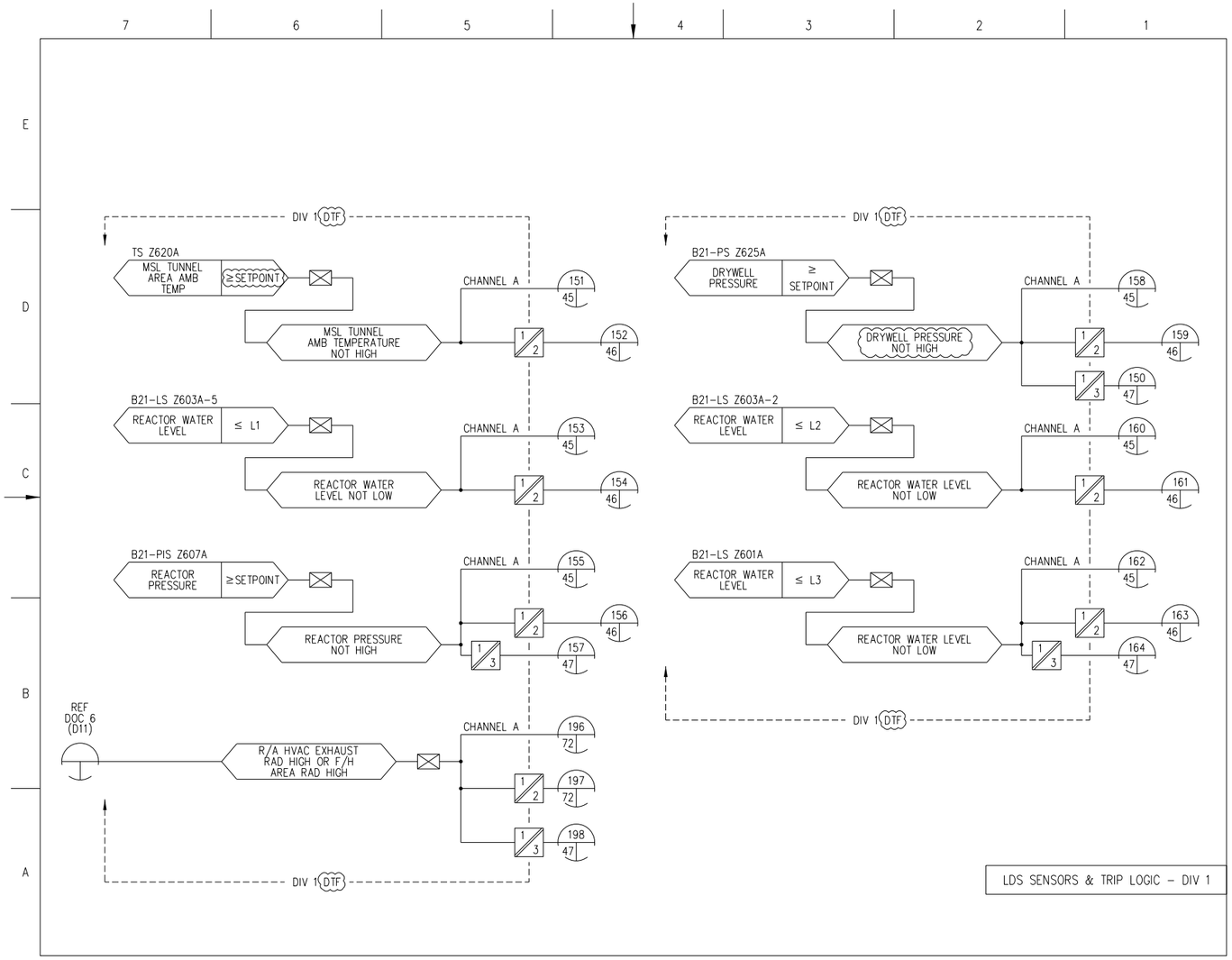



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 41 of 77)**

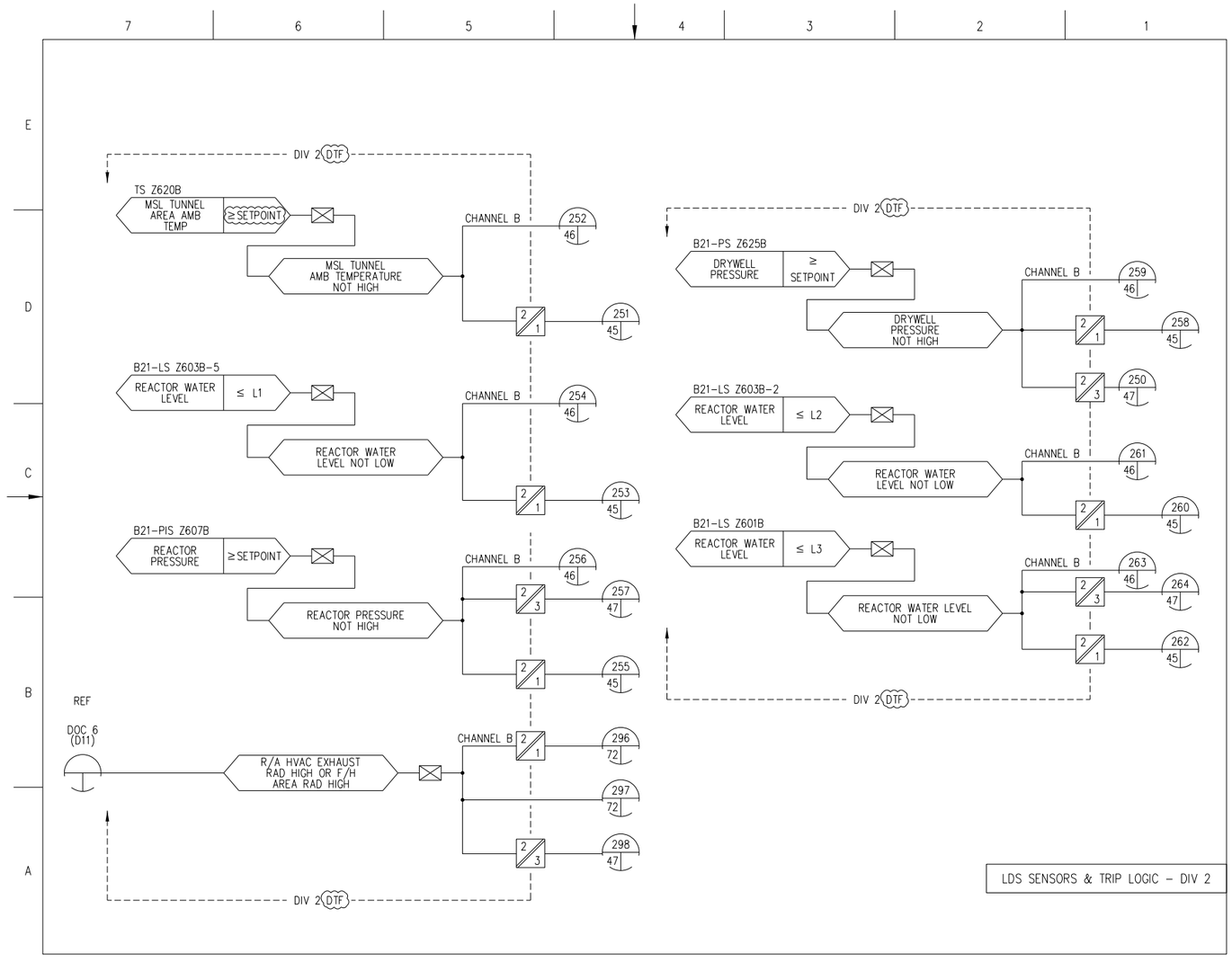



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 42 of 77)**

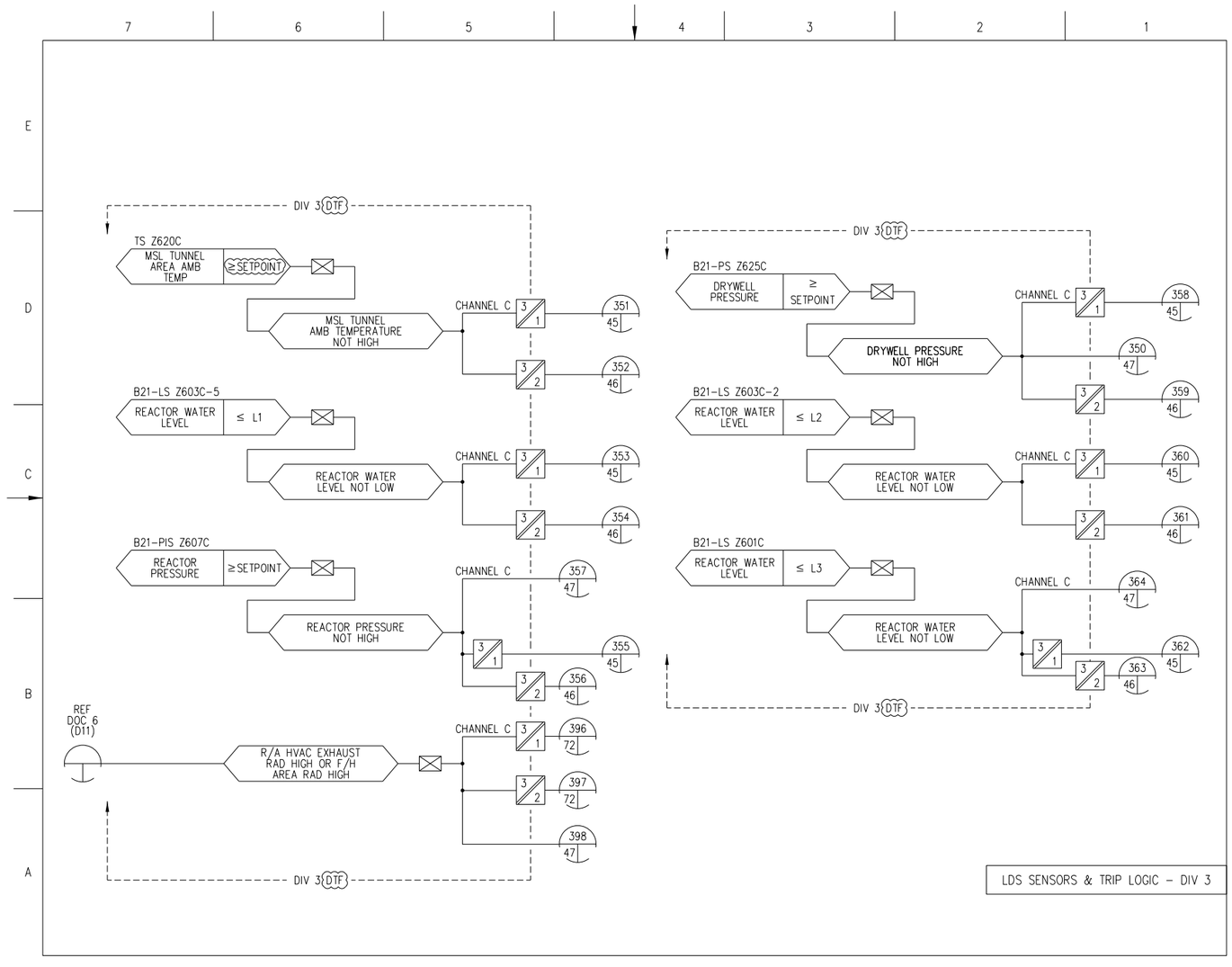



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 43 of 77)**

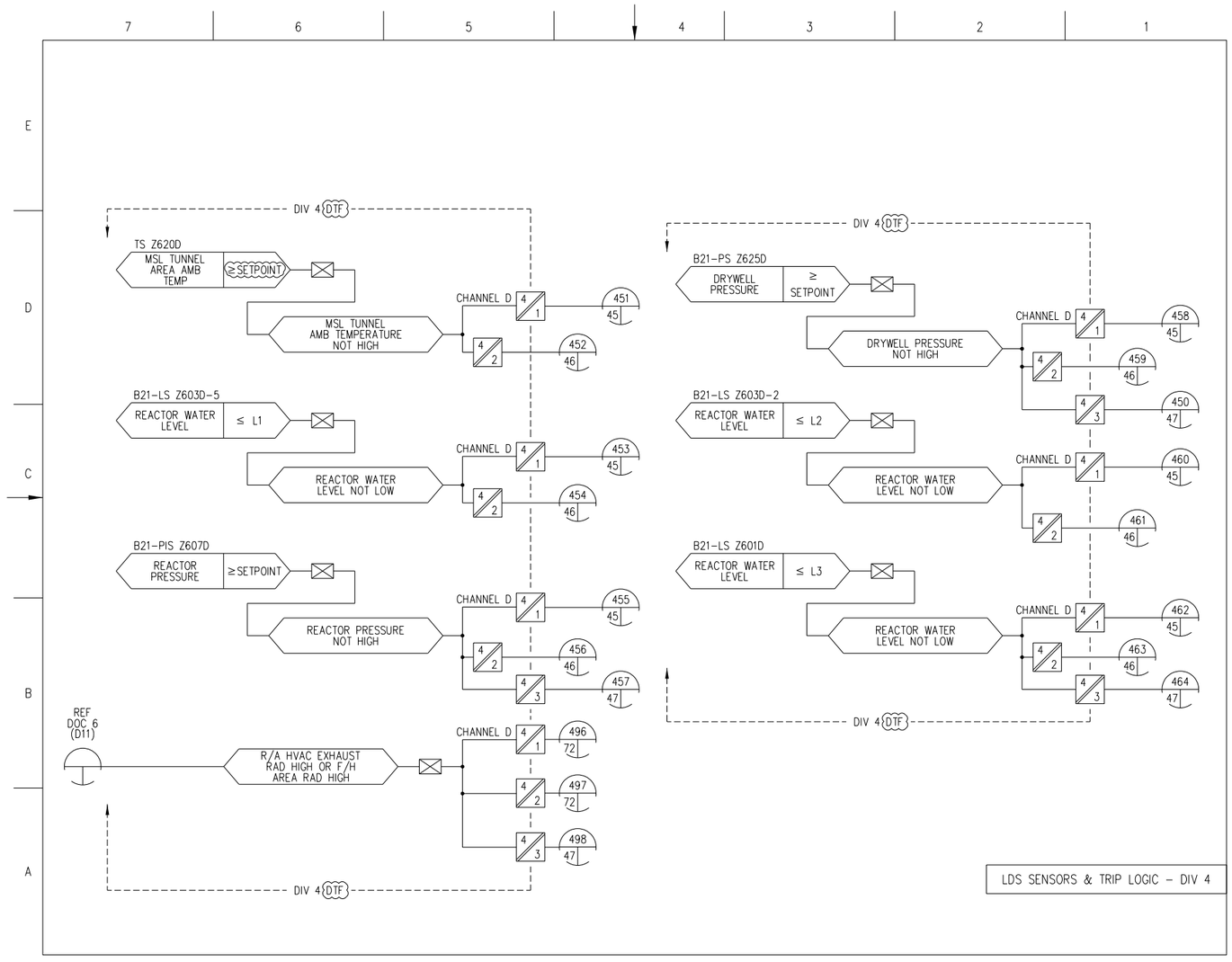



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 44 of 77)**

