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Continuing Education Course #282
Environmental Review & Permitting
of Desalination Projects – Part 2

1. What is the first step of the Environmental Impact Assessment (EIA) scoping of desalination projects?
 - a. Selection of contractor to build the desalination plant
 - b. Completion of a detailed design of the desalination plant
 - c. Evaluation and pre-screening of initial project alternatives
 - d. Building water distribution system to deliver the desalinated water

2. Which of the following engineering documentation does not need to be produced during the project definition phase of the Environmental Impact Assessment?
 - a. Plan for dewatering of the desalination plant construction site
 - b. Visual impact report
 - c. Impingement and entrainment study
 - d. Cultural resources report

3. Which of the following activities is the main focus of the Land Use Impact Assessment?
 - a. Compatibility of the desalination project with land zoning requirements
 - b. Soil assessment
 - c. Air quality impact assessment
 - d. Noise attenuation study

4. Geology, soils and seismicity assessments are used to determine the likelihood of long-term operational wind/water driven erosion impacts on plant intake and discharge structures – True or False?
 - a. True
 - b. False

5. Which one of the following measures is typically applied to mitigate noise in desalination plants?
 - a. Installation of high-pressure pumps outside of the building housing the reverse osmosis membrane racks.
 - b. Use of air-cooled pumps.
 - c. Use of water-cooled motors.
 - d. Use of piston instead of centrifugal pumps whenever possible.

6. Which of the following permits is not a key source water intake permit for brackish water desalination projects with subsurface well intakes?
 - a. Water test well permit.
 - b. Concentrate discharge permit.
 - c. Water production well registration permit.
 - d. Production well operation permit.

7. If desalination plant is collocated with power plant and it uses its existing intake, than Section 404 Permit is not required to be obtained by the desalination project owner – True or False?

- a. True
- b. False

8. Which of the following statements is incorrect?

- a. Texas does not require water rights for open intakes located in enclosed or semi-enclosed water bodies (e.g., bays or estuaries) or in a river.
- b. Water rights are needed for subsurface intakes.
- c. Construction of new intake forebay structure and pipes requires obtaining Section 404 (Dredge and Fill) Permit
- d. Construction of new intake forebay structure and pipes requires obtaining Section 10 (Rivers and Harbors Acts) Permit.

9. Which of the following regulatory agencies administers the Section 404 (Dredge and Fill) permit and the Rivers and Harbors Acts permit (Section 10 Permit)?

- a. US EPA
- b. US Department of Energy
- c. US Corps of Engineers
- d. US Fish and Wildlife Service

10. What is the length of study (in months), which allows to determine the annual and daily amounts of marine organisms, which could be impinged or entrained by the desalination plant intake?

- a. 12 months
- b. 6 months
- c. 3 months
- d. 1 month

11. The Flow Impingement and Entrainment Minimization Plan indicates:

- a. What will be the environmental impact of brine discharge on the aquatic environment?
- b. What is the size of the coastal wetlands, which should be constructed to replace species impacted by impingement and entrainment?
- c. How the desalination project proponent proposes to minimize intake flow, impingement and entrainment.
- d. How the project proponent proposes to mitigate the environmental impacts caused by impingement and entrainment.

12. In terms of anti-degradation requirements for color, odor and visual appearance, the desalination plant discharge is allowed to be within what percentage of the ambient levels of naturally occurring contaminants?

- a. 5%
- b. 10%
- c. 100%
- d. 1%

13. Concentrate disposal by land application does not need to comply with?

- a. Regulatory requirements related to water rights
- b. Federal and state regulations for protection of groundwater
- c. Federal and state regulations for protection of public health
- d. Regulatory requirements related to crops/vegetation if the concentrate is used for irrigation.

14. The dilution ratio in desalination plants effectively provides a limit for?

- a. The maximum turbidity of the desalination plant discharge.
- b. The salinity (total dissolved solids – TDS) of the discharge from the desalination plant.
- c. The minimum dissolved oxygen in the concentrate.
- d. The content of heavy metals in the discharge.

15. CORMIX is a software package widely used for:
- a. Prediction of the turbidity of the desalination plant discharge.
 - b. Assessment of the dissolved oxygen concentration of the discharge.
 - c. Projection of the content of salinity in the desalinated water.
 - d. Salinity plume analysis.
16. The boundary of the zone of initial dilution (ZID) for total dissolved solids is determined as the distance away from the point of concentrate discharge at which salinity reaches what percentage over the ambient salinity of the receiving water body?
- a. 10%
 - b. 1%
 - c. 25%
 - d. 50%
17. In general, discharge salinity is expected to...?
- a. remain constant with the increase of the distance from the point of concentrate discharge.
 - b. increase with the increase of the distance away from the point of concentrate discharge
 - c. decrease with the increase of the distance away from the point of concentrate discharge.
 - d. be equal to zero at the point of concentrate discharge.
18. Concentration of one part per thousand (1 ppt) equals?
- a. 1 mg/L
 - b. 1,000 mg/L
 - c. 10 mg/L
 - d. 100 mg/L
19. Elevated salinity cannot cause stress to the Red Abalone – True or False?
- a. True
 - b. False
20. The Safe Drinking Water Act regulates:?
- a. Concentrate discharges from desalination plants.
 - b. Air pollution.
 - c. Coastal zoning.
 - d. The quality of drinking water produced by desalination plants.
21. How alkalinity and hardness of desalinated water compare to these of conventional surface water resources such as rivers and lakes?
- a. Desalinated water has the same alkalinity and hardness.
 - b. Desalinated water has lower alkalinity and hardness.
 - c. Desalinated water has higher alkalinity but lower hardness.
 - d. Desalinated water has both higher alkalinity and hardness.
22. Watershed Sanitary Survey is a study used to support...?
- a. Application for drinking water production permit;
 - b. Air emission permitting
 - c. Concentrate discharge permitting.
 - d. Application for railroad crossing permit.
23. When Source Water Assessment can be Completed Instead of Watershed Sanitary Survey to Support Product Water Related Permitting?

- a. If the desalination plant has an open intake.
- b. If the desalination plant has production capacity smaller than 1 MGD.
- c. If the desalination plant has subsurface intake that is not under the influence of surface water contamination.
- d. If the desalination plant has an onshore concentrate discharge.

24. Operations Monitoring Plan of desalination projects addresses monitoring of water quality in the distribution system – True or False?

- a. True
- b. False

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