AGENDA
CITY COUNCIL WORKSHOP
7651 E. Central Park Ave, Bel Aire, KS
Video Available at belaireks.gov
August 12, 2025 7:00 PM

I. Bel Aire Chamber of Commerce 2026 Support

A. Presentation by Chamber President Greg Dane and Gary O'Neal

II. Review of year-to-date sewer pretreatment report

A. **Presentation by Rebecca Lewis with Burns & McDonnell**

III. Review of Trial Proposal for Odor and Corrosion Control

A. Presentation by Rebecca Lewis with Burns & McDonnell

IV. Budget Workshop #3

A. Review 2026 Sewer Budget

B. Review 2026 Water Budget

C. Review 2026 Street Budget

D. Review of all other 2026 Non-Taxing Budgets

E. Start CIP Budget Development

Notice

It is possible that sometime between 6:30 and 7:00 PM immediately prior to this meeting, during breaks, and directly after the meeting, a majority of the Governing Body may be present in the Council Chambers or the lobby of City Hall. No one is excluded from these areas during these times. Video of this meeting can be streamed on www.belaireks.gov or YouTube. Please make sure all cell phones and other electronics are turned off and put away.

City of Bel Aire

DATE: August 7, 2025
TO: City Council
FROM: Ted Henry, City Manager
SUBJECT: Chamber of Commerce

Summary

The Bel Aire Area Chamber of Commerce was established in 2009 and has been serving the community ever since. It plays a central role in supporting local businesses by offering advocacy, networking opportunities, training, and mentorship. Moreover, the chamber organizes events that boost community engagement and attract visitors to Bel Aire.

In recognition of this, the Bel Aire City Council entered into an agreement in 2022 that provided $20,000 to support the organization and run community events. Since then, the Chamber has received $20,000 in 2023, $15,000 in 2024 and $15,000 in 2025. The 2026 Bel Aire budget has allocated $10,000.

Chamber President Greg Dane and Gary O'Neal will be at the workshop to discuss their 2026 request and will provide additional data to support it.

Council asked me to provide information on what other area cities contribute to their chambers of commerce (below). While no two cities are the same, the information is provided at their request.

Goddard	$10,000
Mulvane	$40,000
Cheney	$100
Derby	$0
Maze	$10,000
Haysville	$5,000
Kechi	$0
Park City	$0
Valley Center	$5,225
Andover	$10,000

FUNDING AGREEMENT
by and between
CITY OF BEL AIRE, KANSAS
and
BEL AIRE AREA CHAMBER OF COMMERCE, INC.

This Agreement is made and entered into this 21st day of January, 2025, by and between the City of Bel Aire, Kansas (City) and The Bel Aire Area Chamber of Commerce, Inc., a not-for-profit corporation duly organized under the laws of the State of Kansas (Chamber).

WHEREAS, Chamber has submitted a request to City for funding services which will benefit residents, businesses seeking education, promote local business community, encourage business development and business relationships in Bel Aire; and.

WHEREAS, it is in the best interests of the City, the Chamber, and the general public that a new funding agreement which supersedes all other funding agreements be entered into between the parties; and

WHEREAS, in consideration for Chamber's continued operation, the parties have agreed on certain levels of City funding to Chamber.

NOW THEREFORE, in consideration of the promises and mutual agreements hereinafter contained, City and Chamber hereby agree as follows:

1. Purpose. The sole purpose of this Agreement is to define the organizational and financial relationship between City and Chamber as it relates to funding of Chamber operations by the City.
2. Term. The term of this Agreement is for one (1) year commencing January 1, 2025 and ending December 31, 2025.
3. Organization
    A. The City may be able to provide office space for the Chamber Director at the Bel Aire City Hall, if requested.
    B. A City representative shall be appointed annually to the Chamber Board as an Officer, if so elected, or as a regular appointee while the grant is in effect.
    C. The Chamber shall create a job description, hire, fire, evaluate, supervise and accept all other responsibilities for a Chamber Executive Director.
    D. The Chamber shall supply the Director a computer or laptop, printer/copier, cell phone or stipend and all other materials and office supplies required for this position.

E. The Chamber shall pay the salary and all other expenses for the Director Position.
F. The Chamber Board or Director, shall create a quarterly report for the City detailing marketing, membership and all other activities for that month.
G. The Chamber will create its own website and social media outlets which will be the responsibility of the Chamber Director.
H. The City will provide links in its website and assist in social media sharing.
I. The Chamber Board or Director, shall assist the Bel Aire Recreation Department with three (3) community events as outlined below.
    i. The three (3) community events shall be the Spring Easter Egg Hunt, Fall Festival, and Christmas Event.
    ii. The Chamber Director shall pledge a minimum of forty (40) hours of assistance to the Bel Aire Recreation Department for each event.
    iii. The Chamber will provide at least four (4) volunteers for each event.
    iv. The Chamber will raise funds to cover expenses for each event. (Budget for each event shall be agreed upon by the Bel Aire Recreation Department and Chamber.)
    v. The Chamber may plan other events for fundraising but will receive no assistance from the Bel Aire Recreation Department.
J. The Chamber shall annually provide the City with an annual financial report detailing income and expenses.

4. City Funding
    A. In exchange for Chamber's performance of programs and services, City agrees to provide the following funding to Chamber in fiscal year 2025: FIFTEEN THOUSAND DOLLARS AND NO CENTS ($15,000.00).
    B. Funding shall be distributed in one (1) payment in the first quarter of 2025. Such payment is contingent upon City's receipt of an invoice.
    C. The City will reevaluate this funding for the 2026 budget and determine its success.
    D. City reserves the right to withhold any quarterly payment if City believes that Chamber is not spending such City funding for a public purpose or as required by this Agreement.
    E. The City will be responsible for its annual membership fee.

General Terms and Conditions

5. Contractual Relationship. The legal relationship between Chamber and City is of a contractual nature. The parties assert and believe that Chamber is acting as an independent contractor in providing the services and programs required by City hereunder. Chamber is at all times acting as an independent contractor and not as an officer, agent, or employee of City. As an independent contractor, Chamber, or

employees of Chamber, will not be within the protection or coverage of City's worker's compensation insurance, nor shall Chamber, or employees of Chamber, be entitled to any current or future benefits provided to employees of City. Further, City shall not be responsible for the withholding of social security, federal, and/or state income tax, or unemployment compensation from payments made by City to Chamber.

6. Authority to Contract. Chamber assures it possesses legal authority to contract under this Agreement; that resolution, motion or similar action has been duly adopted or passed as an official act of Chamber's governing body, authorizing the signing of this Agreement, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of Chamber to act in connection with the application and to provide such additional information as may be required.
7. Termination.
   A. For Cause. In the event of any breach of the terms or conditions of this Agreement by Chamber, or in the event of any proceedings by or against Chamber in bankruptcy or insolvency or for appointment of receiver or trustee or any general assignment for the benefit of creditors, City may, in addition to any other remedy provided it by law or in equity or other right reserved to it elsewhere in this Agreement, without any liability to Chamber on account thereof, by written notice, terminate immediately all or any part of this Agreement and Chamber shall be liable to pay to City any excess cost or other damages caused by Chamber as a result thereof.
   B. For Convenience. City shall have the right to terminate this Agreement for convenience in whole, or from time to time, in part, upon thirty (30) days' written notice. Upon receipt of such termination notice, Chamber shall not incur any new obligations and shall cancel as many outstanding obligations as reasonably possible. In such event, City shall allow full credit to Chamber for the grant share of the non-cancelable obligations properly incurred by Chamber prior to termination.
   C. Due to Reduction in Funds. It is understood that funding may cease or be reduced at any time. In the event that adequate funds are not available to meet the obligations hereunder, either party reserves the right to terminate this Agreement upon thirty (30) days written notice.
8. Complete Agreement. This Agreement and the documents incorporated herein contain all the terms and conditions agreed upon by both parties. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the parties hereto. Any agreement not contained herein shall not be binding on either party, nor shall it be of any force or effect.

9. Assignment. Neither this Agreement nor any rights or obligations created by it shall be assigned or otherwise transferred by either party without the prior written consent of the other. Any attempted assignment without such consent shall be null and void.
10. Amendments. Neither this Agreement nor any rights or obligations created by it shall be amended by either party without the prior written consent of the other. Any attempted amendment without such consent shall be null and void.
11. Severability Clause. In the event that any provision of this Agreement is held to be unenforceable, the remaining provisions shall continue in full force and effect.
12. Nondiscrimination and Workplace Safety. Chamber agrees to abide by all federal, state and local laws, rules and regulations prohibiting discrimination in employment and controlling workplace safety. Any violation of applicable laws, rules or regulations may result in termination of this Agreement.
13. Retention of Records. Unless otherwise specified in this Agreement, Chamber agrees to preserve and make available to City at reasonable times all of its books, documents, papers, records and other evidence involving transactions related to this Agreement for a period of five (5) years from the date of expiration or termination of this Agreement.
    A. Matters involving litigation shall be kept for one (1) year following termination of litigation, including all appeals, if the litigation exceeds five (5) years.
14. Inspection/Audit of Facilities and Records of Chamber. City shall have the right of inspection of Chamber's facilities and records at any time during Chamber's regular business hours, and at any other time provided that City gives Chamber twenty-four (24) hours' notice of its intent to inspect. This right of inspection shall include the right to monitor and inspect Chamber's programs as well as the right to inspect all books containing any type of participant data or financial documentation relating to funding provided by City.

[*Remainder of this page intentionally left blank*]

IN WITNESS WHEREOF, the parties hereto have executed this Funding Agreement by signature of their duly authorized officers the day and year first above written.

CITY OF BEL AIRE, KANSAS

Jim Benage

Mayor

BEL AIRE AREA CHAMBER OF COMMERCE, INC.

Aaron Maxwell

Chamber President

ATTEST:

Melissa Krehbiel, City Clerk

APPROVED AS TO FORM ONLY:

Maria A. Schrock, City Attorney

City of Bel Aire

Bi-Monthly Wastewater Report

May-June, 2025

POLLUTANT MONITORING

To meet objectives to implement a wastewater monitoring and pollutant control program. the City of Bel Aire has been monitoring the levels of conventional pollutants since August 2023. Conventional pollutants are the pollutants that are found in domestic non-industrial wastewater, and which municipal wastewater plants are designed to remove. The CCUA cost of service agreement (COSA) recommends that strength loading assessments include Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) concentrations from each municipality (Bel Aire and Park City) to determine the pollutant loading strength from each municipality for cost allocation. Samples are collected from two lift stations located at 3800 N Harding and 5859 E 53rd Street N, which all of the wastewater generated in Bel Aire passes through before entering a force main which delivers the wastewater to the Chisholm Creek Utility Authority (CCUA) wastewater treatment facility located in Park City at 53rd St N and Broadway.

Additional nutrient parameters are also monitored to assess impacts to the CCUA wastewater treatment plant, as well as identifying potential sources of the pollutant contributions. These parameters include ammonia, Total Kjeldahl Nitrogen (TKN), and phosphorus.

Tables of the monitored parameters are included in Appendix 1 located at the end of this document. The results are also graphed, and trend lines are included. The tables include monthly average results from each lift station, past year results and expected ranges based on *Metcalf & Eddy Wastewater Engineering: Treatment and Resource Recovery 5th Ed,* and treatment parameter ranges for the CCUA wastewater treatment plant.

Annual Averages of Pollutants

Harding & 37th St Lift Station						53rd St. Lift Station – 5858 E 53rd St N.				
	BOD mg/L	TSS mg/L	Ammonia mg/L	TKN mg/L	Phosphorus mg/L	BOD mg/L	TSS mg/L	Ammonia mg/L	TKN mg/L	Phosphorus mg/L
2025 YTD Avg	334	421	51	53	7	378	565	49	54	7.2
2024 Average	381	373	42	60	8.0	319	382	41	52	7.3
2023 Average	397	491	43	66	8.0	360	285	38	54	6
Literature Ranges	*100 – 400*	*250-850*	*12- 50*	*30 - 80*	*6- 14*	*100 – 400*	*250-850*	*12- 50*	*30 - 80*	*6- 14*

The results from the lift station at 53rd Street Total Suspended Solids (TSS) concentrations are elevated. Results continue to improve. This is likely due to the efforts staff have implemented in the collection system which includes increased sewer line cleanings and televising, as well as routinely cleaning the lift station wetwells. The updated annual averages are within expected ranges.

