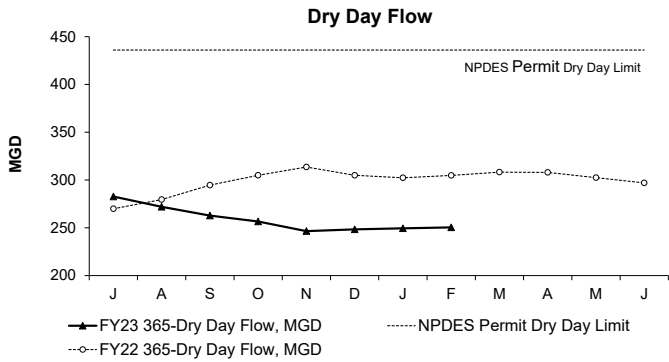
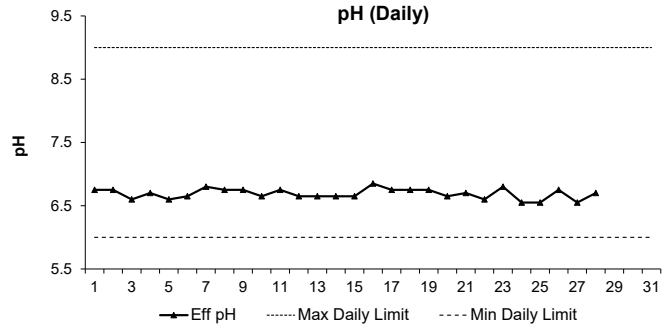


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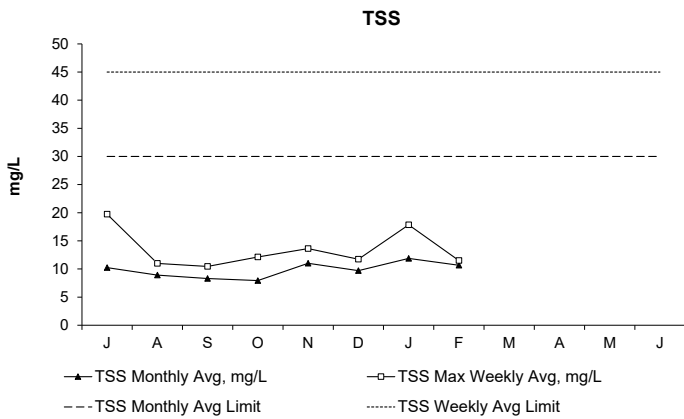


February's Dry Day Flow is the average of all dry weather influent flows over the previous 365 days from 1/31/2022 to 2/28/2023. The Dry Day Flow for the month was 250.4 MGD, well below the permit limit of 436 MGD. The Dry Day Flow had been trending down due to much lower-than-expected plant flows from April 2022 through November 2022 due to the regional drought, but plant flows have been at more typical levels during the recent months.



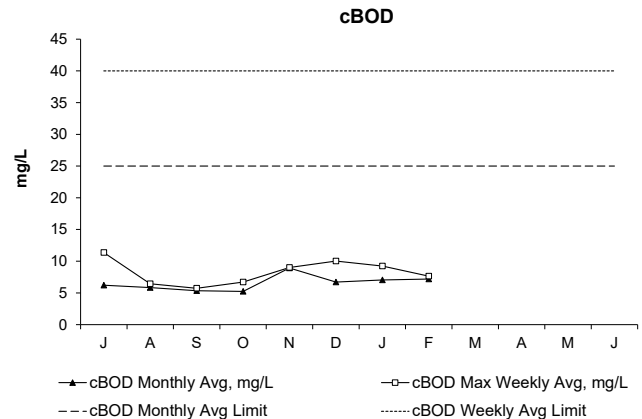
In February, all pH measurements were fairly typical for the season and within permit limits.

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.



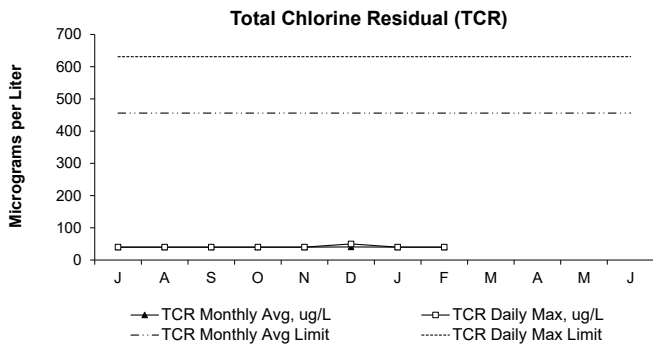
In February, both the weekly and monthly concentrations of TSS were below permit limits.

