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**BEFORE**

**THE PUBLIC SERVICE COMMISSION OF**

**SOUTH CAROLINA**

**DOCKET NO. 2017-228-S**

| | | |
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| IN RE: | ) | |
| | ) | **PREFILED DIRECT TESTIMONY OF BRYAN D. STONE ON BEHALF OF PALMETTO UTILITIES, INC.** |
| Application of Palmetto Utilities, Inc. | ) | |
| for adjustment of rates and charges | ) | |
| for, and modification to certain terms | ) | |
| and conditions related to, | ) | |
| the provision of sewer service. | ) | |

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, PRESENT POSITION AND RESPONSIBILITIES.**

A. My name is Bryan D. Stone. My business address is Palmetto Utilities, Inc., 1710 Woodcreek Farms Road, Elgin, SC 29045. I am Chief Operating Officer of Ni Pacolet Milliken Utilities, Inc. and its subsidiaries, including Palmetto Utilities, Inc. ("Palmetto"). In this role I have responsibility for Palmetto's operations, maintenance, engineering and economic development activities. These Palmetto activities include the former operations of Palmetto of Richland County, LLC ("PRC"), which was merged into Palmetto pursuant to Commission authorization in July 2017.

**Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.**

A. I have earned both a Bachelor of Science in Electrical Engineering degree and a Master of Science in Electrical Engineering degree from the Georgia Institute of Technology, as well as a Master of Business Administration degree from the

University of Florida. I am a registered Professional Engineer in the state of Florida.

I began my professional career in 1990 as a Project Engineer at a 500+ employee chemical fertilizer company near Tampa, Florida. My responsibilities involved implementing electrical and instrumentation ("E&I") projects, with an emphasis on power and controls projects. In 1996 I accepted a similar position at a larger company in rural northern Florida. While my responsibilities were similar in nature, the scope was greater, since the new employer had 1,200+ employees locally in two chemical complexes and a mining operation. In 2000, I was promoted to E&I Maintenance Superintendent, with responsibilities for the E&I Maintenance Department, including 70 E&I technicians and salaried employees. I had the additional responsibilities of Power Manager, which ultimately included managing over $50 million annually in combined power purchases and sales. In this capacity, I worked with representatives of various classes of customers, utilities, and legislators on a variety of power-related issues.

I joined Lockhart Power Company ("Lockhart") in April 2006, with overall responsibility for all aspects of Lockhart's performance. I testified before this Commission in Lockhart's last three rate cases, Docket Numbers 2007-33-E, 2010-181-E, and 2013-378-E.

Lockhart's parent company is Pacolet Milliken Enterprises, Inc., which purchased Palmetto and its related water and wastewater utilities in 2015 under a newly-created company named Ni Pacolet Milliken Utilities, Inc. ("Ni"). I was named Ni's Chief Operating Officer in late 2015. In this role, I have been involved



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in several major capital projects including the "Northern Pipeline", the "Spears Creek Regional Wastewater Treatment Plant ("WWTP") Expansion", and the "Wateree Pipeline" projects described below, as well as other improvements and sustaining projects. I have also been involved in improving operations and implementing cost-effective predictive and preventative maintenance measures, with the goals of reducing spills, improving reliability of service, and reducing overall long-term operational costs.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. My testimony will provide a brief overview of Palmetto operations. With this overview as a backdrop, I will describe the primary reasons why Palmetto's recent significant capital investments were necessary, timely, and prudently implemented. My testimony will discuss the range of options evaluated, the major barriers encountered, and the regulatory considerations that were evaluated. It will also discuss time constraints driving the project, as well as extraordinary measures taken to control costs.

**Q. WHAT IS PALMETTO'S AUTHORIZED SERVICE TERRITORY?**

A. The authorized service territory is primarily in the northeast corner of Richland County, including (1) the northeast quadrant of the I-77 and I-20 intersection bounded by the Richland/Kershaw County line, (2) an area west of I-77 and the Town of Blythewood bounded by U.S. Highway 321, and (3) territory formerly assigned to PRC prior to its merger into Palmetto. A small portion of southwestern Kershaw County is also included in Palmetto's authorized service territory.



