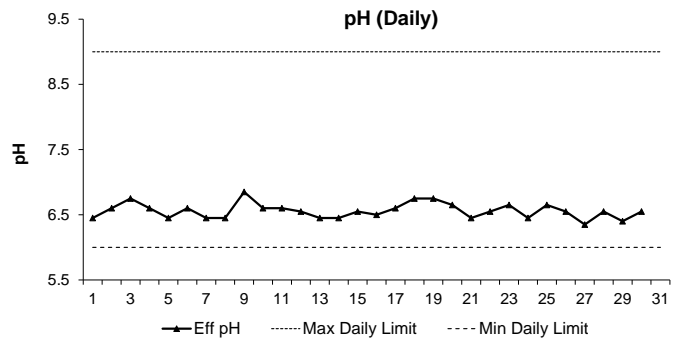
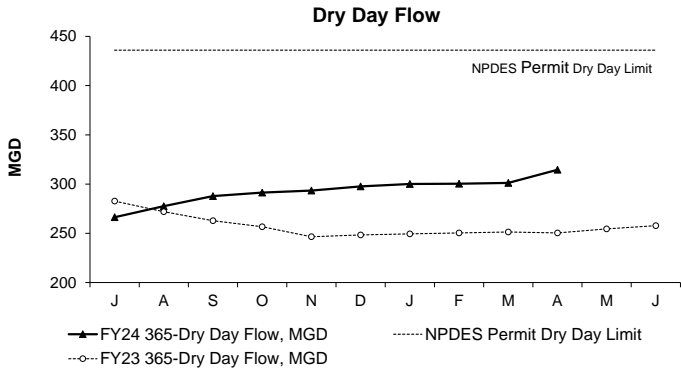


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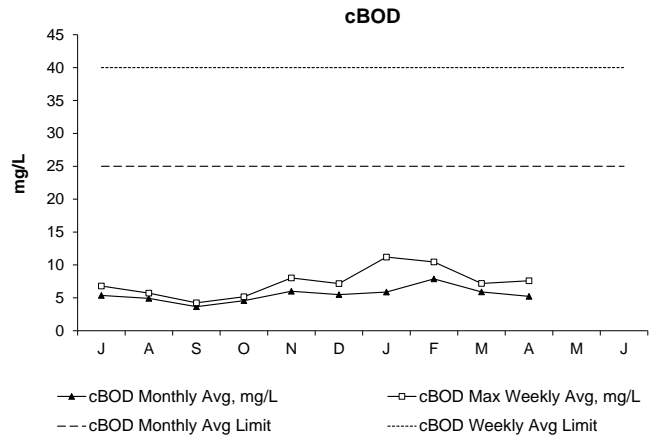
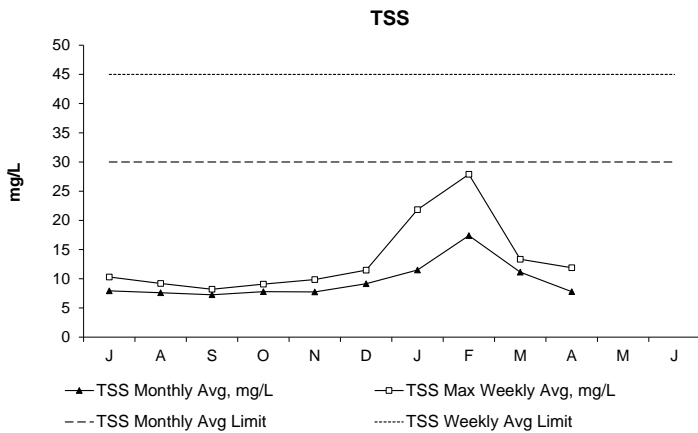
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April's Dry Day Flow is the average of all dry weather influent flows over the previous 365 days from 5/1/2023 to 4/30/2024. The Dry Day Flow for the month was 314.5 MGD, well below the permit limit of 436 MGD.

