



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 8, 2013

Mr. Russell Schreiber, P.E., Director of Public Works
City of Wichita Falls
P.O. Box 1431
Wichita Falls, TX 76307-1431

Subject: City of Wichita Falls – PWS ID No. 2430001
Review: Concept Paper for the Emergency Reuse of Wastewater Effluent as a
Source for Direct Potable Reuse in Wichita Falls
Wichita County, Texas
CN 600129316 RN 101611275

Dear Mr. Schreiber:

On November 13, 2012, the Texas Commission on Environmental Quality (TCEQ) received the City of Wichita Falls' (City's) Concept Paper for the Emergency Reuse of Wastewater Effluent as a Source for Direct Potable Reuse in Wichita Falls (Concept Paper) for review. The City is in an extended drought with source water reservoirs currently at approximately 43 percent capacity. Without any projected rainfall in the future to produce a significant quantity of runoff, the City is proposing to temporarily convert part of the Cypress Surface Water Treatment Plant (SWTP) to a direct potable reuse (DPR) water treatment plant (WTP) for four to six months to extend the existing capacities of the surface water reservoirs. The City proposes to augment its potable water supply with effluent from the temporary DPR WTP once the combined lake levels are 30 percent or less. Once the combined lake levels return to a level over 40 percent, the City would cease use of the temporary Cypress DPR WTP. In addition, the City is working on a proposal for a long-term, permanent DPR WTP. **The comments in this letter are based on the City's proposed temporary project requesting a one-time emergency operation with a duration not to exceed six months.**

The following table lists the City's existing potable water treatment facilities, with their TCEQ-assigned identification numbers and activity status.

Existing Wichita Falls Facilities with TCEQ-Assigned Identification Numbers (IDs)

ID	Plant Name (in TCEQ data)	Type	Status	Availability
TP15131	CYPRESS 1961	Treatment Plant (TP)	Active (A)	Permanent (P)
TP15132	CYPRESS 1987	TP	A	P
TP21567	CYPRESS 2008 RO MEMBRANE PLANT	TP	A	P
TP410071	CYPRESS 2010	TP	A	P
TP15134	JASPER 1951	TP	A	P

ID	Plant Name (in TCEQ data)	Type	Status	Availability
TP20695	JASPER 2005	TP	A	P
TP15133	JASPER 1941	TP	Inactive	P

Proposed DPR WTP

The Cypress Surface Water Treatment Plant (SWTP) currently consists of four parallel treatment trains. Three of the parallel trains are referred to as the 1961 (Plant ID 15131), 1987 (Plant ID 15132) and 2010 (Plant ID 410071) Plants and treat Lake Arrowhead and Lake Kickapoo source water from the City's Secondary Reservoir. These three treatment trains provide conventional surface water treatment using coagulation, flocculation, clarification/sedimentation, filtration, disinfection, and lime softening. The fourth train is referred to as the Cypress 2008 RO Membrane Plant (Plant ID 21567) and currently treats Lake Kemp source water from the Headquarters Road Reservoir. This fourth train consists of coagulation, flocculation, clarification, microfiltration (MF) membranes, reverse osmosis (RO) membranes and disinfection with a 10.0 million gallons per day (MGD) RO permeate capacity. In addition to the Cypress SWTP, the City also operates a second plant, the Jasper SWTP (Plant ID Nos. 15133, 15134, and 20695), on the opposite side of the City. The Jasper SWTP consists of conventional surface water treatment with a total capacity of 42 MGD.

The City's Concept Paper included the following proposed Cypress SWTP modifications for the temporary Cypress DPR WTP treatment train:

