**Tuesday, February 6, 2024 at 1:00 PM**
**Valley Sanitary District Board Room**
**45500 Van Buren St., Indio, CA 92201**

# OPERATIONS
# COMMITTEE MEETING
# AGENDA

**Valley Sanitary District is open to the public and board meetings will be conducted in person. In addition to attending in person, members of the public may view and participate in meeting via the following:**

**Zoom link: https://us06web.zoom.us/j/87966873984**

**Meeting ID: 879 6687 3984**

**To address the Board of Directors during the virtual live session via zoom, please email the Clerk of the Board at hgould@valley-sanitary.org or, alternatively, during the specific agenda item or general comment period (i.e. non-agenda items), please use the "raise your hand" function in zoom in order to be recognized by the Clerk of the Board in order to provide comments in real time.**

**The Clerk of the Board will facilitate to the extent possible any email requests to provide oral testimony that are sent during the live meeting. Members of the public may provide Oral testimony in person or during the virtual live session and are limited to three minutes each. To address the Board in person please complete speaker request card located at in the Board Room and give it to the Clerk of the Board.**

**If you are unable to provide comments during the meeting, written public comments on agenda or non-agenda items may be submitted by email to the Clerk of the Board at hgould@valley-sanitary.org. Written comments must be received by the Clerk of the Board no later than 11:00 a.m. on the day of the meeting.**

1. **CALL TO ORDER**
2. **ROLL CALL**
3. **PLEDGE OF ALLEGIANCE**
4. **PUBLIC COMMENT**
5. **DISCUSSION / ACTION ITEMS**

5.1 PRESENTATION OF PROCESS MODIFICATION FOR AMMONIA REMOVAL PILOT PROJECT RESULTS

GIVEN AT TRI-STATE SEMINAR AUGUST 8, 2023
Recommendation: Discussion

5.2 CAPITAL IMPROVEMENT PROJECTS UPDATE
Recommendation: Discuss

**6. ADJOURNMENT**

*POSTED February 1, 2024*
*Holly Gould*
*Clerk of the Board*
*Valley Sanitary District*

**PUBLIC NOTICE**

In compliance with the Americans with Disabilities Act, access to the Board Room and Public Restrooms has been made. If you need special assistance to participate in this meeting, please contact Valley Sanitary District (760) 235-5400. Notification 48 hours prior to the meeting will enable the District to make reasonable arrangements to ensure accessibility to this meeting (28 CFR 35.102-35.104 ADA TITLE II). All public records related to open session items contained on this Agenda are available upon request at the Administrative Office of Valley Sanitary District located at 45-500 Van Buren Street, Indio, CA 92201. Copies of public records are subject to fees and charges for reproduction.

**ITEM 5.1**
**DISCUSSION**

# Valley Sanitary District

**DATE:** **February 6, 2024**

**TO:** **Operations Committee**

**FROM:** **Dave Commons, Chief Operating Officer**

**SUBJECT:** **PRESENTATION OF PROCESS MODIFICATION FOR AMMONIA REMOVAL PILOT PROJECT RESULTS GIVEN AT TRI-STATE SEMINAR AUGUST 8, 2023**

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**Suggested Action**
Discussion

**Strategic Plan Compliance**
GOAL 3: Excellent Facilities

**Fiscal Impact**

There is no current fiscal impact of this pilot project.

**Environmental Review**
This does not qualify as a project for the purposes of CEQA.

**Background**
This presentation was given at the Tri-State Seminar on August 8, 2023 by Dave Commons and James Mills of VSD. The presentation was on the results of VSD's Temporary Process Control Modifications Pilot Study to determine the capability of the current activated sludge treatment process, with only minor modification, to enhance the plant's capability to perform nitrification and denitrification of the plant's effluent.

On April 1, 2020, the State of California Colorado River Basin Regional Water Quality Control Board as part of Board Order R7-2020-007 required the VSD to complete within 18-months an Ammonia Technical Study to evaluate the ability of VSD's treatment facility to reduce ammonia discharges into the Coachella Valley Whitewater Storm Water Channel. Normally when the Regional Board requires such a technical study, a pending or potential effluent discharge requirement modifications to the plant's NPDES permit is looming. Phase 1 of the pilot study demonstrated that the current plant could

be modified to removal ammonia from the plant effluent. We were able to achieve plant effluent ammonia requirements below 2.0 mg/L most of the time. Since the completion of Phase 1 of the Ammonia Pilot Study, VSD wanted to evaluate additional process modifications that would provide consistent, reliable, nitrification/ denitrification with effluent ammonia levels below 2.0 mg/l or less. During Phase 2 of the study, Aeration Basin No. 4 was modified into a Single Sludge, Pre-Anoxic process configuration (Modified Ludzak-Ettinger configuration). This requires constructing a temporary internal Nitrate recycle pipeline from the backend end of the aeration basin to the front of the anoxic selector in Basin No. 4. This is being done by repurposing surplus facility equipment and using temporary plastic pipes to do this job. This phase was committed to developing consistent, reliable, nitrification/ denitrification with effluent ammonia levels below 2.0 mg/l or less. The study demonstrated the current plant with minor modifications could consistently meet an effluent discharge requirement of 2.00 mg/L or less. A final future phase of the study will determine the proper size of the internal recycle pipeline. This is needed to determine what size pipeline will be needed to deliver recycle flow of 2 to 3 times the influent flow for consistent nitrification and denitrification.