In April, all pH measurements were fairly typical for the season and within permit limits.

pH is a measure of the acidity or basicity of the effluent. Small fluctuations in pH do not have an adverse effect on marine environments. Because pure oxygen is used in the activated sludge reactors, the effluent pH tends to be at the lower range.

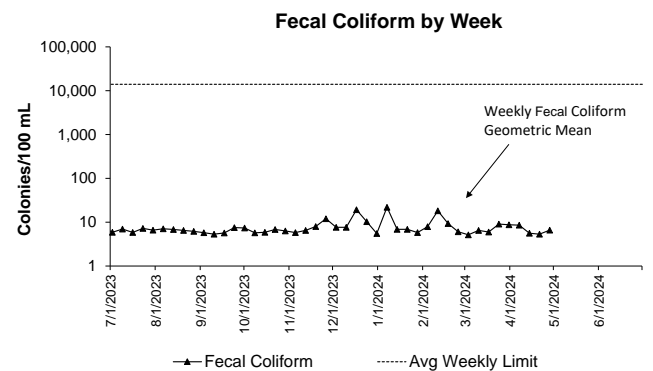
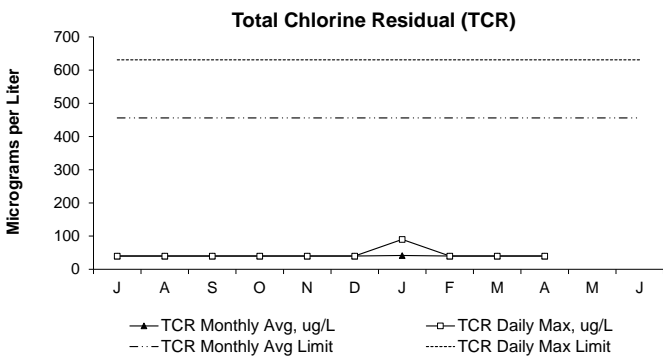


In April, both the weekly and monthly concentrations of TSS were below permit limits. Both the TSS Monthly Avg. and the Max Weekly Avg. were elevated in January due to reduced solids removal caused by significantly higher plant flows resulting from much higher than normal precipitation. TSS levels in February increased further due to the seasonal change in the wastewater temperature resulting in a shift in the biological activity of the secondary activated sludge microbes, which occurred earlier than normal this year due to the warmer temperatures. Levels have subsequently returned to normal.

In April, both the weekly and monthly concentrations of cBOD were well below permit limits.

cBOD, or Carbonaceous Biochemical Oxygen Demand, is a measure of the amount of dissolved oxygen required for the decomposition of organic materials in the environment.

TSS, or Total Suspended Solids, in the effluent is a measure of the amount of solids that remain suspended after treatment.



In April, both the maximum daily and monthly concentrations of TCR were below permit limits. The TCR Monthly Avg and the TCR Daily Max values have been non-detectable at 40 ug/L for every month except for January. Therefore, both parameters may appear to be represented by the same trendline except for the low detectable TCR result recorded in January.

In April, all permit conditions for Fecal Coliform were met. Fecal Coliform is an indicator for the possible presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating many forms of disease-causing microorganisms.

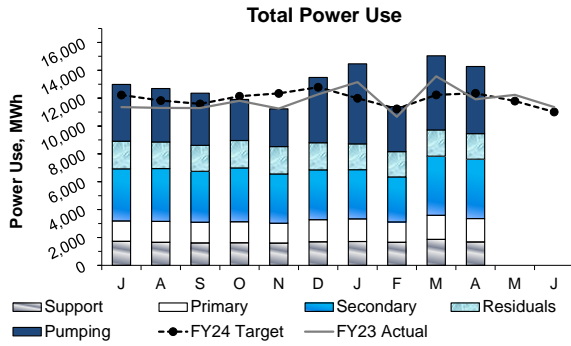
TCR, or Total Chlorine Residual, in the effluent is a measure of the amount of chlorine that remains after the disinfection/dechlorination process. If the chlorine residual in the effluent is too high, it may threaten marine organisms.