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**Q. WHAT PERMITS DOES PALMETTO HOLD FROM THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL ("DHEC")?**

A. Palmetto holds all necessary DHEC permits to own and operate the Spears Creek Regional WWTP and other facilities and equipment in its system, including an operating permit for the Spears Creek Regional WWTP and a National Pollutant Discharge Elimination System ("NPDES") permit for the discharge of the related effluent into the Wateree River. Palmetto previously held a land application permit (referred to as a "non-discharge" permit), to release effluent into rapid infiltration basins ("RIBs") located near the Spears Creek Regional WWTP. The non-discharge permit was terminated in November 2017 when DHEC terminated Palmetto's authorization to dispose of effluent in the RIBs, as contemplated in the August 2016 Corrective Action Plan ("CAP") agreed to by DHEC and Palmetto. The CAP also dictated that Palmetto construct a new effluent outfall pipeline to the Wateree River (the "Wateree Pipeline") and use such pipeline to discharge effluent.

**Q. IS PALMETTO PROVIDING WASTEWATER TREATMENT SERVICE TO ITS CUSTOMERS IN CONFORMITY WITH ITS PERMITS FROM DHEC?**

A. Yes.

**Q. PLEASE PROVIDE AN OVERVIEW OF PALMETTO'S SYSTEM.**

A. Palmetto has provided wastewater services for over forty years, and has grown steadily during that time in keeping pace with local development. As I mentioned earlier, PRC, an adjacent public utility that was purchased by Palmetto's



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parent company approximately four years ago from the City of Columbia, was merged into Palmetto in 2017. Palmetto's resulting system had more than 30,000 customers, an extensive collection system consisting of pipelines and pump stations, a treatment system including the Spears Creek Regional WWTP, and an effluent disposal system into the RIBs (which now may no longer be used).

**Q. WOULD YOU PLEASE SUMMARIZE THE MAJOR PROJECTS IN WHICH PALMETTO HAS INVESTED APPROXIMATELY $80 MILLION IN CAPITAL SINCE THE LAST RATE CASE?**

A. Yes. Approximately $65 million was invested in three major projects: (1) the construction of a 22 mile long pipeline that not only linked PRC with Palmetto, but relieved bottlenecks within the Pacolet collection system and opened up new territory for development (the "Northern Pipeline"), (2) the expansion of the Spears Creek Regional WWTP from 6 MGD to 12 MGD (the "Spears Creek Regional WWTP Expansion"), and (3) the above-referenced Wateree Pipeline. The remaining capital investments funded a number of smaller projects costing approximately $15 million, which can be separated into three categories: 1) additional debottlenecking projects to relieve pipelines and pump stations that have become overloaded over time due to growth, including the $4 million Kelly Mill Road pump station upgrade; 2) routine replacements of older equipment at or near end-of-life; and 3) projects to identify and eliminate inflow and infiltration ("I&I") of surface water and groundwater into our collection system.



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**Q. WHY DID PALMETTO NEED TO BUILD THE NORTHERN PIPELINE?**

A. Palmetto built the Northern Pipeline for three reasons, as detailed below: (1) to connect PRC's collection system with Palmetto's, (2) to relieve serious bottlenecks within the legacy Palmetto collection system, and (3) to open up additional areas for expansion, which would garner new customers over which costs could be spread (thereby helping existing customers).

(1) When PRC was purchased from the City of Columbia ("Columbia") in 2013, the parties agreed (with Commission approval) to redirect PRC's wastewater from Columbia's Metro WWTP to the Spears Creek Regional WWTP. As part of the acquisition, Columbia agreed to continue treating PRC's wastewater on an interim basis while Palmetto went through the lengthy process of designing, permitting, and constructing the facilities necessary to transfer the PRC wastewater to the Spears Creek Regional WWTP, treat the additional wastewater, and discharge the resulting effluent. Columbia charged Palmetto a rate of $7.50 per residential service connection for three years, after which it increased to $17.00 per connection, and then subsequently, increased again to approximately $34.00 through September 2017. The rate increased a final time beginning October 1, 2017, to approximately $49.00, but PRC began utilizing the Northern Pipeline, the expanded Spears Creek Regional WWTP, and the Wateree Pipeline during the first week of October 2017.

(2) A section of the route is adjacent to portions of Palmetto's existing collection system that have reached or are near full capacity. The Northern Pipeline was sized to have excess capacity, allowing the existing collection to be tied in at



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various points, in order to debottleneck Palmetto's existing collection system. This obviates the need for separate debottlenecking projects, avoiding separate investments that would have totaled millions of dollars over time. Importantly, a significant section of the Northern Pipeline near the Spears Creek Regional WWTP would have been required in the near future, regardless of the need to connect the PRC and Palmetto systems.

