

Presentation to Pinelands Commission



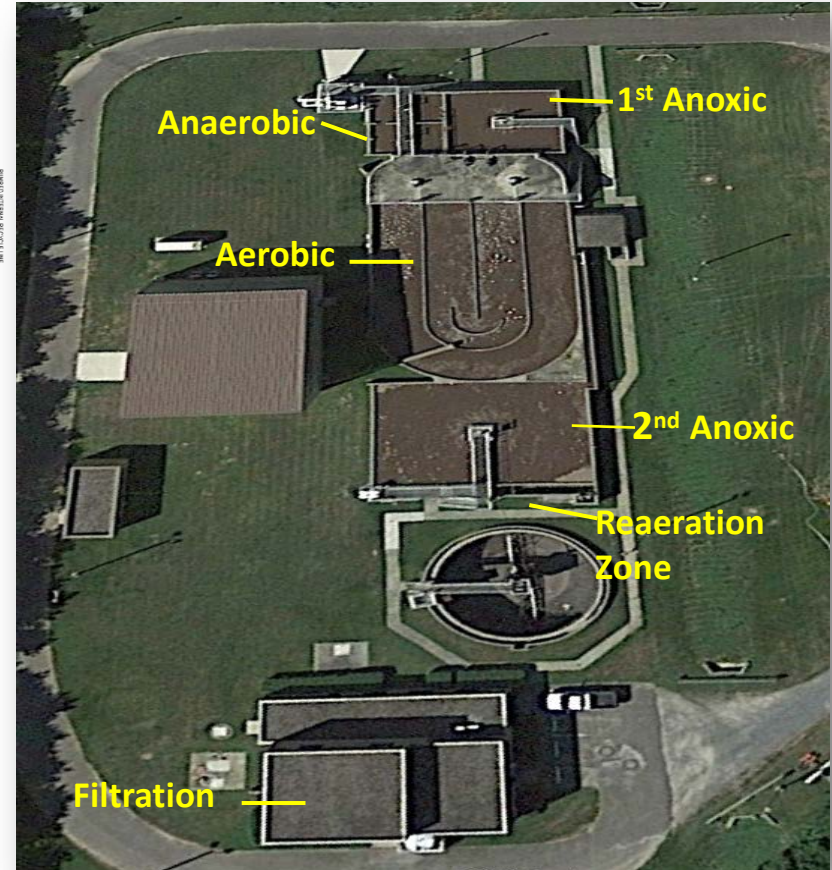
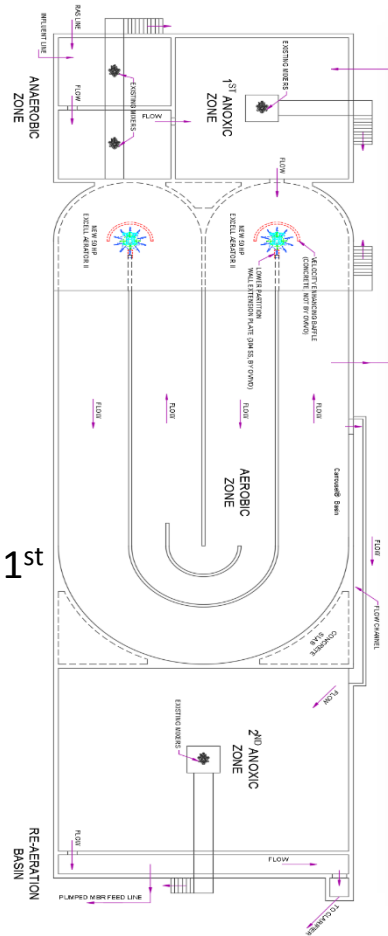
January 11, 2019

Buena Borough, NJ 5 - Stage Bardenpho Carrousel®

- 1992 WWTP process prior to 2013 upgrade to add membrane biological reactor

Process Flow

1. Equalization
2. Screening
3. Anaerobic Zone
4. 1st Anoxic Zone
5. Aerobic Zone with Recycle to 1st Anoxic
6. 2nd Anoxic Zone
7. Alum addition in Reaeration Zone
8. Clarification
9. Sand Filtration
10. UV Disinfection
11. Effluent Discharge to Deep Run