There are four (4) conditions in the permit that must be met: daily geomean; weekly geomean; 10% of all samples in a month; and greater than three (3) consecutive samples not to exceed 14,000 colonies/100mL.

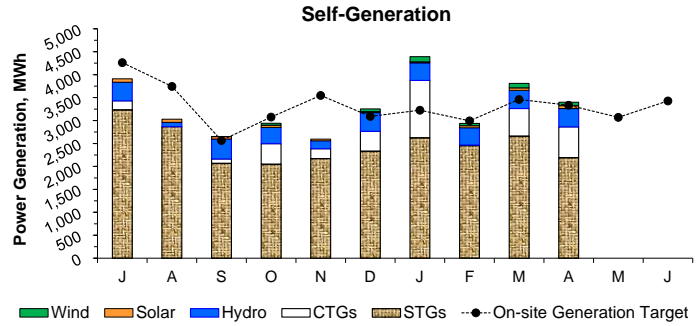
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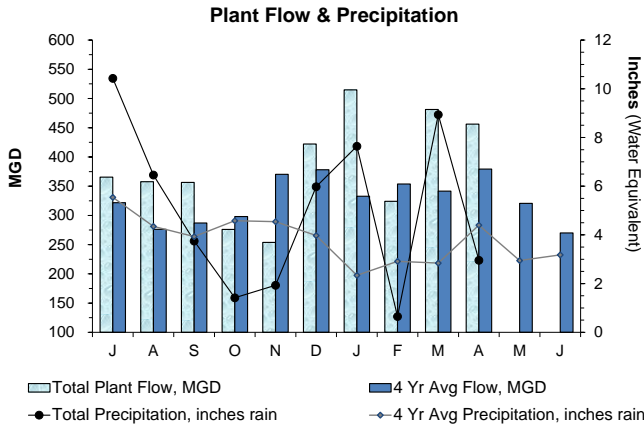
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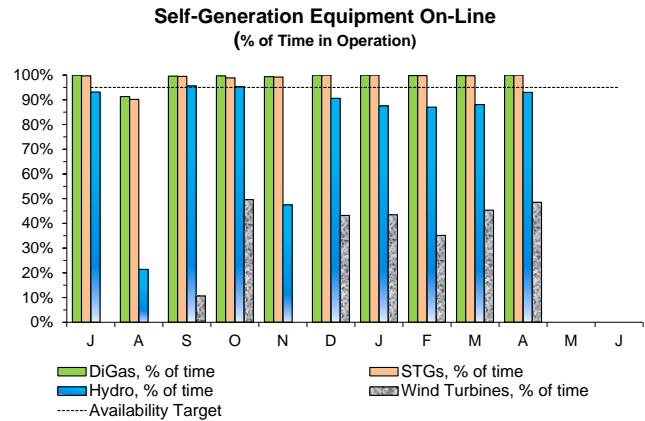
Total plant power usage for April was 15.5% above target. Plant flow was 20.3% above target with historical data (4 yr avg) used to generate the electricity model even though precipitation was 32.8% below the target 4-year average (2.96 inches actual versus 4.40 inches expected) due to sustained elevated plant flows following last month's excessive rainfall that was over three (3) times higher-than-expected for March. Power usage for most treatment processes was within 6% of target, but power used for raw wastewater pumping (+23.9%) and for secondary treatment processes (+24.4%) were significantly higher than target due to the residual high plant flows.



