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"Award Winning Water"

May 9, 2018

Mr. Alan Anderson
Enforcement Analyst
Water Division/Enforcement Branch
Arkansas Department of Environmental Quality
5301 Northshore Dr.
North Little Rock, Arkansas 72118

Dear Mr. Anderson:

Pursuant to recent telephone conversations between you, me and members of Russellville City Corporation staff whereby you requested a corrective action plan (CAP) for recent wastewater treatment plant (WWTP) violations, we present the following information in response to your request. We understand that the Arkansas Department of Environmental Quality (ADEQ) is currently considering a new or amended order to address these violations and we ask that you take the information presented herein into account when doing so.

Upon our request, you provided a listing of the violations that we anticipate will be addressed within the order. This listing includes a total of 201 violations occurring and reported between October, 2013 thru June, 2017. We acknowledge there has been violations in the months since June of 2017. While we are not specifically addressing these violations, we believe that these most recent violations are due to the same reasons listed herein for the violations prior to June, 2017 and addressing those will also address the most recent as well. Therefore, if those most recent violations are included in a final order/amendment, our response would not change with regard to addressing those violations as well.

We have taken the data that you provided and compiled a spreadsheet listing the pertinent information related to each violation and grouped them with respect to the stated cause. This information is included with this submission. This document is intended to provide information as to how we have and/or plan to address these violations. Some of the corrective actions listed are complete or in progress and may also be included in the CAP submitted and approved for Consent Administrative Order (CAO) LIS 09-146. It is unknown how the improvements cited herein which are also included in the current CAP for CAO LIS 09-146 will be referenced and/or included in a new or amended order, but for purposes of this report, we have assumed that the current approved CAP will remain unchanged with regard to content and timeframe, whether or not the current order is amended or incorporated into a new order.

We at City Corporation feel we are being proactive with respect to the violations presented within this report as we have already begun to address all of the items in some way. Some corrective action measures are defined and being implemented while others are more long term in nature and are in the preliminary stages. It is our

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plan to implement improvements over the next several years that will greatly reduce these violations and increase capacity at our plant to address growth in our system.

Corrective Action Plan (CAP)

While the causes for the 201 violations vary, most fit within the following categories:

1. Plant construction activities.
2. Inability to process and dispose of proper amount of sludge.
3. Rainfall events creating hydraulic overloading.
4. Toxic slug received at the plant affecting biological treatment.
5. Operator error.
6. Equipment malfunctions.

The CAP presented herein will center around these six causes that address the cited violations.

- 1. Plant construction activities** – There is a total of 128 violations that we considered to be totally or partially due to construction activities at the WWTP. This construction was included in the CAP provided to address previous permit violations as specified in CAO LIS 09-146. Compliance was addressed with two projects, the first being a project to construct new dechlorination facilities to address TRC and the second being a large project to address TSS and Nitrates.

The first project included construction of a new dechlorination building that housed a new sulfur dioxide system (SO₂) and chlorine analyzer with automated chemical feed adjustment capabilities. This project was constructed from February to November of 2013 with a final construction cost of \$597,840. It should be noted that this project was designed, approved and built to meet the TRC limit at that point in time of 0.1 mg/l. Unfortunately, this limit was reduced to 0.011 mg/l during our permit renewal in September of 2016 rendering the entire project largely ineffective with regards to monitoring and adjustment as we basically treat to non-detect levels. These improvements had a direct impact on the TRC removal process at certain times during construction and start-up. Alternate disinfection methods are currently being strongly considered in future plant improvements to permanently address this issue.