**Recommendation**
Information only.

**Attachments**
Presentation - Tri-State Seminar 20230808_ Evaluating Facility Process Control Modifications for Consistently Ammonia Removal Pilot Study.pptx

# Evaluating Facility Process Control Modifications for Consistently Ammonia Removal Pilot Study

Presentation to Tri-State Seminar, Las Vegas, NV
August 8, 2023

Dave N. Commons, Chief Operating Officer
James Mills Operations Supervisor

Valley Sanitary District, Indio, CA

# State of California Colorado River Basin Regional Water Quality Control Board Order R7-2020-007 (NPDES permit)

- As part of revision to Board Order R7-2020-007 on April 1, 2020, CRBRWQCB required Valley Sanitary District to complete within 18-months of the Order being finalized an Ammonia Technical Study.
- The purpose of the Study was to evaluate the ability of the VSD wastewater treatment facility to reduce its ammonia discharges to the Coachella Valley Whitewater Stormwater Channel.
- Reason: Possible pending or potential effluent discharge requirement modification to VSD's NPDES permit in next permit cycle was looming.
- From my experience, I suspect the limit would be less than or equal to 2.0 mg/L of ammonia.

# CRBRWQCB Required 18-Month Ammonia Technical Study Results

- April 2020 – October 2021
- Plant Influent Flow – Averaged 56 mg/L Ammonia
- Plant Influent Flow – Averaged 82.6 mg/L Total Nitrogen
- Secondary Effluent – Averaged 3.9 mg/L Ammonia
- Secondary Effluent – Averaged 15.9 mg/L Total Nitrogen

# Starting In 2022, Facility Modifications were made to Treat for Ammonia

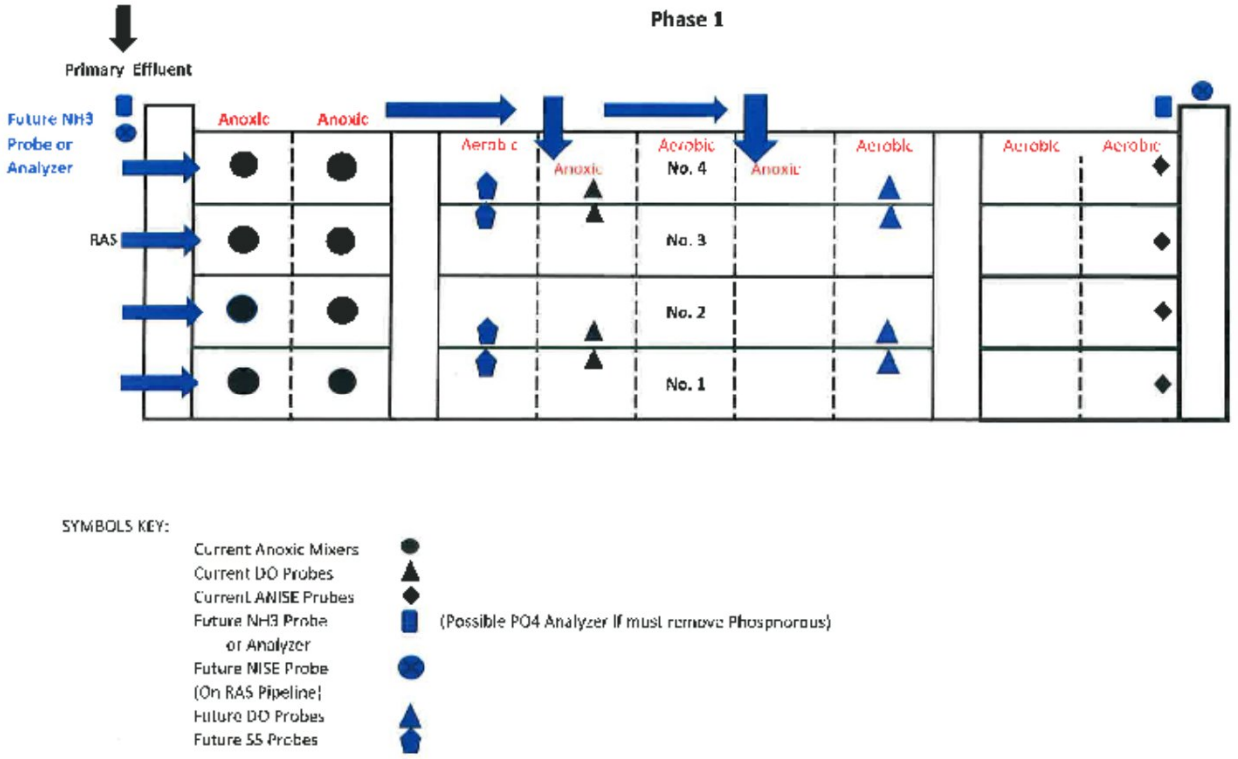
- Decided to conduct a pilot study using various treatment processes control modifications that could be undertaken, with a minimum cost using surplus equipment, that would provide consistent, reliable, nitrification/denitrification in the plant's effluent discharge.
- First evaluated current treatment with no changes to process to develop a baseline. Results basically the same as technical study.
- First Phase of pilot study was to configure Aeration Basin No. 4 in the Step Feed configuration.
- Second Phase of the pilot study was to configure Aeration Basin No. 4 in the Single Sludge, Pre-Anoxic (Modified Ludzak-Ettinger configuration). Used Basin No. 1 as process control baseline.
- Finally review the Membrane Bioreactor configuration for compatibility.


