TOPIC: 291007
KNOWLEDGE: K1.01 [2.6/2.7]
QID: B637 (P2135)

High differential pressure in a demineralizer could be caused by all of the following except...

A. crud buildup.

B. high flow rate.

C. resin exhaustion.

D. resin overheating.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.01 [2.6/2.7]
QID: B737 (P935)

A demineralizer is being used in a water purification system. How will the accumulation of suspended solids in the demineralizer affect the performance of the demineralizer?

A. The rate of resin depletion will increase.

B. The flow rate of water through the demineralizer will increase.

C. The differential pressure across the demineralizer will decrease.

D. The rate of unwanted ion removal from the system will decrease.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.01 [2.6/2.7]
K1.02 [2.5/2.6]
QID: B7715 (P7715)

A demineralizer should be removed from service if the demineralizer differential pressure is _____ than the established limit, or if the demineralizer decontamination factor is _____ than the established limit.

A. less; less

B. less; greater

C. greater; less

D. greater; greater

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.8/2.9]
QID: B152 (P1835)

The ion exchange efficiency of a condensate demineralizer can be determined by...

A. sampling the inlet and outlet of the demineralizer to determine the change in conductivity.

B. performing a calculation based on the ratio between the inlet pH divided by the outlet pH.

C. sampling the inlet and outlet of the demineralizer to determine the difference in activity.

D. performing a calculation based on the change in differential pressure across the demineralizer.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B839 (P835)

The decontamination factor for ionic impurities of a demineralizer can be expressed as...

A. Inlet Conductivity minus Outlet Conductivity.

B. Outlet Conductivity minus Inlet Conductivity.

C. Inlet Conductivity divided by Outlet Conductivity.

D. Outlet Conductivity divided by Inlet Conductivity.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B1437 (P2236)

To determine the decontamination factor for ionic impurities of a demineralizer, the two parameters that must be monitored are inlet and outlet...

A. pH.

B. conductivity.

C. suspended solids.

D. pressure.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B2737 (P2735)

What percentage of impurities is being removed from the water passing through an ion exchanger if the ion exchanger has a decontamination factor of 25?

A. 99 percent

B. 96 percent

C. 88 percent

D. 75 percent

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B2837 (P936)

The ion exchange efficiency of a condensate demineralizer is determined by performing a calculation using the...

A. change in conductivity at the outlet of the demineralizer over a period of time.

B. change in pH at the outlet of the demineralizer over a period of time.

C. demineralizer inlet and outlet conductivity.

D. demineralizer inlet and outlet pH.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B3238 (P3235)

What percentage of ionic impurities is being removed from the water passing through an ion exchanger if the ion exchanger has a decontamination factor of 50?

A. 98 percent

B. 96 percent

C. 75 percent

D. 50 percent

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B3437 (P3435)

The decontamination factor of a condensate demineralizer has just been determined to be 50, based on conductivity measurements.

If condensate having a conductivity of 20 μmho/cm is flowing into this demineralizer, which one of the following is the conductivity of the condensate at the outlet of the demineralizer?

A. 0.4 μmho/cm

B. 1.0 μmho/cm

C. 4.0 μmho/cm

D. 10.0 μmho/cm

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B3637 (P3636)

The decontamination factor of a condensate demineralizer has just been determined to be 10, based on conductivity measurements.

If condensate having a conductivity of 20 μmho/cm is flowing into this demineralizer, which one of the following is the conductivity of the condensate at the outlet of the demineralizer?

A. 0.5 μmho/cm

B. 2.0 μmho/cm

C. 5.0 μmho/cm

D. 10.0 μmho/cm

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B4219 (P4219)

The decontamination factor of a condensate demineralizer has just been determined to be 5.0, based on conductivity measurements.

If condensate having a conductivity of 20 μmho/cm is flowing into this demineralizer, which one of the following is the conductivity of the condensate at the outlet of the demineralizer?