The second project included addition of aeration basins, anoxic zones, addition of secondary clarifiers, removal of trickling filters and other associated facilities to address the TSS and Nitrate, limits. This project was constructed from July, 2013 to July, 2015 with a final construction cost of \$11,018,635. These improvements were plantwide and had a direct impact on the plants ability to perform at or near treatment and flow capacities for many months. These improvements were designed and constructed based on historical loadings at the wastewater plant. Since that time, our organic loading has increased substantially, mainly due to industry expansions, which was not anticipated during the design. This increase has caused our plant to operate at the upper end of our design treatment capacity. While this may not be directly attributable to the violations noted, we feel that it is prudent to address this increase

in loading and flow through a plant expansion. We are also working with local industries to reduce their nutrient loadings where possible and practical.

CORRECTIVE ACTION: The construction specifically referenced above related to previous permit violations has been completed and, therefore, the plant is no longer compromised due to construction activity. Consequently, the violations due to this issue have been addressed and no further action is required.

TIMELINE: Completed

- 2. Inability to process and dispose of the proper amount of sludge** – Historically, City Corporation has struggled to process and land apply sludge at the rate and volumes required for optimum treatment. Issues related to number and size of digestion basins, reliability and processing rate of sludge belt presses, and availability and accessibility of permitted lands have presented constant challenges which have affected wasting and recirculation rates. These limitations have compromised staff’s ability at times to move sludge as needed to optimize plant performance. Because of this, we have experienced violations due to excess sludge volumes in our basins.

CORRECTIVE ACTION: As part of the recent plant improvements to address TSS, NH₃ and NO₃, sludge handling improvements were added totaling approximately \$5 million. This included construction of a new, separate sludge handling facility that included purchase and installation of a closed vessel lime stabilization system and new high speed belt filter press. This system is capable of producing Class A Biosolids at a rate that does not inhibit plant operation and does not require permitted land application. We now store the final product and allow the public to take and use for soil amendment. This project has been overwhelmingly successful and has addressed all of the issues mentioned above related to sludge handling. Consequently, the violations due to this issue have been addressed and no further action is required.

TIMELINE: Completed

- 3. Rainfall Events creating hydraulic overloading** – Historically, City Corporation has experienced high flows in the collection system and at the WWTP during rain events. City Corporation has also been placed under administrative order on more than one occasion, including CAO LIS 09-146, for wastewater overflows in our collection system. Currently, we are addressing the overflows in our collection system through a multi-year, \$50 million capital improvement plan and are also attempting to treat the flows that reach the plant. The addition of storm water basins over the years has helped but was basically a short term band-aid as we can fill the storm water basins in a matter of hours during a heavy rain event. It was decided rather than storing and/or treating the excess flows, we would invest in our collection system and stop the inflow at the source, not only reducing flows that cause overflows and plant wash-outs, but also save pumping and treatment costs.

This plan of improvements was submitted to and approved by ADEQ in response to CAO LIS 09-146. We have been given a deadline of 2022 to complete this list of projects and are on track to do so. The design engineer is predicting a reduction of approximately 30% based on their experience with similar projects.

In addition to these collection system improvements, City Corporation plans to pursue a blended permit which would allow us to bypass part of the wet weather flow around secondary treatment and prevent plant washout while continuing to meet permit limits. At this point, we are unsure of the particular factors that would be involved to achieve permit compliance under a blending occurrence. City Corporation will move forward immediately with the process of evaluating the piping and valving configurations, pumping equipment, primary clarification, disinfection, effluent structures, etc. and determine what would be required to determine the necessary treatment with a blended permit.

CORRECTIVE ACTION: We offer this existing slate of projects as mentioned above as our plan to achieve compliance through the reduction of flows at the wastewater plant to within the hydraulic capacity of the plant. Future expansion of the plant will also aid in the plants ability to process higher wet weather flows through the proposed increase in design flow and optimization of the flows to and from the storm water basin. This expansion is currently in the conceptual planning stage and will deal with not only increasing the design flow of the plant, but repairing structural issues, increasing operational flexibility and addressing flooding issues around the headworks and chlorine contact basins. We do not feel this project is required to achieve compliance with the violations listed given the slate of collection system projects already committed to but wanted to mention it as staff is moving forward with the development of such a project to help address some of the issues described herein as well as prepare us for growth in the community.

