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USACE / NAVFAC / AFCEA UFGS-11314 (August 2004)  
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Preparing Activity: USACE Superseding  
20048) UFGS-11312A (March

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 22 December 2004

Latest change indicated by CHG tags

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### SECTION 11314

#### SIPHONS, DOSING 08/04

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NOTE: This guide specification covers the requirements for automatic dosing siphons for sewage.

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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## PART 1 GENERAL

### 1.1 REFERENCES

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NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.

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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C110	(1998) Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. (76 mm through 1219 mm), for Water
AWWA C111	(2000) Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C151	(2002) Ductile-Iron Pipe, Centrifugally Cast, for Water

ASME INTERNATIONAL (ASME)

ASME B16.3	(1998) Malleable Iron Threaded Fittings
ASME B16.39	(1998) Malleable Iron Threaded Pipe Unions

ASTM INTERNATIONAL (ASTM)

ASTM A 48/A 48M	(2003) Gray Iron Castings
ASTM D 3034	(2004) Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D 3350	(2002a) Polyethylene Plastics Pipe and Fittings Materials

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-80	(2003) Bronze Gate, Globe, Angle and Check Valves
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1.2 SYSTEM DESCRIPTION

The dosing siphon shall be a [deep seal] [trapless] type suitable for the service required, shall be completely automatic in operation, shall start promptly when the sewage has reached the predetermined high water level, and shall shutoff positively at the low water level. Starting, stopping, and alternating operations shall be accomplished without the use of electrical or mechanical devices having moving parts. Capacities of equipment and materials shall be not less than those specified or indicated. Each siphon bell shall have the manufacturer's name, address, and catalog or model number on a plate securely in a conspicuous place. In lieu of nameplate, the manufacturer's name or trademark may be cast integrally with the equipment, or standard, or otherwise permanently marked.

1.3 SUBMITTALS

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**NOTE:** Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some

submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

Approved Detail Drawings[; G][; G, [\_\_\_\_\_]]

Complete drawings and other descriptive data as the Contracting Officer may require to demonstrate compliance with the contract documents, not less than [\_\_\_\_\_] days before starting installation of any material or equipment. Drawings shall be submitted at one time. If departure from the contract drawings is deemed necessary by the Contractor details of such departure, including changes in related portions of the project and the reasons therefor, shall be submitted with the drawings. Approved departures shall be made at no additional cost to the Government.

#### SD-03 Product Data

Dosing Siphon System

Data including catalog numbers, cuts, and other descriptive data required to assure compliance with the specifications. A complete list in triplicate of material and equipment to be incorporated in the work, within [\_\_\_\_\_] working days of receipt of notice to proceed, and before starting installation of any material or equipment. A complete list in triplicate of parts and supplies for each different item of equipment listed, with current unit prices and sources of supply, a list of parts and supplies that

are either normally furnished at no extra cost with the purchase of the equipment or are specified to be furnished as a part of the contract, and a list of additional items recommended by the manufacturer to assure efficient operation for a period of 120 days, not later than four months prior to the date of beneficial use.

## PART 2 PRODUCTS

### 2.1 MATERIAL AND EQUIPMENT

Material and equipment shall conform to the publications and other requirements specified below. Other material and equipment shall be as specified and as shown on the approved detail drawings, and shall be the products of manufacturers regularly engaged in the manufacture of such products. Material and equipment shall essentially duplicate items that have been in satisfactory use at least 2 years prior to bid opening.

#### 2.1.1 Pipe

##### 2.1.1.1 Ductile Iron Pipe

AWWA C151, [\_\_\_\_\_] kPa psi working pressure.

##### 2.1.1.2 Polyvinyl Chloride (PVC) Pipe

ASTM D 3034.

##### 2.1.1.3 Polyethylene Pipe

ASTM D 3350.

#### 2.1.2 Pipe Fittings

##### 2.1.2.1 Ductile Iron Fittings

AWWA C110 and AWWA C111 [\_\_\_\_\_] kPa psi working pressure.

##### 2.1.2.2 Polyvinyl Chloride (PVC) Fittings

ASTM D 3034.

##### 2.1.2.3 Polyethylene Fittings

ASTM D 3350.

##### 2.1.2.4 Malleable-Iron Fittings

ASME B16.3.

##### 2.1.2.5 Malleable-Iron Unions

ASME B16.39.

#### 2.1.3 Siphon Bells, Inlet Castings, and Similar Equipment

##### 2.1.3.1 Cast Iron

ASTM A 48/A 48M, Class [\_\_\_\_\_] .

#### 2.1.3.2 Polyvinyl Chloride (PVC)

ASTM D 3034.

#### 2.1.3.3 Polyethylene

ASTM D 3350.

#### 2.1.4 Valves

Bronze, MSS SP-80, Type [\_\_\_\_].

### PART 3 EXECUTION

#### 3.1 WORKMANSHIP

The Dosing Siphon System shall be installed in accordance with the recommendations of the manufacturer as approved. The installation shall be made by workers experienced in the installation of this type of equipment.

#### 3.2 SIPHONS

Siphon bells, air bells, inlet castings, and similar equipment shall be cast iron, polyvinyl chloride (PVC) or polyethylene. Siphon bells shall be provided with suitable connections for the air-control piping and the sniff pipe shall be mounted over the [\_\_\_\_] mm inch diameter feed pipe. Each siphon shall be capable of discharging at a maximum rate of flow of [\_\_\_\_] L/second gpm while operating under a drawing depth of [\_\_\_\_] mm inches, and under the head conditions as indicated on the drawings. The average rate of inflow shall be [\_\_\_\_] L/second gpm and the minimum 4-hour average rate shall be [\_\_\_\_] L/second gpm. [Each siphon shall be provided with a seal trap in the discharge pipe of such depth that an effective seal against blowing shall be maintained at all times.] [Each siphon shall discharge into an airtight piping system having a discharge point about the lowest point in the connecting pipe to form an effective seal.] [Siphons for alternating operation from a common chamber shall be provided with auxiliary equipment necessary for alteration in a predetermined sequence. The air piping shall be arranged and valved to permit removal of any number of the siphons from service without disturbing the alternating operation of the remaining siphons.] [Equipment for twin dosing tanks shall include air bells, air-locking inflow connection, and all similar equipment that may be necessary to alternate the inflow from one tank to the other and to prevent flow into the tank while the siphon in the tank is discharging.]

#### 3.3 PIPING

The overflow pipe, feed pipe, air control and sniff pipe may be cast iron, polyvinyl chloride (PVC), or polyethylene. Cast iron pipes shall be installed with malleable-iron fittings and bronze valves. Cast iron pipe shall be installed with sufficient malleable-iron unions to facilitate maintenance or removal, and shall be assembled using a stiff mixture of graphite and oil, or an inert filler and oil, or an approved graphite compound, applied with a brush to the male threads only.

#### 3.4 PAINTING

The equipment shall be thoroughly cleaned, primed, and given finish painting at the factory in accordance with the recommendations of the

manufacturer. Field painting is specified in Section 09900 PAINTS AND COATINGS.

-- End of Section --