

WATER TREATMENT 3 EXAM PREP SAMPLE TEST

Presented by NvRWA



The filter rate and backwash rate of each filter shall be determined and recorded once each

- a. week.
- b. Month
- c. quarter.
- d. year.

Month

The culture media used in the presumptive test is of

- a. agar.
- b. a brilliant green lactose bile broth.
- c. a lactose or lauryl tryptose broth.
- d. a nutrient agar

a lactose or lauryl tryptose broth.

Fisheyes are:

- a. undissolved clumps in solution.
- b. the primary cause of floc carryover.
- c. spots of coagulant attaching to the sides of the basin.
- d. an unavoidable operating problem associated with solution tanks.

undissolved clumps in solution.

Water may be aerated by several methods, almost all of which involve

- a. covering the storage facilities.
- b. exposing a large surface area to the atmosphere.
- c. increasing the pressure.
- d. reducing its temperature.

exposing a large surface area to the atmosphere.

All chlorine cylinders are required to contain at least one fusible metal safety device (plug) designed to melt at between _____ °F.

- a. 98 - 105
- b. 120 - 150
- c. 158 - 165
- d. 200 – 212

158 - 165

What is the amount of chlorine required to treat 5 mil gal of water to provide a 0.8ppm residual and satisfy 2.4 ppm chlorine demand?

- a. 33.33 lb
- b. 66.67 lb
- c. 100.00 lb
- d. 133.33 lb

133.33 lb

The detention time usually required in a conventional straight-flow sedimentation basin is _____ h.

- a. 0.5 - 1
 - b. 2 - 6
 - c. 10 - 12
 - d. 24
- 2 - 6

Air binding is a condition that may occur as a result of

- a. filter-bed compaction.
 - b. gravel displacement.
 - c. negative head.
 - d. reaching terminal head loss.
- negative head.

With the coming of winter, the water temperature drops. A likely operational problem at a filtration plant with coagulation is

- a. floc carryover from the sedimentation system.
- b. high alkalinity.
- c. high chlorine residual.
- d. odor.

floc carryover from the sedimentation system.

A fluoride saturator

- a. can only be used by large treatment facilities.
- b. eliminates the need for a metering pump.
- c. eliminates the need for chemical handling.
- d. is suitable for small water systems.

is suitable for small water systems.

Activated alumina is used effectively for the removal of

- a. certain inorganic elements.
- b. herbicides and pesticides.
- c. humic substances.
- d. oxidized precipitates.

certain inorganic elements.

Four milligrams per litre of chlorine is added continuously to a water flow that averages 5 mgd.

How much chlorine will be used in 30 days?

- a. 1500 lb
- b. 3000 lb
- c. 5000 lb
- d. 15,000 lb

5000 lb

Harvesting, dewatering, dredging, shading, and lining are all methods for controlling rooted aquatic plants

- a. without much effort.
- b. physically.
- c. chemically.
- d. biologically.

physically.

Sodium hydroxide (NaOH) is often used as the base in acid-base titrations. It has a molecular weight of 40 ($23 + 16 + 1 = 40$). How many grams of NaOH are in 1 L of a 1 N (normal) solution?

- a. 20
- b. 40
- c. 60
- d. 80

40

When using the multiple-tube fermentation test method and coliform organisms occur in six out of ten of the 10-mL portions of a single standard sample, then

- a. customers should be told to boil their water.
- b. the system must collect a set of repeat samples within 24 h.
- c. the chlorine residual should be increased to 1.0 mg/L.
- d. the water main should be flushed for 24 h.

the system must collect a set of repeat samples within 24 h.

Firefighting may cause low pressure in an area of a distribution system. The low pressure might lead to

- a. contamination of the system by backsiphonage.
- b. ice formation in the pipes.
- c. loss of chlorine residual.
- d. muddy water.

contamination of the system by backsiphonage.