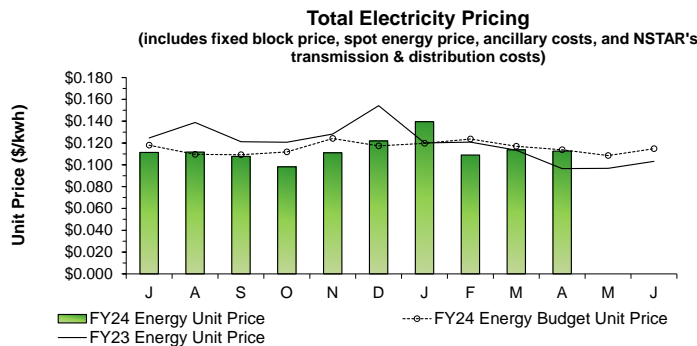
Total on-site generation for April was 1.9% above target with budgetary estimates. The CTGs were operated a total of 48.2 hours as a source of backup power during a Nor'easter storm with damaging winds and an extended period of very high plant flows. As a result, CTG generation was over three (3) times higher than budgeted. STGs generation was 4.6% below target, as digester gas production was 6.7% below target. Hydro Turbine generation was 28.8% below target due to a period of high plant flows combined with high tides which limited generation. Additionally, Hydro Turbine #1 remains offline pending a replacement gearbox and bearings. Solar Panel generation was 20.6% below target, partially due to a failed grid inverter on the Residuals Odor Control Facility solar array which has kept the array out of service since September 12, 2022. Wind Turbine generation was 61.5% below target mainly as Turbine #1 remains out of service.



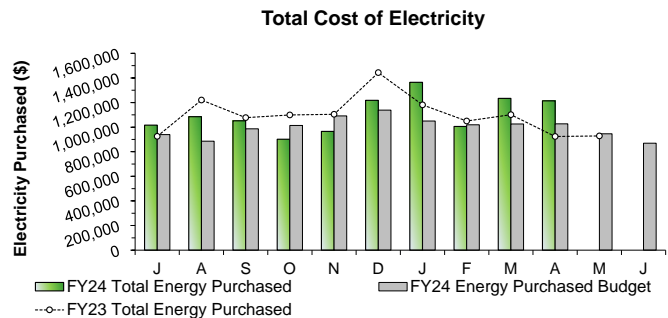
Total Plant Flow for April (456.2 MGD) was 20.3% above target with the 4 year average flow estimate (379.4 MGD) even though precipitation was 32.8% lower than the 4 year average (2.96 inches actual vs. 4.40 inches expected) due to sustained elevated plant flows following last month's excessive rainfall that was over three (3) times higher-than-expected for March.



The DiGas System and the STGs exceeded the 95% availability target in April. The Hydro Turbine availability fell just below target (93.0% availability) due to a period of high plant flows combined with high tides which prevented hydro turbine operation. Wind Turbine availability was 48.5%, well below target, as Turbine #1 remains out of service indefinitely while Turbine #2 availability was 97.1%.



Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price is depicted for July through March (months with the latest available unit prices), while the April unit price is estimated due to a billing delay with Direct Energy (NRG). Overall, the average unit price is estimated to be 2.2% lower than the budgetary estimate through April. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

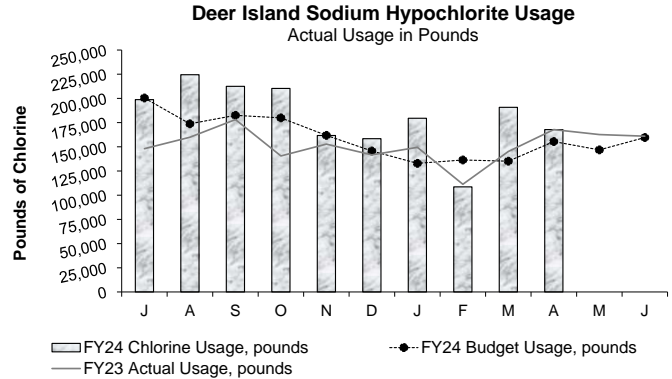
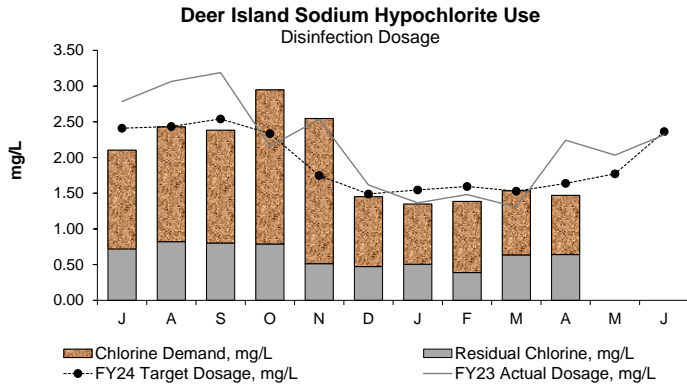


