ATTACHMENT

4.120.22.a. AGS Critical Device Tests

C-A-OPM Procedures in which this Attachment is used.		
4.120.22		

Hand Processed Changes

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

V. Castillo

4.120.22.a AGS Critical Device Tests

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title:_____ Checksum: _____

Division B Software Filename and Checksum: Title:_____ Checksum: _____

Initial testing complete:

Test Team Leader's Name (Print): _____ Life Number: _____

Test Team Leader's Name (Sign): _____ Date: _____/_____/_____

Acceptance test procedure complete (following repairs and retesting if required):

Test Team Leader's Name (Print): _____ Life Number:_____

Test Team Leader's Name (Sign): _____ Date: _____/_____/_____

Test results reviewed by:

Safety Section Head's Name (Print):_____ Life Number: _____

Safety Section Head's Name (Sign):_____ Date: _____/_____/_____

Test results accepted by Radiation Safety Committee:

RSC Member's Name (Print):_____ Life Number: _____

RSC Member's Name (Sign):_____ Date: _____/_____/_____

NOTE:

All personnel working on any electrical system or equipment in the C-AD shall be familiar with BNL SBMS Electrical Safety, BNL SBMS Lockout/Tagout (LO/TO), C-A-OPM 1.5, "Electrical Safety Implementation Plan", C-A-OPM 1.5.3 "Procedure to Open or Close Breakers and Switches and Connecting/Disconnecting Plugs", C-A-OPM 2.36, "Lockout/Tagout for Control of Hazardous Energy". C-AD will provide on-site/work specific training to individuals in the electrical safety aspects of their job functions and assignments.

1.1 Setup and test of AGS Critical Devices: DH2, 3 and F6 septum Power Supplies, with Feed Forward switch in the OFF position

□	**VERIFY**	**Power Supply DH2, 3** is	**LOTO**
□	**VERIFY**	**Power Supply F6** is	**LOTO**
□	**VERIFY**	**Feed Forward** switch is	**OFF**
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**OFF**
	PLACE	**Bstr** and **AGS** in Controlled access **(CA)**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Bstr** □ and **AGS** □ in	**CA**
	CAPTURE	**Booster Key Lock-Out** on **MCR** panel **H**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Booster key Lock-Out** is	**CAPTURED**
	CAPTURE	**AGS Key Lock-Out** on **MCR** panel **H**	
□	**VERIFY**	**MCR** sees at Opto Monitor **AGS key Lock-Out** is	**CAPTURED**
	ENABLE	**Extraction** with **693 key** at panel **H** in **MCR**	
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**ON**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**ON**
	TURN OFF	At encl 4521 relay **HK4**	
□	**VERIFY**	At encl 4521 relay **HK4** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**OFF**
	TURN ON	At encl 4521 relay **HK4**	
□	**VERIFY**	At encl 4521 realy **HK4** □ is	**ON**
	ENABLE	**Extraction** with **693 key** at panel **H** in **MCR**	
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**ON**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**ON**
	TURN OFF	At encl 4521 relay **HK5**	
□	**VERIFY**	At encl 4521 relay **HK5** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**OFF**

	TURN ON	At encl 4521 relay **HK5**	
□	**VERIFY**	At encl 4521 relay **HK5** is	**ON**
	ENABLE	**Extraction** with **693 key** at panel **H** in **MCR**	
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**ON**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**ON**
	PRESS	**Extraction Disable** Switch at panel **H** in MCR	
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**OFF**
□	**VERIFY**	MCR announcement: **Booster beam stops are**	**CLOSED**

□ **Check for acceptance of Setup and test of Booster Critical Devices: DH2, 3 and F6 septum Power Supplies, with Feed Forward switch in the OFF position**

1.2 Setup and test of Reachback to LTB Bs 1 & 2 and TTB Bs 1 & 2 with DH 2, 3 & F6 under power and the Feed Forward (FF) switch in the ON position (Standard operating config.)