The most desirable place to feed activated carbon in a lime-soda ash softening plant is

- a. after lime feed.
- b. in the clearwell.
- c. to raw water at earliest stage possible.
- d. with lime feed

to raw water at earliest stage possible.

A program for the control of algae should be instituted

- a. on a routine, periodic schedule, but not to exceed two applications per year.
- b. on a seasonal basis.
- c. after trend information has been established and adequate monitoring is practiced.
- d. during extended periods of warm water temperatures.

after trend information has been established and adequate monitoring is practiced.

Pinpoint floc is a condition associated with

- a. flash mixing.
- b. low turbidity.
- c. the type of chemical selected.
- d. water temperature.

flash mixing.

Sedimentation can be improved by

- a. lowering the water temperature after flocculation.
- b. maintaining a uniform, horizontal, low-velocity flow across the basin.
- c. maintaining a uniform sludge blanket.
- d. reducing the detention time.

maintaining a uniform, horizontal, low-velocity flow across the basin.

A carbon dosage of 20 mg/L is required for the removal of taste and odors. With a flow of 5560 gpm, how many pounds of carbon should be fed per hour?

- a. 27.8 lb
- b. 49.9 lb
- c. 55.6 lb
- d. 668.0 lb

55.6 lb

If a filter has been out of service and allowed to go dry, which filter control valve should be used to refill it with water?

- a. effluent valve
 - b. influent valve
 - c. rewash valve
 - d. backwash inlet valve
- backwash inlet valve**

A liquid has a specific gravity of 1.16. How much would 300 gal of this liquid weight?

- a. 158 lb
 - b. 348 lb
 - c. 2502 lb
 - d. 2899 lb
- 2899 lb**

Polyelectrolytes are

- a. coagulants.
 - b. coagulant aids.
 - c. used for hardness reduction.
 - d. used for pH adjustment.
- coagulant aids.**

A tank 6 ft in overall length and 18 in. in diameter is in the shape of a cylinder with two hemispherical ends. Its capacity is _____ gal.

- a. 7.7
- b. 72.7
- c. 270
- d. 1720

72.7

What is total hardness of water in mg/L CaCO_3 when magnesium (Mg) is 10 mg/L and calcium (Ca) is 20 mg/L?

- a. 10 mg/L
- b. 30 mg/L
- c. 41 mg/L
- d. 91 mg/L

91 mg/L

One function of aeration is the removal of _____ from water prior to the lime-soda ash softening process.

- a. carbon dioxide
- b. chlorine
- c. inorganic material
- d. Oxygen

carbon dioxide

Calcium carbonate stability refers to

- a. a condition where calcium carbonate, pH, and alkalinity are in equilibrium.
- b. a condition where water will neither dissolve nor deposit calcium carbonate.
- c. a theoretical property of water.
- d. water in equilibrium where the measured pH is equal to the Langelier index.

a condition where water will neither dissolve nor deposit calcium carbonate

A condition that tends to increase the corrosiveness of water on metals is

- a. high dissolved oxygen content.
- b. high fluoride concentration.
- c. low dissolved oxygen content.
- d. low total dissolved solids.

high dissolved oxygen content.

Adsorption operates on the principle of

- a. adhesion.
- b. chance collision.
- c. gravity.
- d. magnetic polarization.

adhesion.

When both chlorine and polyphosphate are added to a well, which should be fed first?

- a. chlorine
- b. polyphosphate
- c. both added simultaneously
- d. either may be added first

polyphosphate

Practicing breakpoint chlorination involves chlorine addition until

- a. taste and odor characteristics of a swimming pool have dissipated.
- b. combined chlorine residual reaches its highest point of disinfection.
- c. chloroorganics and chloramines have formed.
- d. chloroorganics and chloramines are destroyed and free available chlorine residual is formed.

chloroorganics and chloramines are destroyed and free available chlorine residual is formed

Coagulation usually

- a. occurs in seconds.
- b. occurs in minutes.
- c. occurs in hours.
- d. depends on coagulant and mixing rates.

occurs in seconds.

