Aux Bldg Filter Fans, W-30A and W-30B, the PAB Supply Fan, W-35, and the Control Room Recirc Fans, W-13B1 and W-13B2 will be started and stopped during the following testing. It is acceptable to proceed with this test.

DSS N/A CAD 4/23/01 Date _____ Time _____

4.3. Post Maintenance Testing (PMT)

CAD 4/23/14

~~*NOTE: The bucket door must be open during the following steps to allow observation of the contactor during testing.*~~

4.3.1. At MCC 2B32, open the 2B52-3213M bucket door.

N/A CAD
OPS/EM

~~*NOTE: The following two steps shall be worked concurrently.*~~

CAD 4/23/14 BS 4/24/14

4.3.2. CLOSE breaker 2B52-3213M (PWR to W-30B (F-23/F-24) PAB Exhaust Filter Fan

(W) B
OPS/~~EM~~

4.3.3. If W-30B starts (contactor pulls in), immediately OPEN 2B52-3213M and contact the RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

4.3.4. Close the 2B52-3213M bucket door.

N/A CAD
OPS/EM

NOTE: When performing the next step, other Danger Tags may have been hung. Those tags shall remain hung unless directed otherwise at the discretion of Operations. ONLY the equipment tags listed below shall be removed for the testing of W-21A.

Record Tag Series Hung: ____________________

4.3.5. Remove the Danger Tags from ONLY the following equipment and place the equipment to the listed position:

Equipment	Description	Position
Slider TMK-1 (Riser 5-1C04)	PAB Stack Fans Aux Relay W-21X	CLOSED
Slider TMK-2 (Riser 5-1C04)	PAB Stack Fans Aux Relay W-21X	CLOSED

Record Tag Series Removed: / 480V IWP 01-128*E-FN (W-21X) Em Rly

CAD 4/23/03

TJ/CS ____ OPS

4.3.6. Remove the Caution Tags from ONLY the following equipment and place the equipment to the listed position:

Equipment	Description	Position
W-21A-CS	PAB Exhaust Stack Fan W-21A Control Switch (1C04)	PULL OUT
W-30A-CS	W-30A PAB Exhaust Filter Fan Control Switch (1C-04)	PULL OUT

Record Tag Series Removed: / 480V IWP 01-128*E-FN (W-21A) Cont Rly

____ OPS

CAD 4/23/04 ~~*NOTE: The bucket door must be open during the following steps to allow observation of the contactors during testing.*~~

BJS 4/24/04 4.3.7. At MCC 1B42, open the 1B52-4211M bucket door. PWR To W-21A PAB Exhaust Fan Stack BJS 4/24/04

OPS/EM

BJS 4/24/04 4.3.8. Reinstall the control power fuse (bagged and taped to the bucket wall) in 1B52-4211M. PWR To W-21A PAB Exhaust Stack Fan BJS 4/24/04

CAD 4/23/04

OPS/EM

BJS 4/24/04 4.3.9. Ensure that all remnants of the bag and tape for storing the control power fuse have been removed from the 1B52-4211M bucket. PWR To W-21A PAB Exhaust Stack Fan BJS 4/24/04

OPS/EM

CAD 4/23/04 ~~*NOTE: Prior to performing the following testing steps, ensure personnel are positioned in the Control Room, at 1B52-4211M.*~~

~~*NOTE: The following two steps shall be worked concurrently.*~~

NOTE: When the next step is performed, power and position indication will be restored for VNPAB-3248, PAB Exhaust Stack Fan Discharge Control Damper, and the damper may move.

BJS 4/24/04 4.3.10. Close breaker 1B52-4211M. PWR To W-21A PAB Exhaust Stack Fan BJS 4/24/04

CAD 4/23/04

OPS/~~EM~~

4.3.11. If W-21A starts (contactor pulls in), immediately OPEN breaker 1B52-4211M and contact the RE for resolution. N/A this step if not required.

