

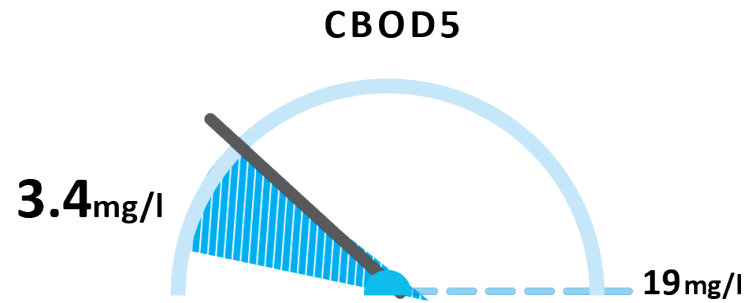
# Operations & Maintenance Report

## May 27, 2021

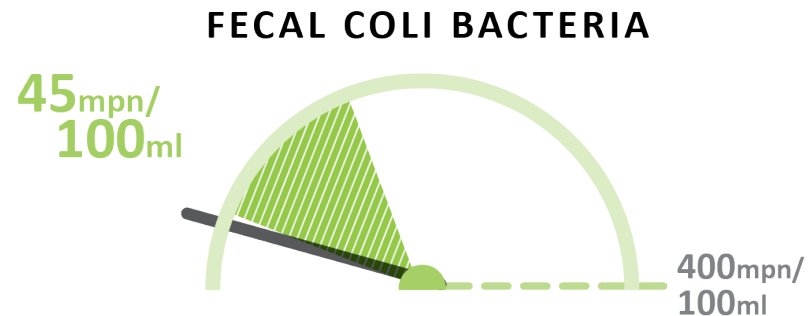
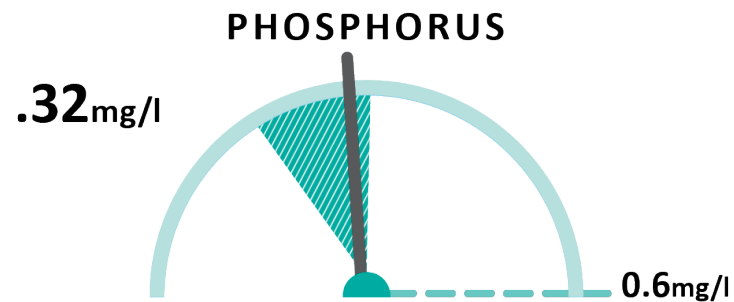
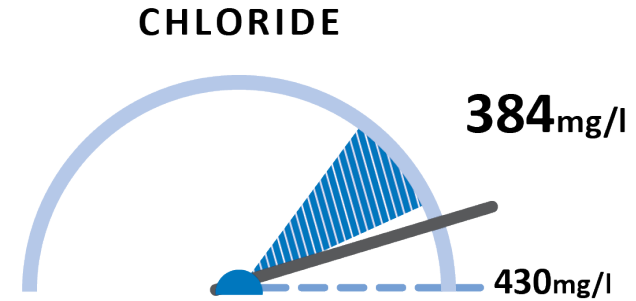
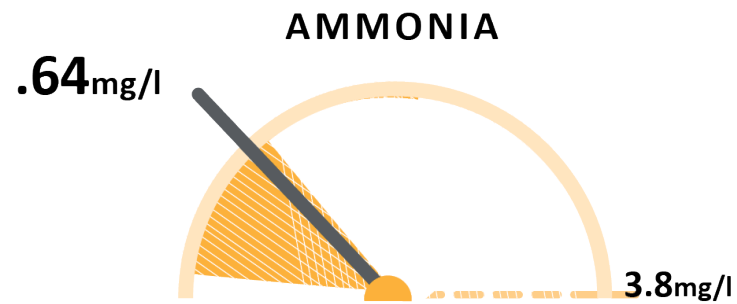
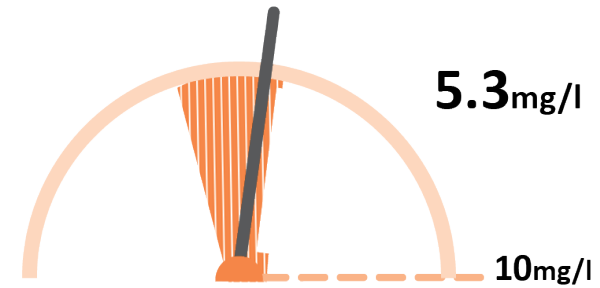




