

**SOAH Docket No. 582-22-0585  
TCEQ Docket No. 2021-1001-MWD**

**APPLICATION BY CITY OF  
GRANBURY FOR NEW TEXAS  
POLLUTANT DISCHARGE  
ELIMINATION SYSTEM PERMIT  
NO. WQ0015821001**

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**STATE OFFICE OF  
  
ADMINISTRATIVE HEARINGS**

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**RESPONSE TO CLOSING ARGUMENTS**

**BY**

**CITY OF GRANBURY**

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**APRIL 18, 2022**

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TO THE HONORABLE ADMINISTRATIVE LAW JUDGES:

The City of Granbury submits this response to closing arguments by Granbury Fresh, Victoria Calder, Stacy and James Rist, and Bennett's RV Ranch (the "Protestants"), and the Office of Public Interest Counsel. Based on the following, the City respectfully requests that the Administrative Law Judges recommend that the Application be approved, and the Draft Permit issued.

### I. Referred Issues

**A. The preponderance of evidence in the record proves that the Draft Permit complies with applicable requirements to abate and control nuisance odors, as set forth in 30 TAC § 309.13(e).**

Wastewater permitting and design requirements are not met, and are not violated, based simply on labeling. The fact that the agency conducts a technical review as well as an administrative review of an application is a fundamental illustration of this basic concept.<sup>1</sup> Section 309.13(e) of TCEQ Rules addresses mitigation measures based on how the treatment unit functions, not based on what the treatment unit is called. Terminology is no doubt important, but nuisance odor mitigation is an assessment of the effectiveness of function of a relevant apparatus. The standards require an in-depth assessment; they are not a game of *gotcha*.

The TCEQ Rules bear this out in multiple instances. As an example, Section 309.12 compels the TCEQ to evaluate TPDES permit applications "in light of the proposed design, construction or operational features" of the facility. As another example, Section 309.10(b) requires an assessment of "the design, construction, and operational features" of a proposed facility in determining compliance with location standards. The analysis does not stop at permitting. Location standards still apply after permit issuance, including when there is a substantial change

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<sup>1</sup> 30 Tex. Admin. Code §§ 281.17(d), 281.19

*in the function or use* of existing facilities compared to how they were originally designed to perform.<sup>2</sup> Section 309.13(e) carries with it this looming site characteristics obligation after permitting, through construction and continuous operational compliance. A permit holder cannot escape obligations to comply with the TCEQ's site selection requirements by camouflaging the function or use of a treatment unit by what the permit holder chooses to call it.<sup>3</sup>

Likewise, the Protestants cannot avoid the proposed function and use of the Temporary EQ Basin<sup>4</sup> and the BNR Anaerobic Selector Zone<sup>5</sup> with their *per se* label. The Protestants want the Judges to believe that Section 309.13(e) requires the prevention of odor. The rule does not require prevention of odor. The rule requires certain mitigation tools for the abatement and control of nuisance odor.<sup>6</sup> TCEQ Rules elsewhere describe nuisance odor as a condition that (1) interferes with an adjacent property owner's use and enjoyment of their property, (2) is created by a wastewater treatment unit, and (3) cannot be prevented from the normal operation and maintenance of the unit (again, a reflection on the technical capabilities, not the name, of the treatment unit).<sup>7</sup> Section 309.13(e) provides three options for abating and controlling nuisance odors—maintaining a certain distance between treatment units and adjacent property boundaries,<sup>8</sup> submitting a nuisance odor mitigation approach request to the ED,<sup>9</sup> and securing residential structure development restrictions on adjacent property within prescribed buffer zones.<sup>10</sup>

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<sup>2</sup> *E.g.*, 30 Tex. Admin. Code §§ 309.10(b), 309.11(8), 309.12.

<sup>3</sup> 30 Tex. Admin. Code § 309.13(e) (extending nuisance odor abatement and control obligations to existing wastewater treatment units).

<sup>4</sup> HOM v. 2 at 226:16, 227:3; HOM v. 2 at 249:14.

<sup>5</sup> HOM v. 2 at 248:5-249:9; COG Exh. 300 at 28:5-20.

<sup>6</sup> 30 Tex. Admin. Code § 309.13(e) (requiring satisfaction of one of three options for abatement and control of nuisance odor prior to construction of a new wastewater treatment plant unit).

<sup>7</sup> *See*, 30 Tex. Admin. Code § 309.11(6) (defining nuisance odor prevention).

<sup>8</sup> 30 Tex. Admin. Code § 309.13(e)(1).

<sup>9</sup> *Id.* § (e)(2).

<sup>10</sup> *Id.* § (e)(3).

Protestants argue that the Temporary EQ Basin and the BNR Anaerobic Basin,<sup>11</sup> also referenced in the Application as the BNR Anaerobic Zone,<sup>12</sup> are each lagoons with zones of anaerobic activity. This would require the two units to be located at least 500 feet from the adjacent property boundary. The Protestants are wrong for several reasons. Because none of the treatment units in the East Plant will be lagoons with zones of anaerobic activity, each treatment unit is subject to the 150-foot buffer requirement in Section 30913(e)(1) of the TCEQ Rules.

**1. Neither the Temporary EQ Basin nor the BNR Anaerobic Basins are lagoons with zones of anaerobic activity.**

There is a clear industry understanding of what a lagoon is—and is not—in wastewater treatment in Texas, and the Protestants’ Webster’s Dictionary definition does not capture it.<sup>13</sup> Gordon Cooper, the permit coordinator for the Application and eventual Draft Permit, explained that the type of lagoon referenced in Section 309.13(e)(1) is a type of pond that holds influent for long period of time while biological—not mechanical—activity treats the wastewater.<sup>14</sup>

Luci Dunn is a licensed Texas professional engineer with over 33 years of experience in wastewater treatment plant permitting.<sup>15</sup> She was one of the main permitting engineers for the City on the East Plant project and developed the permit application for the East Plant, with technical assistance from Mr. Berryhill.<sup>16</sup> Ms. Dunn provided a similar description as Mr. Cooper.<sup>17</sup> She also explained that lagoons in the context of Section 309.13(e)(1) are components of a passive treatment system that hold influent for at least 21 days.<sup>18</sup> This allows undisturbed biological processes to break down the influent, using an anaerobic layer at the bottom of the

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<sup>11</sup> ARE A at 0676-77.

<sup>12</sup> COG Exh. 304 at 2.

<sup>13</sup> HOM v. 2 at 243:11, 227:20.

<sup>14</sup> HOM v. 1 at 86:08-09, 88:18-23.

<sup>15</sup> COG Exh. 201; HOM v. 2 at 205: 8-10.

<sup>16</sup> HOM v. 2 at 205:21-25.

<sup>17</sup> HOM v. 2 at 227:20.

<sup>18</sup> HOM v. 2 at 228:5.

lagoon, an anoxic layer in the middle of the lagoon and a wind-aerated layer at the lagoon surface.<sup>19</sup> This type of treatment does not use any mechanical agitation.<sup>20</sup> Facultative lagoons are the most common example of lagoons with zones of anaerobic activity.<sup>21</sup> Neither the Temporary EQ Basin nor the BNR Anaerobic Basin are facultative lagoons, nor do they operate like facultative lagoons.<sup>22</sup> No one in this case disputes this.

Joshua Berryhill is also a licensed Texas professional engineer with over 18 years of experience in wastewater treatment plant development and design.<sup>23</sup> His experience designing sophisticated wastewater treatment systems is unrivaled in this hearing, if not the state.<sup>24</sup> He designed the East Plant.<sup>25</sup> He knows how the Temporary EQ Basin and the BNR Anaerobic Basin will function and be used.<sup>26</sup> Mr. Berryhill also explained that neither the Temporary EQ Basin nor the BNR Anaerobic Basins are lagoons having zones of anaerobic activity.<sup>27</sup>

The Protestants do not understand the purpose of the Temporary EQ Basin.<sup>28</sup> During significant rainfall events, stormwater can inundate and infiltrate a wastewater collection system.<sup>29</sup> This inflow and infiltration is referred to as *I & I*, and it is a common occurrence among many wastewater systems across Texas.<sup>30</sup> The City's collection system is no exception.<sup>31</sup> Rainfall events can therefore create flow surges of wastewater in a collection system.<sup>32</sup> Mr. Berryhill designed the Temporary EQ Basin to capture these surges when they occur so that they don't overwhelm the

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<sup>19</sup> HOM v. 2 at 227:14 – 228:15.

