**Appendix 9D I/O Loop and PLC Panel Demonstration (SAT)**

*Prior to performing this test, the consultant is to verify that the I/O Loop Checks have been completed and that all loops have been tested and verified as functional.*

Deficiencies are not to be fixed “on the fly”. They are to be recoded and then proceed to the next step. If at any point the 10 I/O loops fail OR is 5% of the loops fail (whichever is the smallest number), testing will be stopped, the whole test will be deemed a failure, and the whole test will have to be repeated once all of the repairs are done and ALL of the I/O loops are deemed to be ready.

All signals must be generated by the field device or a close to the field device as possible.

**General Information**

|  |  |
| --- | --- |
| PLC Name |  |
| Plant |  |
| Review Date DD/MM/YY |  |
| Checked by: |  |
| Halton Staff |  |
| Consultant |  |
| Contactor |  |

**Deficiencies**

| Check | | Pass/Fail |
| --- | --- | --- |
| Confirm all FAT Panel Deficiencies Closed |  | |

**Network Cabling**

|  |  |
| --- | --- |
| Check | Pass/Fail |
| Check that Patch Cables are supplied and labeled |  |
| Check that each of the ports on the WAO have been wired to the NDE |  |

**Sample I/O Check List**

| Address | Description (New) | Pass / Fail |
| --- | --- | --- |
| I:01/00 | Hydro Power Failure |  |
| I:01/01 | UPS Fault |  |
| I:01/02 | Phase Fail Alarm |  |
| I:01/03 | TVSS Alarm |  |
| I:01/04 | Building Illegal Entry Alarm |  |
| I:01/05 | Building Security System Armed |  |
| I:01/06 | Well 9a Pump Room Fire Alarm Status |  |
| I:01/07 | Generator Room Fire Alarm Status |  |
| I:01/08 | Well 9b Pump Room Fire Alarm Status |  |
| I:01/09 | Well 9a Pump Rm HI/LO Temperature Alarm Status |  |
| I:01/10 | Generator Rm HI/LO Temperature Alarm Status |  |
| I:01/11 | Vestibule HI/LO Temperature Alarm Status |  |
| I:01/12 | Chlorine Rm HI/LO Temperature Alarm Status |  |
| I:01/13 | Well 9b Pump Rm HI/LO Temperature Alarm Status |  |
| I:01/14 | Building Flood Alarm Status |  |
| I:01/15 | Fluoride Containment Area Flood |  |
| I:02/00 | Fluoride Rm Ventilation System - Hi Rate |  |
| I:02/01 | Fluoride Rm HI/LO Temperature Alarm Status |  |
| I:02/02 | Chlorine Gas Alarm |  |
| I:02/03 | Chlorine Gas Detector Fault |  |
| I:02/04 | Network Distribution Enclosure High Temperature |  |
| I:02/05 | Chlorine Room Supply Fan Running Status |  |
| I:02/06 | Chlorine Room Exhaust Fan Running Status |  |
| I:02/07 | Fluoride Room Supply Fan Running Status |  |
| I:02/08 | Fluoride Room Exhaust Fan Running Status |  |
| I:02/09 | Vestibule Supply Fan Running Status |  |
| I:02/10 | Valve Chamber 1 Flood Float switch |  |
| I:02/11 | Valve Chamber 2 Flood Float switch |  |
| I:02/12 | Fluoride Pump 1 Control Mode |  |

| Address | Description (New) | Pass / Fail |
| --- | --- | --- |
| I:14.00 | Well Pump 9b Speed Feedback |  |
| I:14.01 | Chlorinator 2 Position Feedback |  |
| I:14.02 | Fluoride Pump 2 Speed Feedback |  |
| I:14.03 | Fluoride Pump 4 Speed Feedback |  |
| I:15.00 | Fluoride Weight 1 |  |
| I:15.01 | Chlorinator 3 Position Feedback {Future} |  |
| I:15.02 | Chlorine Weight 3 {Future} |  |
| I:15.03 | Chlorine Weight 4 {Future} |  |
| I:16.00 | Chlorine Gas Scrubber Exhaust Gas Level |  |
| I:16.01 | Spare |  |
| I:16.02 | Spare |  |
| I:16.03 | Spare |  |
| I:17.00 | Spare |  |
| I:17.01 | Spare |  |
| I:17.02 | Spare |  |
| I:17.03 | Spare |  |
| O:18.00 | Well Pump 9a Speed Setpoint |  |
| O:18.01 | Chlorinator 1 Position Setpoint |  |
| O:18.02 | Fluoride Pump 1 Speed Setpoint |  |
| O:18.03 | Fluoride Pump 3 Speed Setpoint |  |
| O:19.00 | Well Pump 9b Speed Setpoint |  |
| O:19.01 | Chlorinator 2 Position Setpoint |  |
| O:19.02 | Fluoride Pump 2 Speed Setpoint |  |
| O:19.03 | Fluoride Pump 4 Speed Setpoint |  |
| O:20.00 | Chlorinator 3 Position Setpoint {Future} |  |
| O:20.01 | Spare |  |
| O:20.02 | Spare |  |
| O:20.03 | Spare |  |

**Removal of I/O Check List**

| Address | Description (New) | Pass / Fail |
| --- | --- | --- |
| I:01/00 | Hydro Power Failure |  |
| I:01/01 | UPS Fault |  |
| I:01/02 | Phase Fail Alarm |  |
| I:01/03 | TVSS Alarm |  |
| I:01/04 | Building Illegal Entry Alarm |  |
| I:01/05 | Building Security System Armed |  |
| I:01/06 | Well 9a Pump Room Fire Alarm Status |  |
| I:01/07 | Generator Room Fire Alarm Status |  |
| I:01/08 | Well 9b Pump Room Fire Alarm Status |  |

**Deficiencies**

*Insert Appendix 9k – Standard Deficiency Sheet here.*

Hand written notes are not to be replaced with typed notes later nor are these sheets to be removed or replaced in the binder at any time.