- Initially divert 7.5 MGD of River Road Wastewater Treatment Plant (RR WWTP) effluent approximately 8.5 miles away to the Cypress SWTP location;
- Provide total chlorine (chloramines) disinfection of the RR WWTP's effluent in the 8.5 miles of pipeline;
- Disconnect the Cypress 2008 RO Membrane Plant's influent piping from the existing raw surface water source (Lake Kemp) and effluent piping to the 1961 and 2010 Plant's individual clearwell piping;
- Connect the treated wastewater pipe from the RR WWTP to the influent of the Cypress 2008 RO Membrane Plant's train;
- Boost the total chlorine residual before the Cypress 2008 RO Membrane Plant's clarifier;
- Discharge 5.0-MGD of the Cypress 2008 RO Membrane Plant's treated effluent into the existing backwash waste lagoon;
- Transfer the decant water from the backwash waste lagoon to the 1961, 1987, and 2010 Plant's existing raw water splitter box and convert the splitter box to a blending chamber for the temporary Cypress DPR WTP;
- Blend the Cypress 2008 RO Membrane Plant's effluent with 5.0-MGD of raw surface water from the Secondary Reservoir in the converted blending chamber;
- Send 10.0 MGD of blended backwash lagoon and Secondary Reservoir water to one of the three existing conventional surface water treatment trains (which one was not identified);
- Boost the total chlorine residual before discharging the filtered water to the Cypress SWTP's clearwells;
- Discharge to distribution; and

- Return to normal operations of treating only raw surface water after no more than six months of operation.

TCEQ Comments on Concept Paper

The City submitted a Concept Paper for TCEQ review and response. The City will use TCEQ's response to develop and submit an Engineering Report for the proposed temporary DPR WTP. The City's Concept Paper has been reviewed and discussed by technical staff and TCEQ management. Based on our review and discussions of the one-time temporary potable reuse project, we have the following comments:

- The direct use of treated wastewater as a raw water source for a public water supply is not addressed in federal or state regulations; therefore an exception to Title 30 of the Texas Administrative Code (30 TAC) §290.41 is required. Similarly, 30 TAC §290.42 does not address the design requirements for DPR treatment plants. Since the TCEQ does not have rules that contain minimum design, treatment, operating, maintenance, monitoring, and reporting requirements for direct reuse sources or DPR WTPs, the City's proposed temporary DPR WTP will require the submittal of written requests for temporary exceptions to the TCEQ for review under 30 TAC §290.39(l). The requests for exceptions will be reviewed on a site-specific basis. Please note:
 - Any exception granted is subject to revision or revocation if the granting of the exception results in an increase in public health risk or degradation in water service as described in 30 TAC §290.39(l)(2).
 - Please be aware that all exceptions are subject to revision or revocation if the U.S. Environmental Protection Agency (EPA) revises the allowable maximum contaminant levels for existing regulated contaminants or establishes drinking water standards for chemical or microbiological contaminants that are currently unregulated. Exceptions related to the temporary Cypress DPR WTP may also be revised or revoked if substantiated data becomes available establishing public health risk levels for any unregulated contaminants in drinking water.
 - Based on the absence of rules for DPR WTPs, the TCEQ will review each public water system's proposed site-specific minimum design, operation, maintenance, monitoring, and reporting requirements as exceptions as required by 30 TAC §290.39(l). The proposed site-specific design, operation, maintenance, monitoring, and reporting ideas must provide the same or greater levels of public health protection than those provided by the TCEQ design rules for conventional source waters. The TCEQ will review the proposal and the alternative provided by the PWS to ensure public health will be protected to the same level or greater as the minimum requirements for conventional water sources. If the proposed design, operation, maintenance, monitoring, and reporting criteria do not demonstrate adequate protection of public health, the TCEQ can establish more stringent requirements or ask the public water system for another alternative(s).
 - The City will be required to submit an Engineering Report and detailed engineering plans and specification for TCEQ review. The City must receive the TCEQ's approval-to-construct in writing prior to beginning construction.

- Since the City does not plan to conduct a pilot test prior to constructing the proposed DPR WTP, the City will need to request temporary exceptions to allow the TCEQ to review the necessary engineering plans for modification of the Cypress SWTP facility.
- The City must submit a Full-Scale Verification Testing Protocol with the temporary exception requests. Pursuant to the Texas Health & Safety Code (THSC) §341.031 and §341.0351, the TCEQ staff will review the Protocol to determine if sufficient information will be collected during the full-scale verification testing to demonstrate that:
 - The proposed DPR WTP will be able to continuously provide public drinking water that will be free of deleterious matter;
 - The proposed DPR WTP's effluent will comply with the drinking water standards and treatment techniques established by the commission and the United States Environmental Protection Agency (EPA); and
 - The City will continue to provide an adequate and safe drinking water supply.

