SECTION 16216

FLOAT SWITCH LEVEL DETECTORS

PART 1 GENERAL

1.01 SCOPE

A. The contractor shall furnish and install all float switches as shown on the drawings and as required for a complete and properly operating system.

1.02 REFERENCES

A. NFPA 70 –National Electrical Code, National Fire Protection Association, Latest Edition.
B. U.L. 508 A – Industrial Control Panels, Underwriters Laboratories, Inc., Latest Edition.

PART 2 PRODUCTS

2.01 FLOAT SWITCHES AND TRANSCEIVERS

A. The floats shall use fiber optic cable to transmit a beam of light from a transmitter in the control panel to the float where the beam makes and breaks depending on the tilt of the float. The receiver in the control panel shall detect the presence or absence of light and operate a relay in the receiver. The float shall have no electrical components or metallic wires that could cause arcs and sparks in an explosive atmosphere.

B. The float switch shall be mercury and lead free and shall be made of all safe, recyclable materials. The float switch housing shall be polypropylene. It shall be a simple robust device designed for many years of dependable service. The beam eclipser shall be stainless steel in an inert non-toxic dampening fluid that prevents chatter due to wave action. The viscosity of the fluid shall not change significantly over the range of –50 to +155F (-45 to +70C). The transceivers (transmitter and receiver combination) shall be dual din rail mounted units capable of connection to 2 floats. Provide one dual transceiver for every 2 floats. The fiber optic cable shall be custom made for the float and shall consist of dual plastic fibers with an overall specially blended PVC sheath for flexibility. No special tools or experience shall be required for connection of the optical cable to the transceivers. The cable shall be connected and sealed at the float housing using a double seal method that will prevent water from entering the float even if the outer sheath is damaged. The float color shall be two tone with the lighter color on the dome for easier viewing underwater when tilted up.

C. The transceivers shall operate in ambient temperatures of –15 to +130F (-25 to +55C). The transceivers shall operate at 12 VDC and shall be protected against accidental polarity reversal. The system shall operate in the visible and infrared light region with wavelengths between 400 and 1200 nm. The output relays in the receivers shall have the capability of being connected normally open or normally closed. The transceivers shall have a green led power-on light and red led lights on each channel indicating that the light beam is being received – float tilted up. The floats shall operate in liquid temperatures of +32 to +130F (0 to +55C). The floats shall have an ambient air standby operating temperature rating of –15 to +155C (-25 to +70C).

D. The float switches and transceivers shall be the Optical Float® level detection system by Cox Research and Technology, Inc., Baton Rouge, La. The dual transceivers shall be model TR2, and the floats shall be Opti-Float® model F1.

PART 3 EXECUTION

3.01 INSTALLATION

A. The contractor shall install the float switches and accessories in accordance with the manufacturers instructions and as shown on the drawings.

3.02 STORAGE

A. All equipment shall be stored in a weather protected location.

END OF SECTION