

COMMONWEALTH OF KENTUCKY

BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

ELECTRONIC APPLICATION OF COLUMBIA/ADAIR)
UTILITIES DISTRICT FOR A CERTIFICATE OF)
PUBLIC CONVENIENCE AND NECESSITY TO)
CONSTRUCT A SYSTEM IMPROVEMENTS PROJECT)Case No. 2024-00250
AND AN ORDER AUTHORIZING THE ISSUANCE)
OF SECURITIES PURSUANT TO 278.300)

** *** **** ***** **** ** **

RESPONSE TO COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

The Applicant, Columbia/Adair Utilities District ("Columbia/Adair District"), by Counsel, files this Response to the September 23, 2024 Commission Staff's First Request for Information set forth below.

Witness to all of the Responses: James C. Thompson, P.E., Kentucky Engineering Group, PLLC.

Request No. 1. Refer to the Application at Exhibit B, Contract 1 Water Treatment Plant and Systems Improvements.

1(a). Describe the project in detail.

Response No. 1(a). Improvements at the water treatment plant include a sludge collection system in the sedimentation basin; plate settlers to replace tube settlers; conversion of the chlorine disinfection system; a new carbon feed system; a polymer feed system; and electrical, instrumentation and all related appurtenances.

1(b). Explain in detail the need for each of the Water Treatment Plant and Systems Improvements included as part of Contract 1. Specifically indicate why there is a need to update the sludge dewatering equipment, install plate settlers and a sludge removal system to the sedimentation basin, and to convert the disinfection system from chlorine gas to sodium hypochlorite.

Response No. 1(b). The polymer feed system associated with the sludge dewatering equipment is utilized to bind microscopic solids that float through sludge and create larger units that are easier to separate which greatly improves dewatering efficiency. The plate settlers will replace existing tube settlers. The plate settlers offer a longer life than tube settlers, low maintenance and a much higher efficiency in separating particles from the water. The existing sludge removal system in sedimentation basins requires operators to manually shutdown/completely dewater the basin and use a water hose to wash out the solids. It is extremely time consuming and an inefficient means for sludge removal. The new sludge removal system will automatically remove solids each day based on timers which will improve water quality and treatment efficiency. The existing chlorine gas disinfection system will be converted to an onsite hypochlorite system. The existing gas system poses safety concerns for the operators. The onsite hypochlorite system will be a more cost effective and safe method of disinfection. Additional advantages include biofilm removal, disinfection byproduct reduction and improved taste and odor.

1(c). Identify any deficiencies at the water treatment plant that the improvements are intended to address and explain how the proposed improvements will address those deficiencies.

Response No. 1(c). The existing tube settlers have become very brittle and break off which is a loss of surface area for treatment and a significant source of maintenance for the operators. The

plate settlers offer a longer life than tube settlers, low maintenance and a much higher efficiency in separating particles from the water. The existing method of sludge removal involves hours and hours of using a water hose to wash down the large sedimentation basins. The new sludge removal system will automatically remove solids each day based on timers which will improve water quality and treatment efficiency. The existing chlorine gas feed system is a cause for safety concern to the operators. In addition, there has been a significant increase in chlorine gas cost and shortage of supply over the past few years. The onsite hypochlorite system will be a more cost effective, reliable and safe method of disinfection. Additional advantages include biofilm removal, disinfection byproduct reduction and improved taste and odor.

1(d). Identify and describe the alternatives that were evaluated for the improvements included as part of Contract 1, both collectively and individually, and explain why that alternative was not selected. If an alternative was not selected or was removed from consideration due to cost, explain the expected cost differences in as much detail as possible and how the expected cost differences were determined. If no alternatives were evaluated, explain in detail why no alternatives were evaluated.

