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## ECO Chlorophyll Fluorometer Characterization Sheet

Date: 04/18/12

S/N#: WL-30009

Output channel: 1

Chlorophyll output range: 50ug/l

BIN DEPLOYMENT  
#3 20161018  
SSDS ID 1536  
S/N 30009  
channel 1

Chlorophyll concentration expressed in  $\mu\text{g/l}$  can be derived using the equation:

$$\text{CHL } (\mu\text{g/l}) = \text{Scale Factor} * (\text{Output} - \text{Dark Counts})$$

### Dark Counts

### Chl. Equivalent Concentration (CEC)

### Scale Factor (SF)

### Resolution

Ambient temperature during characterization

### Digital

115 counts

7961 counts

0.0030  $\mu\text{g/l/count}$

4.0 counts

22.3 °C

**Dark Counts:** Signal output of the meter in clean water with black tape over detector.

**CEC** Signal output of the fluorometer when using a fluorescent proxy that has been determined to be approximately equivalent to 25  $\mu\text{g/l}$  of a *Thalassiosira weissflogii* phytoplankton culture.

**SF:** Used to derive chlorophyll concentration from the signal output of the fluorometer. The scale factor is determined using the following equation:  $\text{SF} = 25 \div (\text{CEC} - \text{Dark Counts})$ . For example:  $25 \div (2865 - 43.5) = 0.00886$ .

**Resolution:** Standard deviation of 1 minute of collected data.

The relationship between fluorescence and chlorophyll-a concentrations in-situ is highly variable. The scale factor listed on this document was determined using a mono-culture of phytoplankton (*Thalassiosira weissflogii*). The population was assumed to be reasonably healthy and the concentration was determined by using the absorption method. To accurately determine chlorophyll concentration using a fluorometer, you must perform secondary measurements on the populations of interest. This is typically done using extraction-based measurement techniques on discrete samples. For additional information on determining chlorophyll concentration see "Standard Methods for the Examination of Water and Wastewater" part 10200 H, published jointly by the American Public Health Association, American Water Works Association, and the Water Environment Federation.

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## NTU Characterization Sheet

Date: 4/18/2012

S/N#: WL-30009

Output channel: 2

NTU output range: 400

### Nephelometric Turbidity Unit (NTU) Scale Factor

Turbidity units expressed in NTU can be derived using the equation:

$$\text{NTU} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

|                                        | Digital          |
|----------------------------------------|------------------|
| Dark Counts                            | 48 counts        |
| NTU Solution Value                     | 984 counts       |
| Scale Factor (SF)                      | 0.0547 NTU/count |
| Resolution                             | 2.2 counts       |
| Ambient temperature during calibration | 22.3 °C          |

**Dark Counts:** Signal output of the meter in clean water with black tape over detector.

**NTU Solution Value:** Signal output of the turbidity sensor when measuring a sample of interest.

**SF:** Scale factor is determined using the following equation:  $\text{SF} = \text{xx} \div (\text{Output} - \text{Dark Counts})$ , where xx is the value of a Formazin concentration. For example:  $12.2 \div (2011 - 50) = 0.0062$ .

**Resolution:** standard deviation of 1 minute of collected data.

3IN DEPLOYMENT #3  
20161018  
SSDS ID 1536  
S/N 30009  
channel 2

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## NTU Characterization Sheet

Date: 4/18/2012

S/N#: WL-30009

Output channel: 3

NTU output range: 40

### Nephelometric Turbidity Unit (NTU) Scale Factor

Turbidity units expressed in NTU can be derived using the equation:

$$\text{NTU} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

|                                        | Digital          |
|----------------------------------------|------------------|
| Dark Counts                            | 53 counts        |
| NTU Solution Value                     | 10409 counts     |
| Scale Factor (SF)                      | 0.0031 NTU/count |
| Resolution                             | 5.0 counts       |
| Ambient temperature during calibration | 22.3 °C          |

**Dark Counts:** Signal output of the meter in clean water with black tape over detector.

**NTU Solution Value:** Signal output of the turbidity sensor when measuring a sample of interest.

**SF:** Scale factor is determined using the following equation:  $\text{SF} = \text{xx} \div (\text{Output} - \text{Dark Counts})$ , where xx is the value of a Formazin concentration. For example:  $12.2 \div (2011 - 50) = 0.0062$ .

**Resolution:** standard deviation of 1 minute of collected data.

BIN DEPLOYMENT #3  
20161018  
SSDS ID 1536  
S/N 30009  
channel 3