	PLACE	**Feed Forward (FF) switch in**	**ON Position**
□	**VERIFY**	**FF switch is in**	**ON Position**
□	**VERIFY**	**Power Supply DH2, 3** is	**NO LOTO**
□	**VERIFY**	**Power Supply F6** is	**NO LOTO**
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**OFF**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**OFF**
	PLACE	**Bstr** and **AGS** in Controlled access **(CA)**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Bstr** □ and **AGS** □ in	**CA**
	CAPTURE	**Booster Key Lock-Out** on **MCR** panel **H**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Booster key Lock-Out** is	**CAPTURED**
	CAPTURE	**AGS Key Lock-Out** on **MCR** panel **H**	
□	**VERIFY**	**MCR** sees at Opto Monitor **AGS key Lock-Out** is	**CAPTURED**
	ENABLE	**Extraction** with **693 key** at panel **H** in **MCR**	
□	**VERIFY**	At panel **H** in MCR **DH2, 3 ready light** is	**ON**
□	**VERIFY**	At panel **H** in MCR **F6 ready light** is	**ON**
	HAVE	MCR Operator **turn on DH2, 3** Power supply	
□	**VERIFY**	**DH2, 3** Power Supply is	**ON**
	HAVE	MCR Operator **turn on F6** Power supply	
□	**VERIFY**	**F6** Power Supply is	**ON**
	HAVE	MCR Operator Open **Ltb 1** and **Ltb 2**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Ltb 1** □and **Ltb 2** □	**OPEN**
	HAVE	MCR Operator Open **Ttb 1** and **Ttb 2**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Ttb 1** □and **Ttb 2** □	**OPEN**
	TRIP	**AGS Chipmunk NMO** _____	

☐ **VERIFY** **MCR** sees at Opto Monitor **NMO _____** **INTLK**

☐ **VERIFY** At panel **H** in MCR **DH2, 3 ready light** is **ON**
☐ **VERIFY** **DH2, 3** Power Supply is **ON**

☐ **VERIFY** At panel **H** in MCR **F6 ready light** is **ON**
☐ **VERIFY** **F6** Power Supply is **ON**

☐ **VERIFY** At encl 4521 realys: **HK4** ☐ and **HK5** ☐ are **ON**
☐ **VERIFY** **MCR** sees at Opto Monitor **Ltb 1** ☐and **Ltb 2** ☐ **CLOSED**
☐ **VERIFY** **MCR** sees at Opto Monitor **Ttb 1** ☐and **Ttb 2** ☐ **CLOSED**

HAVE MCR Operator **turn off DH 2, 3** Power supply
☐ **VERIFY** **DH2, 3** Power Supply is **OFF**

HAVE MCR Operator **turn off F6** Power supply
☐ **VERIFY** **F6** Power Supply is **OFF**

☐ **Check for acceptance of Setup and test of Reachback to LTB Bs 1 & 2 and TTB Bs 1 & 2 with DH 2, 3 & F6 under power and the Feed Forward (FF) switch in the ON position**

1.3 Test of Loss of Keep Alive Source (KAS) to AGS Current Transformer (ACT) B15–A Inserts LTB1 and LTB2

☐ **VERIFY** **MCR Operator** sees on **Pet Page (PP) KAS** to **ACT B15-A** is **OK**
OPEN **LTB1 and LTB2**
☐ **VERIFY** **MCR sees LTB1 and LTB2** **OPEN**

REMOVE **KAS** from **ACT B15-A** using **PP**

☐ **VERIFY** At **MCR** Alarm Monitor indicates **" CT A Keep alive Permit link (P/L) "** **FAIL**
☐ **VERIFY** **MCR Operator** sees on **PP** ACT B15-A **Keep Alive** **FAIL**
☐ **VERIFY** **MCR sees LTB1 and LTB2** **CLOSED**

☐ **Check for acceptance of Test of Loss of KAS to AGS Current Transformer (ACT) B15–A Inserts LTB1 and LTB2**

1.4 Test of exceeding Over Current Limit (O-CL) to AGS Current Transformer (ACT) B15-A inserts LTB1 and LTB2

☐ **VERIFY** **MCR Operator** sees on PP **O-CL** to **ACT B15-A** is **OK**
OPEN **LTB1 and LTB2**
☐ **VERIFY** **MCR sees LTB1 and LTB2** **OPEN**

