



**Barton Springs  
Edwards Aquifer**  
CONSERVATION DISTRICT

September 27, 2016

*Via Electronic Filing on TCEQ Website*

Ms. Bridget C. Bohac  
Chief Clerk's Office (MC-105)  
Texas Commission on Environmental Quality (TCEQ)  
P.O. Box 13087  
Austin, Texas 78711-3087

Re: Supplemental Comments on City of Dripping Springs's Application and TCEQ's Preliminary Decision and Draft Permit for Proposed TPDES Permit (No. WQ0014488003).

Dear Ms. Bohac:

The Board of Directors of the Barton Springs/Edwards Aquifer Conservation District (District, or BSEACD) offers these supplemental comments on the TCEQ Executive Director's Preliminary Decision on September 23, 2016, to issue a Texas Pollutant Discharge Elimination System (TPDES) permit in response to the City of Dripping Springs's (City's) application to the TCEQ for such a permit (Permit No. WQ0014488003). This permit as drafted would authorize direct discharge of 995,000 gallons per day of treated wastewater into the Onion Creek watershed (Stream Segment 1427), in the recharge zone of the Trinity Aquifer and in the contributing zone of the Barton Springs segment of the Edwards Aquifer (Edwards Aquifer) with impacts occurring in the Edwards Aquifer recharge zone. These comments are made pursuant to and in conformance with Government Code Section 2003.047.

The District previously filed comments on July 6, 2016, and asserted its opposition to the City's application and the prospective permit as then proposed. It continues to have serious concerns with the lack of adequate protection of natural resources provided by the permit as now drafted.<sup>1</sup>

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<sup>1</sup> The District maintains its position that it is an affected and interested party, and it reserves the right to amend and supplement these comments to the extent allowed by law.

The District's previously submitted comments are hereby re-affirmed, and its concerns and their basis are reiterated and supplemented below.

## **Inadequate Protection of Receiving-Stream Uses**

- 1. The effluent will degrade the quality of water in Onion Creek.** TCEQ's modeling of impacts of the discharge used a simple, uncalibrated steady-state model that is inadequate to delineate water quality impacts in this hydrologic setting for assessing water quality degradation. More sophisticated, calibrated dynamic modeling performed by the City of Austin<sup>2</sup> demonstrates that the nutrient additions to the receiving stream from the discharge as proposed under the draft permit will change the trophic state of the stream from oligotrophic to mesotrophic on a recurring basis, thereby substantially reducing its water quality during non-storm conditions by more than a *de minimis* amount, to the point that it impairs several designated uses of the stream. In contrast to TCEQ's findings upon its preliminary Tier 1 and Tier 2 reviews the City's proposed discharge is clearly and demonstrably inconsistent with TCEQ's Anti-degradation Policy. A properly conducted Tier 1 review would have shown that the uses of Onion Creek, as a public drinking water supply, as habitat for healthy aquatic life, and as a source of water-contact recreation, would be significantly and unnecessarily impaired by the effluent under the draft permit. A properly conducted Tier 2 review would have revealed the adverse effects of discharging effluent to the demonstrably high quality stream of Onion Creek. Algal growth associated with the change in trophic state from nutrient addition and the nutrient cycling that affects dissolved oxygen downstream will make Onion Creek from time to time less aesthetic, toxic to aquatic life, and less healthy as a fishable, swimmable stream. The causes of the degradation and impairment are also addressed individually in certain of the District's enumerated comments that follow. In addition, there are a number of "emerging contaminants" in the effluent that may adversely affect the water quality and possibly its supported uses. These emerging contaminants include pharmaceuticals, hormones, antibiotics, viruses, health care products, etc. and other constituents that are refractory during wastewater treatment and persistent in the aquatic environment.
- 2. The concentration of Nitrate-N will exceed drinking water standards in a public water supply.** Dynamic modeling by the City of Austin described in its August 11, 2016, supplemental comments to TCEQ on the impacts of the City's direct-discharge on water quality in Onion Creek concludes, among other things, that nitrate-as-nitrogen concentrations will be higher than 10 mg/L at the western Edwards Aquifer recharge zone boundary for prolonged periods of time. That concentration of nitrate-N exceeds