WASTEWATER FLOWS:

	Harding/37th MG	53rd St MG	Total Bel Aire Flow	CCUA Influent MG	Percent Flow
January	11.64	5.156	16.796	36.3217	46.2%
February	11.393	4.953	16.346	36.883	44.3%
March	12.25	5.215	17.465	37.701	46.3%
April	14.318	5.407	19.725	41.264	47.8%
May	13.346	5.796	19.142	45.42	42.1%
June	20.535	6.906	27.441	63.191	43.4%
Total YTD	**83.482**	**33.433**	**116.915**	**260.781**	**44.8%**

In January, 2025, CCUA completed installation of new wastewater meters. These meters were calibrated at both lift stations. Flows show that the rain events in June result in increased flows, likely due to infiltration from either open manholes or cracked sewer lines. Staff is evaluating this information to reduce infiltration. It should be pointed out that the yearly average contributed by Bel Aire is 44.8%, 1.3% less than the percent that is factored in the original CCUA agreement.

Strength Charges

Multiplying the lift station BOD and TSS milligrams/Liter (mg/L) concentrations by the flow in million gallons (MG) with the conversion factor of 8.34 provides the total pollutant loading in pounds contributed to the CCUA wastewater plant by Bel Aire. Per the Bel Aire sixth supplemental agreement with CCUA, extra strength charges will be calculated by subtracting the plant design factor of 239 mg/l from both BOD and TSS concentrations, converting the difference to pounds and then multiplying the total pounds by $ 0.30 for BOD and $0.25 for TSS.

For example:

FORMULAS

Total Pounds = (BOD or TSS result)x (Monthly Flow in MG) x (8.34 CF)

BOD CHG = Total Pounds (mg/L-239) x $0.30

TSS CHG = Total Pounds (mg/L-239) x 0.25

Table 3: Estimated Pollutant Loadings and Extra Strength charges 2025 YTD

Total BOD Pounds	319162
Total TSS pounds	436762
Extra Strength Charges to date	$76,915.77

Concern has been expressed by CCUA board members regarding the high strength charges. The cost per pound used to calculate high strength was what Wichita uses for their industrial customers. These charges were used as a proxy to assist with allocation. The actual loading contributions from each municipality's lift station results will be used and actual CCUA treatment costs will be allocated based on the pollutant loadings from each city. Burns & McDonnell is evaluating methods to better understand how this model should work so charges are distributed equitably.

Pretreatment Program Activities

In December 2023, the City adopted *Chapter 14, Article 7; Sanitary Sewer Conveyance System Compliance* into the City Code of Ordinances. This article sets forth uniform requirements for Users of the Sanitary Sewer Conveyance System for the City of Bel Aire and enables the City to comply with all applicable State and Federal laws, including the Clean Water Act (33 United States Code [U.S.C.] section 1251 et seq.) and the General Pretreatment Regulations (Title 40 of the Code of Federal Regulations [CFR] Part 403).

The City has implemented procedures to ensure that users comply with the requirements set forth in the Article. This includes receiving and documenting industrial waste surveys from users, facility inspections, and encouraging facilities to implement industry specific best management practices (BMP) to minimize discharges of prohibited pollutants.

To date the following pretreatment activities have been performed:

	2024	2025
Industrial Waste Surveys Sent Out	6	28
Industrial Waste Surveys Received	5	6
Inspections Performed	2	4

While second quarter activities did not focus on the above activities, as staff apply resources to address seasonal activities such as storm events, mowing, tree and brush removal, plans are to follow up on these activities during the fourth quarter.

COLLECTION SYSTEM ACTIVITIES

The interceptor that runs parallel to 53rd street North between Prestwick and the 53rd Street Lift Station is showing signs of significant corrosion at 14 manhole locations. Staff is currently seeking alternatives for replacement and or rehabilitation of the manhole vaults. Odor complaints have been received from residents that live near the 53rd Street Lift Station. The corrosion and odor complaints are a result of the presence of hydrogen sulfide in the sanitary sewer. Hydrogen sulfide is often generated from low flow velocities in the sewer line. As retention time increases, oxygen consumption increases, thus favoring the bacterial production of hydrogen sulfide.

In YTD 2025, staff performed the following activities:

- Met with an engineering firm to develop a scope of work and fee to perform a condition assessment and recommend corrective measures for the impacted manhole vaults
- Began using Odalog to monitor hydrogen sulfide levels at various locations
- The Odalog measurements taken to date have shown excessive levels of the odor and corrosion causing compound, hydrogen sulfide (H2S) in the sanitary sewer line immediately downstream of the Rock Road Lift Station Force Main connection. This is the sanitary sewer line that is showing signs of corrosion at the manholes and enters the lift station at 53rd Street North, which has received odor complaints in the past.
- On May 6, 2025, staff met with a chemical odor control provider to collect H2S data from the sanitary sewer lines and discuss corrective measures. The report is attached and includes 3 alternatives for a pilot study. Once the pilot study is complete, the City can determine the best alternative for a service contract, or if the data does not show improvement, elect not to go forward.
- Implemented a CCTV sewer inspection or sewer televising program

➢ A specialized, waterproof camera is inserted into the sewer pipe, typically through a manhole or cleanout

➢ The camera, mounted on a remotely controlled robot crawler, navigates through the pipe, transmitting live video footage to a monitor.

➢ The video footage is recorded, and the operator notes the precise location of any issues using a footage counter. The camera's pan and tilt capabilities allow for a comprehensive view of the pipe's interior.

➢ A detailed report is generated, including the video footage, images, and notes on the sewer line's condition

The benefits of sewer televising includes early detection of potential issues such as root intrusion, structural defects, and buildup of solids (rags and grit) and/or grease that could result in a line blockage. It is a proactive approach reducing the need for excavation and other resources utilized in removing blockages, in addition to providing visual data for planning and executing sewer line maintenance and repairs. To date, the City has televised 1039 feet of sanitary sewer lines, and cleaned 8,441 feet of sewer lines.

Activities Performed in 2025	Feet/ Number of lift stations
Televised Sanitary Sewer Lines	1200
Cleaned Sewer Lines	9500
Lift Station Wetwells cleaned	3

Supplementary Activities

Other activities performed in 2024/25 related to wastewater program management include:

➢ Development of a comprehensive Cost of Services strategy for CCUA that was agreed upon by both Bel Aire and Park City and approved by the CCUA Board

➢ Installation and calibration of wastewater meters at both lift stations

Conclusion

The implementation of a pretreatment program, sewer televising, odor monitoring, and a wastewater flow meter and sampling program allows the city to better allocate resources, determine the financial needs for sanitary sewer services, and protect the collection system serving Bel Aire ratepayers. The city is commended for its progress in achieving these objectives.

Here's a recap of each component:

- **Pretreatment Program:** This program aims to prevent pollutants from entering the wastewater system from commercial and industrial users. By reducing the amount of pollutants entering the system, the city can reduce the burden on the wastewater treatment plant, improve the efficiency of treatment, and protect the environment.
- **Sewer Televising:** This involves using a specialized camera system to inspect the interior of sewer lines. This non-invasive method allows for the early detection of issues such as cracks, root intrusion, blockages, and structural defects. Early detection prevents costly repairs and ensures the smooth operation of the sewer system.

- **Odor Monitoring:** This involves using sensors or other technologies to detect and measure the intensity of odors emanating from the wastewater system. This helps identify sources of odors, assess their impact on the surrounding community, and implement effective odor control strategies.
- **Wastewater Flow Meter and Sampling Program:** Flow meters measure the volume of wastewater flowing through the system. This data is crucial for determining the capacity of the system, optimizing treatment processes, and ensuring compliance with environmental regulations. The sampling program collects wastewater samples at the two main lift stations serving Bel Aire to analyze the quality of the wastewater and identify potential pollutants. Automatic samplers are used to ensure accurate and representative samples. This data is used to assess the effectiveness of treatment, identify areas for improvement, and ultimately used for the CCUA annual true-up between Bel Aire and Park City for the cost of services analysis.

Appendix 1 Sampling Data Tables and Graphs

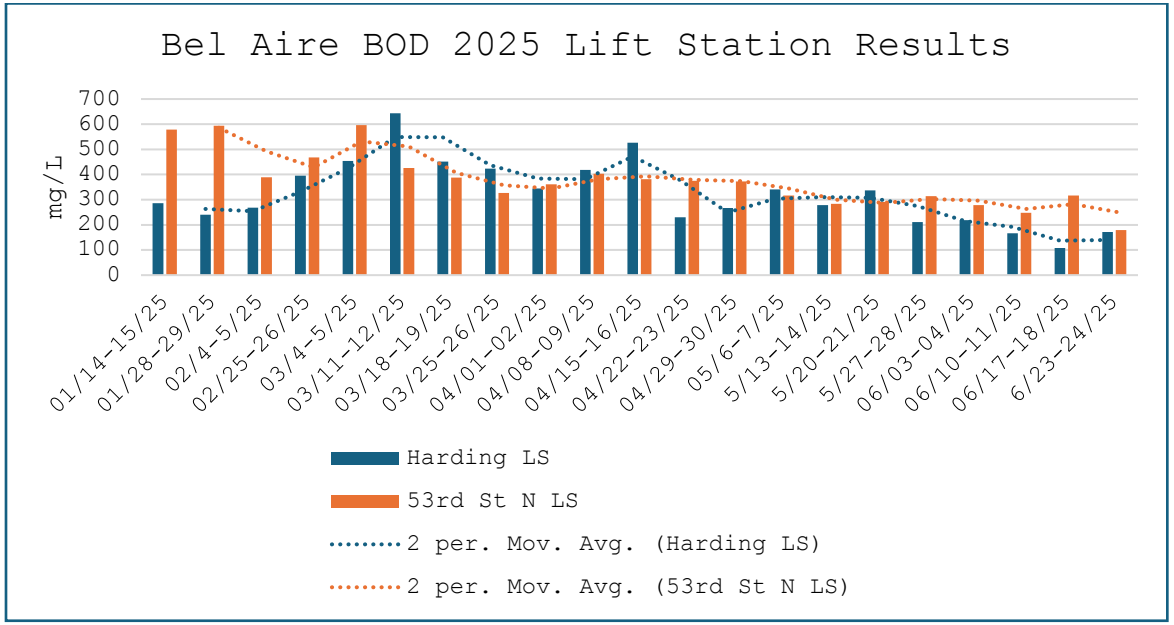
First Quarter 2025 Lift Station Monitoring Results

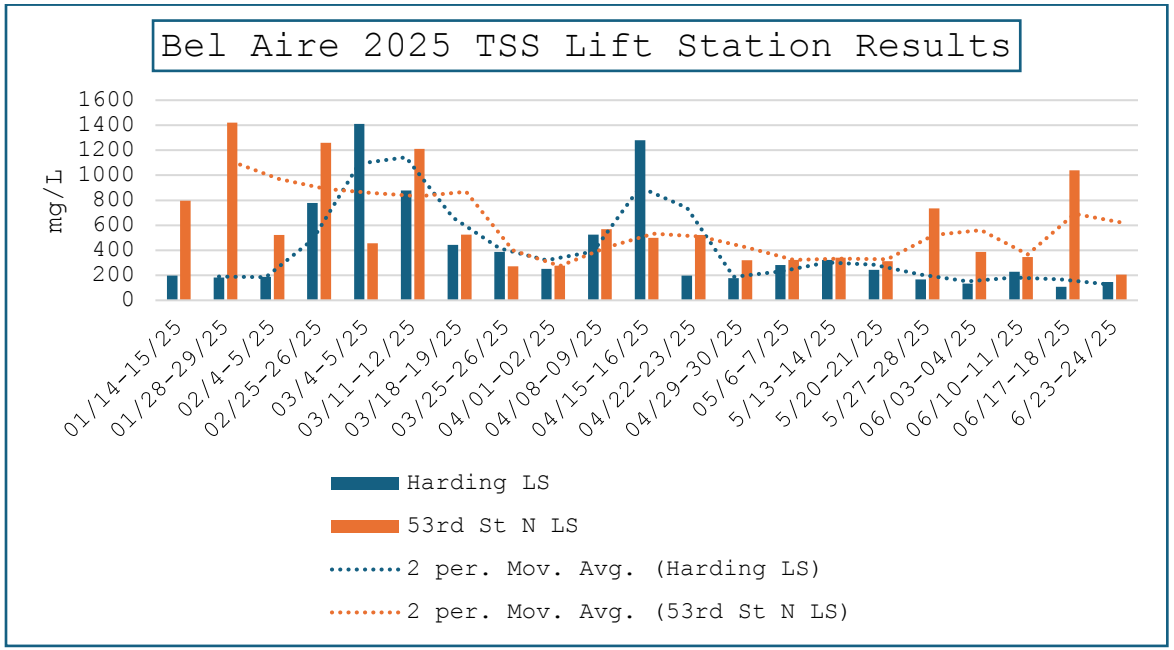
Harding & 37th St Lift Station							53rd St. North Lift Station					
Sample Date	BOD mg/L	TSS mg/L	NH3-N mg/L	TKN mg/L	PO4 mg/L	Monthly Flow MG	BOD mg/L	TSS mg/L	NH3-N mg/L	TKN mg/L	PO4 mg/L	Monthly Flow MG
01/14-15/25	286	197	39.1	48.8	5.5		578	796	48	69.9	8.5	
01/28-29/25	240	181	49.8	73.2	8.2		594	1420	34.2	62.2	9.3	
January Avg	**263**	**189**	**44.4**	**61**	**6.8**	**11.64**	**586**	**1108**	**41.1**	**66**	**8.9**	**5.156**
02/4-5/25	268	188	55.4	56	7.2		389	522	49.6	77.5	8.2	
02/25-26/25	396	778	32	45.6	5.9		468	1260	40.8	51.2	6.7	
February Avg	**332**	**483**	**43.7**	**50.8**	**6.55**	**11.39**	**429**	**891**	**45.2**	**64.3**	**7.45**	**4.953**
03/4-5/25	454	1410	55	66.4	7.5		596	455	39.6	50.1	7.1	
03/11-12/25	644	877	37.8	55.4	7.5		426	1210	42.5	60.2	8	
03/18-19/25	451	442	42.1	50.1	7.2		388	526	43.7	56.8	8.9	
03/25-26/25	424	387	52	55.7	6.8		327	271	43.6	47.5	6.4	
March Avg	**493**	**779**	**46.7**	**56.9**	**7.25**	**12.25**	**434**	**615.5**	**42.35**	**53.65**	**7.6**	**5.215**
1st Qtr. Avg	***363***	***484***	***45***	***56***	***6.9***		***483***	***872***	***43***	***61***	***8***	
CCUA Targets	***229-334***	***221-440***	***30-50.1***	***45-73***	***6-8***		***229-334***	***221-440***	***30-50.1***	***45-73***	***6-8***	
Literature Ranges	***100-400***	***250-850***	***12-50***	***30-80***	***6 - 14***		***100-400***	***250-850***	***12-50***	***30-80***	***6 - 14***	