VSD
Drying Beds
Outfall
ASP Chlorine Contact Tank
Secondary Clarifier
Pond Chlorine Contact Tank
Pond 2
Pond 3
Primary Clarifier
Activated Sludge Plant (ASP)
Influent Pump Station
North Cell
South Cell

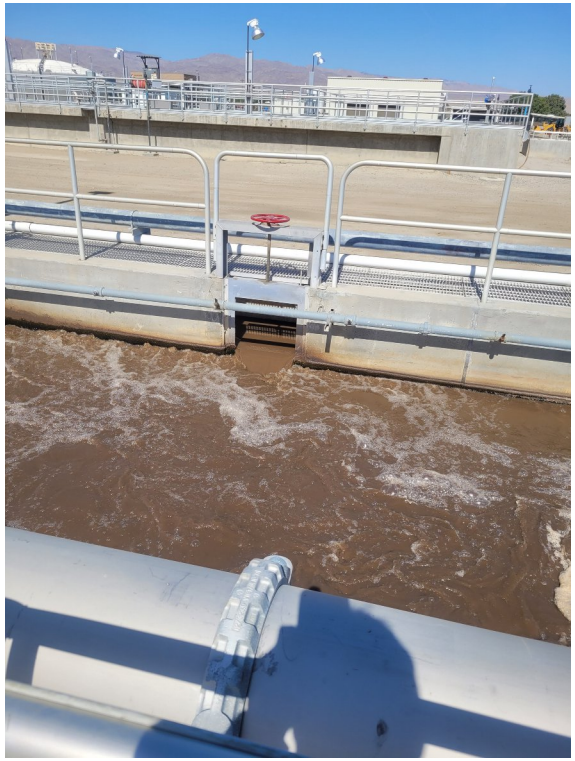
# *First, Evaluated the Step-Feed Process*

City of Redlands CA WWTP in Step-Feed Mode

# VSD Process Flow Diagram



# Phase 1 Testing – Operations in a Step Feed Configuration



# Phase 1 Testing – Operations in a Step Feed Configuration

# PHASE 1 RESULTS

Was Not Successful Maintaining Effluent Results at 2.0 mg/l or below consistently

Why?

