

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF BLUEGRASS	)	
WATER UTILITY OPERATING COMPANY, LLC	)	CASE NO.
FOR CERTIFICATES OF CONVENIENCE AND	)	2022-00102
NECESSITY FOR PROJECTS AT THE	)	
HERRINGTON HAVEN SITE	)	

ORDER

On March 24, 2022, Bluegrass Water Utility Operating Company, LLC (Bluegrass Water) filed an application pursuant to KRS 270.020 and 807 KAR 5:001, Section 15, seeking a Certificate of Public Convenience and Necessity (CPCN) to install a moving bed biofilm reactor (MBBR) treatment system, a peracetic acid disinfection system, and a solids processing (digester) system at its Herrington Haven wastewater treatment plant (Herrington Haven) in Garrard County, Kentucky. No party requested intervention in this proceeding. Bluegrass Water responded to two sets of requests for information from Commission Staff. On June 29, 2022, Bluegrass Water requested that this matter be submitted on the written record. This matter stands submitted for a decision based on the written record.

LEGAL STANDARD

No utility may construct or acquire any facility to be used in providing utility service to the public until it has obtained a CPCN from this Commission.<sup>1</sup> To obtain a CPCN, the

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<sup>1</sup> KRS 278.020(1). Although the statute exempts certain types of projects from the requirement to obtain a CPCN, the exemptions are not applicable.

utility must demonstrate a need for such facilities and an absence of wasteful duplication.<sup>2</sup>

“Need” requires:

[A] showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed or operated.

[T]he inadequacy must be due either to a substantial deficiency of service facilities, beyond what could be supplied by normal improvements in the ordinary course of business; or to indifference, poor management or disregard of the rights of consumers, persisting over such a period of time as to establish an inability or unwillingness to render adequate service.<sup>3</sup>

“Wasteful duplication” is defined as “an excess of capacity over need” and “an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties.”<sup>4</sup> To demonstrate that a proposed facility does not result in wasteful duplication, the Commission has held that the applicant must demonstrate that a thorough review of all reasonable alternatives has been performed.<sup>5</sup> Although cost is a factor, selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication.<sup>6</sup> All relevant factors must be balanced.<sup>7</sup>

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<sup>2</sup> *Kentucky Utilities Co. v. Public Service Com 'n*, 252 S.W.2d 885 (Ky. 1952).

<sup>3</sup> *Kentucky Utilities Co.*, 252 S.W.2d at 890.

<sup>4</sup> *Kentucky Utilities Co.*, 252 S.W.2d at 890.

<sup>5</sup> Case No. 2005-00142, *Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Construction of Transmission Facilities in Jefferson, Bullitt, Meade, and Hardin Counties, Kentucky* (Ky. PSC Sept. 8, 2005), Order at 11.

<sup>6</sup> See *Kentucky Utilities Co.*, 252 S.W.2d at 168, 175 (Ky. 1965). See also Case No. 2005-00089, *Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for the Construction of a 138 kV Electric Transmission Line in Rowan County, Kentucky* (Ky. PSC Aug. 19, 2005), final Order.

<sup>7</sup> Case No. 2005-00089, Aug. 19, 2005 final Order at 6.

## BACKGROUND

Bluegrass Water is a Class B sewer utility organized and existing under the laws of the Commonwealth of Kentucky.<sup>8</sup> Bluegrass Water acquired Herrington Haven after the transfer was approved by the Commission in Case No. 2020-00297.<sup>9</sup> Herrington Haven provides wastewater collection and treatment service to 20 residential units in Garrard County, Kentucky.<sup>10</sup>

Bluegrass Water indicated that Herrington Haven is not currently capable of consistently complying with permitted limits. Specifically, Bluegrass Water reported that in the last three years, Herrington Haven has been cited for five exceedances associated with ammonia limits, six exceedances associated with total suspended solids (TSS) limits,<sup>11</sup> two exceedances of *E. coli* limits, and two exceedances of total residual chlorine limits.<sup>12</sup> Bluegrass Water provided an Effluent Limit Exceedances Report from the United States Environmental Protection Agency's ECHO compliance website indicating the exceedances reported.<sup>13</sup>

Bluegrass Water's third-party engineering firm, 21 Design, inspected Herrington Haven before Bluegrass Water purchased the system and prepared a report that, among

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<sup>8</sup> Application, Exhibit C.