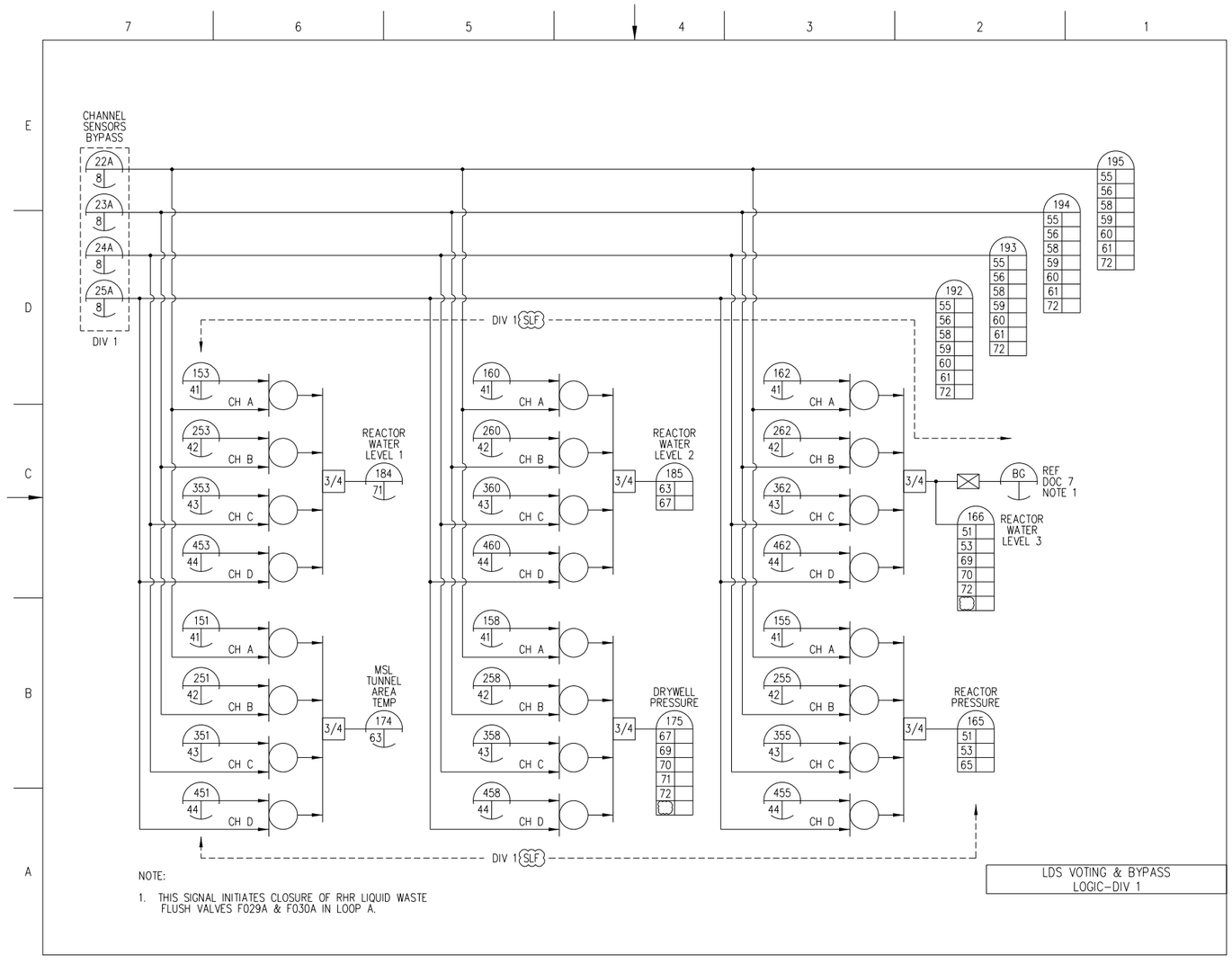



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 45 of 77)**

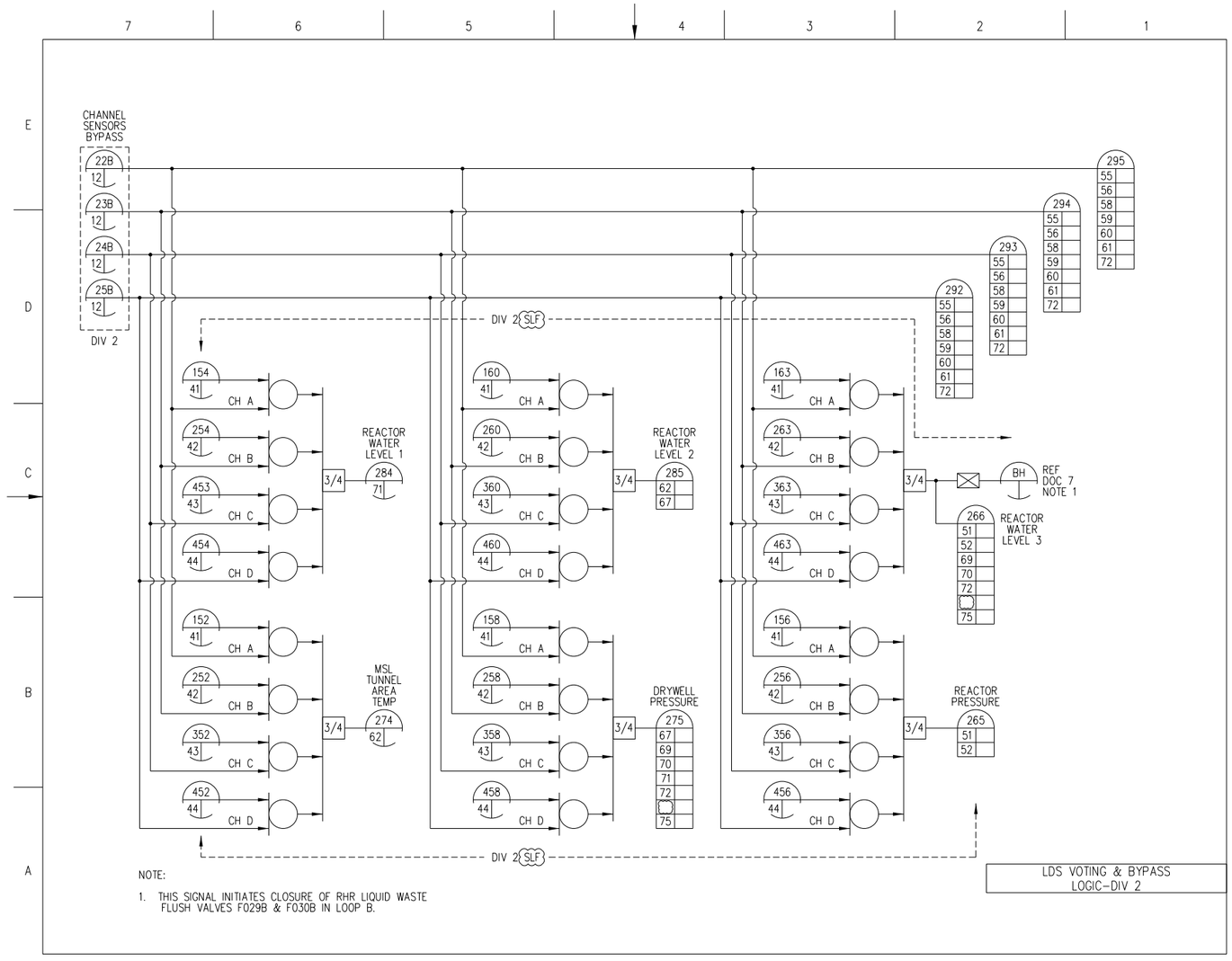



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 46 of 77)**

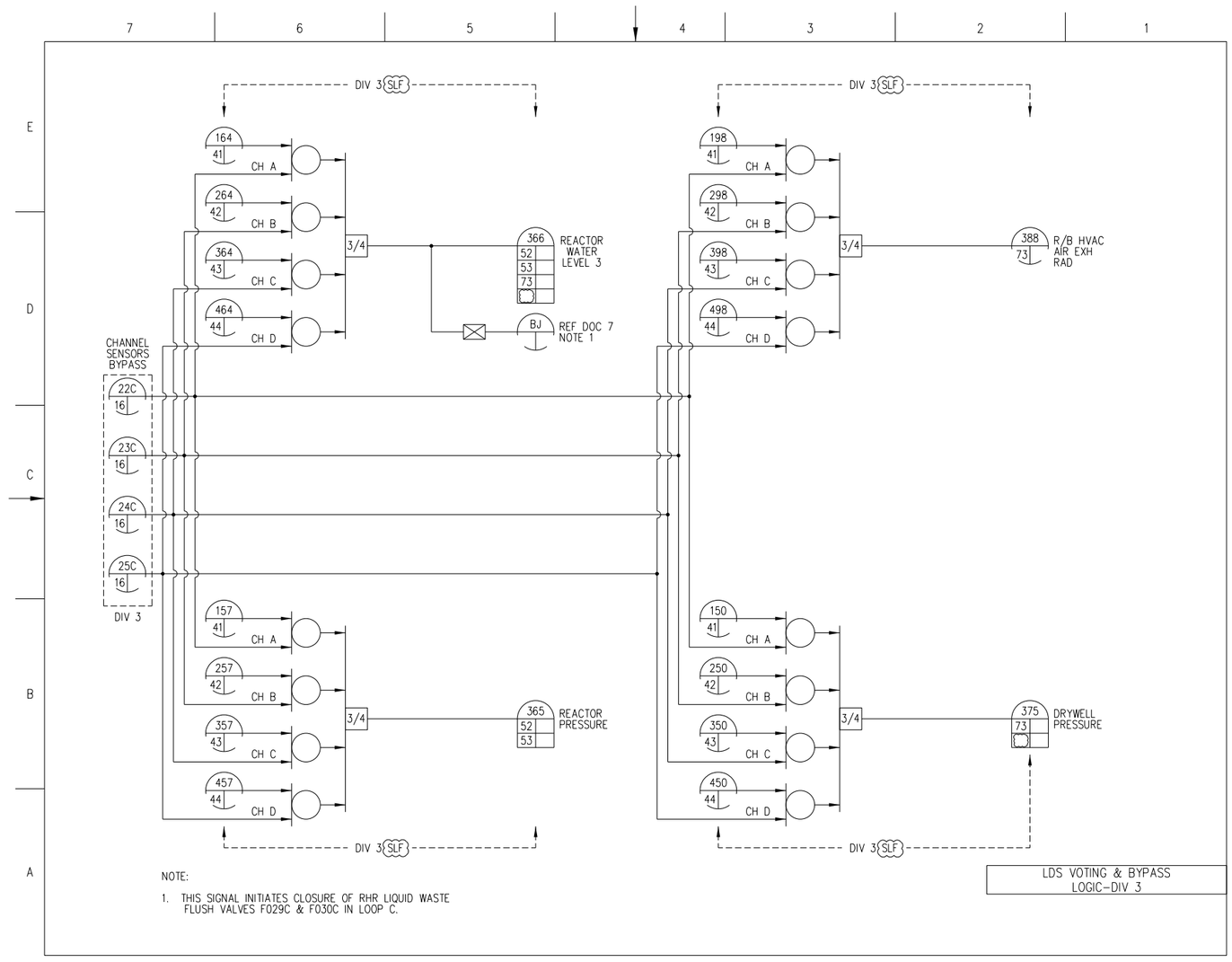



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 47 of 77)**

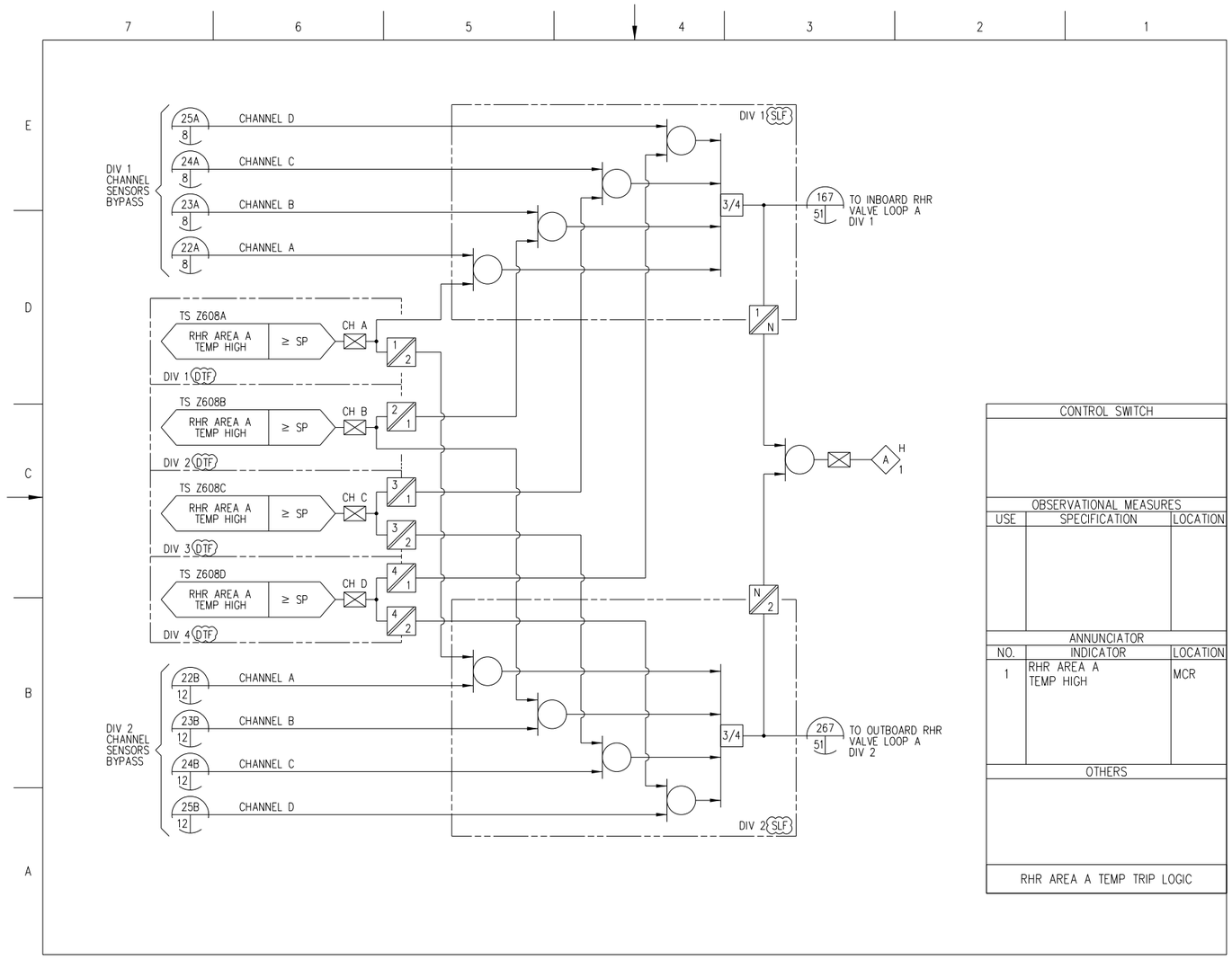



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 48 of 77)**

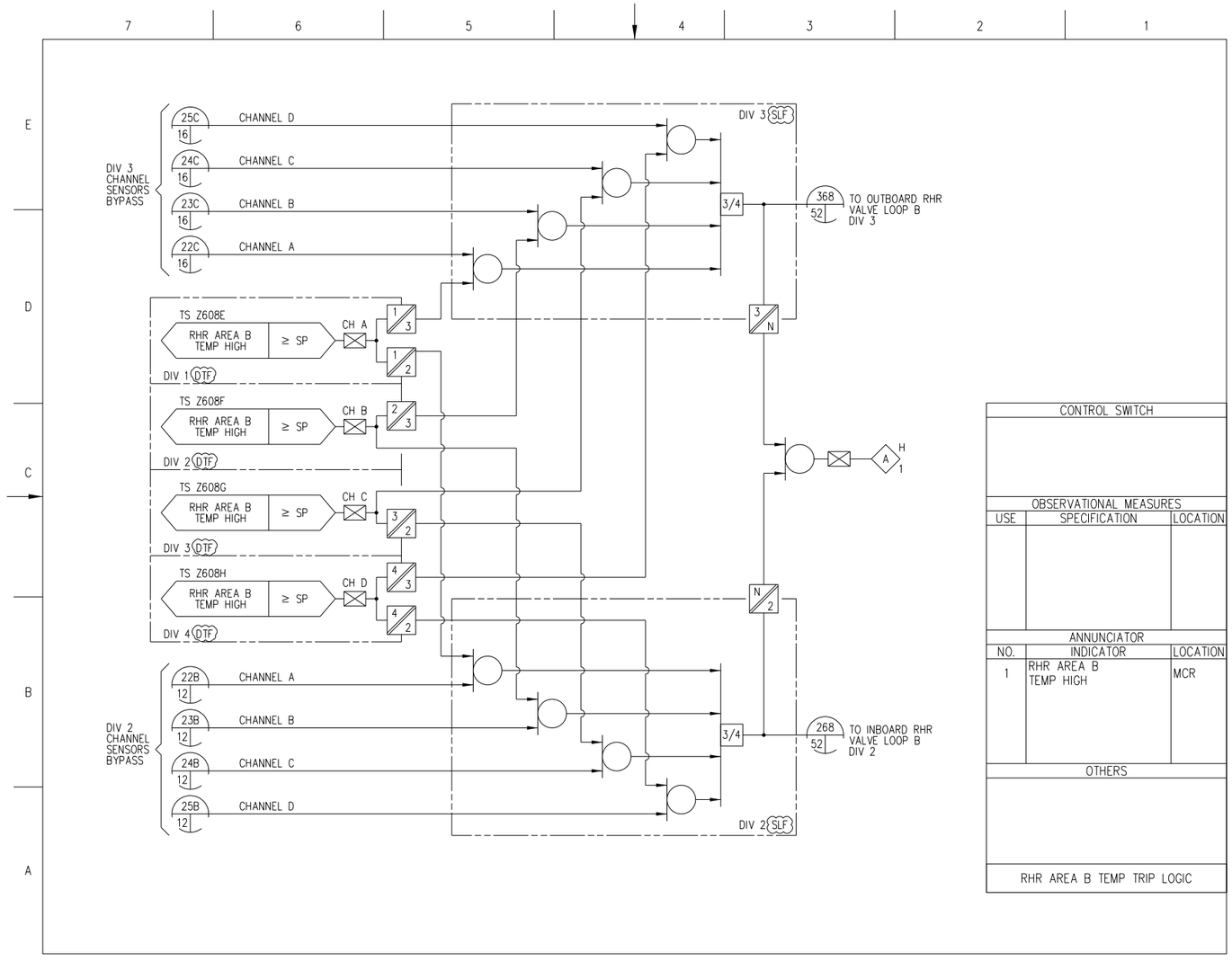



