SECTION 11XXX

WET WELL ODOR CONTROL SYSTEM

# PART 1 - GENERAL

## Scope of Work:

### A. Furnish, deliver, and install a new and complete air ionization odor control systemintended for use on this project.

Systems shall include furnishing the necessary equipment and controls to provide an operating air ionization odor control system complete with supply air ionization unit including fan, fan controls, intake screen, cold plasma generators, safety switches and all other equipment and accessories as specified to provide a complete and functioning system.

It is the intent of these specifications that a single manufacturer/supplier, regularly engaged in the design, manufacture, assembly and production of air ionization odor control systems of the type specified, shall have complete responsibility for the final design, furnishing, coordination, assembly, and installation supervision of all components in the air ionization odor control systems.

The system shall be designed and fabricated in compliance with National Fire Protection Agency Code 820 and the Build America Buy America Act.

## SUbmittals:

### Submit complete odor control system drawings that show mounting details, equipment outlines, dimensions, motor electrical data, fan data, operating weights of all equipment and sufficient information to allow the Engineer/Owner to check clearances, connections, and conformance with the specifications. Submit Installation, Operation and Maintenance Manual.

### If requesting prior approval, provide reference list of at least five (5) separate installations in the United States of similar function to that of this specification. Installations provided must include as part of the scope of supply air handling equipment in addition to the ionization generators to demonstrate system responsibility. Non-US installations shall not be acceptable. Provide the following information for each installation:

1. Location
2. Application
3. Size and number of units
4. Start-up date
5. Facility contact name and phone number

### Provide manufacturer's catalog data, operating literature, specifications, and performance data for all components.

### Provide instrumentation, control, logic and power wiring diagrams in sufficient detail to allow installation of the instrumentation, controls, and electrical components.

### Provide materials of construction for all components.

## quality assurance:

### To ensure a satisfactory and integrated system, all products furnished under this section shall be furnished by a single manufacturer who has been regularly engaged in the design, fabrication and testing of cold plasma ion generation odor control systems of the size, materials and scope specified herein.

### Major components, including ion generators, fans, speed controllers and control panels, shall be manufactured in the United States, without exception. The ionization-based odor control system shall meet the Build America, Buy America Act.

### The Owner and Engineer reserve the right to be present at the fabricator’s facility for visual inspection of equipment to be supplied.

### The system shall be designed, furnished, and installed to achieve the conditions of service specified herein.

## SYSTEM PROCESS Description:

### A stainless steel inlet screen, fan, and ion generator are housed inside the respective Ionizing Makeup Air Unit (MAU). Ambient outside air (OA) is drawn into the MAU by the fan through the screen and past the ion generator. The ion generator transforms the oxygen present in the ambient air into positive and negative oxygen ions. These oxygen ions are sent through a duct system into the treated area where they interact with the odorous pollutants on a molecular level to neutralize odors. The process shall not consume any chemicals or water in its operation or require the disposal of spent media.

## 1.05 WARRANTY:

1. Supplier shall provide a one (1) year warranty for the Odor Control equipment, MAU, ion generators and fan. Supplier shall repair or replace, at its discretion, any piece of equipment that has failed or is not working according to the manufacturers’ performance criteria except for the ionization tubes, which are a required maintenance item. The warranty shall not cover removal or installation labor, failures due to electrical service abnormality, or damage outside normal wear and tear.

# PART 2 –product

* 1. MANUFACTURER:
		1. The manufacturer and provider of the air ionization odor control system for this project shall be Air+ ([www.air-plus.com](http://www.air-plus.com), (203) 883-6700). All other bidders must be pre-qualified at least fourteen (14) days in advance of the bid date.
		2. All components used in this equipment shall be supplied as specified in this part of the specification. These components shall be incorporated in the automatic operation of the air ionization odor control system as supplied by the air ionization odor control system manufacturer.
		3. The major equipment supplied by the air ionization odor control system manufacturer shall be as listed in the paragraphs below.
	2. AIR IONIZATION MAKEUP AIR UNIT (MAU):

### Scope of Work

#### The air ionization odor control system supplier shall furnish an air ionization makeup air unit (MAU) to supply highly ionized air into the wet well. The MAU shall be comprised of a weatherproof stainless steel cabinet with access door, intake air filter/screen, fan, speed controller, ion generator, status indicating LEDs, safety switches, etc to provide a complete and functioning unit.