Response No. 1(d). The alternatives for settlers in sedimentation basins are either tube settlers or plate settlers. The existing tube settlers have proven to be a maintenance issue. They have become brittle and pieces that have broken off have clogged drain pipes and damaged both clarifier and pump equipment. Plate settlers are much more durable, longer lasting and much higher in treatment efficiency. Disinfection alternatives considered include onsite hypochlorite generation, gas chlorination and Bulk Hypochlorite. Gas chlorination involves the use of chlorine gas stored either in cylinders or bulk containers which involves transportation, handling and storage of chlorine

gas. Chlorine gas is a strong oxidizer and poses severe safety risks. Additionally, there is a possibility of forming Disinfection By Products such as TTHM and HAA 5 which are regulated under EPA primary standards. Additionally, chlorine gas users need to carry out OSHA risk management planning. Bulk Hypochlorite storage and handling poses significant risk. Often the solution strength of the delivered Bulk Hypochlorite varies with the manufacturer and is not consistent. Additionally, because of safety concerns, transportation and storage costs are often higher. Onsite Sodium Hypochlorite Generation involves the use of salt, softened water and electricity to generate chlorine solution on site. There is no transportation of hazardous chemicals and avoids the risks associated with gas chlorine. This process also offers consistent solution strength and on-demand production. Solution strength of 0.8% is considered non-hazardous, eliminating the need for OSHA risk management planning requirements associated with gaseous chlorine. A life cycle cost determined the pay back for the onsite generation system to be less than 10 years due to recent increases in the cost of both chlorine gas and Bulk Hypochlorite. The volatile market of chlorine in recent years has led to Columbia/Adair District's concerns for manufacturers to provide the supply of disinfection needed.

1(e). Explain the process that led Columbia/Adair District proposing that the Water Treatment Plant and Systems Improvements identified in Contract 1. Specifically indicate whether the projects were proposed after a review of Columbia/Adair District's treatment plant by a third-party engineering firm, and if so, explain the purpose of that review.

Response No. 1(e). Decisions made related to the water plant improvements were developed from meetings with Columbia/Adair District management and water treatment plant operators. Both

management and the operators voiced their concerns to the engineers about treatment plant inefficiencies and/or operator safety.

Request No. 2. Refer to the Application at Exhibit B, Contract 2 Water Treatment Plant and Systems Improvements.

2(a). Describe the project in detail.

Response No. 2(a). This project includes the installation of approximately 4,550 LF of 4-inch water main that extends service along Bull Run Road (KY 1323) and eliminates a dead-end water main in the Columbia/Adair District's system by connecting to an existing 6-inch water main running along KY 206. There are 3 customers along the route that will get a new service connection and eliminate their existing long service lines.

This project also includes, as an add alternate, the installation of approximately 5,440 LF of 3-inch water main along Damron Creek Road. There are 3 potential new customers along this route.

2(b). Explain the need for water lines on Bull Run Road and Damron Creek Road.

Response No. 2(b). The water main along Bull Run Road will eliminate the dead-end 4-inch water main. The need for the water main along Damron Creek Road is a potential interconnect with Russell Springs Water and Sewer Works.

2(c). State whether Columbia/Adair District considered using any material other than PVC, and if so, state what material was considered and why PVC was the least cost, reasonable alternative.

Response No. 2(c) During the design, pressures were evaluated, and ductile iron pipe was considered but determined unnecessary based on the system pressure. HDPE pipe was also considered but determined to be cost prohibitive except for directional bores beneath water ways.

2(d). State how Columbia/Adair District determined the appropriate diameter of pipe for each section, including whether and, if so, how Columbia/Adair District considered the expected demand on the lines.

Response No. 2(d). The size of the water main along Bull Run Road is simply an extension of the existing water main to eliminate a dead-end. The hydraulics did not show an increase in flowrate with a larger diameter pipe. As stated above, the water main along Damron Creek Road is a possible interconnect but for a backup source only in this area. The hydraulic analysis shows only a small portion of the Columbia/Adair District's system would benefit from this interconnect due to the elevations being served and the existing small diameter water mains. This water main also has a low number of potential customers on this road, a larger water main would most likely lead to quality issues.