# April Plant Performance



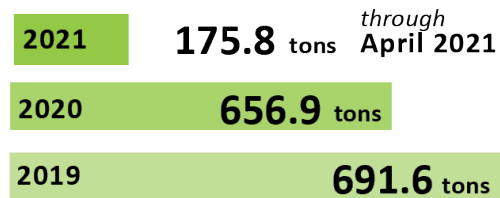
## TOTAL SUSPENDED SOLIDS



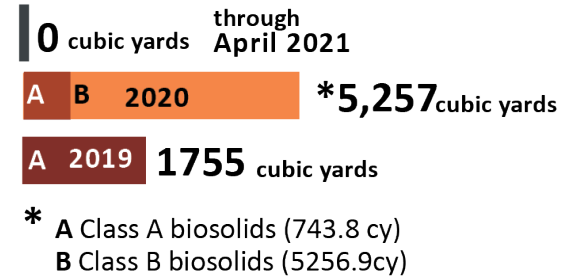
# April Resource Recovery



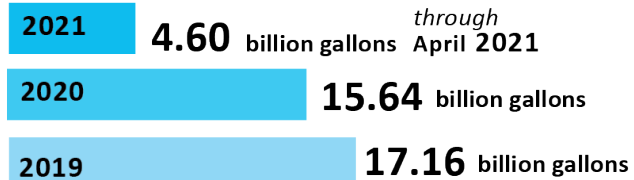
## STRUVITE



## METROGRO CAKE



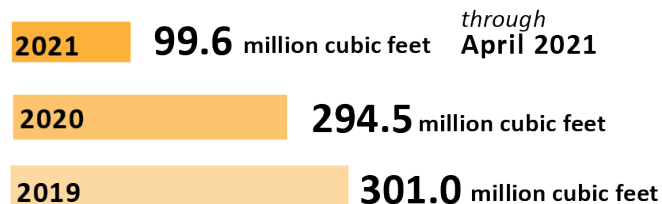
## CLEAN WATER



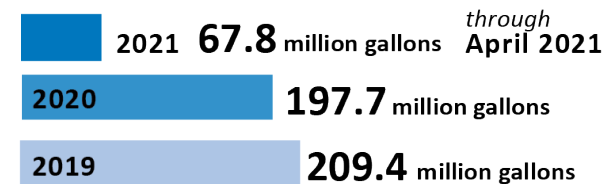
## METROGRO



## BIOGAS



## REUSED EFFLUENT



# May 12<sup>th</sup> foam – digester 4 TFO

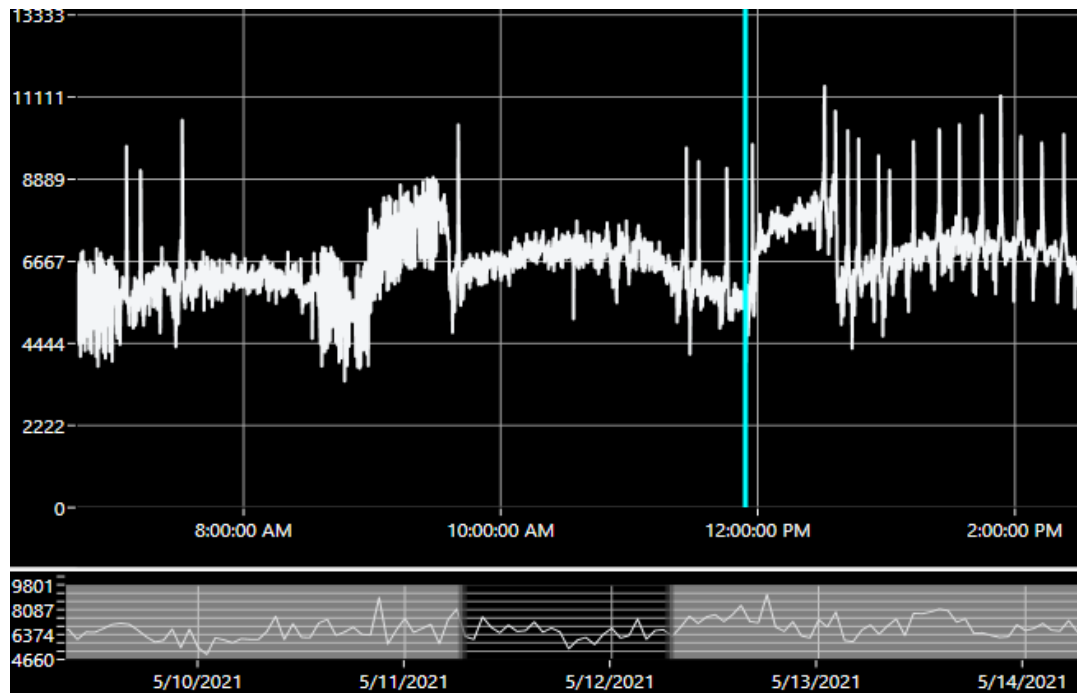


Sludge released from emergency relief hatch during digester foaming event



# Digester foaming – early signs?

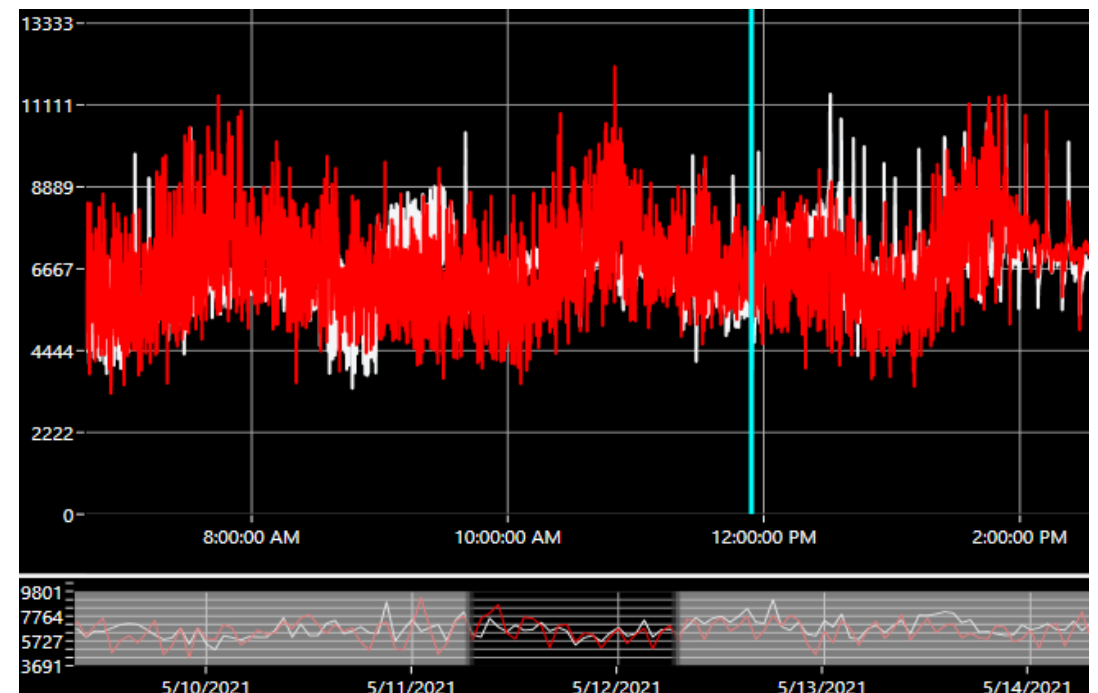
## Digester 8 Gas Production Trend



30 Minutes 1 Hour 2 Hours 8 Hours 12 Hours 24 Hours 1 Week

Description	Units	Last Value	Last Time	Cursor Value	Cursor
<input checked="" type="checkbox"/> Digester 4 Gas Flow	CFH	5,572.95	5/12/2021 6:41:50 AM		
<input type="checkbox"/> Digester 5 Gas Flow	CFH	0.00	5/12/2021 6:41:50 AM		
<input type="checkbox"/> Digester 6 Gas Flow	CFH	6,412.92	5/12/2021 6:41:50 AM		
<input type="checkbox"/> Digester 7 Gas Flow	CFH	5,315.64	5/12/2021 6:41:50 AM		
<input checked="" type="checkbox"/> Digester 8 Gas Flow	CFH	5,797.70	5/12/2021 6:41:50 AM	5,772.94	5/11/2021
<input type="checkbox"/> Digester 9 Gas Flow	CFH	6,686.82	5/12/2021 6:41:50 AM		