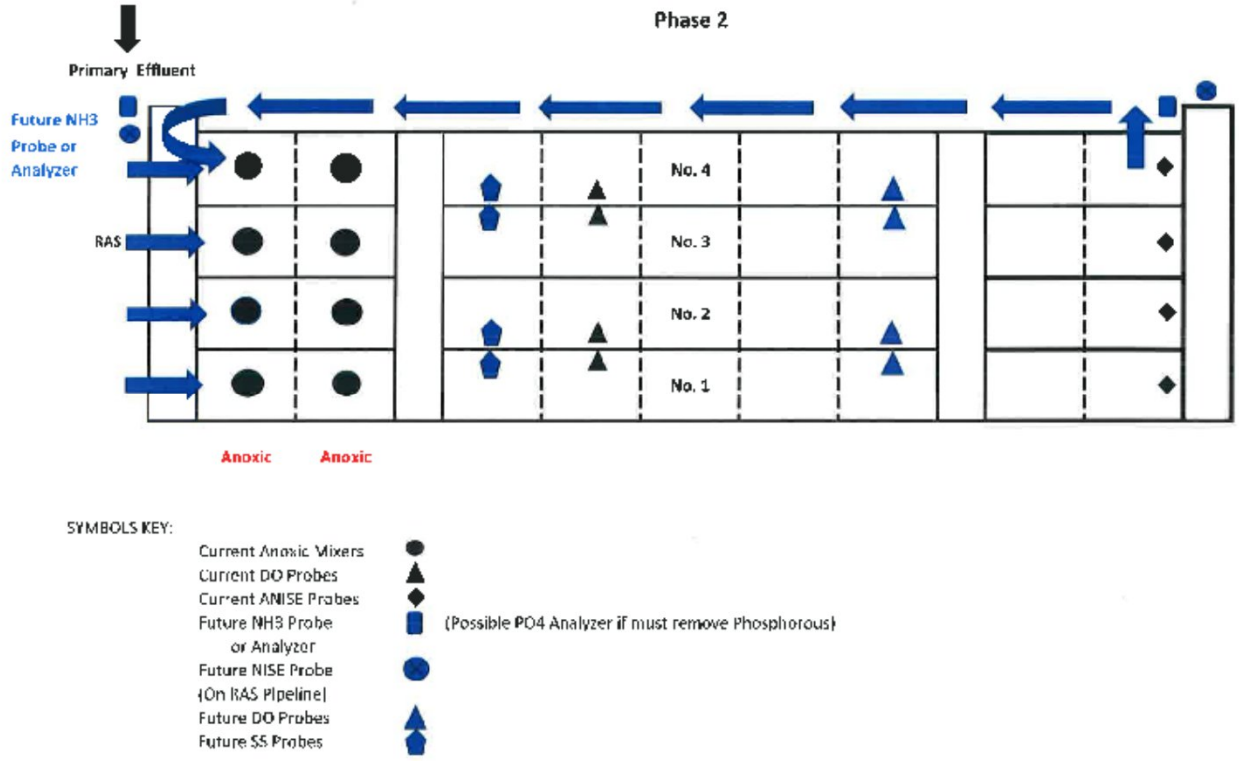
Baffles were not installed between the Anoxic and Aerobic Zones of the Basin

This allowed the dissolved oxygen in the Aerobic Zones to contaminated the Anoxic Zones with dissolved oxygen. This allow the bacteria to used the free dissolved oxygen instead of the nitrate, $NO_3$ ,for their oxygen source

Also, Individual mixers were not installed in the Anoxic Zones which would have kept the zones in a complete mix state

## *Second, Evaluated the Single Sludge, Pre-Anoxic (Modified Ludzak-Ettinger configuration)*

VSD Process Flow Diagram



# Phase 2 Testing – Operations in a Modified Ludzak-Ettinger Configuration

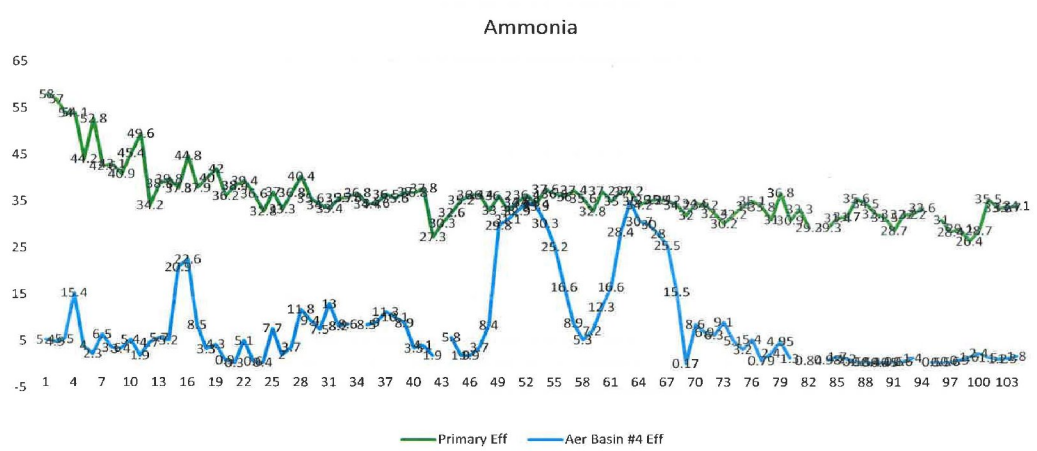
# Phase 2 Testing – Operations in a Modified Ludzak-Ettinger Configuration

# PHASE 2 RESULTS

- Was Successful in Maintaining Effluent Results at 2.0 mg/l or below consistently.
- Will need new pumps and piping using correct dimensions, pumping capacities, and metering devices, etc. to maintain consist long-term compliance