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<sup>2</sup> The City of Austin included in its May 12, 2016, comments to TCEQ on the City of Dripping Springs's proposed permit a report summarizing the WASP model and the impact on Onion Creek. On August 11, 2016, the City of Austin provided TCEQ a supplemental analysis using the WASP model.

the 10 mg/L federal safe drinking water standard. This condition is inconsistent with both of the designated uses of Onion Creek for Public Drinking Water Supply and Aquifer Protection.

3. **TCEQ's assessment of the sulfate concentration in influent water and the need for a sulfate limit in the effluent were inadequate.** In view of the receiving stream's being listed as impaired for sulfate and therefore already not meeting that water quality standard, a more rigorous analysis of the influent stream to the prospective plant should have been made. An appreciable but variable portion of the water supply for Dripping Springs and therefore in the influent to the wastewater plant comes from the Middle Trinity Aquifer, which can have elevated sulfate concentrations; Trinity Aquifer-sourced water is not currently contributed to Onion Creek by any wastewater plant source. Sampling of the influent on a single day, which may have represented solely water from the Highland Lakes, could have been non-representative of the overall influent/effluent quality realized with respect to sulfate, especially since previous sampling has documented elevated sulfate in the influent.
4. **Biomonitoring was not included as a permit requirement.** Onion Creek has a high aquatic life use designation. There is strong evidence to suggest the nutrient loading and decreased DO levels resulting from the prospective discharge will have a detrimental effect on aquatic life. Considering that this portion of Onion Creek is classified as an intermittent stream with perennial pools and has limited capacity to assimilate nutrients and other contaminants, the draft permit should include biomonitoring requirements to assess both acute and chronic effects at 100% effluent.
5. **The draft permit conditions are materially inconsistent with the water quality protection provisions in the directly comparable Hays County WCID No. 1 ("Belterra") direct-discharge permit that TCEQ issued (TPDES WQ0014293001).** In the draft permit for Dripping Springs, the (a) absence of a Total Nitrogen effluent limit that requires more advanced wastewater treatment such as Membrane Biological Reactor technology, (b) lack of stipulated receiving-stream conditions before allowable discharge, and (c) absence of any effluent storage requirement that would reduce the frequency and amount of wastewater required to be discharged, all of which were part of Belterra's permit conditions, are serious deficiencies that will ultimately and unnecessarily allow for direct discharges that may harm water quality in Onion Creek. There is no apparent basis for protecting Bear Creek but not applying the same level of protection from discharges to Onion Creek. (See Attachment A – Belterra/Dripping Springs Permit Comparison.) Absent prohibiting direct discharges, TCEQ should have considered that the level of protection afforded by the Belterra permit is a bare minimum for these oligotrophic Hill Country streams, so that their cumulative direct impacts and their indirect impacts from

increased erosion/sedimentation (fostered by more intense development served by a regional wastewater treatment plant) are minimized. This level of protection was found by the ALJ and adopted by the TCEQ's Commissioners in Belterra to be required for direct discharges to be in compliance with TCEQ's Anti-degradation Policy.

- 6. The uses of Segment No. 1427 of the Colorado River Basin are not being preserved with the draft permit.** The designated uses for Segment No. 1427 are listed as follows: high aquatic life use, public water supply, aquifer protection, and contact recreation. The Notice of Preliminary Decision by the TCEQ executive director states that the effluent allowed under the draft permit will not impair the water quality and the existing uses will be maintained. The previous discussion related to the real potential for detrimental impacts to each of these uses clearly describes expected situations that are inconsistent with that conclusion. Additionally, Segment No. 1427 has been designated an endangered species habitat, and it is listed on the EPA's inventory of impaired and threatened waters. Given the sensitive nature of the receiving waters as designated on multiple levels, it is clear that direct discharge of the quality and loading allowed by the draft permit should not be authorized, or at a minimum should be minimized, which is not supported by the executive director's preliminary decision.

