

BENNINK LAW OFFICE
Robert H. Bennink, Jr., Attorney at Law

May 4, 2018

Ms. M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: KRJ, Inc., d/b/a KRJ Utilities
Docket No. W-1075, Sub 12
Direct Testimony and Exhibits of James R. Butler, P.E.

Dear Ms. Jarvis:

Please accept for electronic filing on behalf of KRJ, Inc., d/b/a KRJ Utilities (“KRJ” or “Company”) the attached Direct Testimony and Exhibits of James R. Butler, P.E., in support of the Company’s application for a general rate increase. In addition, within one business day, as required by Commission Rule R1-28(e)(1), KRJ will file fifteen (15) paper copies of Mr. Butler’s direct testimony and exhibits.

As always, thank you and your staff for your assistance; please feel free to contact me if there are any questions or suggestions.

Sincerely,

Electronically Submitted
/s/ Robert H. Bennink, Jr.

North Carolina State Bar No. 6502
Attorney for KRJ, Inc., dba KRJ Utilities

c: Gina Holt, Staff Attorney, Public Staff
William Grantmyre, Staff Attorney, Public Staff
John Little, Staff Attorney, Public Staff

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Tel: 919-760-3185

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. W-1075, SUB 12

In the Matter of
Application by KRJ, Inc., d/b/a KRJ Utilities
for Authority to Increase Rates for
Water and Sewer Utility Service in Its Southern Trace and
Rockbridge Subdivisions in
Wake County, North Carolina

Pre-Filed Direct Testimony
of
JAMES R. BUTLER, PE
Management Group of NC, Inc.

On Behalf Of
KRJ, INC., D/B/A KRJ UTILITIES

May 4, 2018

1 **Q. Please state your name, occupation and business address for**
2 **the record.**

3 A. My name is James Roderick Butler. I am the Vice President of
4 Management Group of NC, Inc. (“MGNC”) and am also a licensed
5 Professional Engineer. My business address is Post Office Box 2369,
6 Swansboro, North Carolina 28584-2369. I am also the Managing
7 Member of JRB Engineering Associates, PLLC, a firm which provides
8 detailed engineering design and consultation to public water and sewer
9 utility entities.

10 **Q. Please summarize your professional background.**

11 A. I am a graduate of North Carolina State University, having received a
12 B.S. degree in Civil Engineering. By profession, I have extensive
13 experience as a professional engineer, utility system manager, and
14 consultant. During my almost fifty-year professional career, I have
15 provided detailed management, operation and design of water and
16 sewer utility infrastructure; managed municipal and multiple regulated
17 public utility entities; and provided a broad range of client and project
18 support and coordination. A copy of my résumé is attached to this
19 testimony as Exhibit 1.

20 **Q. Please explain the services you provide to KRJ, Inc., d/b/a KRJ**
21 **Utilities (also referenced herein as “KRJ” or “Company”) on behalf of**
22 **Management Group of NC, Inc.**

- 1 A. MGNC is a corporate entity which provides the following operating
2 services to regulated water and sewer utility companies, such as KRJ:
- 3 • Provide accounting and customer billing services to utility companies
4 consistent with North Carolina Utilities Commission (“Commission” or
5 “NCUC”) and NARUC requirements
 - 6 • Managing utility system customer support
 - 7 • Provide services of regulatory liaison for utility companies with the
8 NCUC and the North Carolina Department of Environmental Quality
9 (“NCDEQ”) - Division of Water Resources
 - 10 • Operational advisement and consultation to water and sewer utility
11 companies and municipalities
 - 12 • Preparation of rate studies and cases for municipal and private
13 regulated public utilities
- 14 Because KRJ itself has no employees, the Company has retained
15 MGNC (specifically, my services) as an independent contractor to
16 provide primary operating support and general supervision to the
17 Company. I handle all of KRJ’s customer billing; provide accounting
18 services to KRJ regarding such billing and customer payments; provide
19 operating and capital expense accounting and records retention;
20 respond to customer complaints and billing questions; maintain
21 Company records consistent with NCUC and NARUC requirements;
22 prepare all reports on behalf of KRJ which are required by the NCUC,
23 such as the Company’s Annual Report, Regulatory Fee Reports, etc.;
24 file environmental quality reports; serve as KRJ’s regulatory liaison to
25 respond to questions from and supply information to the NCUC and

1 state environmental agencies; respond to questions from and consult
2 with M&M Water and Wastewater Services (“M&M”), the contractor
3 which serves as the certified water and wastewater treatment plant
4 operator for the Southern Trace water and Rockbridge water and
5 sewer systems; as well as other duties as needed.

6 In addition, I was solely responsible for the preparation of KRJ’s
7 pending 2018 Rate Case Application and have performed extensive
8 work as a professional engineer on the Rockbridge water and
9 wastewater systems since 2004. I have also provided management
10 consulting services pertaining to the Southern Trace water system
11 since 1996, and the Rockbridge utility systems since early-2007.

12 **Q. Please describe KRJ Utilities.**

13 A. KRJ Utilities is an investor-owned public utility pursuant to
14 North Carolina General Statute (“G.S.”) 62-3, does business as a
15 regulated water and sewer utility in North Carolina, and is subject to
16 the regulatory oversight of the Commission.

17 KRJ provides water utility service to customers in the Southern Trace
18 Subdivision in Wake County pursuant to a Certificate of Public
19 Convenience and Necessity (“CPCN”) which was granted by the
20 Commission in 1996 (NCUC Docket No. W-1075, Sub 0). The
21 Company also provides water and sewer utility service to customers in
22 the Rockbridge Subdivision pursuant to a CPCN granted by the NCUC

1 in Docket No. W-1075, Sub 5 on November 30, 2006.

2 Robert R. Stafford is the President of KRJ. Mr. Stafford owns 50% of
3 KRJ's stock, with his wife, Katherine A. Stafford, owning the remaining
4 50% of the Company's stock. Robert R. Stafford is also the President
5 of Stafford Land Company ("Stafford Land"), a land development
6 company, which is owned by members of his family, including his wife,
7 Katherine A. Stafford. Stafford Land and KRJ have common
8 ownership and, therefore, are affiliated entities.

