

Level III and IV: Operator Math

Time Allocated (Minutes)

I.	Review Intro	
	a. Dimensional Analysis (Area and Volume)	15
	b. Metric Conversions	10
	c. Flow Conversions	10
	d. Percent Removal	10
	e. Box Method of Unit Conversion	15
II.	Unit Conversion Math	
	a. The Big Five	10
	b. Conversion Intro Examples (Formula)	10
	c. Dimensional Relationships (Non-formula)	10
III.	Flow and Hydraulics	
	a. Flow Rate	10
	b. Velocity ($Q = VA$)	15
	c. Pressure and Head	10

BREAK-----15 Minutes

IV.	Loading Calculations	
	a. Pie Chart	15
	b. Population Equivalents	5
	c. Detention Time	10
	d. Filtration Rates	15
V.	Chemical Dosing Calculations	
	a. Chlorine Dosing	15
	b. Feed Rates	10
	c. Specific Gravity	10
VI.	Clarifier Calculations	
	a. Overflow Rate	10
	b. Solids Loading Rate	10
	c. Weir Loading Rate	10

LUNCH BREAK-----60 Minutes

VII.	Process Control Calculations	
	a. SVI	10
	b. F:M Ratio	10
	c. MLSS Inventory	10
	d. MCRT / SRT	20
	e. Wasting Rate	15

VIII.	Solids Handling	
	a. Digester Loading Rate	10
	b. Volatile Destruction	10
	c. Mixing Sludge Streams	10
	d. Percent Capture	10

BREAK-----15 Minutes

IX.	Horsepower / Electrical Consumption	
	a. Horsepower Definition	10
	b. Motor Horsepower	10
	c. Brake Horsepower	10
	d. Water Horsepower	10
	e. Electrical Consumption	10
X.	Certification Review Example Problems	
	a. Class Suggestion	60
	b. **Instructor Suggestion	

** Instructor will perform review question calculation for any time that a suggestion is not made by students to satisfy any remaining time of the allotted 60 minutes for review.