<sup>9</sup> Case No. 2020-00297, *Electronic Proposed Acquisition by Bluegrass Water Utility Operating Company, LLC and the Transfer of Ownership and Control of Assets by: Delaplain Disposal Company; Herrington Haven Wastewater Company, Inc.; Springcrest Sewer Company, Inc; and Woodland Acres Utilities, LLC* (Ky. PSC Jan. 14, 2021), Order at 16.

<sup>10</sup> Bluegrass Water's Response to Commission Staff's First Request for Information (Response to Staff's First Request), Item 33, KY2022-00102\_BW\_0418.

<sup>11</sup> Response to Staff's First Request, Item 2, KY2022-00102\_BW\_0382 to 0385.

<sup>12</sup> Response to Staff's First Request, Item 10, KY2022-00102\_BW\_00382 to 0385.

<sup>13</sup> Response to Staff's First Request, Item 6, KY2022-00102\_BW\_00382 to 0385.

other things, noted exceedances in *E. coli* and total residual chlorine and identified deficiencies at the plant causing it to exceed permitted limits or otherwise making it unsafe to operate.<sup>14</sup> Bluegrass Water entered into an agreed order with the Kentucky Energy and Environment Cabinet's Division of Water (DOW) that required it to file a Corrective Action Plan (CAP) describing how it would correct any deficiencies at the plant and prevent exceedances.<sup>15</sup> The MBBR treatment system, peracetic acid disinfection system, and solids processing (digester) system for which Bluegrass Water requests a CPCN are consistent with the CAP Bluegrass Water submitted to the DOW on October 21, 2021,<sup>16</sup> and are intended to cure Herrington Haven's exceedances.<sup>17</sup>

### PROPOSED PROJECTS

#### Moving Bed Biofilm Reactor (MBBR)

Herrington Haven currently regulates TSS and ammonia levels by means of a conventional aeration system that uses blowers to aerate and move the wastewater to expose it to necessary microorganisms for organic breakdown. Bluegrass Water asserted that the system currently in place has been unable to handle the current volume of wastewater, resulting in the documented exceedances for TSS and ammonia.<sup>18</sup> Bluegrass Water proposed installing a MBBR treatment system in existing

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<sup>14</sup> Response to Staff's First Request, Item 2 and Item 26, KY2022-00102\_BW\_00367 to 0376.

<sup>15</sup> Response to Staff's First Request, Item 29, KY2022-00102\_BW\_00391 to 0401.

<sup>16</sup> See Response to Staff's First Request, Item 29, KY2022-00102\_BW\_0389 to 0390 (indicating that the CAP includes the addition of an MBBR treatment system, an aerobic digester system, and a peracetic acid disinfection system).

<sup>17</sup> Application at 3–5.

<sup>18</sup> Response to Staff's First Request, Item 3.

tanks at an estimated cost of \$111,350 to reduce TSS and ammonia discharges.<sup>19</sup>

Bluegrass Water explained that the proposed MBBR system will cause collisions of mobile media and increase the surface area for the formation of biofilm, which will increase the exposure and mechanical breakdown of TSS and allow better biological processing to reduce levels of ammonia and BOD.<sup>20</sup> Bluegrass Water indicated that it expects the proposed MBBR system to directly remove approximately 6.3 mg/L of ammonia and to significantly reduce the amount of sludge production, which among other things, will reduce the amount of ammonia discharged and the risk of sludge losses during wet weather events.<sup>21</sup>

Bluegrass Water stated that the location of Herrington Haven presents unique difficulties concerning the installation of new systems. Specifically, Bluegrass Water stated that the facility is surrounded on three sides by a retaining wall with a very limited perimeter property boundary, leaving little space to install improvements that might otherwise be considered. Bluegrass Water stated that due to the lack of space, the only alternative to the proposed MBBR system, other than eliminating or replacing Herrington Haven as discussed below, would be installing a MBBR system in a manhole upstream of the facility rather than in existing tankage as proposed.<sup>22</sup>

Bluegrass Water indicated that the effectiveness of such an upstream system would be similar to the proposed MBBR system and that it would cost the same or slightly

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<sup>19</sup> See Response to Staff's First Request, Item 1 (describing the project); Application at 4 (indicating the estimated cost of the project).