2(e). State the number and nature (i.e. residences, industrial buildings, etc.) of the customers each waterline extension will serve when placed in service and whether Columbia/Adair District expects growth in demand on the lines after they are placed in service.

Response No. 2(e). Along Bull Run Road there are 3 existing residential customers that will receive new meters with shorter service lines. There is a low potential for growth along this short section of roadway. Damron Creek Road has 3 potential new customers and also has a low potential for growth due to the remote location and rough terrain.

2(f). Provide an explanation as to how and why Bull Run Road and Damron Creek Road were selected, including how they were selected over other underserved or unserved areas, if any, in the area.

Response No. 2(f). Bull Run Road was selected to eliminate the existing dead-end water line and Damron Creek Road was selected as a potential interconnect with a neighboring utility.

Request No. 3. Refer to the Application, page 11. Provide clarification as to whether constructing water lines on Damron Creek Road is an alternative if additional funding is available or if it was considered as an alternative to Bull Run Road.

Response No. 3. Bull Run Road was the priority for this project in order to eliminate a dead-end line. Damron Creek Road became less of a priority when it was discovered Russell Springs Water and Sewer Works was not funded for extending the water main on their side of the county line nor did it end where previously thought.

Request No. 4. Refer to the Application at Exhibit B, Contract 3 Water Treatment Plant and Systems Improvements.

4(a). For each of the elevated distribution system storage tanks at issue in this matter, separately explain the need for the proposed rehabilitation work.

Response No. 4(a).

Caldwell Ridge Tank – Failing coating system with visible rust and 2 leak repairs made to riser pipe in last 12 months.

Shepherd Tank – Failing coating system on interior with visible rust on both the interior and exterior.

Industrial Park Tank - Failing coating system on interior with visible rust on both the interior and exterior.

Sparksville Tank – Exterior coating system has degraded finish coat due to UV attack. Both interior and exterior have various spots in need of repair then a full overcoat.

East 80 Tank (add alternate) – Exterior coating is degraded due to UV attack otherwise in good condition

Walmart Tank (add alternate) – Spot repairs needed to both interior and exterior then a full overcoat with logo to be replaced.

4(b). Provide and engineering or inspection reports completed in the last five years pertaining to the tanks at issue in this matter.

Response No. 4(b). All tanks were inspected by a qualified coating specialist in 2020. Attached hereto as **Exhibit "A"** are the summary pages from each inspection report. Not included are pictures and video taken during the inspections.

4(c). For each of the elevated distribution system storage tanks at issue in this matter, describe the alternatives, if any, that were considered in lieu of the proposed rehabilitation work on each tank, including the replacement or elimination of the tank, and explain why that alternative was not selected or was removed from consideration. If an alternative was not selected or was removed from consideration due to cost, explain the expected cost differences in as much detail as possible and how the expected cost differences were determined. If no alternatives were evaluated, explain in detail why no alternatives were evaluated.

Response No. 4(c).

Caldwell Ridge Tank – alternative would be to demo and build new tank. This would not be practical as rehabilitation is approximately less than 5% of cost of new elevated tank (based on recent tank pricing for this size tank) and the tank is structurally sound. Rehabilitation will extend life of the tank 15-20 years.

Shepherd Tank – alternative would be to demo and build new tank. This would not be practical as rehabilitation is approximately less than 10% of cost of new elevated tank (based on recent tank pricing for this size tank) and the tank is structurally sound. Rehabilitation will extend life of the tank 15-20 years.

Industrial Park Tank - alternative would be to demo and build new tank. This would not be practical as rehabilitation is approximately less than 10% of cost of new elevated tank (based on recent tank pricing for this size tank) and the tank is structurally sound. Rehabilitation will extend life of the tank 15-20 years.

Sparksville Tank – alternative would be to demo and build new tank. This would not be practical as rehabilitation is approximately less than 10% of cost of new elevated tank (based on recent tank pricing for this size tank) and the tank is structurally sound. Rehabilitation will extend life of the tank 15-20 years.