<sup>20</sup> HOM v. 2 at 228:12-15.

<sup>21</sup> HOM v. 2 at 221:22-25, 222:1-7.

<sup>22</sup> HOM v. 2 at 222:24-25.

<sup>23</sup> COG Exh. 300 at 2:13 – 4:2; COG Exh. 301.

<sup>24</sup> COG Exh. 301, (re: Hamby (MBR and potable reuse), Granbury, Pecos, Midland, Cisco MBR)

<sup>25</sup> COG Exh. 300 at 9:22 – 13:12; HOM v. 2 at 181:6.

<sup>26</sup> COG Exh. 300 at 27:10 - 28:20; COG Exh. 301; HOM v. 2 at 249:14, 248:5.

<sup>27</sup> HOM v. 2 at 245:6-10, 250:19-25, 251:1-6.

<sup>28</sup> HOM v. 1 at 27:15 – 28:11.

<sup>29</sup> HOM v. 2 at 226:16-21.

<sup>30</sup> HOM v. 2 at 304:18-19.

<sup>31</sup> HOM v. 2 at 305:3-8.

<sup>32</sup> HOM v. 2 at 226:16-21.

capacity of the treatment system.<sup>33</sup> Under normal, dry weather conditions, there will be no wastewater in the Temporary EQ Basin.<sup>34</sup> Its purpose is to capture irregular flow surges and provide a controlled release of the influent back into the main treatment process once the capacity is available—*i.e.*, it is designed to hold influent temporarily.<sup>35</sup> The basin can empty within 90 minutes.<sup>36</sup> It will be completely enclosed and equipped to fully contain air within the basin.<sup>37</sup> It will also be equipped with a mechanical mixer to keep any contents fully agitated until the influent is redirected back into the treatment system.<sup>38</sup> This mixing will also introduce air into the captured influent.<sup>39</sup> So while the Temporary EQ Basin will not be equipped with mechanical aerators, it will have the benefit of aeration by virtue of the mechanical mixing equipment.<sup>40</sup>

Because of their design and function, none of the treatment units will have zones of anaerobic activity. The level of oxygen in wastewater is measured by ORP.<sup>41</sup> ORP is quantified in millivolts—or mv.<sup>42</sup> Aerobic conditions are when the ORP of effluent is at or above 200 mv.<sup>43</sup> This is considered an oxygenated condition as the measurement of ORP shows the amount of oxygen in the wastewater.<sup>44</sup> Anoxic conditions have an ORP between 200 mv to negative 200 (-200) mv.<sup>45</sup> These are oxygen deficient conditions.<sup>46</sup> Anaerobic conditions have an ORP below negative 200 (-200) mv.<sup>47</sup> Truly anaerobic, or septic, influent is completely devoid of oxygen free

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<sup>33</sup> HOM v. 2 at 226:12-24.

<sup>34</sup> COG Exh. 300 at 28:1-4.

<sup>35</sup> COG Exh. 300 at 29:8-15.

<sup>36</sup> HOM v. 2 at 245:11-24.

<sup>37</sup> HOM v. 2 at 247:23.

<sup>38</sup> HOM v. 2 at 247:24 – 248:04.

<sup>39</sup> HOM v. 2 at 247:24 – 248:04.

<sup>40</sup> HOM v. 2 at 247:21-23.

<sup>41</sup> HOM v. 2 at 240:6-11.

<sup>42</sup> HOM v. 2 at 240:18-19.

<sup>43</sup> HOM v. 2 at 240:20-22.

<sup>44</sup> HOM v. 2 at 240:6-11.

<sup>45</sup> HOM v. 2 at 240:22-23.

<sup>46</sup> COG Exh. 300 at 29:19.

<sup>47</sup> HOM v. 2 at 240:23-25.

in the form of dissolved oxygen, as well as bound, in the form of nitrate.<sup>48</sup> When influent is left in this state, it can form—or *off-gas*—methane or hydrogen sulfide.<sup>49</sup>

Ms. Dunn explained that during the 21-day lagoon treatment process, the captured influent stratifies into an aerobic layer at the top of the water column, an anoxic layer in the middle, and an anaerobic layer—or zone—at the bottom.<sup>50</sup> The bottom zone in this passive, unagitated condition is a zone of anaerobic activity.<sup>51</sup> This is the hallmark of the passive lagoon treatment system—allowing influent to sit still and be treated by anaerobic biological – not mechanical - processes.<sup>52</sup> These anaerobic biological processes can create significant odors, which is the basis for the 500-foot buffer zone requirement for lagoons with zones of uncontrolled anaerobic activity.<sup>53</sup>

The BNR Anaerobic Basin, on the other hand, will not let wastewater stagnate and off-gas methane or hydrogen sulfide.<sup>54</sup> In fact, it will not allow wastewater to become truly anaerobic.<sup>55</sup> The point of the BNR Anaerobic Basin is to bring the oxygen level of the influent wastewater down enough to efficiently convert phosphorous to a form that is effectively removed in the BNR Aerobic Basin without allowing the influent to form odor-causing gas.<sup>56</sup> The BNR Anaerobic Basin will maintain wastewater ORP between negative 50 (-50) mv and negative 100 (-100) mv.<sup>57</sup> This is a range at the low end of the anoxic zone but above the point of being anaerobic.<sup>58</sup> Hydrogen sulfide

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<sup>48</sup> HOM v. 2 at 243:7-8.

<sup>49</sup> HOM v. 2 at 243:11-18.

<sup>50</sup> HOM v. 2 at 227:20 – 228:02.

<sup>51</sup> HOM v. 2 at 228:03-15.

<sup>52</sup> HOM v. 1 at 88:18-23; HOM v. 2 at 227:5-8, 243:11-18.

<sup>53</sup> HOM v. 2 at 222:1-7, 243:11-21.

<sup>54</sup> HOM v. 2 at 244:6-12.

<sup>55</sup> HOM v. 2 at 248:8-11.

<sup>56</sup> HOM v. 2 at 243:22 – 244:05.

<sup>57</sup> HOM v. 2 at 241:21-24.

<sup>58</sup> HOM v. 2 at 241:1-6.

and methane gases can start to form in wastewater with ORP less than -100 mv.<sup>59</sup> Maintaining wastewater in this range allows for efficient phosphorous removal without producing any significant odor.<sup>60</sup> So despite its name, the BNR Anaerobic Basin will maintain influent above anaerobic conditions.<sup>61</sup> Furthermore, the influent constantly flows through the BNR Anaerobic Basin and is mixed during the process.<sup>62</sup> In total, influent passes in, through, and out of the BNR Anaerobic Basin within 90 minutes.<sup>63</sup> Just like with the Temporary EQ Basin, the BNR Anaerobic Basin is not a lagoon with zones of anaerobic activity.<sup>64</sup>

## **2. The Protestants have offered no competent evidence to the contrary.**

The Protestants' only witness to offer an opinion on the Section 309.13(e) distance requirements, Steven Esmond, demonstrated no understanding whatsoever about how the East Plant would operate, or even what the City was requesting in the Application. Mr. Esmond has never sealed MBR facility design documents.<sup>65</sup> In fact, he has never designed an MBR facility.<sup>66</sup> He has never been on a design team for a MBR plant project.<sup>67</sup> The closest experience Mr. Esmond can claim to planning a MBR plant is "having many opportunities to interact with the design team" in his capacity as a regional manager for a California engineering firm.<sup>68</sup>

That would explain why he thought the Parkson plant shown in Figure 1 in the Protestants' closing arguments was a "typical" BNR unit in Texas.<sup>69</sup> As Mr. Berryhill explained, it's doubtful that the facility depicted in the image would be authorized in Texas as it does not comply with

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<sup>59</sup> HOM v. 2 at 241:24-25, 242:1-2.

<sup>60</sup> HOM v. 2 at 244:6-12.

<sup>61</sup> HOM v. 2 at 248:5-11.

<sup>62</sup> COG Exh. 300 at 30:6-17.

<sup>63</sup> HOM v. 2 at 248:25 – 249:09.

<sup>64</sup> HOM v. 2 at 316:03-15.

<sup>65</sup> HOM v. 1 at 42:02-06.

<sup>66</sup> HOM v. 1 at 42:13-16.

<sup>67</sup> HOM v. 1 at 41:05-07.