A. 0.4 μmho/cm

B. 4.0 μmho/cm

C. 10.0 μmho/cm

D. 100.0 μmho/cm

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.02 [2.5/2.6]
QID: B4719 (P4718)

What percentage of ionic impurities is being removed from the water passing through an ion exchanger if the ion exchanger has a decontamination factor of 1.0?

A. 100 percent

B. 99 percent

C. 1 percent

D. 0 percent

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.03 [2.8/2.9]
QID: B38

What adverse effect occurs due to channeling in a demineralizer?

A. Increased demineralizer outlet conductivity, because much of the resin is bypassed.

B. Loss of resin, due to the increased fluid velocity through the demineralizer.

C. Resin dryout and cracking, because much of the resin is bypassed.

D. Resin damage, due to the increased fluid velocity through the demineralizer.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.03 [2.5/2.6]
QID: B236

Channeling in a demineralizer is undesirable because the...

A. ability of the resin bed to remove undesirable ions will decrease and cause outlet conductivity to increase.

B. ability of the resin bed to remove suspended solids will decrease and cause outlet pH to increase.

C. resulting high velocity fluid flow will cause agitation of the resin beads and the release of unwanted ions.

D. resulting high velocity fluid flow can cause significant damage to resin retention elements.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.03 [2.8/2.9]
QID: B838 (P1636)

Which one of the following, if processed through a demineralizer, will rapidly reduce the effectiveness of the demineralizer?

A. Oily water

B. Condensate

C. Makeup water

D. Radioactive water

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.03 [2.8/2.9]
QID: B1038

Which one of the following refers to the condition in which large portions of a demineralizer resin bed are bypassed, thereby allowing waterborne impurities to reach the outlet?

A. Channeling

B. Leaching

C. Exhaustion

D. Mineralization

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.03 [2.8/2.9]
QID: B1237 (P2035)

Which one of the following conditions can lead to channeling in an operating demineralizer?

A. Suspended solids forming a mat on the surface layer of the resin bed.

B. A sudden 10°F decrease in the temperature of the influent to the demineralizer.

C. Exhaustion of the resin bed due to high conductivity of the demineralizer influent.

D. Operation of the demineralizer with influent flow rate at 10 percent below design flow rate.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.04 [2.8/2.9]
QID: B118

The purpose of a mixed-bed demineralizer is to...

A. increase the conductivity of water with little effect on pH.

B. decrease the conductivity of water with little effect on pH.

C. increase the pH of water by reducing the number of positively charged ionic impurities in it.

D. decrease the pH of water by increasing the number of negatively charged ionic impurities in it.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.05 [2.4/2.5]
QID: B1539 (P1537)

A higher-than-expected differential pressure across an operating demineralizer can be caused by...

A. exhaustion of the cation exchange resin.

B. channeling through the resin bed.

C. insufficient resin backwash.

D. decreased demineralizer inlet conductivity.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.05 [2.4/2.5]
QID: B2237 (P635)

How does demineralizer differential pressure indicate the condition of a demineralizer resin bed?

A. Low differential pressure indicates flow blockage in the demineralizer.

B. Low differential pressure indicates that the demineralizer resin bed is exhausted.

C. High differential pressure indicates flow blockage in the demineralizer.

D. High differential pressure indicates that the demineralizer resin bed is exhausted.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.06 [2.7/2.7]
QID: B238

The temperature of the water passing through a demineralizer must be controlled because excessively hot water will...

A. increase the ion exchange rate for hydronium ions, thereby changing effluent pH.

B. degrade the corrosion inhibitor applied to the inner wall of the demineralizer.

C. result in excessive demineralizer retention element thermal expansion, thereby releasing resin.

D. reduce the affinity of the demineralizer resin for ion exchange.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.06 [2.7/2.7]
QID: B438

There is a temperature limit on the water entering a demineralizer, because excessively hot water will...