East 80 Tank (add alternate) – alternative would be to demo and build new tank. This would not be practical as rehabilitation is approximately less than 5% of cost of new elevated tank (based on recent tank pricing for this size tank) and the tank is structurally sound. This tank was bid as an alternate as the inspection report indicates no immediate repairs are needed.

Walmart Tank (add alternate) – alternative would be to demo and build new tank. This would not be practical as rehabilitation is approximately less than 1% of cost of new elevated tank (based on recent tank pricing for this size tank) and the tank is structurally sound with a pump station built inside the concrete column below it that is in good working condition. This tank was bid as an alternate as it was expected to be more expensive due to complexity of the logo. This tank is also difficult to take out of service for the repair work.

4(d). For each of the elevated distribution system storage tanks at issue in this matter, provide the date the tank was originally installed, and provide the current expected useful lives and remaining useful lives of the tanks and provide the extent to which the rehabilitation projects are expected to extend the useful lives of each tank.

Response No. 4(d).

<i>Tank Name</i>	<i>Year Constructed</i>	<i>Expected Useful Life</i>	<i>Current Remaining Useful Life</i>	<i>Expected Useful Life after rehab</i>
<i>Caldwell Ridge</i>	<i>1995</i>	<i>20 Years</i>	<i>0-2 Years</i>	<i>15-20 Years</i>
<i>Shepherd</i>	<i>2007</i>	<i>20 Years</i>	<i>1-5 Years</i>	<i>15-20 Years</i>
<i>Industrial Park</i>	<i>2001</i>	<i>20 Years</i>	<i>1-5 Years</i>	<i>15-20 Years</i>
<i>Sparksville</i>	<i>2011</i>	<i>20 Years</i>	<i>1-5 Years</i>	<i>15-20 Years</i>
<i>East 80</i>	<i>2014</i>	<i>20 Years</i>	<i>5-10 Years</i>	<i>15-20 Years</i>
<i>Walmart</i>	<i>2010</i>	<i>20 Years</i>	<i>1-5 Years</i>	<i>15-20 Years</i>

4(e). Explain the process that led Columbia/Adair District proposing that rehabilitation work on the storage tanks. Specifically indicate whether the projects were proposed after a review of Columbia/Adair District's tanks or system by a third-party engineering firm, and if so, explain the purpose of that review.

Response No. 4(e). Columbia/Adair District had an inspection firm look at each of their tanks in 2020. One tank needed immediate attention at the old Industrial Park and was rehabilitated in 2021. Two unused tanks were demolished during that 2021 project as well. Since funding was not available to rehab the remaining tanks at that time, and the need was not urgent, Columbia/Adair District asked for SRF consideration in the next funding round and received an invitation in 2023 as part of this project that also includes line extensions and work at the WTP.

Request No. 5. Refer to the project description on page 11 of the Application, page 67, and 117.

5(a). Explain why the project description states six of the distribution system tanks will be rehabilitated, but the KIA loan states that five tanks will be rehabilitated, and the bid description provides estimates for only four tanks.

Response No. 5(a). The project description includes six tanks, probably because there are six tanks remaining in their system that have not been recently rehabilitated. The inspection reports indicated five of the six were in need of some level of rehabilitation in 1-5 years. Four tanks are in the base bid price with two other tanks as add alternates to be rehabilitated only if extra money was available after bidding. No extra money is available after bidding for the add alternatives and accordingly, the other two tanks will not be rehabilitated at this time.

5(b). Provide the number and names of the storage tanks that will be rehabilitated.

Response No. 5(b). The four tanks in the base bid will be rehabilitated in this project. Caldwell Ridge, Shepherd, Industrial Park and the Sparksville tank.

Request No. 6. Refer to the Application, Exhibit I, Bid Tabulation. Provide the criteria that Columbia/Adair District will use to evaluate bids, including but not limited to cost.


Response No. 6. The criteria for awarding each contract is based on lowest responsive bid price, review of previous work experience of similar project size and scope and references provided by each contractor.