35. Which chemical is considered most effective for removing or destroying the effect of phenols in water?

- a. activated carbon
- b. Cl_2
- c. ClO_2
- d. KMnO_4

ClO_2

36. Treated water is always used for backwashing

- a. because of its availability.
- b. because the use of untreated water is more costly.
- c. to avoid contamination of the filter bed.
- d. to lessen sludge disposal problems.

to avoid contamination of the filter bed.

A water treatment plant produces 850,000 gpd. On one day 24,526 gal was used for backwashing the filters. What was the net production for this day?

- a. 406,740 gal
- b. 604,740 gal
- c. 476,604 gal
- d. 825,474 gal

825,474 gal

38. The nephelometric method of measuring turbidity is based on the

- a. transmission of light
- b. scattering of light.
- c. passage of light.
- d. adsorption of light.

scattering of light.

A hydrofluosilicic acid (H_2SiF_6) chemical feed pump is feeding a 30 percent by weight solution (specific gravity = 1.26) at the rate of .025 gpm in a plant operating at 12 mgd. The resulting fluoride dosage is _____ mg/L.

- a. 1.4
- b. 1.13
- c. 0.90
- d. 0.71

1.13

How can the supervisor be certain that scheduled maintenance is completed?

- a. Ask the workers.
- b. Hire someone to inspect completed work.
- c. Supervisor inspects work.
- d. Wait and see if there are any failures.

Supervisor inspects work.

Hydrogen sulfide in water may be effectively controlled by

- a. aeration.
- b. filtration.
- c. fluoridation.
- d. sedimentation.

aeration

In general, a properly operated presedimentation facility should remove

- a. 90 percent of all suspended matter.
- b. at least 60 percent of the settleable matter.
- c. all the algae and floating debris.
- d. none of the above.

at least 60 percent of the settleable matter.

The most severe symptom of fluorosis is teeth that

- a. show signs of pitting.
- b. darken, turning shades of gray to black.
- c. are mottled in appearance.
- d. are less susceptible to cavities and erosion.

show signs of pitting

To ensure that operating parameters are effectively monitored during aeration, surface water should be sampled and tested

- a. daily, at a minimum.
- b. more frequently as seasonal temperatures rise and less frequently when temperatures drop.
- c. only as needed since monitoring is not as critical with aeration as with other treatment processes.
- d. to the extent required to detect and evaluate all significant changes in water quality.

to the extent required to detect and evaluate all significant changes in water quality.

Trihalomethanes are formed when

- a. the water contains organic chemicals.
- b. the water contains large concentrations of inorganic chemicals.
- c. the filters are backwashed.
- d. chlorine reacts with humic and fulvic acids in water.

chlorine reacts with humic and fulvic acids in water.

If a water supply exceeds a maximum contaminant level, whose responsibility is it to notify the consumer?

- a. EPA
- b. laboratory
- c. state
- d. water supplier

water supplier

In-plant sampling points following filtration are normally selected to monitor for

- a. turbidity removal.
- b. reduction in turbidity, taste and odor, and bacteria.
- c. reduction in sediment load and bacteria.
- d. bacteria and turbidity removal.

bacteria and turbidity removal.

47. The chemical formula for ferric oxide is

- a. FO.
- b. FeO.
- c. FeO₂.
- d. Fe₂O₃.

Fe₂O₃.

48. Sedimentation is improved by

- a. a sludge blanket.
- b. reducing the detention period in the basin.
- c. short circuiting.
- d. uniform, horizontal, low-velocity flow across the basin.

uniform, horizontal, low-velocity flow across the basin.

When calculating carbonate hardness, the following would be included:

- a. calcium chloride.
- b. calcium sulfate.
- c. magnesium bicarbonate.
- d. magnesium chloride.

magnesium bicarbonate.