## **Inadequate Protection of Aquifer Uses**

- 7. The receiving stream provides recharge to the Trinity Aquifer in the immediate vicinity and downstream of the treatment plant.** Completed and ongoing studies of streamflow gains and losses and of hydrochemistry are strongly indicative of hydrologic communication between Onion Creek and both the Upper and Middle Trinity Aquifers in the reach of Onion Creek receiving effluent<sup>3</sup>. The Middle Trinity Aquifer is a significant public water supply, including supplies for citizens of Dripping Springs and adjacent areas in the Hill Country. This major aquifer also extends down dip into the jurisdictional area of BSEACD, where it is used as a water supply. As noted above, the effluent may impair the stream that provides recharge, and therefore it may adversely affect these groundwater supplies under certain conditions, to some unknown degree. Phase II studies of the interaction between Onion Creek and the Middle Trinity Aquifer are ongoing. This next-phase study is designed to better characterize the magnitude of influence of Onion Creek recharge to the Middle Trinity Aquifer and therefore the relative risk to the aquifer as a drinking water supply. TCEQ should not issue any permit

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<sup>3</sup> In its July 6, 2016, comments, the District provided a technical report indicating recharge of the Trinity Aquifer from Onion Creek. That report has now been published: Hunt, B.B., A.S. Broun, D.A. Wierman, D.A. Johns, and B.A. Smith, Surface-Water and Groundwater Interactions Along Onion Creek, Central Texas: Gulf Coast Association of Geological Societies Transactions, 66th Annual Convention, September 18-20, 2016, Corpus Christi, Texas (Accessible at: [http://bseacd.org/uploads/HuntEtAl\\_2016.pdf](http://bseacd.org/uploads/HuntEtAl_2016.pdf))

that would allow direct discharges to Onion Creek until the ongoing investigations confirm how the Middle Trinity Aquifer may be appropriately protected. Aquifer Protection is a designated use for Stream Segment 1427, and TCEQ's draft permit does not conform to this standard.

- 8. Elevated Nitrate-N concentrations at the Edwards Aquifer recharge zone boundary will enter the Edwards Aquifer as direct recharge and put this designated sole-source supply at risk.** Once in the aquifer, little dilution or attenuation of elevated nitrate (see Comment 2 above) may occur before it is withdrawn by public and private wells within the District and by discharge at Barton Springs. More than 60,000 Central Texans within the District rely upon the Edwards as a water supply and value its high quality, and many consider that groundwater a property right to be protected. The lack of a Total Nitrogen limit, even with (and perhaps because of) a lower Ammonia-N limit, will increase the Nitrate – N concentrations to levels that exceed safe drinking water standards in the receiving stream and in the aquifers that it recharges within the District.
- 9. The District has a statutory obligation to protect recharge quality under its governing Texas Water Code Chapter 36.** Discharge of wastewater to Onion Creek under the terms of the draft permit would demonstrably not be protective of recharge water quality, and therefore may cause “waste” (as defined in Texas Water Code §36.001) requiring extraordinary action by the District to oppose and/or compel modification of the permit. A permit that reasonably provides such protection of groundwater recharge and its use may not.
- 10. Degraded water quality in the Edwards is inconsistent with the protection of the endangered species that reside in the Edwards Aquifer and are dependent on high water quality.** The District's endangered-species draft habitat conservation plan (HCP) measures, which are already part of its Management Plan and will soon become part of its prospective Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS), require it to minimize the amount of take of two endangered species of salamander that may occur as a result of the District's activities. As required by its HCP, the District must protect the Edwards Aquifer from risk of potential contamination to the extent feasible and therefore it opposes a direct discharge that may unreasonably and unnecessarily impair water quality in the Edwards Aquifer that could compromise the habitat of the two endangered species of salamander. It should be noted that the prohibition on take of an endangered species is a federal requirement that applies to any entity in the U.S., public or private. The discharge of wastewater by the City under TCEQ's draft permit provisions could reasonably be considered as producing unauthorized take, which in turn could require its own ITP and HCP, or at least a consultation and agreement with the USFWS, to allow such action to occur legally. The

District has not been apprised that this communication has occurred, as necessary to assess impact of the draft permit on the efficacy of the District's or the City of Austin's HCP and their respective conservation measures and recommend responsive actions by the FWS concerning the draft permit.