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 49 of 77)**

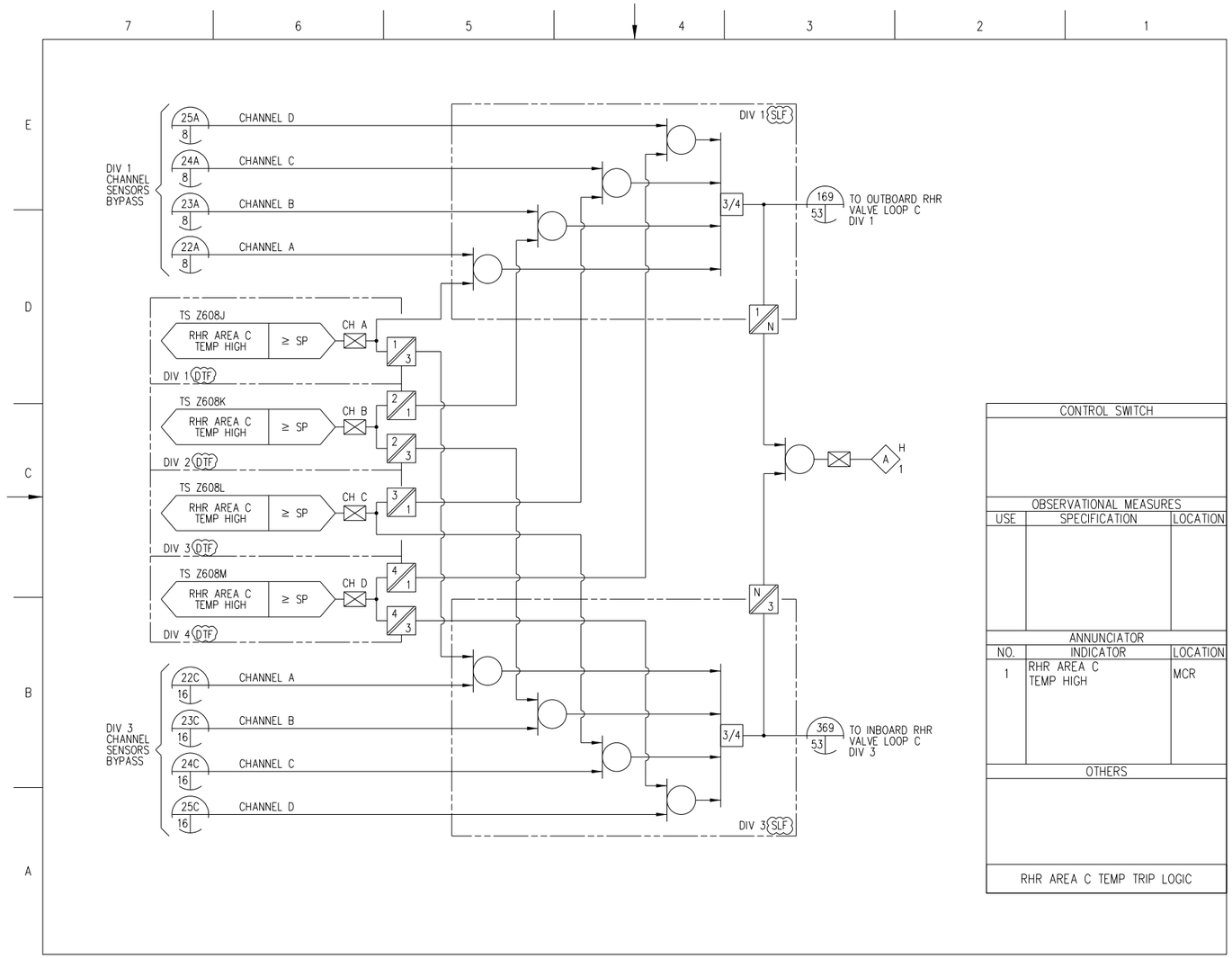



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 50 of 77)**

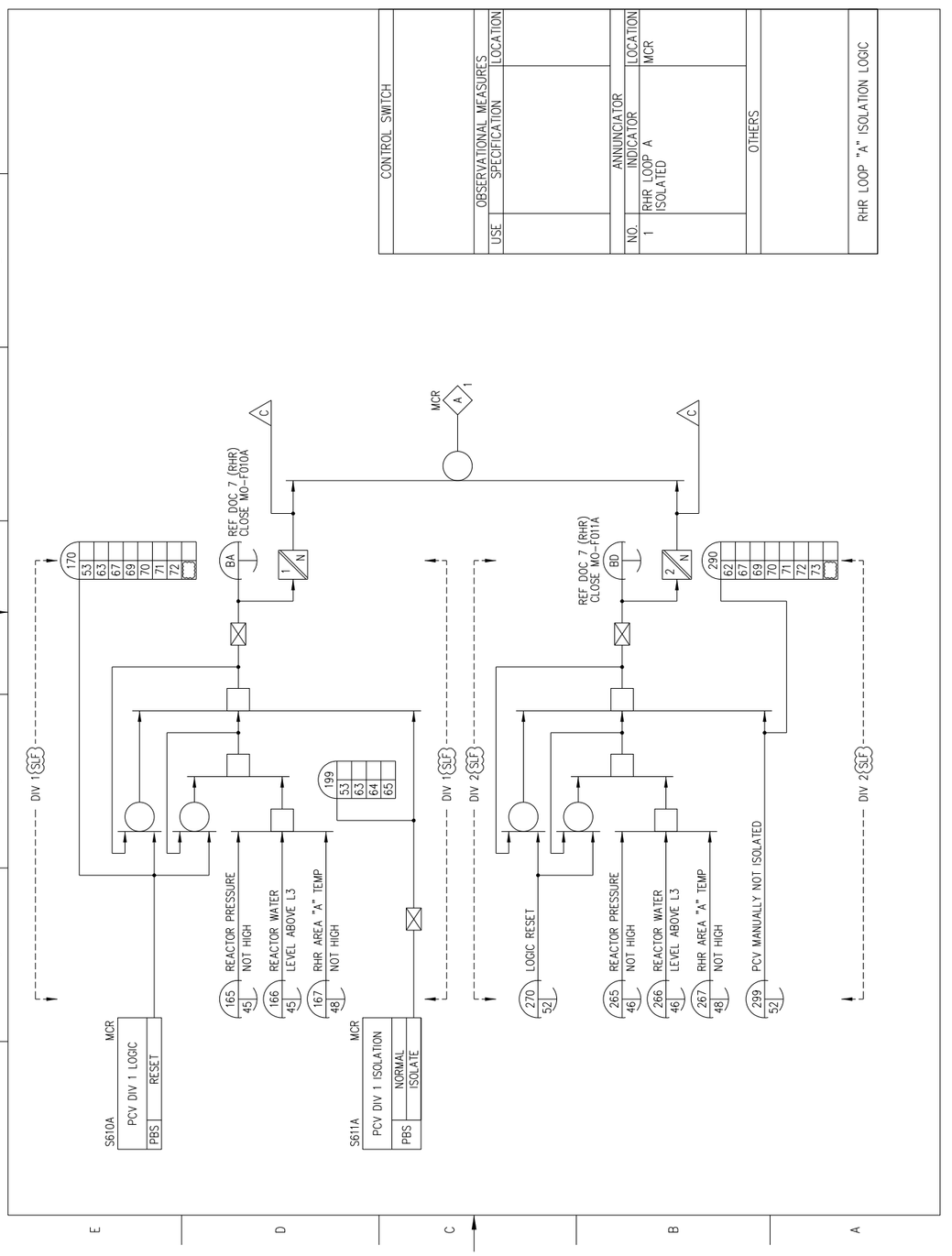



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 51 of 77)**

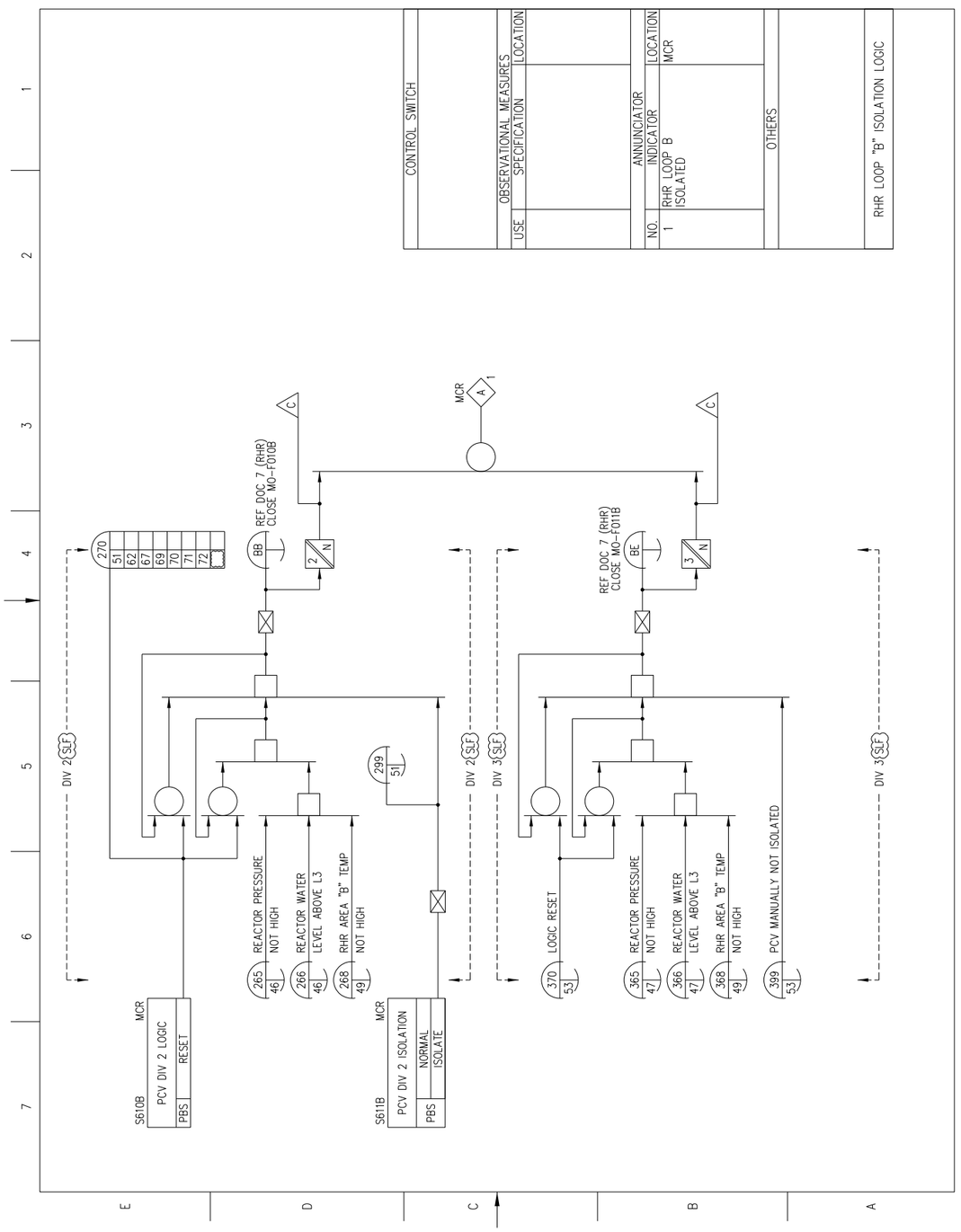



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 52 of 77)**

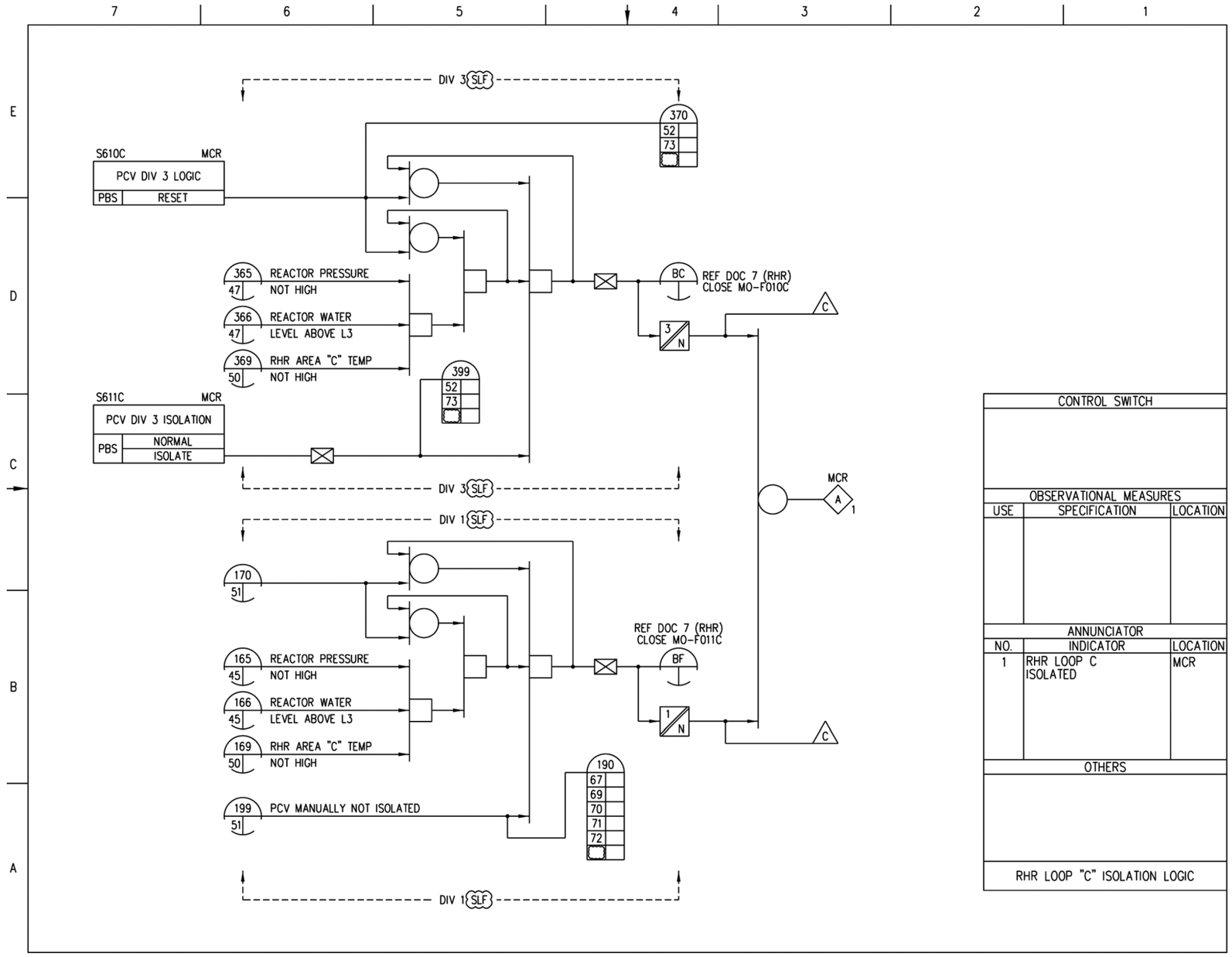



