METHOD #: 220.2	Approved for NPDES (Issued 1978)
TITLE:	Copper (AA, Furnace Technique)
ANALYTE:	CAS # Cu Copper 7440-50-8
INSTRUMENTATION:	АА
STORET No.	01042 Dissolved 01040 Suspended 01041
Optimum Concentration Range: Detection Limit:	5-100 μg/L 1 μg/L

- 1.0 Preparation of Standard Solution
  - 1.1 Stock solution: Prepare as described under "direct aspiration method".
  - 1.2 Prepare dilutions of the stock solution to be used as calibration standards at the time of analysis. These solutions are also to be used for "standard additions".
  - 1.3 The calibration standard should be diluted to contain 0.5% (v/v)  $HNO_3$ .
- 2.0 Sample Preservation
  - 2.1 For sample handling and preservation, see part 4.1 of the Atomic Absorption Methods section of this manual.
- 3.0 Sample Preparation
  - 3.1 Prepare as described under "direct aspiration method". Sample solutions for analysis should contain 0. 5 5'0 (v/v) HNO<sub>3</sub>.
- 4.0 Instrument Parameters (General)
  - 4.1 Drying Time and Temp: 30 sec-125°C.
  - 4.2 Ashing Time and Temp: 30 sec-900°C.
  - 4.3 Atomizing Time and Temp: 10 sec-2700°C.
  - 4.4 Purge Gas Atmosphere: Argon
  - 4.5 Wavelength: 324.7 nm
  - 4.6 Other operating parameters should be set as specified by the particular instrument manufacturer.
- 5.0 Analysis Procedure
  - 5.1 For the analysis procedure and the calculation, see "Furnace Procedure" part 9.3 of the Atomic Absorption Methods section of this manual.

## 6.0 Notes

- 6.1 The above concentration values and instrument conditions are for a Perkin-Elmer HGA- 2100, based on the use of a 20 uL injection, continuous flow purge gas and non-pyrolytic graphite. Smaller size furnace devices or those employing faster rates of atomization can be operated using lower atomization temperatures for shorter time periods than the above recommended settings.
- 6.2 Background correction may be required if the sample contains high dissolved solids.
- 6.3 Nitrogen may also be used as the purge gas.
- 6.4 For every sample matrix analyzed, verification is necessary to determine that method of standard addition is not required (see part 5.2.1 of the Atomic Absorption Methods section of this manual).
- 6.5 If method of standard addition is required, follow the procedure given earlier in part 8.5 of the Atomic Absorption Methods section of this manual.
- 6.6 Data to be entered into STORET must be reported as  $\mu g/L$ .
- 7.0 Precision and Accuracy
  - 7.1 Precision and accuracy data are not available at this time.