City of Winnipeg Water Treatment Program
Construction of Sodium Hypochlorite and Chemical Storage Buildings
Bid Opportunity No. 792-2006-Addendum 2

Section 17015(R1)
Page 1 of 3
March 2007

SCOPE OF INSTRUMENTATION AND CONTROL WORK

1. **GENERAL**

   .1 Supply and installation of all material, equipment, wiring and labour necessary for the installation of the systems detailed on the Drawings in accordance with the Specifications and the latest edition of the Canadian Electrical Code.

2. **WORK INCLUDED**

2.1 **Related Work**

   .1 Supply and installation of I&C equipment required to operate the WTP including the WTP control system PLC equipment and all Vendor Packages and City Supplied Equipment as indicated on the P&ID'S and in these Specifications.

2.2 **General Requirements**

   .1 Shop Drawings

   .2 Record Drawings

   .3 O&M Data

2.3 **Specific Requirements**

   .1 Supply, install, test, and verify the performance of all instrumentation, components, materials and ancillary equipment covered under Division 17 of this Contract.

   .2 Provide all local control panels for rail car and road tanker unloading as shown on the Drawings.

   .3 Provide all HVAC and steam raising plant interfaces as shown on the drawings.

   .4 Where shown on P&IDs and/or indicated in valve schedule provide local control panel for electrical valve actuators.

   .5 Provide 2 Hydrogen Gas Detectors in the Sodium Hypochlorite Building. The detectors must be identical to the 2 detectors provided by the Hypochlorite Generation Equipment Supply Contractor which are Crowcon Flamgard Plus.

   .6 Provide all control system communications equipment as shown on the drawings listed and as described in Specification Section 17275 – Miscellaneous Panel Devices.

   .7 Terminate all spare fibre optic cores to patch panels at each drop point and label accordingly.

   .8 Provide local control panels to house all PLC components and ancillary equipment, and to act as a marshalling panel for signals from instrumentation and equipment covered under Division 17.

.9   Supply redundant 24 VDC Power supplies installed within the local control panels whenever 24 VDC power is required.

.10 Provide power-conditioning equipment within each local control panel.

.11 Connect the healthy/fault status dry relay contacts from all power conditioning and UPS equipment to local PLC inputs.

.12 Provide Ethernet connections from the following equipment to the WTP control system: VFDs, transformer power meters, neutral grounding resistors, switchgear protection relays, and large motor protection relays.

.13 Hardwire I/O signals from the WTP control system PLCs to process instrumentation, HVAC/BMS system, Power Conditioning and UPS equipment and fire alarm panels.

.14 All WTP control system PLC programming and WTP monitoring system HMI software development shall be performed by others.

.15 Coordinate with the Supply Contractors of City Supplied Equipment under other contracts but installed under this Contract to install, test and verify performance of the systems shown on the P&IDs.

2.4   Additional Requirements

.1   Provide all necessary testing, detailed wiring continuity checks, installation integrity checks, equipment functional operation checks, and written system verification reports to provide a complete system that is ready for commissioning.

.2   Provide Performance Verification and commissioning assistance of all systems included in the Contract Documents.

2.5   Materials

.1   Cables and bus support systems, which are intended to enclose or support all forms of electrical conductors used for any purpose covered by this scope. This includes cable trays, raceways and all forms of rigid, flexible, metallic and non-metallic conduit, and including conduit for communication systems.

.2   Control panels associated with any electrical equipment covered under this Section of Work.

.3   Circuit breakers of all types and for all applications associated with electrical equipment, which receives its power supply from the main, auxiliary or emergency (including UPS) system.

.4   Grounding systems, as required by the Canadian Electrical Code, or as otherwise specified.

.5   Fibre optic patch panels and industrial Ethernet switches as shown on the Drawings and specified herein.

.6   Electronic data processing and transmission systems, including auxiliary equipment, interfaces and components.

END OF SECTION