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 53 of 77)**

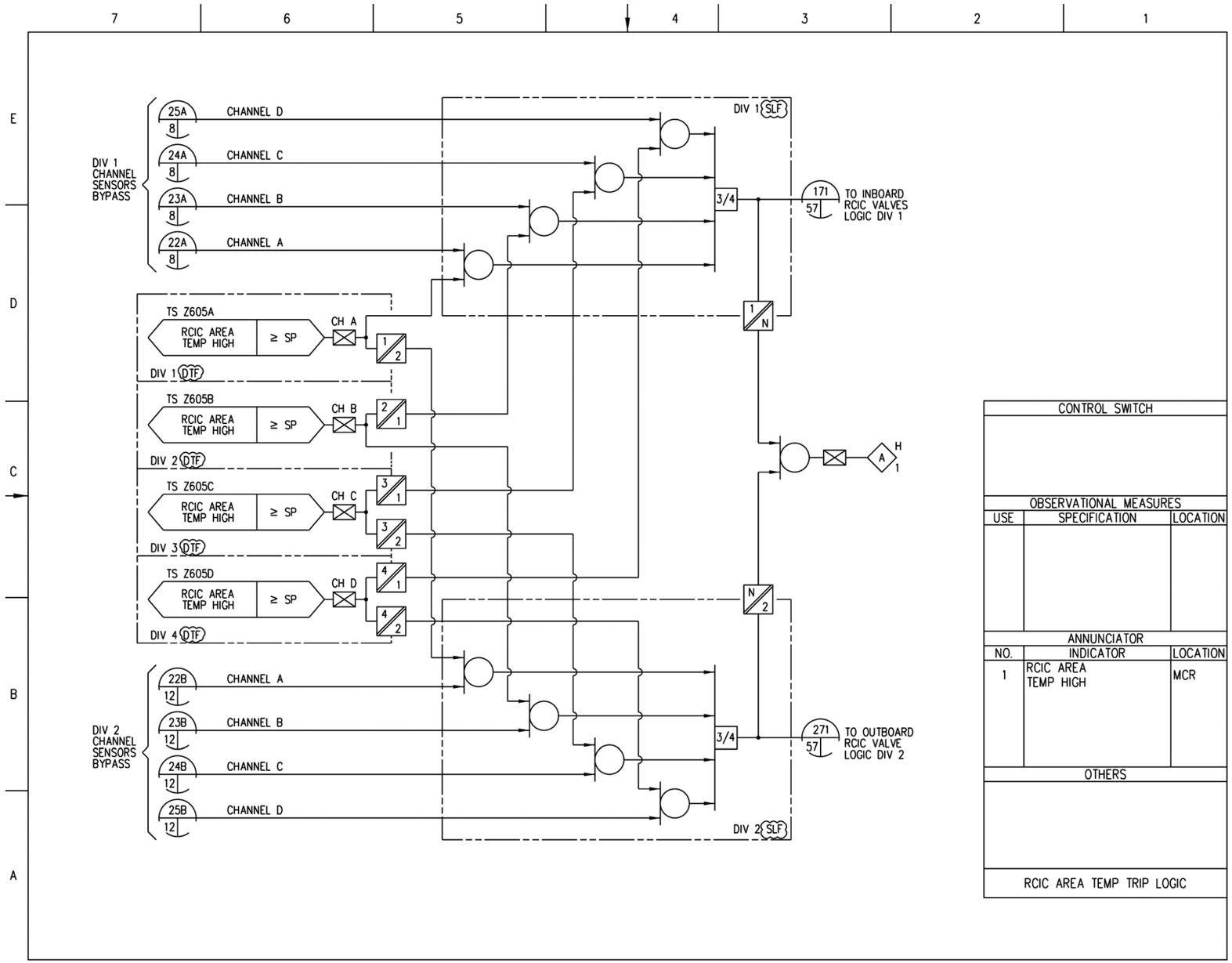



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 54 of 77)**

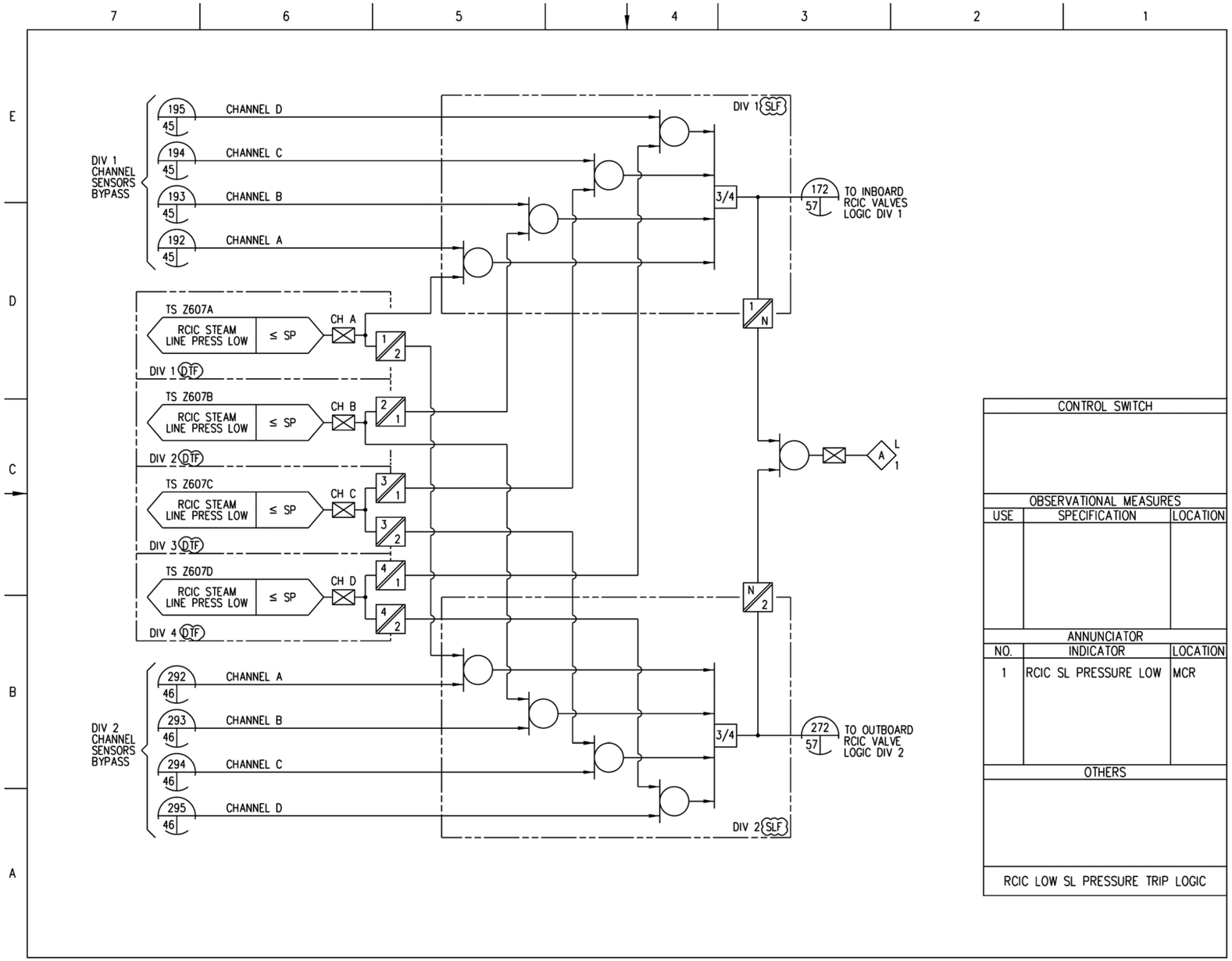



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 55 of 77)**

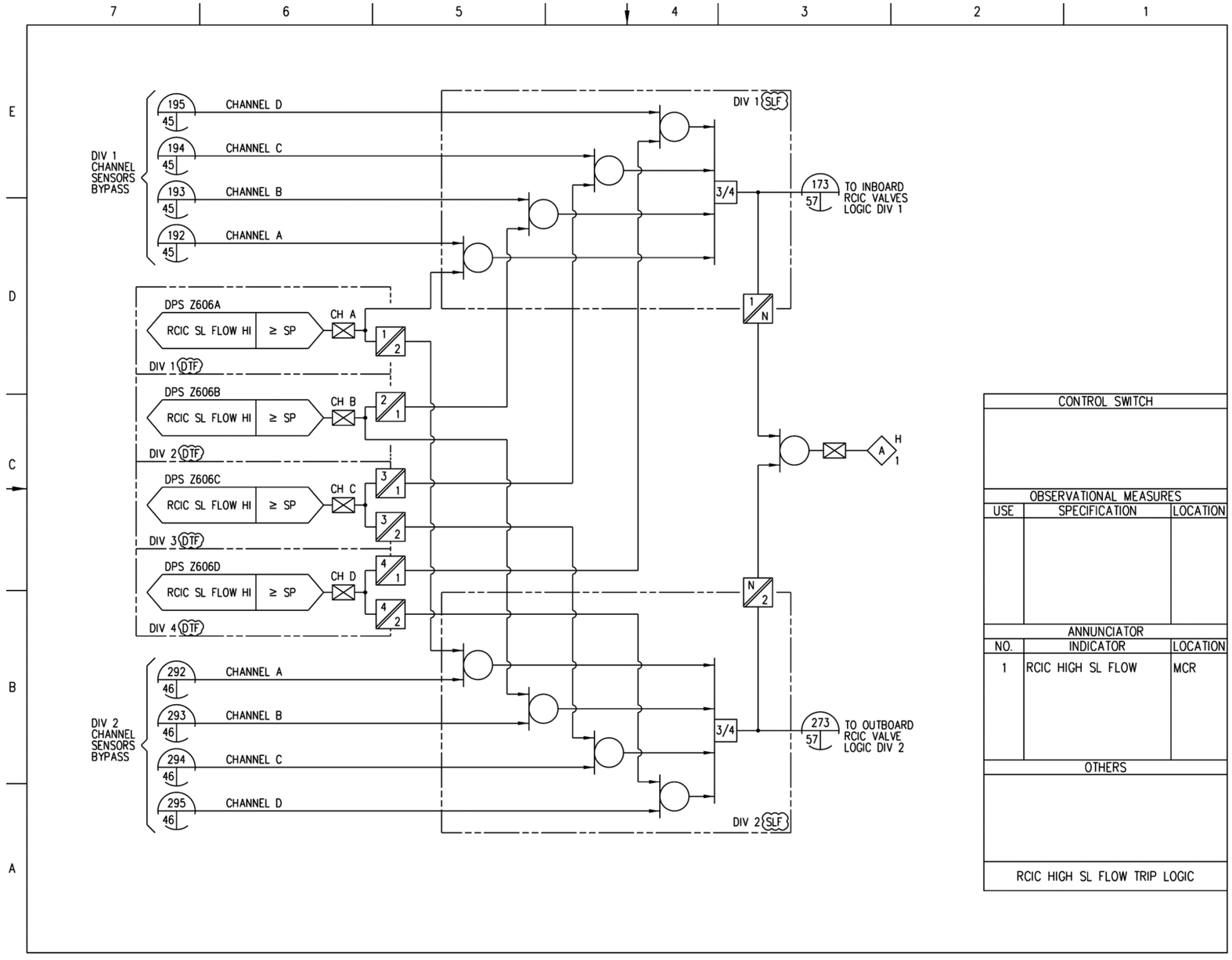



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 56 of 77)**

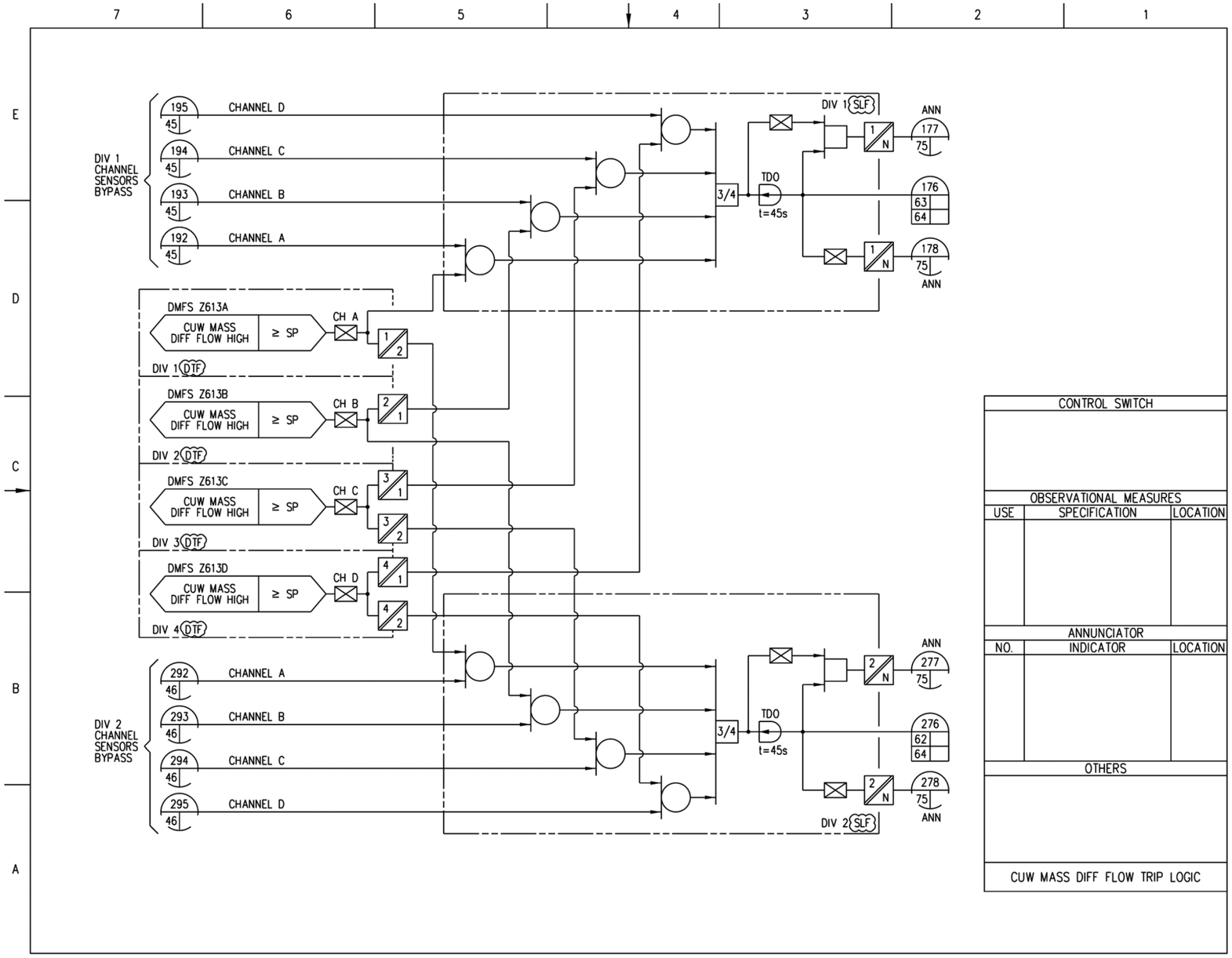