An important reason for analyzing raw-water samples for color is

- a. to improve customer relations.
- b. to comply with the Secondary Drinking Water Regulations.
- c. because the test data is a good baseline indicator for treatment plant efficiency.
- d. because it may indicate high levels of organic compounds, which may produce trihalomethanes upon contact with chlorine.

because it may indicate high levels of organic compounds, which may produce trihalomethanes upon contact with chlorine.

Objectives for a preventive maintenance program include

- a. eliminate parts inventory.
- b. get organized to unstop overflowing manholes quickly.
- c. increase use of standby equipment.
- d. reduce emergency repairs and maintenance.

reduce emergency repairs and maintenance.

Treatment plant operators should

- a. obtain reports of school dental-health surveys to better determine whether local fluoridation is necessary or effective.
- b. insist on oral fluoridation treatments if their community does not fluoridate.
- c. have some knowledge of the health effects associated with fluoridation.
- d. none of the above.

have some knowledge of the health effects associated with fluoridation.

53. Baffles are installed downstream of the basin inlet to

- a. reduce velocity.
- b. induce turbulence.
- c. collect settled water as it leaves the basin.
- d. channel the water.

reduce velocity.

54. Two chemical contaminants with maximum contaminant levels that are regulated in both community and noncommunity systems are nitrate and

- a. turbidity.
- b. sodium.
- c. hardness.
- d. chloride.

turbidity.

If static pressure in a water system is too high, the remedy is to

- a. install a booster pump.
- b. install pressure-reducing valves.
- c. throttle the suction valve on the well pump.
- d. none of the above.

install pressure-reducing valves

56. The main purpose of flocculation is to

- a. allow chemicals to mix thoroughly.
- b. bring together microfloc particles.
- c. filter out suspended particles.
- d. settle out suspended particles.

bring together microfloc particles

57. If your treatment plant treats 36 mgd and alum is fed at the rate of 25 mg/L, how many pounds per hour must the chemical feeder dispense to meet these requirements?

- a. 8.34 lb/h
- b. 31.3 lb/h
- c. 36 lb/h
- d. 313 lb/h

313 lb/h

Solids-contact basins and sludge-blanket clarifiers are also called

- a. peripheral-feed settling tanks.
- b. shallow-depth sedimentation basins.
- c. tube-settling tanks.
- d. upflow clarifiers.

upflow clarifiers

Two operating problems commonly associated with screening facilities are

- a. clogging and corrosion.
- b. clogging and frequent replacement of the shear pin.
- c. frequent inspection and frequent removal of debris.
- d. intensive recordkeeping and intensive maintenance.

clogging and corrosion.

The purpose of the completed test using the multiple-tube fermentation method is to

- a. verify the presence of pathogens.
- b. verify the presence of coliform bacteria.
- c. verify that bacterial contamination was not caused by laboratory error.
- d. determine if suspected coliform bacteria meets all the criteria of an indicator organism.

verify the presence of coliform bacteria

A portion of cast-iron pipe after five years of use shows a white-colored scale $\frac{1}{2}$ -in. thick on the inside pipe walls. This means that

- a. the water has been corrosive.
- b. the water is chemically unstable and is depositing calcium carbonate.
- c. the *C* factor should increase due to the lining effect.
- d. red water will soon become a problem.

the water is chemically unstable and is depositing calcium carbonate.

If the pH is being raised slightly beyond the saturation point to prevent corrosion in the distribution system, then chlorination dosages may need to be

- a. increased.
- b. decreased.
- c. kept the same.
- d. closely monitored to determine changes in chlorine demand.

increased.

The term volatile can best be defined as

- a. a precipitate.
- b. capable of being easily attacked.
- c. highly explosive.
- d. turning to vapor easily.

turning to vapor easily.

A total of 3060 h was worked by 15 employees of a water treatment plant. What was the average number of hours worked by each employee?