The City will be required to conduct the full-scale verification testing in accordance with the conditions in a TCEQ's written response after reviewing the City's verification testing protocol. The full-scale verification test must include at least one continuous test period of **no less than 30 days** with at least one of each of the treatment processes in operation at the City's selected maximum flow rates and operating parameters. After performing a chemical clean-in-place (CIP) procedure on the test microfiltration (MF) and reverse osmosis (RO) membrane units, the full-scale verification testing must continue at the same selected maximum flow rates and operating parameters for at least ten (10) more days to verify the CIP procedures were effective in flux recovery. A CIP procedure is to be performed on the selected RO membrane skid at the same time as the MF membrane unit(s) CIP procedure is performed. Please note, if there are equipment failures or failures to produce a water quality that continuously meets the requirements of 30 TAC Chapter 290, Subchapter F and the City makes a modification to one or more treatment processes to achieve an acceptable water quality, the verification test **must be restarted**.

- During the required full-scale verification testing, the effluent from the proposed temporary Cypress DPR WTP cannot be discharged to the City's potable water system and must be disposed of in accordance with a TCEQ discharge or reclaim permit.
- After completion of the full-scale verification testing, the City must submit an acceptable Full-Scale Verification Testing Report for the TCEQ's review. The TCEQ will review the Full-Scale Verification Report and respond in writing to document whether the City may begin producing water through the temporary Cypress DPR WTP. The City cannot begin discharging the effluent from the temporary DPR WTP to the City's distribution system until written TCEQ approval is received that documents the Cypress DPR WTP can produce finished water that meets all Federal Safe Drinking Water Standards. Please note that if the City fails to meet all TCEQ requirements and limitations contained in the letter approving the discharge the TCEQ can revoke the temporary approval or impose additional requirements.

- At this time the City has not determined how the finished water generated from the DPR WTP will be managed prior to approval for distribution as potable water. The City will need to identify management options prior to beginning construction on any phase of the Emergency DPR Project. If management options require TCEQ approval, the City will need to submit the necessary information for those approvals. Per discussion at the project meeting on January 18, 2013, the de-chlorinated finished water may be discharged via WQ0004419-000 permitted Outfall 001 as long as the total permitted flow of 6 MGD is not exceeded.
- Under normal circumstances, the TCEQ requires that exception requests be submitted before engineering plans and specifications. However, due to the reported shortage of surface water supplies, the TCEQ will expedite reviews of the above-required submittals.
- The Concept Paper indicated that the City's primary focus will be the removal of contaminants from the RR WWTP's effluent that have short-term (acute) health effects only. Please note that there is no leeway in the federal requirements for primary drinking water standards with long-term health effects for Texas public water systems because of the drought. Therefore, the following provisions apply:
 - The City will not receive any reduced requirements for primary drinking water standards of 30 TAC 290 Subchapter F whether they have long-term or short-term health effects.
 - All treated water compliance sampling must be conducted as specified in the standards of 30 TAC 290 Subchapter F. If the Cypress SWTP has been on reduced chemical monitoring, the City may be required to return to routine chemical monitoring schedules for the Cypress SWTP due to the addition of source water from the RR WWTP.
- In the City's consulting engineer's letter dated February 22, 2012, the City requested approval to use chloramines as a biocide to control corrosion of the microfiltration (MF) membrane unit's piping being caused by iron-related bacteria and sulfur-reducing bacteria. TCEQ approved this treatment change. Please provide information on the effectiveness of this treatment process and if dechlorination is being provided prior to the RO membranes.
- The Concept Paper indicates disinfection byproducts will have to be reduced to comply with the maximum contaminant level (MCL). Although projected levels of these contaminants appear to be acceptable, please note the City should plan to achieve levels lower than the MCL so that the City's wholesale water purchasers receive water of an acceptable quality at the wholesale meters.
- If the City believes that during the operation of the temporary Cypress DPR WTP, it will exceed a secondary drinking water standard and wishes to temporarily produce water that does not meet that secondary drinking water standard, a written request for a conditional approval must be submitted to the TCEQ's Public Drinking Water Section at the following address:

