EWCE-332
Environmental Engineering Sessional

Credit 1.5

Department of Environmental, Water Resources, and Coastal Engineering

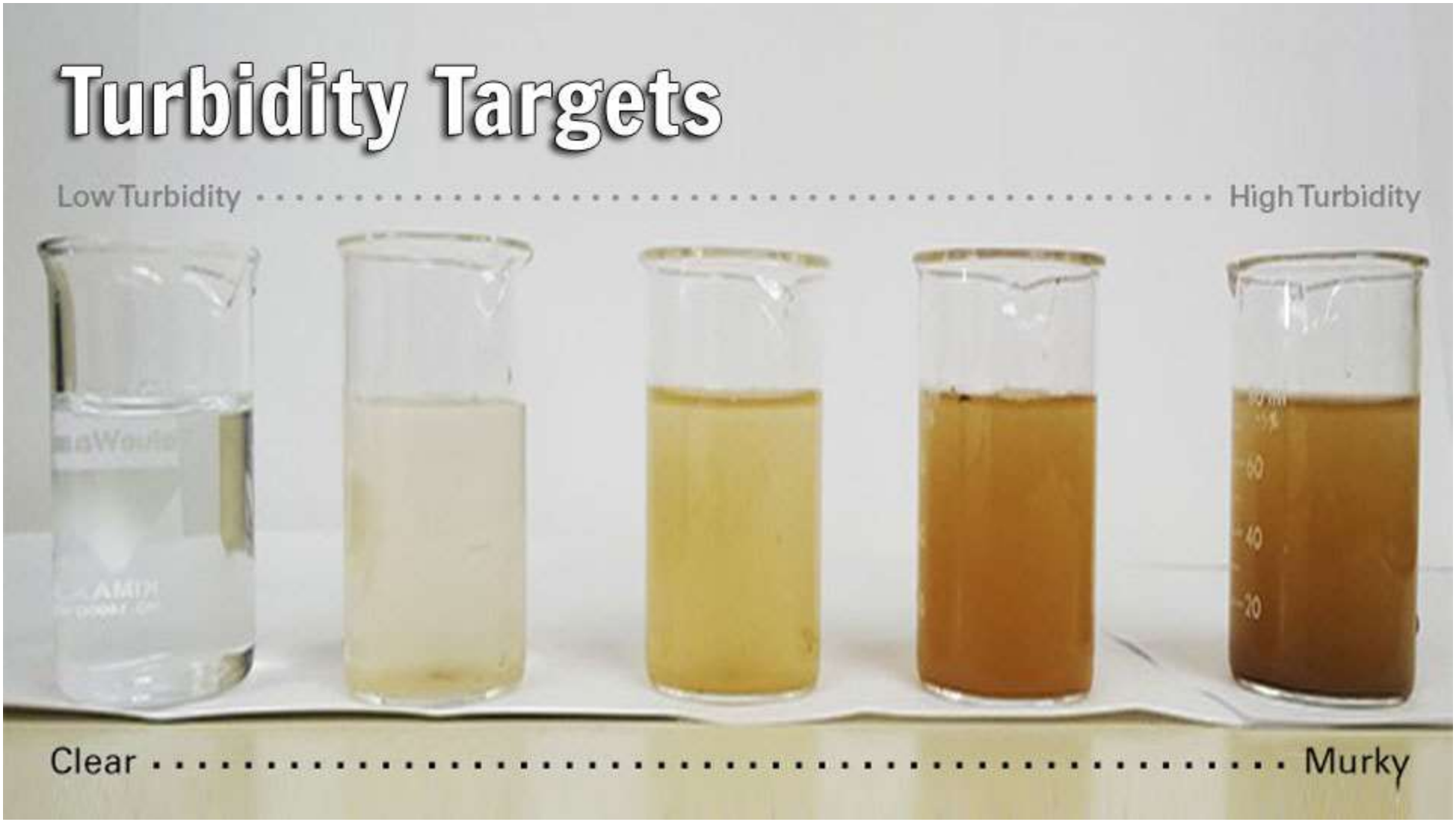
Experiment No. 3

Determination of Turbidity of water

INTRODUCTION

- Turbidity is a measure of the degree to which the water loses its transparency due to the presence of suspended particulates

- Turbidity may be caused by a wide variety of suspended substances of various sizes ranging in size from colloidal to coarse particles, depending on the degree of turbulence


Turbidity Targets
Low Turbidity
High Turbidity
Clear
Murky

ENVIRONMENTAL SIGNIFICANCE

- Turbid water is not aesthetically acceptable to people
- Turbid water is not suitable for filtration process
- Turbidity is an important parameter in disinfection process
- Drinking water standard for Turbidity is 10 NTU (According to Bangladesh Environment Conservation Rules -1997)