TIMELINE: See Attachment A

- 4. Toxic slug received at the plant affecting biological treatment** – From time to time, our plant experiences issues related to the health of our biomass, primarily the nitrifying bacteria. We have not been able to explain the timing nor the immediate impact on the biomass other than being the cause of a toxic substance entering the plant. The compromised biomass is rendered incapable of fully treating the wastewater, resulting in several NH_3 violations as noted. Of the six causes listed and addressed herein, we consider this item to be one of the two, along with hydraulic overloading, that is having the largest impact on our ability to meet permit. We have hired different professional engineers to study this anomaly and provide their opinion of what could be causing this to happen. They have all pointed to a toxic slug. We thought at one point that the increased loading may be affecting the different types of bacteria during the colder months due to the food to microorganism (F/M) ratio. However, while this is an issue that will be addressed in the future through a plant expansion, studies by Garver show that the existing plant should be capable of meeting permit limits during cold weather with the increased loading. This has been confirmed during the most recent winter months when the plant operated well as

compared to last winter when it did not. Until this spring, where the recent rains have created several violations, we have seen the plant perform well during the coldest winter we have experienced in some time. Therefore, as a result of these findings, our focus has been on identifying the source of the toxin and eliminating it.

We have gathered Material Safety Data Sheet (MSDS) information and made site visits to a number of industries that we feel have the ability to release an amount of toxin that could inhibit our plant. We are assuming it is a quaternary ammonium compound as these are common for sanitizing and cleaning and are used at several of our industries. At this point, we have narrowed the list to a handful of industries and will continue our efforts to locate and eliminate this occurrence. Since we have no way yet of knowing exactly what is entering our system, we cannot prepare for such an occurrence and short of bypassing the influent, there is no practical way to detect and/or deal with it at the plant. Therefore, the only solution is to prevent it from entering our collection system at its source. We have also been in contact with EnviTreat laboratories out of Northwest Arkansas and will engage their assistance in the coming weeks to address this issue. Their proposal is included as Attachment B.

CORRECTIVE ACTION: Continue to investigate industries to determine the source(s) of toxin entering our wastewater system. We will also engage the services of professional engineers and/or independent laboratory services to evaluate this situation. Until this can be accomplished, future occurrences will undoubtedly continue. As there is no practical way to detect and/or treat at our plant, the source of the toxin must be identified and measures put in place to prevent toxins from being released into our system.

TIMELINE: City Corporation will execute contract (Attachment B) with Envitreat in early May with the goal of completing the assessment by end of June, 2018 and a findings report by end of July, 2018. City Corporation staff will continue internal efforts to identify and eliminate the toxic source including providing support to Envitreat as needed. Based on results and recommendations within the report from Envitreat, City Corporation will implement measures to address the source of toxic substance(s).

- 5. Operator error** – Inherent to any operation where employees are involved, there is an opportunity for errors from time to time that affect plant performance. Most of the violations involving operator error involved the dechlorination equipment when we were attempting to use the control loop utilizing the chlorine analyzer. This process did not lend itself to monitoring and control due to the amount of cleaning required to keep the analyzer probe clean which could lead to a false reading of no chlorine indicated and the SO₂ system would adjust accordingly based on the faulty reading. This became increasingly difficult once the permit limit was lowered. We began running the SO₂ feed system in manual mode to achieve proper dechlorination and continue to do so. Other violations due to operator error were random in nature and are expected to be isolated incidents.

CORRECTIVE ACTION: Regarding the violations related to the chlorine feed system, those issues have been addressed by running the system in manual mode. This was done because the permit limit was lowered and the troublesome chlorine analyzer was removed from the process. In all cases of operator error, the employee was counseled and/or reprimanded as appropriate and training was performed if needed to confirm that all employees were properly instructed so as to prevent similar occurrences in the future. We also continue with a much needed effort to upgrade job descriptions and salaries to attract higher quality applicants for new hires. We feel that we have taken all reasonable steps to minimize operator error. Consequently, the violations due to this issue have been addressed and no further action is required.