## **Inadequate Treatment Technology to Achieve Effluent Limits**

- 11. The proposed four-stage Bardenpho treatment train is not designed to be able to meet the effluent limits in the draft permit.** The proposed four-stage Bardenpho process may have the benefit to the City of being inexpensive but it is incapable of meeting the effluent limitations in the draft permit, so it is isn't feasible and shouldn't be considered further. The City has not specified what it intends to use in lieu of the Bardenpho process, but that is a key element in the City's ability to avoid impairing the water quality in Onion Creek. Even a Modified (five-stage) Bardenpho will not reliably achieve the Phosphorus effluent limit specified in the draft permit (and would produce much larger volumes of sludge attempting to minimize Phosphorus), so another technology is required. It should be noted that a Membrane Biological Reactor (MBR) was specified and utilized in Belterra, and therefore could be a rational choice that provides an acceptable level of effluent treatment under certain conditions. Further, an MBR may be a cost-saving front end to a Direct Potable Reuse system when compared to a Bardenpho front-end, and thereby promote use of DPR, which the City professes to want as a future water supply. In any event, a substantive change in the proposed treatment technology is required, and it is such a significant deviation from the basis of the TCEQ's Notice and Preliminary Decision that the regulatory process should be re-initiated to ensure adequate and appropriate analysis by both TCEQ and the public as to the City's ability to comply with the more stringent standards than it originally proposed.
- 12. The phasing of the authorized volumes in the TPDES permit is inconsistent with the City's stated construction plans.** Until a new unit with all of the new technology is operational, which has been specified to have a treatment volume of one-half of the ultimate amount, or 497,500 gallons per day (gpd), the City will be unable to meet the effluent limits in the TPDES permit for direct discharge. So the specification of an initial permit phase for 399,000 gpd is unnecessary. A TLAP, not a TPDES permit, would be required as the alternate effluent disposal method under Section 210 to permit that Phase 1 amount, as direct-discharge would not then be allowable. So a TPDES permit phase of anything less than 495,000 gpd, under the current construction plan, is not warranted as its discharge limitations aren't achievable. The second half of the ultimate amount, i.e., the other 497,500 gpd, will be provided by the conversion of the existing plant to a twin of the one treating the first half, so it isn't available for a Phase 1. It seems like only two

TPDES permit phases are needed or supportable, under the current construction plans. But the City would need to acquire a new TLAP for disposal of the Phase 1 amount if such a volume is required to be treated before the new plant is constructed.

- 13. Specification of a Class C operator for a complex treatment plant in this setting is inappropriate.** Regardless of what treatment technology is ultimately employed, this will be a complex facility to achieve the requisite removals to protect a sensitive stream on a sustained basis, so an experienced Class A operator should be a specified requirement. Further, the complexity of the plant's daily and hourly operation will require a robust SCADA instrumentation and control system, which also should be a specified permit term to avoid/minimize upset conditions and ensure water quality protection at all times.
- 14. The draft permit does not consider the extraordinary impact of upset conditions that accompanies approving direct discharge.** "Upset" conditions from a wastewater treatment plant where poorly treated and even untreated wastes are released are historically proven to periodically occur. The poorly treated or untreated sewage resulting from these periodic upsets could have immediate and lasting effects on Onion Creek, the Trinity Aquifer, the Edwards Aquifer, and even Barton Springs. True upset conditions were not considered in TCEQ's evaluation or in the City of Austin's modeling evaluations, but reasonable extrapolation of the results indicates that such conditions would certainly degrade the overall surface and groundwater quality. The presence of an outfall makes the adverse impacts of upsets, especially over time, easily conveyed off-site via the receiving stream, rather than contained and mitigated with on-site or in storage. Once such a discharge enters an aquifer, the pollutants from the off-spec effluent would not benefit much from dilution or assimilation, especially during low water-level conditions and may have detrimental and long lasting effects on the receiving stream and the aquifers.