THEORY ON EXPERIMENTAL METHOD

- Turbidity is usually measured in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU)

- Jacson turbidemeter used silica as a standard reference material
  (1 mg SiO_2/L = 1 unit of turbidity)

- Nephelometer is now practiced as more reliable, sensitive, and easier to use instrument that depend upon the principle of nephelometry

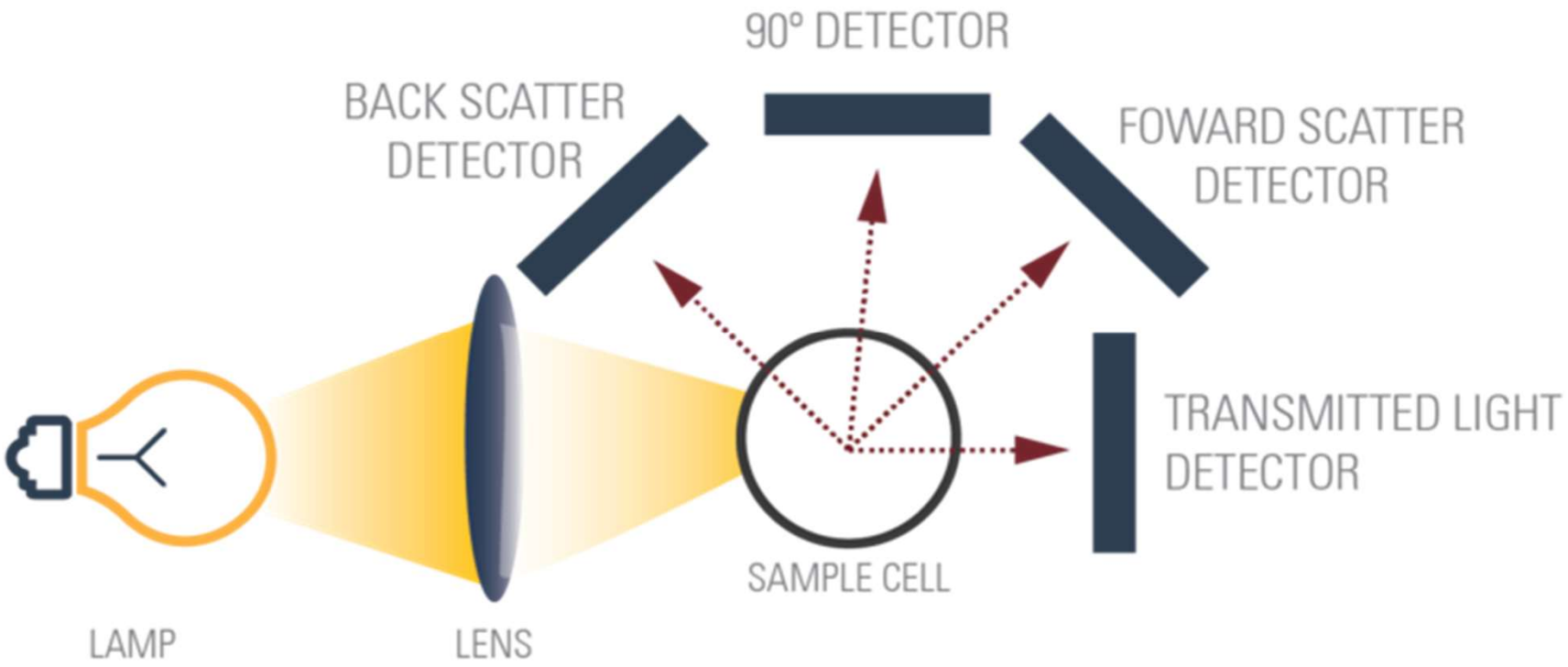
- In nephelometer, a light source illuminates the sample and one or more photoelectric detectors are used with a readout device to indicate the intensity of scattered light at right angle to the path of the incident light

- In nephelometer, standardized preparations of formazine polymer is used as standard refererce material

- Commercially available styrene divinylbenzene beads are also used as standard

- Turbidities as low as 0.02 NTU can be determined by this procedure

- Turbidities greater than 40 NTU are diluted with turbidity free water until values are obtained within the range of 30-40 NTU. The turbidity is then determined by multiplying the measured by the dilution factor



Measurement of Turbidity using turbidimeter

Reagent: Formazin polymer standard

Apparatus: DR LANGE Turbidimeter

EXPERIMENTAL PROCEDURE

- Standardize the turbidimeter using formazin standards.
- Fill the clean sample cell with the water sample and place it in the sample cell. Cover the sample cell with the light shield.
- Turn on switch and read the turbidity value directly from the screen.