STANDARD SPECIFICATION
SECTION 15092 COMBINATION AIR VALVE ASSEMBLIES

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes materials, installation, and testing of combination air valve assemblies, 3 inches and smaller. Assemblies shall be of the size and installed at the locations as shown on the Drawings or as established in the field by the District's Representative. For assemblies 4 inches and larger, a special design will be required.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Standard Drawings.

B. Record Drawings and Submittals: STD SPEC 01300.

C. Trenching, Backfilling, and Compacting: STD SPEC 02223.

D. General Concrete Construction: STD SPEC 03000.

E. Miscellaneous Metalwork: STD SPEC 05121.

F. Painting and Coating: STD SPEC 09900.

G. Cold Applied Wax Tape Coating: STD SPEC 09952.

H. Polyethylene Sheet or Tube Encasement: STD SPEC 09954.

I. Corrosion Control for Buried Piping: STD SPEC 13110.

J. Steel Transmission Pipe: STD SPEC 15061.

K. Miscellaneous Piping Specialties: STD SPEC 15080.

L. Resilient Seated Gate Valves: STD SPEC 15101.

M. Combination Air Release and Vacuum Valves: STD SPEC 15108.

N. Disinfection of Piping: STD SPEC 15141.

O. Pressure Testing of Piping: STD SPEC 15144.

P. Copper Pipe and Tube: STD SPEC 15220.

Q. Ductile Iron Pipe: STD SPEC 15240.

R. Steel Pipe for Minor Applications: STD SPEC 15253.

S. Polyvinyl Chloride (PVC) Pressure Pipe (AWWA C900): STD SPEC 15292.

T. Polyvinyl Chloride (PVC) Distribution Pipe (AWWA C905): STD SPEC 15293.

1.03 SUBMITTALS

A. Submit submittal packages in accordance with Standard Specification Section 01300.

B. Submit manufacturer's catalog data, descriptive literature, and assembly drawings. Show dimensions, materials of construction by specification reference and grade, linings and coatings.

1.04 MASONRY RETAINING WALLS

If the aboveground portion of the assembly is located within a cut slope or embankment fill, a masonry retaining wall shall be constructed on three sides around the assembly. Construct the concrete foundation and retaining wall similar to the requirements that San Diego Gas and Electric uses for their facilities. The face of wall shall be a minimum of one foot beyond the dimensional values of the concrete pad to be poured for the assembly as shown on the Standard Drawings. Use tan colored slump block and grout each cell solid. The concrete pad to be poured around the assembly shall extend to the face of the three walls and also to the adjacent sidewalk or curb. The District's Representative will decide whether the requirements of this paragraph are being followed by the Contractor. If in the opinion of the District's Representative modifications or changes are necessary, the work shall be performed as directed.

PART 2 - MATERIALS

2.01 SERVICE SADDLES - BRONZE

See Standard Specification Sections 15240, 15292 or 15293 as indicated by the pipeline material shown on the Drawings. Use service saddles for outlets on ductile iron and PVC pressure pipe installations with working pressures of 200 psi or less. Use service saddles for outlets on PVC distribution pipe installations with working pressures of 150 psi or less.

2.02 WELD ON OUTLETS - STEEL

See Standard Specification Section 15061.

2.03 FLANGED OUTLETS

A. See Standard Specification Section 15240. Use Class 300 flanged outlets for the 1-inch and 2-inch combination air valve assemblies on ductile iron pipe installations with working pressures greater than 200 psi, but less than 300 psi. Install a Class 300 cast bronze reducing flange with iron pipe threads and insulating flange kit on the flanged outlet.

B. See Standard Specification Section 15061. Use Class 300 flanged outlets for the 1-inch and 2-inch combination air valve assemblies on steel pipe installations with working pressures greater than 200 psi, but less than 300 psi. Install a Class 300 cast bonze reducing flange with iron pipe threads and insulating flange kit on the flanged outlet.

C. See Standard Specification Sections 15061, 15240, 15292, or 15293 as indicated by the pipeline material shown on the Drawings. Use flanged outlets for the 3-inch combination air

valve assemblies. Use Class 150 flanges for working pressures of 250 psi or less. Use Class 300 flanges for working pressures greater than 250 psi, but less than 300 psi. Install a ductile iron quarter bend with matching flanges to the outlet.

2.04 INSULATING COUPLINGS

See Standard Specification Section 15080. Use insulating couplings on installations wherever dissimilar metals are connected. Use insulating couplings with 1-inch and 2-inch service saddles on ductile iron pipe installations with working pressures of 200 psi or less. Use insulating couplings with 1-inch and 2-inch steel weld on outlets with working pressures of 200 psi or less. Install the insulating coupling to the service saddle with a close brass nipple. Install the insulating coupling to the steel weld on outlet with a close nipple of Type 316 stainless steel.

2.05 CORPORATION STOPS - BRONZE

See Standard Specification Section 15080. Use corporation stops on installations with working pressures of 300 psi or less.

2.06 RESILIENT SEATED GATE VALVES

See Standard Specification Section 15101. Use flanged resilient seated gate valves for the 3-inch combination air valve assemblies with working pressures of 225 psi or less.

2.07 BALL VALVES

Use flanged ball valves for the 3-inch combination air valve assemblies with working pressures greater than 225 psi.