### **Inadequate Minimization of Effluent Volumes to Be Direct Discharged**

- 15. No required storage is specified in the draft permit.** Other than incidental storage provided by the treatment process units, the draft permit has no requirement to store effluent, which hinders the ability to avoid direct-discharge if re-use is immediately or temporarily unavailable. This absent requirement maximizes the amount of wastewater to be discharged regardless of other conditions. If TCEQ is unwilling to specify minimum streamflow conditions as a prerequisite for direct discharge in the permit (as it did with Belterra), then it should require the City to perform a comprehensive water balance and specify an appropriate storage volume that would maximize re-use and

minimize direct discharge frequency and volume. This permit-mandated storage could be on-site, distributed off-site, or a combination, at the City's discretion.

**16. Direct discharge frequency and volumes could be minimized by including minimum storage requirements and commitments to firm-demand beneficial reuse as conditions of the permit.** As described by City officials, the City has contracts for reuse of its effluent for spray irrigation that are non-recourse: the contracted entities are required to take the effluent at the volume contracted, if the City can't otherwise utilize it or dispose of it. These entities would accordingly need to have their own storage facilities to provide the necessary buffer. Such distributed storage likely obviates the need for direct discharge to these sensitive streams except under rare and specified conditions, as is the case with Belterra. (Section 210 authorizations could specify a requirement for defined volumes in each of these distributed locations; the TPDES could specify the aggregate amount.) TCEQ should require the TPDES permittee to have access to and mandate the use of enough aggregate storage (and/or TLAP-permitted subsurface irrigation) to avoid or minimize direct discharge of wastewater and allow it to be a last resort as the City proclaims to intend, rather than a first resort and/or at the sole discretion of the permittee.

## **Conclusion**

For the reasons set forth above, the District concludes that TCEQ has in fact not met its acknowledged burden to issue a draft permit that (a) meets all state and federal legal and technical requirements, and (b) protects human health and safety, the environment, and physical property. Further, the draft permit lacks the provisions of the comparable Belterra TPDES permit that were previously determined as required to prevent degradation of a receiving stream similar to Onion Creek beyond a *de minimis* level. No rationale for this difference was provided in the record, therefore, the District reasonably concludes that the draft permit does not comply with the TCEQ's Anti-degradation Policy.

The District therefore requests that TCEQ reconsider its Preliminary Decision and its draft permit by revising its preliminary anti-degradation review and amending the draft permit to include the necessary provisions that are protective of the existing and future uses and users of the receiving stream compliant with the TCEQ's Anti-degradation Policy. The District is pleased that TCEQ is holding a public meeting on this matter, which will help ensure the local public is aware of both the City's proposal and the possible and likely impacts of TCEQ's decision-making on the surface water and groundwater, and that the public is better informed to timely comment on them. However, if the District's concerns remain substantially unresolved, the District also intends to formally request a contested case hearing on the draft permit following TCEQ's response to comments.



The District continues to stand ready to assist the applicant and TCEQ in this endeavor. However, it also stands ready now to pursue the necessary protective measures through other means, if required.

Respectfully submitted

A handwritten signature in black ink, appearing to read "John T. Dupnik". The signature is stylized with large, sweeping loops and a prominent initial "J".

John T. Dupnik, P.G.  
General Manager

A handwritten signature in black ink, appearing to read "Blayne Stansberry". The signature is written in a cursive, flowing style.