Second Quarter 2025 Lift Station Monitoring Results

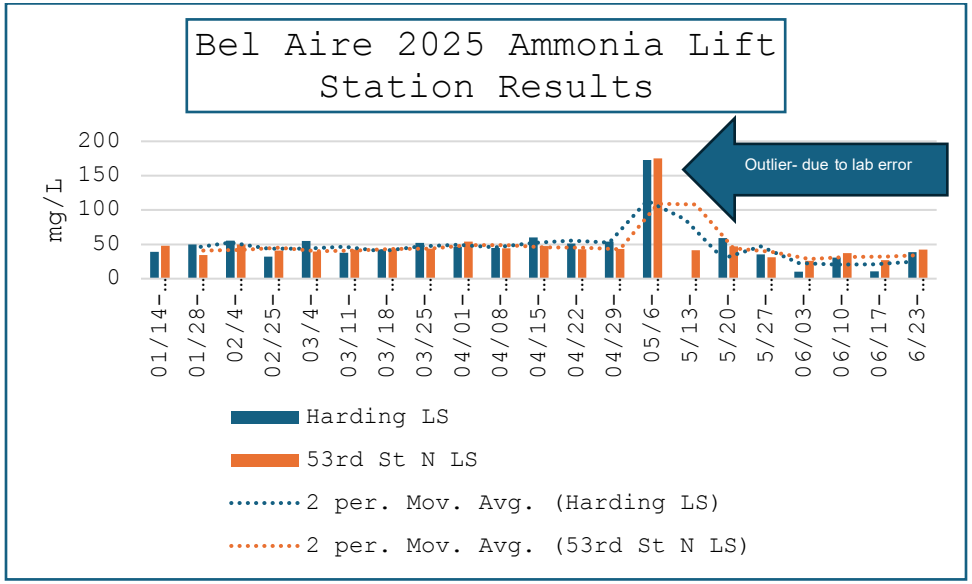
Harding & 37th St Lift Station							53rd St. North Lift Station					
Sample Date	BOD mg/L	TSS mg/L	NH3-N mg/L	TKN mg/L	PO4 mg/L	Monthly Flow MG	BOD mg/L	TSS mg/L	NH3-N mg/L	TKN mg/L	PO4 mg/L	Monthly Flow MG
04/01-02/25	345	252	46.6	51.7	6.5		361	278	54	60.7	7.6	
04/08-09/25	418	526	44.6	57.8	8.4		403	568	44	49.6	7	
04/15-16/25	526	1280	60	78.5	13.3		382	499	47.3	60.8	9.7	
04/22-23/25	230	198	51	54.8	10.7		375	522	42.8	52.9	9.5	
04/29-30/25	267	177	54	55.9	7		372	321	43.2	61.6	7.9	
April Average	**357**	**437**	**51**	**59.7**	**9.2**	**14.32**	**379**	**438**	**46**	**57**	**8.1**	**5.407**
05/06-07/25	341	283	173	48.7	8.5		317	323	175	52.8	7.9	
05/13-14/25	279	323	ND	60.5	7.1		284	341	41.2	46.1	5.5	
05/20-21/25	337	244	59	69.3	8.7		291	313	47.2	53.3	6.6	
05/27-28/25	211	167	35.2	40.3	5.3		314	714	30.9	44.6	6	
May Average	**292**	**254**	**89**	**54.7**	**7.4**	**13.46**	**302**	**428**	**74**	**49**	**6.5**	**5.796**
06/03-04/25	218	134	10.2	18.2	2.6		278	388	26.2	43.2	5.5	
06/10-11/25	166	228	30.8	35.6	5.9		248	345	37.1	40.4	6.6	
06/17-18/25	108	108	10.7	17.9	2.5		317	1040	26.8	45.5	7.1	
06/23-24/25	171	147	38.5	39.8	0.95		179	205	42.2	42.7	1	
June Average	**166**	**154**	**22.5**	**27.9**	**3**	**20.54**	**256**	**494**	**33**	**43**	**5**	**6.906**
2nd Qtr. Avg	***272***	***235***	***54***	***47***	***6.5***		***312***	***453***	***51***	***50***	***6.5***	
CCUA Targets	***229-334***	***221-440***	***30-50.1***	***45-73***	***6-8***		***229-334***	***221-440***	***30-50.1***	***45-73***	***6-8***	
Literature Ranges	***100-400***	***250-850***	***12-50***	***30-80***	***6 - 14***		***100-400***	***250-850***	***12-50***	***30-80***	***6 - 14***	