Aerial Drone Photos of the Plant



Aerial Drone Photos of the Plant



Aerial Drone Photos of the Plant



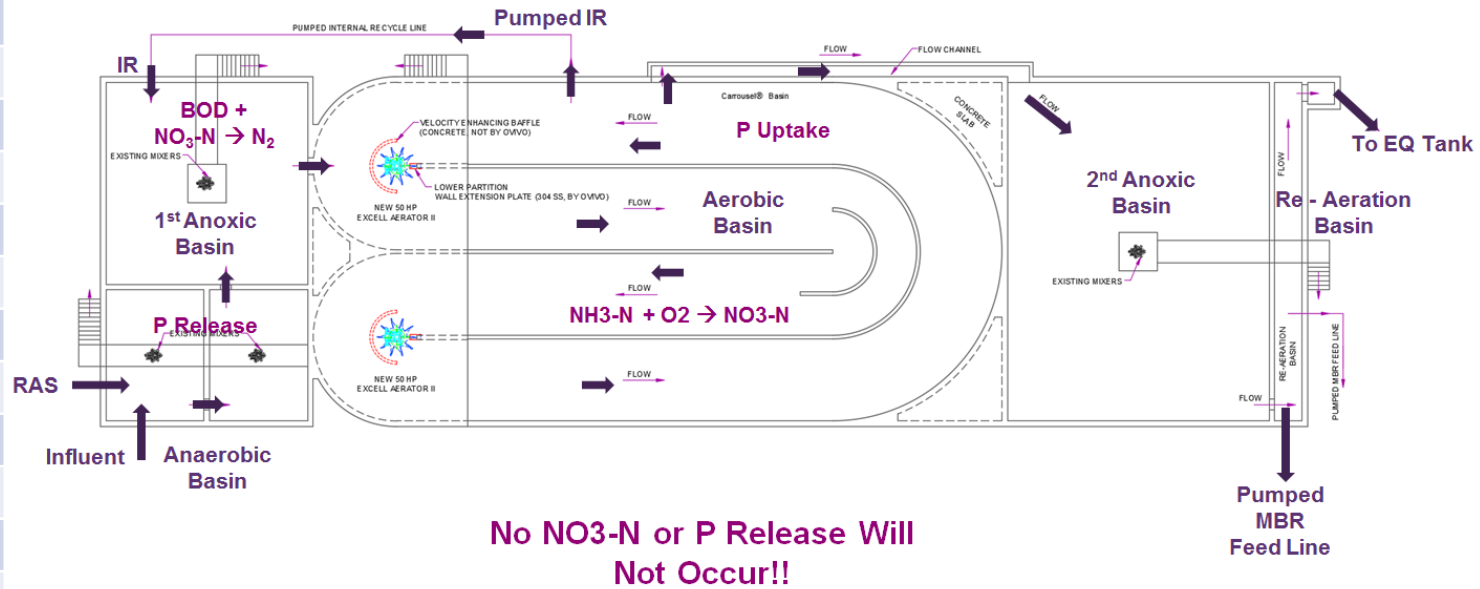
Aerial Drone Photos of the Plant



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Design Criteria

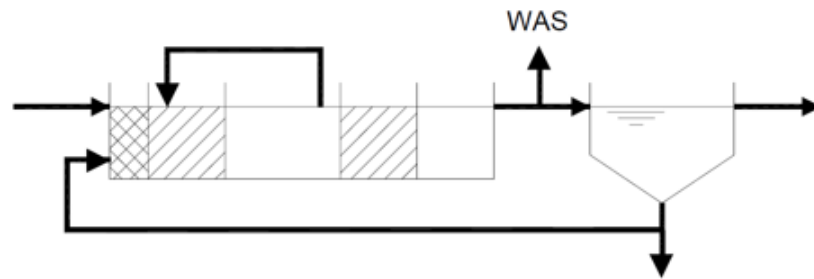
Param	Value
Q	0.6 MGD
BODi	250 mg/L
TSSi	250 mg/L
TKNi	40 mg/L
TPi	6.0 mg/L
BODe	5 mg/L
TNe	2 mg/L
TPe	0.5 mg/L
aSRT	17.5 days
MLSS	8,000 mg/L
BOD Ldg	33#/kft3/d (aer)



2013 MBR Upgrade

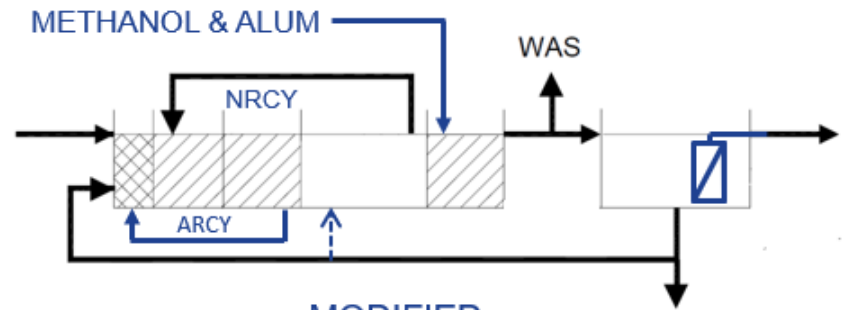
Biological Design

Conventional PFD






FIVE-STAGE BARDENPHO PROCESS

MBR PFD



MODIFIED FIVE-STAGE BARDENPHO PROCESS

LEGEND:

	AEROBIC
	ANOXIC
	ANAEROBIC

- Added fine screen at headworks.
- Modified recycle pumping.
- Installed improved aerators for better mixing & energy efficiencies.
- Replaced clarifier, filters and undisinfection with MBR process.
- Added carbon feed source.