EXCEED **O-CL** for **ACT B15-A** using **PP**

☐ **VERIFY** At **MCR** Alarm Monitor indicates **" CT A Over-Current Limit (O-CL) "** **FAIL**
☐ **VERIFY** **MCR Operator** sees on **PP** ACT B15-A **O-CL** **FAIL**
☐ **VERIFY** **MCR sees LTB1 and LTB2** **CLOSED**

☐ **Check for acceptance of Test of exceeding O-CL to AGS Current Transformer (ACT) B15–A Inserts LTB1 and LTB2**

1.5 Test of Loss of KAS to AGS Current Transformer (ACT) B15-B Inserts LTB1 and LTB2

□	**VERIFY**	**MCR Operator** sees on **PP KAS** to **ACT B15-B** is **OPEN**	**OK**
		LTB1 and LTB2	
□	**VERIFY**	**MCR sees LTB1 and LTB2**	**OPEN**
	REMOVE	**KAS** from **ACT B15-B** using **PP**	
□	**VERIFY**	At **MCR** Alarm Monitor indicates **" CT B Keep alive Permit link (P/L) "**	**FAIL**
□	**VERIFY**	**MCR Operator** sees on **PP** ACT B15-B **Keep Alive**	**FAIL**
□	**VERIFY**	**MCR sees LTB1 and LTB2**	**CLOSED**

□ **Check for acceptance of Test of Loss of KAS to AGS Current Transformer (ACT) B15–B Inserts LTB1 and LTB2**

1.6 Test of exceeding O-CL to AGS Current Transformer (ACT) B15-B inserts LTB1 and LTB2

□	**VERIFY**	**MCR Operator** sees on PP **O-CL** to **ACT B15-B** is **OPEN**	**OK**
		LTB1 and LTB2	
□	**VERIFY**	**MCR sees LTB1 and LTB2**	**OPEN**
	EXCEED	**O-CL** for **ACT B15-B** using **PP**	
□	**VERIFY**	At **MCR** Alarm Monitor indicates **" CT B Over-Current Limit (O-CL) "**	**FAIL**
□	**VERIFY**	**MCR Operator** sees on **PP** ACT B15-B **O-CL**	**FAIL**
□	**VERIFY**	**MCR sees LTB1 and LTB2**	**CLOSED**

□ **Check for acceptance of Test of exceeding O-CL to AGS Current Transformer (ACT) B15–B Inserts LTB1 and LTB2**

1.7 Test of J15 Beam Shutter

□	**VERIFY**	J15 Beam Shutter diagnostic switch is	**OPEN**
□	**VERIFY**	Above **MCR cage area** relays: **28AK5** □ (Ring gates)**, 23 BK10** □ (SEB gates) and **19FK5** □ (Shutter open command) are	**ON**
□	**VERIFY**	DH2, 3 & F6 **Feed forward switch** is	**ON**
	HAVE	MCR Operator Open **Ltb1, Ltb2, Ttb1** and **Ttb2**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Ltb1** □, **Ltb2** □**, Ttb1** □ and **Ttb2** □	**OPEN**
	HAVE	MCR Operator **open** J15 Beam Shutter	
□	**VERIFY**	J15 Beam shutter is	**OPEN**
	TURN OFF	Relay **28AK5**	
□	**VERIFY**	J15 Beam shutter is	**CLOSED**
□	**VERIFY**	**MCR** sees at Opto Monitor **Ltb 1** □and **Ltb 2** □	**CLOSED**
□	**VERIFY**	**MCR** sees at Opto Monitor **Ttb 1** □and **Ttb 2** □	**CLOSED**
	TURN ON	Relay **28AK5**	
	HAVE	MCR Operator **open** J15 Beam Shutter	
□	**VERIFY**	J15 Beam shutter is	**OPEN**
	HAVE	MCR Operator Open **Ltb1, Ltb2, Ttb1** and **Ttb2**	
□	**VERIFY**	**MCR** sees at Opto Monitor **Ltb1** □, **Ltb2** □**, Ttb1** □ and **Ttb2** □	**OPEN**