9 In his testimony before the Commission in Docket No. W-1075, Sub 5,
10 Mr. Stafford testified that he is not personally involved in the day-to-day
11 operations of KRJ and that KRJ contracted with MGNC to:

12 handle our maintenance, meter reading, billing, emergency
13 response, process and distribution system operations, and
14 related tasks. MGNC, through its principal Rod Butler, has
15 served us well for many years. Rod has years of experience
16 in the water and wastewater utility areas, as indicated by his
17 resume attached to my testimony as Appendix A. We rely
18 upon him heavily, and, again, he does a good job for us.
19 (NCUC Transcript at page 8)

20
21 Mr. Stafford is still not personally involved in the day-to-day operations
22 of the KRJ utility systems, basically delegating that responsibility to me
23 and M&M, the certified water and wastewater treatment plant operator.

24 **Q. Please describe the Southern Trace Water System.**

25 A. The Southern Trace Subdivision is a single-family neighborhood
26 located on NC 50 just north of the Wake/Johnston County line. It is

1 fully-developed with 193 lots and the water system currently serves
2 190 customers. At the end of the test period for this case (June 30,
3 2016), KRJ provided water utility service to 188 Southern Trace
4 customers. The lots in the Subdivision are 1± acre and are served by
5 the KRJ Southern Trace water system. Initially, the water system
6 consisted of a single 5,400-gallon hydropneumatic tank and well. As
7 the Subdivision grew, two additional wells and a second 5,400-gallon
8 hydropneumatic tank were installed. The three wells consist of a
9 37 gallon-per-minute (“gpm”) well with a 5 horsepower (“hp”)
10 submersible well pump; a 72 gpm well with a 15 hp submersible pump;
11 and a 20 gpm well with a 3 hp submersible well pump. The water
12 distribution system consists of 4-inch and 6-inch PVC water mains and
13 appurtenances.

14 **Q. Please describe the Rockbridge water and sewer utility**
15 **systems.**

16 A. The Rockbridge Subdivision is a single-family development located
17 in eastern Wake County, between Poole and Grasshopper Roads,
18 which is continuing to be developed as it proceeds into its last phases.
19 Rockbridge is approved for a total of 407 lots. At the end of the test
20 period for this case (June 30, 2016), KRJ served 240 total customers
21 at Rockbridge, consisting of 236 water and sewer customers and four
22 water-only customers. Lot sizes at Rockbridge are smaller than at

1 Southern Trace; thus, a wastewater treatment system (rather than a
2 septic system for each house) was necessary for this Subdivision. In
3 June 2004, KRJ entered into an agreement with my engineering firm to
4 design the Rockbridge water treatment, elevated water storage tank,
5 wastewater reclamation (treatment) system, and reclaimed water reuse
6 system.

7 The Rockbridge water system, which currently serves approximately
8 324 water and sewer customers, consists of three wells: a 185 gpm
9 well with a 25 hp submersible well pump; an 82 gpm well with a 10 hp
10 submersible well pump; and a 35 gpm well with a 7.5 hp submersible
11 well pump. The system also includes a treatment building with
12 chlorination system, caustic soda and lime slurry chemical feed, and a
13 uranium removal system. A 150,000-gallon elevated storage tank is
14 located at the high point of the Subdivision, some distance from the
15 wells and treatment building. The water distribution system consists of
16 4-inch, 6-inch, 8-inch and 12-inch PVC and ductile iron water mains
17 and appurtenances.

18 The Rockbridge sewer treatment system consists of an influent pump
19 station; a 125,000 gallon per day (gpd) water reclamation plant
20 (currently permitted for 116,000 gpd) consisting of: influent flow
21 equalization; dual process trains consisting of anoxic process cells,
22 aerobic process cells, and gravity clarification; gravity filtration system;

1 liquid chlorine storage and disinfection; UV disinfection; a 5-day upset
2 pond; a 12,750,000 gallon long-term reclaimed water storage pond;
3 reclaimed water pump station; and approximately 42 acres of spray
4 irrigation fields. The sewer collection system consists 8-inch, 10-inch
5 and 12-inch gravity sewer mains.

6 As a supplement to my direct testimony, I also attach, as Exhibit 2, a
7 copy of a letter that I filed on April 12, 2006, behalf of KRJ in the Sub 5
8 docket which provides additional information regarding the Rockbridge
9 wastewater treatment system.

10 **Q. Please describe the Company's General Rate Case**
11 **Application.**

12 A. On January 10, 2018, KRJ, Utilities filed an Application ("2018 Rate
13 Case Application") in this docket seeking authority to increase its rates
14 for (a) water utility service in the Southern Trace Subdivision and
15 (b) water and wastewater utility service in the Rockbridge Subdivision.
16 The test period for purposes of this general rate case is the twelve-
17 month period of time ended June 30, 2016. At the end of the test
18 period, KRJ served approximately 428 metered water customers and
19 236 flat rate sewer customers.

20 KRJ filed its 2018 Rate Case Application based on the operating ratio
21 ratemaking methodology set forth in G.S. 62-133.1 and is requesting
22 approval by the Commission of a 7.5% margin on the Company's

1 operating expenses. Should the Public Staff's investigation in this
2 matter indicate that it would be more beneficial to the Company for its
3 new rates to be set based on the rate base, rate of return methodology
4 set forth in G.S. 62-133, KRJ requests that the Commission approve
5 new rates utilizing the G.S. 62-133 ratemaking methodology.