TCEQ Public Drinking Water Section – MC 155
Attn: Bob Patton, Manager
P.O. Box 13087
Austin, TX 78711-3087

- All pipe connections and common walls between basins containing waters in different stages must be examined for cross-connections. The engineering plans and specifications must contain the necessary modifications to eliminate any cross-connection. This includes, but is not limited to, the following:
 - The effluent piping from the Cypress 2008 RO Membrane Plant must be physically disconnected from the 1961 and 2010 Plants' clearwells and any other existing effluent piping from the conventional surface water treatment trains.
 - The effluent piping from the Cypress 2008 RO Membrane Plant's train must be provided with an air gap at the discharge into the existing backwash lagoon.
 - No cross-connection can exist between waters in two different stages of treatment. This includes the MF and RO membrane units during chemical clean-in-place (CIP) procedures.
 - The Concept Paper did not indicate which of the Cypress SWTP's conventional treatment trains will be taken offline during the use of the RR WWTP effluent or whether those trains will continue to treat raw surface water to be blended with the proposed temporary Cypress DPR WTP effluent. If the City plans to operate a conventional treatment train to treat raw surface water, TCEQ acceptable cross-connection protection must be provided.
- The City's planned sanitary procedures and disinfection methods must provide for:
 - Returning all four Cypress SWTP's treatment trains to raw surface water source (current) operation status and physically disconnecting the Cypress 2008 RO Membrane Plant's train from the RR WWTP's piping; and
 - Physically removing the temporary effluent discharge pipe from the Cypress 2008 RO Membrane Plant to the existing backwash waste lagoon and reconnecting it to one or more of the clearwells.
- The City must provide a description, drawings, and specifications describing how the City will control the blend of RO membranes' permeate (delivered from the existing backwash lagoon) with the raw surface **water so that there is always a blending ratio of one-to-one or a ratio that provides more raw surface water than RO membrane permeate**. This should include any rate-of-flow controllers, engineered orifice plates, and flow-indicating devices. Note that the TCEQ will require monitoring, record keeping, and reporting of the daily blending ratios.
- If any of the Cypress SWTP's other conventional treatment trains will remain in service treating raw surface water, the planned blending ratio and what modifications will be necessary for ensuring control and monitoring of the blending ratio must be addressed.

- If either of the other two Cypress SWTP conventional treatment trains will remain in service treating raw surface water, the connections between the clearwells must be piped so that the temporary Cypress DPR WTP's clearwell is completely separated from the conventional SWTP clearwells
- The Concept Paper stated that the City intends to maintain a disinfectant residual using chloramines in the entire 8.5 miles of pipe from the RR WWTP to the temporary Cypress DPR WTP. Since the RR WWTP's effluent will be high in free ammonia, injection of chlorine would form chloramines without injecting additional ammonia. However, viral inactivation credit is not allowed by rule for a total chlorine residual when ammonia is provided prior to chlorine. To receive inactivation credit, the City may pursue one of the following methods:
 - Modify the City's proposal to inject sufficient chlorine to achieve break-point chlorination and maintain a continuous measurable free chlorine residual prior to ammonia injection. If this option is selected, the City will need to provide at least 8.0-log of total viral removal or inactivation through the temporary Cypress DPR WTP. Please note this option has the potential to form very high levels of disinfection byproducts, so the City must include information on how those levels will be controlled to comply with 30 TAC §290.115.
 - Inject another disinfectant such as chlorine dioxide or ozone and maintain a measurable residual before converting to chloramines. To clarify, since the question has been asked in conference calls, the use of chlorine dioxide or ozone alone is not considered an advanced oxidation process, nor does it provide the same benefits as recognized advanced oxidation processes. If chlorine dioxide or ozone is used, the City must meet the standards of 30 TAC §290.114 and will need to provide at least 8.0-log of total viral removal or inactivation through the temporary Cypress DPR WTP.
 - Use the free ammonia present in the WWTP effluent to produce a chloramine residual. If this option is used:
 - The City will need to provide at least 9.0-log of total viral removal or inactivation through the temporary Cypress DPR WTP. Based on consultations with EPA Region 6 staff, the TCEQ has concluded that 1.0 log of additional viral log inactivation, for a total of 9.0-log, will provide an equivalent safety factor to that provided when chlorination precedes ammonia addition.
 - The City must comply with the monitoring and maximum contaminant levels of 30 TAC §290.106 for cyanide at the Cypress SWTP entry point.
- Interferences in the analytical method for determining total chlorine residual in treated wastewater can result in the inclusion of constituents that do not provide quantifiable disinfection. In these cases, the measured total chlorine residual could incorrectly indicate a higher inactivation of viruses and *Giardia* than actually occurred. One method of determining the actual inactivation provided by chloramines is to measure the monochloramine residual and use it to calculate the inactivation for a disinfection zone. The TCEQ routinely requires plants that use chloramines to measure monochloramine, which is the desired disinfectant species.