Request No. 7. Provide the bid expiration date for each contract.

Response No. 7. Contracts 1, 2 and 3 will expire on October 18, 2024.


Verification of Response to Commission Staff's First Request for Information

The undersigned, James C. Thompson, P.E., states that he is a registered professional engineer with the firm of Kentucky Engineering Group, PLLC, and that he has personal knowledge of the matters set forth in the Responses for which he is identified as the witness, and the answers contained in said Responses are true and accurate to the best of his knowledge, information, and belief formed after a reasonable inquiry.


James C. Thompson, P.E.
Kentucky Engineering Group, PLLC
Registered Professional
Engineer, State of Kentucky
No. 24022

Respectfully Submitted,

Rubin & Hays

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CERTIFICATE OF SERVICE

The undersigned, in accordance with 807 KAR 5:001, Section 8, hereby certifies that the Columbia/Adair Utilities District's electronic filing of the foregoing Response is a true and accurate copy of the same document being electronically transmitted to the Kentucky Public Service Commission on September 25, 2024; that there are currently no parties that the Kentucky Public Service Commission has excused from participation by electronic means in this proceeding.

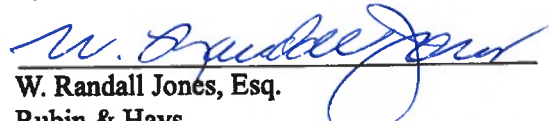

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EXHIBIT A

Tank Inspection Reports



Columbia/Adair Utilities District
New Industrial Park Tank
300,000-gallon Elevated Water Storage Tank

To: Columbia/Adair Utilities District
Kentucky Engineering Group

Copies: Horizon QC

From: C. Mike Topp, Horizon Inspection LLC.

On April 1, 2020, Horizon QC Inspection Services inspected the 300,000-gallon New Industrial Park Tank. The purpose of the inspection was to evaluate the exterior and interior coatings, tank structure, sanitary conditions, and safety related issues. The tank's interior remained full and in service during the duration of the inspection.

This report summarizes Horizon Qc (Horizon's) observations and recommendations of the New Industrial Park elevated water storage tank. Photographs from this evaluation are provided in Attachment A.

BACKGROUND

Phoenix Fabricators constructed New Industrial Park Tank in 2001. No.2337-300. Tank height to overflow is 175 feet. Tank design is Toro ellipsoidal. The tank is located near Columbia, KY. The tank site perimeter is fenced. The site is accessible by vehicles and has adequate parking.

OBSERVATIONS

Horizon Inspection Inc. (Horizon) visually inspected the water tank for coating related issues, obvious structural problems, and safety related problems. The inspection covered the interior and exterior portions of the tank. The interior of the tank was inspected while full and operational via an ROV. Tank Conditions: Excellent – Good – Fair - Poor

Recommendations

Interior

At present the existing coating system of the interior portion of the tank is deteriorating, less than 50% of the substrate is still being adequately protected. The corrosion found within the sidewall sheets, roof sections and ladder were the most obvious. The corrosion in these areas will only degrade further without new coatings being applied to a clean metal substrate. The remaining spot failures throughout the tank are more isolated and random. These spots appear to be shallow in pit depth, but will likely increase in depth if not corrected.

The following remediation of the interior wet area is recommended:

1. Remove existing coating system by abrasive blast. (SSPC SP10)
2. Apply new coating system. (**20 mils DFT**) or greater on all seams.
3. Repair Float

Exterior

The exterior's coating system is in Good condition. Random pinhole corrosion spots and mildew staining are the most visible issues on the exterior. UV attack on the coatings above the balcony and roof has caused chalking and deterioration of the finish coat. An overcoat system would help protect the underlying coating. Over-coating of the exterior is the most cost-effective method to maximizing the life of the exterior coating system.