TIMELINE: Completed.

- 6. Equipment malfunctions** – Unfortunately, equipment malfunctions can, at times, lead to violations. As mentioned in the previous item, we experienced this at the new dechlorination facility and decided to operate it in manual mode to remove the malfunctioning part, which has resolved the problem. Other malfunctions happen from time to time and every effort is made to correct as quickly as possible to avoid disruption of the treatment process. We have made purchases of back-up equipment as deemed necessary to minimize these occurrences.

CORRECTIVE ACTION: Regarding the violations related to equipment malfunction, the chlorine feed system issues have been addressed by running the system in manual mode. This was done because the permit limit was lowered and the troublesome chlorine analyzer was removed from the process. For all other cases, staff made necessary precautions up to and including purchase of spare equipment as necessary. Consequently, the violations due to this issue have been addressed and no further action is required.

TIMELINE: Completed.

Summary

To summarize the information presented above, City Corporation staff feels that based on the information acquired and studies performed over the last couple years, there are three primary reasons for the large number of violations noted since October, 2013. The majority of the violations listed from Oct, 2013 through May, 2015 are largely related to the plant construction activity going on at that time that was approved by ADEQ to address CAO LIS 09-146 and these violations should not be considered in a new/amended order or at least listed and exempted since the cause for those violations no longer exists.

The two other main reasons for the majority of the remaining violation are exceeding hydraulic capacity of the plant and/or the introduction of toxins that impact the health of our biomass. We feel that addressing these two issues as proposed above will allow us to achieve compliance with existing permit limits.



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It should also be noted that we have engaged Garver engineers to revise our wastewater master plan that will include recommendations for a wastewater plant expansion. Such an expansion will increase the design capacity to meet long term growth, which will also help address some of the items mentioned herein related primarily to hydraulic loading, equipment and operator error, and to a degree, the ability to address toxins. It is our plan to move forward with an expansion that not only increases our design flow but also addresses some structural issues and improve operator flexibility. As we currently are in the very preliminary stages of the study phase, the scope and cost of such a project is unknown as is the source of funding for such a project, but we are dedicated to moving this project along as quickly as is feasible.

We do not want to be in a situation where we are given a very short timeframe to achieve such a large project for fear of rushing to meet a deadline and not fully incorporating all the improvements needed. We feel this happened with the last expansion as mandated in CAO LIS 09-146 and do not want to be in this same situation again. As stated above, we do not feel that this project is required to achieve compliance as of today, but we want to make sure that this plant expansion addresses current issues as well as future growth so that we are not in this position again. We hope that our commitment to do so is seen as putting an end to the band-aid approach given ample time to do so.

As with most wastewater master plans, City Corporation is looking at a 30-year planning horizon for the wastewater treatment plant. All NPDES permits expire every 5-years and the current permit is scheduled to expire on August 31, 2021 and the limits can be revisited each time the permit expires. Therefore, during the 30-year planning period, the NPDES permit will be renewed five times. City Corporation would like to ask ADEQ to provide any future changes to the permit so we can include those changes in the Wastewater Master Plan. We realize this may be difficult to forecast permit limit changes beyond one permit cycle but any information you can provide us would be appreciated. If possible, we would like to receive the future permit information within 30 calendar days from the date of this Corrective Action Plan.

To further support items 5 and 6 above, City Corporation will also pursue engaging the services of an engineering firm to conduct an operations audit of the WWTP and ConAgra pretreatment facilities to observe, evaluate, and document operational procedures and outcomes. The purpose of such an audit is to obtain a complete assessment of both facilities developed by on-site expertise that spends time with all shifts during different seasons and/or treatment conditions. The goal is to evaluate the plants during normal day operations and also during various plant upsets that occur for different reasons and identify strengths and weaknesses in both facilities. These could include operating procedures, sampling, equipment, chemicals, etc. and will be the basis for developing standard operating procedures from the recommendations presented. Not only will this allow us to make operational improvements that may be recommended, but it will also allow us to incorporate any suggestions regarding treatment facilities into our future short and/or long term plant expansion projects. We expect that this process will be completed by fall of 2019 to allow time for the selection process and to encompass seasonal anomalies.