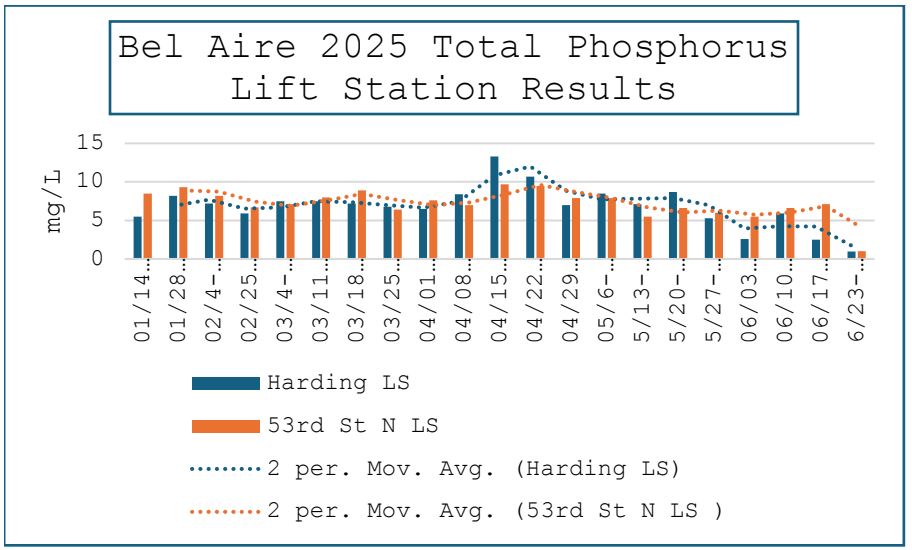
2025 YTD Pollutant Trends

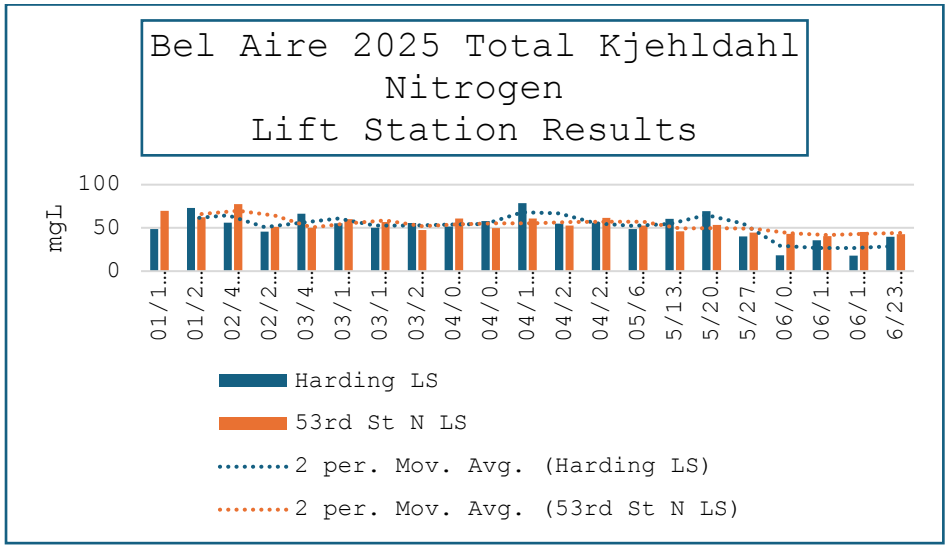




2025 Pollutant Trend Charts







BURNS McDONNELL

Bel Aire Collection System Status Report

August 12, 2025

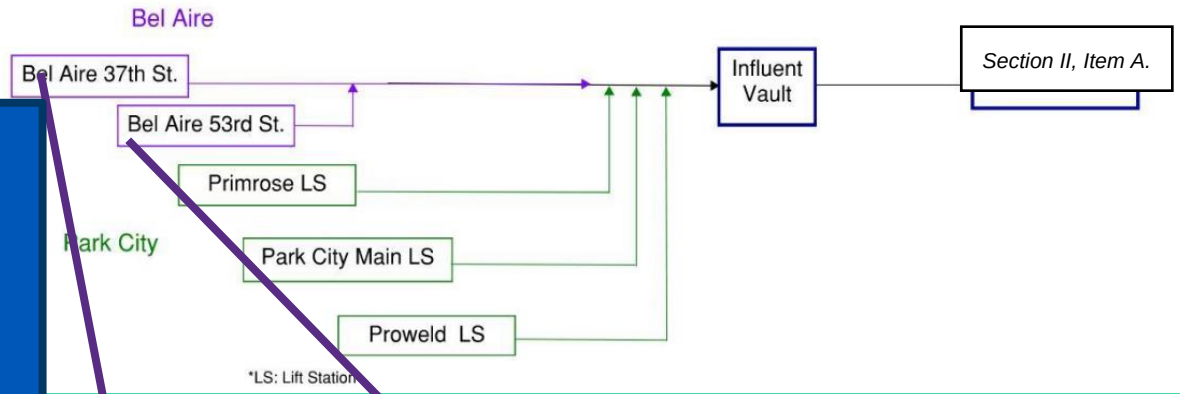
Agenda

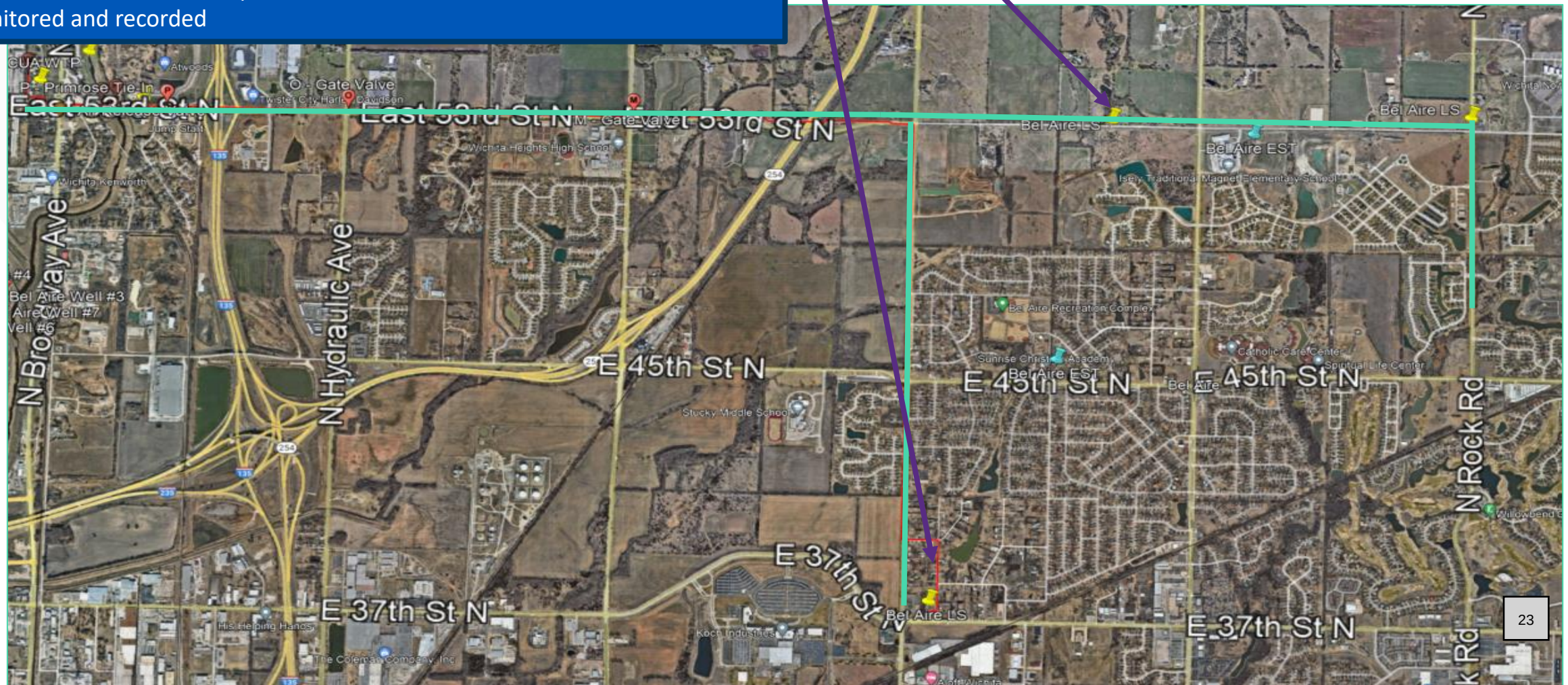
- Lift Station Wastewater Monitoring
- Collection System
  - Odor & Corrosion Control
- Next Steps

Lift Station Wastewater Monitoring

Monitoring Information

- Samples have been collected at B A lift stations since July 2023 (~weekly frequency)
- Starting in January 2025, CCUA began collecting samples at PC lift Stations
- Since July 2025, all sample collection activities are performed by CCUA
- Wastewater Flow Meters replaced at all Lift Stations: flows at all sites monitored and recorded





Monthly Analytical Averages

- **"Domestic Strength Wastewater" with "Extra Strength Wastewater"** shall mean wastewater that exceeds:
- 239 mg/L BOD
- 239 mg/L TSS
- 36 mg/L for Ammonia
- 8 mg/L Phosphorus

Based on the influent design capacity of the Seller's wastewater treatment facility*

	Harding Lift Station – 3800 N. Harding					53rd St. Lift Station – 585				
	BOD mg/L	TSS mg/L	NH_3 mg/L	TKN mg/L	TP mg/L	BOD mg/L	TSS mg/L	NH_3 mg/L	TKN mg/L	TP mg/L
January	263	189	44.4	61	6.8	586	1108	41.1	66	8.9
February	332	483	43.7	50.8	6.5	428	891	45.2	64.4	7.45
March	493	779	46.7	56.9	7.25	434	615.5	42.4	53.6	7.6
April	357	487	51	59.7	9.2	379	438	46	57	8.1
May	292	254	89	55	7.4	302	428	73.6	52.8	7.9
June	166	154	22.5	28	3.0	256	494	33	43	5
2025 YTD Avg	**334**	**421**	**51**	**53.1**	**7**	**378**	**565**	**48.7**	**54.2**	**7.2**
2024 Average	**381**	**373**	**42**	**60**	**8.0**	**319**	**382**	**41**	**52**	**7.3**
2023 Average	**397**	**491**	**43**	**66**	**8.0**	**360**	**285**	**38**	**54**	**6**
Literature Ranges	*100 – 400*	*250-850*	*12- 50*	*30 - 80*	*6- 14*	*100 – 400*	*250-850*	*12- 50*	*30 - 80*	*6- 14*
CCUA Targets	*229-334*	*221-440*	*30-40*	*45-73*	*6-8*	*229-334*	*221-440*	*30-40*	*45-73*	*6-8*

*Pg. 2 - Sixth Supplemental Water Supply and Wastewater Service Agreement between CCUA & the City of Bel Aire Kansas

Monthly Flow - Million Gallons

	Harding/37th MG	53rd St MG	Total Bel Aire Flow	CCUA Influent MG	Percent Flow
January	11.64	5.156	16.796	36.3217	46.2%
February	11.393	4.953	16.346	36.883	44.3%
March	12.25	5.215	17.465	37.701	46.3%
April	14.318	5.407	19.725	41.264	47.8%
May	13.346	5.796	19.142	45.42	42.1%
June	20.535	6.906	27.441	63.191	43.4%
Total YTD	**83.482**	**33.433**	**116.915**	**260.781**	**44.8%**

Bel Aire Wastewater Loading Calculations

37th & Harding Lift Station

	Flow - MG	BOD MO AVG mg/L	Total MO. BOD lbs.	BOD ES Chgs.	TSS Mo AVG	Total Mo TSS lbs	TSS ES Chgs
January	11.64	263	25531	$ 698.96	189	18348	$ -
February	11.39	332	31546	$ 2,650.99	483	45894	$ 5,796.07
March	12.25	493	50393	$ 7,792.64	779	79586	$ 13,792.28
April	14.32	357	42654	$ 4,234.35	486.6	58106	$ 7,391.61
May	13.35	292	32501	$ 1,769.76	254	28299	$ 424.35
June	20.54	166	28387	$ -	154.25	26417	$ -
Total Pounds			211012			256650	
Total Charges/ Pollutant			BOD	$ 17,146.70		TSS	$ 27,401.31
Total Charges ES YTD			$	**76,915.77**			

53rd St N Lift Station

	Flow - MG	BOD MO AVG mg/L	Total Mo BOD lbs	BOD ES Chgs	TSS Mo Avg mg/L	Total Mo TSS lbs.	TSS ES Chgs
January	5.156	586	25198	$ 4,476.41	1108	47645	$9,341.98
February	4.953	428.5	17700	$ 2,348.36	891	36805	$6,733.21
March	5.215	434.25	18886	$ 2,547.61	615.5	26770	$4,093.79
April	5.407	378.6	17072	$ 1,888.55	437.6	19733	$2,238.94
May	5.796	301.5	14574	$ 906.35	427.8	20676	$2,280.98
June	6.906	255.5	14715	$ 28.51	494.5	28481	$ 367.89
Total Pounds			108148			180112	
Total Charges/ Pollutant			BOD	$12,195.79		TSS	$20,168.97

FORMULAS

Total Pounds = (BOD or TSS result)x (Monthly Flow in MG) x (8.34 CF)

BOD CHG = Total Pounds (mg/L-239) x $0.30

TSS CHG = Total Pounds (mg/L-239) x 0.25

BURNS McDONNELL

Loading Contributions to CCUA

	Bel Aire Calculations			Park City Calculations			CCUA		LIFT STATIONS TOTALS
BOD	Bel Aire BOD Mo. Avg Pounds	BA Percent of CCUA influent	BA percent of LS Total Pounds	Park City BOD Mo. Avg Pounds	PC Percent of CCUA influent	PC percent of LS Total Pounds	CCUA Monthly BOD Conc. Mg/L	Total BOD Pounds CCUA Influent	Total BOD Pounds calculated from LS
June	43,102	48%	37%	73,911	83%	63%	170	88,956	117,013

TSS	Bel Aire TSS Mo. Avg Pounds	BA Percent of CCUA influent	BA percent of LS Total Pounds	Park City TSS Mo. Avg Pounds	PC Percent of CCUA influent	PC percent of LS Total Pounds	CCUA Monthly TSS Conc. Mg/L	Total TSS Pounds CCUA Influent	Total TSS Pounds calculated from LS
June	48,976	40%	23%	165,565	135%	77%	233	122,583	214,541

- Lift Station concentrations are higher than CCUA influent concentrations, influencing the calculations
- Differences in loadings between cities could be attributed to Bel Aire's proactive measures

Collection System Activities
Odor/Corrosion Control Abatement

Areas of Odor and Corrosion Detected

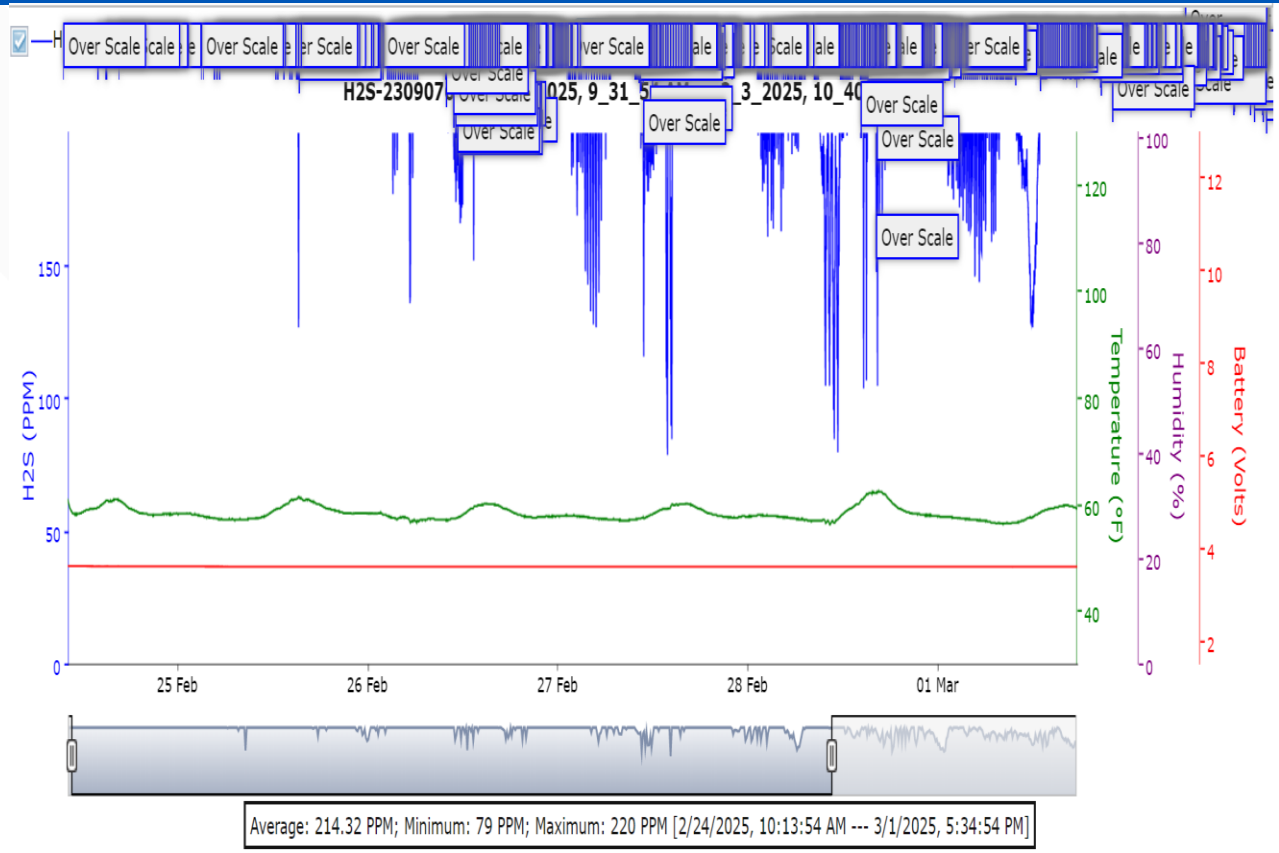
- Odor complaints from residents near the 53rd St. Lift Station (LS) & on Lycee (Webb Rd LS)
- Inspections have found substantial grease build-up in LS wetwells
- Significant corrosion of manhole vaults and lids on sanitary sewer line serving 53rd St N LS
- Odors and corrosion result of excess hydrogen sulfide (H2S) present in the sewage likely due to extended mean residence time of wastewater in the collection system