Blayne Stansberry,  
Board President

**Attachment A**

**COMPARISON OF TPDES PERMIT PROVISIONS:  
BELTERRA AND CITY OF DRIPPING SPRINGS**

## Comparison of Permit Provisions on Direct Discharges in Edwards/Trinity Contributing Zone

	Belterra Draft TPDES Permit (before settlement)	Belterra Final TPDES Permit (with settlement terms)	Dripping Springs Pre-Draft TPDES Permit	Notes/Comments on D/S Pre-Draft Permit
<b>1. TPDES Permittee</b>	Hays County WCID No. 1	Hays County WCID No. 1	City of Dripping Springs	
<b>2. Permit Term/Renewal</b>	Standard 3-year term; upon notice/application, auto renewal if no changes/non-compliance	Standard 3-year term; upon notice/application, auto renewal if no changes/non-compliance	Term now ends 9/1/2019, which is close to start of new WWTP operation; auto renewal if no changes/non-compliance	D/S requesting delayed start of permit term
<b>3. Receiving Stream</b>	Bear Creek main stem, immediately below Belterra development	Bear Creek main stem, immediately below Belterra development; no direct discharge known to have yet occurred	Walnut Springs Creek, thence to Onion Creek main stem	About one-half mile of wastewater flow in Walnut Springs Creek, nearly all within Caliterra development
<b>4. Outfall Location</b>	Recharge zone of Upper Trinity and possibly Middle Trinity; contributing zone of Edwards, 8 miles upstream of its recharge zone	Recharge zone of Upper Trinity and possibly Middle Trinity; contributing zone of Edwards, 8 miles upstream of its recharge zone	Recharge zone of Middle and Upper Trinity; contributing zone of Edwards, about 19 miles upstream of its recharge zone	Direct Onion Creek recharge to Middle Trinity indicated, quantity and conditions for recharge not yet confirmed
<b>5. Discharged Effluent Volume, Final Daily Average Flow</b>	Up to 500,000 gpd	350,000 gpd permitted for direct discharge	995,000 gpd	Timing issue: Initial permit phase for 399,000 gpd will be before new plant unit is complete to achieve the direct-discharge effluent limits and therefore will require modification of existing TLAP. Second

	Belterra Draft TPDES Permit (before settlement)	Belterra Final TPDES Permit (with settlement terms)	Dripping Springs Pre-Draft TPDES Permit	Notes/Comments on D/S Pre-Draft Permit
<b>6. Effluent Limitations<sup>4</sup></b>	Initially, 5-5-2-1, no Total N limit. TCEQ later changed TP to 0.15 mg/L	5-5-2-0.15, with Total N of 6 mg/L. Total P of 0.3 mg/L (rather than 0.15 mg/L) when discharge 2 or fewer days/month. Nominally this would comply with Antidegradation Policy, per SOAH finding	5-5-1.2-0.15, <u>without</u> Total N limit; no Sulfate limit. TCEQ says this complies with their Antidegradation Policy	phase of 497,500 gpd will use new unit that will nominally be able to achieve limits TCEQ says possibly elevated sulfate source in influent is not problematic; D/S originally requested a 5-5-2-0.5 and 5 mg/L DO. D/S requesting a conditional 0.3 mg/L Total P similar to Belterra.
<b>7. Treatment Technology</b>	Membrane Bioreactor	Membrane Bioreactor with Denitrification; specifies UV for disinfection unless better available; all wastewater to be treated with MBR and denitrification regardless of intent to direct-discharge it	Four-stage Bardenpho, with external carbon and alum addition; uses less ecologically sound Chlorine for disinfection	D/S treatment train based on its requested limits, not as proposed. Bardenpho cannot achieve 0.15 mg/L P reliably
<b>8. WWTP Operator Licensing</b>	Class C	Class A	Class C	Bardenpho with various proposed chemical additions needs both a SCADA and a Class A operator
<b>9. Storage Requirement</b>	Yes; on-site impoundment for hydraulic equalization	Yes; on-site 5.25MG (15 days) lined pond or tank plus additional 1.75 MG (5	None	

<sup>4</sup> For Carbonaceous Biochemical Oxygen Demand (5-day) – Total Suspended Solids – Ammonia-Nitrogen – Total Phosphorus, respectively, in mg/L on a 30-day average basis. All have same Coliform and DO limits. For D/S permit, only final-phase limits are shown; interim-phase limits for N are somewhat higher.