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We hope that this correspondence provides you with the information requested. If you need more information and/or clarification on the information presented, feel free to contact me at 479-968-2105. We would also welcome the opportunity to meet and discuss this information at your convenience if you feel it would be beneficial.

Sincerely,

Steve Mallett
Chief Executive Officer

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Russellville, AR 72811
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ATTACHMENT A
City Corporation - Russellville, AR

CAO Projects

Project Name	Approximate LF of Pipe or # of MHs Rehabbed	Year of Construction	Construction Estimate	Project Completed Cost
Hydraulic Capacity Projects				
East 2nd Street	9,117	2013		\$ 1,803,617.00
City Mall	6,885	2016		\$ 1,908,568.00
Capacity Improvements	7,176	2018	\$ 2,000,000.00	
ATU South/North	14,000	2019	\$ 5,000,000.00	
Prairie Creek Force Main	8,616	2020	\$ 2,300,000.00	
10th Street Force Main	5,664	2019	\$ 1,400,000.00	
Basin Projects				
1,2,8,11	11358	2014		\$ 1,106,569.00
3,5,6	12,894	2017		\$ 1,680,691.00
7&14	16,175	2017		\$ 2,180,966.00
17,18,20,21	18,790	2018	\$ 2,260,647.00	
Basin 23	16,806	2019	\$ 2,800,000.00	
9,15,25	16,125	2019	\$ 2,500,000.00	
13,16,26	15,971	2019	\$ 2,300,000.00	
12,19,24	TBD	2020	\$ 2,500,000.00	
Manhole Rehab Projects				
Manhole Rehab (Phase 1)	700	2016		\$ 768,826.00
Manhole Rehab (Phase 2)	1000	2020	\$ 1,000,000.00	
Manhole Rehab (Phase 3)	600	2021	\$ 650,000.00	
			\$24,710,647.00	\$9,449,237.00



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Proposal and Quotation

May 3, 2018

To: Steve Mallett
General Manger
City Corporation Russellville Water & Sewer
Email: smallett@citycorporation.com
Office: (479) 968-2080 ext. 113

From: Robert M. Cowan, Process Specialist
EnviTreat, LLC 

James C. Young, General Manager
EnviTreat, LLC 

Subject: Addressing Potential Toxicity of Industrial Chemicals that are Discharged to the Russellville City Corporation's (RCC) Pollution Control Works (PCW)

We hereby offer the following proposal to assist you in identifying the likely source or sources of chemicals in wastewater discharges that can cause the loss of nitrification at Russellville City Corporation (RCC) Pollution Control Works (PCW), Russellville, AR. This effort will require access to information on the industrial wastewaters including flow rates and commonly measured wastewater parameters and information on chemicals used in the industrial facilities including those for cleaning, disinfection, sterilization, and lubrication.



**Test Plan and Quotation
for**

**Addressing Potential Toxicity of Industrial Chemicals that are
Discharged to the Russellville City Corporation's (RCC) Pollution
Control Works (PCW)**

(for Russellville City Corporation, Russellville AR)

May 3, 2018

OBJECTIVE AND SCOPE

This proposal is submitted in response to a verbal request for proposal (RFQ) presented to EnviTreat during the conference call between Russellville City Corporation (RCC), Garver and EnviTreat on February 1, 2018. It is an update to a previous proposal submitted to Garver on October 9, 2017. This proposal covers evaluation of the potential that chemicals discharged from any of fourteen permitted industries can cause inhibition of nitrification in the RCC-PCW process and to determine if chemical use rates are likely to be of concern in the future.