The following remediation of the exterior area is recommended:

1. Power Wash Exterior to 3500 psi.
2. Power Tool all corrosion spots SSPC SP3
3. Spot prime all corrosion spots.
4. Overcoat exterior with one coat of Rustoleum 9800.
5. Repair float/target level assembly.
6. New Gaskets for manways.



Columbia/Adair Utilities District
Shepherd Tank
500,000-gallon Elevated Water Storage Tank

To: Columbia/Adair Utilities District
Kentucky Engineering Group

Copies: Horizon QC

From: C. Mike Topp, Horizon Inspection LLC.

On July 14, 2021, Horizon QC Inspection Services inspected the 500,000-gallon New Shepherd Tank. The purpose of the inspection was to evaluate the exterior and interior coatings, tank structure, sanitary conditions, and safety related issues. The tank's interior remained full and in service during the duration of the inspection.

This report summarizes Horizon Qc (Horizon's) observations and recommendations of the Shepherd tank. Photographs from this evaluation are provided in Attachment A.

BACKGROUND

Caldwell Tank constructed Shepherd Tank in 2007. E6409. Tank height to overflow is 124 feet. Tank design is Toro ellipsoidal. The tank is located near Columbia, KY. The tank site perimeter is fenced. The site is accessible by vehicles and has adequate parking.

OBSERVATIONS

Horizon Inspection Inc. (Horizon) visually inspected the water tank for coating related issues, obvious structural problems, and safety related problems. The inspection covered the interior and exterior portions of the tank. The interior of the tank was inspected while full and operational via an ROV. Tank Conditions: Excellent – Good – Fair - Poor

Interior

Recommendations

Interior

At present the existing coating system of the interior portion of the tank is deteriorating, less than 50% of the substrate is still being adequately protected. The corrosion found within the sidewall sheets, roof sections and ladder were the most obvious. The corrosion in these areas will only degrade further without new coatings being applied to a clean metal substrate. The remaining spot failures throughout the tank are more isolated and random. These spots appear to be shallow in pit depth, but will likely increase in depth if not corrected.

The following remediation of the interior wet area is recommended:

1. Remove existing coating system by abrasive blast. (SSPC SP10)
2. Apply new coating system. (20 mils DFT) or greater on all seams.
3. Repair Float

Exterior

The exterior's coating system is in Good condition. Random pinhole corrosion spots and mildew staining are the most visible issues on the exterior. UV attack on the coatings above the balcony and roof has caused chalking and deterioration of the finish coat. An overcoat system would help protect the underlying coating. Over-coating of the exterior is the most cost-effective method to maximizing the life of the exterior coating system.

The following remediation of the exterior area is recommended:

1. Power Wash Exterior to 3500 psi.
2. Power Tool all corrosion spots SSPC SP3
3. Spot prime all corrosion spots.
4. Overcoat exterior with one coat of Rustoleum 9800.
5. New Gaskets for manways.



Columbia/Adair Utilities District
Sparksville Tank
750,000-gallon Composite Elevated Water Storage Tank

To: Columbia/Adair Utilities District
Kentucky Engineering Group

Copies: Horizon QC

From: C. Mike Topp, Horizon Inspection

On March 30, 2021, Horizon QC Inspection Services inspected the 750,000-gallon Sparksville Tank. The purpose of the inspection was to evaluate the exterior and interior coatings, tank structure, sanitary conditions, and safety related issues. The tank's interior was inspected while in service via an ROV.

This report summarizes Horizon Qc (Horizon's) observations and recommendations of the Sparksville 750k Gal. Composite Tank. Photographs from this evaluation are provided in Attachment A.

BACKGROUND

Caldwell Tank constructed Sparksville Tank in 2011. No. E7380. Tank height to overflow is 142 feet. The tank is located near Columbia, KY. The tank site perimeter is fenced. The site is accessible by vehicles and has adequate parking.