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 58 of 77)**

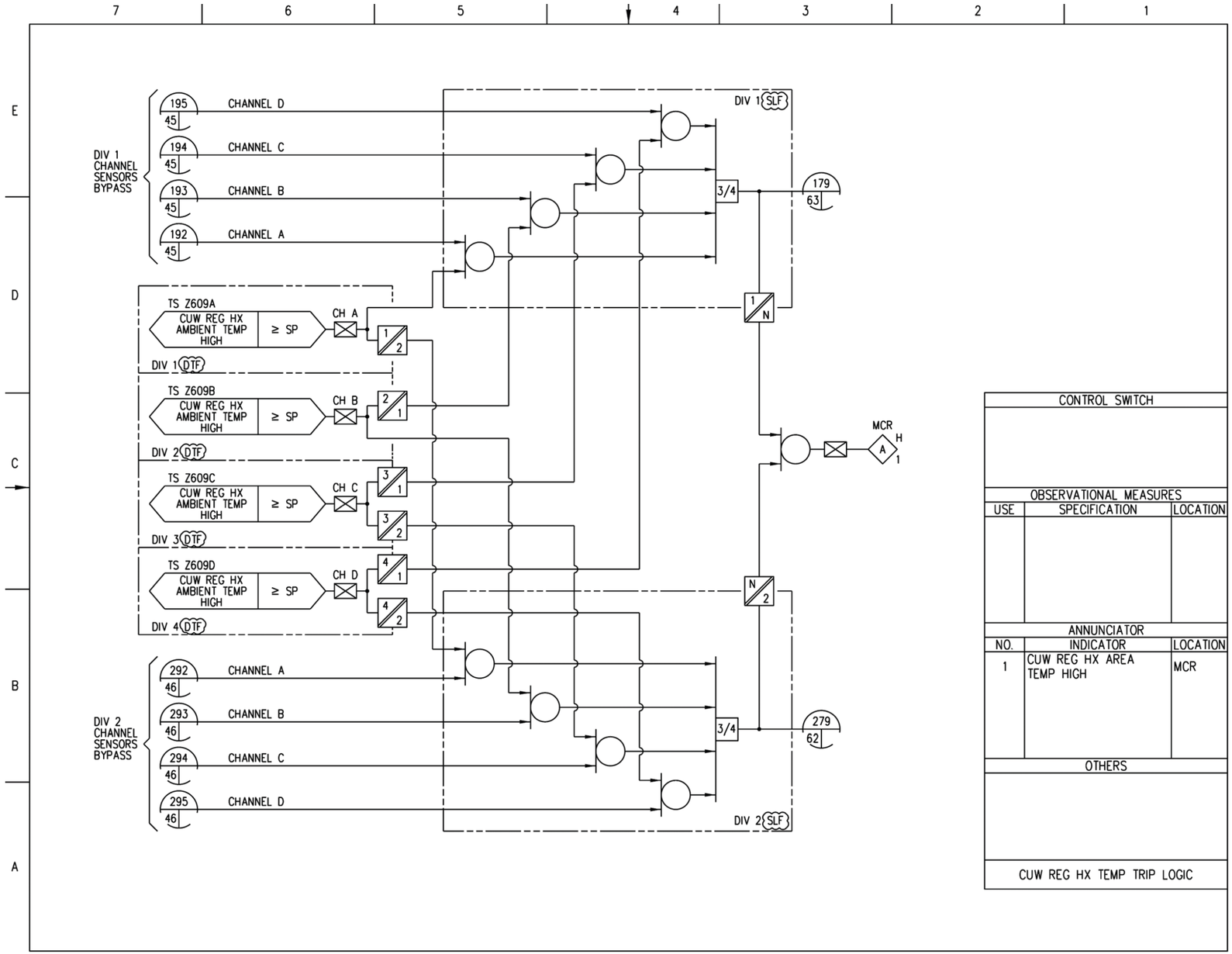



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 59 of 77)**

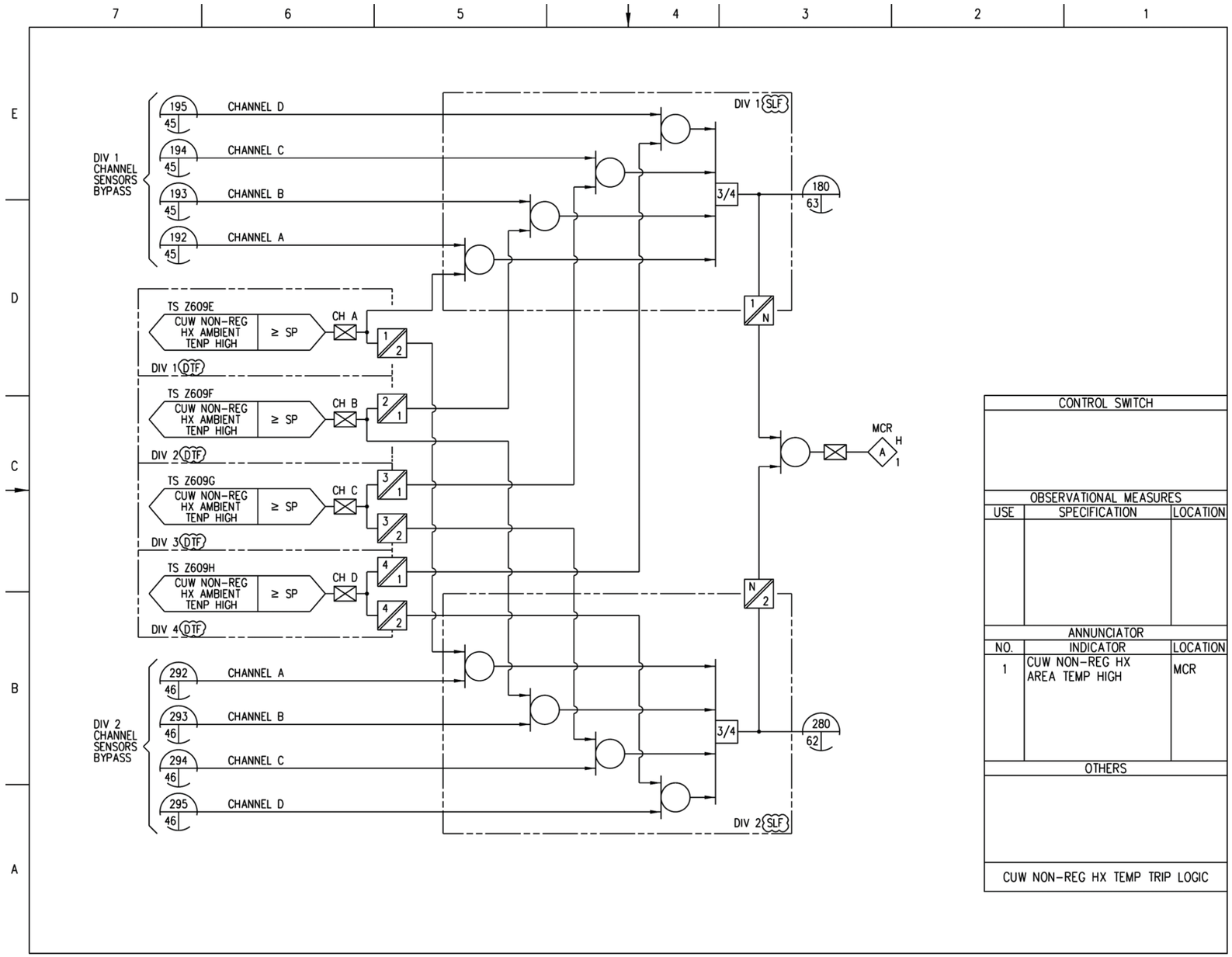



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 60 of 77)**

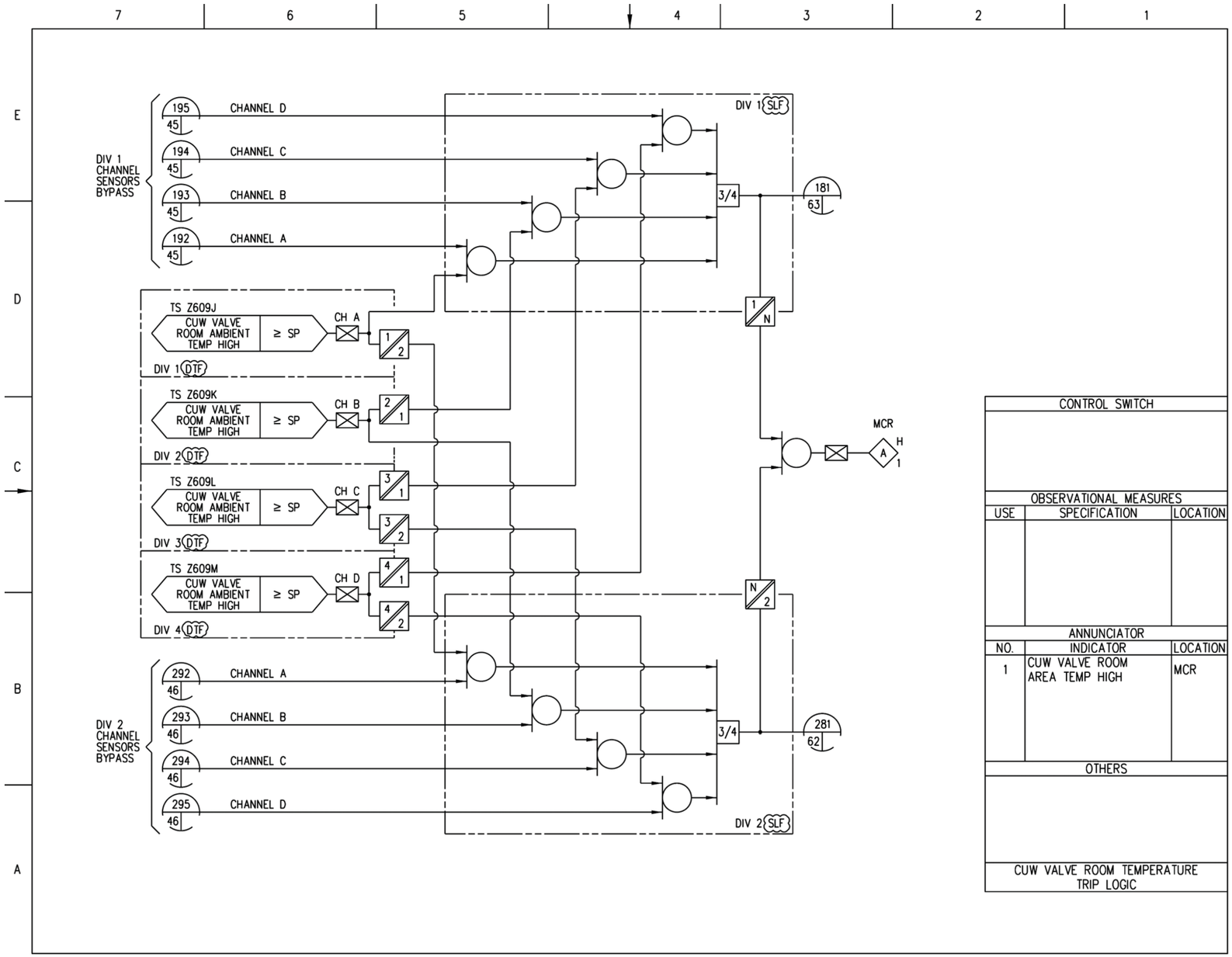



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 61 of 77)**

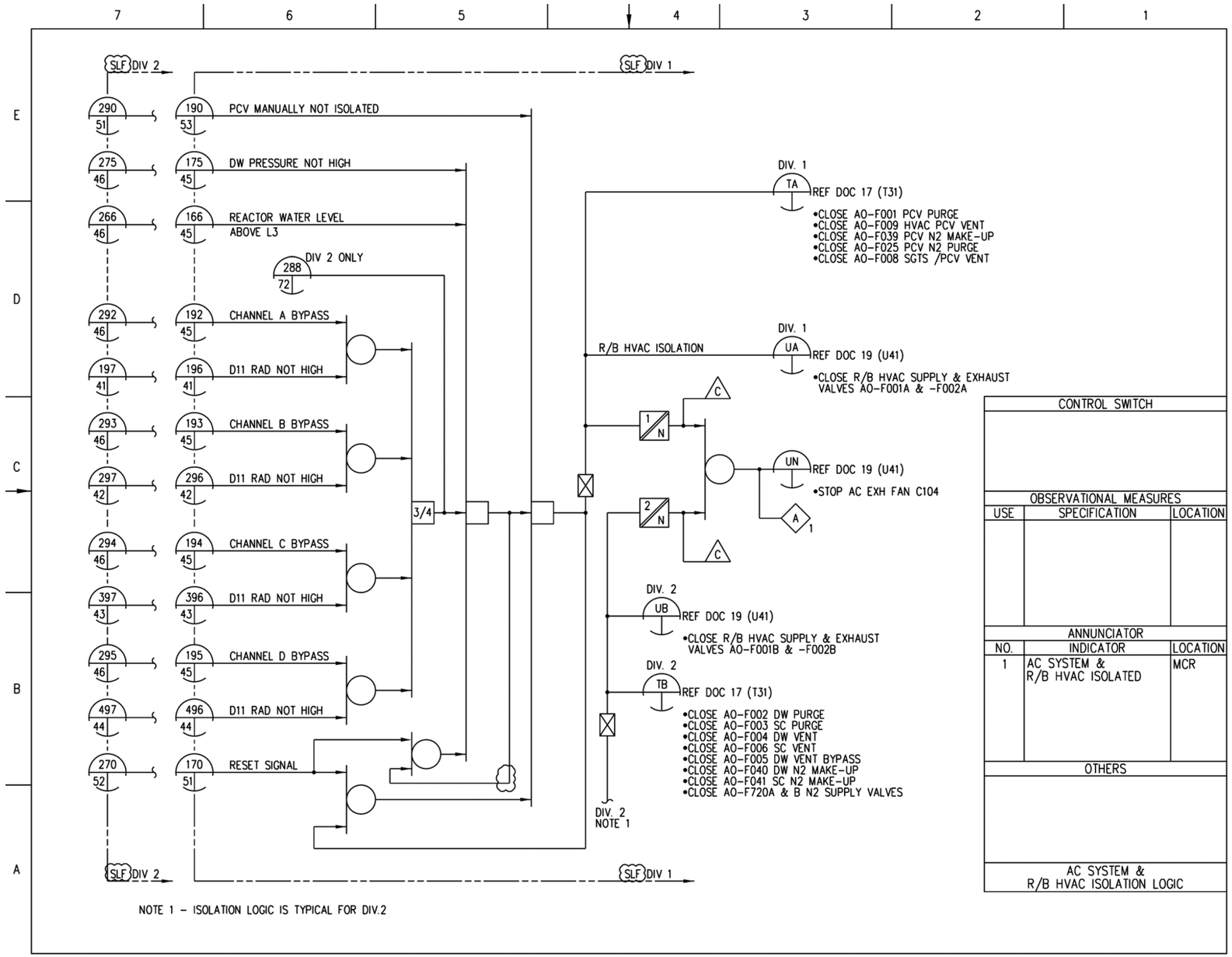



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 72 of 77)**