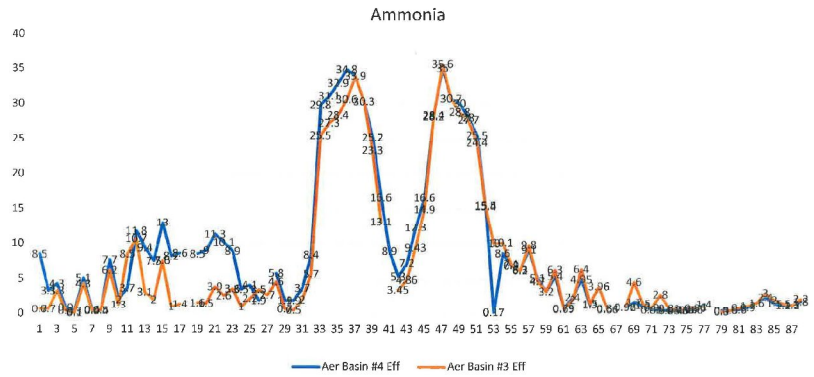
# Pilot Study Ammonia Results

- Green line is the Primary Clarifier Results go into the Aeration Basin
- Blue line is the Aeration Basin No. 4 effluent



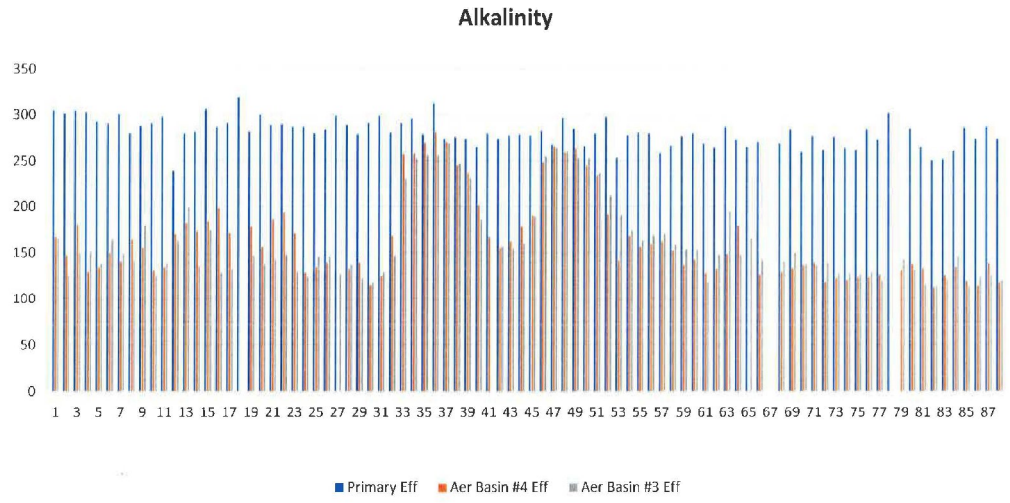
# Pilot Study Ammonia Results

- Orange line is Aeration Basin No. 3 effluent
- Blue line is Aeration Basin No. 4 effluent



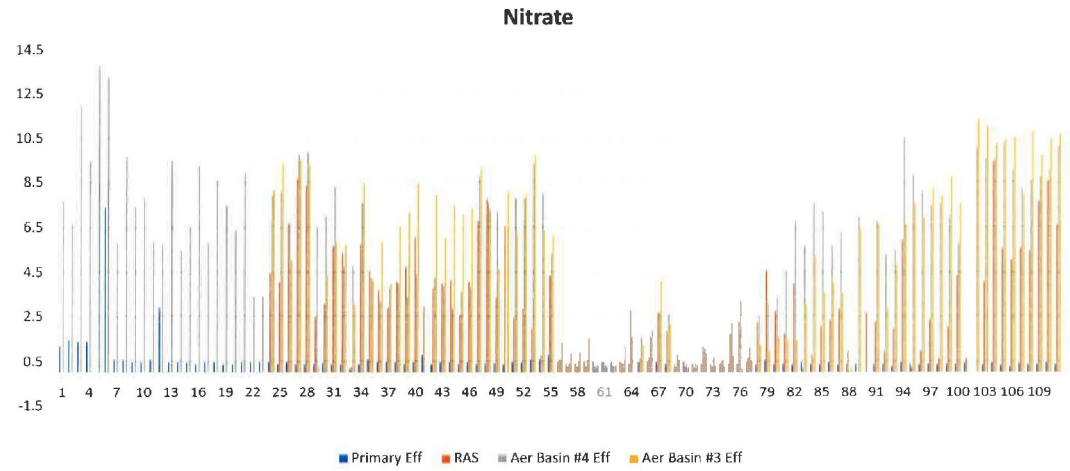
# Pilot Study Alkalinity Results

- Blue line is the Primary Clarifier effluent
- Orange line is Aeration Basin No. 4 effluent
- Gray line is Aeration Basin No. 3 effluent