<sup>68</sup> HOM v. 1 at 42:07-12.

<sup>69</sup> GF 303.

TCEQ design requirements.<sup>70</sup> The image shows a facility using floating mixers. Surface mixing aerators create significant surface turbulence, which increases off-gassing of nuisance odors.<sup>71</sup> Mr. Berryhill cautioned against using these types of mixers with BNR selector zones like the treatment units he has designed for the East Plant.<sup>72</sup> In fact, TCEQ design criteria require the use of submersible mixers to prevent the types of problems that might be expected from the facility in Mr. Esmond's picture.<sup>73</sup> It is likely that what Mr. Esmond believes to be a "typical" BNR unit would not be authorized in Texas.<sup>74</sup>

Mr. Esmond's testimony broadcasts in many other ways his inexperience with the treatment technology authorized by the Draft Permit.<sup>75</sup> He first believed that the equalization basin was removed from the proposed design,<sup>76</sup> despite its unambiguous identification in the Application.<sup>77</sup> His confusion then led him to believe that the unit would somehow be disposable.<sup>78</sup> From there, he surmised that the East Plant could not operate properly without the Temporary EQ Basin.<sup>79</sup> Finally, Mr. Esmond concluded that his concerns regarding the Temporary EQ Basin would be alleviated if the basin was a permanent structure, designed as a permanent part of the East Plant.<sup>80</sup> Of course, that's how the Temporary EQ Basin has been proposed every step along the way of the application process.<sup>81</sup> Without help from Mr. Esmond, the Protestants were forced to use Webster's Dictionary as their best evidence to support their argument that the Temporary

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<sup>70</sup> COG Exh. 300 at 30:3-14.

<sup>71</sup> COG Exh. 300 at 30:5-11.

<sup>72</sup> COG Exh. 300 at 30:7-8.

<sup>73</sup> 30 Tex. Admin. Code § 217.157.

<sup>74</sup> COG Exh. 300 at 30:11-14.

<sup>75</sup> *E.g.*, COG Exh. 300 at 29:23 – 30:2.

<sup>76</sup> GF 300 at 10:9-10; HOM v. 1 at 44:10-12.

<sup>77</sup> ARE A at 0312, 0665, 0679.

<sup>78</sup> HOM v. 1 at 42:17 – 43:01.

<sup>79</sup> HOM v. 1 at 44:16-19

<sup>80</sup> HOM v. 1 at 42:17 – 43:01, 44:23 – 45:05.

<sup>81</sup> ARE A 0209 – 0719.

EQ Basin and the BNR Anaerobic Zone are lagoons with zones of anaerobic activity, requiring a 500-foot buffer.

**3. The East Plant wastewater treatment units do and will satisfy the Section 309.13(e) requirements.**

Because none of the treatment units in the East Plant will be lagoons with zones of anaerobic activity, each treatment unit is subject to the 150-foot buffer requirement in Section 30913(e)(1) of the TCEQ Rules.<sup>82</sup> Protestants' acknowledge that each of the proposed Plant Units will be at least 150 feet from adjacent property lines, and the Application demonstrates that as well.<sup>83</sup> The Draft Permit requires the City to comply at all times with Section 309.13(a)-(d).<sup>84</sup> This means that each of the Plant Units must be operated and maintained to remain compliant with the 150-foot buffer requirement in Section 309.13(e)(1).<sup>85</sup> The Draft Permit makes clear that if the City fails to do so, it would be subject to enforcement, permit suspension, and permit revocation.<sup>86</sup> In short, the Draft Permit requires the City to do what it says it will do in the Application.<sup>87</sup> The Interim Order requested a contested case hearing on whether the Draft Permit complies with applicable requirements to abate and control nuisance odors, as set forth in 30 TAC § 309.13(e). The preponderance of evidence in the record, including the Administrative Record, prove that the Draft Permit meets these applicable requirements.

**B. The preponderance of evidence in the record proves that the draft permit is protective of water quality.**

The City has demonstrated that the Draft Permit is protective of water quality, including the high aquatic life use of Rucker Creek. The Protestants and OPIC base their arguments on this

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<sup>82</sup> HOM v. 2 at 247:18 – 249:9.

<sup>83</sup> ARE A at 0665.

<sup>84</sup> ARE A at 0147.

<sup>85</sup> HOM v. 2 at 312:23 – 313:10.

<sup>86</sup> ARE A at 0122; HOM v. 2 at 311:13 – 312:15.

<sup>87</sup> HOM v. 2 at 312:16-22.

issue largely on their criticisms of the agency's traditional methods of DO modeling. That issue is discussed in more detail in response to Referred Issue G, below.

**1. Calibrated and uncalibrated models demonstrate that DO will not impair high aquatic life uses.**

The ED's QUAL-TX DO model result demonstrates that the effluent limits in the Draft Permit are adequate to maintain the 5.0 mg/L limit in Rucker Creek, Rucker Creek Cove, and Lake Granbury.<sup>88</sup> Mr. Osting's QUAL2K modeling supports the same conclusion, as well. The Protestants argue that his QUAL2K model was not based on critical conditions. It was. The Protestants are confused about the difference between Mr. Osting's QUAL2K calibration step and his critical conditions modeling. Mr. Osting conducted multiple QUAL2K model runs.<sup>89</sup> The first—Run A1—was an “observed condition” run, which is designed to set model coefficients and judge the accuracy of the model outputs against field-specific data.<sup>90</sup> In this case, the observed conditions were those captured by data collected by Mr. Flores on September 15-16, 2021.<sup>91</sup> The information represented in COG Exhibit 611 reflects that the QUAL2K model Mr. Osting constructed from observed data the September 15, 2021, field trip, the National Weather Service and from TCEQ Surface Water Quality Monitoring (SWQM) data, and the QUAL2K model was able to replicate an output that matches the observed data from the September 15, 2021 field trip and SWQM data.<sup>92</sup> Mr. Osting's “September 15” scenario reflected in COG Exhibit 611 Table 7 is not a model run designed to show the effects of discharges on the receiving waters. The run indicates that Mr. Osting's QUAL2K model has been sufficiently tailored to created reliable

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<sup>88</sup> ED-13 at 21:10-13

<sup>89</sup> COG Exh. 600 at 26:19 – 27:12; HOM v. 2 at 351:22 – 352:20.

<sup>90</sup> COG Exh. 611 Table 7; COG Exh. 612.

<sup>91</sup> COG Exh. 700 at 10:23 – 11:5.

<sup>92</sup> COG Exh. 600 at 30:16-19

outputs and can be used reliably when making runs designed to show the effects of discharges in critical conditions.<sup>93</sup>

Mr. Osting's set of critical condition runs are reflected in COG Exhibit 615, Tables 10-12.<sup>94</sup> The Protestants are confused about the data captured in this exhibit, as well. Model Run B1, reflected in Table 10, is a "no load" scenario. That means it reflects critical environmental conditions in the receiving waters (i.e., headwater inflows, temperature, etc.) without addition or influence from discharges—or loads—authorized by the Draft Permit.<sup>95</sup> Run B2—reflected in Table 11—shows the influence of water quality in the receiving waters under full authorized Interim Phase discharges during critical conditions.<sup>96</sup> Run B3—reflected in Table 12—shows the influence of water quality under full authorized Final Phase discharges during critical conditions.<sup>97</sup> Run B3 is the scenario that most closely matches the modeling scenario used by TCEQ staff—that is, the scenario required by IPs<sup>98</sup>—in their QUAL-TX model.<sup>99</sup> Neither Run B2 nor Run B3 are based on "typical" discharge scenarios. They are each the calibrated QUAL2K model using inputs for critical environmental conditions and effluent concentrations contained in the draft permit, and the results that demonstrate DO levels greater than 5.0 mg/L in both the Interim Phase and the Final Phase.<sup>100</sup> The "wastewater flow" conditions in the IPs that Protestants mention are related to Modeling Dissolved Oxygen<sup>101</sup> and Screen Level Methods for Nontidal Streams and Rivers<sup>102</sup> where Critical Conditions scenarios would include those inputs that result in lowest dissolved

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<sup>93</sup> HOM v. 2 at 372:18 – 373:7.

<sup>94</sup> COG Exh. 600 at 27:20-21.

<sup>95</sup> COG Exh. 600 at 31:23 to 32:3.

<sup>96</sup> COG Exh. 615, Table 11; HOM v. 2 at 352:5-12.

