

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:

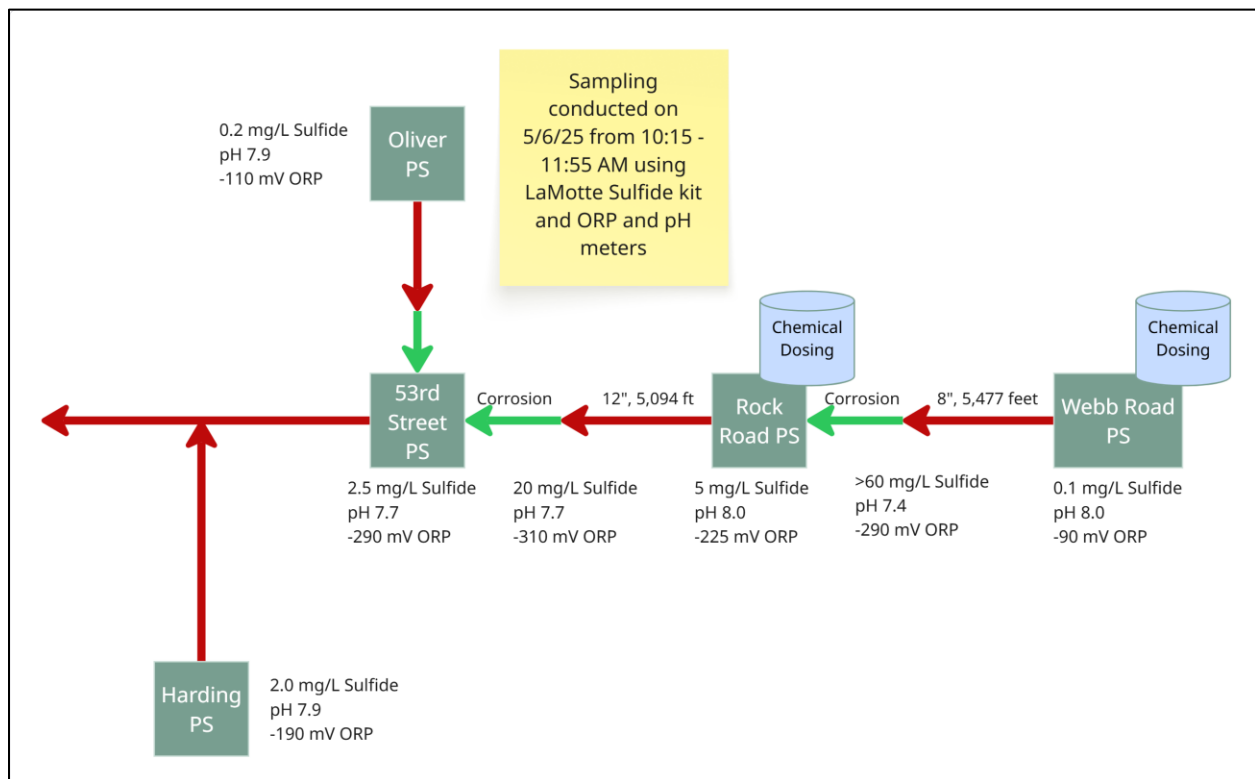


Figure 1. Summary of field testing.

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

The gaseous H₂S 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.

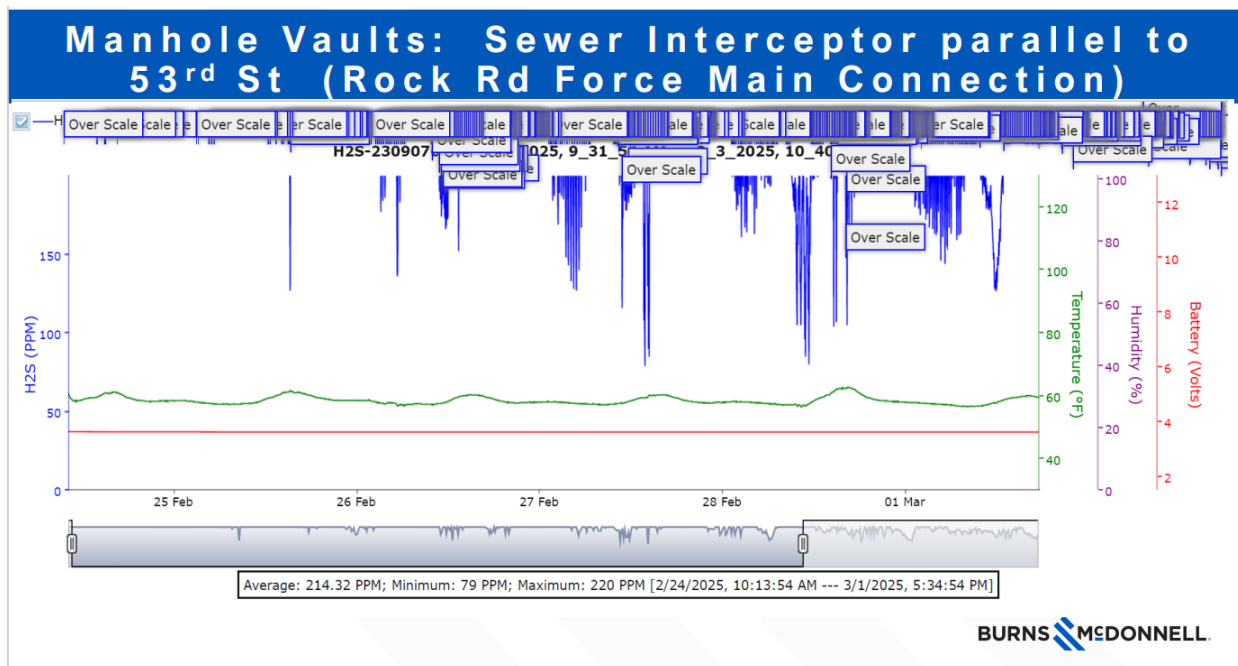


Figure 2. Gaseous H₂S levels collected at the Rock Force Main outfall. Data provided by Burns & McDonnell.

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 H₂S 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.