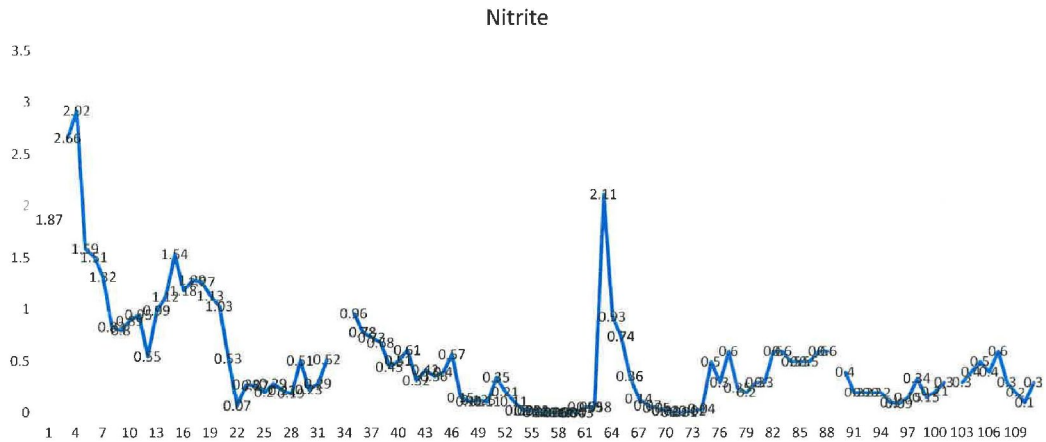
# Pilot Study Nitrate Results

- Blue line is the Primary Clarifier effluent
- Orange line is the RAS flow
- Gray line is Aeration Basin No. 4 effluent
- Yellow line is Aeration Basin No. 3 effluent