N/A CAD

OPS/EM

4.3.12. On 1C04, verify that the W-21A red indicating light is OFF and the green indicating light is ON.

OPS

4.3.13. On 1C04, verify that the VNPAB -3248 damper position indication shows red light OFF and green light ON.

OPS

BJS 4/24/04

4.3.14. At MCC 1B42, ensure that the 1B52-4211M bucket door is closed. (PWR to W-21A PAB Exhaust Stack Fan)

OPS/EM

~~NOTE: The bucket door must be open during the following steps to allow observation of the contactors during testing.~~

CAD 4/23/04

NTF 4/24/04

4.3.15. At MCC 1B42, open the 1B52-4212M bucket door. (PWR to ~~W-21A PAB Exhaust Stack Fan~~ W-30A (F/23/F-29) PAB Exhaust Filter Fan)

OPS/EM

BJS 4/24/04

4.3.16. Reinstall the control power fuse (bagged and taped to the bucket wall) in 1B52-4212M. (PWR to ~~W-21A PAB Exhaust Stack Fan~~ W-30A (F-23/F-29) PAB Exhaust Filter Fan)

CAD 4/23/04

OPS/EM

BJS 4/24/04

4.3.17. Ensure that all remnants of the bag and tape for storing the control power fuse have been removed from the 1B52-4212M bucket. (~~PWR to W-21A PAB Exhaust Stack Fan.~~ W-30A (F-23/F-29) PAB Exhaust Filter Fan)

OPS/EM

CAD 4/29/04

~~*NOTE: Prior to performing the following testing steps, ensure personnel are positioned in the Control Room, at 1B52-4212M.*~~

NOTE: When the next step is performed, power and position indication will be restored for VNPAB-3265, W-30A PAB Exhaust Filter Fan Disch Ctl Damper, and the damper may move.

~~*NOTE: The following two steps shall be worked concurrently.*~~

CAD 4/29/04 JTS 4/29/04

4.3.18. Close Breaker 1B52-4212M [W-30A (F-23/F-29) PAB Exhaust Filter Fan.]

OPS/EM

4.3.19. If W-30A starts (contactor pulls in), immediately OPEN 1B52-4212M [W-30A (F-23/F-29) PAB Exhaust Filter Fan] and contact the RE for resolution. N/A this step if not required.

N/A CAD
OPS/EM

4.3.20. On 1C04, verify that the W-30A red indicating light is OFF and the green indicating light is ON.

OPS

4.3.21. On 1C04, verify that the VNPAB-3265 damper position indication shows red light OFF and green light ON.

OPS

JTS 4/29/04

4.3.22. At MCC 1B42, ensure that the 1B52-4212M [W-30A (F-23/F-29) PAB Exhaust Filter Fan] bucket door is closed.

OPS/EM

4.3.23. On 1C04, ensure that W-30B is "Green Flagged" (move control switch W-30B-CS momentarily to STOP if necessary).

N/A CAD
OPS

4.3.24. On 1C04, ensure that W-30A is "Red Flagged" to start with W-21A (move control switch W-30A-CS momentarily to START if necessary).

N/A CAD
OPS

NOTE: Prior to performing the following SEVEN testing steps, ensure personnel are positioned in the Control Room, at 1B52-4211M, at W-21A (with the cubicle door closed), at 1B52-4212M, and at W-30A (with the cubicle door closed) with radio contact available.

4.3.25. Verify that the Danger Tag series required per OI-39 Section 5.6.4 and 5.8.4 for W-21B and W-30B out of service is hanging.

N/A CAD
OPS/EM

4.3.26. After RP survey is completed, enter the W-21 fan room using NP 1.9.4 Confined Space Procedure instructions.

N/A CAD
OPS/EM

4.3.27. After RP survey is completed, enter the W-30 fan room using NP 1.9.4 Confined Space Procedure instructions after RP survey is completed.

N/A CAD
OPS/EM

NOTE: The next THREE steps should be worked concurrently.

NOTE: While performing the next step, the following amber status light on 1C-04R may go ON and then go back OFF:

- *FS-3297 "Aux Building Stack Fans Low Flow"*

4.3.28. Momentarily START and then STOP (BUMP) W-21A and W-30A from W-21A-CS.

N/A CAD
OPS

HOLD POINT: Do not proceed without a peer reviewer present to ensure proper fan rotation direction in the next two steps.

4.3.29. Observe the direction of W-21A's rotation and verify that the fan is rotating in the correct direction.

N/A CAD
EM

N/A CAD
Peer Reviewer (EM)

4.3.30. Observe the direction of W-30A's rotation and verify that the fan is rotating in the correct direction.

N/A CAD
EM

N/A CAD
Peer Reviewer (EM)

4.3.31. Ensure that personnel stationed in the W-21 fan cubicle have exited the cubicle and secured the enclosure.

N/A CAD
OPS

4.3.32. Ensure that personnel stationed in the W-30 fan cubicle have exited the cubicle and secured the enclosure.

N/A CAD
OPS

4.3.33. Notify Operations that all tags that were hung per OI-39 for personnel protection while working in the W-21 and W-30 fan rooms may now be cleared (work may continue following this notification).