6 The present rates have been in effect since they were approved by the
7 Commission for the Southern Trace Subdivision in a general rate case
8 Order dated January 14, 2005, in Docket No. W-1075, Sub 4, and for
9 the Rockbridge Subdivision in the Order Granting Certificate of Public
10 Convenience and Necessity and Approving Rates dated November 30,
11 2006, in Docket No. W-1075, Sub 5. The approved rates for both
12 Southern Trace and Rockbridge Subdivisions were subsequently
13 reduced for the repeal of the gross receipts tax and State corporate
14 income tax rate reductions.¹

15 KRJ presently serves approximately 190 water customers in the
16 Southern Trace Subdivision and approximately 331 customers at
17 Rockbridge, consisting of 328 water and sewer customers and three
18 water-only customers. KRJ, as a regulated public utility, has a
19 continuing responsibility to upgrade the Company's utility infrastructure
20 and make necessary improvements to ensure its ability to continue to

¹ See Docket No. W-1075, Sub 10 and Docket No. M-100, Sub 138.

1 consistently provide adequate, efficient, and reasonable service to its
2 customers as required by G.S. 62-131(b).

3 The Company also has an obligation to comply with changing
4 environmental, health, and safety regulations and to fulfill its overall
5 obligation to provide quality, dependable service pursuant to its
6 certificates of public convenience and necessity. In addition, the
7 Company continues to fund required operations and expense ("O&M")
8 increases to ensure quality and compliant service.

9 **Q. What is the purpose of your direct testimony?**

10 A. The purpose of my direct testimony is to explain why KRJ Utilities has
11 requested Commission approval to increase its water and sewer rates.
12 In its 2018 Rate Case Application, the Company requested that its new
13 proposed rates become effective, unless suspended by the
14 Commission, for utility service rendered on and after Friday, February
15 9, 2018.² I discuss some of the factors that have contributed to the
16 need for this proposed rate increase and their impact on KRJ's
17 customers. I also discuss the terms regarding the operating ratio
18 (return on O&M expenses) which the Company is requesting in this
19 case. In addition, I will sponsor the Company's financial exhibits,
20 including pro forma income statements and balance sheets.

² The NCUC suspended the Company's proposed new rates for up to 270 days pursuant to G.S. 62-134 by Order entered in this docket on February 6, 2018.

1 KRJ is both obligated and committed to facilitate and maintain the
2 continued achievement of its goals and high standards regarding
3 safety, operational performance, and customer service. Therefore, the
4 Company's capital investments in utility plant in service and O&M
5 expense---which provide necessary benefits to customers and which
6 are dedicated to public use---must be recovered in rates.

7 **Q. What is the test year for this rate case?**

8 A. The test year for this general rate case is the twelve-month period of
9 time ended June 30, 2016. Pursuant to G.S. 62-133(c), KRJ reserves
10 its statutory right to update its expenses, for such things as rate case
11 costs, based upon circumstances and events occurring up through the
12 close of the hearing in this case.

13 **Q. Did KRJ Utilities cause a notice of proposed rate increase**
14 **regarding the Company's 2018 Rate Case Application to be mailed to**
15 **its customers?**

16 A. Yes. KRJ mailed the prescribed Notice to Customers, as approved
17 and required by the Commission, to all of its affected customers in a
18 timely manner.

19 **Q. Please describe the rates which KRJ's customers are currently**
20 **being charged for water and sewer utility service.**

21 A. KRJ's present water rates for customers in the Southern Trace
22 Subdivision are as follows:

1 Monthly Metered Water Rates:
2 Base charge, zero usage (minimum) \$19.12
3 Usage charge, per 1,000 gallons \$ 2.66

4 KRJ's present water and sewer rates for customers in the Rockbridge
5 Subdivision are as follows:

6 Monthly Metered Water Rates:
7 Base charge, zero usage (minimum) \$14.40
8 Usage charge, per 1,000 gallons \$ 1.49
9 Monthly Flat Sewer Rates (Per REU): \$68.33

10 **Q. What new rates does KRJ propose in this case?**

11 A. KRJ's new proposed water rates for customers in the Southern Trace
12 Subdivision are as follows:

13 Monthly Metered Water Rates:
14 Base charge, zero usage (minimum) \$34.82
15 Usage charge, per 1,000 gallons \$ 4.84

16 KRJ's new proposed water and sewer rates for customers in the
17 Rockbridge Subdivision are as follows:

18 /Monthly Metered Water Rates:
19 Base charge, zero usage (minimum) \$ 34.55
20 Usage charge, per 1,000 gallons \$ 3.57
21 Monthly Flat Sewer Rates (Per REU): \$105.37

22 KRJ is seeking additional gross revenue of approximately \$61,339
23 from the Company's Southern Trace water operations. KRJ's

1 proposed new rates would increase the average residential monthly
2 water bill for Southern Trace customers from \$32.81 to \$59.72, an
3 82.02% increase, based on an average monthly usage of 5,145
4 gallons.

5 KRJ is seeking additional gross revenue of approximately \$84,865
6 from the Company's Rockbridge water operations and \$107,497 from
7 Rockbridge sewer operations. KRJ's proposed new rates would
8 increase the average residential monthly water bill for Rockbridge
9 customers from \$22.07 to \$52.92, a 139.78% increase, based on an
10 average monthly usage of 5,145 gallons and the monthly flat sewer
11 rate from \$68.33 to \$105.37, a 54.21% increase.

12 In total, by its 2018 Rate Case Application, KRJ seeks approval to
13 increase current revenues by approximately \$253,701 in this case.

14 **Q. Were the financial schedules filed in conjunction with KRJ's**
15 **2018 Rate Case Application prepared by you and/or under your**
16 **direction?**

17 A. Yes, the schedules submitted in conjunction with the 2018 Rate Case
18 Application were prepared by me.

19 **Q. Are those financial schedules incorporated as part of your**
20 **testimony?**

21 A. Yes. They are incorporated herein by reference.

22 **Q. Please describe those schedules.**

1 A. The 2018 Rate Case Application includes the financial statements for
2 KRJ. The referenced schedules include a Balance Sheet, Income
3 Statement, Test Year / Present Revenues, and Proposed Revenues.

4 **Q. Please explain how test year expenses were adjusted.**

5 A. As previously stated, the Company's test year is the twelve-month
6 period ended June 30, 2016. Pro forma adjustments were made to the
7 test year expenses based on known and measurable changes to
8 actual expenses.