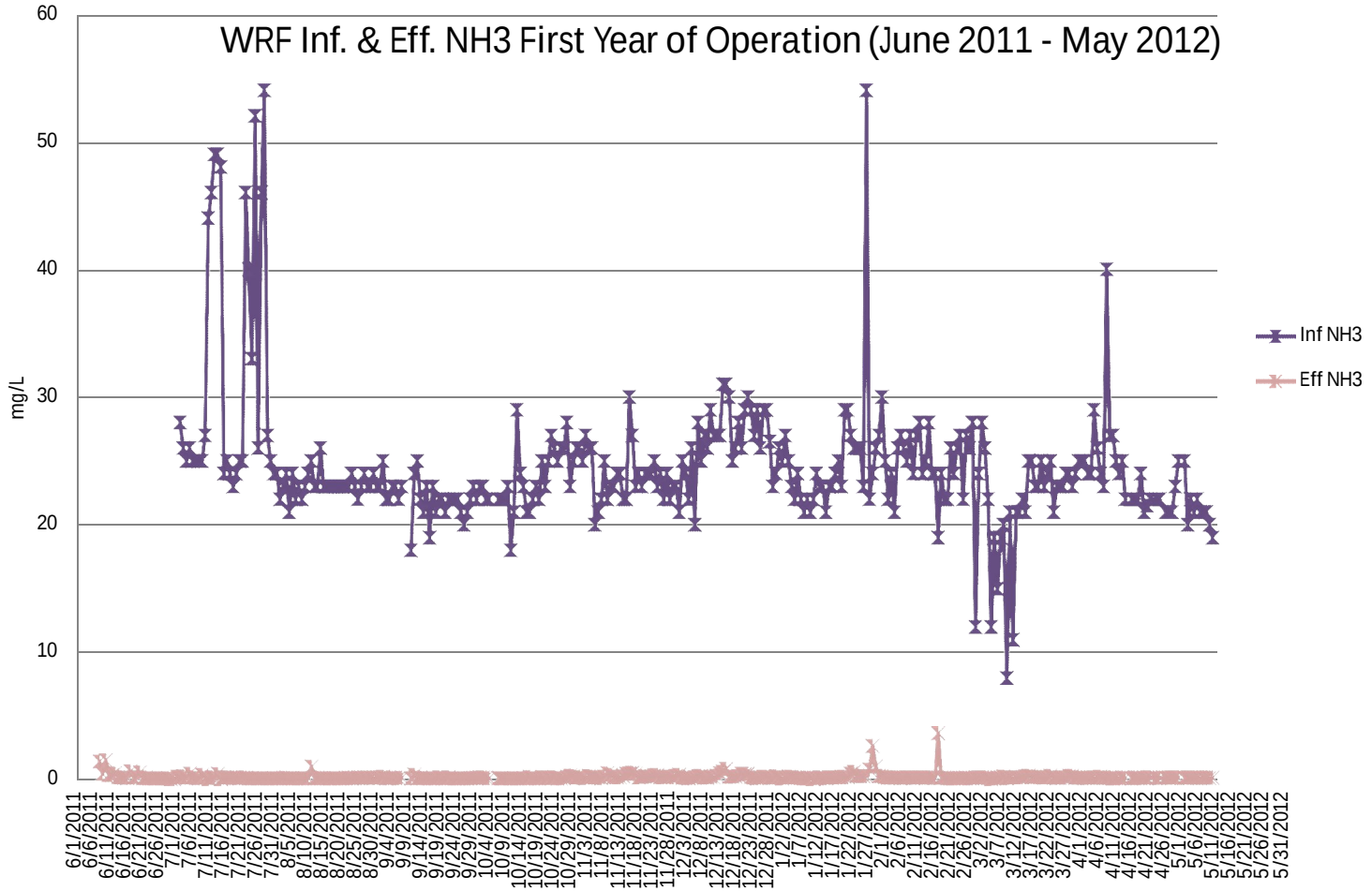


# Pilot Study Nitrite Results

- Blue line is Aeration Basin No. 4 effluent



# *Finally, Evaluated of the Membrane Bioreactor configuration (MBR)*


WRF Inf. & Eff. NH3 First Year of Operation (June 2011 - May 2012)
mg/L
60
50
40
30
20
10
0
Inf NH3
Eff NH3
6/1/2011
6/6/2011
6/11/2011
6/16/2011
6/21/2011
6/26/2011
7/1/2011
7/6/2011
7/11/2011
7/16/2011
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4/21/2012
4/26/2012
5/1/2012
5/6/2012
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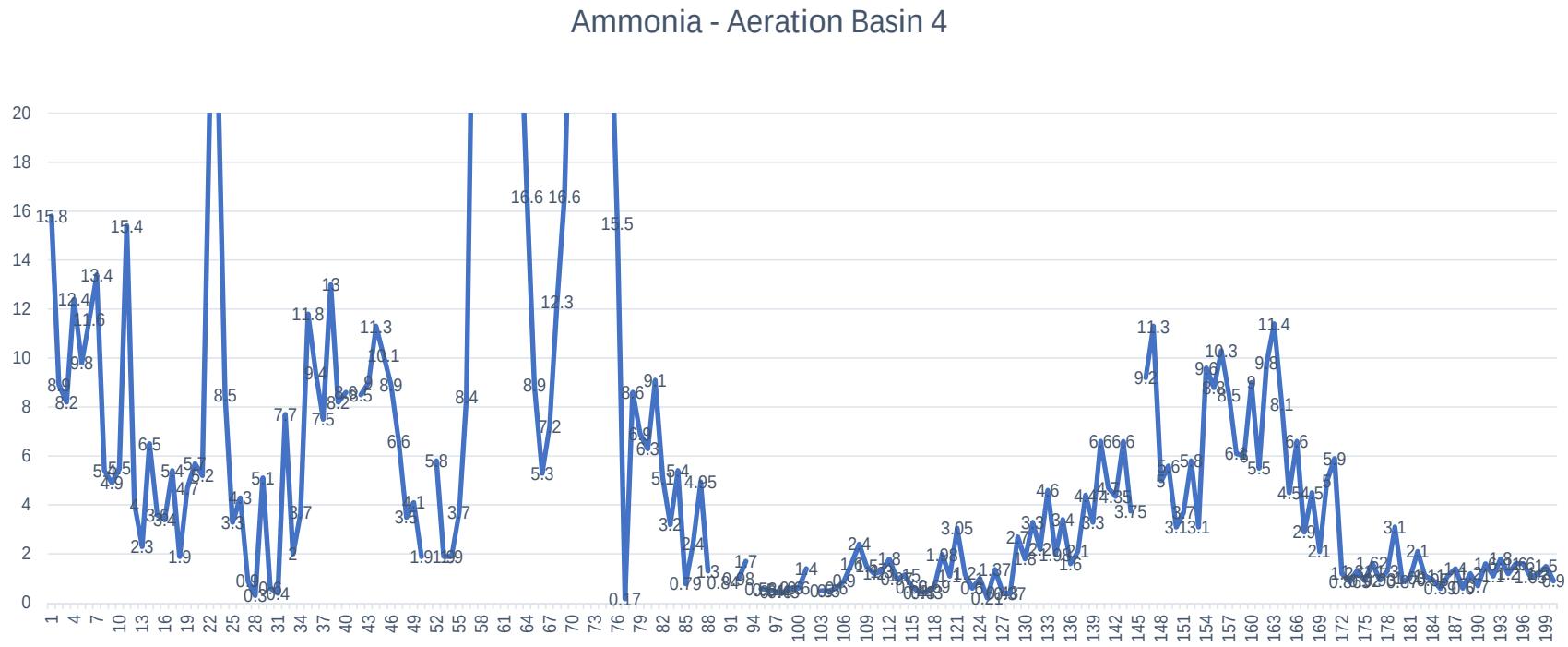
5/16/2012
5/21/2012
5/26/2012
5/31/2012

# Membrane Bioreactor Results

- Based on my experience at the City of Corona's facility, the City of Santa Paula's facility, and the City of North Las Vegas' facility, an MBR would work excellently in consistently, reliably, providing nitrification/denitrification.