<sup>97</sup> COG Exh. 615, Table 12.

<sup>98</sup> ED-3.

<sup>99</sup> ED-19.

<sup>100</sup> COG Exh. 600 at 27:20-21; COG Exh. 615.

<sup>101</sup> ED-3 at 83.

<sup>102</sup> ED-3 at 84.

oxygen in a receiving water body<sup>103</sup>. A critical conditions scenario includes all permitted discharges in the receiving waters at their full authorized discharge loads.<sup>104</sup> There are no existing discharges in the receiving waters, so there are no upstream “wastewater flow” conditions to reflect in the DO modeling for this permit. Therefore, for Mr. Osting’s calibration scenario A1 and for his “no-load” scenario B1, there is no wastewater flow input. The scenario B2 and B3, the critical conditions scenarios, include the permitted wastewater flow.<sup>105</sup>

The Protestants suggest that Mr. Osting did not properly adjust reaeration rates after changing depths in Mr. Osting’s QUAL-TX model. Mr. Osting made the judgement to keep reaeration rates and consistent with ED-3, ED-16, and ED-17 to re-initialize sediment oxygen demand (SOD) rates<sup>106</sup>. Mr. Osting determined the rates he used in his uncalibrated QUAL-TX model were appropriate as was further shown to be correct because these were reaeration and SOD rates that were shown to be adequate in his calibrated QUAL2K calibration model Run A1. Of all the complaints the Protestants make of modeling in this case, they do not challenge Mr. Osting’s credentials for water quality modeling in Texas.

The Protestants’ complaints about this avoid the larger points, that (1) TCEQ’s QUAL-TX original model results justify the limits placed in the draft permit, and that (2) the QUAL2K model uses the most site-specific values and, after a process to calibrate predictions against observed field data (Run A1), the QUAL2K model results (Run B2 and B3) also justify the limits placed in the draft permit.

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<sup>103</sup> ED-3 at 86.

<sup>104</sup> ED-3 at 86.

<sup>105</sup> HOM v. 2 350 at 15.

<sup>106</sup> HOM v. 2 at 368:2-22, 372:18 – 373:7.

## **2. E. coli limits in the Draft Permit will not impair recreational uses.**

The Protestants rely heavily on selections from the WPP as support for their arguments regarding E. coli. But much of their use of the WPP is out of context. As an initial matter, the WPP recognizes that the predominant contributing factors of E. coli in Lake Granbury are “livestock (primarily cattle, OSSFs (failing septic tanks), feral hogs, and pets” in lake canals.<sup>107</sup> The concerns regarding bacteria do not extend to the main body of the lake.<sup>108</sup> In fact, the main body of Lake Granbury, according to the WPP, exhibits low levels of bacteria.<sup>109</sup> The WPP explains why this distinction is important. The lack of circulation in dead-end coves and canals keeps the water from mixing with the main body of the lake. The most impacted areas are in stagnant canals dominated by an influence of septic systems.<sup>110</sup>

The Protestants use Mr. Esmond to prop up their argument. Mr. Esmond makes a conclusory statement that Final Phase discharges would “aggravate” the Lake Granbury E. coli problem. He then worries that the 2.0 MGD discharges would have a negative effect the quality of water diverted over two miles downstream for the City’s drinking water system. Mr. Esmond, on one hand, suggests that the Draft Permit would “aggravate” E. coli in Rucker Cove because, presumably, he read in the WPP that E. coli issues are typically found in low-circulation, dead-end coves. For this argument, he ignores the fact that water from the discharges would circulate through the cove and mix with the main body of the lake. On the other hand, he suggests that discharges authorized by the Draft Permit would circulate through Rucker Cove to the point that

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<sup>107</sup> GF 306 at 6.

<sup>108</sup> GF-306 at 6.

<sup>109</sup> GF-306 at 6.

<sup>110</sup> GF-306 at 27.

they would mix with the main body of Lake Granbury—removing one of the most influential stimuli on *E. coli* proliferation recognized in the WPP. He leaves an illogical gap in his opinion.

Mr. Osting's QUAL2K critical conditions model becomes here, as well. The QUAL2K model recognized the influence of mixing in Rucker Cove. The model shows 70 cfu of *E. coli* during critical conditions in Rucker Creek, 5 cfu in Rucker Cove, and 0.0 cfu in Lake Granbury during the Interim Phase.<sup>111</sup> During modeled Final Phase discharges during critical conditions, QUAL2K shows 70 cfu in Rucker Creek, 17 cfu in Rucker Cove, and 0.0 cfu in Lake Granbury.<sup>112</sup> These modeled outputs clearly show the beneficial relationship of cove mixing with *E. coli* concentrations, which is consistent with the theme described throughout the WPP.

Both the EPA and TCEQ say that a permit limit of 126 cfu is protective of public health and the environment.<sup>113</sup> The only true analysis of the influence of the Draft Permit on *E. coli* concentrations—Mr. Osting's QUAL2K modeling—shows the impacts are well below the 126-level.<sup>114</sup> The Draft Permit will not impair the recreational uses of Rucker Creek.

### **3. DO limits in the Draft Permit will not cause degradation of water quality.**

The Protestants Tier 2 argument with respect to DO concentrations is the same argument they make elsewhere regarding DO modeling. They confuse the attainment Standards for observed DO conditions with outputs of modeling scenarios. The City addresses that issue in more depth in its discussion of Referred Issue G) below. Nevertheless, the Protestants state that all critical conditions modeling produced a DO level of less than 5.0 mg/L. This is not true. As discussed in

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<sup>111</sup> COG Exh. 615, Table 11, Run B2.

<sup>112</sup> COG Exh. 615, Table 12, Run B3.

<sup>113</sup> COG Exh. 707.

<sup>114</sup> COG Exh. 615, Tables 11-12.

more detail above, Mr. Osting's QUAL2K critical conditions model produced DO predictions of 5.9 mg/L in Rucker Creek during the Interim Phase,<sup>115</sup> and 6.0 mg/L during the Final Phase.<sup>116</sup>

The Protestants point to Mr. Frossard's conclusory statement in his prefiled testimony that a lowering of DO to 4.8 would cause degradation. In his live testimony, however, Mr. Frossard testified that assimilative capacity, not a bald model output, is the indicator for degradation.<sup>117</sup>

Later, he testified that:

“For me, the standard for antidegradation is you establish what the assimilative capacity of the receiving water is, you look at adding the additional pollutant or load going into the receiving water, and if it consumes more than 10 percent of that existing assimilative capacity, then that is not de minimus, and it is an impact.”<sup>118</sup>

The 10 percent reference was to a statement in the IPs regarding Tier 2 impacts analyses.<sup>119</sup>

Mr. Frossard was right about the use of assimilative capacity to determine degradation.<sup>120</sup> He was wrong about the IPs, however. Specifically, the IPs state:

“New discharges that use less than 10% of the existing assimilative capacity of the water body at the edge of the mixing zone are usually not considered to constitute potential degradation as long as the aquatic ecosystem in the area is not unusually sensitive to the pollutant of concern. New discharges that use 10% or greater of the existing assimilative capacity are not automatically presumed to constitute potential degradation but will receive further evaluation.”<sup>121</sup>

Whether a constituent load increases by 2 percent or 200 percent is irrelevant on its own in a Tier 2 assessment.<sup>122</sup> The question is the effects of the load on assimilative capacity.<sup>123</sup> The 10 percent value Mr. Frossard referenced isn't a threshold for degradation, it's a marker to suggest

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<sup>115</sup> COG Exh. 615, Table 11, Run B2.

<sup>116</sup> COG Exh. 615, Table 12, Run B3.

<sup>117</sup> HOM v. 1 at 52:12 – 53:10.

<sup>118</sup> HOM v. 1 at 58:10-16.

<sup>119</sup> HOM v. 1 at 58:04-09.

<sup>120</sup> COG Exh. 700 at 38:9 – 39:3.

<sup>121</sup> ED-3 at 0064.

<sup>122</sup> COG Exh. 700 at 22:14-24:14

<sup>123</sup> COG Exh. 700 at 22:14-24:14

whether further study was warranted.<sup>124</sup> Mr. Frossard later testified that “Assimilative capacity is looking generally towards can the receiving waters handle the additional load such that it doesn’t impair either the aquatic life or the ability of animals or plants to exist after that period of time.”<sup>125</sup> Neither Mr. Frossard, nor Mr. Esmond, nor Mr. Machin conducted a Tier 2 assessment that Mr. Frossard testified was appropriate.