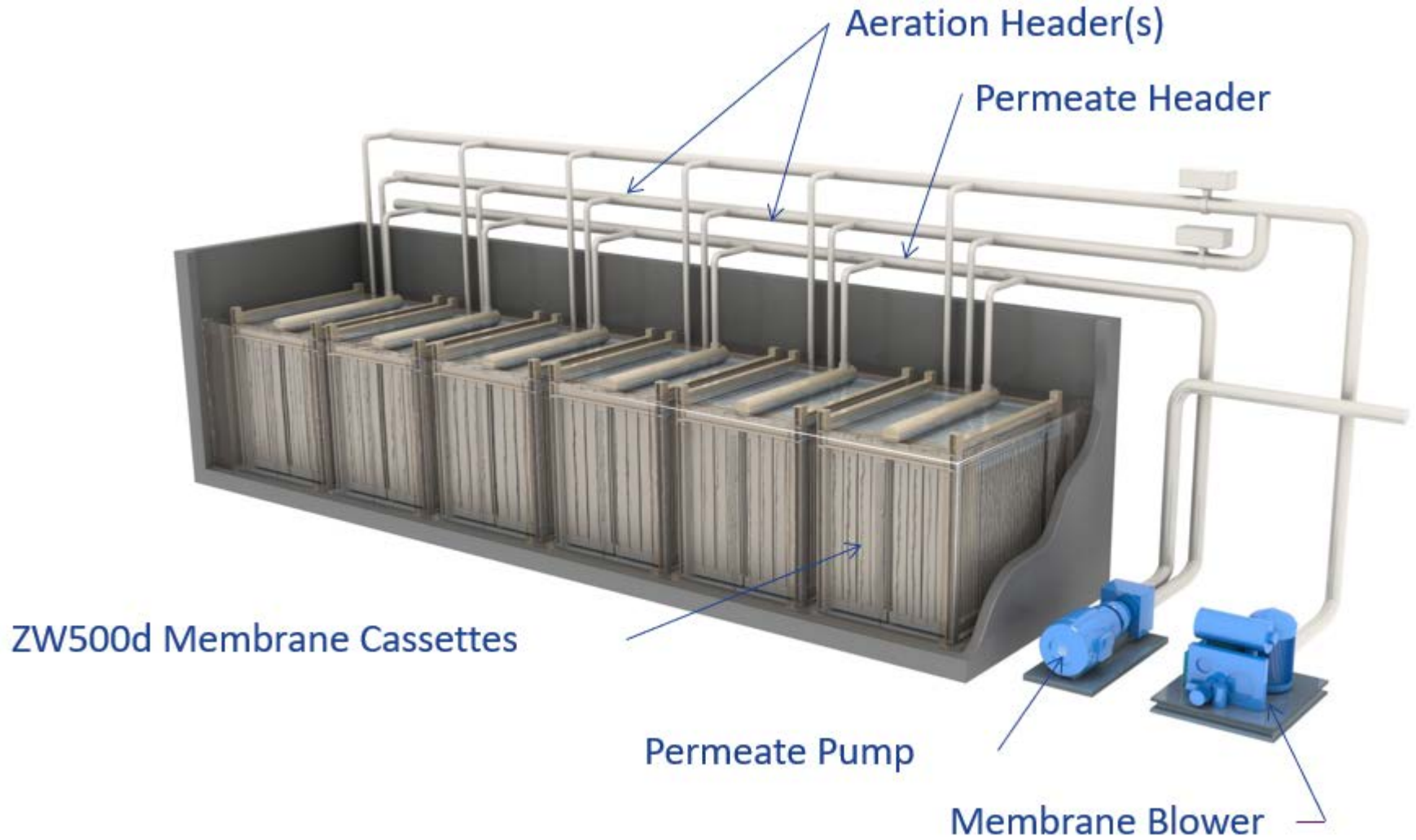
Images



Images continued

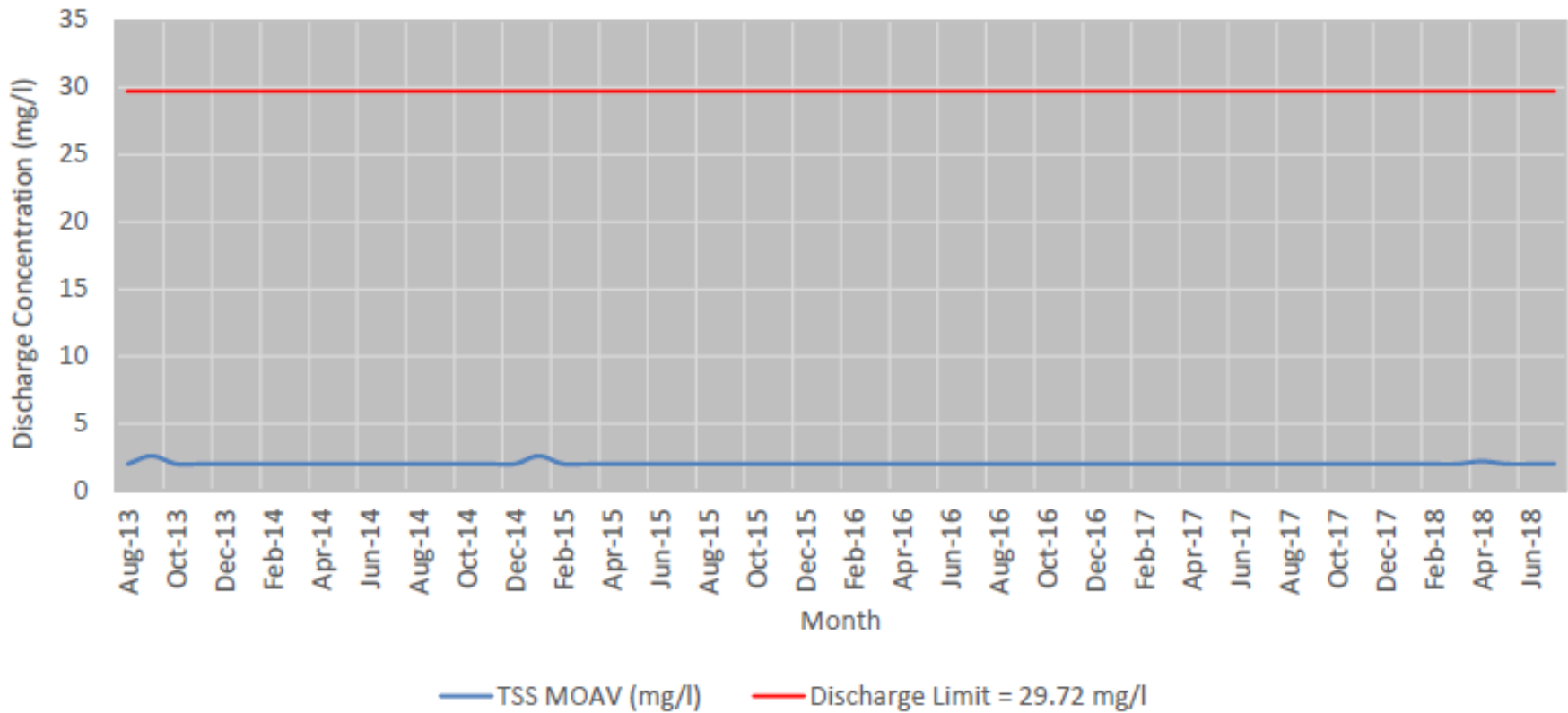


Typical MBR Configuration



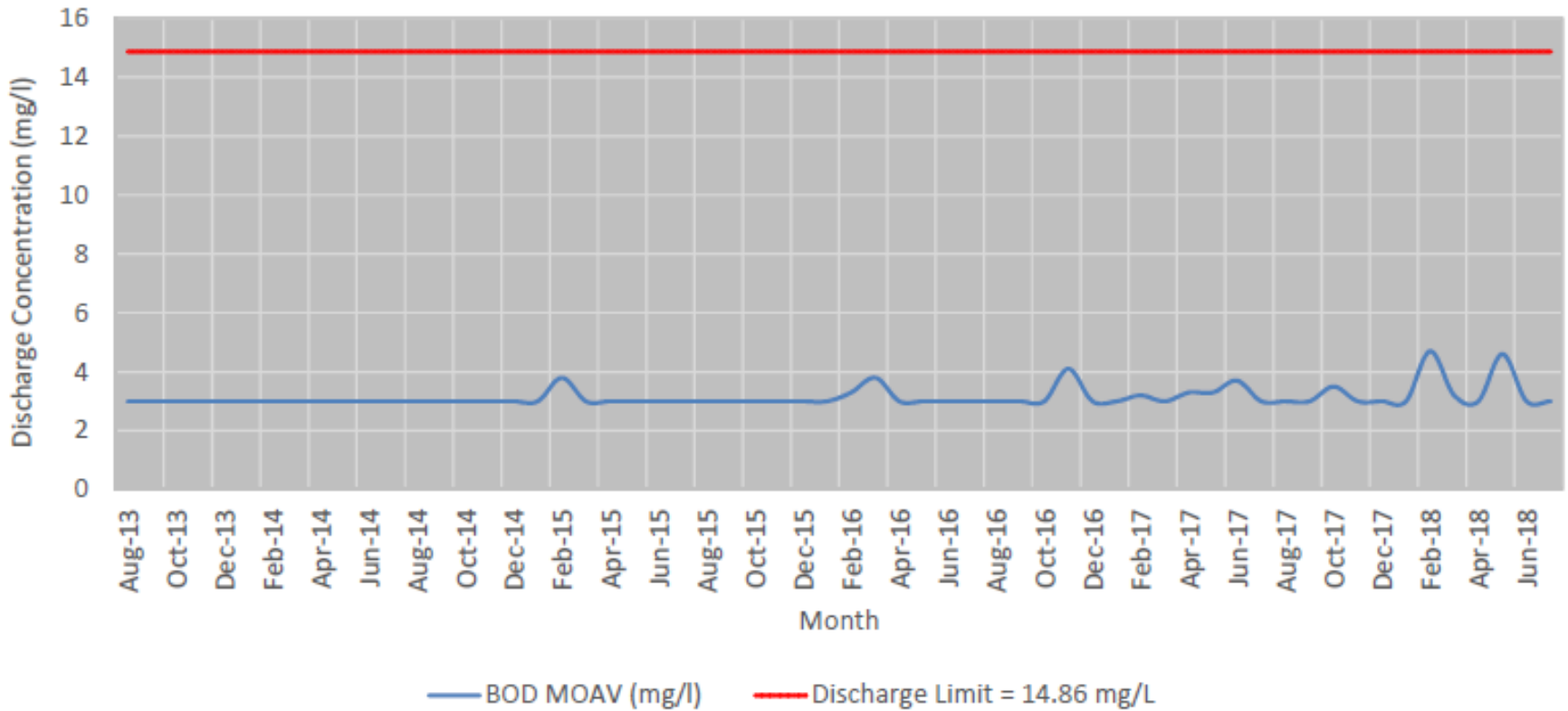
Total Suspended Solids Monthly Average Concentration

Buena Borough Municipal Utilities Authority - Wastewater Treatment Plant
Total Suspended Solids Monthly Average Concentration (2013 to 2018)