<sup>20</sup> Response to Staff's First Request, Item 1 and Item 6; Bluegrass Water's Response to Commission Staff's Second Request for Information (Response to Staff's Second Request), Item 2.

<sup>21</sup> Response to Staff's First Request, Item 6.

<sup>22</sup> Response to Staff's First Request, Item 7.

more than the proposed MBBR system. However, Bluegrass Water noted that it does not own the area where a manhole for an upstream MBBR system would need to be located, and the current owner of that property has indicated that it will only give permission for one manhole that is necessary for the solids processing (digester) system proposed herein.<sup>23</sup> Due to the fact that the current property owner would only allow one manhole,<sup>24</sup> Bluegrass Water stated that it must devote that manhole to the digester system, leaving installation of an MBBR in the existing tankage at the facility as the only solution to the ammonia and BOD problems without connecting to another sewer system.<sup>25</sup>

#### Peracetic Acid Disinfection

Herrington Haven currently disinfects wastewater using chlorine disinfection. However, Bluegrass Water asserts that this method and the existing deteriorated equipment have been unable to keep *E. coli* within permitted limits as discussed above. Further, Bluegrass Water indicated that Herrington Haven currently has no equipment to lower residual chlorine levels following disinfection, which results in unwanted chlorine in the wastewater and the residual chlorine exceedances discussed above.<sup>26</sup>

Bluegrass Water proposed implementing a peracetic acid disinfection system, explaining that the peracetic acid disinfection system utilizes peracetic acid in conjunction with post-process aeration to efficiently disinfect treated wastewater in a manner that is as effective as a properly functioning chlorine system.<sup>27</sup> However, Bluegrass Water noted

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<sup>23</sup> Response to Staff's First Request, Item 7; Response to Staff's Second Request, Item 3.

<sup>24</sup> Response to Staff's First Request, Item 7.

<sup>25</sup> See Response to Staff's First Request, Item 7; Response to Staff's Second Request, Item 3.

<sup>26</sup> Response to Staff's First Request, Item 11.

<sup>27</sup> Response to Staff's First Request, Item 9 and Item 11.

that the peracetic acid disinfection system does not use chlorine, so environmental impacts and compliance risks associated with residual chlorine would be mitigated and chemical costs would be reduced because de-chlorination is not necessary.<sup>28</sup> Bluegrass Water estimated that the capital cost of the peracetic acid disinfection project would be \$22,250,<sup>29</sup> the system components would have a useful life of between 20 and 30 years,<sup>30</sup> and the annual operation and maintenance (O&M) expense for the system would be \$2,319.<sup>31</sup>

Bluegrass Water addressed alternative methods of reducing chlorine and *E. coli* levels. One option was replacing the existing disinfection system with a similar but newer and better functioning chlorine disinfection system. Bluegrass Water asserted that this alternative would cost roughly the same as the peracetic acid disinfection system, but the O&M expense would be slightly higher due to the cost of sodium hypochlorite used to de-chlorinate. It would also mean that the same residual concerns created by using chlorine chemicals would remain.<sup>32</sup>

Another alternative considered was an ultraviolet disinfection system, which also does not use chlorine. However, Bluegrass Water's engineering firm, 21 Design, determined that an ultraviolet disinfection system would cost significantly more than the proposed peracetic acid disinfection system and might not be as effective due to the

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<sup>28</sup> Response to Staff's First Request, Item 11.

<sup>29</sup> Application at 5.

<sup>30</sup> Response to Staff's Second Request, Item 4(b); see Response to Staff's First Request, Item 24, KY2022-00102\_BW\_0447 (showing Bluegrass Water's estimated itemized cost for each project with associated useful lives attributed to costs).

<sup>31</sup> Response to Staff's Second Request, Item 5, KY2022-00102\_BW\_0447.