Year-to-date Total Cost of Electricity is estimated to be \$879,444 (8.6%) higher than budgeted through April. The actual Total Cost of Electricity is depicted for July through March (months with the latest available unit prices), while the April Cost of Electricity is estimated due to a billing delay with Direct Energy (NRG). Even though the estimated Total Energy Unit Price through April was 2.2% lower than target, the Total Volume of Electricity Purchased was 11.1% above target due mainly to higher-than-expected overall power usage as a result of higher plant flows.

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The disinfection dosing rate in April was 10% below target with budgetary estimates, while sodium hypochlorite usage in pounds was 8.0% higher-than-expected as plant flows were 20.3% above target. DITP maintained an average disinfection chlorine residual of 0.64 mg/L this month with an average dosing rate of 1.47 mg/L as chlorine demand was 0.83 mg/L. On March 4, the disinfection basin effluent total chlorine residual target for dry weather flows was increased to greater than or equal to 0.50 mg/L in preparation for potential new NPDES seasonal permit limits for indicator bacteria. The purpose for the higher chlorine residual target (and higher sodium hypochlorite dosing) is to continue developing operating strategies for the new permit, an effort that was also undertaken in 2023.

The overall disinfection dosing rate (target and actual) is dependent on plant flow, target effluent total chlorine residual levels, effluent quality and NPDES permit levels for fecal coliform.

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
July	8	8	0	98.4%	27.30
August	3	3	0	99.1%	13.32
September	2	2	0	99.4%	12.36
October	0	0	0	100.0%	0.00
November	0	0	0	100.0%	0.00
December	3	3	0	96.7%	53.67
January	5	5	0	94.9%	90.09
February	0	0	0	100.0%	0.00
March	6	6	0	96.9%	63.77
April	3	3	0	97.4%	57.10
May					
June					
Total	30	30	0	97.9%	317.62

97.4% of all flows were treated at full secondary during the month of April. There were a total of three (3) separate secondary blending events in April due to high plant flows from heavy precipitation. These blending events resulted in 57.10 hours of blending and a total of 362.01 MGal of primary-only treated effluent blended with secondary effluent. The Maximum Secondary Capacity during the entire month was 700 MGD.

Secondary permit limits were met at all times in April.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

The plant achieved an instantaneous peak flow rate of 1,145.6 MGD during the early afternoon of April 4. This peak flow occurred during a storm event that brought 1.56 inches of total precipitation to the metropolitan Boston area during the course of three (3) days. The Total Plant Flow in March was 20.3% above the 4 year average plant flow target for the month, even though precipitation was 32.8% lower than the 4 year average (2.96 inches actual vs. 4.40 inches expected), due to sustained elevated plant flows following last month's excessive rainfall that was over three (3) times higher-than-expected for March.

Disinfection/Dechlorination:

MWRA uses sodium hypochlorite to destroy pathogens in plant effluent after primary and secondary treatment. Indicator bacteria such as Fecal Coliform, *E. coli*, and Enterococcus are used to measure the presence of potential pathogens. To provide a proper pathogen kill, sodium hypochlorite, a disinfectant, is added to meet a chlorine demand then regulated by maintaining a chlorine residual. On March 4, the disinfection basin effluent total chlorine residual target for dry weather flows was increased to greater than or equal to 0.50 mg/L in preparation for potential new NPDES seasonal permit limits for indicator bacteria. The purpose for the higher chlorine residual target (and higher sodium hypochlorite dosing) is to continue developing operating strategies for the new permit, an effort that was also undertaken in 2023. DITP maintained an average disinfection chlorine residual of 0.64 mg/L with an average chlorine demand of 0.83 mg/L, with the adjusted higher target. Higher usage of both sodium hypochlorite and sodium bisulfite, used for removing the residual chlorine before discharging the effluent, will be necessary in order to comply with the more stringent indicator bacteria limits in the proposed new NPDES permit.

