|  |  |  |
| --- | --- | --- |
| Version | Date | Description of Revisions |
| 1 | November 1, 2011 | Standard Specification Released |
| 2 | April 20, 2015 | General formatting |
| 3 | November 27, 2019 | Removed 2.5, removed reference to PCN in 1.4.3 & 1.5, changed O&M Manual to Equipment Manual throughout (BM) |
|  |  |  |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**For each project the Consultant is responsible for the correct application of the specifications and for updating and modifying all highlighted items, as well as updating and modifying those sections that are directly applicable to the project. All updates and modifications to this standard document are to be highlighted to the Region for review and acceptance on each project.**

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GENERAL

## Scope

### This section describes the requirements for the Equipment Manual documentation related to SCADA and Instrumentation and Control (I&C). The purpose of this document is to ensure that complete documentation for instrumentation and control is obtained during the delivery of a project. This section supplements the general submittal requirements defined in Division 1 and Division 13.

## Application

### This specification applies to all instrumentation and control work completed under this project. One complete set of documentation will be maintained at the site at all times during construction and following acceptance of the facility. The reference copy for all documentation as well as a software version of the documentation will reside at the Region’s Bayview Operations Center and the respective HUB center.

## Preparation

### Refer to Division 1.

## Submittals and Format:

### Refer to Division 1.

### The Equipment Manual is to be submitted in both hardcopy (printed) and digital format as specified under Division 1. All digital files are to be provided in an indexed PDF format as well as in native AutoCAD dwg format (drawings).

### All manuals and other files are to be submitted in an editable format.

## Equipment Manual, Division 13 Section 1:

### Allow adequate space within the manual for the insertion of record drawings which will be provided by the Consultant as follows (as a minimum):

#### Process and Instrumentation Drawing(s): Provide 11 x 17 size landscape copies of P&IDs.

#### Process Flow Diagram: Provide 11 x 17 size landscape copies of PFDs.

### Allow adequate space within the manual for the insertion of any relevant Ministry of Environment documents pertaining to the facility. Documents will be provided by the Region.

## Equipment Manual, Division 13, Section 2 Instrumentation / Hardware:

### Panel Drawings:

#### Provide 11 x 17 size landscape copies of panel drawings. Refer to Section 13310 for control panel specifications.

### Canadian Standards Association Certificates:

#### Provide copy of CSA certificate for control panel.

### Network Drawings and Communication Settings:

#### Provide 11 x 17 size landscape copies of all network drawings associated with the facility.

#### Where communication settings do not appear in network drawings, provide settings on a separate sheet in tabular format with supplementary notes where explanation is required.

### Electrical Drawings:

#### Provide 11 x 17 size landscape copies of all control schematics.

#### Provide 11 x 17 size landscape copies of single line power distribution diagrams.

### Hardware FAT:

#### Refer to Section 13311 for panel FAT specification. Provide copies of only the certificates from panel FAT.

### Field I/O Check:

#### Refer to Section 13930 for I/O loop check verification specification. Provide copies of only the certificates from the I/O loop check process.

### Instrument Index:

#### Provide a tabular list of all instruments. Indicate the instrument type, manufacture, model, calibration span and instrument tag name. The list shall be sorted by instrument tag name.

### Instrument Data, Specification, Calibration Sheet, and Manual:

#### This sub-section is to be grouped by instrument providing each required submittal in the given order.

#### Provide an instrument data sheet for each instrument. Refer to Section 13105, Section 13930, and specific instrument specification for the instrument data sheet format and content.

#### Provide the instrument specification sheet for each instrument. Refer to Section 13105, Section 13930, and specific instrument specification for specification sheet format and content.

#### Provide calibration certificates from the manufacturer for each instrument calibrated prior to installation.

#### If the instrument is calibrated on site provide calibration sheet for each instrument. Refer to Section 13105, Section 13930, and specific instrument specification for calibration sheet format and content. Calibration certificates to be provided in pdf version.

#### Provide the manufacturer’s instrument manual for each instrument. Where multiple instruments of the same manufacturer and model appear consecutively in the instrument index, provide only one copy of the instrument manual with the first instrument in that group.

### PAC Hardware Manuals:

#### Provide the manufacturer’s PAC manual.

#### Provide the manufacturer’s manual for any other hardware device that is not covered by other requirements in this specification.

#### Provide sheets to explain the specific models and options of the equipment provided.

### Spare Parts and Supplier List

#### Provide a detailed list of recommended spare parts including manufacturer, model and product revision.

#### Provide a list and contact information for at least two vendors of each component specified on the recommended spare parts list.

#### **END OF SECTION**