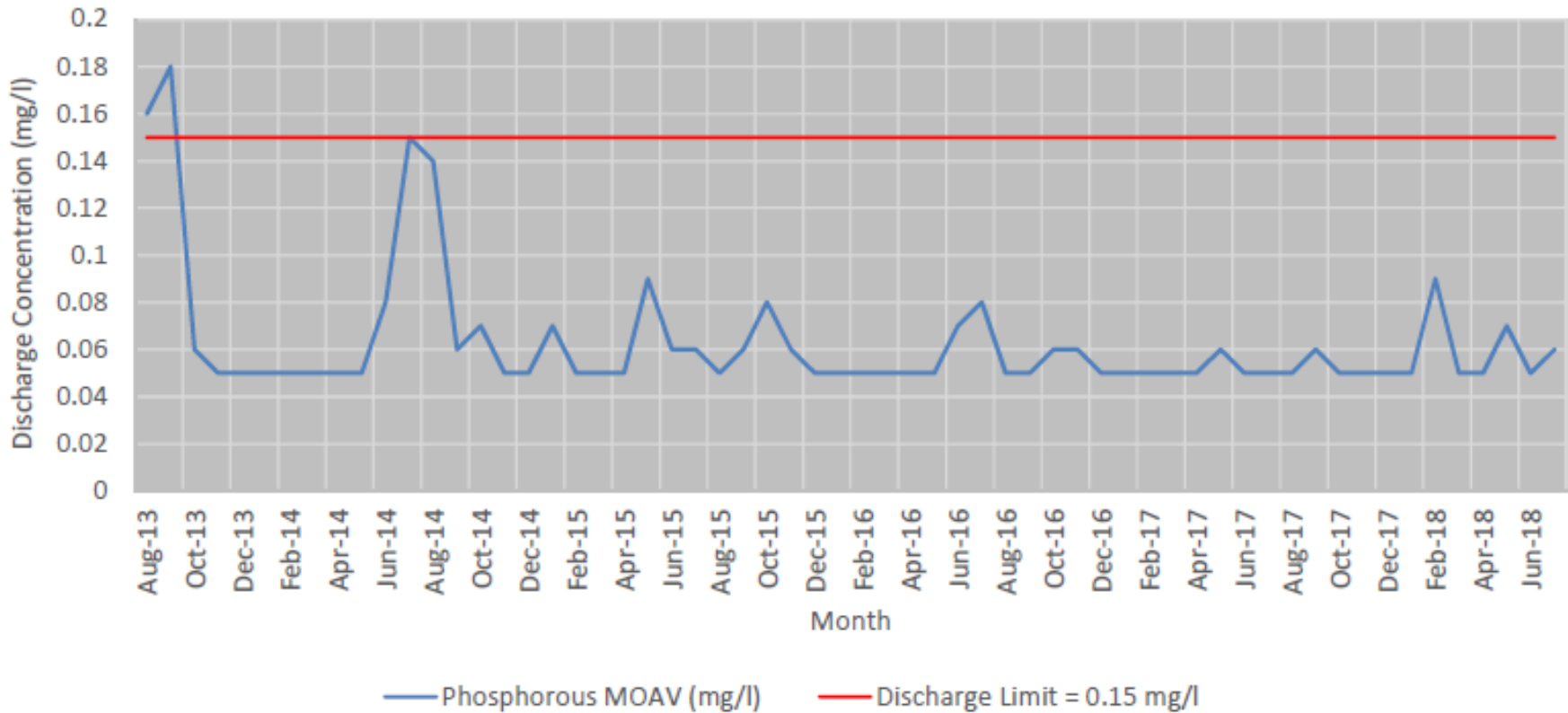
BOD Monthly Average Concentration

Buena Borough Municipal Utilities Authority - Wastewater Treatment Plant
BOD Monthly Average Concentration (2013 to 2018)

