

**Attachment Q.3 –
Procedures for Pre-conditioning Piping and
Drinking Water Bubblers Heads**

To: Marc Walsh, Seattle Schools	
From: Greg Pierson and Glen Boyd, HDR	Project: Drinking Water Quality Program
CC: Ron English, Ed Heller, Seattle Schools	
Date: September 15, 2005	Job No: 27045

(supercedes previous memo of Sept. 9)

RE: Pre-conditioning Procedures for Bubbler Heads

Per our meeting of September 8, 2005, it was decided that SPS will fabricate and operate a bubbler head pre-conditioning rig at Wilson Pacific. The rig will allow several bubblers to be flushed simultaneously with tap water. The purpose of this memo is to establish the flushing and water quality testing procedures for pre-conditioning.

Flushing, Storage, and Installation

- 1. Give each bubbler head to be pre-conditioned an identification number.** Any method for ID numbering will work, provided that each bubbler has a distinct ID number so that the amount of flushing time and water testing results can be tracked. Put the ID number tag on each bubbler as it's mounted on the rig.
- 2. Do a high-rate flush for each individual bubbler.** After the bubblers are installed on the rig, flush each one individually for about 1 minute at a flow rate of about 2 gallons/minute. This will remove any small metal particles that may be present from the casting/machining process. While flushing, turn the handle On/Off several times to loosen any trapped particles.
- 3. Flush bubblers for not less than 24 hours.** After completing step 2, lock open the valve to every bubbler installed on the rig and allow water to flush through continuously. It's assumed that a flow rate of about 0.5 gallons/minute can be maintained through each bubbler. Flushing can be done in 8 to 12 hour increments to reach the total of at least 24 hours. Keep a simple log of the flushing time for each bubbler. When water is not flowing through the rig, it's ok if water drains out of the bubbler head.
- 4. Remove and store the bubblers.** After step 3 is complete, place the pre-conditioned bubblers in a clean, dry storage bucket or box to protect from contamination and dust. Contact with air for extended periods after flushing is not detrimental for the possibility of lead leaching – air contact will actually help the pre-conditioning process (but not nearly as much as contact with water).
- 5. Installation.** After installation of a pre-conditioned bubbler head at a school, flush the bubbler for at least 5 minutes to remove any dust or other particles from the end-use plumbing. The bubbler is then ready for confirmation sampling.

Testing

Testing for water quality will be done for the first 18 bubblers that are pre-conditioned on the rig. Based on the results of this initial testing program, it will then be determined if modifications to the flushing procedures and/or more testing is needed. All samples to be analyzed by North Creek Analytical.

- 1. Tap (feed) water quality.** Once per day while flushing of bubblers is on-going, collect a 1 L sample of the tap water entering the rig manifold. The sample will be a "flushed" sample, i.e., collect while water is flowing through the rig. Analyze the sample for lead.

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2. **Bubbler discharge water quality.** Collect 2 sets of samples from each bubbler being pre-conditioned over the 24-hour period: 1) prior to startup of flow through the rig, after at least 12 hours of water standing stagnant in each bubbler head; and 2) after the end of 24 hours of flushing after at least 12 hours of standing stagnant. Analyze all samples for lead.

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