- The TCEQ is applying the following requirements to DPR WTPs:
 - Effective April 1, 2012, the maximum *Cryptosporidium* removal credit a public water system treating surface water can receive is the lesser of the acceptable Challenge Test log removal credit (LRC_{C-test}) granted by the TCEQ after review of the Challenge Test Report or the removal that can be demonstrated during a direct integrity test (LRC_{DIT}) using a TCEQ-approved test pressure. TCEQ staff are currently reviewing the Challenge Test Report for the US Filter (now owned by Siemens) CMF-S7, Module Part No. 119023, S10V MF membrane modules. This Challenge Test Report for the City's MF membranes was posted on the National Sanitation Foundation's website on December 4, 2012. The TCEQ will notify the City when we have completed the review of the Challenge Test Report and approved an LRC_{C-test} value for the City's MF membranes.
 - In TCEQ's April 30, 2012 letter, the TCEQ approved direct integrity test (DIT) values for the S10V MF membranes at 3.0-log removal. Because the source of the water has changed, key parameters like temperature, flow, volumetric concentration factor, and the log removal required may change. Please be prepared to resubmit the DIT values with the requests for temporary exceptions for the proposed temporary Cypress DPR WTP. Please note that these DIT values are under review and may be revised.

Please note that the above information is also necessary for the City to continue to receive removal credit for the Cypress 2008 RO Membrane Plant when treating surface water.

- It was not indicated what waste disposal methods will be used at the Cypress SWTP for all waste streams generated during the temporary Cypress DPR WTP's operation. Specifically, the methods of disposing of the clarifiers' blow-down waste, MF membrane backwash waste, MF and RO membrane clean-in-place waste, and any other liquid or solid waste were not indicated. Consideration must be given to the potential increase of pathogens by any recycling of these wastes. Because of the potential for an increase in pathogen concentrations in the RR WWTP effluent, the City will need to address the following:
 - All clarifier blow-down, MF membrane backwash waste, media filter backwash waste, and other generated waste cannot be sent to the existing backwash waste lagoon receiving effluent from the RO Membrane Plant during operation of the temporary Cypress DPR WTP. Consideration should be given to returning the decant to a point in front of the temporary Cypress DPR WTP, head of the RRWTP, or discharging to a stream. The City will need to identify options for the disposal of the DPR WTP waste streams prior to beginning construction on any phase of the Emergency DPR Project. Per discussion between Mr. Mark Southard, City of Wichita Falls Water Source/Purification Superintendent, and Mr. Michael Sunderlin, TCEQ Water Quality Division, the City plans to dispose of wastes from the DPR WTP via the existing outfall 001 authorized in TPDES Permit No. WQ0004419000. Per Mr. Sunderlin's initial review of data submitted by the City, which projected a worst-case concentration for parameters in the waste to be disposed of at the Cypress plant, it does not appear that the projected parameters would trigger additional requirements or limits in the current permit and no permit amendment would be necessary as long as the total permitted flow of 6 MGD is not exceeded.