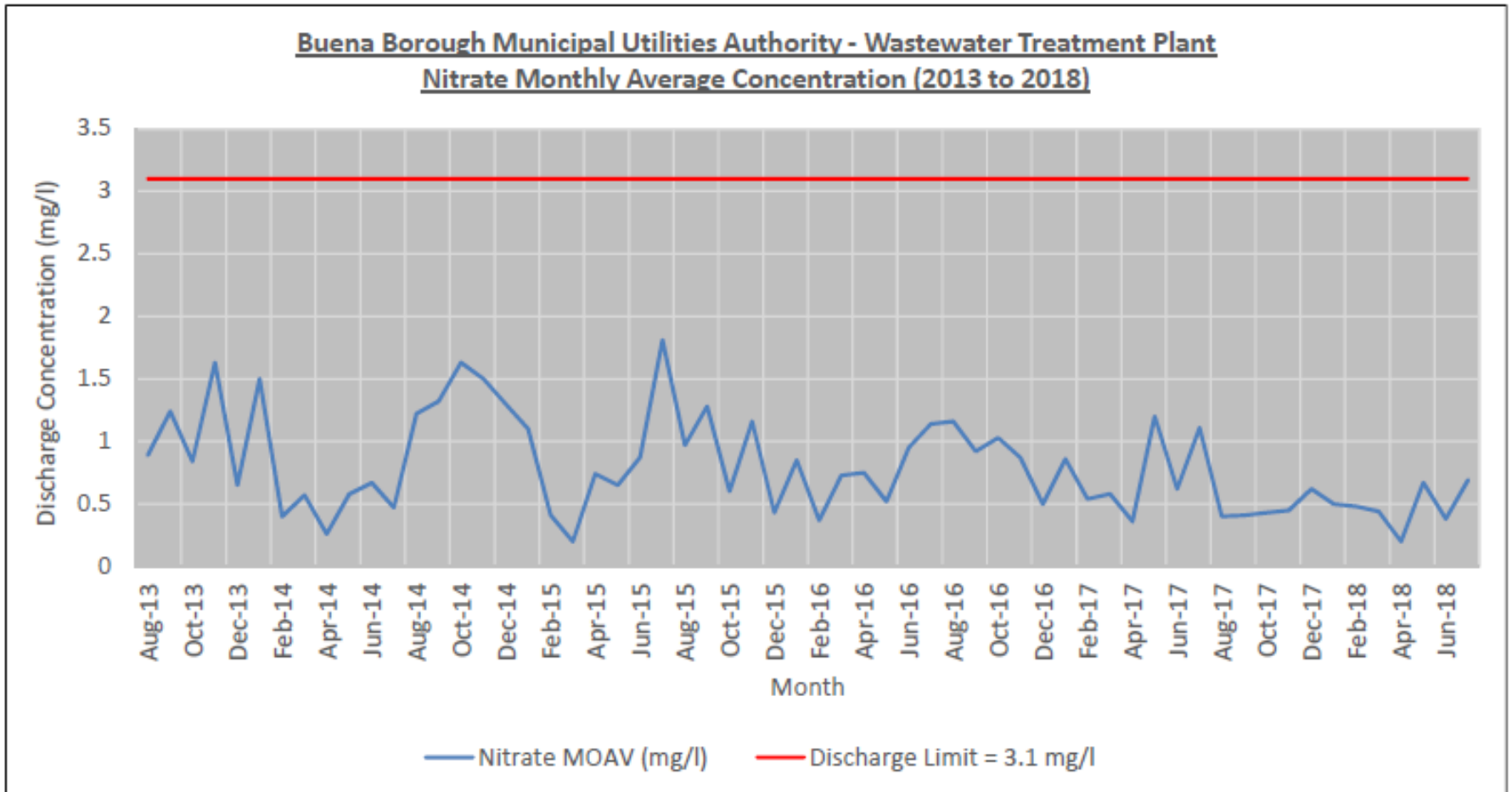


Phosphorous Monthly Average Concentration

Buena Borough Municipal Utilities Authority - Wastewater Treatment Plant
Phosphorous Monthly Average Concentration (2013 to 2018)