TURN OFF Relay **23BK10**

□ **VERIFY** J15 Beam shutter is **CLOSED**

□ **VERIFY** **MCR** sees at Opto Monitor **Ltb 1** □and **Ltb 2** □ **CLOSED**

□ **VERIFY** **MCR** sees at Opto Monitor **Ttb 1** □and **Ttb 2** □ **CLOSED**

TURN ON Relay **23BK10**

CLOSE **J15 Beam Shutter** diagnostic switch

HAVE MCR Operator **open** J15 Beam Shutter

□ **VERIFY** J15 Beam shutter is **OPEN**

HAVE MCR Operator Open **Ltb1, Ltb2, Ttb1** and **Ttb2**

□ **VERIFY** **MCR** sees at Opto Monitor **Ltb1** □, **Ltb2** □, **Ttb1** □ and **Ttb2** □ **OPEN**

TURN OFF Relay **28AK5** or **23BK10**

□ **VERIFY** J15 Beam shutter is **CLOSED**

□ **VERIFY** **MCR** sees at Opto Monitor **Ltb1** □, **Ltb2** □, **Ttb1** □ and **Ttb2** □ **OPEN**

OPEN **J15 Beam Shutter** diagnostic switch

□ **VERIFY** **MCR** sees at Opto Monitor **Ltb1** □, **Ltb2** □, **Ttb1** □ and **Ttb2** □ **CLOSED**

□ **VERIFY** J15 Beam shutter **remain** **CLOSED**

□ **Check for acceptance of Test of J15 Beam Shutter**

1.8 Test of Non-radiation safety Interlocks OK relay logic string – Dwg: D40-E210

PERFORM Visual check on relays for **welded contacts** during activation

□ **VERIFY** Normally Open **(NO) contacts** for relays are **OK**

□ **VERIFY** Normally Closed **(NC) contacts** for relays are **OK**

SET All relays in logic string so that **relay 27WK5 is ON**

TURN ON/OFF **Each relay , in turn, to verify logic in Table -1 below**

F5 retracted / H20 OK 27RK9 in MCA-3 *	**J10 Intlk OK 27RK11 in MCA-3**	**Ring valves open 3K258 in MTR ****	**Ring valves open 3K257 in MTR**	**EAO evac OK 3K334 in MTR**	**Verify Non-radiation summary intlk OK 27WK5 in MCA-3**
ON	**ON**	**ON**	**ON**	**ON**	**ON** □
OFF	**ON**	**ON**	**ON**	**ON**	**OFF** □
ON	**OFF**	**ON**	**ON**	**ON**	**OFF** □
ON	**ON**	**OFF**	**ON**	**ON**	**OFF** □
ON	**ON**	**ON**	**OFF**	**ON**	**OFF** □
ON	**ON**	**ON**	**ON**	**OFF**	**OFF** □

Table 1 - Logic states of relays controlling logic for Non –Radiation Summary Intlk OK

□ **Check for acceptance of Test of Non-radiation safety Interlocks OK relay logic string**

*** MCA-3 = MCR cage area 3; ** MTR = MCR Terminal room**

1.9 Test of AGS Interlocks on Booster OK relay, 19DK1, logic string – Dwg: D40-E203

PERFORM Visual check on relays for **welded contacts** during activation

□ **VERIFY** Normally Open **(NO) contacts** for relays are **OK**
□ **VERIFY** Normally Closed **(NC) contacts** for relays are **OK**

SET All relays in logic string so that **relay 19DK1 is ON**

TURN ON/OFF **Each relay , in turn, to verify logic in Table -2 below; use grouping as necessary**