- a. 420 h
- b. 402 h
- c. 240 h
- d. 204 h

204 h

Problems with pinpoint floc can often be corrected by

- a. adding a weighting agent.
- b. altering the point of chemical application.
- c. increasing the detention time during flocculation.
- d. increasing the mixing energy during flocculation.

adding a weighting agent.

The purpose of the confirmed test using the multiple-tube fermentation method is to

- a. determine the cause of contamination.
- b. increase the certainty that coliform bacteria are present.
- c. verify the presence of bacteria.
- d. verify the presence of pathogenic organisms.

increase the certainty that coliform bacteria are present

One characteristic of activated carbon that enhances its use in the adsorption process is its

- a. atomic weight.
- b. large pore structure.
- c. molecular structure.
- d. stickiness.

large pore structure.

What metallic element should be monitored for when using caustic soda for corrosion control?

- a. copper
- b. iron
- c. Sodium
- d. Zinc

Sodium

A rectangular reservoir 110 ft x 60 ft x 12 ft is filled with water. How many pounds of a chemical must be added to produce a dosage of 80 mg/L?

- a. 125 lb
- b. 250 lb
- c. 310 lb
- d. 395 lb

395 lb

When operating a surface-water treatment plant, which of the following laboratory tests is of most significance for establishing chemical dosages for coagulating water?

- a. calcium and magnesium
- b. pH and alkalinity
- c. sulfates
- d. total hardness

pH and alkalinity

An example of a chemical element is

- a. alum.
- b. ammonia.
- c. carbon.
- d. water.

carbon.

The process of adjusting pH just above the saturation point of calcium carbonate will

- a. accelerate the corrosion process.
- b. form a protective coating on the surface of the pipes.
- c. prevent the precipitation of iron compounds.
- d. sequester scale-forming ions.

form a protective coating on the surface of the pipes.

An operator is caught in a room where chlorine gas is leaking. If the operator does not have a mask, what should the operator do?

- a. keep mouth closed, keep head as high as possible, and quickly walk out of the room, holding breath if possible.
- b. lay down on the floor and quickly crawl out of the room.
- c. pull shirt over mouth and face and quickly walk out of the room.
- d. walk out of the room quickly.

keep mouth closed, keep head as high as possible, and quickly walk out of the room, holding breath if possible.

Fluoride chemicals, like many chemicals used in water treatment, constitute a variety of potential health hazards, but the hazard most common in handling and feeding dry fluoride compounds is

- a. asphyxiation.
 - b. bodily contact.
 - c. ingestion.
 - d. inhalation.
- inhalation.

The type of aerator most effective in removing dissolved gases is the

- a. cascade.
 - b. diffuser.
 - c. draft
 - d. slat and coke tray.
- draft

The purpose of adding carbon dioxide to water after a chemical precipitation softening process is to

- a. combine with an excess alum present.
- b. increase the pH of the water.
- c. reduce the amount of lime required.
- d. restore the carbonate balance.

restore the carbonate balance.

Both alum and ferric sulfate are affected by

- a. alkalinity.
- b. filter media selection.
- c. other coagulants.
- d. sunlight.

alkalinity.

Anabaena can cause what undesirable characteristic in water?

- a. color and decomposition
- b. evaporation and contamination
- c. hardness and "blue babies"
- d. taste and odor

taste and odor

If maintaining pressure in a fluoride feed system is not necessary, backflow can best be prevented by

- a. installing an atmospheric loop.
- b. installing a vacuum breaker.
- c. installing an antisiphoning device.
- d. providing an air gap.

providing an air gap.

The annual operating costs are:

Salaries = \$5970

Chemicals = \$2540

Power = \$3251

Miscellaneous - \$269

What is the cost per 1000 gal if 2 mil gal of water are pumped each month?

- a. \$6.02
- b. \$2.99
- c. \$0.50
- d. cannot be determined

\$0.50

How many pounds of hypochlorite, at 65 percent available chlorine, are required to equal 90 lb of pure chlorine?