<sup>32</sup> Response to Staff's First Request, Item 15

pattern of solids exceedances at the facility.<sup>33</sup> Specifically, Bluegrass Water indicated that the capital cost of the ultraviolet system was estimated to be \$60,000 (compared to \$22,250 for the peracetic acid system) and that the annual O&M expense for the ultraviolet system was estimated to be \$3,155 (compared to \$2,319 for the peracetic acid system).<sup>34</sup> Bluegrass Water also explained that ultraviolet disinfection is problematic because the high levels of solids at the facility reduce the ability of the ultraviolet disinfection to thoroughly penetrate water, potentially rendering disinfection ineffective.<sup>35</sup> Thus, Bluegrass Water indicated that installing the peracetic acid disinfection system would be the most reasonable and cost-effective alternative to the present system.<sup>36</sup>

#### Solids Processing (Digester) System

Herrington Haven currently has no sludge digestion and simply returns all sludge from the clarifier to the aeration basin. Bluegrass Water noted that the amount of solids in the system has repeatedly exceeded the clarifier's ability to remove solids prior to discharge, causing exceedances of suspended TSS limits and the "accumulation of solids in portions of both the clarifier and aeration basin reducing the treatment capacity of the facility."<sup>37</sup>

Bluegrass Water proposed construction of a digester system to enhance Herrington Haven's ability to effectively process solids to meet suspended TSS and other

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<sup>33</sup> Response to Staff's First Request, Item 15.

<sup>34</sup> See Response to Staff's Second Request, Item 5, KY2022-00122\_BW\_0447.

<sup>35</sup> Response to Staff's First Request, Item 15.

<sup>36</sup> See Response to Staff's Second Request, Item 5, KY2022-00122\_BW\_0447; Response to Staff's First Request, Item 15.

<sup>37</sup> Response to Staff's First Request, Item 19.



limits. Bluegrass Water stated that the addition of the digester will allow Herrington Haven to handle more solids without allowing solids to wash out of the facility, which causes exceedances of TSS limits, and will reduce the frequency at which sludge hauling is required.<sup>38</sup> Bluegrass Water further explained that the digester will help to remove high-age sludge from the system, improving the overall treatment process at the facility.<sup>39</sup> Bluegrass Water estimated the capital cost of the digester system to be \$69,950,<sup>40</sup> stated that the system components would have a useful life of between 20 and 30 years,<sup>41</sup> and estimated the annual O&M expense would be \$1,837.16.<sup>42</sup>

Bluegrass Water stated that it considered alternatives to the proposed digester system, including installing a larger clarifier that could resolve the exceedances. However, due to the physical limitations of the Herrington Haven site (as discussed above), Bluegrass Water indicated that installing a larger clarifier would be impractical, and thus eliminated it from consideration.<sup>43</sup> Another alternative considered but ultimately eliminated as a possibility by Bluegrass Water due to the lack of physical space at Herrington Haven was to add some form of a tertiary filtration following clarification.<sup>44</sup>

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<sup>38</sup> Response to Staff's Request, Item 16.

<sup>39</sup> Response to Staff's Request, Item 16.

<sup>40</sup> Application at 5.

<sup>41</sup> See Response to Staff's First Request, Item 24, KY2022-00102\_BW\_0447.

<sup>42</sup> Response to Staff's Second Request, Item 6. The expense of \$1,837.16 reflects electric cost of operating the digester system and the sludge hauling costs with the digester in order to compare it with the sludge hauling costs with the polymer feed system discussed below. However, it should be noted that Bluegrass Water has actually projected that the projects proposed in this matter will result in a net reduction in O&M expense due to a net reduction in sludge hauling costs. See Response to Staff's First Request, Item 23, KY2022-00102\_BW\_0386 to 00387 (showing a net decrease in O&M expense of \$3,607.91 with the projects).

<sup>43</sup> Response to Staff's First Request, Item 20.

<sup>44</sup> Response to Staff's First Request, Item 20.