2.08 INSULATING FLANGE KITS

See Standard Specification Section 13110. Use insulating flange kits on installations wherever ferrous and non-ferrous flanges are connected and will be buried.

2.09 COPPER WATER TUBE AND FITTINGS

See Standard Specification Section 15220.

2.10 STEEL PIPE FOR MINOR APPLICATIONS

See Standard Specification Section 15253.

2.11 BALL VALVES - BRONZE

A. See Standard Specification Section 15080. Use threaded ball valves with handles for the 1-inch and 2-inch combination air valve assemblies installed aboveground with working pressures of 300 psi or less. Valve inlets shall have a fitting to adapt from iron pipe threads to copper. Use solder joint fittings for working pressures from zero to 300 psi.

2.12 COMBINATION AIR RELEASE AND VACUUM VALVES

See Standard Specification Section 15108.

2.13 AIR VALVE ENCLOSURES

A. Use air valve enclosures that are manufactured from 3/16-inch thick polyethylene material with ultraviolet (UV) inhibitors. Enclosures shall be a two piece assembly consisting of a bolt down base with a removable cover. Cover shall lock to base with an integral auto-latch and padlock hasp. Enclosure cover shall have vent slots equally spaced on the circumference near the top. Vent slots shall be covered on the inside with stainless steel insect screens. Color of enclosures shall be Sandstone. Provide a colored band all around the enclosures in the area of the vent slots for identification purposes. Use OSHA blue for potable water and purple for recycled water installations.

B. For 1-inch and 2-inch assemblies, use Advantage Series Air and Vacuum Valve Enclosure Part Number VCAS-1824-SM as distributed by Pipeline Products or District approved equal.

C. For 3-inch assemblies, use Advantage Series Air and Vacuum Valve Enclosure Part Number VCAS-1830-SM as distributed by Pipeline Products or District approved equal.

2.14 WAX TAPE COATING

See Standard Specification Section 09952.

2.15 POLYETHYLENE ENCASEMENT

See Standard Specification Section 09954.

2.16 CORROSION CONTROL COMPONENTS

See Standard Specification Section 13110.

2.17 GUARD POSTS

See Standard Specification Section 05121. Provide two guard posts for each air valve enclosure except where enclosure is located adjacent to a paved street with concrete curbs.

2.18 POLYVINYL CHLORIDE (PVC) CONDUIT

Use rigid non-metallic PVC, schedule 40, 90 degrees C rise rating, conduit conforming to NEMA TC-2 and UL-651.

PART 3 - EXECUTION

3.01 INSTALLATION

A. See Standard Specification Section 02223 for earthwork requirements. Use imported sand in the pipe base and pipe zone.

B. Install piping and valves per the instructions contained in the appropriate Standard Specification for the material used.

C. Piping from the main to the combination air release and vacuum valve shall be placed on a continuous upward grade to avoid pocketing air.

3.02 INSTALLING INSULATING COUPLINGS

Install insulating couplings where dissimilar metals are to be joined. Apply Teflon tape to the outside threads of the close brass or stainless steel nipple before installing the threaded nipple into the coupling and service saddle or weld on outlet. Joints shall be watertight.

3.03 INSTALLING WAX TAPE COATING

Wrap insulating couplings where installed on ductile iron pipe, steel weld on outlets, and flanged outlets having insulating flange kits with wax tape coating per Standard Specification Section 09952.

3.04 INSTALLING POLYETHYLENE ENCASEMENT

Where a service saddle, steel weld on outlet, or flanged outlet is used at the main, the entire saddle or fitting with corporation stop or valve shall be double wrapped per Standard Specification Section 09954.

3.05 INSTALLING CORROSION CONTROL COMPONENTS

Install insulating flange kits, zinc anodes, and pipe clamps with wax tape coating per Standard Specification Section 13110.

3.06 INSTALLING AIR VALVE ENCLOSURES

Locate enclosure as shown on the Drawings or as directed by the District's Representative. Place and compact trench backfill. Pour a concrete pad around the riser pipe and air valve for the air valve enclosure. Concrete shall be Class C per Standard Specification Section 03000. Set enclosure base over air valve and center in place. Use drilled in stainless steel anchors with stainless steel fender washers to attach the enclosure base to the concrete pad. Set enclosure cover over base for a complete installation.

3.07 SETTING GUARD POSTS

Position guard posts to protect the enclosure and assembly. Locate posts 2-1/2 feet to each side and 1-foot in front of the concrete pad. Excavate a hole 16 inches in diameter by 3-1/2 feet deep for each post. Set posts plumb, fill holes with concrete to 2 inches above finish grade, and crown to slope away from post. Posts shall be embedded a minimum of 3 feet in concrete. Fill posts with grout and crown top. Concrete shall be Class C per Standard Specification Section 03000.

3.08 PAINTING AND COATING

Paint aboveground surfaces of the guard posts per Standard Specification Section 09900, System No. 20. Color of finish coat shall be OSHA Yellow.

3.09 PRESSURE TESTING

Test combination air valve assemblies at the same time that the connecting pipelines are pressure tested. See Standard Specification Section 15144 for pressure testing requirements. Repair leaks in piping and retest.

3.10 DISINFECTION

See Standard Specification Section 15141 for chlorination requirements.

END OF SECTION