- a. 243.6 lb
- b. 170.39 lb
- c. 138.5 lb
- d. 109.57 lb

138.5 lb

The SPADNS method can be used to determine the concentration of

- a. coliform bacteria.
- b. dissolved oxygen.
- c. fluoride.
- d. iron.

fluoride.

Flow measurements for plant operations are usually taken

- a. at a point before the water enters the intake structure.
- b. somewhere near the point where the water enters the treatment plant.
- c. weekly.
- d. within the intake structure.

somewhere near the point where the water enters the treatment plant.

The chlorine demand of a certain water is 3 mg/L. The operator treats 250,000 gal of water with 10 lb of chlorine gas. What will the chlorine residual be?

- a. 1.8 mg/L
- b. 3.0 mg/L
- c. 4.8 mg/L
- d. 6.0 mg/L

1.8mg/L

A commonly used test to monitor the influent and effluent water of a presedimentation basin is

- a. algal count.
- b. bacteriological count.
- c. solids test.
- d. total dissolved solids test.

bacteriological count.

The Langelier Index is an indicator used to measure

- a. whether water is likely to dissolve or precipitate CaCO_3 .
- b. the theoretical pH.
- c. the rate of corrosion.
- d. scale-forming potential.

whether water is likely to dissolve or precipitate CaCO_3 .

Effectiveness of the coagulation/flocculation process is best measured

- a. against a coagulant performance curve.
- b. by titration to an end point.
- c. by visual observation.
- d. using a nephelometric turbidimeter.

using a nephelometric turbidimeter.

The removal of organic materials using activated carbon depends on

- a. adsorption.
- b. filtration.
- c. oxidation.
- d. recarbonation.

adsorption.

The efficiency of the aeration process is primarily determined by the

- a. velocity of air flow.
- b. surface contact between air and water.
- c. number of splash areas.
- d. mixing patterns.

surface contact between air and water.

The maximum safe dosage of copper sulfate depends in part on

- a. the toxic effect on fish.
- b. solubility constant for copper.
- c. how much the boat can carry.
- d. how much algae is present.

the toxic effect on fish.

91. One method to detect short-circuiting problems is to

- a. change coagulants and coagulant aids.
- b. conduct tracer studies.
- c. increase detention time.
- d. install perforated baffles.

conduct tracer studies.

92. A common operating problem with fluoridation is

- a. extremely high feed rates.
- b. corrosion in the distribution system.
- c. fluoride concentrations below the optimum due to inadequate feed rates.
- d. tastes and odors.

fluoride concentrations below the optimum due to inadequate feed rates.

An important operating reason for adding powdered activated carbon ahead of normal coagulation/flocculation and filtration is that

- a. the coagulant dosage can be reduced.
 - b. taste and odor removal is ineffective following filtration.
 - c. detention time can be more easily controlled.
 - d. carbon treatment should not be allowed to interfere with disinfection.
- carbon treatment should not be allowed to interfere with disinfection.

The amount of time a sample can be stored depends on

- a. the laboratory procedure being used.
 - b. the stability of the constituent to be tested and whether the sample can be preserved.
 - c. the temperature.
 - d. whether the sample contains raw or treated water.
- the stability of the constituent to be tested and whether the sample can be preserved.

If excessive media loss occurs consistently, one should

- a. check the rate-of-flow controller for malfunctioning.
- b. discontinue using surface washers.
- c. investigate all backwashing procedures.
- d. probe the filter bed.

investigate all backwashing procedures.

Usually the most desirable point of application to add powdered activated carbon is

- a. during coagulation.
- b. immediately following prechlorination.
- c. in the raw water intake line.
- d. just ahead of the filter.

in the raw water intake line.