	Belterra Draft TPDES Permit (before settlement)	Belterra Final TPDES Permit (with settlement terms)	Dripping Springs Pre-Draft TPDES Permit	Notes/Comments on D/S Pre-Draft Permit
<b>10. Restrictions/ Conditions for Discharge</b>	None	No direct discharge unless 1) stream flow is > 14 cfs, 2) storage pond is full, or 3) spray fields are frozen/saturated	None	
<b>11. Associated TLAP/Ch. 210 Authorization</b>	Abandoning drip irrigation under TLAP even though it reduces volume subject to direct discharge; discretionary 210 reuse for spray irrigation within Belterra	Continuing 150,000 gpd of drip irrigation under TLAP reduces volume subject to direct discharge; mandatory 210 reuse for spray irrigation within Belterra. Mandatory installation of soil moisture monitors near creek buffer zones.	210 reuse not required. Will abandon modified TLAP for on-site irrigation within 30 days of new plant startup	Discretionary 210 reuse planned for irrigating municipal parklands and other properties, including Caliterra, No details yet available
<b>12. Externally Generated Wastewater Included?</b>	Yes, on a limited basis	Prohibited	Yes	More than half of D/S wastewater will come from outside City – designed to be regional WWTP
<b>13. TPDES Permit Reporting Requirements</b>	Monthly self-reporting, now via online system at TCEQ, of Average Daily and Max Grab results of all sampling;	Monthly self-reporting, now via online system at TCEQ, of Average Daily and Max Grab results of all sampling; Permit holder must share all monitoring reports with parties to settlement	Monthly self-reporting, now via online system at TCEQ, of Average Daily and Max Grab results of all sampling; Before startup, City must submit final engineering reports, plans, and specs to clearly show how treatment process will be able to meet applicable	D/S wants to provide engineering reports only if/as requested by TCEQ, rather than as a mandatory permit provision/requirement

	Belterra Draft TPDES Permit (before settlement)	Belterra Final TPDES Permit (with settlement terms)	Dripping Springs Pre-Draft TPDES Permit	Notes/Comments on D/S Pre-Draft Permit
<p><b>14. Mandated Monitoring Studies and Responses to Outcomes<sup>5</sup></b></p>	<p>None.</p>	<p>Ongoing instream WQ monitoring, to be paid by Permit holder for first 18 months following first discharge and by other parties thereafter, and statistical analysis that triggers specific defined remedial actions<sup>6</sup> by the Permit holder if agreed protections are not achieved</p>	<p>effluent limits</p> <p>None volunteered by D/S. TCEQ requiring effluent analysis of Nitrate-N within 90 days of startup, to assess need for Nitrate-N effluent limits/monitoring</p>	<p>D/S requesting that effluent sampling and analysis for Nitrate be done only when the plant is treating effluent at quality required for direct discharge. D/S requesting that N and P effluent monitoring only be required during direct discharge</p>
<p><b>15. Supporting Water Quality Modeling Studies</b></p>	<p>Preliminary generic QUAL-TX modeling of DO under steady state conditions without nutrient cycling</p>	<p>Extensive DO and ecological modeling provided by multiple parties before and after permitting/settlement</p>	<p>None known in support of permit application. COA's dynamic WASP modeling demonstrates change in trophic status in Onion Creek and elevated Nitrate at Edwards recharge zone boundary</p>	<p>D/S appears to assume that asserting they will meet effluent limits is all that is required</p>

<sup>5</sup> In addition to standard required effluent monitoring and reporting

<sup>6</sup> Remedial action is to 1) construct an additional 1.75 MG (5 days) storage or 2) reduce effluent by equivalent amount.