Bluegrass Water also indicated that the tertiary filtration system would be significantly more expensive than the proposed digester.<sup>45</sup>

The only alternative that Bluegrass Water did not exclude due to limits on available space was the addition of a polymer feed system.<sup>46</sup> Bluegrass Water asserted that the polymer feed system would improve the efficiency of the existing clarifier but would not address the issue of accumulated solids. Bluegrass Water stated that adding a polymer feed could in fact worsen the existing problem by causing sludge to coagulate and potentially harden more than normal, thereby causing a further reduction in treatment capacity.<sup>47</sup> Bluegrass Water argued that the polymer feed system would be significantly more expensive due to the reduced capacity and resulting increases in operating costs.<sup>48</sup>

Specifically, Bluegrass Water estimated that the polymer feed system would have lower capital costs of approximately \$40,000 with an expected useful life of 20 years. However, Bluegrass Water indicated that it would have significantly higher annual O&M expenses than the digester system, including annual sludge hauling and removal costs estimated at \$6,438.35, annual coagulant chemicals costs estimated at \$4,226, and annual electric costs of \$72.00.<sup>49</sup> Due to the significantly higher annual O&M expense associated with the polymer system as compared to the digester system (\$8,958.22 more

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<sup>45</sup> Response to Staff's First Request, Item 20.

<sup>46</sup> Bluegrass Water actually indicated that "it is questionable" whether the equipment could fit into the area but did not explicitly indicate there was insufficient space. Response to Staff's Second Request, Item 6(b).

<sup>47</sup> Response to Staff's First Request, Item 20.

<sup>48</sup> Response to Staff's First Request, Item 6.

<sup>49</sup> Response to Staff's Second Request, Item 6(d).

annually) and the inability to reduce accumulated solids, it was eliminated as an alternative.<sup>50</sup>

#### Alternatives to All Proposed Projects

Bluegrass Water investigated the possibility of simply shutting down Herrington Haven and instead connecting Herrington Haven's collection system to the wastewater treatment system operated by the city of Lancaster, which is approximately 6.1 miles from the Herrington Haven System. Bluegrass Water determined that to successfully connect to Lancaster's system, it would need to install approximately 10.5 miles of sewer main following utility corridors at a cost of \$70 per foot, as well as three lift stations costing approximately \$150,000 each, for an approximate total cost of \$4,330,800.<sup>51</sup> That estimate did not include any additional costs for obtaining the necessary easements to install force mains.<sup>52</sup> Therefore, Bluegrass Water stated that connecting to Lancaster's system would be significantly more expensive than the proposed projects.

Bluegrass Water also considered the possibility of connecting to the wastewater treatment system operated by the city of Danville, which is approximately 2.5 miles from Herrington Haven. Bluegrass Water determined that connecting to Danville's system would require crossing the Dix River, which complicates the process and increases cost. Connecting to the Danville system would require 8.1 miles of sewer main at a cost of \$70 per foot, two lift stations costing approximately \$150,000 each, and approximately \$200,000 in additional costs associated with crossing the river. Bluegrass Water stated

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<sup>50</sup> See Response to Staff's Second Request, Item 6.

<sup>51</sup> Response to Staff's First Request, Item 7.

<sup>52</sup> Response to Staff's First Request, Item 7.

that the total cost to connect to Danville's system would be \$3,493,760, excluding the cost of obtaining the necessary easements.<sup>53</sup>

Bluegrass Water indicated that one other alternative to the proposed projects that it considered was to simply replace Herrington Haven. However, due to the lack of physical space at Herrington Haven, Bluegrass Water indicated that replacing the entire facility was not feasible. Bluegrass Water asserted that any new facility would still be undersized due to the space limitations at the site because a new facility would still need to include attached growth treatment like the proposed MBBR system. Bluegrass Water noted that the replacement option would also require shutting down the existing plant and replacing all tanks and equipment, which Bluegrass Water argued would result in wasteful costs.<sup>54</sup>

#### Other Required Projects

Bluegrass Water stated that no additional projects are anticipated beyond the normal course of business over the next five years.<sup>55</sup> Bluegrass Water's October 21, 2021 CAP does reference an additional project that has not been completed to relocate "the effluent V-notch weir and post- aeration basin onto the Owner's property."<sup>56</sup> However, while it originally thought that the equipment would need to be moved due to flooding and issues with the easement, Bluegrass Water explained that it eliminated the flooding issue by slightly increasing the height of a retaining wall and determining that the

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<sup>53</sup> Response to Staff's First Request, Item 7.