ANTICIPATED ACTIVITIES

RCC has informed EnviTreat that it has 14 permitted industrial discharges, the largest of which is a ConAgra food processing plant. RCC has already collected chemical use by these industries and supplied these to Garver and EnviTreat. A preliminary review of these data indicated that it will be necessary to take a close look at chemical use at ConAgra, Sugar Creek, Tyson RVH and Tyson TRC. Each of these four "must include" industries are food processing plants. Food processing plants typically use several types of cleaning, disinfection and sterilization chemicals that can cause toxicity at biological wastewater treatment processes. The brief review of the chemical use data confirms these plants are using these types of chemicals. The inclusion of IP - 16th St, IP - International Drive, and PPP depends on their relative flow rates and a closer look at the chemicals they are using.

According to RCC, the ConAgra plant presents a dominant load to the RCC-PCW plant. The 9/18/2017 flows and loads memo from Garver to RCC indicates that the average ConAgra discharge to the RCC-PCW represents 11% of the flow, 32% of the BOD load and 15% of the TSS load for the period from June 2016 through June 2017.

Food processing plants typically use quaternary ammonium compounds, peroxyacetic acids and other chemicals that can inhibit nitrification at concentrations as low as 1 mg/L. A chemical use survey needs to be performed to determine the mass (lb/day or kg/day) chemical load to the WWTP as a basis for calculating the chemical loading rate (mg/L-day) to the plant. An example survey for an industry that had an anaerobic treatment process that was experiencing process upsets is shown in Table 1. This survey identified PAA use at levels consistent with loading rates

that were 3.5 times the toxicity threshold and Quats/triamines at 1.2 times the toxicity threshold. Changes were made at the plant to neutralize the PAA and better manage the use of products containing quaternary ammonium compounds.

Table 1. Example Chemical Use Survey for a Food Processing Plant – Identification of Toxicity Load Potential for Anaerobic Treatment.

Example Chemical Use Survey		2016		Volume = 1.5 MG	Flow = 100000 gpd						
				HRT = 15.0 days	Chemicals of Concern						
Commercial Product	Ingredients of concern	Lb/day average use	Gal/day average use	Quats/triamines	PAA	SDBS/XSA	Hypo chlorite	Polyalkyl ethers	Alkylamine oxides	LCFA	H ₂ O ₂
Enforce LP	NaOH - 10%, NaClO - 3%, Cocamine Oxide - 1-5%, Sodium Xylene Sulfonate - 1-5%	25	3.0			0.099	0.059		0.099		
Oxonia Active	Peroxyacetic Acid - 5.8%, Acetic Acid - 8%, Hydrogen Peroxide - 27.5%	375	45.0		1.741						8.253
Stabicip Oxi	Hydrogen peroxide - 10-30%, alcohols, c13-15-branched and linear, butoxylated, ethoxylated - 1-5%; Sodium cumenesulphonate (5%)	96	11.6			0.385		0.385			2.313
Mikron	POTASSIUM COCOATE - 5-20%, TRIETHANOLAMINE - 5-20%, BENZALKONIUM CHLORIDE - 5-20%, HEXYLENE GLYCOL - 1-5%, amines, coco alkyl, ethoxylated 1-5%, TETRASODIUM EDTA - 1-5%, TEA-TALLATE - 1-5%, ALCOHOL - 1-5%, alcohols, c12-16 - 1-5%, ethoxylated, COCAMINE - 0.00004 - 0.08%	15	1.8	0.302					0.302	0.060	
3D Trasar 3DT230	Phosphoric Acid - 1-5%, Sulfuric Acid - 1-5%, Benzotriazole - 1-5%	3	0.3	0.010							
Stabrex 5T70	Sodium Hypochlorite - 6.36%, Sodium Bromide - 9.23%, Sodium Hydroxide - 1-10%	7	0.8				0.083				
Nalco 7330	Magnesium Nitrate - 1-5%; 5-Chloro-2-Methyl-4-Isothiazolin-3-one - 1.1%; 2-Methyl-4-Isothiazolin-3-one - 0.4%	3	0.3	0.003							
Nalco 72350	Cyclohexylamine 30-60%	6	0.8	0.300							
Total, mg/L =				9.2	26.1	7.3	2.1	5.8	6.0	0.9	158.5
Total, mg/L-day =				0.61	1.74	0.5	0.1	0.4	0.4	0.06	10.57
Limit, mg/L-day =				0.5	0.5	5.0	20	40	40	100	20
WW Conc., mg/L				9.22	26.11	7.3	2.1	5.8	6.0	0.91	158.50