9 **Q. Were known and measurable pro forma adjustments also**
10 **made to the Company's income statement and its rate base**
11 **statement?**

12 A. Yes, as detailed therein.

13 **Q. Why is KRJ requesting rate relief at this time?**

14 A. KRJ's current balance sheet and income statement were submitted in
15 conjunction the Company's 2018 Rate Case Application. Without
16 satisfactory rate relief, KRJ's ability to continue to provide safe, reliable
17 and efficient water and sewer utility services to its customers and to
18 meet its financial obligations will be impaired and made more difficult.

19 **Q. What margin on the Company's operating expenses is KRJ**
20 **requesting in the case?**

21 A. KRJ filed its 2018 Rate Case Application based on the operating ratio
22 ratemaking methodology set forth in G.S. 62-133.1 and is requesting

1 approval by the Commission of a 7.5% margin on the Company's
2 operating expenses. Should the Public Staff's investigation in this
3 matter indicate that it would be more beneficial to the Company for its
4 new rates to be set based on the rate base, rate of return methodology
5 set forth in G.S. 62-133, KRJ requests that the Commission approve
6 new rates utilizing the G.S. 62-133 ratemaking methodology.

7 **Q. Please describe the primary reasons which underlie the**
8 **Company's need for rate relief.**

9 A. The primary reasons for KRJ's requested rate increase involve
10 increases in expenses incurred since the Company's rates were (a)
11 last increased for the Southern Trace water system effective January
12 14, 2005 (more than 13 years ago) and (b) initially set for the
13 Rockbridge Subdivision on November 30, 2006 (more than 11 years
14 ago).

15 The new rates applied for by KRJ are necessary because the
16 Company has been unable to operate profitably and, in fact, incurred
17 large operating deficits during the test year, as well as prior years. The
18 failure to achieve an adequate level of earnings was caused by
19 increased operating costs to upgrade the level of service and
20 increased operating costs and capital investments required to comply
21 with service obligations (including the regulatory lag encountered in the
22 Company's inability to timely recover such costs through rates) since

1 rates were either last increased for Southern Trace or initially set for
2 Rockbridge (in both instances, more than a decade ago).

3 **Q. If KRJ has been operating at a loss, why did the Company not**
4 **file an application for a general rate increase before the it filed the**
5 **2018 Rate Case Application?**

6 A. Certain critical issues affected the Company's decision not to file a
7 general rate case prior to 2018. First, the Company determined that it
8 was impractical to file individual rate cases for each of the two systems
9 because the financial data supporting a request for rate relief is
10 generally maintained as a single data set. Second, and more
11 importantly, a primary factor in the delay was the uncertainty of rate of
12 growth of Rockbridge. This factor is discussed in detail below.

13 The first subdivision plat, creating lots, for Rockbridge was recorded on
14 October 27, 2006, by Stafford Land, the developer of Rockbridge.
15 Initially, Rockbridge began developing houses at a moderate rate. In
16 March 2007, K.Hov, the original builder at Rockbridge, broke ground
17 on its first houses. A total of 42 houses were begun almost
18 simultaneously. K.Hov built and sold a total of 69 houses at
19 Rockbridge. Unfortunately, K.Hov, like so many other builders, was
20 impacted by the housing slump and the 'too big to fail' ripple effect that
21 ran through the financial industry during the 2007-2008 period. K.Hov,
22 a New Jersey based corporation, was heavily invested in the Florida,

1 Arizona, Nevada, and California markets which were far more
2 impacted by the financial crisis than other areas of the country. Sales
3 of houses built by K.Hov began to decline in mid-2008, and no new
4 structures were begun. Ultimately, in early-2009, K.Hov sold most of
5 its remaining inventory at Rockbridge and exited the subdivision.

6 Some time elapsed before a replacement builder could be obtained,
7 again due to the depressed housing market. For 18± months, the
8 Rockbridge Subdivision, with its 69 houses, was effectively “dead” as
9 there were no new building starts; the only traffic consisted of re-sales
10 of the existing structures, including the remaining K.Hov inventory.

11 Stafford Land was ultimately successful in negotiating an agreement
12 with Savvy Homes, LLC (“Savvy”), which began construction of three
13 houses in Rockbridge in January 2010. As is always the case when a
14 new builder enters a dormant or new development, it took some time
15 for Savvy to develop any market momentum. Two more months
16 elapsed before construction of any additional houses began. Savvy's
17 last house “start” occurred in September 2011. Savvy had been active
18 in Rockbridge for only 20 months. In total, Savvy constructed 48
19 houses.

20 Savvy provided advance notice of its intent to exit Rockbridge, which
21 allowed Stafford Land the opportunity to again pursue a replacement

1 builder. However, this time the subdivision didn't lay fallow as it had
2 following the exit of K.Hov.

3 In August of 2010, Eastwood Homes of Raleigh ("Eastwood") began
4 construction of houses. Eastwood remains active in Rockbridge to this
5 day, having built a total of approximately 125 houses. In
6 December 2013, a second builder, Royal Oaks Building Group
7 ("Royal Oaks"), began construction of its first house in Rockbridge.
8 Royal Oaks also remains active in Rockbridge, having built
9 approximately 75 houses.

10 With this detailed history of the protracted development of the
11 Rockbridge Subdivision in mind, the concern was that a rate increase,
12 if sought and imposed prematurely, might itself thwart future
13 subdivision and customer growth, thereby further stressing the
14 development of the Subdivision. KRJ concedes that the Company
15 could have filed a general rate case before 2018. However, because
16 of the ongoing problems encountered with securing and retaining
17 builders during the extended period of development of Rockbridge,
18 KRJ decided to hold off on any rate case efforts until it was apparent
19 that development of Rockbridge Subdivision was more established and
20 robust.

21 Preparation of the actual 2018 Rate Case Application was also a very
22 time-consuming and complicated effort which, once begun, took far

1 more time than anticipated to conclude and finalize for filing with the
2 Commission.