(3) Another section of the Northern Pipeline route was chosen to pass through an area in which a number of developers had expressed interest in developing. Routing the Northern Pipeline through this area facilitates continued economic development, and avoids additional cost associated with constructing a separate pipeline to serve this area. It also will increase the number of customers at a low incremental cost to Palmetto (developers pay connection costs), which will provide a larger base over which to spread costs. This is discussed in further detail in other testimony.

**Q. WERE OBSTACLES ENCOUNTERED WHILE IDENTIFYING THE BEST ROUTE FOR THE NORTHERN PIPELINE, AND WERE ALTERNATIVES CONSIDERED?**

A. Yes, obstacles were encountered and alternatives were considered. Initially, we focused on the shortest point-to-point distance from the PRC pump station to Palmetto's WWTP. However, obtaining necessary rights-of-way for this route proved very challenging, due to heavy congestion of commercial and residential developments along much of this route. Due to this population density, the SC Department of Transportation would have required much of the construction for



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this route to be performed at night. This would have increased the construction cost and delayed the project. An alternative, relatively direct route was identified that would take advantage of another utility's existing right-of-way, but that utility was unwilling to allow Palmetto to utilize their right-of-way.

Less direct routes were then investigated, on the premise that routes through relatively undeveloped areas could be less expensive to construct, and could provide other benefits, despite their additional length. This effort resulted in identification of the best route – the Northern Pipeline route. Although not the most direct route, it was able to take advantage of available public rights-of-way, mostly along undeveloped rural routes. This resulted in the fastest construction and lowest cost per pipeline mile. It also had less permitting risks and risk of delays, and was a safer route for our contractors and the public, since it avoided congested areas.

**Q. WHY DID YOU NEED TO INCREASE THE SPEARS CREEK REGIONAL WWTP CAPACITY TO 12 MGD AND WHAT ALTERNATIVES WERE CONSIDERED?**

A. Organic growth in the "legacy" Palmetto system (i.e. excluding the PRC system) as a result of steady development in northeast Richland County for many years had resulted in average flow of approximately 3.5 MGD. Peak flow, however, had exceeded 5.6 MGD. In addition, when commitments to developers for their planned growth were included (which is used by DHEC in calculating the "check book" of a wastewater utility), total necessary capacity would be approximately 8.5 MGD. The magnitude of this additional committed flow, taken in conjunction with the actual peak flows, indicated that the WWTP capacity



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needed to be increased in the near-term, solely based on Palmetto's legacy system growth.

Adding the PRC flow simply reinforced the need to expand treatment capacity. The PRC average flow of approximately 2.5 MGD, combined with Palmetto's 3.5 MGD average flow, yielded a total Palmetto system average flow of 6 MGD. This necessitated the WWTP capacity be increased well above the 6 MGD permitted before the PRC flow could be added, per DHEC requirements and industry standard operating practices.

A variety of alternatives were considered involving different combinations of WWTP capacities, treatment processes, and reuse of existing equipment. Expected growth projections for the area, coupled with the 11 MGD total committed flow for both the Palmetto and PRC systems pointed toward a total capacity of at least 12 MGD. However, WWTP scenarios with capacities below 12 MGD were still examined to determine if it would be possible to defer some of the capital needs until a later date.

In addition, scenarios were examined that included various combinations of treatment processes, including (i) expanding use of the previous treatment process (activated sludge aeration in tanks) for the entire WWTP capacity, (ii) changing to another process such as Sequencing Batch Reactors ("SBR") for the entire capacity, or (iii) combining the original process and a new process. After an exhaustive series of design and redesign meetings between engineering and construction experts and the outside engineering firm, it was determined that the best approach was to install 12 MGD capacity using the SBR treatment process. Essentially, the SBR treatment



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process allows biological treatment and clarification to occur in a single reactor with improved process control, a minimal footprint, and at a lower capital cost than conventional activated sludge WWTP's.

**Q. WOULD YOU PLEASE DESCRIBE THE SPEARS CREEK REGIONAL WWTP UPGRADE PROJECT?**

A. Yes. The project increased treatment capacity from 6 MGD to 12 MGD and upgraded the pre-existing treatment process to the SBR treatment process. Major new equipment associated with the new process includes three 200 foot diameter SBR treatment basins, a headworks, a bank of high speed blowers for aeration within the basins, and a plantwide control system. Two of the pre-existing aeration tanks were repurposed to serve as intermediate storage tanks for the treated water, and one was repurposed to serve as a second digester (the original digester was kept in service). This innovative reuse of existing assets helped drive down the project cost.