Mr. Flores did.<sup>126</sup> He collected field data. He conducted stream surveys. He performed species impacts analyses. His work was thorough and unrivaled in this case. Mr. Flores demonstrated that the water quality from the discharges that would be authorized by the Draft Permit will meet water quality standards for the receiving waters and will not exceed the species-specific thresholds—the assimilative capacity—he identified in his Tier 2 review.<sup>127</sup>

#### **4. E. coli limits in the Draft Permit will not cause degradation of water quality.**

Despite Protestants statement to the contrary, Mr. Flores did consider potential impacts of E. coli on the receiving waters. His analysis, based on his water quality sampling coupled with Mr. Osting’s QUAL2K critical conditions modeling, concluded that predicted E. coli concentrations in Rucker Creek, Rucker Cove, and Lake Granbury would remain well below the 126 cfu water quality standard for the receiving water, maintaining instream criteria.<sup>128</sup> The IPs lend further support to his conclusions.<sup>129</sup> Specifically, they recognize that degradation is unlikely to occur from increased indicator bacteria loading if the applicable instream criteria is maintained in the effluent at the end-of-pipe.<sup>130</sup> The discharges authorized by the Draft Permit maintain these criteria.<sup>131</sup>

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<sup>124</sup> ED-3 at 0064.

<sup>125</sup> HOM v. 1 at 60:03-07.

<sup>126</sup> COG Exh. 700 at 21:11-42:13.

<sup>127</sup> COG Exh. 700 at 37:15 – 38:4.

<sup>128</sup> COG Exh. 700 at 34:21 – 35:13.

<sup>129</sup> ED-3.

<sup>130</sup> ED-3 at 0065

<sup>131</sup> ED-3.

The City has demonstrated that the E. coli limits in the Draft Permit will not cause a degradation of water quality.

**5. Nutrient limits in the Draft Permit will not cause degradation of water quality.**

The algae mat photo taken in the Hill Country by Mr. Frossard is the Protestants' favorite evidence regarding nutrient impacts. The Protestants offered it as an example of what wastewater discharges can do to a receiving stream. As Mr. Michalk testified, however, there had been no discharges into the depicted watercourse upstream of the location of the photograph at the time it was taken.<sup>132</sup> The Protestants nevertheless continue to point to it as a key piece of evidence for them—even though it reflects nothing of any relevance to this case. It is dramatic, as is the Protestants' reference to 1.5 tons of phosphorus (which would presumably require a discharge of 730 million gallons of water—enough to cover over 2,240 acres of land in one foot of water—each year), and then later to 1.5 *million* tons of phosphorous (which would obviously require a discharge of more water). Beyond these key pieces of evidence, the Protestants have nothing to offer to support their case except criticisms of Mr. Osting's and Mr. Flores' analysis.

TCEQ followed the IPs to ensure that the Standards are maintained and that the Draft Permit would not lower water quality in Rucker Creek and Lake Granbury.<sup>133</sup> Additionally, Mr. Flores conducted a comprehensive assessment of the impact of nutrients on the receiving waters.<sup>134</sup> The QUAL2K model conducted by Mr. Osting is a predictive tool for DO, E. coli, nutrients, and algae concentrations, among other constituents.<sup>135</sup> QUAL2K assesses water quality impacts on a diurnal cycle, meaning it can predict algae growth and DO fluctuations depending on the

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<sup>132</sup> ED-13 at 7-25.

<sup>133</sup> ED-3; ED-4; ED-5; ED-11 at 2:5-10:29; ED-13 at 2:3 – 13:30.

<sup>134</sup> COG Exh. 700 at 31:19-34:16.

<sup>135</sup> COG Exh. 700 at 17:2-4, 17-20.

time of day.<sup>136</sup> Mr. Flores used these modeling results to evaluate nutrient loading and algae growth that might be attributable to discharges authorized in the Draft Permit.<sup>137</sup> The QUAL2K model results predicted maximum algal concentrations of 120 mg/m<sup>2</sup> in Rucker Creek Cove and 35 mg/m<sup>2</sup> in Lake Granbury.<sup>138</sup> These levels are not a concern for biological organisms in Rucker Creek, Rucker Creek Cove, or Lake Granbury because the concentrations do not cause depressed DO.<sup>139</sup> He concluded that concentrations at these predicted levels will not cause detrimental increases to growth of algae or aquatic vegetation.<sup>140</sup>

Mr. Flores pointed to a power point summary of Dr. Ryan King's nutrient study on the Blanco River.<sup>141</sup> Dr. King states nuisance algae occurs above 150 mg/m<sup>2</sup>.<sup>142</sup> Dr. King also suggests that water bodies with total phosphorus concentrations equal to or greater than 20 – 30 ug/L total phosphorus typically results in nuisance algae. However, he concludes total phosphorus levels above 20 – 30 ug/L could likely result in increased levels of algae growth. This is due to the widely known high variability in the relationship between nutrient concentrations and algae growth.

Nutrients are only one of many factors which can contribute to algae growth. That is why Mr. Flores conducted a site-specific scientific investigation and analysis for this case. While lab analyses water quality monitoring data show phosphorus concentrations above thresholds Dr. King discusses, Mr. Flores observed no significant algae concentrations during his field investigations. None have been documented in routine vegetation surveys conducted by Texas

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<sup>136</sup> COG Exh. 700 at 17:19-20.

<sup>137</sup> COG Exh. 700 at 19:4-10.

<sup>138</sup> COG Exh. 700 at 33:11-16.

<sup>139</sup> COG Exh. 700 at 33:17-23.

<sup>140</sup> COG Exh. 700 at 33:17-23.

<sup>141</sup> COG Exh. 706.

<sup>142</sup> COG Exh. 706 at 17.

Parks and Wildlife Department's Inland Fisheries Management team.<sup>143</sup> In fact, TCEQ's Surface Water Quality Monitoring Procedures, Volume 2, identifies nuisance algae occurring above 200 mg/m<sup>2</sup>—well above levels detected by Mr. Flores.<sup>144</sup> The City's expert analysis demonstrates that the nutrient limits in the Draft Permit would not result in growth of nuisance algae.<sup>145</sup> The IPs recognize that water quality degradation is not likely to occur with increased nutrient loading when detrimental increases to the growth of algae or aquatic vegetation will not occur.<sup>146</sup>

## **6. Economic and social interest justify issuance of the Draft Permit.**

To be clear—the evidence overwhelmingly demonstrates that the activities authorized by the Draft Permit will not cause degradation of water quality in the receiving waters. There is more than just sound aquatic biology that supports issuance of the Draft Permit, however. Section 307.5(b)(2) recognizes the heightened role that a community's social and economic development needs can play in water quality permitting decisions. The profound need that the Granbury community has for this project warrants significant consideration, as well.

The Protestants argue that the City should have considered other alternatives to the East Plant. The City did. Rick Crawford, the Granbury Director of Public Works, explained that the City ordered a comprehensive assessment of alternatives to the City's wastewater treatment capacity and collection system issues.<sup>147</sup> Doing nothing was not an option.<sup>148</sup> The City looked at multiple options to address the need for additional treatment capacity.<sup>149</sup> It considered project costs, environmental issues, and practical challenges associated with each.<sup>150</sup> Ultimately, the City

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<sup>143</sup> COG Exh. 700 at 14:15-15:5.

<sup>144</sup> COG Exh. 700 at 39:8 – 10; 30 Tex. Admin. Code § 307.9(f).

<sup>145</sup> COG Exh. 700 at 34:12 – 16.

<sup>146</sup> ED-3 at 0065.

<sup>147</sup> COG Exh. 100 at 2:11-17; COG Exh. 100 at 3:22 – 4:8.

<sup>148</sup> COG Exh. 100 at 2:2 – 3:13.

<sup>149</sup> COG Exh. 101 at 8; COG Exh. 300 at 13:21 – 14:15; COG Exh. 400 at 3-5.