<sup>54</sup> Response to Staff's First Request, Item 7.

<sup>55</sup> Response to Staff's First Request, Item 35.

<sup>56</sup> Response to Staff's First Request, Item 29, KY2022- 00102\_BW\_0389 to 0390.

equipment would not need to be moved. Bluegrass Water stated that this was discussed with the DOW in a telephone call and will be reflected in the final reporting on the CAP.<sup>57</sup>

### DISCUSSION AND FINDINGS

Having considered the application and all evidence in the record, the Commission finds that the CPCN should be granted. The evidence indicates that Herrington Haven has exceeded permitted limits for the past three years with respect to TSS, ammonia, *E. coli*, and chlorine and that action is needed to ensure compliance with applicable laws. In fact, as noted above, Bluegrass Water entered into an agreed order with the DOW that, among other things, required it to file a CAP describing how it would cure the deficiencies causing the system to exceed permitted limits. The proposed projects, which are consistent with Bluegrass Water's CAP, are necessary to meet permitted limits for TSS, ammonia, *E. coli*, and chlorine. Thus, the Commission finds that there is a need for the proposed projects.

There are alternatives that could potentially address the needs to be satisfied by the proposed projects, but the evidence indicates that those alternatives would be more costly, present greater risks, or would not resolve all exceedances. First, an alternative to the proposed projects, collectively, would be connecting to either the city of Lancaster's or the city of Danville's systems, which would eliminate Herrington Haven entirely. However, using the useful lives provided by Bluegrass Water and the weighted average cost of capital (WACC) established in Case No. 2020-00290,<sup>58</sup> the estimated revenue

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<sup>57</sup> Response to Staff's Second Request, Item 7.

<sup>58</sup> See Case No. 2020-00290, *Electronic Application of Bluegrass Water Utility Operating Company, LLC for an Adjustment of Rates and Approval of Construction* (Ky. PSC Aug. 2, 2021), Order at 110 (establishing a WACC of 7.95%).

impact of connecting to either city at current projected costs will never be lower than the revenue impact of the proposed projects, because the projected annual depreciation expense associated with connecting to either city alone is higher than the first year revenue requirement impact of the proposed projects,<sup>59</sup> which will decrease as the projects depreciate. In fact, the first-year carrying costs of connecting to either city's system would be higher than the total capital cost of the proposed projects.<sup>60</sup> Further, there are currently no projects planned at Herrington Haven that would make connecting to either city economical. Thus, the proposed projects will address the need at significantly lower cost than connecting to either city's system.

Another alternative to the proposed projects, collectively, would be to simply replace Herrington Haven. However, the evidence supports Bluegrass Water's assertions that space limitations at the site of the existing facility would make it impractical

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	<u>Proposed Projects</u>	<u>Tap-On to Lancaster</u>	<u>Tap-On to Danville</u>
Construction Costs	\$ 203,550	\$ 4,330,800	\$ 3,493,760
Multiply by: WACC	<u>7.95%</u>	<u>7.95%</u>	<u>7.95%</u>
Rate Base Effect	<u>16,182</u>	<u>344,299</u>	<u>277,754</u>
O&M Expense	5,999		
Depreciation	<u>9,657</u>	<u>92,616</u>	<u>76,542</u>
Total Revenue Requirement Impact	<u>\$ 31,838</u>	<u>\$ 436,915</u>	<u>\$ 354,296</u>

The chart above shows an estimate first year revenue impact, including depreciation expense, for the proposed projects and the projects that would be required to connect to the city based on the estimated capital costs, O&M expenses, and useful lives provided by Bluegrass Water, including a 50-year useful life for sewer lines and a 30-year useful life for lift stations. Notably, there are some potential expenses that are not accounted for such as tax expense, the annual expense to be paid to the cities to treat wastewater, and potential changes in operator expense at Herrington Haven. However, most of those costs would make connecting to the cities even more expensive, and even if they did not, the difference in the estimates is so great that the costs sufficiently to establish that connecting to the cities would be more costly.