Relay	Location	Function	Verify for 19DK1 to be ON all relays and BLOS must be	Verify for 19DK1 to be OFF any relay or the BLOS must be
Bstr Lock-out switch (BLOS)	**MCA-2** note 2	Controls relay HK4 which controls DH2, 3 and F6	**ON** □	**OFF** □
3K105	**MTR** note 1	Gates reset prim	**ON** □	**OFF** □
3K104	**MTR**	Gates reset redundant	**ON** □	**OFF** □
3K63	**MTR**	AGS ring crash	**ON** □	**OFF** □
3K109	**MTR**	Non bypass doors reset, prim & redun.	**ON** □	**OFF** □
27MK2	**MCA-3** note 4	FEB gate 2 reset	**ON** □	**OFF** □
23AK8	**MCA-2** note 3	SEB security intlk prim	**ON** □	**OFF** □
23AK9	**MCA-2**	SEB security intlk redundant	**ON** □	**OFF** □
28AK3	**MCA-3**	Non bypass doors	**ON** □	**OFF** □
28AK5	**MCA-3**	Gates	**ON** □	**OFF** □
28AK2	**MCA-3**	Ring Crash redundant	**ON** □	**OFF** □
27WK5	**MCA-3**	Ring Equipment	**ON** □	**OFF** □
28FK9	**MCA-3**	AGS Chipmunks	**ON** □	**OFF** □
25TK3	**MCA-3**	U line Chipmunks OK	**ON** □	**OFF** □
23NK11	**MCA-2**	SEB Crash	**ON** □	**OFF** □

23JK9	**MCA-2**	Tgt Bldg NW C'munks OK	**ON** □	**OFF** □
23JK10	**MCA-2**	Tgt Bldg No C'munks OK	**ON** □	**OFF** □
24CK11	**MCA-2**	SEB Crash redundant	**ON** □	**OFF** □
19FK3	**MCA-1**	Swyd Key captive	**ON** □	**OFF** □
19FK1	**MCA-1**	AGS Key captive	**ON** □	**OFF** □

Notes on Locations:
1. **MTR - MCR Terminal room**
2. **MCA-1 MCR cage area 1**
3. **MCA-2 MCR cage area 2**
4. **MCA-3 MCR cage area 3**
5. **MCA-3-O MCR cage area 3 outside**

□ **Check for acceptance of Test of AGS Interlocks on Booster OK relay, 19DK1, logic string**

1.10 Test of AGS Normal Access gates relays: 28AK5, 3K105, 3K104 and 3K125 logic string – Dwg: D40-E204

PERFORM Visual check on relays for **welded contacts** during activation

□ **VERIFY** Normally Open **(NO) contacts** for relays are **OK**
□ **VERIFY** Normally Closed **(NC) contacts** for relays are **OK**

SET All relays in logic string so that **relay 28AK5, 3K105, 3K104 and 3K125 are ON**

TURN ON/OFF **Each relay , in turn, to verify logic in Table -2 below; use grouping as necessary**

Relay	Location	Function	Verify for 28AK5, 3K105, 3K104 and 3K125 to be ON, all relays in logic string must be	Verify for 28AK5, 3K105, 3K104 and 3K125 to be OFF, any relay in logic string must be
1635K1	**AGS ring, F10**	Ring lights OFF indicator-	**ON** □	**OFF** □
3K454	**MTR**	N322 gate reset	**ON** □	**OFF** □
3K68	**MTR**	South gate reset	**ON** □	**OFF** □
3K70	**MTR**	North gate reset	**ON** □	**OFF** □
3K76	**MTR**	AGS/Bstr Laby gate reset	**ON** □	**OFF** □
3K74	**MTR**	Conj area gate reset	**ON** □	**OFF** □
3K79	**MTR**	Swt Tgt bldg gate reset	**ON** □	**OFF** □

3K81	**MTR**	Swt Term room gate	**ON** □	**OFF** □
3K78	**MTR**	Swt Power room gate	**ON** □	**OFF** □
28CK3, TDOD/1	**MCA-3**	Swt gates redunds. summed	**ON** □	**OFF** □
27MK2	**MCA-3**	FEB gate 2 reset	**ON** □	**OFF** □
28CK1, TDOD/1	**MCA-3**	Norm access gates redunds summed	**ON** □	**OFF** □

□ **Check for acceptance of Test of AGS Normal Access gates relays: 28AK5, 3K105, 3K104 and 3K125 logic string – Dwg: D40-E204**

