PART 1 - GENERAL

1.01 SUMMARY
A. This specification describes the mechanical and electrical requirements for a transient voltage surge suppressor herein known and shown on all drawings as TVSS. The TVSS shall be suitable for application in category C3 environments as described in ANSI/IEEE C62.41. The TVSS shall be parallel design and provide protection: Line to Line, Line to Neutral, Neutral to Ground. “Series” type TVSS units will be deemed unacceptable.

1.2 SUBMITTALS
A. The contractor shall submit all related TVSS specifications, electrical and mechanical drawings, maintenance manuals, and UL 1449 surge suppression ratings, as well as Independent tests performed on the TVSS that show that the TVSS being submitted is capable of controlling >104kA 8/20 surge current.

1.3 QUALITY ASSURANCE
A. Only pre-approved TVSS products shall be accepted.
B. Manufacturer Qualifications: All TVSS units shall be manufactured by a firm that has manufactured TVSS products, for at least 10 years. Firms must also regularly engage in the manufacturing of TVSS products for Categories B3 (ANSI/IEEE 62.41) and C3.
C. Codes and Standards
   1. UL compliance and Labeling: Listed per UL 1449 3rd Edition.
   3. NEC compliance: Comply with 2008 NEC as applicable to construction and Article 280 for installation.
   4. The TVSS shall be capable of surviving 2,500 sequential category B3 and C3 surges without failure. Follow IEEE test procedures in C62.45.
   5. The TVSS shall be warranted for no less than 10 years and shall include free replacement in whole or in part during that 10 years for any reason of failure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. Manufacturers: Subject to compliances with requirements, provide pre-approved product by the following:
   1. Atlantic Scientific Corporation
   2. Approved Equal.

2.2 TVSS EQUIPMENT
A. Service Entrance Suppressor:
   1. The surge protection device shall be connected to a 50A overcurrent device installed in the service entrance electrical equipment with leads as short as possible and not to exceed 18 inches (ideally 10 inches).
   2. The surge protection devices shall be Atlantic Scientific Corporation Model ZoneMaster Plus 150 Series (Part # 1810(4)XCA) or approved equal and must include the following ratings and accessories:
      a. 150kA 8/20 per phase surge suppression capability.
b. Unit shall be of modular design consisting of bolt on modules (plug in type will be unacceptable) utilizing large block 40mm MOVs. The use of multiple 20mm MOV’s in parallel will not be acceptable.
d. A 200,000 AIC Ultra-safe fused disconnect.
f. UL Listed 1283 Extended Power Range Filter.
g. Multi Mode Surge counter that monitors surge current NOT voltage. Multi Mode surge counter must be able to monitor total normal mode surges, common mode, or surge currents on each individual phase.
h. Normally Open / Normally Closed Form C Dry Contacts.
i. Unit shall have “High Voltage” Neutral to Ground Module with Red LED indicator.
j. Unit shall have BOTH mechanical indicator flags and green LED indicators to show status of protection for each module.
k. All plastics shall be UL 94-5V flame class rated.
l. Housing shall be UL listed and CSA Certified.

3. Standard unit housings shall be non-metallic and meet NEMA 1, 2, 3, 3S, 4, 4X, 12 and 13 classifications.
4. Standard unit housings shall have a transparent front cover for complete visual inspection and monitoring the status of protection for each module, and onboard diagnostics, module configuration, and wiring configuration.
5. Standard unit warranty must be for at least 10 years and be stated in the manufacturer’s literature.

PART 3 – EXECUTION

3.1 APPLICATION OF TVSS

A. General: Apply TVSS on the load side of the main disconnect at the electrical service entrance switchboard.

B. Coordinate system voltage, wiring configuration, and location as shown on project drawings.

3.2 INSTALLATION OF TVSS

A. Install the TVSS with # 8 AWG conductors from the main service panel. The conductors are to be as short and straight as practically possible and shall not exceed 18 inches in length. The TVSS shall be installed following the manufacturer’s recommended practices and in compliance with all applicable codes.

END OF SECTION