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



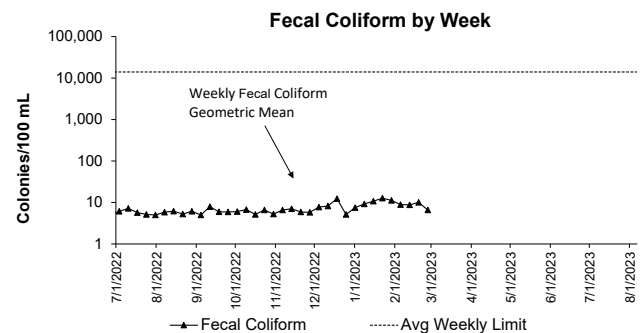
In February, both the weekly and monthly concentrations of cBOD were well below permit limits.

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.



In February, both the maximum daily and monthly concentrations of TCR were below permit limits. The TCR Monthly Avg and the TCR Daily Max values were non-detectable at 40 ug/L except in December. Therefore, both parameters may appear to be represented by the same trendline for much of the time in the above graph.

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.

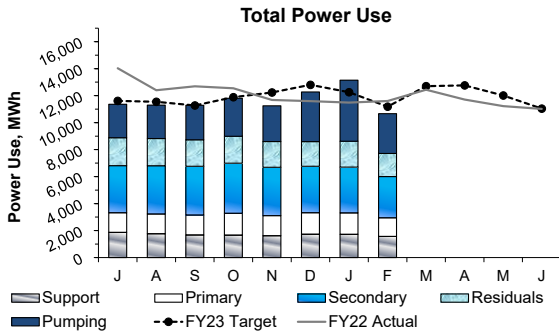


In February, all permit conditions for Fecal Coliform were met. Fecal Coliform is an indicator for the possible presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating many forms of disease-causing microorganisms.

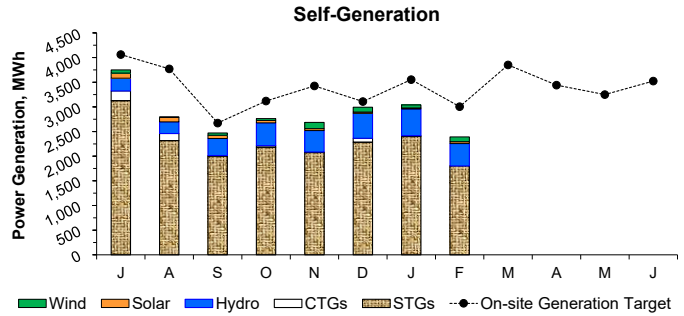
There are four (4) conditions in the permit that must be met: daily geometric; weekly geometric; 10% of all samples in a month; and greater than three (3) consecutive samples not to exceed 14,000 colonies/100mL.

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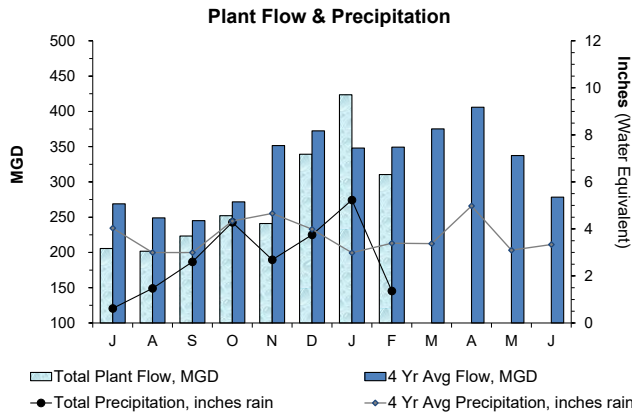
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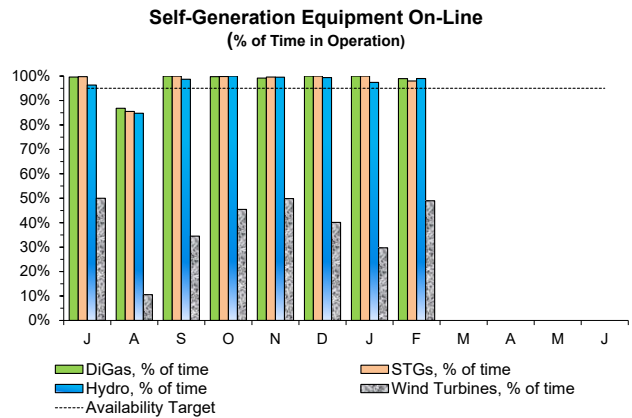
Total power usage for February was 4.7% below target. Plant flow was 11.1% below target with historical data (4 yr avg) used to generate the electricity model, as precipitation was 59.9% below target (3.39 inches expected vs. 1.36 inches actual). Power used in most areas and treatment processes was similar to or below target, including power used for raw wastewater pumping, which was 11.3% below target.