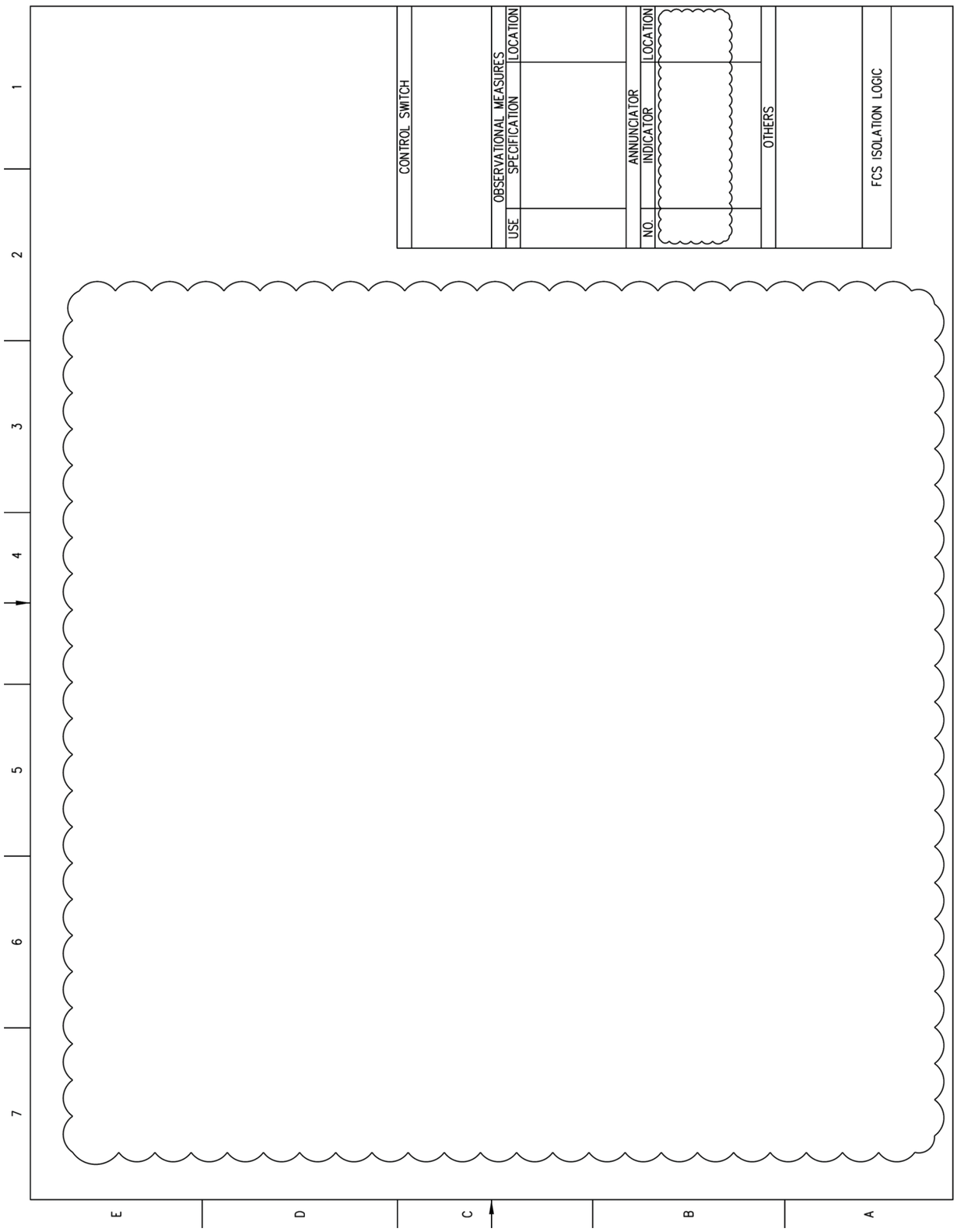



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 74 of 77)**

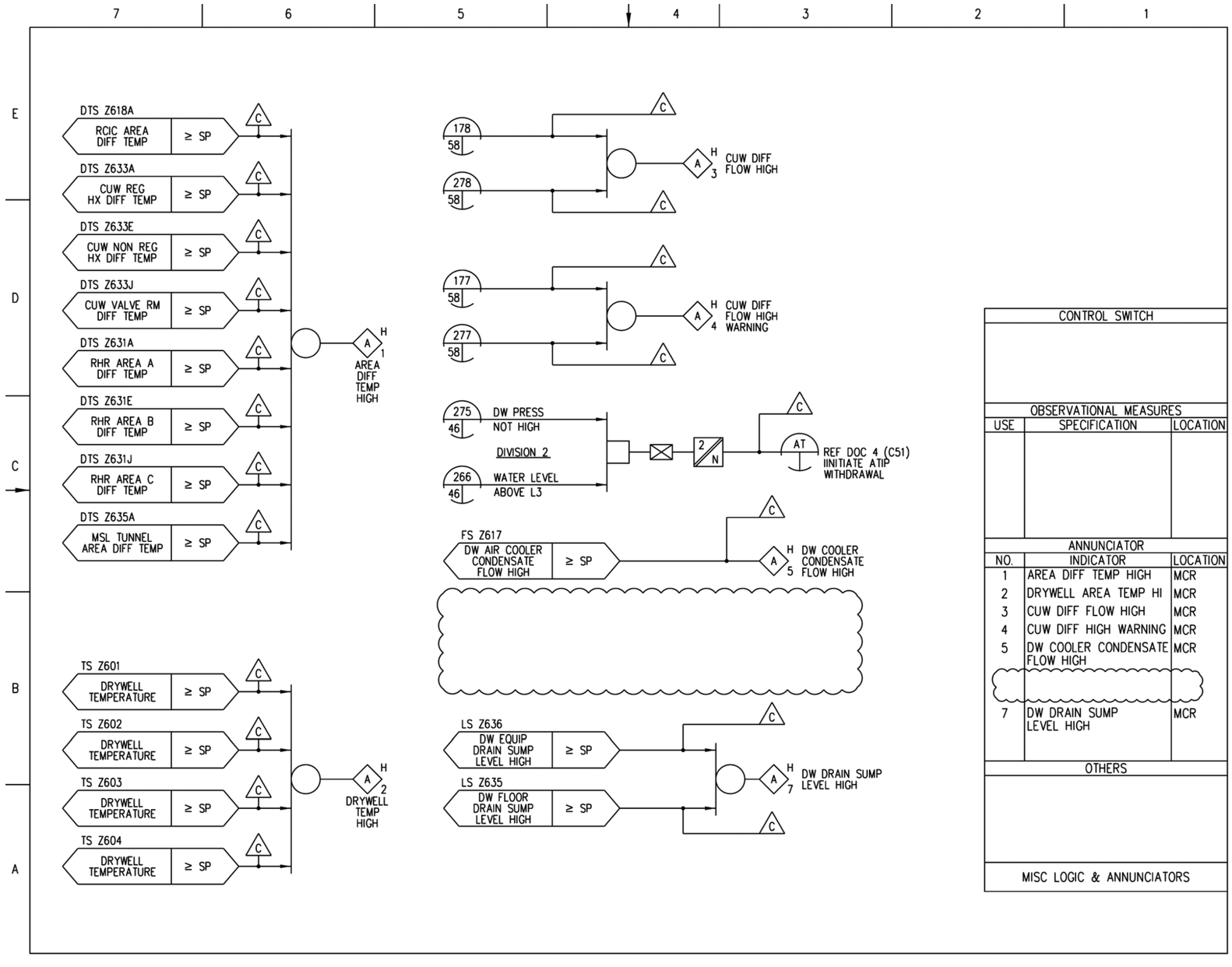



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 75 of 77)**

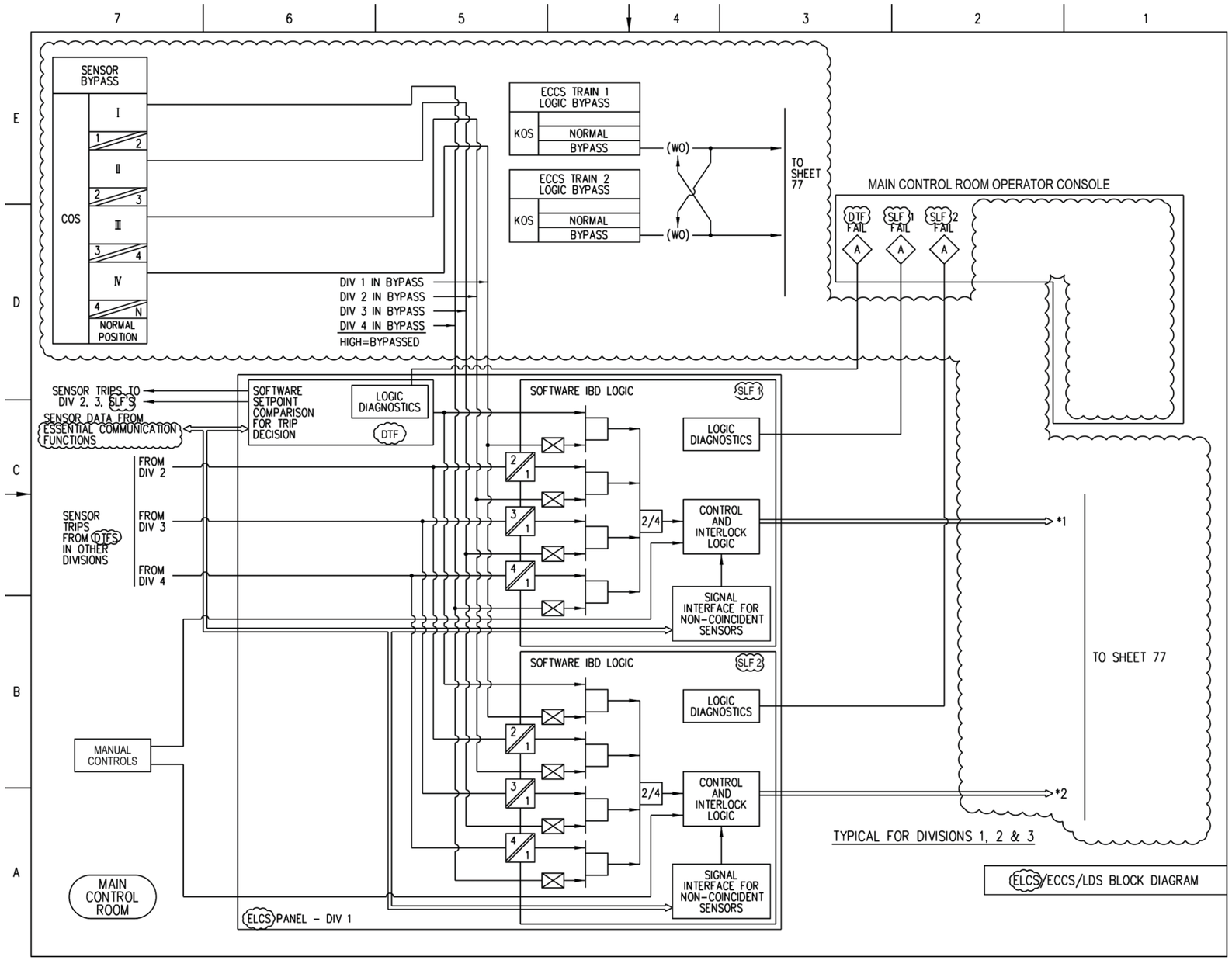



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 76 of 77)**

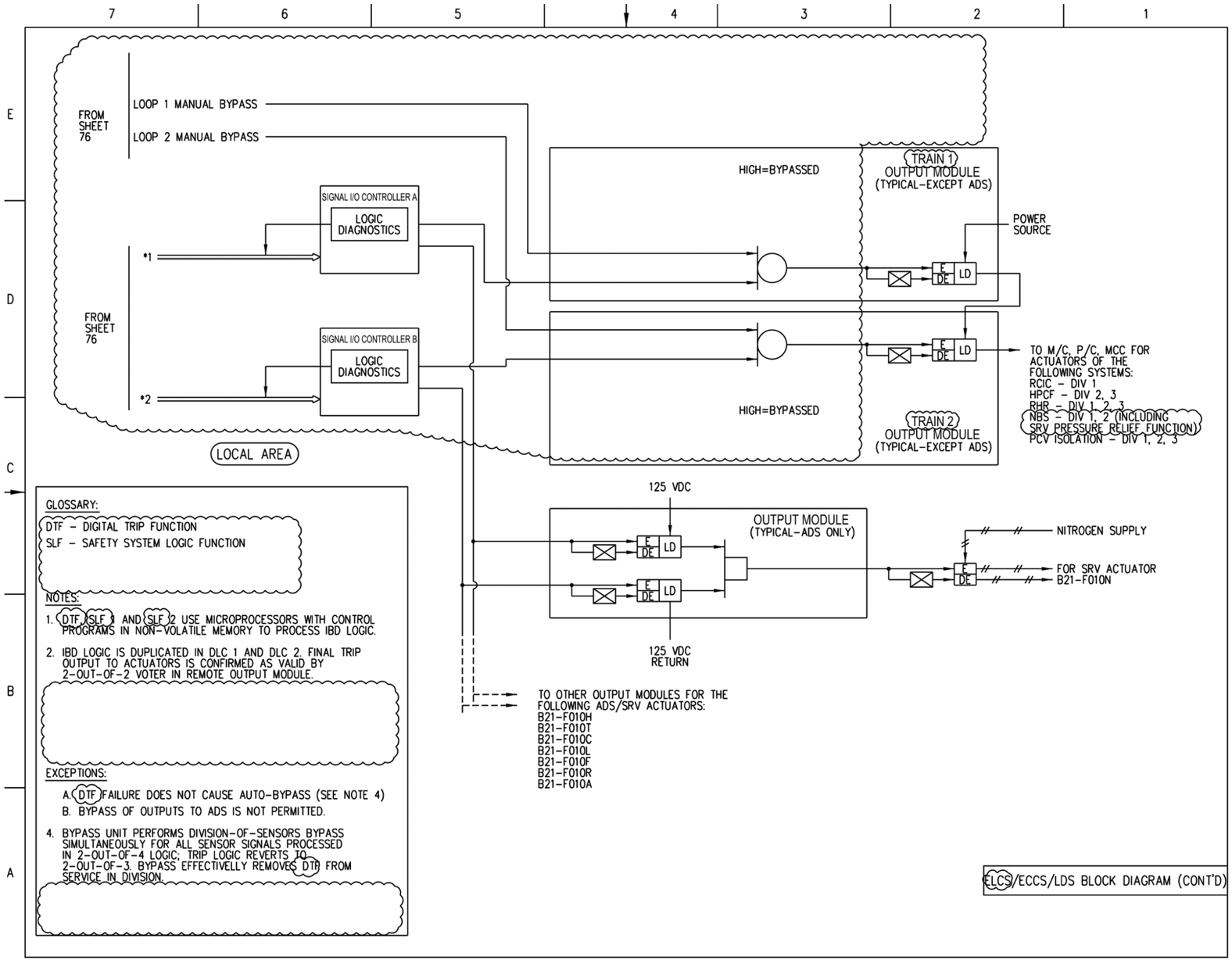
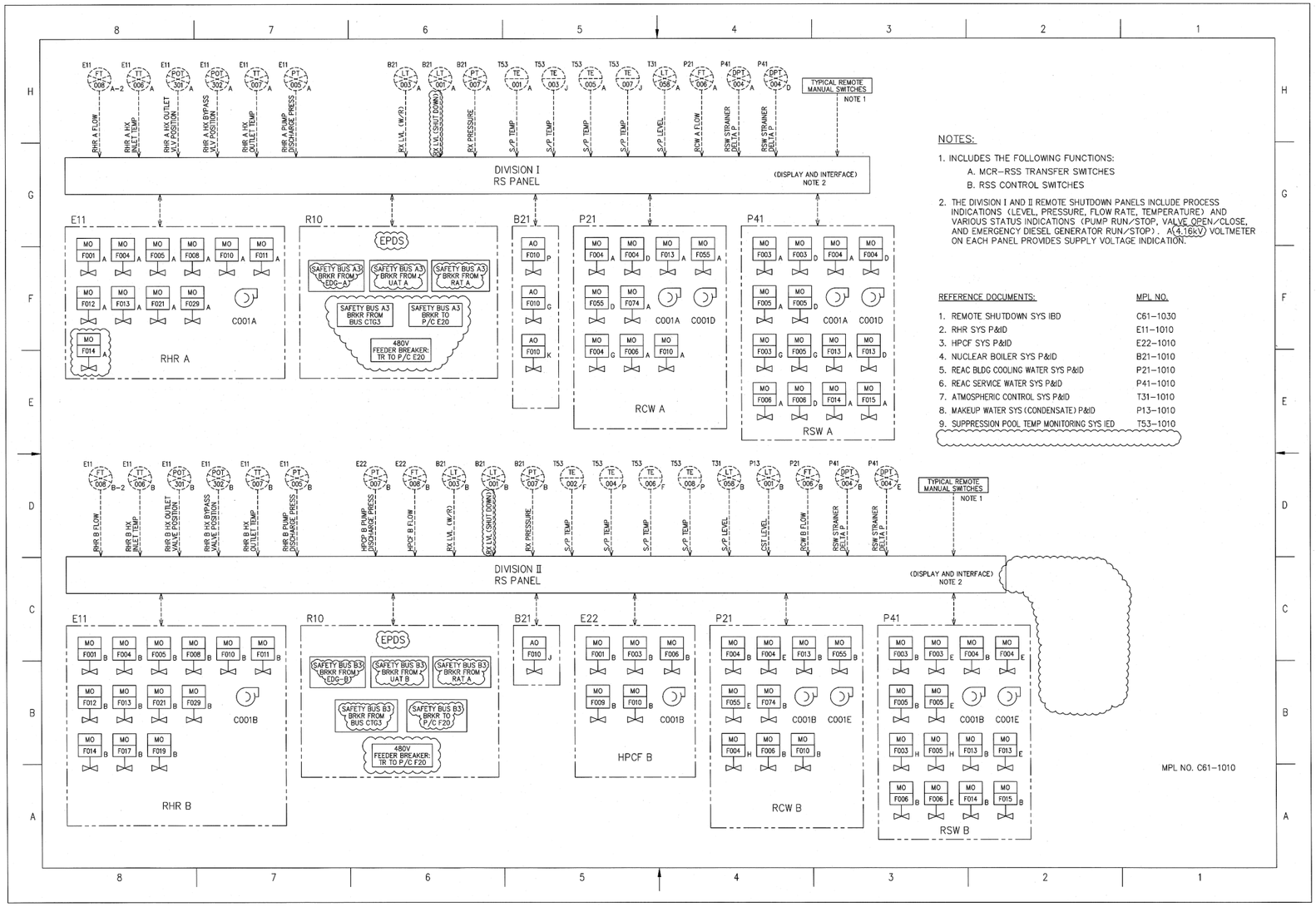



**Figure 7.3-5 – Leak Detection and Isolation System IBD (Sheet 77 of 77)**




NOTES:

1. INCLUDES THE FOLLOWING FUNCTIONS:
   A. MCR–RSS TRANSFER SWITCHES
   B. RSS CONTROL SWITCHES
2. THE DIVISION I AND II REMOTE SHUTDOWN PANELS INCLUDE PROCESS INDICATIONS (LEVEL, PRESSURE, FLOW RATE, TEMPERATURE) AND VARIOUS STATUS INDICATIONS (PUMP RUN/STOP, VALVE OPEN/CLOSE, AND EMERGENCY DIESEL GENERATOR RUN/STOP). A (4.16kV) VOLTMETER ON EACH PANEL PROVIDES SUPPLY VOLTAGE INDICATION.