- Identifying management options for finished water and disposal options for waste streams are critical for this project. If you have any questions or need further assistance regarding the DPR WTP's finished water or waste streams management options, please contact Ms. Jaya Zyman-Ponebshek, P.E., by email at Jaya.Zyman-Ponebshek@tceq.texas.gov or by telephone at (512) 239-2012 or by correspondence at the following address:

Water Quality Division – MC 145
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

- If not currently provided or used, consideration needs to be given to filter-to-waste after backwashing the conventional gravity media filters.
- The TCEQ has continued our research on indirect potable reuse (IPR) and DPR since the City first approached the TCEQ in April 2012. Our research found that a disease outbreak in the City could result in a significant increase in the concentration of pathogens over the normal concentration. Such an increase could overload the RR WWTP's and/or temporary Cypress DPR WTP's treatment processes. The City's submittals must address how public health will be protected under those circumstances based on the continuous removal and/or inactivation, monitoring triggers and frequency, and time required to shut down one or more of the treatment plants.

Please note that 8.0-log or greater (based on the City's selected disinfection protocol), 6.0-log and 5.5-log of removal and/or inactivation of viruses, *Giardia* cysts and *Cryptosporidium* oocysts, respectively, only provide protection of public health for specific concentration levels of these pathogens in the RR WWTP effluent. To date, the City has reported the following maximum pathogen concentration for the RR WWTP effluent:

- *Giardia* concentration of 34.82 cysts per liter;
- *Cryptosporidium* concentration of 5.04 oocysts;
- *E. coli* concentration of 160 most probable number (MPN) per 100 milliliters (1,600 MPN per liter);
- Total coliform concentration of 3,200 MPN per 100 milliliters (32,000 MPN per liter); and
- No maximum data was available for total culturable virus concentrations, but a 2009 average concentration of <0.387 MPN per 100 milliliters (<3.87 MPN per liter) was provided.

Therefore, the following information must be provided to support the City's proposed site-specific total log removal and/or inactivation:

- All analytical data results for raw sewage and the RR WWTP's effluent for turbidity, total coliform, *E. coli*, culturable viruses, *Giardia* cysts, *Cryptosporidium* oocysts, and any other pathogens the City has been monitoring for the preceding five years. Include all analytical methods used and the laboratory's quality assurance and control methods and results.

- The proposed location and type of all continuous online monitoring and automatic shutdown triggers at the RR WWTP.
 - The proposed location and type of all continuous online monitoring, grab sample monitoring taps, and automatic shutdown equipment at the temporary Cypress DPR WTP.
 - The maximum time frames to receive results from grab sample analytical results.
 - The CT Study spreadsheet for the proposed temporary Cypress DPR WTP, including the dimensions of all pipelines and treatment units. The spreadsheet should include the minimum detention time in the MF and RO membrane portion of the Cypress DPR WTP, the conventional portion of the Cypress DPR WTP, and any subsequent storage before release to the distribution system.
 - The triggers that will be used for shutting down transfer of RR WWTP effluent to the Cypress DPR WTP and Cypress DPR WTP shutdown or alarms and what each of the triggers indicate.
 - A description of multi pathogen treatment barriers, an analysis of what levels of treatment will be provided if a single or multi-barriers should fail, and what safeguards will be in place to prevent failure and response actions and timelines for treatment failures.
- If the City determines that the Cypress DPR WTP will be needed on a recurring or more permanent basis, the TCEQ recommends that the City install additional barrier(s) to inactivate *Cryptosporidium* oocysts and control any organic compounds that are not removed by the RO membranes. The proposed treatment configuration for the temporary Cypress DPR WTP includes two barriers for *Cryptosporidium* removal: physical removal through microfiltration membranes and physical removal through the conventional surface water treatment plant. An additional barrier such as advanced oxidation with hydrogen peroxide and ultraviolet (UV) light, or some alternative TCEQ-approved approach, could allow Cypress DPR WTP to remain in service if one of the removal barriers fails and would provide a means of oxidizing any chemical that might not be completely removed by the RO membranes.
 - The Concept Paper indicated that the City has established a Water Quality Task Force that is composed of City staff from the Public Works, Public Utilities, and Health Departments. A list of triggers to activate the Water Quality Task Force and conduct an investigation was included. The City will be required to notify the TCEQ Water Supply Division and Abilene Regional Office by email and telephone if an established trigger is reached. TCEQ contacts for these types of notifications are Mr. Joel Klumpp at Joel.Klumpp@tceq.texas.gov or (512) 239-4453 and Mr. Cliff Moore by email at Cliff.Moore@tceq.texas.gov or (325) 698-6115. For notifications outside of normal business hours, call the 24-hour hotline number at (800) 777-3186. Based on the potential acute health risk, the TCEQ will require that the temporary Cypress DPR WTP be immediately shutdown (in addition to conducting an investigation) for:
 - Occurrence of a confirmed waterborne disease outbreak;
 - Failure to meet the TCEQ's minimum required disinfection levels for inactivation of pathogens;