A. decompose the resin beads.

B. increase the potential for channeling.

C. cause the filter element to swell and release the resin.

D. dislodge and wash the resin fines off the filter element.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.06 [2.7/2.7]
QID: B7685 (P7685)

A mixed-bed ion exchanger is being used to process reactor coolant. The ion exchanger has been in service for 6 months at 100 percent power. A temperature controller malfunction causes the ion exchanger influent temperature to exceed the resin's maximum temperature limit before being manually restored to normal. Ion exchanger water chemistry analyses are being performed to check for resin decomposition.

Which one of the following water chemistry test results would indicate that significant resin decomposition has occurred?

A. A significant decrease in the ion exchanger's effluent conductivity.

B. A significant increase in the ion exchanger's effluent radioactivity.

C. A significant increase in the ion exchanger's decontamination factor.

D. A significant increase in the ion exchanger's effluent dissolved gases.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B938

The cation exchange resin in a mixed-bed demineralizer removes undesirable _____ ions from solution while releasing desirable _____ ions into solution.

A. negative; negative

B. negative; positive

C. positive; negative

D. positive; positive

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B1039

The anion exchange resin in a mixed-bed demineralizer releases desirable _____ ions into solution while removing undesirable _____ charged ions from solution.

A. hydroxide; negatively

B. hydroxide; positively

C. hydrogen; negatively

D. hydrogen; positively

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B1639

If a dilute sodium chloride water solution is passed through an ideal mixed-bed demineralizer, the effluent stream would consist of...

A. a sodium hydroxide solution.

B. a hydrogen chloride solution.

C. a sodium hypochlorite solution.

D. pure water.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B1738

Which one of the following describes the process of backwashing a mixed-resin deep bed demineralizer?

A. Alternating the flow of dilute acidic and caustic solutions through the demineralizer to remove suspended solids and colloidal matter.

B. Alternating the flow of dilute acidic and caustic solutions through the demineralizer to remove ionic impurities.

C. Reversing the flow of pure water through the demineralizer to remove suspended solids and colloidal matter.

D. Reversing the flow of pure water through the demineralizer to remove ionic impurities.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B1838 (P235)

When a mixed-bed demineralizer resin is exhausted, the resin should be replaced or regenerated because...

A. ions previously removed by the resin will be released into solution.

B. the resin will fracture and particles may escape through the retention screens.

C. particles previously filtered out of solution will be released.

D. the resin will physically bond together, thereby causing flow blockage.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B2438

Which one of the following describes the process of regenerating a mixed-resin deep bed demineralizer? (Assume the demineralizer has already been backwashed.)

A. Alternating the flow of acidic and caustic solutions through the demineralizer to remove suspended solids and colloidal matter.

B. Alternating the flow of acidic and caustic solutions through the demineralizer to remove ionic impurities.

C. Reversing the flow of pure water through the demineralizer to remove suspended solids and colloidal matter.

D. Reversing the flow of pure water through the demineralizer to remove ionic impurities.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B5419

Water is passing through an ion exchanger that contains only anion exchange resin. Currently, every available ion exchange site in the resin has exchanged its original anion and is occupied by a chloride (Cl^-) anion. Assuming that water temperature does not change, what will be the effect on the ion exchanger if a new anion impurity is introduced into the water entering the ion exchanger?

A. The new anions will bypass the occupied ion exchange sites under all circumstances.

B. The new anions will take the place of the Cl^- anions on the ion exchange sites under all circumstances.

C. The new anions will take the place of the Cl^- anions on the ion exchange sites only if the new anions have a greater negative charge than the Cl^- anions.

D. The new anions will take the place of the Cl^- anions on the ion exchange sites only if the new anions have a greater affinity for the anion exchange resin.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B5720

If water containing positively-charged ionic impurities passes through a mixed-bed ion exchanger, the positively-charged ionic impurities will be removed by the _____ exchange resin, with the corresponding release of _____ ions into the water.