Quats/triamines = Quaternary ammonium compounds and triamines
PAA = Peracetic acid
SDBS/XSA = Sodium dodecylbenzenesulfonates / xylene sulfonic acid
LCFA = Long-chain fatty acids

The approach for the RCC-PCW will be similar to that used for the example industrial facility. Flow and chemical use data for each significant industrial discharger will be combined with information concerning total flow, load and process configuration information from the RCC-PCW facility to identify which, if any, chemicals are being used at or above threshold loading rates for inhibition of nitrification. This approach will identify the most likely causes of nitrification inhibition at RCC-PCW and the industries contributing to these loads. Successful completion of the chemical use survey will require participation of the industries to get an accurate chemical load to the municipal WWTP.

While the initial analysis will be performed based on knowledge of average chemical use rates, it will be important to follow this with an analysis of maximum daily use rates for the dominant industrial dischargers. This effort will likely benefit from an on-site visit and walk through survey.

In addition to the chemical use survey, laboratory tests may be needed to verify toxic impacts at the RCC-PCW plant after identifying potential chemical loads. The need for such tests will be determined from the chemical use survey with subsequent detailed proposals for scope and cost.

COST QUOTE

Anticipated tasks and estimated costs for EnviTreat's assistance on this project are shown in Table 2:

Table 2. Cost Budget for Evaluation of Chemical Use at ConAgra and other Industrial Dischargers to RCC-PCW.

Task	Activity	Time	Cost
1.	Review of 14 industrial wastewater discharges to RCC-PCW, including average and peak flow rates and chemical use data to identify which cleaning, disinfection and/or sterilization chemicals are likely contributors to nitrification inhibition at the PCW treatment plant.	Approximately 5 to 7 days.	\$7,000 to \$9,800 (\$1,400/day)
2.	Site visit to RCC-PCW, ConAgra, and other industrial wastewater sources to RCC-PCW (if deemed beneficial by RCC and Garver)	2 to 3 days on-site visit (including travel)	\$3,500 to \$4,900
3.	Evaluation report and follow-up consultation as needed	3 to 5 days	\$4,200 to \$7,000
4.	Follow up lab testing as required and approved by RCC and Garver.	By separate quotation	~ \$3,600 per toxicity test

TOTAL = \$14,700 to \$21,700 plus approved lab testing.

The listed time and costs are based on our experience with similar tasks at other treatment plants but can increase or decrease depending on the task list and scope of services that ultimately will be developed. Individual tasks will be initiated only by request. Any partial day work will be charged at a rate of \$175/hour.

ACCEPTANCE

A purchase order is required to confirm authorization. Application of the test results to the design and evaluation of any existing or future treatment process is beyond the scope of the tasks listed above. EnviTreat accepts no responsibility for consequential damages caused by misuse of the test results.

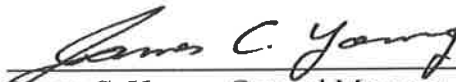
Invoices will be submitted reports or as requested by RCC. Payment is due within 30 days of delivery of each invoice unless other arrangements have been made in advance.



May 3, 2018

Robert M. Cowan, Process Specialist, EnviTreat, LLC

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May 3, 2018

James C. Young, General Manager, EnviTreat, LLC

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