<sup>150</sup> COG Exh. 100 at 3:22 – 4:1; COG Exh. 300 at 10:7 – 11:21.

settled on what it referred to as Alternative 5a, which would provide the City with capacity and technology upgrades to the South Plant, collection system improvements, and additional treatment capacity at a new satellite plant—what is now known as the East Plant.<sup>151</sup> Alternative 5a would provide the City with a total of 4.0 MGD of treatment capacity—2.0 MGD at the South Plant and 2.0 MGD at the East Plant—for merely a fraction more of the cost than the closest alternative, which would have provided only 3.0 MGD capacity.<sup>152</sup>

Alternative 5a offered other advantages, as well. It would allow the City to add treatment capacity closer to the area of the demand growth.<sup>153</sup> By doing so, it would remove significant pressure from the main collection system from the high-growth east side to the existing South Plant, which would significantly decrease the likelihood of sewer overflows attributable to collection system failures.<sup>154</sup> This would eliminate the City’s greatest source of SSOs in the entire collection system.<sup>155</sup> The City made these decisions in the light of day, seeking public participation and input in the process.<sup>156</sup>

The IPs identify several factors that the TCEQ can consider when considering important economic and social development concerns as part of a Tier 2 assessment, including employment, increased production that improves local economy, improved community tax base, housing, and correction of an environmental or public health problem.<sup>157</sup> Dr. Perryman analyzed baseline projected growth for Hood County and Granbury and considered the level of direct support jobs that could be at risk if the East Plant is not brought online, the impacts to productivity without the

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<sup>151</sup> COG Exh. 101 at 8.

<sup>152</sup> COG Exh. 400 at 12:14-22.

<sup>153</sup> COG Exh. 300 at 10:19 – 11:7.

<sup>154</sup> COG Exh. 300 at 10:19 – 11:3.

<sup>155</sup> COG Exh. 300 at 11:7-21.

<sup>156</sup> COG Exh. 100 at 4:14-22; COG Exh. 100 at 7:12 – 8:16; COG Exh. 101; COG Exh. 104; COG Exh. 300 at 15:1-11; COG Exh. 302.

<sup>157</sup> ED-3 at 0066-0067.

additional capacity, and the negative effects that a denial of the Draft Permit would have on the local tax base and on housing.<sup>158</sup> Dr. Perryman testified unequivocally, and without contradiction, that if the Draft Permit is not issued, the Granbury community and Hood County would suffer social and economic development consequences.<sup>159</sup> As a consequence, he concluded that issuance of the Draft Permit is necessary for important social and economic development needs.<sup>160</sup>

There were an estimated 9,000 absorption-field on-site sewage facilities on small lots located in close to Lake Granbury at the time the WPP was published several years ago.<sup>161</sup> That number has likely increased substantially since that time.<sup>162</sup> The WPP makes the point that new development in areas without collection and treatment systems relies on individual on-site sewage facilities and absorption fields.<sup>163</sup> If the City does not have adequate collection and treatment capacity to handle the rapid growth, there can't be any question that OSSFs will continue to proliferate—creating not just an economic blow to the area, but fostering the growth of conditions that have led to many of the problems identified in the WPP. In the event the TCEQ concludes that the Draft Permit may cause degradation of water quality, then the record supports the finding that important social and economic needs justify issuance of the Draft Permit nevertheless.

**C. The draft permit is protective of groundwater and wells.**

The Draft Permit protects groundwater and wells.<sup>164</sup> The Administrative Record establishes a prima facie demonstration that the Draft Permit satisfies these and all other state and federal laws and technical requirements specifically applicable to the Application that relate to

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<sup>158</sup> COG Exh. 800 at 33:3 – 35:3.

<sup>159</sup> HOM v. 3 at 466:10-18.

<sup>160</sup> HOM v. 3 at 466:19-23.

<sup>161</sup> GF-306 at 1.

<sup>162</sup> COG Exh. 800 at 18:14 – 19:3

<sup>163</sup> GF-306 at 1.

<sup>164</sup> COG Exh. 12:3; COG Exh. 102; ED-1 at 0013:24-28; ED-10 at 0005.

groundwater and groundwater wells.<sup>165</sup> The preponderance of evidence in the record demonstrates that the Draft Permit is protective of groundwater and wells.<sup>166</sup>

**D. The preponderance of the evidence demonstrates that the draft permit is protective of the health of the requesters and their families, livestock, and wildlife, including endangered species.**

The Draft Permit is specifically protective of human health because it includes an E. Coli limit of 126 CFU/100 mL.<sup>167</sup> The E. Coli limit is protective of contact recreation activities which include: swimming, bathing, water play by children, and similar water contact activities where immersion and ingestion are likely.<sup>168</sup> The limit was used in Mr. Osting's QUAL2K modeling analysis and Mr. Flores' antidegradation analysis and the predicted E. Coli concentrations are below the Water Quality Standards and the EPA's recommended criteria for protecting recreational activities.<sup>169</sup> Additionally, Mr. Osting is a co-author of the Lake Granbury Watershed Protection Plan and testified that the Draft Permit is consistent with plan's centralized waste treatment concept.<sup>170</sup>

Mr. Jeff Paul also testified that the toxic criteria used in the Draft Permit—designed to protect a high aquatic life use—are more stringent than toxic criteria used to protect a fisheries designation, protecting human health related to the consumption of fish from the receiving waters.<sup>171</sup> The Draft Permit effluent limits are protective of human health, and a high aquatic life use, which is a more stringent requirement than protection of livestock and wildlife, therefore the Draft Permit is indirectly protective of these as well.<sup>172</sup>

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<sup>165</sup> ARE A; ARE B.

<sup>166</sup> *E.g.*, COG Exh. 200 at 9:21 – 10:7; COG Exh. 500 at 12:3; ED-1 at 0013:18-20, 24-28.

<sup>167</sup> ED-7 at 2-3.

<sup>168</sup> 30 Tex. Admin. Code § 307.3(50); COG Exh. 707; ED-4; ED-11 at 11:1-28.

<sup>169</sup> COG Exh. 700 at 34:17-7:36; COG 707; COG Exh. 600 at 37:21-39:2.

<sup>170</sup> COG Exh. 600 at 39: 3-20.

<sup>171</sup> ED-11 at 11:7-15.

<sup>172</sup> ED-7 at 2-3; ED-11 at 11:1-28; COG Exh. 700 at 21:10-42:13.

The Protestants continue to state their expert's unsupported claims of cyanobacteria being a threat to human health in the receiving waters even though there has not been a recorded human health or wildlife incident related to cyanobacteria.<sup>173</sup> Mr. Frossard did not collect any data, or perform any analysis, regarding cyanobacteria and has only misquoted his own World Health Organization literature references. The World Health Organization report referenced by the Protestants clearly states that there is not a direct relationship between chlorophyll-a concentrations in a water column and the presence of toxic-species of cyanobacteria.<sup>174</sup> Again, The Brazos River Authority, which is responsible for environmental monitoring of Lake Granbury, has publicly stated there have not been algal blooms that were considered harmful to humans, pets, or wildlife in the past 25 years.<sup>175</sup>

**E. The preponderance of the evidence demonstrates that the proposed discharge will not adversely impact recreational activities.**

Section 26.030 addresses a proposed TPDES permit's "effect on Recreational Water." The statute compels the TCEQ to consider whether the proposed discharge will have unpleasant odor. It requires the TCEQ to consider impacts that unpleasant odor of the discharge will have on the receiving body of water.<sup>176</sup> When the receiving water body abuts a park, playground, or schoolyard within one mile downstream of the proposed outfall, the statute compels the TCEQ to consider whether unpleasant qualities of the effluent, including unpleasant odor, may have on the recreational value of any qualifying park, playground, or schoolyard.<sup>177</sup>

The Protestants have argued about odors they associate with the Plant Units. That issue is addressed in detail in Issue A above. But the Protestants have offered no evidence that the

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<sup>173</sup> COG Exh. 700 at 41:5-13.

<sup>174</sup> GF-504 at Table 5.1.

<sup>175</sup> COG Exh. 700 at 41:9-13.

<sup>176</sup> Tex. Water Code § 26.030(a).

<sup>177</sup> *Id.* § 26.030(b).

discharges authorized by the Draft Permit will have an unpleasant odor. Further, the receiving waters do not abut any portion of Bennett's Camping Center and RV Ranch.<sup>178</sup> Section 26.030 does not apply to Bennett's Camping Center and RV Ranch.

As a separate argument, the Protestants refer back to their arguments on Issues B) and D) as additional support for their claims regarding this Issue E). While those issues related specifically to the terms and conditions of the Draft Permit, the preponderance of evidence in the record nevertheless demonstrates that the Draft Permit is protective of water quality, the health of requestors and their families, livestock, wildlife, including endangered species, and all other issues referred by the TCEQ Commissioners in this case.

