



# Certification Boulevard

Roy Pelletier



## Test Your Knowledge of Industrial Applications

- What is a structure called that controls floods?
  - Rain gauge
  - Drainage well
  - Holding tank
  - Primary clarifier
- Why are heavy metals considered a pollutant?
  - Because of their color.
  - Because of their appearance.
  - Because of their weight.
  - Because of their toxicity.
- Given the following data, calculate the CBOD<sub>5</sub> in a sample of industrial wastewater.
  - Sample Volume = 2.2 ml
  - Initial D.O. = 7.2 mg/L
  - Final D.O. = 3.5 mg/L
  - 460 mg/L
  - 223 mg/L
  - 504 mg/L
  - 405 mg/L
- An industrial waste facility has a TSS value of 1,560 mg/L entering its pretreatment process, with a TSS value of 275 mg/L entering the sanitary sewer. Calculate the percent removal of TSS in the pretreatment process.
  - 29.3%
  - 60.7%
  - 25.5%
  - 82.4%
- What are local limits?
- An industrial facility has a confined space manhole with hazardous gas. The vapor density of the hazardous gas present is 0.9.

Where is this gas more likely to be found?

- Near the floor
  - Equally distributed throughout the space
  - Near the ceiling
  - At this density, the gas will dissipate immediately
- In what section of the 40 CFR will you find general pretreatment regulations?
    - 408
    - 403
    - 406
    - 412
  - What may be the most common factor that a stormwater utility is based on?
    - Property value
    - Impervious area
    - Amount of annual rainfall
    - Location of a water reclamation facility
  - What is another term for inorganic solids?
    - Volatile
    - Nonvolatile
    - Dissolved
    - Soluble
  - Which type of wastewater typically has the highest demand for oxygen?
    - Domestic
    - Stormwater
    - Sanitary
    - Industrial

ANSWERS ON PAGE 62

### SEND US YOUR QUESTIONS FOR CERTIFICATION BOULEVARD

Do you have a question or an exercise you would like to feature in "Certification Boulevard?" We'll be glad to publish it. Just send your question (with the answer) or your exercise (with the solution) to:

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There is no limit to the number of questions or exercises you may submit. Please include your name, city, and organization or company so we can give you credit.

# Correction from August...

Wayne Nichols, one of our sharp-eyed readers in Pinellas County, noticed that the data in Question 4 of last month's edition of *Certification Boulevard* didn't match the data in the answer. Here is the corrected question. Thanks, Wayne--Roy

- Given the following data, what is the TSS concentration of this reuse grab sample, and does it meet the FDEP requirements for reclaimed water TSS standards?
  - 100 ml of sample
  - Tare weight of filter is 11.8873 grams
  - Final weight of filter after drying is 11.8879 grams
  - 10 mg/L – No
  - 4 mg/L – No
  - 6 mg/L – No
  - 4 mg/L – Yes

TSS, mg/L

$$= (\text{final wt., gm} - \text{tare wt., gm}) \times 10,000$$

$$= (11.8879 \text{ gm} - 11.8873 \text{ gm}) \times 10,000$$

$$= 6 \text{ mg/L}$$

No, the FDEP standard for reclaimed water TSS is no greater than 5.0 mg/L.

## Looking for Answers? Here Are the Questions from Past Issues

Are you new to the water and wastewater field? Want to boost your knowledge about topics you'll face each day as a water/wastewater professional?

All past editions of *Certification Boulevard* back through the year 2000 are available on the Florida Water Environment Association's Web site at the following Internet address.

<http://www.fwea.org/cms/index.cfm?primarykeylist=,234,248,264,1756>

This will take you to a Web page titled "Quizzes and Case Studies." All *Certification Boulevard* questions and answers since January 2006 are posted on this page.

Also, near the top left corner of the page above the "Quizzes and Case Studies" title, click on the phrase "Archives CBTS" to access all *Certification Boulevard* questions and answers dating back to the year 2000.

# Certification Boulevard Answer Key

From page 26

1. **B. Drainage Well**

2. **D. Because of their toxicity.**

3. **C. 504 mg/L**

*CBOD<sub>5</sub>, mg/L*

$$\begin{aligned} &= (\text{Initial D.O., mg/L} - \text{Final D.O., mg/L}) \\ &\quad \div (\text{sample volume, ml} \div 300 \text{ ml}) \\ &= (7.2 - 3.5) \div (2.2 \text{ ml} \div 300 \text{ ml}) \\ &= 3.7 \div 0.007333 \\ &= 504 \text{ mg/L} \end{aligned}$$

4. **D. 82.4%**

*Percent TSS Removal*

$$\begin{aligned} &= (\text{Inlet TSS, mg/L} - \text{Outlet TSS, mg/L}) \div \\ &\quad (\text{Inlet TSS, mg/L} \times 100) \\ &= (1,560 \text{ mg/L} - 275 \text{ mg/L}) \div (1,560 \text{ mg/L} \\ &\quad \times 100) \\ &= 1,285 \div 1,560 = 0.8237 \times 100 \\ &= 82.4\% \end{aligned}$$

5. **Enforceable local requirements developed by POTWs to address federal standards as well as state and local regulations.**

6. **C. Near the ceiling.**

*Because the density of this gas is less than 1.0, it will rise in the space and be more concentrated near the ceiling.*

7. **B. 403**

8. **B. Impervious area**

9. **B. Nonvolatile**

*Inorganic material is that which will not burn in a muffle furnace at 550°C. Grit and sand are considered inorganic, or non-volatile, material.*

10. **D. Industrial**

*Most industrial waste streams have very high BOD, COD, and/or TSS concentrations.*

*Industrial waste discharges typically have a higher demand for oxygen compared to domestic waste streams or stormwater.*



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