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USACE / NAVFAC / AFCEA / NASA UFGS-33 34 13 (April 2008)  
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Preparing Activity: USACE Superseding  
UFGS-33 34 13 (April 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMLR dated April 2009

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SECTION TABLE OF CONTENTS

DIVISION 33 - UTILITIES

SECTION 33 34 13

SIPHONS, DOSING

04/08

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SYSTEM DESCRIPTION
- 1.3 SUBMITTALS

PART 2 PRODUCTS

- 2.1 MATERIAL AND EQUIPMENT
  - 2.1.1 Pipe
    - 2.1.1.1 Ductile Iron Pipe
    - 2.1.1.2 Polyvinyl Chloride (PVC) Pipe
    - 2.1.1.3 Polyethylene Pipe
  - 2.1.2 Pipe Fittings
    - 2.1.2.1 Ductile Iron Fittings
    - 2.1.2.2 Polyvinyl Chloride (PVC) Fittings
    - 2.1.2.3 Polyethylene Fittings
    - 2.1.2.4 Malleable-Iron Fittings
    - 2.1.2.5 Malleable-Iron Unions
  - 2.1.3 Siphon Bells, Inlet Castings, and Similar Equipment
    - 2.1.3.1 Cast Iron
    - 2.1.3.2 Polyvinyl Chloride (PVC)
    - 2.1.3.3 Polyethylene
  - 2.1.4 Valves

PART 3 EXECUTION

- 3.1 INSTALLATION
- 3.2 SIPHONS
- 3.3 PIPING
- 3.4 PAINTING

-- End of Section Table of Contents --

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SECTION 33 34 13

SIPHONS, DOSING  
04/08

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

Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

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).

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PART 1 GENERAL

1.1 REFERENCES

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**NOTE:** This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

**References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.**

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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/A21.10 (2008) Ductile-Iron and Gray-Iron Fittings for Water
- AWWA C111/A21.11 (2000) Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- AWWA C151/A21.51 (2002; Errata 2002) Ductile-Iron Pipe, Centrifugally Cast, for Water

ASME INTERNATIONAL (ASME)

- ASME B16.3 (2006) Malleable Iron Threaded Fittings, Classes 150 and 300
- ASME B16.39 (1998; R 2006) Standard for Malleable Iron Threaded Pipe Unions; Classes 150, 250, and 300

ASTM INTERNATIONAL (ASTM)

- ASTM A 48/A 48M (2003; R 2008) Standard Specification for Gray Iron Castings
- ASTM D 3034 (2008) Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
- ASTM D 3350 (2008) Polyethylene Plastics Pipe and Fittings Materials

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

- MSS SP-80 (2008) Bronze Gate, Globe, Angle and Check Valves

1.2 SYSTEM DESCRIPTION

The dosing siphon shall be a [deep seal] [trapless] type suitable for the service required, completely automatic in operation, starting promptly when the sewage has reached the predetermined high water level, and shutting off positively at the low water level. Accomplish the starting, stopping, and alternating operations 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: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.**

**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, Air Force, and NASA projects.**

**Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army 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.][information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 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, 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

Provide materials and equipment conforming 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/A21.51](#), [\_\_\_\_\_] 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/A21.10](#) and [AWWA C111/A21.11](#) [\_\_\_\_\_] 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 INSTALLATION

Install the [Dosing Siphon System](#) 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 09 90 00 PAINTS AND COATINGS.

-- End of Section --