The City has explained that the East Plant MBR system will treat wastewater to a quality that is beyond the capabilities of conventional wastewater treatment technology.<sup>179</sup> The East Plant will certainly treat wastewater to a level of quality that exceeds the effluent limits in the Draft Permit.<sup>180</sup> Final ultra violet treatment will polish the effluent before discharge and will be safe for direct human contact.<sup>181</sup>

The preponderance of evidence in the record, including the Administrative Record, prove that the proposed discharge will not adversely impact recreational activities.

**F. The preponderance of the evidence demonstrates that the application is accurate and complete.**

The Protestants argue that the Application should be denied because it did not include certified letters to wastewater treatment facilities within three miles of the Plant Facility. The City identified three facilities in the Application that fall within this range: one operated by Acton

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<sup>178</sup> ARE A at 0558, 0674, 0679-80.

<sup>179</sup> COG Exh. 302 at 8.

<sup>180</sup> COG Exh. 302 at 4, 8.

<sup>181</sup> COG Exh. 101 at 16.

Municipal Utility District, one operated by the Shady Grove Sewer System, and the third was the South Plant.<sup>182</sup> Ms. Dunn explained during the hearing that she included the Shady Grove Sewer System on the map only because it appeared on the Public Utility Commission’s CCN viewer.<sup>183</sup> She was not able to find any treatment plant owned or operated by Shady Grove Sewer System, and by all accounts, the system is a small septic system.<sup>184</sup> The Acton Municipal Utility District facility is a small facility designed and built specifically to serve the DeCordova subdivision.<sup>185</sup> It does not have the capacity to accept the treatment volume the City needs.<sup>186</sup> Ms. Dunn knows this because she is the permitting engineer for Acton Municipal Utility District.<sup>187</sup> The East Plant will provide service only to the City’s existing service area—not to any new service area.<sup>188</sup> No portion of the City’s service area includes any portion of the DeCordova subdivision.<sup>189</sup>

The Protestants argue that Sections 281.5(7) and 305.45(a)(6)(E) of the TCEQ Rules required the City to submit letters to Shady Grove, Acton MUD, and presumably to itself. The rules say nothing of letters. They instead require applicants to provide the agency with any information that the ED or the Commission reasonably requires and requests. While the permit application instructions do request letters, the instructions are not rules.<sup>190</sup> The ED reviewed the Application, considered all additional information the office required from the City, and once received, it declared the Application to be administratively complete.<sup>191</sup> In this instance, the City provided the ED with all the information the office required and requested to conduct an

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<sup>182</sup> ARE A at 0324.

<sup>183</sup> HOM v. 2 at 209:10-17.

<sup>184</sup> HOM v. 2 at 209:19-22.

<sup>185</sup> ARE A at 0324.

<sup>186</sup> ARE A at 0324.

<sup>187</sup> HOM v. 2 at 209:01-09.

<sup>188</sup> HOM v. 2 at 264:21-23.

<sup>189</sup> ARE A at 0324.

<sup>190</sup> See, *Brinkley v. Texas Lottery Comm'n*, 986 S.W.2d 764, 769 (Tex. App.–Austin 1999, no pet.) (observing that agencies routinely issue documents such as guidelines “which might contain statements that intrinsically implement, interpret, or prescribe law, policy, or procedure or practice requirements” that are not rules).

<sup>191</sup> ARE A at 0095.

administrative review and a technical review of the City's request. The Application is not incomplete. The Protestants have offered no basis to deny the Application on this ground.

**G. The preponderance of the evidence demonstrates that the modeling complies with applicable regulations to ensure the draft permit is protective of water quality.**

The Protestants refer all of their arguments on this issue to their statements regarding Referred Issue B. To keep the arguments somewhat correlative to the referred issues, the City will attempt to address a few of the modeling arguments here.

The Standards establish numerical water quality criteria for substances attributable to waste discharges, such as DO, on site-specific bases.<sup>192</sup> They assign a minimum DO criteria of 5.0 mg/L Rucker Creek, Rucker Creek Cove, and Lake Granbury—each recognized as having high aquatic life uses.<sup>193</sup> The Draft Permit includes a minimum DO criteria of 5.0 mg/L for both permitting phases, accordingly.<sup>194</sup> The ED staff tailored the proposed Interim Phase and Final Phase limits so that the authorized discharges would, among other things, meet or exceed the minimum DO criteria.<sup>195</sup> The ED staff used the QUAL-TX model to predict the effect of any particular proposed effluent sets on DO when considering whether a proposed permit will meet applicable water quality requirements.<sup>196</sup> This is the process the ED employed when developing the effluent limits in the Draft Permit.<sup>197</sup> The QUAL-TX modeling conducted by the ED staff predicted a minimum DO concentration of 4.84 for the Interim Phase, and a minimum DO concentration of 4.81 during the Final Phase.<sup>198</sup>

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<sup>192</sup> 30 Tex. Admin. Code § 307.7(a).

<sup>193</sup> *Id.* § 307.7(b)(3)(A)(i) Table 3 (Aquatic Life Use Subcategories); 30 Tex. Admin. Code § 307.10 App. A – Brazos River Basin Designated Uses and Numeric Criteria – Segment 1205.

<sup>194</sup> COG Exh. 102.

<sup>195</sup> ED-13 at 23:19-21.

<sup>196</sup> ED-13 at 6:1 – 13:30.

<sup>197</sup> ED-3; ED-5; ED-13 at 6:1 – 13:30.

<sup>198</sup> COG Exh. 604.

QUAL-TX is a tool used to predict influences of effluent sets on DO. ED staff considers proposed permit limits protective of a minimum 5.0 mg/L DO standard if the modeled DO results are equal to or greater than 4.8 mg/L.<sup>199</sup> This has been the accepted TCEQ practice for over 22 years.<sup>200</sup> OPIC and the Protestants are critical of this practice. They each argue that the Application should be denied because the QUAL-TX model produced a DO value that is less than the 5.0 mg/L DO standard established in Section 307.7 for high aquatic life uses. OPIC and the Protestants are blurring an important distinction—QUAL-TX DO calculations and Standards attainment are mutually exclusive assessments.

QUAL-TX is used to make predictions of what field conditions might look like in the future once the discharges begin. But it makes the prediction based on a set of extraordinary climate and performance assumptions. These are referred to as critical conditions. Critical conditions are established in the IPs and are reflected in the modeling SOPs. In the context of critical conditions, then, the QUAL-TX calculations are not even true predictions of what is likely to occur—they reflect what conditions might look like in an unrealistic worst-case scenario. In this sense, their outputs are an exaggerated reflection of the influence of an effluent set on water quality conditions.

QUAL-TX modeling outputs do not determine whether DO Standards are attained. Actual DO standards attainment is based on observed—i.e., sampled—conditions, and those observations are virtually always measured at the surface. This is an important fact, because QUAL-TX, on the other hand, makes a DO prediction based on the average DO of the vertical water column—i.e., the average of DO assumptions from the water surface down to the bottom of the cove along the same water column. DO in a watercourse, particularly a lake or cove, is typically higher at the surface compared to the bottom. Modeling a DO average using critical

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<sup>199</sup> COG Exh. 102.

<sup>200</sup> HOM v. 1 at 155:18-23.

conditions can have a significant downward impact on the DO calculation, or prediction, compared to what would actually occur at the surface when measured.

As a result, the QUAL-TX DO output is widely recognized as an overly pessimistic—or conservative—assessment of DO impacts. A 4.8 mg/L DO model prediction is not a prediction that the water quality standards for DO in the receiving waters will not be maintained if the Draft Permit is issued. Nor is it a prediction that the that the water quality standards will not be obtainable if the Draft Permit is issued. The 0.2 mg/L tolerance is based on a recognition of the overly pessimistic DO calculations that are inherent in QUAL-TX modeling. The 0.2 mg/L tolerance isn't an arbitrary concession. It is the product of a thorough technical and critical assessment, which is evidenced by ED-24, by ED-3, ED-16, ED-17, and is described by TCEQ modeling expert Jim Michalk (21:2-14).