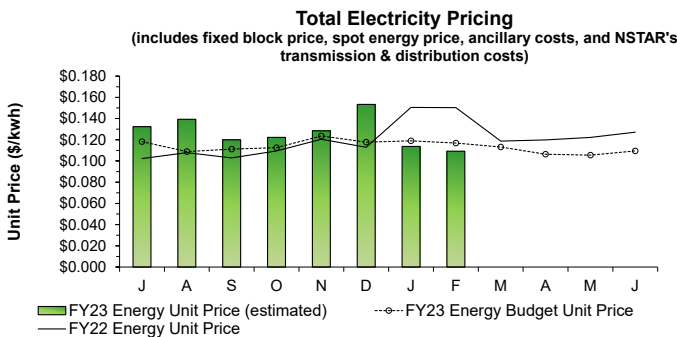
Total on-site generation was 20.4% below target with budgetary estimates. CTGs operation was not needed and STGs generation was 20.0% below target as the main STG was out of service from February 3 to February 10 due to an electrical issue following a brief under-voltage incident which caused the Thermal Power Plant to trip. Hydro Turbine generation was 12.4% below target due to the lower plant flows. Solar Panel generation was 8.2% below target partially due to overcast weather during the second half of the month, as well as a failed grid inverter on the Residuals Odor Control rooftop solar array which has kept the array out of service since September 12, 2022. Wind Turbine generation was 38.3% below target as Wind Turbine availability was 49.0%. Wind Turbine #1 has been out of service since April 11, 2022 with a main shaft bearing failure, while Wind Turbine #2 was available 97.9% of the month.



Total Plant Flow for February (310.4 MGD) was 11.1% below target with the 4 year average flow estimate (349.3 MGD) as precipitation was 59.9% lower than the 4 year average (1.36 inches actual vs. 3.39 inches expected).

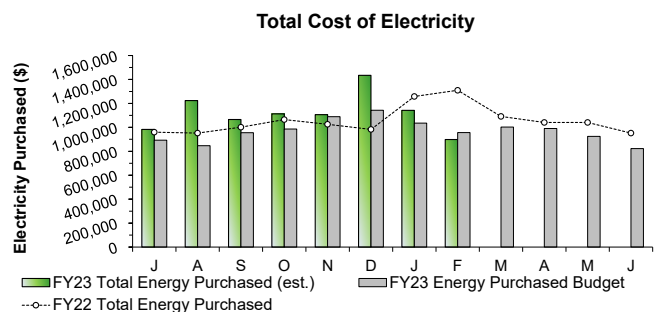


The DiGas System, STGs, and Hydro Turbines all met the 95% availability target in February, while Wind Turbine availability fell below target. The combined Wind Turbine availability was only 49.0% due to a main shaft bearing failure on Turbine #1 which has left this turbine out of service since April 11, 2022. Wind Turbine #2 was available 97.4% in February.



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 Prices for FY23 are not yet available as the complete invoices have not been received. Therefore, estimated pricing information is provided. The estimated Total Energy Unit Price in February (the most current estimate available) was 6.6% below target with budgetary estimates. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

Note: Only estimated energy prices are reported for March FY22 to current time as the invoices for the fixed block and spot energy prices have been pending receipt for this period of time.