**Q. WHAT WAS THE COST PER GALLON OF INCREASED CAPACITY AND HOW DOES THAT COMPARE TO OTHER WASTEWATER PLANTS?**

A. The Spears Creek Regional WWTP expansion project cost slightly over $15 million, and resulted in 6 MGD of new capacity, yielding a cost per gallon of approximately $2.50. This capacity cost compares very favorably to other major WWTP construction projects of which we are aware. It is our understanding that those projects typically cost between $5-10 per gallon, if not higher. In addition,



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this ignores the fact that the cost includes replacing the original 6 MGD with a superior treatment process.

**Q. WHAT ARE THE CUSTOMER BENEFITS OF USING THIS APPROACH FOR THE WWTP EXPANSION?**

A. There are a number of immediate and long-term benefits to customers which we identified in our analysis, which can be summarized as follows:

- Lower installed cost at $2.50 per gallon
- Lower operating cost, due primarily to energy efficiency measures
- Use of a single process technology avoids complications that increase operating risk, and lowers maintenance cost due to reduced spares, less complicated control systems, etc.
- Operational flexibility can help minimize the cost of compliance in the case of stricter permit conditions being imposed in the future
- Very low cost of future expansion due to design measures that cost relatively little (if anything) to implement as part of the initial construction, but which otherwise would have been much more expensive to construct in the future.

**Q. WHAT WERE THE LOWER COST ALTERNATIVES FOR DISCHARGING THE EFFLUENT AND WHY DID YOU HAVE TO SHUT DOWN THE RIBS AND BUILD THE WATEREE PIPELINE INSTEAD?**

A. The RIBs were permitted to receive up to 6 MGD of effluent, and were handling an average of 3.5 MGD. Despite the fact that the RIBs were being operated well below their permitted capacity, there were elevated nitrate levels



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detected in the vicinity and groundwater seeps on the Palmetto property which adjacent property owners and Kershaw County attributed to the RIBs. Although no notice of violation was ever issued, Palmetto entered into a consent agreement with DHEC in 2015 which resulted in the August 2016 CAP designed to address these issues. The consent agreement provided that Palmetto would monitor groundwater quality in a number of locations, use the resulting data to perform a technical study of the issues, and then prepare an action plan to address the issues. With the issues manifesting at a 3.5 MGD operating rate, it was believed that operating the RIBs near or at their permitted level of 6 MGD would require significant design changes to the RIBs and surrounding area to control off-site groundwater migration. Increasing actual RIB capacity closer to 6 MGD would have required a multi-million dollar investment, in order to ensure nitrate levels did not exceed permit limits and to control groundwater seeps. In addition, Kershaw County asserted that it had certain regulatory authority regarding the RIBs, and in addition to other actions it took legal action to pressure DHEC to require that Palmetto eventually close the RIBs.

The least cost solution for discharging treated wastewater effluent would have been to discharge up to 6 MGD into Spears Creek, directly behind the WWTP. Under this approach, the RIBs would also have continued to have been used for some period of time, although likely at a lower rate to sufficiently mitigate environmental concerns associated with the RIBs. At Palmetto's request, DHEC performed modeling that showed the effluent water quality and quantity would not degrade the various uses of Spears Creek. Despite the science, Kershaw County



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and several local residents strongly opposed discharging effluent into Spears Creek, and some environmentalists joined their opposition. A compromise measure under which Palmetto would only discharge 3 MGD into Spears Creek was presented by Palmetto, but was also strongly opposed by Kershaw County and others.

The possibility of using other sites to build new RIBs was investigated, but the time and cost to identify, analyze and permit one or more RIB sites, then engineer and construct new RIBs and a pipeline connecting them to the Spears Creek Regional WWTP, was determined to not be as cost effective in the long run as constructing the Wateree Pipeline and discharging effluent to the Wateree River. With all other lower cost options exhausted, Palmetto was forced to construct the Wateree Pipeline as the best remaining option.