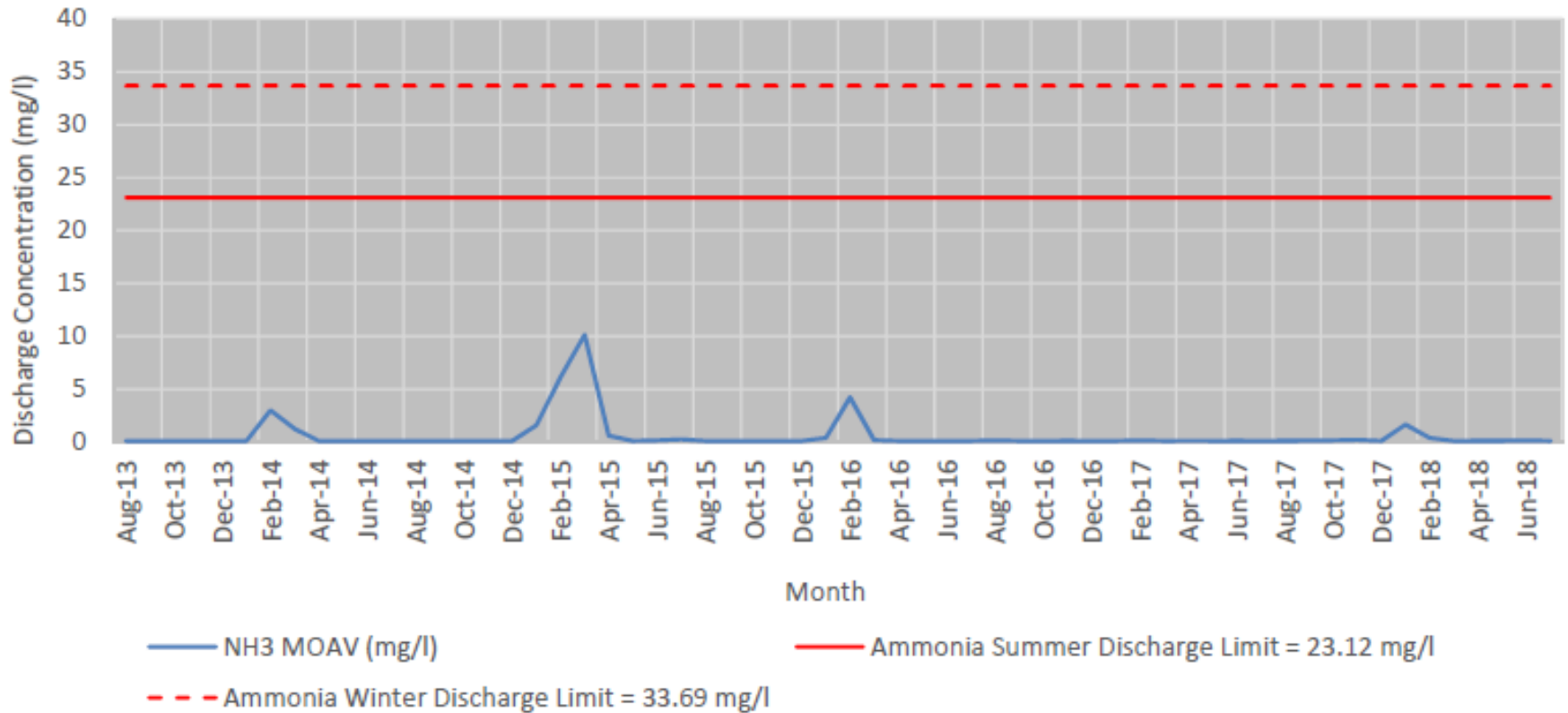


Nitrate Monthly Average Concentration



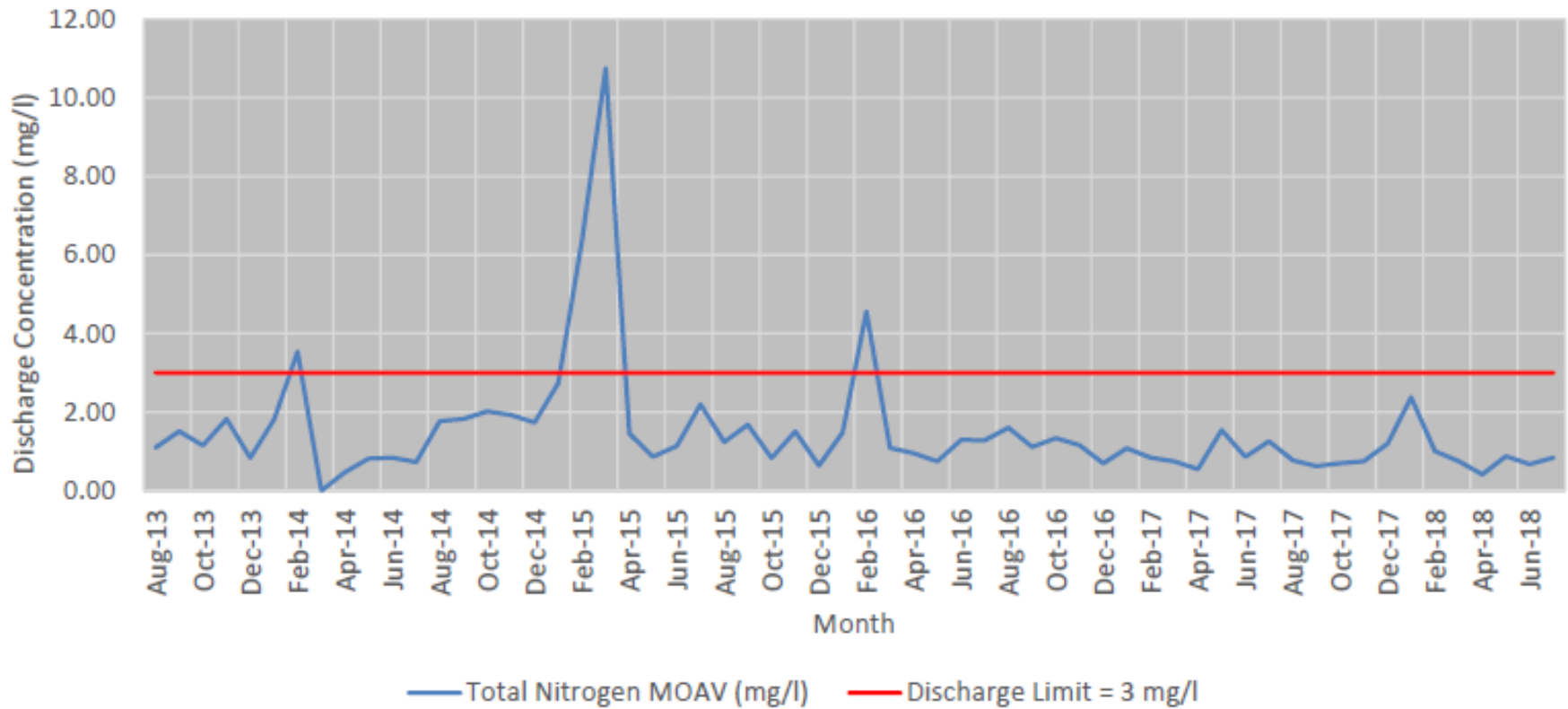
Ammonia Monthly Average Concentration

Buena Borough Municipal Utilities Authority - Wastewater Treatment Plant
Ammonia Monthly Average Concentration (2013 to 2018)



Total Nitrogen Monthly Average Concentration

Buena Borough Municipal Utilities Authority - Wastewater Treatment Plant
Total Nitrogen Monthly Average Concentration (2013 to 2018)



Bio-Solids Process-Composting



Bio-Solids Process-Composting