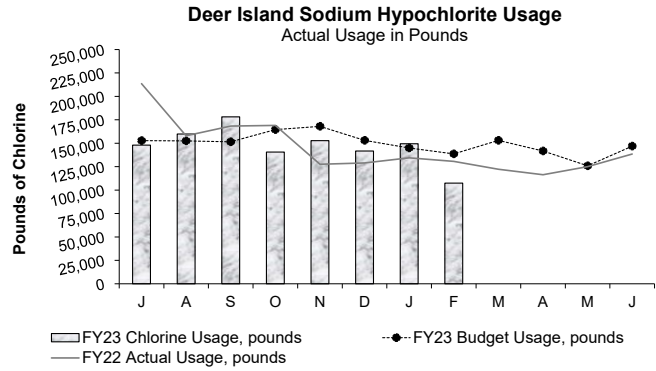
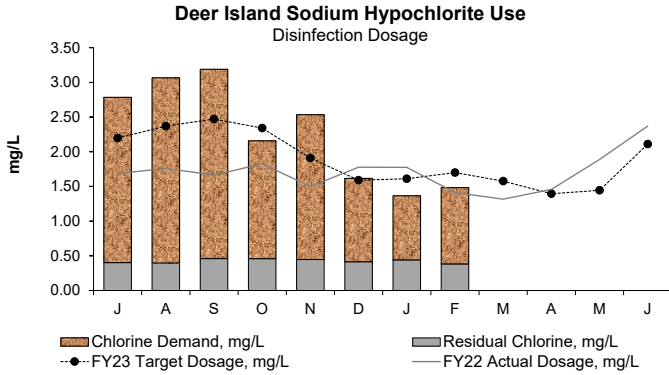
The actual Electricity cost data for Electricity Purchased during FY23 are not yet available as the complete invoices have not been received. Therefore, the estimated Total Cost of Electricity is provided. Year-to-date Total estimated Cost of Electricity is \$1,062,428 (13.4%) higher than budgeted through February as the estimated Total Energy Unit Price was 10.0% higher than target and the estimated Total Electricity Purchased was 3.2% above target. The invoices with the fixed block and spot energy prices have been pending receipt since the March 2022 invoice.

Note: Only estimated Total Cost of Electricity data are reported for March FY22 to current time as the invoices for the fixed block and spot energy prices have been pending receipt for this period of time.

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The disinfection dosing rate in February was 13% below target with budgetary estimates and sodium hypochlorite usage in pounds of chlorine was 22.5% below target as plant flows were 11.1% lower-than-target. DITP maintained an average disinfection chlorine residual of 0.38 mg/L this month with an average dosing rate of 1.48 mg/L as chlorine demand was 0.92 mg/L.

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	0	0	0	100.0%	0.00
August	0	0	0	100.0%	0.00
September	0	0	0	100.0%	0.00
October	1	1	0	99.8%	2.43
November	1	1	0	99.9%	2.12
December	4	4	0	99.5%	17.95
January	3	3	0	98.7%	28.99
February	0	0	0	100.0%	0.00
March					
April					
May					
June					
Total	9	9	0	99.7%	51.50

100.0% of all flows were treated at full secondary during the month of February as there were no blending events. The Maximum Secondary Capacity during the entire month was 700 MGD.

Secondary permit limits were met at all times in February.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

The plant achieved an instantaneous peak flow rate of 474.6 MGD during the evening of February 28. This peak flow occurred during a storm event that brought 0.28 inches of precipitation to the metropolitan Boston area combined with snowmelt. The Total Plant Flow in February was 11.1% below the 4 year average plant flow target for the month.

Residuals Treatment:

In January, DITP staff began the process of transitioning digester operation from Module #1 to Module #3. This is a lengthy process to complete, as each digester is slowly filled one-at-a-time using the digested sludge overflows from the online digesters, then allowing the digester to slowly acclimate before it can begin taking normal sludge feed. As each digester in Module #3 is placed into service, a digester in Module #1 can then be taken out of service to be eventually drained of sludge. The transition from Module #1 to Module #3 operation was completed in early February. The draining of the sludge in the Module #1 digesters will proceed one (1) digester at a time and will take approximately a month to complete.