<sup>60</sup> As noted in the footnote above, the first year carrying costs for projects to the cities were \$344,299 and \$277,754 whereas the total estimated capital costs of the projects proposed in this matter was \$203,550.

to replace the system because it would require shutting down the existing facility for a time. A new plant would also require some of the same systems proposed here due to the available space but would result in additional wasteful costs associated with replacing existing systems that continue to function. Thus, it would not be feasible or cost-effective to replace Herrington Haven in its entirety as an alternative to the proposed projects.

When considering the projects individually, the proposed projects are also the least-cost reasonable alternatives for correcting *E. coli*, chlorine, TSS, and ammonia exceedances. Due to the lack of physical space at Herrington Haven, the alternatives to an MBBR system that would normally be considered by Bluegrass Water were not feasible. Further, based on estimates provided by Bluegrass Water, which were developed by 21 Design and appear to be reasonable, the peracetic acid disinfection system will have a lower cost than either a new chlorine disinfectant system<sup>61</sup> or an ultraviolet disinfectant system,<sup>62</sup> and it will be more effective than either system, because the chlorine system poses a risk that excessive residual chlorine could be discharged and the ultraviolet system may not be fully disinfect the wastewater due to solids blocking ultraviolet disinfectant.<sup>63</sup> Finally, the evidence indicates that two alternatives to the

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<sup>61</sup> Bluegrass Water estimated that the capital costs and the useful lives of the equipment would be the same and that the cost of the chlorine and peracetic acid would be the same. The only difference in cost would be the de-chlorination chemicals necessary for the for the chlorine system, which would not be required for the proposed peracetic acid system. See Response to Staff's Second Request, Item 4 (discussing the useful lives and costs differences for the two systems and the bases for Bluegrass Water's assumptions regarding costs).

<sup>62</sup> See Response to Staff's Second Request, Item 5, KY2022-00102\_BW\_0447 (indicating that the annual O&M expense for the ultraviolet and peracetic acid system would be \$3,155 and \$2,319, respectively, and that the capital cost of the ultraviolet system is nearly 3 times that of the peracetic acid system).

<sup>63</sup> See Response to Staff's First Request, Item 15.

digester system would not be feasible due to limited space at Herington Haven,<sup>64</sup> and the third potential alternative, the polymer feed system, would be significantly more expensive due to the annual O&M expense associated with sludge hauling and coagulant chemicals (\$10,664.38 vs. \$1,837.16 per year),<sup>65</sup> while failing to resolve TSS exceedances.

For the reasons discussed above, the Commission finds that the construction activities described in Bluegrass Water’s CPCN application reflect need and a lack of wasteful duplication due to adoption of reasonable and cost-effective alternatives. Therefore, the Commission finds that Bluegrass Water’s request for a CPCN should be granted. However, in order to protect customers from unforeseen costs, any material deviation from the construction approved by this Order should be undertaken only with the prior approval of the Commission.

Finally, Bluegrass Water indicated in its application that it would fund the proposed projects with equity capital, but also stated in its application that it expected to request approval for debt financing in 2022 and that it may then utilize debt to finance all or part

<sup>64</sup> See Response to Staff’s First Request, Item 20.

<sup>65</sup> As shown in the chart below, using the useful lives provided by Bluegrass Water in this matter and the WACC established in Case No. 2020-00290, the first-year revenue impact of the digester project and the polymer feed project would \$10,687 and \$15,916, respective, and the difference in annual revenue impact is likely to grow as digester project depreciates more rapidly. Further, while some costs, such as taxes, are not accounted for in the chart below, they would not be sufficient to make up the difference in the projects due to large costs associated with the sludge hauling for the polymer feed system.