EM

Record Tag Series to be Removed: 480V IWP 01-128*E-FN (OI-39) EM Rev 21 4/29/04

4.3.34. On 1C04, ensure that W-30A is "Red Flagged" to start with W-21A (move control switch W-30A-CS momentarily to START if necessary).

N/A CAD
OPS

NOTE: While performing the next step, the following amber status light on 1C-04R may go ON and then should remain OFF:

- *FS-3297 "Aux Building Stack Fans Low Flow"*

4.3.35. START Aux Bldg Stack Ventilation Fan W-21A by moving control switch W-21A-CS at 1C-04 to START.

N/A CAD
OPS

4.3.36. On 1C04, verify that the W-21A red light is ON and the green light is OFF.

N/A CAD
OPS

4.3.37. On 1C04, verify that the VNPAB-3248 damper position indication shows red light ON and green light OFF.

N/A CAD
OPS

4.3.38. On 1C04, verify that the W-30A red light is ON and the green light is OFF.

N/A
OPS

4.3.39. On 1C04, verify that the VNPAB -3265 damper position indication shows red light ON and green light OFF.

N/A
OPS

4.3.40. At 1C04, ensure that the W-32 PAB Exhaust Fan is running (red light ON and Green light OFF).

N/A
OPS

4.3.41. Verify that Aux Bldg Stack Ventilation Fan W-21B will not start (green light stays ON and red light stays OFF) with W-21A running by moving control switch W-21B-CS at 1C-04 to START.

N/A
OPS

4.3.42. On 1C04, ensure that W-21B is "Green Flagged" (move control switch W-21B-CS momentarily to STOP if necessary).

N/A
OPS

NOTE: While performing the next step, the following fans will trip if running:

- *W-30A or B, Auxiliary Building Filter Fan*
- *W-27A or B, Health Physics Exhaust Fan*
- *W-32, PAB Exhaust Fan*
- *W-35, PAB Supply Fan*
- *W-23, Service Building AC Fan*
- *W-29, Service Building AC Fan*

NOTE: While performing the next step, 1C-04 annunciator window 1C-2-9 "Containment or Aux Building Vent System Air Flow Low" may alarm.

NOTE: While performing the next step, the following amber status light on 1C-04R may illuminate:

- *FS-3207 "Aux Building Filter Fans Low Flow"*

4.3.43. STOP Aux Bldg Stack Ventilation Fan W-21A by moving control switch W-21A-CS at 1C-04 to STOP.

OPS

4.3.44. At 1C04, verify that the W-32 PAB Exhaust Fan tripped (green light ON and red light OFF).

OPS

4.3.45. On 1C04, ensure that W-30A is "Green Flagged" so it will not start (move control switch W-30A-CS momentarily to STOP if necessary).

OPS

4.3.46. On 1C04, ensure that W-30B is "Red Flagged" to start with W-21B (move control switch W-30B-CS momentarily to START if necessary).

OPS

NOTE: After performing the next step, the following amber status light on 1C-04R may come ON and then should go OFF:

- *FS-3297 "Aux Building Stack Fans Low Flow"*

4.3.47. START Aux Bldg Stack Ventilation Fan W-21B by moving control switch W-21B-CS at 1C-04 to START.

OPS

4.3.48. Verify that the Aux Bldg Stack Ventilation Fan W-21A will not start (green light stays ON and red light stays OFF) with W-21B running by moving control switch W-21A-CS at 1C04 to START.

OPS

4.3.49. On 1C04, ensure that W-21A is "Green Flagged" (move control switch W-21A-CS momentarily to STOP if necessary).

OPS

4.3.50. At 1C04, ensure that the W-32 PAB Exhaust Fan is running (red light ON and Green light OFF).

OPS

4.3.51. At 1C04, ensure that the W-35 PAB Supply Fan W-35 is running (red light ON and Green light OFF).

OPS

4.3.52. At 1C04, verify that W-30B has been running for a minimum of 2 minutes.

OPS

4.3.53. Verify that the notes associated with the next THREE steps have been read and understood by the operating crew and that the appropriate manpower is available at 1C04.