#### The MAU will be ducted to the wet well/lift station per plans incorporated as part of the design documents.

1. MAU Construction

#### Weatherproof NEMA 4X, 304 Stainless steel, 48” (H) x 24” (W) x 13” (D) enclosure including an inner NEMA 4X FRP subpanel with slotted quarter turn latches to house electrical components. Unit will be capable of operating with direct exposure to the elements with no degradation in performance including ambient air temperatures up to 104 degrees F. In applications below 32 degrees F, an internal heater and thermostat shall be provided.

### Intake Screen

#### Stainless Steel fine mesh inlet screen shall be provided. Screen frame shall be 20 Ga 304 stainless and the screen shall be 316 stainless 18-18 mesh, 0.009 diameter wire.

### Fan

#### One (1) direct drive supply fan with variable speed controller.

#### The fan shall be selected to deliver 450 CFM at 0.5” TSP.

#### Fan motor is to be fractional horsepower, 120V, 1 Phase, 60 Hz with ball bearings and thermal protection.

1. Ion Generators

#### One (1) Air+ Model 501F unit shall be provided including on/off switch, ionization control knob, 9-pin low voltage communication port, status LEDs, and outer fuse housing.

#### Ionizer enclosure shall be 22 gauge steel, powder coated.

#### Ionization Tubes: Glass with stainless steel mesh outer, five (5) F-type, 21” (L) tubes per unit. MCC or plastic tubes will not be accepted.

#### System shall provide between 2,000 and 2,500 positive and negative ions per cubic centimeter in the areas served under odor-free conditions.

#### Electrical

#### a. Field electrical connection: Removable power fitting, connected to MAU ion generator power junction box via flexible cable.

#### b. Low voltage monitoring: Dry contact relay output, rated up to 10 Amps at 230 VAC.

#### c. Internal fuse: 1.0 Amp.

#### d. 120 VAC, 60 Hertz, single phase.

### Safety Switches

#### MAU access door kill switch shall be provided to interrupt power to ionizer when access door is open.

#### Ionizer delay timer to evacuate MAU in case of explosive gas buildup.

1. System Legs – OPTIONAL
2. 304 stainless steel legs shall be provided. Legs shall span width of the cabinet, allow airflow to the inlet screen, and be able to be bolted down into a supporting surface.
3. Discharge Shut-off Damper
4. An 8” Dia Ruskin 304 stainless steel discharge damper shall be provided. Damper shall come complete with a NEMA 4 actuator designed for power open and spring closed on the loss of power. Damper blade shall be gasketed for leak-free seal. Damper to be installed by contractor in contractor-supplied ductwork and wired to the odor control unit.
5. Spare Parts

#### 1. The following spare parts shall be provided by the MAU supplier:

#### a. (5) F-type ionization tubes

#### b. (20) ion generator fuses

#### c. (1) ion generator transformer

#### d. (1) ion generator test cable

e. (1) filter/screen

* 1. DUCTWORK:

### Ductwork to be stainless steel or PVC and sized for a maximum of 1/4” ESP including damper. Ductwork shall not be reduced to smaller diameter than what is shown on plans. All ductwork and supports to be provided by contractor.

# PART 3 - execution

## INSTALLATION:

### Install equipment in accordance with manufacturer’s instructions and per the drawings.

### Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting installation.

### Examine piping, ducts, and electrical systems to verify actual location of connections.

### Proceed with installation only after unsatisfactory conditions have been corrected.

### E. Install ductwork per specifications in this Section and on drawings.

## OPERATION AND MAINTENANCE MANUAL:

### One (1) paper copy and one electronic copy of the Operation & Maintenance Manuals shall be furnished during start-up.

### These manuals shall include maintenance instructions for all equipment provided.

### Operation & Maintenance Manual shall include a Functional Design Specification (description of control logic) and Operational Description (description of process).

## FIELD SERVICES, START-UP AND TRAINING:

### A qualified representative from the manufacturer shall be available to inspect the installation of the air odor control system to ensure installation is in accordance with manufacturer’s recommendation.

### END OF SECTION