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HYDRAULICS DIVISION
TECHNICAL NOTE

DATE: April 1984 **REPORT NO:** ES84-12

TITLE: In Water Test Method for Transmittance Sensors at NWRI.

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REASON FOR REPORT: To prepare a method for in-water testing of transmittance sensors used at NWRI.

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CORRESPONDENCE FILE NO: 803 (Lake Surveillance)

1.0 INTRODUCTION

At the request of the transmittance sensor data analysis group, the author was asked to provide a method to verify transmittance sensor performance in water.

The method used is described in this note.

2.0 METHOD

A fiberglass container with inner dimensions 1.056 x 0.595 x 0.6 m mounted on a dolly was procured for these tests.

Ensure this container is clean and completely free of foreign material.

Fill the container to a level of 0.300 m with distilled water with a resistivity of approximately 1 MΩ-cm or greater and free from suspended material. This will provide a volume of approximately 190 L of water.

Weigh 100 mg ± 0.5 mg of Nigrosin dye. This may be weighed using an electronic balance of ±0.1 mg precision such as is available in either the GLFRB Wet Lab or the Hydraulics Division Geo-technical Lab. The permission of laboratory staff must be obtained before using.

Dissolve this material in the distilled water. Allow the solution to stand overnight for complete dissolution to occur. Gently stir the solution to allow for complete mixing.

Set up the sensor for its stated "air value" ensuring optical surfaces are clean and air readings are stable.

Immerse the sensor in the water solution. A value of approximately 43% transmittance should be obtained. Large variations in the reading indicate an inaccurate sensor.

Fresh solutions should be used and care should be taken to reduce exposure of the solution to sunlight.