APPENDIX 4 – TESTING REQUIREMENTS AND MINIMUM ACCEPTANCE CRITERIA

CONTENTS

1   FACTORY ACCEPTANCE TEST (FAT)

1.1   RESPONSIBILITY

The responsibility of the Factory Acceptance Test lies solely with the Contractor to demonstrate compliance with the specification.

1.2   HIGH LEVEL REQUIREMENTS

The FAT shall be conducted using network cabinets with all internal components installed and all internal wiring completed.

Visual and mechanical inspections are conducted on cabinets with sample trunk and power cables terminated and entering the cabinet as per the design requirement.

In addition to the FAT requirements specified in IEC 62381, the following tests and inspections are conducted during the FAT as a minimum:
- Verification of the following systems against the detailed design freeze documentation and Works Information:
  - Interfaces to closed 3rd party systems
  - Interfaces to open 3rd party systems
  - Operating & Engineering network
  - Engineering system
  - Operating system
  - User management system
  - Network management system
  - Backup and restore system
  - Central update system
  - Plant information system
  - ESP
  - GPS
- Verification of the plant coding philosophy
- Verification of the forward documentation system
- Verification of scan cycles
- Verification of the cyber security requirements
- IT penetration test
- Verification of the C&I system availability
- Verification of the Disaster recovery mechanisms
- Verification of the Change Over from existing OSP HMI to the new OSP HMI

2   SITE INTEGRATION TEST (SIT)

2.1   RESPONSIBILITY

The responsibility of the Site Integration Test lies solely with the Contractor to demonstrate compliance with the specification.

2.2   HIGH LEVEL REQUIREMENTS

In addition to the FAT requirements specified in IEC 62381, the following tests and inspections are conducted during the FAT as a minimum:

➢ Verification that that the standby time of the UPS is 4 hours with the full load connected
➢ Verification of all 3rd party interfaces not tested during the FAT
➢ Verification of any tests from the FAT procedure not performed during the FAT
➢ Verification of the C&I system with final power connected
➢ Re-verification of any FAT tests at the discretion of the *Employer*

3   OPERATIONAL ACCEPTANCE TEST (OAT)

3.1   DEFINITION

Operational Acceptance Testing (OAT) takes place at the Employer's site after cold commissioning has concluded and the system is connected to the plant process. During this test the Employer gets the opportunity to witness the functionality of the system and ensure that the system is ready for operation in terms of reliability and suitability for plant and personnel safety.

3.2   RESPONSIBILITY

The following tests and inspections are conducted during the OAT as a minimum:

➢ Verification of the electromagnetic compatibility (EMC) of C&I system equipment
➢ Verification of the standby time after a power loss
➢ Verification of the communication redundancy
➢ Verification of the power supply redundancy
➢ Verification of the control/HMI system server(s) redundancy
➢ Verification of the hot-swapping of C&I equipment
➢ Verification that no single fault or two concurrent faults endanger the safety of the plant or people
➢ Verification that no single C&I system fault causes the loss of an operator workstation.
➢ Verification of the control system's Alarm philosophy such that the alarm performance criteria as specified in the technical guideline: 240-56355466, Alarm Management System Guideline are complied with.
➢ Demonstrate that analogue signals stored are scanned and archived with the resolutions required
➢ Demonstrate that the Operator response times meet the requirements