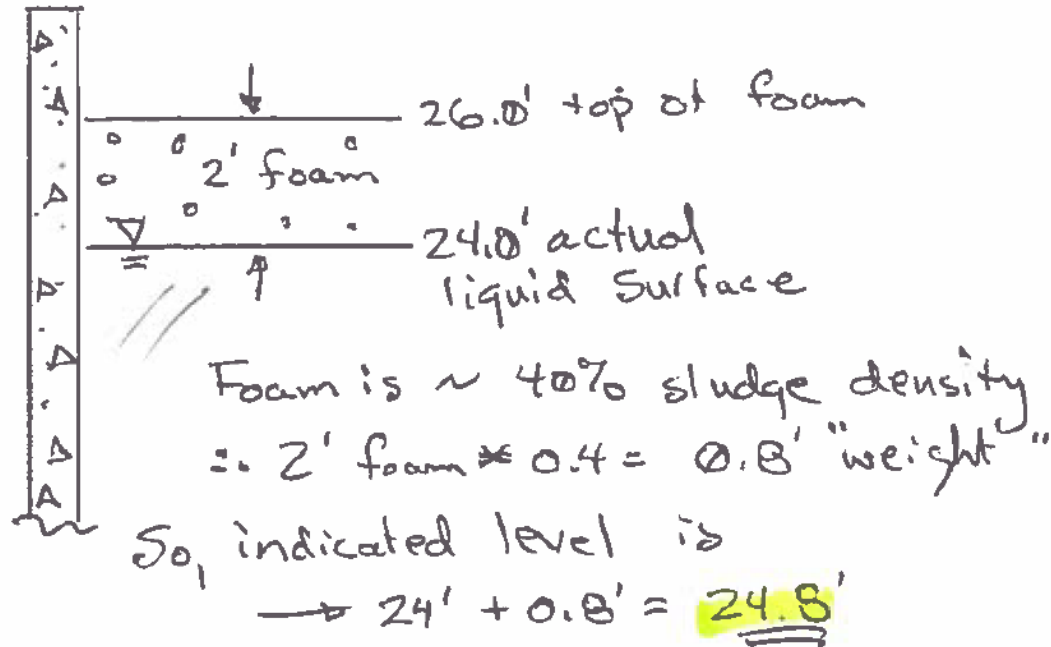
## Digester 4 & 8 Gas Production Trend



30 Minutes 1 Hour 2 Hours 8 Hours 12 Hours 24 Hours 1 Week

Description	Units	Last Value	Last Time	Cursor Value	Cursor
<input checked="" type="checkbox"/> Digester 4 Gas Flow	CFH	5,572.95	5/12/2021 6:41:50 AM	6,937.50	5/11/2021
<input type="checkbox"/> Digester 5 Gas Flow	CFH	0.00	5/12/2021 6:41:50 AM		
<input type="checkbox"/> Digester 6 Gas Flow	CFH	6,412.92	5/12/2021 6:41:50 AM		
<input type="checkbox"/> Digester 7 Gas Flow	CFH	5,315.64	5/12/2021 6:41:50 AM		
<input checked="" type="checkbox"/> Digester 8 Gas Flow	CFH	5,797.70	5/12/2021 6:41:50 AM	5,772.94	5/11/2021
<input type="checkbox"/> Digester 9 Gas Flow	CFH	6,686.82	5/12/2021 6:41:50 AM		

# Foam caused by...it's complicated...



- Digester level control
  - Foam distorts the value
  - Can't see inside digester
  - Actual liquid surface critical to good mixing
  - Good mixing critical to foam mitigation
- Other *contributors* to foam:
  - Rate of feed to digester
  - Digester loading per unit volume
  - Waste activated sludge (WAS) feed percentage
  - Ferric chloride addition (air permit)



# Things could always be worse...





Thank you!

Madison Metropolitan Sewerage District