OBSERVATIONS

Horizon Inspection Inc. (Horizon) visually inspected the water tank for coating related issues, obvious structural problems, and safety related problems. The inspection covered the interior and exterior portions of the tank. The interior of the tank was inspected while full and operational via an ROV. Tank Conditions: Excellent – Good – Fair - Poor

Recommendations

Interior

At present the Interior coating system is in good condition with adequate protection to the steel substrate. The corrosion spots found throughout the interior will increase and deepen if repairs are not taken within the next 1-5 years. The Ceiling Seams above the water line, the Random spots on the Riser, Accessory Pipes and the Lower Sidewall have the most visible corrosion. System Officials should consider spot repairs on the interior as the most cost-effective method to protect the tanks substrate long term.

No structural modifications or repairs need to be made at this time.
No safety related repairs needed at this time.

The following remediation is recommended: (1- 5 years)

1. Spot Surface Preparation - **SSPC SP-3 Power Tool Cleaning**
2. Apply three coats of immersion grade **epoxy 15-20 mils DFT.**
3. Caulk the seams above the water line.

Exterior

At present the exterior coating system is in good condition with adequate protection to the substrate. UV attack has degraded the finish coating on the sidewalls of the exterior. Spot repair and over-coating should be considered the most cost-effective method for repairs.

The following remediation is recommended: (1- 4 years)

1. Power Wash Exterior 3000 psi min. to remove all loose material and debris.
2. Spot Repair cleaning SP 3 Power Tool Cleaning on all corrosion areas.
3. Spot Prime all cleaned areas (epoxy primer).
4. Apply full coat of Urethane Mastic.



Columbia/Adair Utilities District
Walmart Tank
1 Million-gallon Composite Elevated Water Storage Tank

To: Columbia/Adair Utilities District
Kentucky Engineering Group

Copies: Horizon QC

From: C. Mike Topp, Horizon Inspection

On March 30, 2021, Horizon QC Inspection Services inspected the 1,000,000-gallon Walmart Tank. The purpose of the inspection was to evaluate the exterior and interior coatings, tank structure, sanitary conditions, and safety related issues. The tank's interior was inspected while in service via an ROV.

This report summarizes Horizon Qc (Horizon's) observations and recommendations of the Walmart 1 Million. Gal. Composite Tank. Photographs from this evaluation are provided in Attachment A.

BACKGROUND

Caldwell Tank constructed Walmart Tank in 2010. No. E6948. Tank height to overflow is 136 feet. The tank is located near Columbia, KY. The tank site perimeter is not fenced. The site is accessible by vehicles and has adequate parking.

OBSERVATIONS

Horizon Inspection Inc. (Horizon) visually inspected the water tank for coating related issues, obvious structural problems, and safety related problems. The inspection covered the interior and exterior portions of the tank. The interior of the tank was inspected while full and operational via an ROV. Tank Conditions: Excellent – Good – Fair - Poor

Recommendations

Interior

At present the Interior coating system is in good condition with adequate protection to the steel substrate. The corrosion spots found throughout the interior will increase and deepen if repairs are not taken within the next 1-5 years. The Ceiling Seams above the water line, the Random spots on the Riser, Accessory Pipes and the Lower Sidewall have the most visible corrosion. System Officials should consider spot repairs on the interior as the most cost-effective method to protect the tanks substrate long term.

No structural modifications or repairs need to be made at this time.
No safety related repairs needed at this time.

The following remediation is recommended: (1- 5 years)

1. Spot Surface Preparation - **SSPC SP-3 Power Tool Cleaning**
2. Apply three coats of immersion grade **epoxy 15-20 mils DFT.**
3. Replace roof access ladder.
4. Caulk the seams above the water line.

Exterior

At present the exterior coating system is in good condition with adequate protection to the substrate. UV attack has degraded the finish coating on the sidewalls of the exterior. Spot repair and over-coating should be considered the most cost-effective method for repairs.

The following remediation is recommended: (1- 4 years)

1. Power Wash Exterior 3000 psi min. to remove all loose material and debris.
2. Spot Repair cleaning SP 3 Power Tool Cleaning on all corrosion areas.
3. Spot Prime all cleaned areas (epoxy primer).
4. Apply full coat of Urethane Mastic.