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Deer Island Operations & Maintenance Report (continued)

Secondary Treatment:

Annual turnaround maintenance was performed on Train #2 in the Cryogenic Oxygen Facility began on April 29 and continued into May. This two (2) week turnaround maintenance is performed on roughly half of the components and systems in the Cryogenic Oxygen Facility. During this turnaround maintenance, the service contractor calibrated all the instrumentation on Cold Box unit #2 as well as, a number of other components of the oxygen plant. Train #1 with Cold Box unit #1 was placed into operation starting on April 21 to allow Cold Box #2 to be taken out of operation for the scheduled maintenance. The same turnaround maintenance will be completed on Train #1 in the fall.

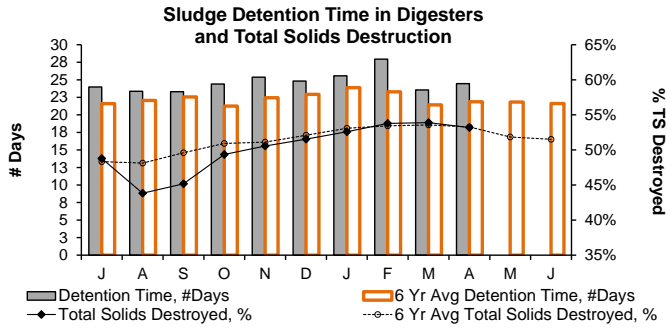
Energy and Thermal Power Plant:

Overall, total power generated on-site accounted for 23.8% of Deer Island's total power use for the month of April. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 19.1% of Deer Island's total electrical power use for the month.

Deer Island Operations and Residuals

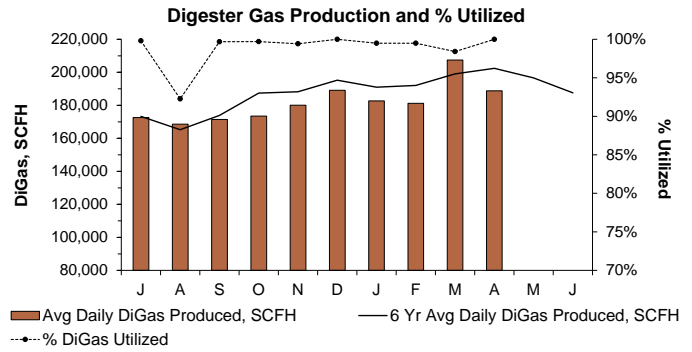
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Total Solids (TS) destruction following anaerobic sludge digestion was 53.2% in April on target (-0.2%) with the 6 year average of 53.3% solids destruction. Sludge detention time in the digesters was 24.4 days, 11.8% higher than the target of 21.9 days, even though the number of digesters in operation was on target with budgetary estimates.