3 In truth, KRJ's customers were beneficiaries of the Company's
4 extended delay in filing for rate relief as they continued to pay rates for
5 water and sewer utility service which did not cover KRJ's true costs of
6 providing that service, including a reasonable profit margin.

7 **Q. Did the Company initially include costs for anticipated post-**
8 **test year plant additions as part of its 2018 Rate Case Application?**

9 A. No. The Company does, however, reserve the right, pursuant to
10 G.S. 62-133(c), to request consideration of actual changes in costs,
11 revenues, and plant based upon circumstances and events occurring up
12 to the time the hearing is closed, including updates to the Company's rate
13 case costs. KRJ has subsequently provided information to the Public Staff
14 in response to discovery requests regarding post-test year plant additions
15 and requests consideration thereof in setting new rates in this proceeding.

16 **Q. Is this testimony true and accurate to the best of your**
17 **knowledge, information, and belief?**

18 A. Yes, it is.

19 **Q. Does this conclude your testimony?**

20 A. Yes.

James Roderick Butler

Post Office Box 2369
Swansboro, North Carolina 28584
Office: 252.393.8562

W-1075, Sub 12
Butler Exhibit 1

e-mail: rod@mgnc.us

EXECUTIVE PROFILE:

Engineer, Utility System Manager

Forty plus year career providing detailed management, operation and design of water and sewer utility infrastructure. Manager of multiple regulated public utility entities. Provide broad ranging client and project support and coordination.

PROFESSIONAL EXPERIENCE:

Jan 1999 -- present

James R. Butler, PE
JRB Engineering Associates, PLLC
Swansboro NC

Detailed engineering design and consultation to regulated public water and sewer utility companies.

- Design of 1.2 MGD Sequencing Biological Reactor high-removal water reclamation plant with high rate infiltration ponds.
- Design of biological nitrogen reduction wastewater treatment plant with effluent reuse on nitrogen limited vegetation.
- Design of water reclamation and reuse systems for large communities.
- Design of renovation or replacement of several small (50,000 gpd – 250,000 gpd) wastewater treatment plants.
- Engineering alternatives analysis for municipal wastewater treatment plants.
- Design of numerous ground absorption wastewater systems;
- Start-up services for approximately 15 water and wastewater treatment facilities, and ongoing operational consultation.
- Preparation of Wastewater Engineering Alternative Analyses for NPDES Permit renewal; design of complex pumping and conveyance systems, including an 8-mile forcemain system for the Village of Walnut Creek in Wayne County, NC.
- Technical evaluation and expert witness testimony regarding AIG purchase of Utilities, Inc. and its impact on sewer service to North Topsail Beach.
- Development of application packages for State low-interest revolving construction loans; and, preliminary engineering reports supporting State grant and loan applications.
- Design of several groundwater source and treatment systems, and elevated tank storage for large residential developments.

Sep 2002 -- present
Sep 1986 -- present

Management Group of NC, Inc. – Vice President
Aqua Resource Corporation - President
Cedar Point, NC

Management and operating services to regulated water and sewer utility companies.

- Provision of accounting and customer billing consistent with North Carolina Utilities and NARUC requirement.
- Managing Utility system customer support.
- Provide of regulatory liaison for utility companies with Utilities Commission, North Carolina Department of Environment and Natural Resources Divisions of Water Quality and Water Resources Public Water Supply Section.
- Operational advisement and consultation to water and sewer utility companies and municipalities.
- Preparation of rate studies and cases for municipal and private regulated public utilities.

Sep 2010 – Mar 2012

Onslow Water and Sewer Authority
Director of Engineering

Management, planning and operational oversight for moderate sized water and sewer authority.

- Development of Capital Improvements Plan including long range planning.
- Management as Owner's Representative significant number of complex capital improvement projects.
- Supervise small Engineering/GIS/Inspection staff.
- Oversight and operational support of operation of eighteen water and six wastewater treatment facilities.
- Provide staff support to Executive Director and Board of Directors.

James Roderick Butler

Aug 1984 -- Jan 1999 Bass, Nixon & Kennedy, Inc.

Senior Principal Engineer / Assistant Corp. Secretary

Raleigh, NC

Technical design supervision of sanitary engineering functions of firm, consultation to municipal water and sewer utilities, corporate management of engineering firm.

- Provided general supervision and coordination of the civil design section of the firm.
- Performed detailed design of the more complex water and sewer treatment, pumping and conveyance systems.
- Performed the duties of general business manager including: the implementation of a management information system; development and institution of a detailed personnel position classification and pay plan; and, served as coordinator of insurance, risk management, and personnel benefit programs.
- Design of water source (well), treatment, and elevated tank storage for several large residential developments.
- Design of a number of modifications of existing intermediate size wastewater treatment plants.
- Provided biological and physiochemical process consultation and guidance to municipal and private wastewater treatment plant operations.
- Served as Town Engineer for the Town of Morrisville, through contract. The services I provided included: technical support to Town staff, including wastewater treatment operators; review of site and subdivision plans; preparation of construction documents for street and utility improvements; development of engineering standards for extension of public facilities; and, negotiation of an intermunicipal agreement by which the town purchases water and sewer treatment from a neighboring municipality.
- Prepared detailed evaluation of North Topsail Beach Sewer system for due-process consideration by Onslow County.
- Provided consultation and advisement to N C Utilities Commission in matter of failed or failing ground absorption utility systems.
- Design and permitting responsibility of:
 - Ten advanced wastewater treatment plants;
 - 90,000 linear feet of 24-inch to 54-inch sanitary sewer interceptor for the City of Raleigh;
 - Over forty sanitary sewer pumping stations with capacity of from 75 gallons per minute to 5,000 gallons per minute.
 - Fifteen (15) well treatment systems for public water supply systems.

James Roderick Butler

May 1979 -- Aug 1984 City of Raleigh, North Carolina
Public Utilities Director
Jan 1975 -- May 1979 Assistant Public Utilities Director

Chief executive and principal technical advisor/administrator of the second largest non-tax-supported water and sewer enterprise in North Carolina.