# *Conclusions since the end of the pilot study…*



# Questions?

**ITEM 5.2**
**DISCUSSION**

# Valley Sanitary District

**DATE:** **February 6, 2024**

**TO:** **Operations Committee**

**FROM:** **Ron Buchwald, District Engineer**

**SUBJECT:** **CAPITAL IMPROVEMENT PROJECTS UPDATE**

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**Suggested Action**
Discuss

**Strategic Plan Compliance**
GOAL 3: Excellent Facilities

**Fiscal Impact**
There is no fiscal impact with this report.

**Environmental Review**
The capital improvement projects discussed in this report have been through the environmental review process as listed in California Environmental Quality Act.

**Background**
The capital improvement budget incorporates key projects to further advance the District's Capital Improvement Program (CIP). In preparation for the FY24/25 CIP budget, staff is gathering request for needed projects for the upcoming year as well as an estimated cost of that project. A few of the projects in this year's CIP budget will be carried over to next year either due to the length of time to complete the project or because the project was not able to be completed this year. A list of current CIP projects is included. Staff will discuss some of projects that will be carried over. Future projects that staff are considering include adding lighting and CCTV cameras at each of the gated entrances to our facility, addressing gate opening issues with the gate operators and sensors, and adding an additional contingency for Operations and Collections to address unforeseen repairs to major equipment (pumps, etc.). There may be additional projects added before the budget process is approved that are not known at this time.

**Recommendation**
Review and discuss this report.

**Attachments**

Mid year and Anticipated CIP budget.pdf

## Mid-year and Anticipated CIP budget

| Project Description | FY 2023/24 Approved Budget | Amount spent this fiscal year (11/30) | Amount Encumbered | Anticipated Budget at Fiscal Year End | Can Project be Postponed Y/N | Notes |
|---|---|---|---|---|---|---|
| ***PLANT FACILITY*** | | | | | | |
| Laboratory Information Management System (LIMS) | 70,000 | 50,119 | 19,800 | 70,000 | Near complte | |
| Bathroom Upgrade to Include Shower | 100,000 | - | - | 100,000 | No | In process |
| Water Reclamation Facility Master Plan | 400,000 | - | - | 400,000 | No | |
| Repairs to Primary Clarifiers (2) | 130,000 | - | 125,456 | 125,456 | No | In process |
| Electrical Control Panel Replacements Blower Bldng | 120,000 | - | 120,000 | 120,000 | No | In process |
| Vehicle & Major Equipment Replacement Fund | 1,634,000 | 1,527,219 | 133,000 | 1,660,000 | Partially | Mostly complete |
| Amonia / Nitrification Process Upgrade | 100,000 | - | - | 100,000 | Yes | |
| Plant Instrumentation Upgrade | 100,000 | - | - | 100,000 | Yes | |
| Concrete Repairs to ASP Plant | 100,000 | - | - | 100,000 | Yes | Postpone? |
| Trimax PLC Upgrades SCADA | 70,000 | - | 70,000 | 70,000 | No | In process |
| Upgrade District Security Cameras | 100,000 | - | - | 100,000 | Yes | Postpone? |
| Steel Waterline Replacement - Phase 2 | 450,000 | 308,323 | 308,323 | 308,323 | Completed | |
| Turblex Blowers Maintenance and Repairs | 100,000 | 60,212 | 60,212 | 60,212 | Completed | |
| Recycled Water Use Plan | 667,000 | - | 250,000 | 500,000 | No | State Grant Required |
| Unbudgeted Expenses | - | 85,835 | 110,835 | 110,835 | Completed | |
| ***SUBTOTAL - PLANT*** | **$ 4,141,000** | **$ 2,031,708** | **$ 1,197,626** | **$ 3,924,826** | | |
| ***SEWAGE COLLECTION*** | | | | | | |
| Lateral Grant Program | $ 50,000 | $ - | $ - | $ 10,000 | Partially | Will probably use less than 10K. |
| Sewer Main Rehabilitation or Replacement Projects | 2,200,000 | 1,908,420 | 299,900 | 2,208,315 | No | |
| Sewer Repairs and/or Rehabilitation | 120,000 | - | 40,000 | 120,000 | Partially | Only needed for emergency repairs |
| Unbudgeted Expenses | - | 428,143 | 433,143 | 433,143 | Completed | 1st cost Berm. 2nd Cost Requa repair |
| ***SUBTOTAL - COLLECTIONS*** | **$ 2,370,000** | **$ 2,336,563** | **$ 773,043** | **$ 2,771,458** | | |
| ***CONTINGENCY*** | $ 100,000 | $ - | $ - | $ 100,000 | No | To be used for unforseen CIP costs |
| ***TOTAL*** | **$ 6,611,000** | **$ 4,368,271** | **$ 1,970,669** | **$ 6,796,284** | | |