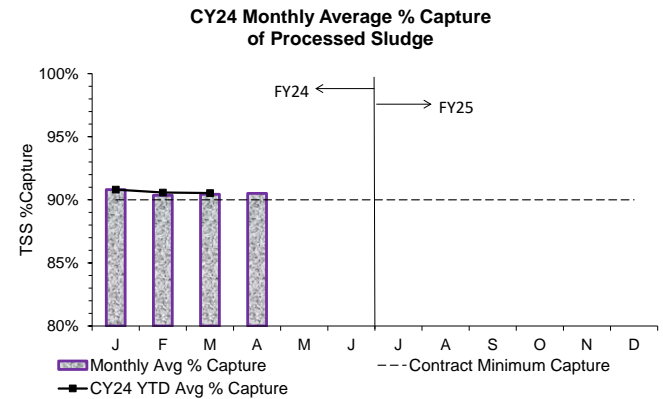
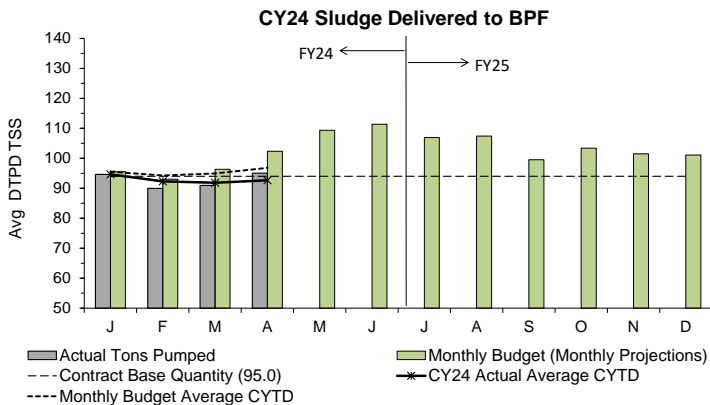
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting around of sludge.



The Avg Daily DiGas Production in April was 6.7% below target with the 6 Year Avg Daily DiGas. 100.0% of the Digas produced was utilized at the Thermal Power Plant.

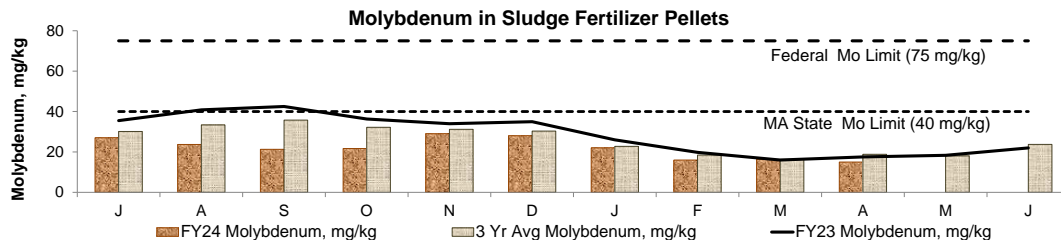
Residuals Pellet Plant

New England Fertilizer Company (NEFCO), a wholly-owned, indirect subsidiary of Synagro Technologies, Inc., operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 95.0 DTPD/TSS as an annual average (for the new contract period of January 1, 2024 through December 31, 2034). The monthly invoice is based on 95.0 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. On average, MWRA processes more than 95.0 DTPD/TSS each year (FY24's budget is 103.2 DTPD/TSS and the preliminary FY25 budget is 99.9 DTPD/TSS).



Total sludge sent to the Biosolids Processing Facility (BPF) was below target. DTPD delivered 95.0 TSS Dry Tons Per Day (DTPD) to the BPF, resulting in a variance of 7.2% (approximately 7.3 TSS DTPD) from the April target of 102.4 TSS DTPD for the month. The lower amount of sludge sent to the BPF is partly attributed to 6.7% lower-than-expected primary sludge production, which along with 7.7% higher-than-expected secondary sludge production, resulted in 2.2% lower-than-expected overall sludge production and thus less sludge being sent to the BPF.

The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility (BPF). The capture rate of solids in April was 90.51%.



Copper, lead, and molybdenum (Mo) are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Molybdenum-based cooling tower water is a significant source of Mo in the sludge fertilizer pellets. The Federal standard for Mo is 75 mg/kg. The Massachusetts Type I biosolids standard for molybdenum is 40 mg/kg (since 2016).

The levels were below the DEP Type 1 limit for all three (3) metals in April. For Mo, the level in the MWRA sludge fertilizer pellets was 15.0 mg/kg which was 20% below target with the 3 year average, 62% below the MA State Limit, and 80% below the Federal Limit.