A. anion; negative

B. anion; positive

C. cation; negative

D. cation; positive

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B5820 (P5819)

During a nuclear power plant cooldown, the reactor experiences a large crud burst. After 10 minutes, with stable reactor coolant chemistry parameters, the operators begin to record parameters for the in-service reactor coolant purification ion exchanger. The ion exchanger was recently filled with fresh resin.

Assuming no additional operator actions, what trend will the recorded parameters show during the next few hours?

A. Increasing ion exchanger inlet water conductivity.

B. Increasing ion exchanger outlet water conductivity.

C. Increasing flow rate through the ion exchanger.

D. Increasing radiation levels around the ion exchanger.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B6320 (P3537)

After 12 months of operation at 100 percent power, a reactor was shut down and a plant cooldown is in progress. An operator reports that the general area radiation level near the in-service reactor coolant ion exchanger has increased significantly since the cooldown began several hours ago.

Which one of the following is a typical cause of these indications, resulting from the cooldown?

A. Increased radioactive tritium in the reactor coolant.

B. Increased radioactive oxygen-16 dissolved in the reactor coolant.

C. Increased radioactive nitrogen-16 dissolved in the reactor coolant.

D. Increased radioactive corrosion products suspended in the reactor coolant.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B6419

Water is passing through an ion exchanger that contains only cation exchange resin. Currently, every available ion exchange site in the resin has exchanged its original cation and is occupied by a sodium (Na^+) ion. Assuming that water temperature does not change, what will be the effect on the ion exchanger if a new cation impurity, other than Na^+, is introduced into the water entering the ion exchanger?

A. The new cations will bypass the occupied ion exchange sites under all circumstances.

B. The new cations will take the place of the Na^+ ions on the ion exchange sites under all circumstances.

C. The new cations will take the place of the Na^+ ions on the ion exchange sites only if the new cations have a greater positive charge than the Na^+ ions.

D. The new cations will take the place of the Na^+ ions on the ion exchange sites only if the resin has a greater affinity for the new cations.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B6620

Water containing dissolved sodium (Na^+) and chloride (Cl^-) ionic impurities is passing through an ion exchanger that contains only anion exchange resin. How are the ionic impurities being affected as the water flows through the ion exchanger?

A. Sodium ions are being exchanged, but the chloride ions are unaffected.

B. Chloride ions are being exchanged, but the sodium ions are unaffected.

C. Sodium ions are being exchanged, and chloride ions are being removed by filtration.

D. Chloride ions are being exchanged, and sodium ions are being removed by filtration.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B7220

Water containing dissolved sodium (Na^+) and chloride (Cl^-) ionic impurities is passing through an ion exchanger that contains only cation exchange resin. How are the ionic impurities being affected as the water flows through the ion exchanger?

A. Sodium ions are being exchanged, but the chloride ions are unaffected.

B. Chloride ions are being exchanged, but the sodium ions are unaffected.

C. Sodium ions are being exchanged, and chloride ions are being removed by filtration.

D. Chloride ions are being exchanged, and sodium ions are being removed by filtration.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B7606 (P7606)

A mixed-bed ion exchanger is being used to process reactor coolant. The ion exchanger has been in service for 6 months at 100 percent power. A temperature controller malfunction causes the ion exchanger influent temperature to exceed the resin's maximum temperature limit before being manually restored to normal. Ion exchanger water chemistry analyses are being performed to check for resin decomposition.

Which one of the following water chemistry test results does <u>not</u> indicate that significant resin decomposition has occurred?

A. A significant decrease in the ion exchanger's decontaminator factor.

B. A significant increase in the ion exchanger's effluent conductivity.

C. A significant increase in the ion exchanger's effluent radioactivity.

D. A significant increase in the ion exchanger's effluent dissolved gases.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B7656 (P7656)

Demineralizer 1A was removed from service after it became saturated with chloride ions while processing condensate with 10 times the normal chloride concentration. Replacement demineralizer 1B has restored the condensate chloride concentration to normal. Demineralizer 1A has not been processed in any way since being removed from service.

