There were no Deer Island Treatment Plant National Pollutant Discharge Elimination System (NPDES) permit limit exceedences in the 2nd Quarter of Calendar Year (CY) 2014.

Dry Day Flow is calculated by averaging influent flow over the previous 365 days during dry weather. A dry day is defined as a day with < 0.09 inches of precipitation and no snow melt. In addition, the precipitation for the previous three days must be less than 0.3, 1.0, and 2.0 inches, respectively.

\[ \text{mg} \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 200 \quad 300 \quad 400 \quad 500 \]

\[ \text{mg} \]

\[ \text{mg} \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad 30 \quad 35 \quad 40 \quad 45 \quad 50 \]

\[ \text{mg} \]

\[ \text{mg} \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad 30 \quad 35 \quad 40 \quad 45 \quad 50 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad 30 \quad 35 \quad 40 \quad 45 \quad 50 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad 30 \quad 35 \quad 40 \quad 45 \quad 50 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad 30 \quad 35 \quad 40 \quad 45 \quad 50 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]

\[ J \quad F \quad M \quad A \quad M \quad J \quad J \quad A \quad S \quad O \quad N \quad D \]

\[ 0 \quad 200 \quad 300 \quad 400 \quad 500 \]

\[ mg/L \]
pH is a measure of the alkalinity or acidity of the effluent. Small fluctuations in pH do not have an adverse effect on marine environments, because seawater is well buffered. Secondary treatment technology at Deer Island tends to produce effluent at the low end of the range. All pH measurements were within the threshold range for the quarter.

The acute toxicity test simulates the short-term toxic effects of pollutants in sewage effluent on marine animals. The test measures the concentration (percent) of effluent that kills half the test organisms within four days. The higher the concentration of effluent required, the less toxic the effluent. For permit compliance, the effluent concentration that causes mortality to mysid shrimp and inland silverside must be at least 50%. The threshold limits were met for the quarter.

Typically, effects of chronic exposures differ from those of acute exposures. Because of this, chronic toxicity responses are not necessarily related to acute toxicity. The chronic toxicity test simulates the long-term toxic effects of pollutants in sewage effluent on marine animals. To meet permit limits, at least 1.5% effluent must show no observed effect on the growth and reproduction of the test species. The threshold limits were met for the quarter.

Fecal Coliform is an indicator of the presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating disease-causing microorganisms. The Contingency Plan requires that the monthly geometric mean not exceed 14000 col/100mL. The monitoring results for the quarter were well below the threshold value.

Total nitrogen is not regulated under the permit, but the Contingency Plan requires it to be closely monitored because of its potential effects on Massachusetts Bay. Total nitrogen includes total Kjeldahl nitrogen, nitrates, and nitrites.