- Provided fiscal planning and control, including development and administration of a \$ 23 million/year (1984 dollars) operating budget.
- Developed physical facility long range planning.
- Provided design administration.
- Researched and perfected funding acquisition.
- Performed or supervised construction management of construction contracts totaling \$ 80,000,000.
- Provided departmental interface with all other municipal, State, and Federal agencies.
- Provided policy research and development for consideration by the City Council, working closely with the City's legal staff.
- Supervised enforcement of the policies established by the City Council.
- Worked closely with the Council members in maintaining their knowledge of the overall state and performance of the department.
- Supervised and administered a 283 person organization.
- Maintained liaison with neighboring municipalities, County Commissioners, State and Federal regulatory agencies, and members of the North Carolina General Assembly.

Nov 1970 - Jan 1975 City of Greensboro, North Carolina
Municipal Engineer II

Responsible for detailed design, construction supervision and contract administration of major water transmission, pumping, sewer collection, park and street improvements.

EDUCATION: N C State University - Raleigh
Bachelor of Science - Civil Engineering - 1970

MILITARY: United States Marine Corps Reserve – Honorable Discharge

James Roderick Butler

PRACTICE LICENSES:

Professional Engineer - NC, VA, SC (Emeritus)

FACILITY OPERATOR CERTIFICATIONS:

NC Water - B-Well, B-Distribution, Cross Connection Control

NC Wastewater - Grade IV Biological, Grade II Collection, Spray Irrigation

The above curricula vitae is a listing of substantive issues and terms, and does not represent a total professional history.

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WATER & SEWER DIVISION
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Public Staff

7-Apr-2006

Ms. Babette McKemie
Public Staff – Water Division
4326 Mail Service Center
Raleigh NC 27699-4326

In Re: W-1075, sub 5 – Rockbridge Subdivision

Dear Ms. McKemie,

In your letter to us, dated 23-Mar-2006, you requested that the Public Staff be provided a letter stating why the costs associated with the water and sewer system serving Rockbridge subdivision were somewhat higher than other systems in the area. This letter is in response to that request.

In order to fully respond to your request, it is necessary to review the entire decision-making process leading up to the selection of systems being installed to serve the subdivision. In doing so, I will attempt to contrast, as appropriate, items within the Rockbridge systems to those in more typical systems in the state.

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BACKGROUND

An initial consideration in the development of any property is the availability of water and sewer services that will provide the highest level of quality service, efficiency and environmental responsibility.

Private wells and septic systems are often chosen for simplicity and ease of permitting. However, they are not without their problems. First, eastern Wake County groundwater is known to be high in radiological activity, including uranium and radium. Private wells are generally never tested or treated for these contaminants or for the 100+ other contaminants that are regulated in public water supply systems by the Federal Safe Drinking Water Act. Individual septic systems are only minimally regulated, and that ceases after installation unless there is an identified failure of a system. Both are subject to poor maintenance when the homeowner often takes an "out of sight – out of mind" attitude regarding them.

The position of the Wake County Division of Environmental Health (which was publicly expressed during the regulatory approval process of Rockbridge), is that a single regulated water and wastewater treatment system is far more desirable than several hundred small unregulated systems serving the same population for reasons of both public health and environmental protection.

A public utility system is the preferred avenue to provide service to a new subdivision.

We understand that the previous owner of the land, the late Mr. Charles Gaddy (Gaddy) or his agent, investigated utilizing existing utility systems in the general vicinity of the property with the following results:

- CAROLINA WATER SERVICE (CWS) serves the adjoining Rutledge Landing subdivision as an extension of their Amber Acres system. The response received when they were approached was that:
 - 1) They had no available water capacity to serve the additional area;
 - 2) The existing wastewater treatment plant had no available capacity to serve the additional area; and,
 - 3) Their wastewater treatment plant had been constructed to the capacity of their discharge (NPDES) permit and could not be expanded further.
- The TOWN OF WENDELL which owns and operates a wastewater pumping station immediately adjacent to the property advised that they could not/would not allow connection to their facility due to:
 - 1) contractual restrictions with the City of Raleigh that require any property connecting to their system to be within the Wendell zoning jurisdiction, which the property is not and can not be, due to its location without Raleigh consent;
 - 2) there being no additional capacity in their facilities to serve the property, and
 - 3) they could not purchase additional capacity from Raleigh because of issues at the Raleigh Wastewater Treatment Plant, at that time.
- The TOWN OF KNIGHTDALE advised that they had all of the same issues as Wendell and therefore could not serve the property from their system.

- The CITY OF RALEIGH was not initially contacted due to lack of proximity to the property. However, they issued a letter to Wake County, during the subdivision approval process, making it very clear that Raleigh would not serve the area.

Therefore, a self-contained water and wastewater system was the only way by which public services could be provided to the property. A Utility Service Agreement was entered into on August 10, 2005 by Gaddy, setting out the terms by which KRJ will provide public water and sewer services to the property. A copy has been provided to the Public Staff in response to Data Requests in Docket W-1075, Sub 5.

Wells were installed during evaluation of the property for development to assure that sufficient quantities of water were available. The treatment of which will be discussed later in this letter.

If a wastewater treatment facility was to be constructed, a means of accommodating its resulting effluent must be identified. The "easy" method historically utilized was to obtain a NPDES permit for the discharge of effluent into a convenient surface water course. This is the case with the City of Raleigh, CWS Amber Acres, and most existing systems. However, more recently, the N C Department of Environment and Natural Resources (NCDENR), has required that the applicant for a new permit demonstrate conclusively that there is no other alternative available. The result of their position is that there have been less than five (5) new NPDES permits issued in the entire state in the past three years, and I am advised that none were in the Neuse River Basin. The principal driving force in the position taken by DENR is the nutrient and assimilative loading of the surface waters. Most NPDES permits include a condition requiring that the same alternatives analysis must be performed each time that the permit is renewed in an attempt to reduce the number of discharges over time. Regardless, obtaining an NPDES permit was not an option.