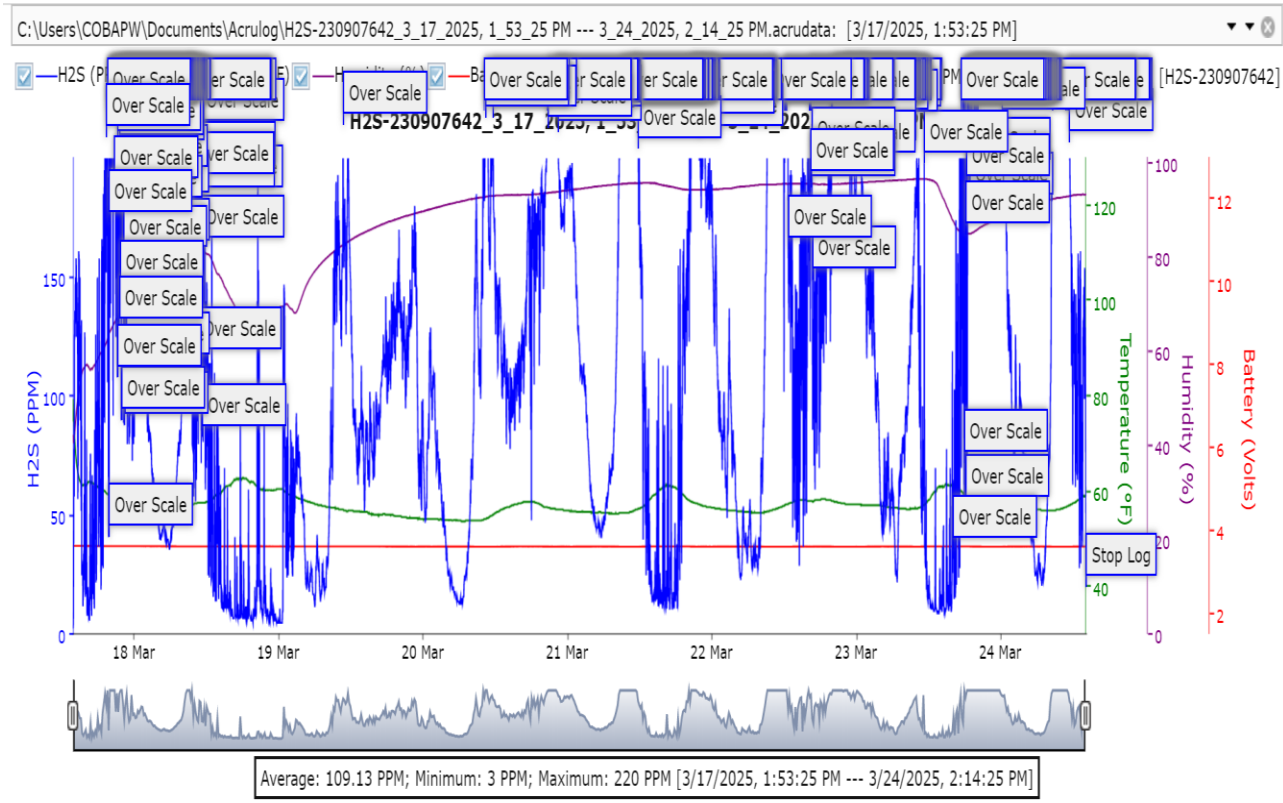
Mitigation Efforts: Odors – Corrosion-Grease

Sanitary Sewer Activities Year to Date

Activities	Measurement
Feet of Sewer Lines Cleaned	**9500** feet cleaned
Feet of Sewer Lines Televised	**1200** feet televised
Number of Locations Odalog Measurements	**2** Webb Road force main Injection at Lycee Rock Road Force Main Injection on 53rd St.

Odalog Results- 53rd Street Sewer Feb & Mar. 2025



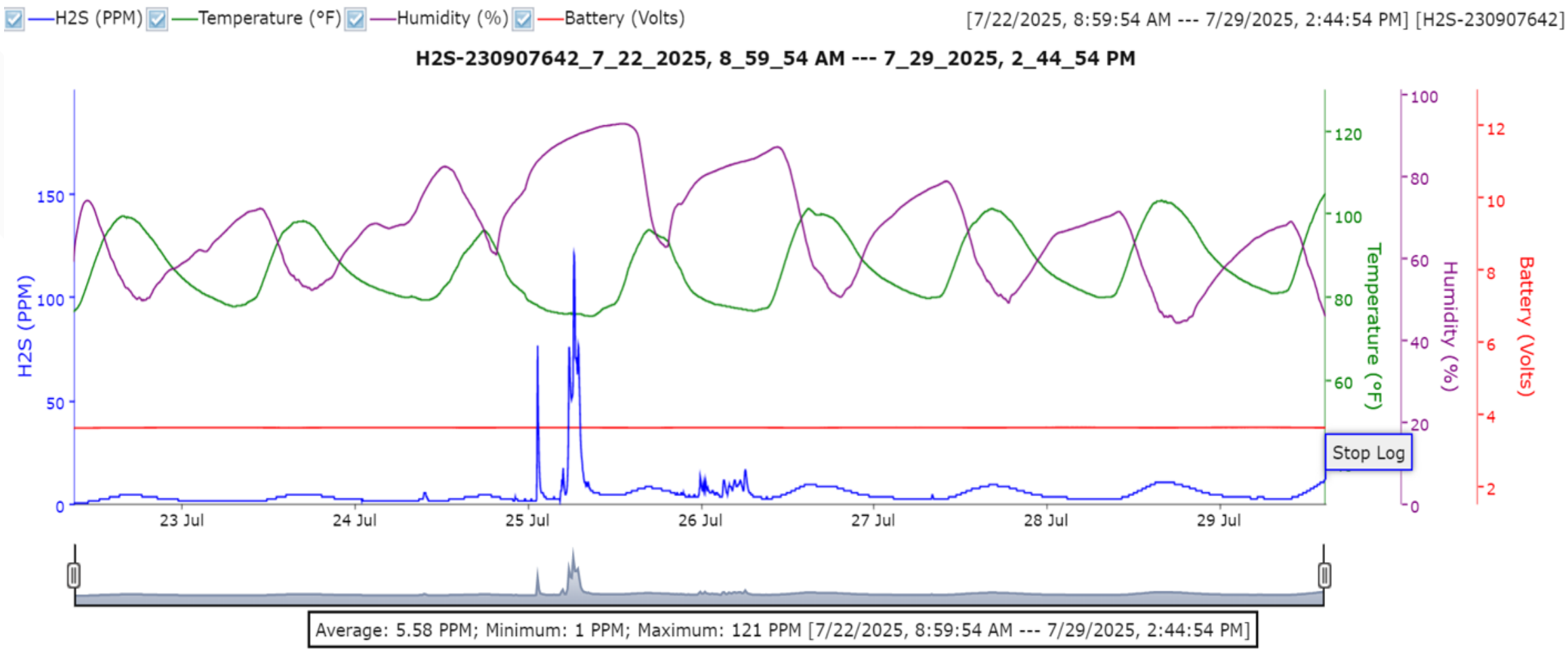


Manholes at Rock Rd. Injection site and Downstream of Injection site

Sulfide measurements were above maximum detection

BURNS McDONNELL

Odalog results at Lycee –July, 2025



Manhole Location – Webb Road LS Force Main Injection Point

Mitigation Efforts: Odors-Corrosion-Grease

Lift Stations Year To Date:

Activities	Measurements
LS Wetwells Cleaned	3
Frequency of Odalog measurements at Wetwells	6
Pumps Replaced	2

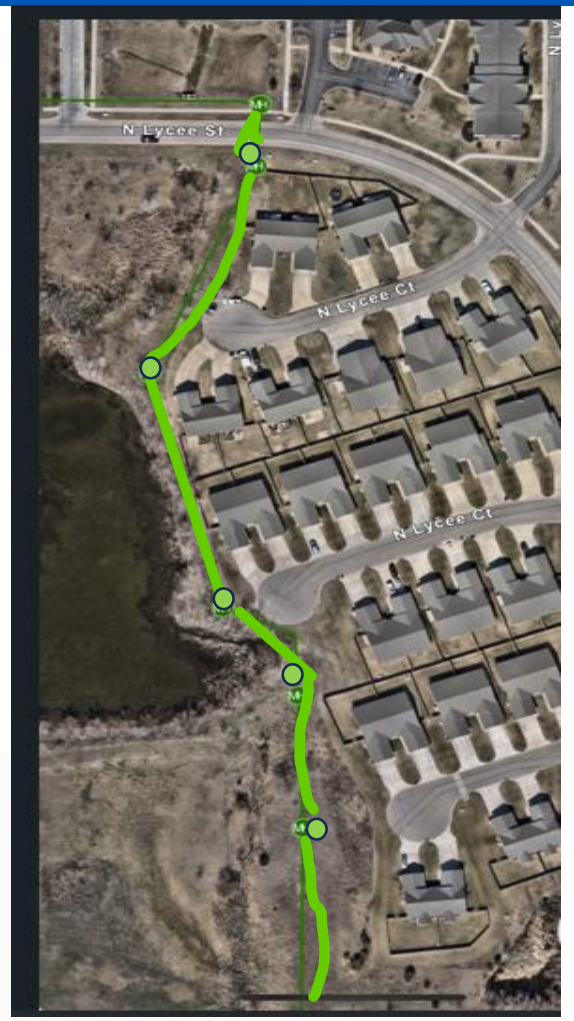
- Replaced pump at Harding - New pump at 53rd expected in August
- Bioblocks & Dish Soap additions to wetwells to reduce grease/odors
- Extended Vent Pipes for odor control @ Rock Road and Harding
- Wetwell Aerators at 53rd , Rock Rd, Webb, and Harding
- In July, sampling activities were transferred to CCUA staff

Webb Road Lift Station

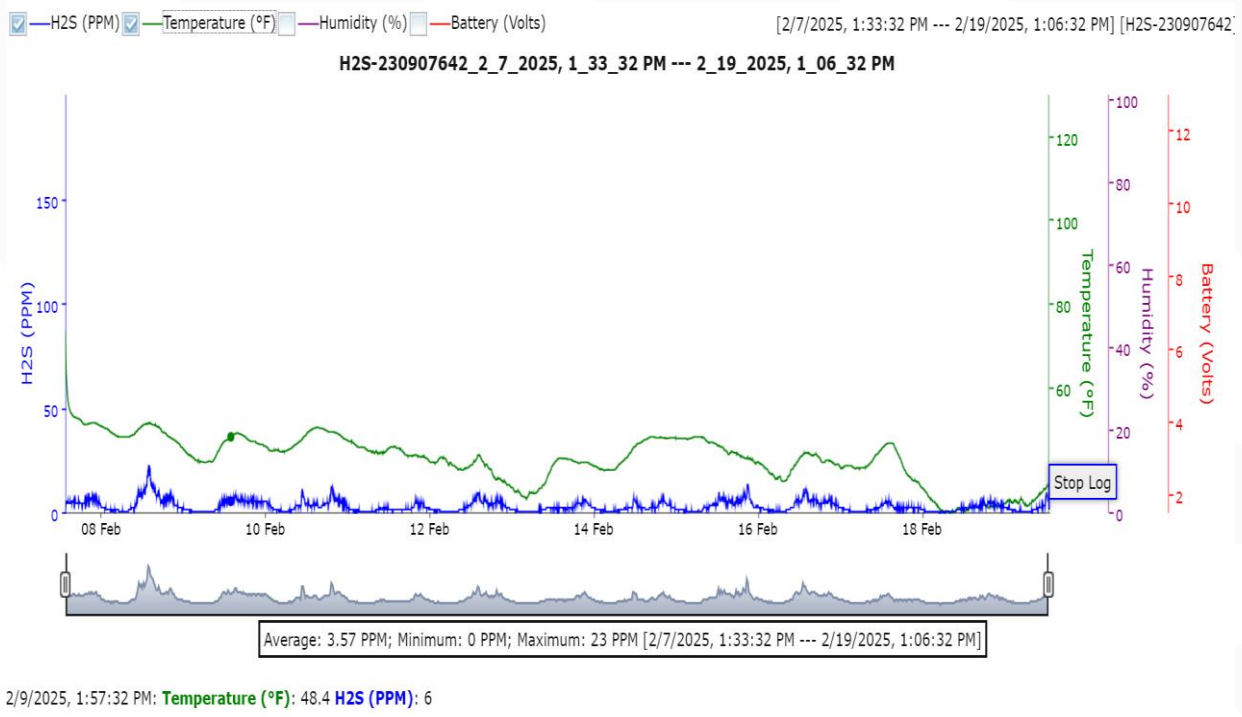
1. Lift Station (LS) designed to receive future flows becomes septic due to extended retention and detention times
2. When wastewater in the lift station is pumped to the LS force main, the wastewater continues to reside in the force main increasing H2S formation
3. Actions Taken to Address Odors & Corrosion:
   - Installed Water Hydrant & Flush Weekly
   - Scheduled Wetwell Cleanings
   - Proposed Chemical Treatment