**Q. WHAT ARE THE BENEFITS TO THE CUSTOMERS, RESIDENTS AND THE ENVIRONMENT OF THE NEW DISCHARGE PIPELINE?**

A. The Wateree Pipeline eliminated the use of the RIBs when it was placed into service in October 2017. This in turn eliminated any associated concerns with related levels of groundwater constituents of concern (in particular nitrates) elevating in the future. Also, any contribution the RIBs may have had toward groundwater seeps has ceased. The future multi-million dollar investment to allow the RIBs to be used at an increased capacity has been avoided, along with any long-term public concerns related to any impact of the RIBs on local groundwater.

The pipeline was designed to accommodate future growth inexpensively. While designed for 12 MGD, a second booster pump station can be added in the



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pipeline closer to the Wateree River, allowing the same pipeline to transport up to 18 MGD. This is an extremely cost-effective capacity increase.

Finally, the Central Midlands Council of Government's Section 208 Regional Water Quality Management Plan adopted under the Clean Water Act was amended more than a decade ago to include a provision that effluent from the Spears Creek Regional WWTP should eventually be discharged into the Wateree River. While Palmetto has postponed taking that measure for many years, this obligation has now been satisfied.

**Q. WHAT WILL ULTIMATELY BE DONE WITH THE RIBS?**

A. The RIBs were removed from service shortly after the Wateree Pipeline was brought on-line in October 2017. DHEC terminated the RIBs operating permit on November 13, 2017, in conjunction with an agreement between DHEC, Palmetto, and Kershaw County. Palmetto plans to continue to monitor the groundwater in the vicinity of the RIBs for one year, at which time Palmetto and DHEC will review the test results and determine whether further monitoring is warranted. The land in the vicinity of the RIBs will be restored to its approximate condition before the RIBs were constructed.

**Q. PLEASE DESCRIBE NOTEWORTHY PROJECTS PERFORMED OTHER THAN THE THREE MAJOR CAPITAL PROJECTS DISCUSSED ABOVE.**

A. Several other projects are noteworthy. The Kelly Mill Road pump station replacement is noteworthy due to its multimillion dollar cost, and is further described below. Another project provided a Geographic Information System (GIS) that allows Palmetto to map its collection system electronically, which will



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result in faster customer response times for issues in the field, and a number of other efficiency improvements related to reducing spills and operating and maintaining the system. Several other projects are significant because they provide key predictive and preventative maintenance tools to address I&I issues. One of these projects provided for the purchase of a vacuum truck and camera vehicle, which are utilized by a crew newly hired when the vehicles were purchased to clean and video inspect our collection system pipelines. The cleaning process reduces the likelihood of line plugs resulting in spills, and the video inspections identify pipe deficiencies due to a variety of causes such as age, vegetation root systems growing into the pipes, other underground utilities, etc. The more serious of these collection pipe deficiencies have been repaired, thereby reducing the quantity of groundwater entering our collection system. This in turn, enhances our available pipeline capacity and avoids the additional cost of treating I&I at the Spear Creek Regional WWTP (as if it were wastewater). Performing this I&I work in-house minimizes the associated cost and maximizes our control over the work to ensure it provides the best value for our customers.

**Q. WHY DID YOU HAVE TO REPLACE THE KELLY MILL ROAD PUMP STATION?**

A. The area around the collection system feeding into the Kelly Mill Road pump station had experienced significant organic growth over a period of years, resulting in the pumps being overloaded and frequently failing. The pump station wet well was also undersized for the increased flow, resulting in an increased risk of a large spill in case of an unexpected equipment failure. The pump station could



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not be cost effectively expanded in place, so a new pump station was built nearby with enough capacity to serve the increased load and additional future load. This cost approximately $4 million.

**Q. HOW DO THESE MAJOR CAPITAL PROJECTS POSITION PALMETTO FOR THE FUTURE?**

A. These projects place Palmetto in a position where it does not expect the need for additional major investments in WWTP treatment capacity or environmental measures that would impact existing Palmetto's customers' rates for eight to ten years at a minimum. If and when there is a need to increase such capacity beyond the new 12 MGD capacity, both the WWTP and Wateree Pipeline capacities may be increased by another 6 MGD at a low incremental cost.

The new available capacity also opens the door for Palmetto to serve large commercial and industrial customers, enabling economic development benefits to the community that otherwise would not be possible without the existence of this infrastructure. These benefits would be expected to include the jobs, property taxes, local spending, etc. typically associated with new large companies. In addition, as new customers are added, the fixed costs of operation will be spread across a larger customer base, thereby relieving future upward pressure on rates.

**Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

A Yes, it does.



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