N/A [illegible]
OPS

NOTE: While performing the next step, the W-30B fan will be tripped for approximately 1 to 2 seconds and re-started. The fan MUST be tripped long enough for the magnetic field to decay (approximately 1 second) to reduce the possibility of damage to the motor. In order to avoid damage to the PAB duct work, the W-21B fan MUST be tripped within 3 seconds of the W-30B fan trip if the W-30B fan does not re-start and run. It may be advantageous to have additional operators at 1C04 to man W-21B-CS, assist with timing, and observe the W-35 indicating lights.

The expected response is that the W-35 fan trips immediately when the W-30B fan is tripped, and the W-30B fan re-starts successfully. The objective of the test is to verify that the W-30B fan trip causes the W-35 fan trip. Successfully re-starting the W-30B fan is not required for a successful test. If the W-21B fan must be tripped, the test would be considered successful IF the W-35 trip can be confirmed as occurring AFTER (or CONCURRENT WITH) the W-30B fan trip and BEFORE the W-21B fan is tripped.

NOTE: The following THREE steps shall be performed concurrently.

4.3.54. At 1C04, momentarily (approximately 1 second) stop and then re-start W-30B using W-30B-CS.

N/A [illegible]
OPS

4.3.55. At 1C04, IF W-30B does not re-start and run within 3 seconds of tripping it in the previous step, trip W-21B using W-21B-CS. N/A this step if not required.

N/A [illegible]
OPS

4.3.56. At 1C04, verify that W-35 tripped (green light ON and red light OFF) either BEFORE W-21B was tripped OR without tripping W-21B.

N/A [illegible]
OPS

4.3.57. STOP Aux Bldg Stack Ventilation Fan W-21B by moving control switch W-21B-CS at 1C-04 to STOP.

N/A [illegible]
OPS

4.3.58. At 1C04, place W-30B-CS to STOP.

N/A [illegible]
OPS

4.3.59. On 1C04, ensure that W-30A is "Red Flagged" to start with W-21A (move control switch W-30A-CS momentarily to START if necessary).

N/A [illegible]
OPS

NOTE: While performing the next step, the following amber status light on 1C-04R may go ON and then should remain OFF:

- *FS-3297 "Aux Building Stack Fans Low Flow"*

4.3.60. START Aux Bldg Stack Ventilation Fan W-21A by moving control switch W-21A-CS at 1C-04 to START.

N/A [illegible]
OPS

4.3.61. On 1C04, verify that the W-21A red light is ON and the green light is OFF.

N/A [illegible]
OPS

4.3.62. At 1C04, ensure that the W-32 PAB Exhaust Fan is running (red light ON and Green light OFF).

OPS

4.3.63. At 1C04, ensure that the W-35 PAB Supply Fan W-35 is running (red light ON and Green light OFF).

OPS

4.3.64. At 1C04, verify that W-30A has been running for a minimum of 2 minutes.

OPS

4.3.65. Verify that the notes associated with the next THREE steps have been read and understood by the operating crew and that the appropriate manpower is available at 1C04.

N/A
OPS

NOTE: While performing the next step, the W-30A fan will be tripped for approximately 1 to 2 seconds and re-started. The fan MUST be tripped long enough for the magnetic field to decay (approximately 1 second) to reduce the possibility of damage to the motor. In order to avoid damage to the PAB duct work, the W-21A fan MUST be tripped within 3 seconds of the W-30A fan trip if the W-30A fan does not re-start and run. It may be advantageous to have additional operators at 1C04 to man W-21A-CS, assist with timing, and observe the W-35 indicating lights.

The expected response is that the W-35 fan trips immediately when the W-30A fan is tripped, and the W-30A fan re-starts successfully. The objective of the test is to verify that the W-30A fan trip causes the W-35 fan trip. Successfully re-starting the W-30A fan is not required for a successful test. If the W-21A fan must be tripped, the test would be considered successful IF the W-35 trip can be confirmed as occurring AFTER (or CONCURRENT WITH) the W-30A fan trip and BEFORE the W-21A fan is tripped.

NOTE: The following THREE steps shall be performed concurrently.

4.3.66. At 1C04, momentarily (approximately 1 second) stop and then re-start W-30A using W-30A-CS.

N/A
OPS

4.3.67. At 1C04, IF W-30A does not re-start and run within 3 seconds of tripping it in the previous step, trip W-21A using W-21A-CS. N/A this step if not required.

N/A
OPS

4.3.68. At 1C04, verify that W-35 tripped (green light ON and red light OFF) either BEFORE W-21A was tripped OR without tripping W-21A.

N/A
OPS