Lycee Manhole Assessment

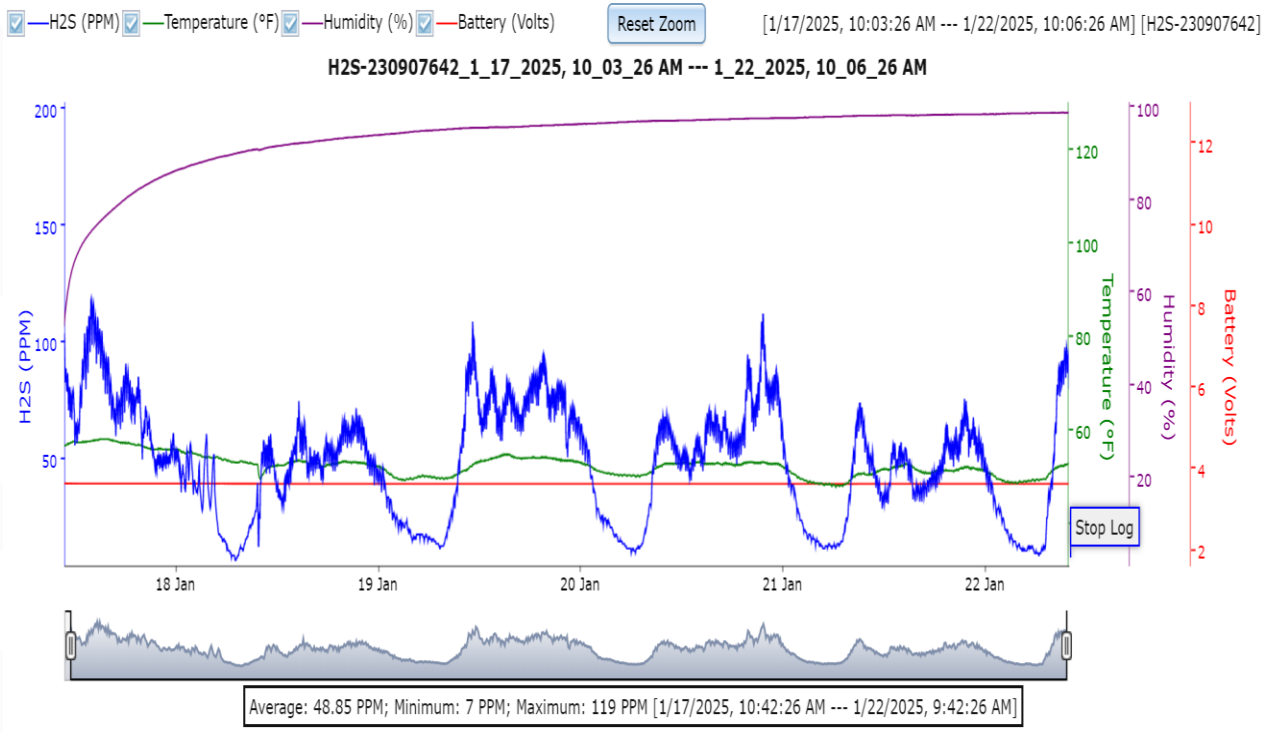
- Webb Road Lift Station Force Main ties into the gravity line that is west of Lycee (Rock Springs Addition)
- Recent visual inspections of the sanitary sewer manhole vaults is showing signs of corrosion
- Recommend further evaluation to determine best alternatives for manhole rehabilitation



LS Odalog Monitoring Results
Jan & Feb

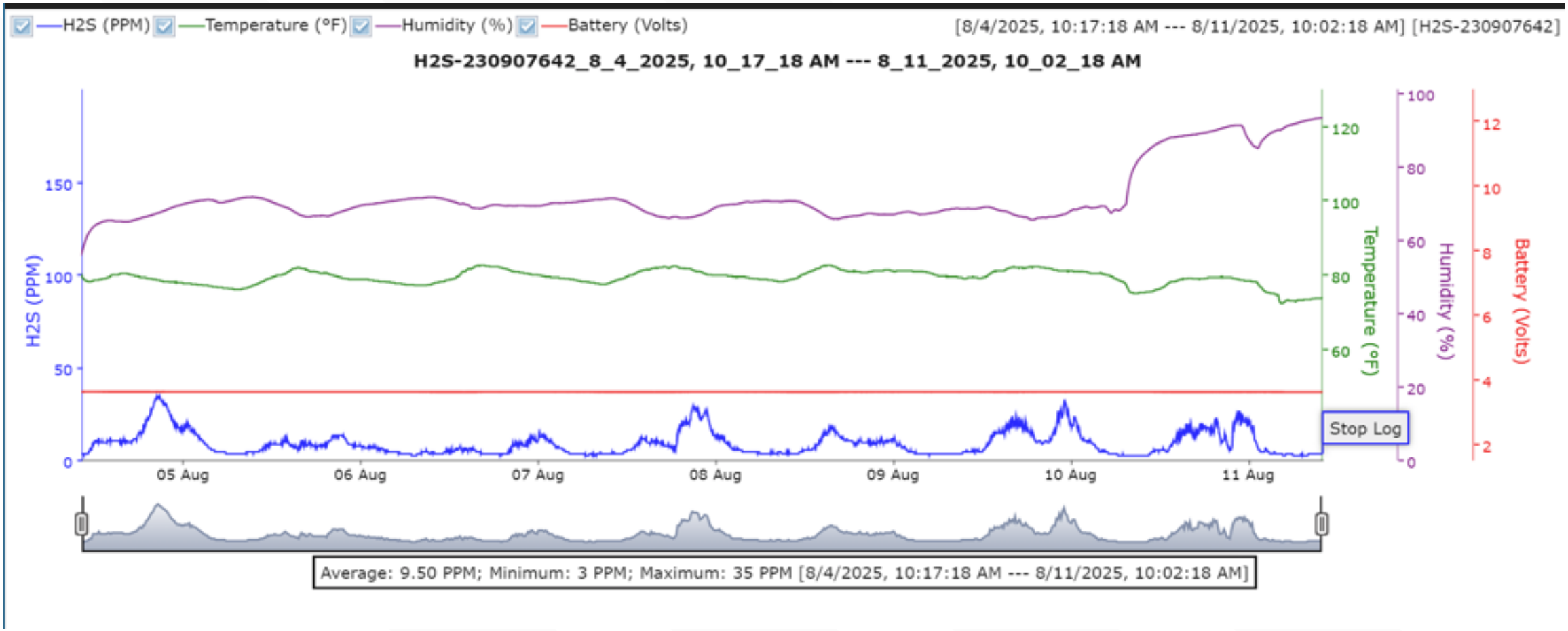


Rock Rd. LS



53rd St. LS

Webb Rd LS Odalog Monitoring Results

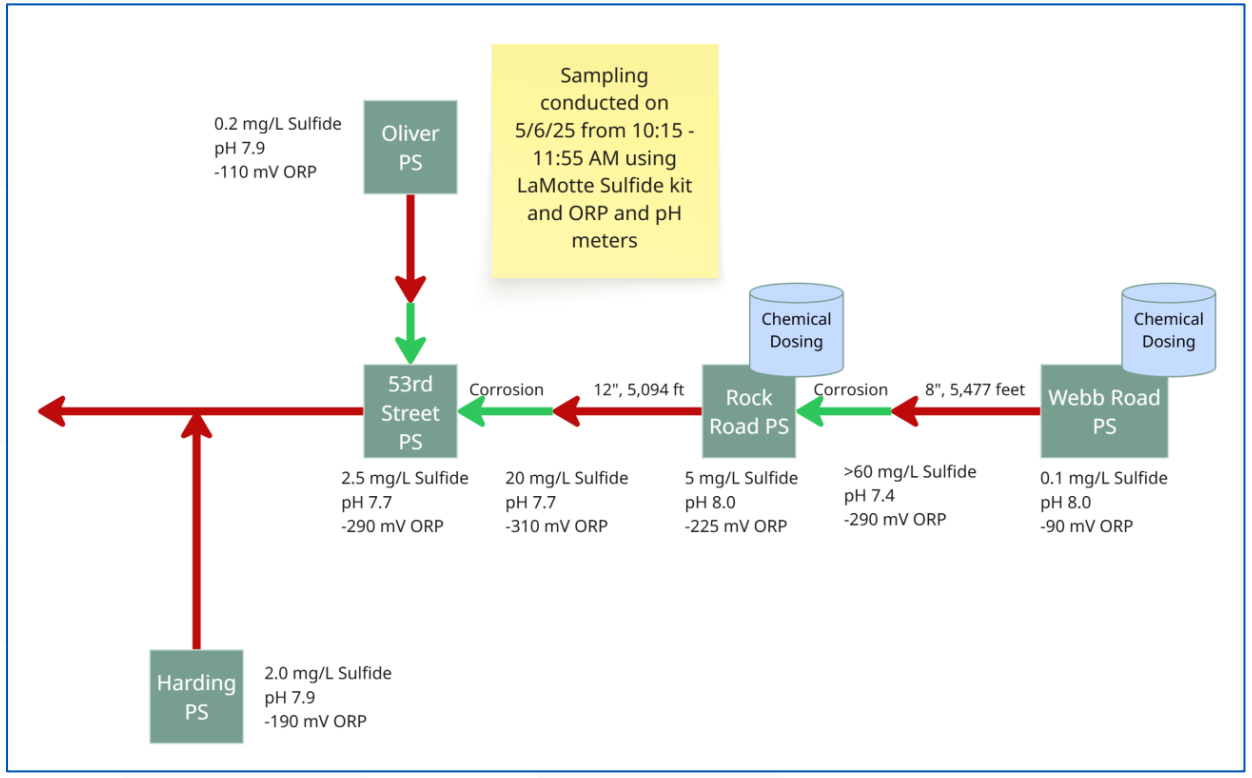


Hydrogen Sulfide (H2S) Control -

TECHNOLOGY	COST	RESULTS/COMMENTS
Aeration	**$4,100/Aerator**	Installed at 3 Lift Stations. Effective in reducing grease cap in wetwell. Limited effect in H2S reduction
Bioaugmentation Bacteria Blocks	**$292/bioblock/LS Replace 30-90 days ($1,168/LS/yr)**	Installed at 3 Lift Stations
Raise Vents, Replace Covers, Add Filter	**$80/vent cover Carbon media replaced every 2 years ~$25**	Installed carbon vent covers at 2 lift stations. Reduction of odors in immediate area
Scheduled Wetwell Cleanings	**2 Staff/ site 2-3 hours**	Starting in July staff implemented a routine cleaning of wetwells, pumping down water levels, power-washing sides and apparatus
Chemical Addition at Lift Station	**Estimate: $75,000/yr**	Odor control service provider submitted pilot to determine effectiveness and dosage rates

Odor Control Chemical Control

The City reached out to USP Technologies to submit a proposal to chemically treat hydrogen sulfide in the collection system to reduce odors and corrosion. Based on the provided information, SulFeLox® appears to be a promising solution for the City's hydrogen sulfide (H_2S) problem in its wastewater collection system It is designed to treat both vaporous H2S (causes odors) and dissolved H2S (causes corrosion).