REFERENCE DOCUMENTS:

| | MPL NO. |
|---|---|
| 1. REMOTE SHUTDOWN SYS IBD | C61–1030 |
| 2. RHR SYS P&ID | E11–1010 |
| 3. HPCF SYS P&ID | E22–1010 |
| 4. NUCLEAR BOILER SYS P&ID | B21–1010 |
| 5. REAC BLDG COOLING WATER SYS P&ID | P21–1010 |
| 6. REAC SERVICE WATER SYS P&ID | P41–1010 |
| 7. ATMOSPHERIC CONTROL SYS P&ID | T31–1010 |
| 8. MAKEUP WATER SYS (CONDENSATE) P&ID | P13–1010 |
| 9. SUPPRESSION POOL TEMP MONITORING SYS IED | T53–1010 |

**Figure 7.4-2 – Remote Shutdown System IED (Sheet 1 of 1)**

NOTES:

1. MOTOR OPERATED VALVE CONTROL LOGIC ON SHEETS 6 AND 8 APPLIES TO MANY VALVES AS TABULATED ON SHEETS 2 AND 3. INTERFACE INFORMATION IS AVAILABLE FROM APPLICABLE REFERENCE DOCUMENTS LISTED ON SHEET 1.

| REFERENCE DOCUMENT | MPL NO. |
|---|---|
| 1. REMOTE SHUTDOWN SYS IED | C61–1010 |
| 2. RESIDUAL HEAT REMOVAL SYS IBD | E11–1030 |
| 3. HIGH PRESS CORE FLOODER SYS IBD | E22–1030 |
| 4. REAC BLDG COOLING WATER SYS/ REACTOR SERVICE WATER SYS IBD | P21/P41–1030 |
| 5. NUCLEAR BOILER SYS IBD | B21–1030 |
| 7. (13.8kV/4.16kV) POWER DISTRIBUTION SINGLE LINE DIAG | R10–1010 |
| 8. MAKEUP WATER SYSTEM (CONDENSATE) P&ID | P13–1010 |
| 9. ATMOSPHERIC CONTROL SYSTEM P&ID | T31–1010 |
| 10. RESIDUAL HEAT REMOVAL SYSTEM P&ID | E11–1010 |
| 11. HIGH PRESSURE CORE FLOODER SYSTEM P&ID | E22–1010 |
| 12. NUCLEAR BOILER SYSTEM P&ID | B21–1010 |
| 13. INTERLOCK BLOCK DIAGRAM (BD) STANDARDS | A10–3070 |

LEGEND:

MCR = MAIN CONTROL ROOM
RSP = REMOTE SHUTDOWN CONTROL PANEL
RSTS = REMOTE SHUTDOWN TRANSFER SWITCH
RSCS = REMOTE SHUTDOWN CONTROL SWITCH

MPL NO. C61–1030

**Figure 7.4-3 – Remote Shutdown System IBD (Sheet 1 of 27)**

| SYS | NAME | SH NO. | PART NO. |
|---|---|---|---|
| RHR | RHR PUMP (A) | SH 14 | E11-C001A |
| | RHR S/P SUCTION VALVE (A) | SH 7 | E11-F001A |
| | RHR HX BYPASS VALVE (A) | SH 6 | E11-F013A |
| | RHR INJECTION VALVE (A) | SH 15 | E11-F005A |
| | RHR HX OUTLET VALVE (A) | SH 6 | E11-F004A |
| | RHR S/P RETURN VALVE (A) | SH 16 | E11-F008A |
| | RHR SHC (INBOARD) SUCTION ISOL VALVE (A) | SH 21 | E11-F010A |
| | RHR SHC (OUTBOARD) SUCTION ISOL VALVE (A) | SH 22 | E11-F011A |
| | RHR SHC SUCTION VALVE (A) | SH 17 | E11-F012A |
| | RHR MINIMUM FLOW VALVE (A) | SH 12 | E11-F021A |
| | RHR LIQUID WASTE FLUSH ISOLATION VALVE (A) | SH 8 | E11-F029A |
| | RHR PUMP (B) | SH 14 | E11-C001B |
| | RHR S/P SUCTION VALVE (B) | SH 7 | E11-F001B |
| | RHR HX BYPASS VALVE (B) | SH 6 | E11-F013B |
| | RHR INJECTION VALVE (B) | SH 15 | E11-F005B |
| | RHR HX OUTLET VALVE (B) | SH 6 | E11-F004B |
| | RHR D/W SPRAY VALVE (B) | SH 8 | E11-F017B |
| | RHR WW SPRAY VALVE (B) | SH 25 | E11-F019B |
| | RHR S/P RETURN VALVE (B) | SH 16 | E11-F008B |
| | RHR SHC (INBOARD) SUCTION ISOL VALVE (B) | SH 23 | E11-F010B |
| | RHR SHC (OUTBOARD) SUCTION ISOL VALVE (B) | SH 24 | E11-F011B |
| | RHR SHC SUCTION VALVE (B) | SH 18 | E11-F012B |
| | RHR MINIMUM FLOW VALVE (B) | SH 12 | E11-F021B |
| | RHR LIQUID WASTE FLUSH ISOLATION VALVE (B) | SH 8 | E11-F029B |
| | RHR-FPC ISOLATION VALVE (B) | SH 8 | E11-F014B |
| | RHR-FPC ISOLATION VALVE (A) | SH 8 | E11-F014A |

| SYS | NAME | SH NO. | PART NO. |
|---|---|---|---|
| HPCF | HPCF PUMP (B) | SH 19 | E22-C001B |
| | HPCF CST SUCTION VALVE (B) | SH 6 | E22-F001B |
| | HPCF INJECTION VALVE (B) | SH 6 | E22-F003B |
| | HPCF S/P SUCTION VALVE (B) | SH 20 | E22-F006B |
| | HPCF TEST LINE BYPASS VALVE (B) | SH 8 | E22-F009B |
| | HPCF MINIMUM FLOW VALVE (B) | SH 13 | E22-F010B |
| | | | |
| | | | |
| NBS | SAFETY RELIEF VALVE (NON ADS) | SH 9 | B21-F010P |
| | SAFETY RELIEF VALVE (NON ADS) | SH 9 | B21-F010G |
| | SAFETY RELIEF VALVE (NON ADS) | SH 9 | B21-F010K |
| | SAFETY RELIEF VALVE (NON ADS) | SH 9 | B21-F010J |
| | | | |
| RCW | RCW PUMP (A) | SH 5 | P21-C001A |
| | RCW PUMP (D) | SH 5 | P21-C001D |
| | RCW HX COOLING WATER OUTLET VALVE (A) | SH 6 | P21-F004A |
| | RCW HX COOLING WATER OUTLET VALVE (D) | SH 6 | P21-F004D |
| | RCW HX COOLING WATER OUTLET VALVE (G) | SH 6 | P21-F004G |
| | RCW RHR HX OUTLET VALVE (A) | SH 6 | P21-F013A |
| | RCW D/G OUTLET VALVE (A) | SH 6 | P21-F055A |
| | RCW D/G OUTLET VALVE (D) | SH 6 | P21-F055D |
| | RCW SEPARATE VALVE (A) | SH 6 | P21-F074A |
| | RCW PUMP (B) | SH 5 | P21-C001B |
| | RCW PUMP (E) | SH 5 | P21-C001E |
| | RCW HX COOLING WATER OUTLET VALVE (B) | SH 6 | P21-F004B |
| | RCW HX COOLING WATER OUTLET VALVE (E) | SH 6 | P21-F004E |
| | RCW HX COOLING WATER OUTLET VALVE (H) | SH 6 | P21-F004H |
| | RCW RHR HX OUTLET VALVE (B) | SH 6 | P21-F013B |
| | RCW D/G OUTLET VALVE (B) | SH 6 | P21-F055B |
| | RCW D/G OUTLET VALVE (E) | SH 6 | P21-F055E |
| | RCW SEPARATE VALVE (B) | SH 6 | P21-F074B |
| | RCW COOLING WATER TEMPERATURE CONTROL VALVES | SH 27 | P21-F006A(B)<br>P21-F010A(B) |

**Figure 7.4-3 – Remote Shutdown System IBD (Sheet 2 of 27)**

| SYS | NAME | SH NO. | PART NO. |
|---|---|---|---|
| RSW | RSW PUMP (A) | SH 5 | P41-C001A |
| | RSW PUMP (D) | SH 5 | P41-C001D |
| | RCW HX SERVICE WATER INLET VALVE (A) | SH 6 | P41-F003A |
| | RCW HX SERVICE WATER INLET VALVE (D) | SH 6 | P41-F003D |
| | RSW STRAINER INLET VALVE (A) | SH 26 | P41-F004A |
| | RSW STRAINER INLET VALVE (D) | SH 26 | P41-F004D |
| | RCW HX SERVICE WATER OUTLET VALVE (A) | SH 6 | P41-F005A |
| | RCW HX SERVICE WATER OUTLET VALVE (D) | SH 6 | P41-F005D |
| | RCW HX SERVICE WATER INLET VALVE (G) | SH 6 | P41-F003G |
| | RCW HX SERVICE WATER OUTLET VALVE (G) | SH 6 | P41-F005G |
| | RSW STRAINER OUTLET VALVE (A) | SH 6 | P41-F013A |
| | RSW STRAINER OUTLET VALVE (D) | SH 6 | P41-F013D |
| | RSW STRAINER BACKWASH VALVE (A) | SH 6 | P41-F006A |
| | RSW STRAINER BACKWASH VALVE (D) | SH 6 | P41-F006D |
| | RSW (A) SUPPLY VALVE | SH 6 | P41-F014A |
| | RSW (A) RETURN VALVE | SH 6 | P41-F015A |
| | | | |
| | | | |
| | RSW PUMP (B) | SH 5 | P41-C001B |
| | RSW PUMP (E) | SH 5 | P41-C001E |
| | RCW HX SERVICE WATER INLET VALVE (B) | SH 6 | P41-F003B |
| | RCW HX SERVICE WATER INLET VALVE (E) | SH 6 | P41-F003E |
| | RSW STRAINER INLET VALVE (B) | SH 26 | P41-F004B |
| | RSW STRAINER INLET VALVE (E) | SH 26 | P41-F004E |
| | RCW HX SERVICE WATER OUTLET VALVE (B) | SH 6 | P41-F005B |
| | RCW HX SERVICE WATER OUTLET VALVE (E) | SH 6 | P41-F005E |
| | RCW HX SERVICE WATER INLET VALVE (H) | SH 6 | P41-F003H |
| | RCW HX SERVICE WATER OUTLET VALVE (H) | SH 6 | P41-F005H |
| | RSW STRAINER OUTLET VALVE (B) | SH 6 | P41-F013B |
| | RSW STRAINER OUTLET VALVE (E) | SH 6 | P41-F013E |
| | RSW STRAINER BACKWASH VALVE (B) | SH 6 | P41-F006B |
| | RSW STRAINER BACKWASH VALVE (E) | SH 6 | P41-F006E |
| | RSW (B) SUPPLY VALVE | SH 6 | P41-F014B |
| | RSW (B) RETURN VALVE | SH 6 | P41-F015B |

| SYS | NAME | SH NO. | PART NO. |
|---|---|---|---|
| D/G | DIESEL GENERATOR A START-UP CIRCUIT | SH 11 | – |
| | DIESEL GENERATOR B START-UP CIRCUIT | SH 11 | – |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| SYS | NAME | SH NO. | PART NO. |
|---|---|---|---|
| EPDS | SAFETY BUS A3 BREAKER FROM UAT A | SH 10 | – |
| | SAFETY BUS A3 BREAKER FROM RAT A | SH 10 | – |
| | SAFETY BUS A3 BREAKER FROM EDG-A | SH 10 | – |
| | SAFETY BUS A3 BREAKER FROM BUS CTG3 | SH 10 | – |
| | SAFETY BUS A3 BREAKER TO P/C E20 | SH 10 | – |
| | 480V FEEDER BREAKER : TR TO P/C E20 | SH 10 | – |
| | | | |
| | | | |
| | | | |
| | SAFETY BUS B3 BREAKER FROM UAT B | SH 10 | – |
| | SAFETY BUS B3 BREAKER FROM RAT A | SH 10 | – |
| | SAFETY BUS B3 BREAKER FROM EDG-B | SH 10 | – |
| | SAFETY BUS B3 BREAKER FROM BUS CTG3 | SH 10 | – |
| | SAFETY BUS B3 BREAKER TO P/C F20 | SH 10 | – |
| | 480V FEEDER BREAKER : TR TO P/C F20 | SH 10 | – |

**Figure 7.4-3 – Remote Shutdown System IBD (Sheet 3 of 27)**