Columbia/Adair Utilities District
Caldwell Ridge Tank
100,000-gallon Elevated Water Storage Tank

To: Columbia/Adair Utilities District
Kentucky Engineering Group

Copies: Horizon QC

From: C. Mike Topp, Horizon Inspection LLC.

On April 1, 2020, Horizon QC Inspection Services inspected the 100,000-gallon Caldwell Ridge Water Tank. The purpose of the inspection was to evaluate the exterior and interior coatings, tank structure, sanitary conditions, and safety related issues. The tank's interior remained full and in service during the duration of the inspection.

This report summarizes Horizon Qc (Horizon's) observations and recommendations of the Caldwell Ridge elevated water storage tank. Photographs from this evaluation are provided in Attachment A.

BACKGROUND

Phoenix Fabricators constructed Caldwell Ridge Tank in 1995. No.7373/700. Tank height to overflow is 128 feet. Tank design is double ellipsoidal. The tank is located near Columbia, KY. The tank site perimeter is fenced. The site is accessible by vehicles and has adequate parking.

OBSERVATIONS

Horizon Inspection Inc. (Horizon) visually inspected the water tank for coating related issues, obvious structural problems, and safety related problems. The inspection covered the interior and exterior portions of the tank. The interior of the tank was inspected while full and operational via an ROV. Tank Conditions: Excellent – Good – Fair - Poor

Recommendations

Interior

At present the interior coating system is not deteriorating, 85% of the substrate is still being adequately protected. The spot corrosion throughout the tank is more random. These spots appear to be shallow in pit depth, but will likely increase in depth if not corrected in the next several of years. The following remediation is recommended:

1. Spot repair SP -3 Power Tool Clean all corrosion spots. (Approx. 25 spots)
2. Apply two coats of immersion grade epoxy 15-20 mils DFT.

Exterior

At present the exterior coating system is in fair condition with moderate barrier protection to steel substrate. The coating is beginning to chalk and some corrosion spots are beginning to appear throughout. In order to maintain the tank from significant corrosion issue and damage, some repair work should be done within the next 1-4 years,

The following remediation is recommended:

3. Power Wash Exterior 3000psi min. to remove all loose material and debris.
4. Spot Repair cleaning SP 3 Power Tool Cleaning on all corrosion areas.
5. Spot Prime all cleaned areas (epoxy primer).
6. Overcoat the exterior portions of the tank Rustoleum 9800 3-5 mils DFT.



Columbia/Adair Utilities District
East 80 Tank
300,000-gallon Elevated Water Storage Tank

To: Columbia/Adair Utilities District
Kentucky Engineering Group

Copies: Horizon QC

From: C. Mike Topp, Horizon Inspection

On July 14, 2021, Horizon QC Inspection Services inspected the 300,000-gallon East 80 Tank. The purpose of the inspection was to evaluate the exterior and interior coatings, tank structure, sanitary conditions, and safety related issues. The tank's interior remained full and in service during the duration of the inspection.

This report summarizes Horizon QC (Horizon's) observations and recommendations of the East 80 elevated water storage tank. Photographs from this evaluation are provided in Attachment A.

BACKGROUND

Phoenix Fabricators constructed East 80 Tank in 2014. No. E8037. Tank height to overflow is 120 feet. Tank design is Toro ellipsoidal. The tank is located near Columbia, KY. The tank site perimeter is not fenced. The site is accessible by vehicles and has adequate parking.

OBSERVATIONS

Horizon Inspection Inc. (Horizon) visually inspected the water tank for coating related issues, obvious structural problems, and safety related problems. The inspection covered the interior and exterior portions of the tank. The interior of the tank was inspected while full and operational via an ROV. Tank Conditions: Excellent – Good – Fair - Poor

Recommendations

Interior

At present the interior coating system is in Good condition. No repairs are needed at this time.

Exterior

At present the exterior coating system is in Good condition. No repairs are needed at this time.