A non-discharging wastewater system was the only available option.

Subsurface disposal public utility systems are quite limiting due to their reliance on the hydraulic capacity of the soils. Further, after the debacle following Hurricane Fran in the early 90's, when a number of large LPP systems were destroyed, their acceptability to the regulatory community was essentially terminated.

"Effluent spray" systems (much akin to the hog parlor lagoon systems) are unacceptable in residential settings due to the potential odors, high land demand, lack of process control, restriction of use of spray sites, and potential environmental and health impacts. All of these reasons contributed to the rejection of this alternative.

The system selected to address the sewage needs of the community is that of a "water reclamation and reuse" system. A reuse system uses very highly treated (reclaimed) water for beneficial reuse. Reclaimed water must meet contaminant, disinfection and clarity (turbidity) standards significantly more restrictive than those imposed on a plant operating under an NPDES permit. In many areas of the country where water is less plentiful, such as Florida, Arizona, California, Nevada and New Jersey, reclaimed water is actually sold to individual homeowners for irrigation. I have recently been advised that the State of California is permitting reclaimed water to be used for direct recharge of groundwater aquifers. In North Carolina, regulations have not progressed to such a level and reclaimed water is relegated to being reused on specific sites where its application can be controlled by its producer. In the case of Rockbridge, the reclaimed water is reused to irrigate approximately 43 acres of open space.

Even the City of Raleigh is beginning to enter the water reclamation/reuse arena with the reclaimed water from its plant being utilized to irrigate the golf course at River Ridge subdivision on Auburn-Knightdale Road. Raleigh's entrance into water reclamation/reuse is motivated by the limitation of expansion of their NPDES permit to serve expanded populations. It is my understanding that Raleigh's NPDES permit can not be expanded beyond its current size. Such a limitation will require that any enlargement of its plant beyond the NPDES permitted capacity, to serve greater populations, will require a commensurate development of reuse sites.

COST SHARING

Mr. Gaddy's estate, as the initial entity requesting public water and sewer facilities at Rockbridge, was required by KRJ's Utility Service Agreement to contribute, at no cost, all lands necessary for the installation and operation of the water and wastewater systems serving the community, including water reuse areas.

The developer of the lots at Rockbridge is required, under the terms of the Utility Service Agreement, to construct at his expense and convey (contribute) to the Utility all water distribution and sewer collection mains and service lines at no cost to the utility, similar to contribution required when a new subdivision is developed and served by an extension of a municipal system.

The home builder is required to pay tap fees, as approved by the Utilities Commission (which have been requested in our filing to be set at \$5,000 per lot, which is comparable to the fees paid to most municipalities in Wake County). The tap fees collected are used to offset part of the capital costs incurred by the utility to install facilities that are not contributed to it, including source, treatment, storage, and reuse facilities.

The Utility (KRJ) will obtain financing for the necessary facilities that are either not contributed or paid for as set in our Utility Services Agreement, as I have summarized above.

REGULATORY OVERSIGHT

The water supply system, including all treatment processes, must be permitted for construction and operation by NCDENR Division of Environmental, Public Water Supply Branch. This agency administers, for USEPA, the Federal Safe Drinking Water Act (SDWA) as it applies to all public water supply systems, such as the one providing water service to Rockbridge.

The water reclamation and reuse system must be permitted for construction and operation by NCDENR Division of Water Quality. This agency administers, for USEPA, the Federal Clean Water Act.

Compliance with the requirements of NCDENR Division of Environmental Health, Public Water Supply Branch and Division of Water Quality is mandatory, and all capital and operating expenses required by their permits conditions are necessary to operate the systems. The systems described below are designed to comply with these requirements.

WATER SYSTEM DESCRIPTION

The raw water source is obtained from several deep (400+ feet) wells located within the subdivision. A total of six (6) wells were drilled. Two were "dry" wells, and the others produced water at rates of between 38 and 200+ gallons per minute. All were found to have water quality requiring treatment beyond disinfection, which will be described further below; and, two were found to have elevated levels of uranium, requiring treatment for its removal. Three wells were selected for initial utilization; the two without uranium and the one with the lesser concentration. All three are required to comply with the NCDENR requirements for water quantity. The fourth well will be "temporarily abandoned" and will not be utilized unless yield of the others falls in the future.

Although no volatile or synthetic organic chemicals, nitrate, nitrite, and minimal to no concentrations of inorganic materials such as iron were detected in the water from these wells, the absence of alkalinity, calcium, and magnesium and a low pH causes the water to be quite aggressive (low Langelier Index) which will result in erosion of plumbing within houses if the water is not treated appropriately.

The treatment process for the water, excluding treatment for uranium, is:

- the addition of hydrated lime to increase alkalinity;
- the addition of sodium hydroxide to adjust the pH; and,

- the addition of sodium hypochlorite as a disinfectant, as is required for all water supply systems constructed since the early 1970s.

The raw water from all wells is brought to a common point for treatment, to minimize capital costs. Chemical application is flow proportional to help assure uniform water quality.

The water from the well containing the elevated uranium concentration is subjected to an additional treatment process to remove the uranium.

Initially, blending of the water from the three wells was proposed to reduce the uranium concentration below the maximum contaminant level set by the SDWA. However, this approach was rejected by NCDENR/DEH/PWS early in the permitting process; as they only allow blending to be considered as a remediation of a condition arising in existing systems and not for the initial method of address.

The preferred method of removal of uranium, or other radionuclides, is by ion exchange. Historically, the radiologically enriched regeneration water (waste) from the ion exchange process was discharged to surface water under authority of an NPDES permit; which is now generally infeasible. (See above discussion) Alternatively, the wastewater from the process would be discharged into the wastewater treatment and disposal system. This is also not feasible as it would result in the reclaimed water to be reused having a significantly elevated uranium concentration. The treatment process chosen is one where ion exchange is utilized to entrap the uranium on the treatment media, which is then removed from the process by an outside contractor for disposal off-site, as a low level waste material.