	<u>Proposed Digester Project</u>	<u>Polymer Feed Alternative</u>	<u>Teritary Filtration Alternative</u>
Construction Costs	\$ 69,950	\$ 40,000	\$ 120,000
Multiply by: WACC	7.95%	7.95%	7.95%
Rate Base Effect	5,561	3,180	9,540
Depreciation	3,289	2,000	6,000
Annual O&M Expense	1,837	10,736	N/A
Total Revenue Requirement Impact	<u>\$ 10,687</u>	<u>\$ 15,916</u>	<u>\$ 15,540</u>



of the proposed projects.<sup>66</sup> In Case No. 2019-00104, in which Bluegrass Water was first authorized to acquire systems in Kentucky, Bluegrass Water supported its request by indicating its intent to maintain a capital structure with at least 50 percent debt financing,<sup>67</sup> and it later stated that it would meet that commitment, on which its acquisitions have been conditioned,<sup>68</sup> by financing plant additions with a mix of debt and equity to achieve a capital structure with at least 50 percent debt.<sup>69</sup> While this Order should not be construed as approving or disapproving the use of any particular financing mix for the proposed projects, it also should not be interpreted as eliminating any conditions established in Case No. 2019-00104 and other cases.

IT IS THEREFORE ORDERED that:

1. Bluegrass Water's request for a CPCN for the proposed projects described in its application is granted.
2. Bluegrass Water shall immediately notify the Commission upon knowledge of any material changes to the project, including, but not limited to a material increase in costs and any significant delays in construction.
3. Any material deviation from the construction approved by this Order shall

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<sup>66</sup> Application at 6.

<sup>67</sup> Case No. 2019-00104, *Electronic Proposed Acquisition by Bluegrass Water Utility Operating Company, LLC and the Transfer of Ownership and Control of Assets by P.R. Wastewater Management, Inc., Marshall County Environmental Services, LLC, LH Treatment Company, LLC, Kingswood Development, Inc., Airview Utilities, LLC, Brocklyn Utilities, LLC, Fox Run Utilities, LLC, Brocklyn Utilities, LLC, and Lake Columbia Utilities, Inc.* (Ky. PSC. Aug. 14, 2019), Order at 18.

<sup>68</sup> See Case No. 2020- Jan. 14, 2021 Order at 10; Case No. 2019-00360, *Electronic Proposed Acquisition by Bluegrass Water Utility Operating Company, LLC and the Transfer of Ownership and Control of Assets by Center Ridge Water District, Inc.; Joann Estates Utilities, Inc.; and River Bluffs, Inc.* (Ky. PSC Feb. 17, 2020), Order at 12; Case No. 2019-00104, Aug. 14, 2019 Order at 18.

<sup>69</sup> Case No. 2019-00104, Oct. 31, 2019, Notice and Plan Re: Capital Structure.

be undertaken only with the prior approval of the Commission.

4. Bluegrass Water shall file with the Commission documentation of the total costs of the projects, including the cost of construction and all other capitalized costs, (e.g., engineering, legal, administrative, etc.) within 60 days of the date that construction authorized under this CPCN is substantially completed. Construction costs shall be classified into appropriate plant accounts in accordance with the Uniform System of Accounts for sewer utilities as prescribed by the Commission.

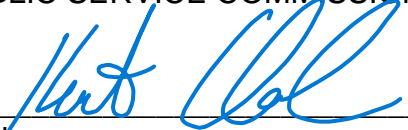
5. Bluegrass Water shall file a copy of the as-built drawings, if any, and a certified statement that the construction has been satisfactorily completed in accordance with the plans and specifications within 60 days of the substantial completion of the construction certificated herein.

6. Any documents filed in the future pursuant to ordering paragraphs 2 through 5 shall reference this case number and shall be retained in the post-case correspondence file for this proceeding.

7. The Executive Director is delegated authority to grant reasonable extensions of time for filing any documents required by this Order upon Bluegrass Water's showing of good cause for such extension.

8. This case is closed and is removed from the Commission's docket.

PUBLIC SERVICE COMMISSION

  
Chairman

Vice Chairman

  
Commissioner



ATTEST:

  
Executive Director

\*Kathryn A Eckert  
McBrayer PLLC  
201 East Main Street  
Suite 900  
Lexington, KENTUCKY 40507

\*Katherine Yunker  
McBrayer PLLC  
201 East Main Street  
Suite 900  
Lexington, KENTUCKY 40507

\*Bluegrass Water Utility Operating Company, LLC  
1630 Des Peres Road, Suite 140  
St. Louis, MO 63131