Sodium thiosulfate crystals are placed in bacteriological sample bottles to

- a. hold pH at a constant value.
 - b. kill any pathogens that may be present in the sample.
 - c. neutralize any chlorine present in the sample.
 - d. preserve the sample.
- neutralize any chlorine present in the sample.

Ferric hydroxide is

- a. a strong solution for purging bacterial growths.
 - b. common rust.
 - c. formed at the cathode.
 - d. used for dissolving tubercules.
- common rust.

98. "Black water" complaints are the result of

- a. alum entering the distribution system.
 - b. high threshold odor numbers in the treated water.
 - c. high trihalomethanes.
 - d. powdered activated carbon entering the distribution system.
- powdered activated carbon entering the distribution system.

If a fuse continues to blow, you should

- a. inspect the affected equipment to determine the cause.
- b. provide a jumper in the box.
- c. replace it with a fuse of lower capacity.
- d. replace it with a higher capacity fuse.

inspect the affected equipment to determine the cause.

Solids-contact basins are designed with baffles to

- a. intensify agitation during flash mixing.
- b. reduce velocity and produce a nonturbulent flow.
- c. separate the influent and effluent zones.
- d. separate the mixing and settling processes.

separate the mixing and settling processes.

If phosphate is used to sequester (suspend) iron, the phosphate should be injected

- a. after chlorination.
- b. before chlorination.
- c. in the well.
- d. with alum.

before chlorination.

What type of treatment should be given when a well produces red water?

- a. pH adjustment, aeration, and filtration.
- b. sedimentation.
- c. softening.
- d. taste and odor control.

pH adjustment, aeration, and filtration.

Operational control of flash mixing is best achieved by

- a. altering the rate of flow.
- b. a baffled chamber.
- c. installing in-line mechanical mixers.
- d. the pump and conduit-type of flash mixer.

installing in-line mechanical mixers.

Dissolved oxygen, pH and temperature can best be related to the aeration process as

- a. basic control tests.
- b. factors contributing to clogged diffusers.
- c. factors that principally influence the selection of an aerator.
- d. troublesome constituents.

basic control tests.

The carrying capacity of water mains is often reduced by

- a. high pressure.
- b. looping.
- c. tuberculation.
- d. vacuum breakers.

tuberculation.

Automation of a water system would provide

- a. constant pressure.
- b. cross-connection control.
- c. prevention of corrosion.
- d. prevention of main breaks.

constant pressure

If short filter runs are occurring because of high head loss, it would be advisable to

- a. use the variable declining-rate filtration method.
- b. reduce filter aid dosage.
- c. increase flow rate.
- d. increase coagulant dosage.

reduce filter aid dosage.

In a 1 million gallon reservoir, how many pounds of HTH (65% available chlorine) are required to produce a residual of 1.0 mg/L (assume water has zero chlorine demand)?

- a. 5.4 lb
 - b. 8.3 lb
 - c. 12.8 lb
 - d. 16.6 lb
- 12.8 lb

The fluoridation monitoring practice that is most highly recommended involves

- a. ensuring that all chemical feed equipment is calibrated for proper dosage rates
 - b. reporting daily test results to the state or EPA.
 - c. routinely determining the fluoride concentration in the raw and treated water.
 - d. sampling and testing representative points within the treatment plant.
- routinely determining the fluoride concentration in the raw and treated water.

To test if a 110 - V/AC outlet is hot, set volt-ohm meter for

- a. 100 A.
- b. 250 A.
- c. 100 V/AC.
- d. 250 V/AC.

250V/AC

112. Iron that remains in the ferrous state will

- a. be removed by the filters.
- b. pass through the filters.
- c. precipitate in the reaction tank.
- d. settle out.

pass through the filters.

A sample in the presumptive test for total coliform is positive if

- a. colonies with green metallic sheen are formed.
- b. gas is produced within 48 hours.
- c. no gas is produced.
- d. the presence of coliform bacteria is suspected.

gas is produced within 48 hours.