- Any E. coli positive sample in the temporary Cypress DPR WTP plant, entry point, or distribution system; and
 - Exceeding the maximum TCEQ-approved turbidity level for any treatment process.
- Please submit the standard operating procedures for the Water Quality Task Force including shut-down criteria with the request for temporary exceptions.
- The Concept Paper included a list of monitoring triggers at the RR WWTP for stopping the use of the RR WWTP effluent as a public water system source water. The City will be required to notify the TCEQ Water Supply Division and Abilene Regional Office by email and telephone if an established trigger is reached. TCEQ contacts for these types of notifications are Mr. Joel Klumpp at Joel.Klumpp@tceq.texas.gov or (512) 239-4453 of the TCEQ Water Supply Division and Mr. Cliff Moore by email at Cliff.Moore@tceq.texas.gov or (325) 698-6115 of the Abilene Regional Office if notification is needed. For notifications outside of normal business hours, call the 24-hour hotline number at (800) 777-3186.
 - The TCEQ will specify minimum and maximum allowable levels to be used for monitoring triggers of the RR WWTP effluent and shutdown of the temporary Cypress DPR WTP.
 - The TCEQ will specify monitoring triggers for the RR WWTP which may include eight-hour toxicity tests using a microscopic examination of samples from the aeration basin. The TCEQ Water Supply Division will require more detailed information on what microbes will be identified through this microscopic examination, analytical method(s) to be used, and the required training and experience for the City staff who will be conducting the tests.
 - Please submit the operations and monitoring plan with the request for temporary exceptions.
- In addition, the City has proposed monitoring triggers for the proposed temporary DPR WTP to initiate shutdown of the DPR WTP. The City shall be required to notify the TCEQ Water Supply Division and Abilene Regional Office by telephone if an established trigger is reached. TCEQ contacts for these types of notifications are Mr. Joel Klumpp at Joel.Klumpp@tceq.texas.gov or (512) 239-4453 and Mr. Cliff Moore by email at Cliff.Moore@tceq.texas.gov or (325) 698-6115. For notifications outside of normal business hours, call the 24-hour hotline number at (800) 777-3186. Additional DPR WTP monitoring triggers that the City should consider include, but are not limited to, the following:
 - A MF membrane unit that fails a DIT must be removed from service until it passes a DIT;
 - An individual MF membrane unit's filtrate turbidity level exceeds 0.100 nephelometric turbidity units (NTUs) for two consecutive five-minute readings; and
 - An individual granular media filter's turbidity level exceeds 0.150 NTUs for two consecutive fifteen-minute readings.