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Deer Island Operations & Maintenance Report (continued)

Energy and Thermal Power Plant:

Overall, both total power and renewable power generated on-site accounted for 22.4% of Deer Island's total power use for the month of February as CTG operation was not needed. All power generated on-site in February was produced by renewable power generating assets (by Solar, Wind, STGs, and Hydro Turbines).

Hydro Turbine #1 was out of service for general routine maintenance from January 30 through February 3. This maintenance outage did not impact hydro turbine generation as Turbine #2 remained in operation while Turbine #1 was out of service for maintenance.

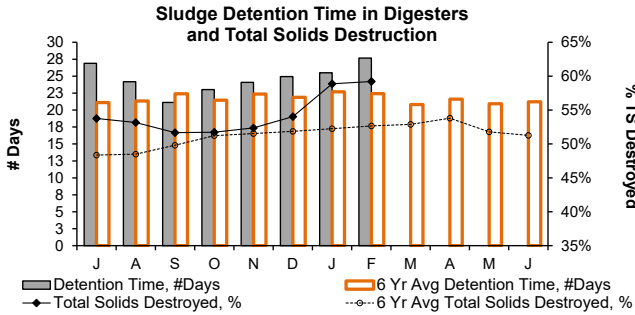
On Friday February 3, DITP experienced an under voltage situation causing the boiler at the Thermal Power Plant to trip at 10:32 p.m. Digester gas was diverted to the waste gas flares however, only one (1) of the three (3) flares started. The other flares were frozen due to extreme temperature conditions and could not be operated. Regional recording setting low temperature conditions existed during this evening with temperatures registering at -5 degrees Fahrenheit around the time of the event and a low of -9.6 degrees Fahrenheit by 2:32 a.m. on February 4. The excess digester gas that could not be burned by the single operating flare was intermittently released to the atmosphere through pressure relief valves at the top of the digesters for several hours until the boiler was restarted and could begin to utilize the digester gas. The under voltage also caused instrumentation issues that complicated and delayed the restart of the boiler. Multiple staff were called on-site to assist with the varied issues caused by the under voltage event.

Later in the evening of February 4, a digester gas compressor in the Thermal Power Plant tripped causing the boiler to again trip. The digester gas was diverted to the flares. By this time, two (2) flares were operable as one of the previously frozen flares had thawed sufficiently to operate. However, the Module 1 flare was still frozen and could not be operated, and was later found to be damaged resulting from the extreme freezing cold. A small amount of excess digester gas that could not be burned by the two (2) operating flares was released to the atmosphere from the Digester complex for less than an hour this time before the boiler was returned to operation. Overall, the majority of the produced digester gas was either contained within the system or used by the boiler, and only a small fraction was released to the atmosphere. No odor complaints were received as a result of these events and the regulators were provided notification per requirements of Deer Island's Air Operating Permit. Staff repaired the failed Module 1 flare during the week, and additional measures have been implemented to prevent the waste gas flares from freezing in the future when severe cold and freezing conditions are expected.

Deer Island Operations and Residuals

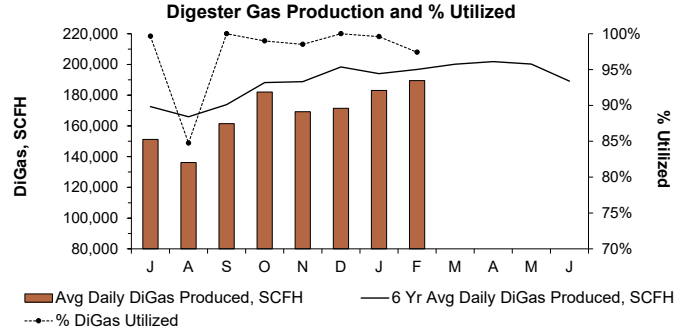
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Total Solids (TS) destruction following anaerobic sludge digestion was 59.2% in February, 12.5% above target with the 6 year average of 52.7% solids destruction as sludge detention time in the digesters was 27.7 days, 23.3% higher than the target of 22.4 days. The higher sludge detention time was a result of filling the Module #3 digesters using the digested sludge overflows from the other on-line digesters, as the Module #3 digesters were in the process of being placed into service, while the Module #1 digesters were being rotated out of service.