Thought of another way, QUAL-TX does not determine the final score of the game. It simply suggests how good the team might be. Observed conditions—based on real-time field data of water quality sampling as influenced by actual discharges—represent the final score for purposes of Standards attainment. If TCEQ were allowing water quality to drop below 5.0 mg/L DO, then Protestants might have a point—albeit one to make in a broader context in a different venue. But the water quality protection standards in Section 307.7(b)(3)(A)(i) do not require a QUAL-TX prediction of 5.0 mg/L. The allowance for 4.8 mg/L is based on the professional recognition of the level of conservatism in QUAL-TX assuming that the model was conducted in accordance with applicable guidelines. In this case, those guidelines are found in the IPs and the modeling SOPs. ED staff following these guidelines when conducting the QUAL-TX modeling for this

Application.<sup>201</sup> The ED staff's modeling complied with applicable regulations. The results of the model demonstrate that the Draft Permit is protective of water quality.

**H. The preponderance of the evidence demonstrates that the ED's antidegradation review was accurate.**

Protestants' arguments in Issue H) were contained in the arguments they made in response to Issue B). The City has responded in kind.

**I. The preponderance of the evidence demonstrates that the nutrient limits in the draft permit comply with applicable Texas Surface Water Quality Standards.**

Protestants' arguments in Issue I) were contained in the arguments they made in response to Issue B). The City has responded in kind.

**J. The preponderance of the evidence demonstrates that there is no basis to deny or alter the terms and conditions of the draft permit based on the consideration of need under Texas Water Code § 26.0282.**

The Protestants state that the Judges should not reach this issue. The City needs the Draft Permit, as it has shown in its arguments on this referred issue as well as Referred Issue H). There is a preponderance of evidence in the record demonstrating that the City needs the Draft Permit. The Protestants' do not provide any justification for denying or modifying the terms and conditions of the Draft Permit based on the consideration of need.

**K. Neither the Applicant's compliance history nor technical capabilities raise any issues regarding the Applicant's ability to comply with the material terms of the permit that warrant denying or altering the terms of the draft permit.**

The City's compliance history and technical competency do not raise any issues that would justify denying or changing the terms of the Draft Permit.<sup>202</sup> The Administrative Record establishes a prima facie demonstration that no changes to the Draft Permit terms and conditions

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<sup>201</sup> ED-13 at 5:2-30.

<sup>202</sup> ED-1 at 0011:2-4; ED-1 at 0018:20-26; ED-9.

is warranted and the City's compliance history offers no justification for denying the Draft Permit.<sup>203</sup> A preponderance of all other evidence in the record demonstrates the same.<sup>204</sup>

**L. The preponderance of the evidence demonstrates that the proposed location for the Facility complies with the 100-year flood plain and wetland location standards found in 30 TAC § 309.13(a) and (b) of the TCEQ Rules.**

The Protestants represented to the City that they do not contest this issue.<sup>205</sup> The Protestants nevertheless appear to contest this issue. None of the Plant Units are within the 100-year flood plain.<sup>206</sup> The Application included the FEMA map source that the City used to make the determination—FEMA FIRM 48221C0205D.<sup>207</sup> Outfalls and outfall pipes are not treatment units.<sup>208</sup> The Protestants have provided no justification for denying the Application on these grounds.

**M. Applicant has substantially complied with applicable public notice requirements.**

The City complied with all applicable public notice requirements.<sup>209</sup> The Administrative Record establishes a prima facie demonstration that the City substantially complied with applicable public notice requirements.<sup>210</sup> A preponderance of all other evidence in the record demonstrates the same.<sup>211</sup>

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<sup>203</sup> ARE A; ARE B.

<sup>204</sup> ED-1 at 0011:2-4; ED-1 at 0018-20-22.

<sup>205</sup> Identification of Uncontested Issues, March 11, 2022.

<sup>206</sup> ARE A at 0298; COG Exh. 103; COG Exh. 400 at 14:6 – 16:6; COG Exh. 700 at 42:7-13; HOM v. 2 at 183:05 – 184:23; HOM v. 2 at 288:17 – 289:01; HOM v. 2 at 332:15 – 333:06, 333:20 – 334:01.

<sup>207</sup> ARE A at 0257.

<sup>208</sup> 30 Tex. Admin. Code §§ 217.2(74), 309.11(9)

<sup>209</sup> ARE A at 0001, 0395-0423, 0431-0533, and 0535-0546; ARE B; COG Exhibit 200 at 19:10-15; ED-1 at 0019:6-7; ED-10 at 0023.

<sup>210</sup> ARE A, Tab B; ARE B.

<sup>211</sup> *E.g.*, COG Exhibit 200 at 19:10-15, ED-1 at 0019:6-7, and ED-10 at 0023.

## **II. Conclusion and Prayer**

Since before 2019, the City of Granbury has worked diligently to assess and plan for future growth in the community. The proposed East Plant will provide the City with additional treatment capacity it needs, where it needs it. Additionally, the planned MBR design will provide a technologically advanced level of wastewater treatment that will be matched by very few systems in the state. The City's goal is to develop a wastewater treatment facility that will have a minimal impact on the environment and a maximal impact on the community. The East Plant will use a MBR treatment with biological nutrient removal finished with a UV disinfection system. It will be equipped with an odor control system, sound attenuation, and smart lighting.

The Administrative Record, along with the preponderance of all other evidence in the record, demonstrates that the Application meets all applicable state and federal legal and technical requirements. Because the City has shown that it has satisfied each of the referred issues, it respectfully requests that the Administrative Law Judges recommend that TCEQ Commissioners grant the Application and issue the Draft Permit.

### III. Glossary of Terms

**Application** - the application by the City for new Texas Pollutant Discharge Elimination System Permit No. WQ0015821001, contained in the Administrative Record Exhibit A, Tab D, beginning at page Admin Record 0209.

**ARE** - Administrative Record Exhibit (*E.g.*, *ARE A at 0001* is a reference to Administrative Record Exhibit A, page 0001; *e.g.*, *ARE A, Tab B*, is a reference to the materials included in Tab B of ARE A, as described at ARE A at 0001).

**BOD or CBOD5** - five-day Carbonaceous Biochemical Oxygen Demand.

**cfu** - colony forming units.

**Chief Clerk** – the Chief Clerk of the TCEQ, including authorized designees and representatives of the TCEQ Office of Chief Clerk.

**City** – the City of Granbury, a home-rule municipality, and its authorized and designated representatives.

**DO** – dissolved oxygen.

**Draft Permit** - the ED's draft Texas Pollutant Discharge Elimination System Permit No. WQ0015821001 permit prepared by the ED based on the administrative and technical review of the Application and recommended by the ED to be issued. (ARE A at 0443-0513; COG Exh. 102; ED-7).

**East Plant** – the City's proposed East Wastewater Treatment Plant that is the subject of the Application and that will be authorized by the Draft Permit, if issued, which is a new facility within the meaning of title 30, Section 309.11(5) of the Texas Administrative Code.

**ED** – the Executive Director of the Texas Commission on Environmental Quality.

**Facility Property** – the property identified in the Application as the proposed location for the East Plant, 3121 Old Granbury Road, Granbury, Texas 76049, as identified and as would be authorized in the Draft Permit, if issued.

**IPs** – the Procedures to Implement the Texas Surface Water Quality Standards (RG-194), also known as the IPs, developed and used by the TCEQ when applying the Standards to permits issued under the TPDES program.

**MBR** – membrane bioreactor.

**MGD** – million gallons per day.

**mg/L** - milligrams per liter.

**NH3-N** – ammonia nitrogen.

**NAPD** – Notice of Application and Preliminary Decision for the Application, generally found at ARE A, Tab B, and ARE A at 0431-0533.

**NORI** – Notice of Receipt and Intent to Obtain Permit for the Application, generally found at ARE A, Tab B, and ARE A at 0395-04223.

**Plant Unit** – one of any wastewater treatment plant units proposed for the East Plant in the Application, and that would be authorized by the Draft Permit, if issued, as wastewater treatment plant unit is defined by title 30, Section 309.11(9) of the Texas Administrative Code.

**SOAH** – the State Office of Administrative Hearings.

**South Plant** – the City’s single existing wastewater treatment plant.

**TCEQ** – the Texas Commission on Environmental Quality.

**TCEQ Rules** – rules promulgated by TCEQ as published in title 30 of the Texas Administrative Code.

**TDS** – total dissolved solids.

**TSS** – total suspended solids.

All terms not defined have the meaning ascribed by TCEQ rules unless context indicates otherwise.

## **CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing document has been sent via electronic filing and email on this the 18<sup>th</sup> day of April, 2022, to the following:

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