If demineralizer 1A is returned to service to replace demineralizer 1B, the downstream condensate system chloride concentration will...

A. remain the same, because demineralizer 1A resin has already been conditioned by previous operation.

B. remain the same, because demineralizer 1A resin can no longer remove chloride ions from the condensate.

C. increase, only due to the volume of water contained in demineralizer 1A mixing with the incoming condensate.

D. increase, due to both the volume of water contained in demineralizer 1A mixing with the incoming condensate and the release of chloride ions from the resin.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B7746 (P7746)

Mixed-bed demineralizer 1A was removed from service after it became saturated with sodium (Na^+) ions while processing condensate with 10 times the normal sodium concentration. Alternate mixed-bed demineralizer 1B has restored the condensate sodium concentration to normal. Demineralizer 1A has not been processed in any way since being removed from service.

If demineralizer 1A is returned to service to replace demineralizer 1B, the downstream condensate system sodium concentration will...

A. remain the same, because demineralizer 1A can no longer remove any anions from the condensate.

B. remain the same, because demineralizer 1A can no longer remove any cations from the condensate.

C. increase, only due to the water volume contained in demineralizer 1A mixing with the condensate influent.

D. increase, due to both the water volume contained in demineralizer 1A mixing with the condensate influent and the release of sodium ions from the resin.

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B7756 (P7756)

If water containing negatively charged ionic impurities passes through a mixed-bed ion exchanger, the negatively charged ionic impurities will be removed by the _____ exchange resin, with the corresponding release of _____ ions into the water.

A. anion; negative

B. anion; positive

C. cation; negative

D. cation; positive

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.07 [2.3/2.5]
QID: B7795

Condensate mixed-bed demineralizer 1A was removed from service after it became saturated with chloride (Cl^-) ions while processing condensate with 10 times the normal chloride concentration. Alternate condensate mixed-bed demineralizer 1B was placed in service and the condensate chloride concentration was restored to normal.

Demineralizer 1A was drained and refilled with condensate having the normal chloride concentration in preparation for being returned to service to replace demineralizer 1B.

When demineralizer 1A is returned to service, its effluent chloride concentration initially will be _____ than its influent chloride concentration because _____.

A. lower; demineralizer 1A will continue to remove chloride ions from the condensate as it flows through the demineralizer.

B. higher; some of the previously-captured chloride ions will be released as the condensate flows through demineralizer 1A.

C. the same; for each chloride ion removed from the condensate by demineralizer 1A, one chloride ion will be released.

D. the same; demineralizer 1A is chloride-saturated and cannot remove additional chloride ions from the condensate.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B337 (P1836)

A fresh demineralizer that continuously processes water with a high concentration of suspended solids will first develop an increase in the...

A. conductivity at the demineralizer outlet.

B. decontamination factor of the demineralizer.

C. differential pressure across the demineralizer.

D. pH at the demineralizer outlet.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B539 (P836)

A lower-than-expected differential pressure across a mixed-bed demineralizer is an indication of...

A. depletion of the resin.

B. channeling through the resin bed.

C. improper resin regeneration.

D. a decrease in inlet conductivity.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B639 (P1036)

As the operating time of a demineralizer resin bed increases, the differential pressure across the bed...

A. increases due to depletion of the resin ion exchange sites.

B. increases due to trapping of suspended solids.

C. decreases due to gradual resin breakdown.

D. decreases due to erosion of the resin ion exchange sites.

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B1138 (P1535)

A condensate demineralizer differential pressure (D/P) gauge indicates 4.0 psid at 50 percent flow rate. Over the next two days plant power changes have caused condensate flow rate to vary between 25 and 100 percent.

Which one of the following combinations of condensate flow rate and demineralizer D/P, observed during the power changes, indicates an increase in the accumulation of insoluble corrosion products in the demineralizer?