- The Concept Paper's Appendix A included the analytical results of the RR WWTP effluent for chemical and microbiological contaminants. In addition, the TCEQ is requesting additional information related to the City's historical finished drinking water.
 - All chemical and microbiological analytical results for the preceding five years must be provided. In addition, the average, minimum, and maximum reported levels must be included.
 - Appendix A of the Concept Paper indicated that there is not a regulatory limit for total coliform. While that may be true of the permit limits for the RR WWTP discharge permit, it is not true for finished drinking water. The federal rules establish the absence of total coliform as the regulatory limit for total coliform in finished drinking water. Please review 30 TAC §290.109(f) and 40 CFR §141.63 regarding compliance determination for microbial contaminants.
 - Please see 40 CFR §141.52 for maximum contaminant goals for *Giardia*, viruses, *Legionella*, total coliforms (including fecal coliforms and *E. coli*), and *Cryptosporidium*.
- Please note that the DPR facility must be staffed 24 hours a day, 7 days a week by licensed surface water operators unless adequate storage is provided to allow for the treatment but not release of the treated water until an operator is on-site.
- The City must provide documentation regarding coordination with all purchased water systems receiving water from the City regarding how these systems will be notified of the use of wastewater effluent as a source water. Please also address how the City's retail service customers have been informed of the City's plans to supplement the source water.
- The City must also indicate how it will inform its customers and purchased water systems of any exceedance of a drinking water standard contained in 30 TAC, Subchapter F or any failure to meet a TCEQ specified DPR WTP treatment technique requirement. These public notices must be issued in accordance with the requirements of 30 TAC 290.122. The City must also verify that it will include the information in its Consumer Confidence Report required by 30 TAC Subchapter H.
- The City must obtain all required TCEQ wastewater discharge and 210 permits from the TCEQ Water Quality Division. If you have any questions regarding the existing wastewater permits, amendments, or new permits, please contact Ms. Jaya Zyman-Ponebshek, P.E., by email at Jaya.Zyman-Ponebshek@tceq.texas.gov or by telephone at (512) 239-2012, or by correspondence at the following address:

Drinking Water Quality Division – MC 148
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

 - Copies of all wastewater permits and discharge limits will need to be provided to the TCEQ Water Supply Division.

- The construction of the 8.5 miles of wastewater pipeline from the RR WWTP to the proposed temporary DPR WTP must be approved by the TCEQ Water Quality Division.
- The City will need to have a spill response plan for the above-ground wastewater transmission pipeline.
- Consideration must be given to security measures for the above-ground wastewater transmission pipeline to prevent accidental or intentional damage.
- At this point it does not appear that the change in the source water being treated by the RO membranes will impact the City's discharge permit No. WQ 00104419-000 to the Wichita River below Diversion Lake in segment No. 0214 of the Red River Basin. However, when the application for renewal of that permit gets submitted to the TCEQ's Water Quality Division, new influent and effluent data, along with stream water quality criteria, will be evaluated and a determination made as to whether additional parameters need to be monitored or limited.
- Our review of the Concept Paper did not find any mention of any modification to the RR WWTP to reduce the nitrate level. Please provide information on the status of this project.

Per discussion at the project meeting on January 18, 2013, the City plans to:

- Explore direct integrity testing of the Hydranautics RO membranes at the DPR WTP in order to receive pathogen removal credit; and
- Contact Hydranautics to inquire if third-party challenge testing of their RO membranes has been conducted in accordance with the 40 CFR §141.719(b)(2) and the EPA's Membrane Filtration Guidance Manual.

City staff also indicated during the January 18, 2013 meeting that the City has been using a "real-time" analytical method for monitoring *Cryptosporidium* oocysts levels in the RR WWTP. Please provide the following:

- Detailed information on the analytical method and quality assurance/quality control methods being used being used;
- Test equipment required;
- Staff training required; and
- Laboratory accreditation (such as through the EPA, National Environmental Laboratory Accreditation Conference, etc.) available for the analytical method.

The TCEQ commends the City for taking this approach to the DPR project, and requests that information regarding these initiatives be included in the City's next submittal to the TCEQ.

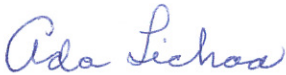
Mr. Russell Schreiber, P.E.
Page 14 of 14
February 8, 2012

If you have other questions concerning this letter or if we may be of further assistance, please contact Mr. Joel Klumpp by email at Joel.Klumpp@tceq.texas.gov, by telephone at (512) 239-4453, or by correspondence at the following address:

Technical Review & Oversight Team – MC 159
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Mr. Klumpp has been designated as the TCEQ point-of-contact for this project. Please route all correspondence and requests through him.

Sincerely,



Ada Lichaa, P.G. Manager
Plan and Technical Review Section
Water Supply Division
Texas Commission on Environmental Quality

AL/JSW/

cc: The Honorable Glenn Barham, Mayor, City of Wichita Falls, P.O. Box 1431, Wichita Falls, TX 76307-1431
Mr. Daniel Nix, Public Utilities Operations Manager, City of Wichita Falls, P.O. Box 1431, Wichita Falls, TX 76307-143