

SECTION 923 WATER FOR CONCRETE

923-1 General Requirements.

Water for use with cement shall be clear and free from injurious amounts of oil, acid, alkali, chlorides, organic matter, and other deleterious substances. It shall not be salty or brackish. If it contains quantities of substances which discolor it or make it smell or taste unusual or objectionable or cause suspicion, it shall not be used unless service records of concrete made with it indicates that it is not injurious to the quality of the concrete or approved by the Engineer. Wash water from mixer washout operations, (stored in a lined settling pond), and recycled wash water may be used only to sprinkle the coarse aggregate stockpiles and for use in the batching of Class I (Nonstructural) Concrete. Samples arriving at the laboratory shall be allowed 14 days for completion of tests. The frequency of testing, by the Department, of approved sources will be as outlined in the Sampling, Testing and Reporting Guide. At the discretion of the Engineer, the Department may require additional compliance testing at any time, of any water source.

923-2 Evaluation of Water for Concrete.

923-2.1 General: Water from city water supplies that are approved by a public health department may be accepted without testing. Wash water from mixer washout and recycled wash water shall meet the requirements of 923-3.2. and 923-4. All other sources of water shall meet the requirements 923-3.3 and 923-4. The concrete producer shall provide test data of water samples.

923-2.2 Source Approval: Wash water from mixer washout operations and recycled wash water shall be tested once per week for four weeks initially, and thereafter once per month for four months prior to its use, provided that the results of the test samples comply with all the applicable limits. All other sources shall test one sample initially.

923-2.3 Source Sampling: Open bodies of water and recycled water shall be tested monthly. Well and other sources of water will be tested once every three months. If the last eight consecutive well water samples meet the requirements, then the sample frequency may be reduced to one sample every six months, as approved by the Engineer. If a well water sample fails once the frequency has been changed, then the sampling frequency shall revert back to once every three months.

923-3 Chemical Requirements.

923-3.1 Testing: All chemical analysis or test shall be performed in accordance with AASHTO T 26 or Standard Methods for the Examination of Water and Wastewater.

923-3.2 Reclaimed Water: Water from mixer washout and recycled wash water shall be tested and approved before use and shall not exceed the following allowable limits:

Chemical Test	Maximum (%)
Equivalent Alkalis as (Na ₂ O + 0.658 K ₂ O)	0.06
Total Solids	5.00
Total Chlorides as Sodium Chloride	0.05
Sulfate as SO ₄	0.30

923-3.3 All Other Sources: Water from all sources, other than public health approved sources, shall be tested and approved before use and shall not exceed the following allowable limits:

Chemical Test	Maximum (%)
Acidity or alkalinity calculated in terms of calcium carbonate	0.05
Total organic solids	0.05
Total inorganic solids	0.08
Total chlorides as sodium chloride	0.05

923-4 Physical Requirements for Mortar.

Mortar shall be tested in accordance with AASHTO T 106 with the following exception: the mortar shall not be tested for flow. The mortar, composed of the sampled water, shall have a compressive strength of not less than 90% when compared to a mortar prepared using distilled water and tested at seven days.

Water of a questionable quality, as determined by the Engineer, shall be subject to the acceptance criteria for time of set as required by AASHTO M 157, Table 1.