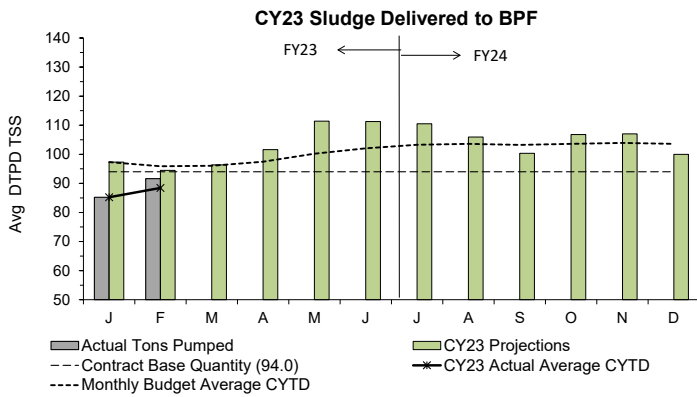
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting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



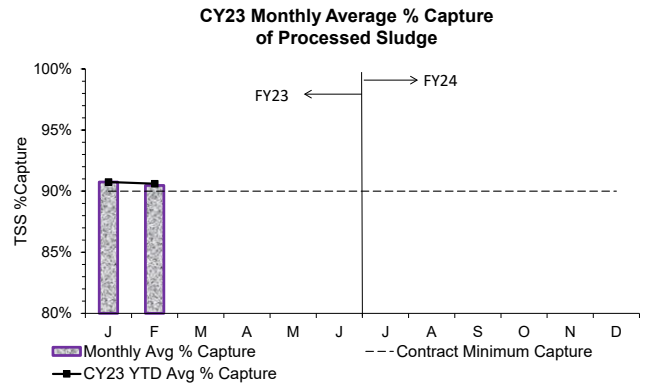
The Avg Daily DiGas Production in February was 3.7% below target with the 6 Year Avg Daily DiGas Production due to 13.4% lower-than-expected primary sludge production. 97.4% of the Digas produced was utilized at the Thermal Power Plant.

Residuals Pellet Plant

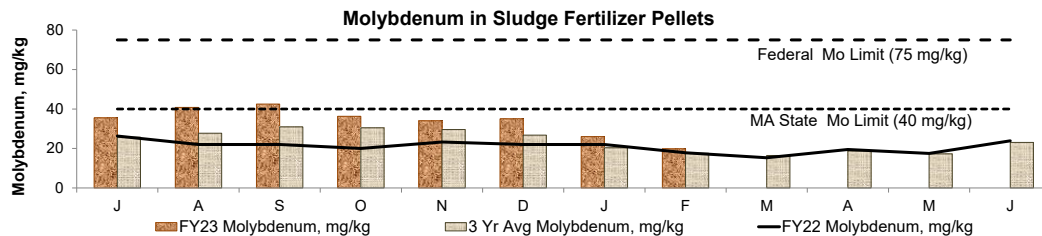
New England Fertilizer Company (NEFCO) operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 94.0 DTPD/TSS as an annual average (for the extended contract period of January 1, 2021 through December 31, 2023). The monthly invoice is based on 94.0 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 94.0 DTPD/TSS each year (FY23's budget is 103.3 DTPD/TSS and the preliminary FY24's budget is 103.2 DTPD/TSS).



Total sludge sent to the Biosolids Processing Facility (BPF) was below target in February. DTP delivered 91.6 TSS Dry Tons Per Day (DTPD) to the BPF, resulting in a variance of 3.0% (approximately 2.8 TSS DTPD) from the February target of 94.5 TSS DTPD for the month. The lower amount of sludge sent to the BPF is mainly attributed to a 13.4% lower-than-expected primary sludge production due to the lower plant flows, as well as to higher solids destruction following anaerobic sludge digestion due to a 23.3% higher sludge detention time in the digesters.



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 February was 90.47%.



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 was changed from 25 mg/kg to 40 mg/kg in 2016, allowing MWRA to sell its pellets in-state for land application whereas the previous limits forced several months' worth of pellets to be shipped out of state.

The levels were below the DEP Type 1 limit for all three (3) metals in February. For Mo, the level in the MWRA sludge fertilizer pellets was 19.8 mg/kg, which was 13% above target with the 3 year average, 50% below the MA State Limit, and 74% below the Federal Limit.