	Condensate Flow Rate (%)	Demineralizer D/P (psid)
A.	100%	15.0
B.	75%	9.0
C.	60%	5.0
D.	25%	2.0

ANSWER: D.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B1736 (P1736)

A condensate demineralizer differential pressure (D/P) gauge indicates 6.0 psid at 50% flow rate. Which one of the following combinations of condensate flow rate and demineralizer D/P observed at various power levels over the next few days indicates an increase in the accumulation of insoluble corrosion products in the demineralizer?

	Condensate Flow Rate	Demineralizer D/P (psid)
A.	100%	23.5
B.	75%	16.5
C.	60%	8.5
D.	25%	1.5

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B2338 (P2335)

A condensate demineralizer differential pressure (D/P) gauge indicates 4.0 psid at 50% flow rate. Over the next two days plant power changes have caused condensate flow rate to vary between 25% and 100%.

Which one of the following combinations of condensate flow and demineralizer D/P, observed during the power changes, indicates an increase in the accumulation of insoluble corrosion products in the demineralizer?

	Condensate Flow Rate	Demineralizer D/P (psid)
A.	100%	15.0
B.	75%	9.0
C.	40%	3.0
D.	25%	1.0

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B2638 (P2235)

A condensate demineralizer differential pressure (D/P) gauge indicates 4.0 psid at 50% flow rate. Which one of the following combinations of condensate flow and demineralizer D/P observed at various power levels over the next few days indicates an increase in the accumulation of insoluble corrosion products in the demineralizer?

	Condensate Flow Rate	Demineralizer D/P (psid)
A.	25%	0.9
B.	60%	6.3
C.	75%	8.7
D.	100%	15.6

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B2938

A condensate demineralizer differential pressure (D/P) gauge indicates 9.0 psid at 50% flow. Over the next two days, plant power changes cause condensate flow to vary between 10% and 100%.

Which one of the following combinations of condensate flow and demineralizer D/P, if observed during the power changes, would indicate an increase in the accumulation of insoluble corrosion products in the demineralizer?

	Condensate Flow Rate	Demineralizer D/P (psid)
A.	10%	0.3
B.	25%	3.3
C.	75%	20.3
D.	100%	35.3

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B7645 (P7645)

Which one of the following describes a possible cause and effect associated with a lower-than-normal differential pressure across a demineralizer during otherwise normal system flow conditions?

A. The resin has developed low resistance flow paths, which can decrease the decontamination factor for the demineralizer.

B. The resin has developed low resistance flow paths, which can increase the decontamination factor for the demineralizer.

C. The resin has become compacted, which can reduce the flow rate through the demineralizer and decrease the decontamination factor for the demineralizer.

D. The resin has become compacted, which can reduce the flow rate through the demineralizer and increase the decontamination factor for the demineralizer.

ANSWER: A.

TOPIC: 291007
KNOWLEDGE: K1.08 [2.6/2.6]
QID: B7825

Condensate from a main condenser hotwell is flowing through a condensate demineralizer. A decrease in the condensate demineralizer's differential pressure could be caused by a/an _____ in the demineralizer condensate influent temperature; or by the _____ in the condensate demineralizer.

A. decrease; onset of channeling

B. increase; onset of channeling

C. decrease; accumulation of suspended solids

D. increase; accumulation of suspended solids

ANSWER: B.

TOPIC: 291007
KNOWLEDGE: K1.09 [2.7/2.7]
QID: B39 (P535)

Which one of the following is an indication of resin exhaustion in a demineralizer?

A. An increase in suspended solids in the effluent.

B. A decrease in the flow rate through the demineralizer.

C. An increase in the conductivity of the effluent.

D. An increase in the differential pressure across the demineralizer.

ANSWER: C.

TOPIC: 291007
KNOWLEDGE: K1.09 [2.7/2.7]
QID: B239 (P2637)

A result of proper demineralizer operation on water with ionic impurities is that the exiting water will <u>always</u> have a...

A. higher pH.

B. lower pH.

C. higher conductivity.

D. lower conductivity.

ANSWER: D.