1.11 Test of AGS gates and alcoves reset relays: 28AK4 and 3K149 logic string – Dwg: D40-E204

PERFORM Visual check on relays for **welded contacts** during activation

□ **VERIFY** Normally Open **(NO) contacts** for relays are **OK**
□ **VERIFY** Normally Closed **(NC) contacts** for relays are **OK**

SET All relays in logic string so that **relay 28AK4 and 3K149 are ON**

TURN ON/OFF **Each relay , in turn, to verify logic in Table -2 below; use grouping as necessary**

Relay	Location	Function	Verify for 28AK4 and 3K149 to be ON, all relays in logic string must be	Verify for 28AK4 and 3K149 to be OFF, any relay in logic string must be
3K285	**MTR**	L20 alcove gate reset	**ON** □	**OFF** □
3K71	**MTR**	Swt Hatch reset	**ON** □	**OFF** □
3K72	**MTR**	Nwt Hatch reset	**ON** □	**OFF** □
3K84	**MTR**	C14 alcove gate reset	**ON** □	**OFF** □
3K425	**MTR**	South Equip gate reset	**ON** □	**OFF** □
3K426	**MTR**	No Equip gate reset	**ON** □	**OFF** □
3K89	**MTR**	C14 EH Top reset	**ON** □	**OFF** □
3K90	**MTR**	C14 EH redun reset	**ON** □	**OFF** □
3K92	**MTR**	K7 EH reset	**ON** □	**OFF** □
3K68	**MTR**	South gate reset	**ON** □	**OFF** □
3K70	**MTR**	North gate reset	**ON** □	**OFF** □
3K74	**MTR**	Conj area gate reset	**ON** □	**OFF** □
3K454	**MTR**	N322 gate reset	**ON** □	**OFF** □
3K76	**MTR**	AGS/Bstr Laby gate reset	**ON** □	**OFF** □

28CK1	**MCA-3**	Norm access gates redun door switch summed	**ON** □	**OFF** □
28CK2	**MCA-3**	Non-bypass gates redun door switch summed	**ON** □	**OFF** □
28CK3	**MCA-3**	Swt gates redun door switch summed	**ON** □	**OFF** □

□ **Check for acceptance of Test of AGS gates and alcoves reset relays: 28AK4 and 3K149 logic string – Dwg: D40-E204**

1.12 Test of Ring Non-bypassable door reset prim & redun relays: 28AK3 (in MCA-3) and 3K109 (in MTR) logic string – Dwg: D40-E204

PERFORM Visual check on relays for **welded contacts** during activation

□ **VERIFY** Normally Open **(NO) contacts** for relays are **OK**
□ **VERIFY** Normally Closed **(NC) contacts** for relays are **OK**

TURN ON **Relay 28CK2** in **MCA-3**

□ **VERIFY** **Relays: 28AK3** □ and **3K109** □ are **ON**

TURN OFF **Relay 28CK2** in **MCA-3**

□ **VERIFY** **Relays: 28AK3** □ and **3K109** □ are **OFF**

□ **Check for acceptance of Test of Ring Non-bypassable door reset prim & redun relays: 28AK3 (in MCA-3) and 3K109 (in MTR) logic string – Dwg: D40-E204**

1.13 Test of AGS gates and alcoves reset prim & redun relays: 27RK5 and 27RK6 (in MCA-3) logic string – Dwg: D40-E204

	PERFORM	Visual check on relays for **welded contacts** during activation	
□	**VERIFY**	Normally Open **(NO) contacts** for relays are	**OK**
□	**VERIFY**	Normally Closed **(NC) contacts** for relays are	**OK**
	TURN ON	**Relay 3K76** in **MTR**	
□	**VERIFY**	**Relays: 27RK5** □ and **27RK6** □ are	**ON**
	TURN OFF	**Relay 3K76** in **MTR**	
□	**VERIFY**	**Relays: 27RK5** □ and **27RK6** □ are	**OFF**

□ **Check for acceptance of Test of AGS gates and alcoves reset prim & redun relays: 27RK5 and 27RK6 (in MCA-3) logic string – Dwg: D40-E204**

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: _____/____/_____

TTL: Sign for completion of final testing: _____

Date: _____/____/_____