Pilot Study Cost Estimate

2 totes of SulFeLox cost estimate: 2 totes of SulFeLox: $24.48/gallon * 2 totes * 300 gallons/tote = **$14,904.00**

Includes:

Installation of peristaltic dosing pumps

Liquid and vapor phase sampling in the collection system for total sulfide, dissolved sulfide, temperature, pH, ORP, and iron residuals (minimum of monthly frequency, more often during trial startup period)

Unlimited on-call technical applications support and guidance will be provided when requested by experienced water treatment professionals

A comprehensive report summarizing findings and recommendations will be prepared and presented at the conclusion of the trial

Estimated Odor Control Chemical Annual Cost

Dependent on successful outcome of pilot

	2 Totes/Order	6 Totes /Order	13 Totes/Order
Max Dosage - 3 Totes/Mo	$264,384/yr	$134,136/yr	$112,860/yr
Min Dosage 1.5 Totes/Mo	$132,192/yr	$67,068/yr	$56,430/yr

SulFeLox, a low-hazard ferrous chloride product, in 300-gallon totes

- $24.48/gallon ▪ 2 totes per order, 2 stops
- $12.42/gallon ▪ 6 totes per order, 2 stops
- $10.45/gallon 13 totes per order, 2 stops

Manhole Rehabilitation Project

- City of Bel Aire has identified14 manholes on 53rd St between Prestwick & Oliver for rehabilitation/replacement project
- Council approved a contract in 2023 to perform manhole rehabilitation work which was not completed due to condition of the manholes - found to be in worse state than expected
- Staff sought Engineering Assistance Scope:
  - Manhole Condition Assessment
  - Data Review & Recommendations
  - Prepare Contract Drawings and Specifications
  - Engineer's Opinion of Probable Construction Cost
  - Preliminary Design Submittal & Review
  - Final Submittal

NEXT STEPS

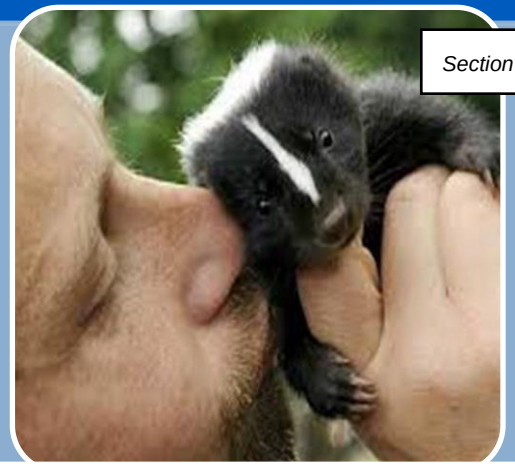
Pretreatment Program

Staff plans to follow up on User paperwork submittals and inspect Fall, 2025

Wastewater Monitoring Program

Collection transferred to CCUA

Continue to monitor results for true-up



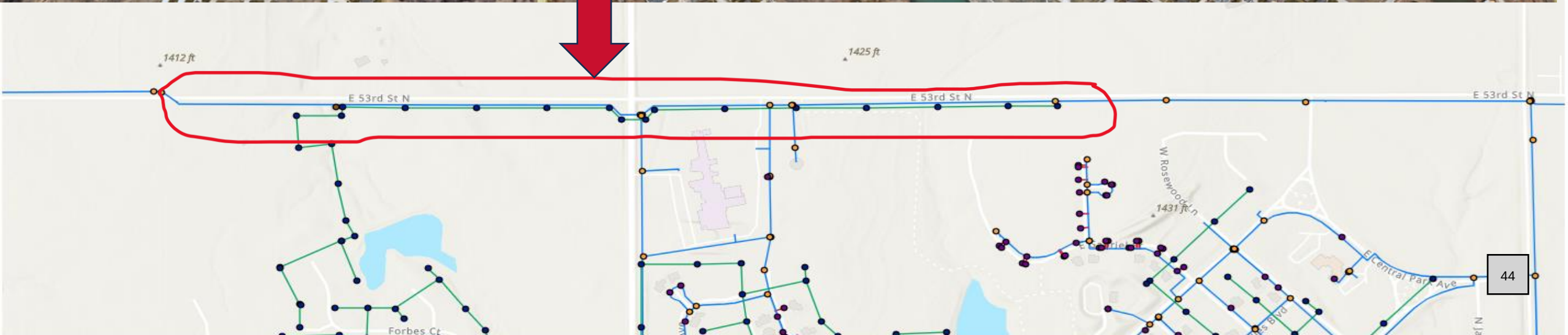
Odor/ Corrosion & Manhole Rehab

Proceed with Pilot & Consider Annual Program

Evaluate Manhole Condition Assessment and Specification Development

CREATE AMAZING.

Collection System Map



May 20, 2025

Marty McGee
Public Works Director
City of Bel Aire
7651 E. Central Park Avenue
Bel Aire, KS 67226

RE: Proposal for Odor & Corrosion Control Trial in Sewer Collection System

Mr. McGee,

USP Technologies has prepared this trial proposal based on the information provided by the City, Burns & McDonnell, field gaseous and liquid measurements that we collected, and modelling of your system.The intention of this trial would be to demonstrate the efficacy and determine long-term costs of using the best fit liquid phase odor control chemicals.

Technical Summary:

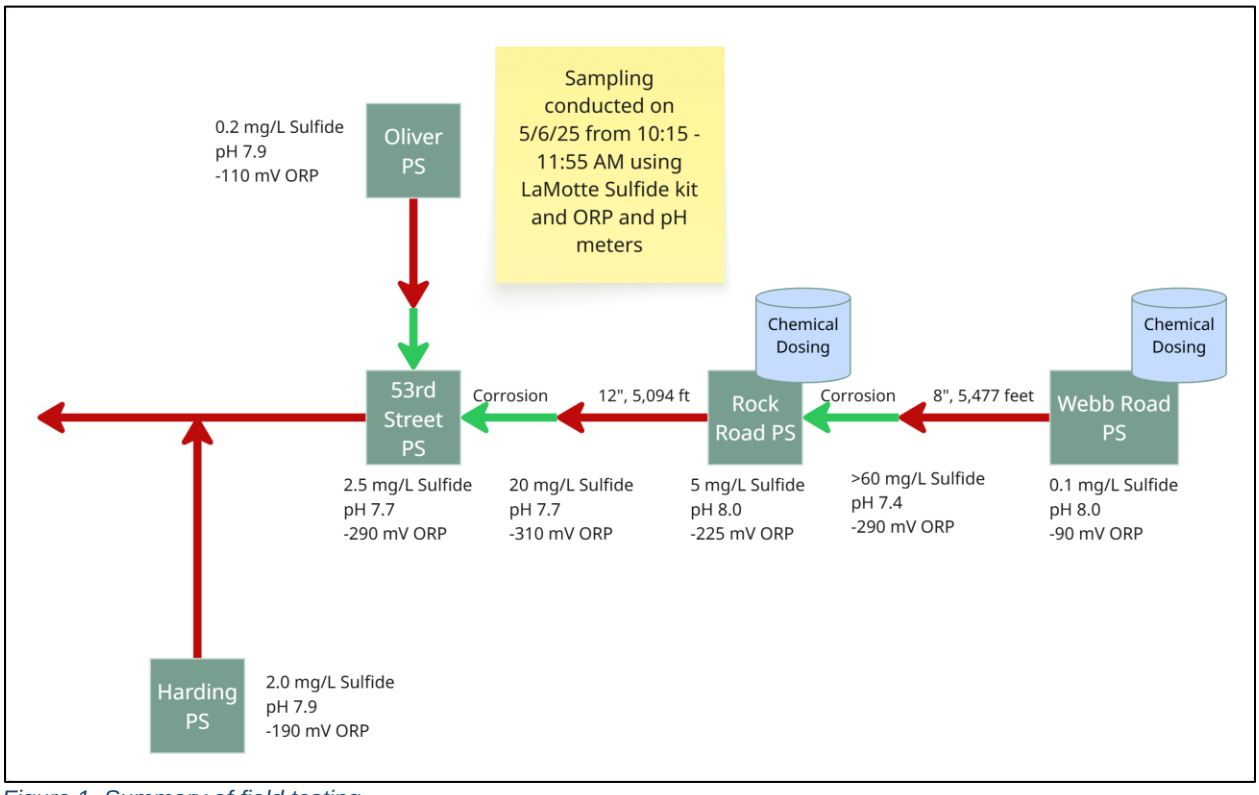


Figure 1. Summary of field testing.

Hydrogen sulfide levels were measured in two ways throughout the collection system. In gaseous phase city staff utilized Acrulog hydrogen sulfide meters to collect continuous measurements for extended periods of time. In liquid phase USP collected grab samples and measured total sulfide using a field test kit manufactured by LaMotte.

Sulfide generation across a range of likely conditions within the Webb and Rock forcemains was modeled using the Pomeroy equation. We used flow, BOD, force main diameter, and force main length values provided by the City & Burns & McDonnell. A summary of the projections based on differing temperature and flows is presented below in Table 1.

Table 1. Sulfide generation modeling within the Webb Force Main and Rock Force Main.

***Client** .....Bel Aire, KS*

Sulfide Generation Model -- Force Mains

		Segment:	Webb FM 15C	Webb FM 20C	Webb FM 25 C	Rock FM 15C	Rock FM 20C	Rock FM 25C
Sulfide generation								
	Within the segment	**mg / L**	**43.2**	**62.3**	**89.7**	**14.4**	**18.6**	**24.6**
	Within the segment	**lbs per day**	**5.41**	**7.79**	**11.23**	**12.02**	**15.50**	**20.51**
		kg per day	2.46	3.54	5.11	5.47	7.04	9.32
Input Params	T	Temperature, deg-C	15	20	25	15	20	25
	BOD	BOD-20, mg/L	300	300	300	300	300	300
	mgd	Flow, mgd	0.015	0.015	0.015	0.100	0.100	0.100
	D	Pipe diameter, in	8	8	8	12	12	12
	l	Pipe length, ft	5,477	5,477	5,477	5,094	5,094	5,094
	S1	Sulfide conc at time t1, mg/L	0.1	0.1	0.1	5.0	5.0	5.0
Calculated	EBOD	Effective BOD = BOD * 1.076(T-20), mg/L	208	300	433	208	300	433
	PV	Pipe volume, gals	14,331	14,331	14,331	29,991	29,991	29,991
	t	Flow time within the segment (t2-t1), hr	22.93	22.93	22.93	7.20	7.20	7.20
	d	Pipe diameter, m	0.24	0.24	0.24	0.36	0.36	0.36
	v	Velocity, fps	0.1	0.1	0.1	0.2	0.2	0.2

The gaseous H_2S concentrations measured at the outfall of the Rock Force Main ranged from 79 to 220 ppm (Figure 2). Note that the H2S meters were only rated to 200 ppm. Hydrogen sulfide-induced corrosion is greatly accelerated at this level.

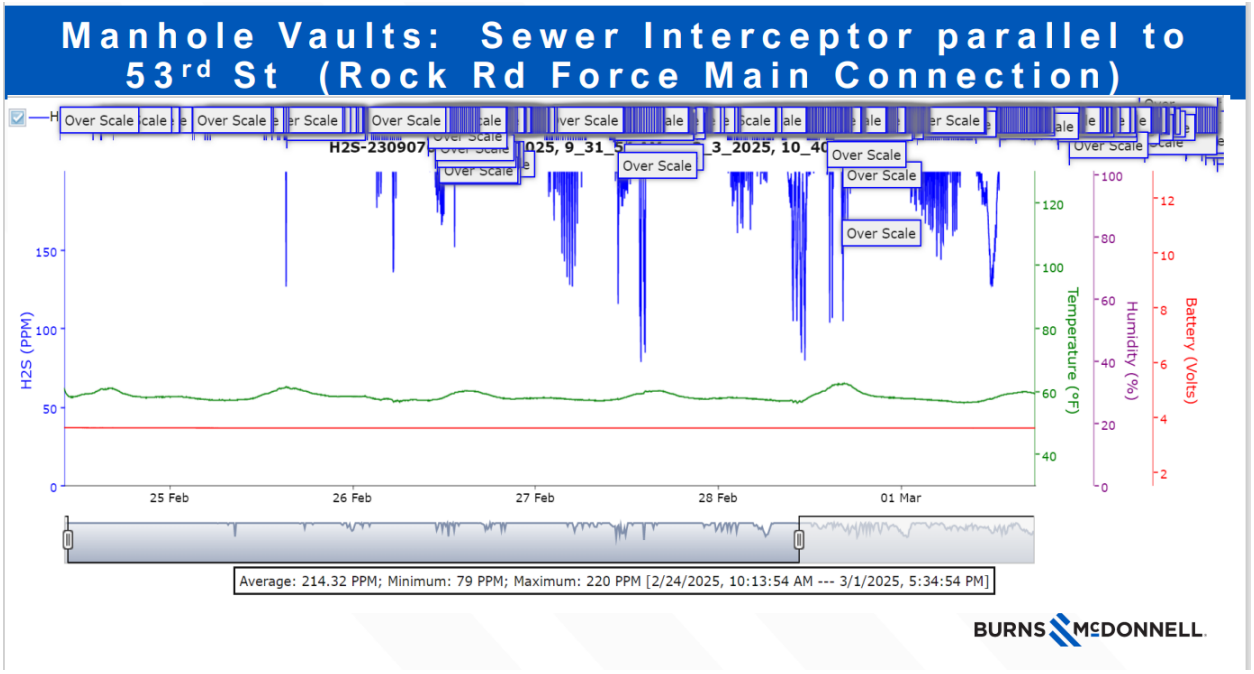


Figure 2. Gaseous H2S levels collected at the Rock Force Main outfall. Data provided by Burns & McDonnell.

