

Approved By A.S. Parton	Vogtle Electric Generating Plant 	Procedure Number 32430-C	Rev 2
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Reference Use Procedure

1.0 PURPOSE

This procedure provides instructions for determination of total and soluble zinc in water by atomic absorption. This method can be applied to zinc analysis of the Circulating Water (CW) System.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 NPDES limits for discharge of circulating water for total zinc <1.0 ppm. If total zinc is greater than 0.95 ppm, notify Chemistry Supervision for corrections in zinc addition rate. If total zinc is greater than or equal to 1.0 ppm, notify Chemistry Supervision and Operations to cease Circulating Water Basin blowdown.

2.2 The range of total and soluble zinc will be 0.1 ppm to 1.0 ppm with a minimum sensitivity of 0.1 ppm zinc.

2.3 The digestion step is not a rigorous digestion, and hence, this method is not approved as as official method for NPDES purposes.

3.0 MATERIALS

3.1 Hitachi Z8000 and associated equipment

3.2 FLASKS

3.2.1 Erlenmeyer

3.2.2 Volumetric

3.3 GRADUATED CYLINDER

3.4 0.45 MICRON FILTER MEDIA

3.5 REAGENTS

3.5.1 Zinc Digesting Reagent

Approximately 1N H₂SO₄ pipet 2 mls of concentrated H₂SO₄ in a 1 l volumetric flask and fill to the mark with reagent water. Shelf life of 5 years.

3.5.2 1000 ppm Zinc Standard - Certified

This standard is normally purchased from qualified vendor.

4.0 TEST STAND QUALITY CONTROL

4.1 CALIBRATION

Calibration of this test stand should be performed at the frequency prescribed in Procedure 31005-C.

4.1.1 Refer to Procedure 32801-C for appropriate method for zinc determination. Complete attached Calibration Certificate.

5.0 SAMPLE PREPARATION AND ANALYSIS

5.1 TOTAL ZINC DETERMINATION

5.1.1 Pour 50 ml unfiltered water sample into an erlenmeyer flask.

5.1.2 Add about 2mls of "Zinc Digesting Reagent".

5.1.3 Stir for approximately 5 minutes.

5.1.4 Transfer the acidified sample to a graduate cylinder, dilute to 100 ml with reagent water and mix well.

5.1.5 Filter a minimum of 25 ml of the acidified, diluted sample through 0.45 micron filter media.

5.1.6 Analyze this dilute sample per Procedure 32801-C or as directed by Chemistry Supervision.

5.1.7 Correct for the dilution by multiplying the result by the dilution factor of 2.0, and report as total zinc.

NOTE

Lab Supervision may direct that the dilution ratio may be changed (see Step 5.1.1, 5.1.4, and 5.1.7) without changing this procedure. Use the appropriate dilution factor in these cases.

5.2 SOLUBLE ZINC DETERMINATION

5.2.1 Filter a minimum of 25 ml of the raw water sample through 0.45 micron filter media.

5.2.2 Analyze this filtered sample per applicable Chemistry procedures or as directed by Chemistry Supervision.

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5.2.3 Report analytical results as soluble zinc.

6.0 **REFERENCE**

6.1 Series 32000-C

6.2 Series 35000-C

6.3 36001-C

END OF PROCEDURE TEXT