Dosing Rate Projections:

USP projected the likely dosing rates based on our database of similar chemical applications and the likely dosing ratios of chemical to sulfide provided by published technical literature. These dosing rates are calculated to bring H_2S down at least 75%, but would need to be validated at full scale to confirm.

- Inputs
  - Flow: 0.1 MGD into Rock Road Pump Station, 0.015 MGD into Webb Road Pump Station
  - Sulfide load: 12 – 20 pounds/day Rock FM, 5 – 11 pounds/day Webb FM
- Dosing Rate Projections
  - 38 - 42% Ferric Chloride
    - Gallons/Day at Rock Road PS: 8 – 15
    - Gallons/Day at Webb Road PS: 3 – 8
  - SulFeLox (Low-haz Iron Solution)
    - Gallons/Day at Rock Road PS: 12 - 21
    - Gallons/Day at Webb Road PS: 5 - 12

USP's Offering:

For this project USP Technologies will be providing the following:

- **Services**
  - Installation of peristaltic dosing pumps
  - Liquid phase sampling in the collection system for total sulfide, dissolved sulfide, temperature, pH, ORP, and iron residuals (minimum of monthly frequency, more often during trial startup period)
  - Unlimited on-call technical applications support and guidance will be provided when requested by experienced water treatment professionals
  - A comprehensive report summarizing findings and recommendations will be prepared and presented at the conclusion of the trial
- **The Supply of Odor Control Chemicals**
  - SulFeLox
    - A lower hazard ferrous chloride product
    - Delivered in 300 gallon totes
  - Ferric Chloride
    - 38 – 42% concentration
    - Delivered in 2500 lb totes
      - Approximately 206 – 213 gallons/tote

City's Responsibilities:

For this project the City will be providing the following:

- Access to Rock and Webb Pump Stations
- 110V electrical service to:
  - Dosing system
- Assistance in offloading and positioning the totes (~2500 - 3400 lbs each) with suitable pallet jack or forklift

Please Note

- Unused chemical cannot be returned and must be disposed of properly on-site

Pricing

- Ferric Chloride, 38 – 42% concentration, in 2500 lb totes (approximately 206 – 213 gallons/tote)
  - $11.33/gallon
    - 6 totes per order, 2 stops, with lift gate service and delivery appointment
- SulFeLox, a lower hazard ferrous chloride product, in 300 gallon totes
  - $24.48/gallon
    - 2 totes per order, 2 stops, with lift gate service and delivery appointment
  - $12.42/gallon
    - 6 totes per order, 2 stops, with lift gate service and delivery appointment
- Pricing excludes tax, payment terms are net 30 days.
- This pricing will remain in effect through December 31, 2025.

Trial Cost Estimate

- Ferric chloride cost estimate – 6 totes of FeCl3:
  - 6 totes of FeCl3: $11.33/gallon * 6 totes * 213 gallons/tote = $14,479.74
- 2 totes of SulFeLox cost estimate:
  - 2 totes of SulFeLox: $24.48/gallon * 2 totes * 300 gallons/tote = $14,904.00
- 6 totes of SulFeLox cost estimate:
  - 6 totes of SulFeLox: $12.42/gallon * 6 totes * 300 gallons/tote = $22,356.00

Timing

Once a purchase order (PO) has been issued USP will immediately begin work. It is expected that the trial could begin within 5 – 10 business days upon receipt of PO.

We greatly appreciate the opportunity to present this trial for your consideration. If you have any questions or comments, please contact Mike Nelson at (563) 650-6926 or Joel Thode at (316) 295-0273.

Sincerely,

Michael Nelson
Territory Manager, Midwest

Joel Thode
Applications Specialist

Terms & Conditions:

1. Weights. Seller's weights and volumes shall govern, except that in case of proven error adjustment shall be made.

2. Risk of Loss. Risk of loss and responsibility for all goods sold or provided hereunder shall pass to Buyer upon Seller's delivery to Buyer.

3. Warranty & Liability. Seller warrants that the goods shall conform to Sellers standard specifications in effect at time of shipment. SELLER MAKES NO OTHER WARRANTY, EXPRESS, OR IMPLIED, COVERING THE GOODS AND DISCLAIMS THE IMPLIED WARRANTY OF FITNESS FOR PURPOSE. Upon passage of title to the goods, Buyer assumes all responsibility and liability for and agrees to defend and indemnify Seller against, all claims, loss or damage resulting from Buyers storage, handling, sale or use of the goods or their containers.

4. Indemnification. Buyer shall indemnify, defend and hold Seller harmless from and against that portion of any liability, costs, expense (including without limitation reasonable attorneys' fees and expenses), claim, judgment, settlement or damage (collectively, "Claims") that Seller may incur or be required to pay to any third party (including without limitation any employee of Buyer regardless of whether such employee is barred under applicable law from claiming against Buyer) which is caused or contributed to by any act or omission of Buyer, including without limitation those arising from the negligence of Seller. If Buyer resells the products sold hereunder, Buyer will use its best commercial efforts to obtain from its purchaser an indemnification similar to the foregoing for the benefit of Buyer and Seller.

5. Damages & Claims. Seller's liability for damages and remedies against the Seller shall be limited to return of the purchase price of the particular delivery with respect to which such damages are claimed. The foregoing constitutes the exclusive remedy against the Seller and entire liability of the Seller in connection with such delivery and Seller shall not be liable for any incidental or consequential damages. Buyer shall inspect each shipment of goods within a reasonable time after arrival at Buyers plant, and in any event before use. Failure to make a claim in writing against the Seller within 30 days after arrival of goods at destination shall constitute an irrevocable acceptance of goods. Any action for breach of this contract must be commenced within one year after the cause of action has accrued.

6. Default or Waiver. If Buyer fails to perform any of the terms of this contract, Seller may defer shipments until such failure is made good or may treat such failure as final refusal to accept further shipments and may cancel this contract. A Seller may terminate this contract if Buyer becomes insolvent. This contract shall automatically terminate in the event Buyer assigns his property for the benefit of creditors or is adjudicated a bankrupt. Either party's waive of such party's rights thereafter to enforce and compel strict compliance with conditions of this contract, at any time, shall not in any way affect, limit, or waive such party's right thereafter to enforce and compel strict compliance with every term and condition of the contract.

7. Excuses for Nonperformance. Seller shall have no liability for any delay or failure in performance hereunder, in whole or in part, if such delay or failure arises from (i) compliance in good faith with any foreign or domestic governmental regulation or order, whether or not later shown invalid or inapplicable; (ii) the occurrence of any contingency the nonoccurrence of which was a basic assumption at the time this contract was made, including without limitation acts of God, fire, flood, accident, riot, war, terrorism, sabotage, strike, lock-out, labor trouble or shortage, breakdown or failure of equipment, or embargo; (iii) Seller's inability to obtain any required product, material, energy source, equipment, labor, or transportation at prices and on terms deemed by Seller to be acceptable; (iv) Seller's incurring increased costs for compliance with environmental protection, health or safety regulations; or (v) any other event or occurrence not within the reasonable control of Seller. If any such circumstances affect only a part of Seller's capacity to perform, Seller may allocate products, services and deliveries among its customers and its own requirements as Seller may determine in its sole discretion. Quantities affected by this paragraph may, at the option of either party, be eliminated from the contract without liability, but the contract shall remain otherwise unaffected.

8. Assignability & Continuity. The Buyer shall not assign this contract or any right or obligation under this contract without Seller's prior, written approval; however, this contract shall be binding upon and inure to the benefit of any actual or purported successors of the parties hereto.

9. Surcharges. Notwithstanding anything in this Contract to the contrary, Seller reserves the right to impose a special temporary surcharge in the event of any increase in the price of energy or any other raw material that is reasonably likely to have a material impact on Seller's overall costs of Products and Services, or is imposed on Seller by its material or services providers. The amount of such surcharge will be limited to that required to negate the increase in Seller's costs resulting from such increases. Seller shall give Buyer written notice at least ten (10) business days prior to imposing any such surcharge and shall reduce or remove such surcharge at such time as the price of energy or raw materials return to levels which no longer justify such increase.

10. Equipment. Where Buyer's program includes the provision of Equipment, the following shall apply: (a) *Ownership*: Unless and until such time Buyer pays for Equipment in full, any Equipment provided hereunder shall remain the sole and exclusive personal property of Seller even though Buyer may attach Equipment to realty. Seller may cause such Equipment to be marked to indicate Seller's ownership. Buyer agrees to cooperate in the filing of any necessary financing statements to protect Seller's interests; (b) *Use*: Equipment shall be used only in conjunction with the prescribed use of Seller Products and Buyer agrees not to introduce any other material into the Equipment; (c) *Buyer Facility*: Buyer shall install and provide necessary utilities as specified by Seller for the term of this Agreement and, in addition, will provide Equipment with shelter, tank pads, spill protection and foundations as appropriate. Buyer shall receive, unload, and place Equipment at no cost to Seller; (d) *Maintenance and Consumables*: Seller shall be responsible for all routine maintenance, within the scope of the applicable Equipment warranty, and Buyer shall be responsible for purchasing all consumables in connection with the use of the Equipment; and (e) *Risk of Loss***:** Customer agrees to assume all risk of loss arising from or pertaining to the possession, operation, or use of such Equipment. Buyer shall obtain and maintain for the term of this Agreement property damage and liability insurance sufficient to cover loss or damage to the Equipment including, without limitation, loss by fire (including so-called extended coverage) and such other risks of loss as are customarily insured against for the businesses in which Customer is engaged.

11. Patents. Seller represents that to the best of its knowledge, the sale and/or use by Buyer of goods in the form sold hereunder will not infringe any composition of matter claims in any adversely held U.S. Patent claiming the goods per se, but in the event that it is alleged that such sale and/or use constitutes infringement of such Patent, then Seller's liability to the Buyer shall (i) be limited to the defense of such infringement actions and the payment of damages awarded therefor by a court of competent jurisdiction from which no appeal is or can be taken, and (ii) arise only if Buyer promptly gives Seller written notice of such claim and full authority, information and assistance for the defense of such claim. Seller's warranty as to use patents only applies to infringement arising solely out of the use of the goods according to their applications as envisioned by Seller's specifications. In no event shall Seller be liable for any infringement or alleged infringement arising from or caused or alleged to be caused by Buyer's combination of the goods supplied hereunder with other goods in any fashion not specifically recommended by Seller or by use of the goods in any process not specifically provided or recommended by Seller and is provided on the condition that the Buyer is likewise responsible for and will defend, indemnify and hold harmless the Seller against all losses, claims, expenses or damages which may result from the misuse or misapplication of any goods or services by the Buyer or any third party affiliated or in privity with Buyer. The foregoing states the entire liability of the Seller with respect to patent infringement by said goods. Seller reserves the right to suspend deliveries hereunder, or to terminate this contract, if the Seller believes that the manufacture and/or sale by the Seller, or the sale and/or use by the Buyer, of any goods sold hereunder infringes on any U.S. PATENT.

12. Applicable Law – Entirety. The construction, performance and completion of this contract shall be governed by the law of the state of Delaware. This contract is intended by the parties as the final expression of their agreement and is the complete and exclusive statement of the terms thereof, notwithstanding any oral representations or statements to the contrary heretofore made. No modification or release shall be effective unless in writing, signed by both parties, and specifically stating it is such modification or release.

13. Termination. If pursuant to any Federal, State or local law, regulation or ordinance Seller is required to install any additional equipment or facilities, in order to comply with governmental standards and if the cost of such installation, in Sellers opinion, makes it uneconomic to Seller to continue production of the goods, Seller may terminate this contract on 30 days prior written notice to buyer.

14. Acceptance. All sales and purchases of products hereunder are limited to and conditional on Buyer's acceptance of these standard terms and conditions. Seller objects to and rejects any terms and conditions that may be proposed by Buyer which are in addition to or different from these standard terms and conditions. No modification of this contract shall be effected by the acknowledgment or acceptance of purchase order forms containing different or additional terms or conditions.