The water distribution mains and service lines are constructed of materials normally utilized in municipal and county systems throughout the state and as prescribed by NCDENR regulation. Each lot is provided a separate water service line. The meter is installed at the Utility's expense when service is initiated to that lot.

An elevated water tank is provided for system storage. NCDENR regulations require elevated storage in all systems having greater than 300 connections. A telemetry system will transmit tank water level data to the water treatment facility which will be used to automatically control the wells and treatment systems.

WATER RECLAMATION/REUSE SYSTEM DESCRIPTION

Wastewater is conveyed from each lot by gravity via a collection system constructed consistent with accepted standards of the industry, as prescribed by NCDENR regulation. The gravity collection system terminates at an influent pumping station located on the site of the water reclamation system.

The **influent pump station** is equipped with dual submersible pumps which convey the wastewater to the water reclamation plant. Power to the pump station is from the operations building, which houses among other things the standby generator's automatic transfer switch and electrical distribution equipment for the entire site.

The **water reclamation facility** was initially a "Sheaffer" system proposed for water reclamation (sewage treatment). However, the Wake County Board of Commissioners has refused, for political reasons, to approve any subdivision using this type of system.

The facility that is to be utilized is a conventional process containing operating elements of:

- Influent flow screening to remove debris such as paper, plastics;
- Influent flow equalization to cause the flow to be uniform into the biological processes; and,
- Dual process trains, as required by NCDENR, for water reclamation facilities, each consisting of:
 1. Anoxic process cell
 2. Aerobic process cell
 3. Gravity clarification
- A three bed gravity filtration system
- Liquid chlorine storage and disinfection system
- UV disinfection system
- Liquid dechlorination chemical storage and application system
- Continuous turbidity and chlorine residual monitoring and recording facilities
- Sampling equipment
- Measurement and recording facilities

A 5-day (685,000 gallon) **upset pond** is provided to side-stream plant flow should the turbidity of the final water exceed a preset limit, until the process can be brought back into proper performance.

A 12,750,000 gallon **long term storage pond** is provided to receive the reclaimed water. The reclaimed water must be held in storage after production until circumstances are appropriate for the reuse of water by surface irrigation. Rain events, freezing weather and rate of evapotranspiration all impact the timing of reuse. A model of the most recent 27-years of climatic record for the Triangle area was developed to determine the size requirements of the long term storage pond.

Both ponds are lined with a long-life synthetic membrane, as required by NCDENR regulation, as the soils on the site are quite sandy at depths required for construction of the ponds.

Reclaimed water is pumped from the long term storage pond by an **irrigation pump station** through approximately 2 miles of **reclaimed water mains** to approximately 41 acres of **reuse sites** which are equipped with 92 control zones comprised of approximately 632 spray heads and approximately 4 miles of small diameter distribution lines.

COST COMPARISONS

Water:

Notable items in the water supply system that significantly increase capital costs, when compared with other systems of its size, are the nature of chemicals being applied for treatment and the uranium removal system. The application of hydrated lime requires liquid slurry storage facilities equipped with continuous mixing equipment and pumping equipment capable of reliably handling the abrasive slurry.

The operating cost of the water system is significantly increased by operating and maintenance of the addition of lime addition and the removal/replacement of the uranium treatment media.

Wastewater:

A number of items increase the capital cost of the water reclamation and reuse system over that of a discharging (NPDES) facility; all of which are required in order for the resulting water to be reused.

1. Process Duality Requirements

NCDENR requires that all reclamation/reuse plant have dual process trains, as opposed to NPDES facilities that may have a single process train. This results in additional capital cost in creating capacity to handle the same volumes in two separate sets of elements.

2. Redundancy of Equipment

NCDENR requires that each piece of equipment in a treatment process be shadowed by a second "standby" piece of equipment. This is impacted quite heavily by the process duality. Specifically, where an NPDES plant may require two (2) pumps or mixers (one duty, one redundant), the process train dualization requires that four (4) be provided.

3. Process Monitoring

NCDENR requires continuous monitoring of only rate of flow in an NPDES plant; in contrast, a reclaim/reuse facility must also continuously monitor turbidity, which is part of the required automatic control of finished water routing. Further, due to concerns raised during the permitting process that excess chlorine may result in groundwater issues in the future, continuous residual chlorine monitoring and recording is also required.

4. Disinfection

Where a NPDES plant would typically have chlorination/dechlorination to meet a coliform population limit of 200 cfu/100 mL, a reclaim/reuse plant must also include dual pass ultraviolet irradiation to assure the plant produces reclaimed water with no more than 14 cfu/100 mL.

5. Storage

An NPDES plant would not be required to construct either the upset or long-term storage ponds. Ongoing maintenance of the ponds is required for its mechanical aeration equipment and to assure that aquatic vegetative growth is held to a minimum.

6. Reuse facilities

An NPDES plant is not a reuse facility. Therefore, it would not incorporate the irrigation pump station, reclaimed water mains, reuse fields, reuse application equipment and controls. Reuse fields must be agronomically maintained to assure that spray patterns are not adversely impacted by vegetative growth and that spray operation can be monitored and maintained. The spray system must be visually observed on a continuing basis to assure that application rates/times do not result in runoff. Continuing maintenance of the equipment and controls is essential to assure that proper and timely application of reclaimed water is affected.

Operating and maintenance costs associated with reclaim/reuse system are significantly greater than those of an NPDES plant for the simple reason that there is a whole lot more equipment, processes, complexity and detail involved in the proper operation and maintenance of a reclaim/reuse system than a simple, single pass, low removal rate, discharging plant.

COST DOCUMENTATION

The Public Staff has previously been provided documentation of bids received for the supply and installation of approximately 80-percent of the capital improvements that are to be installed by KRJ Utilities in its provision of service to the residents of Rockbridge subdivision. All remaining capital expenditures,

which are documented by engineer's opinion of probable cost, will be vetted at such time as KRJ may apply for rate adjustments.

The Public Staff has also been previously provided abundant documentation of the projected cost, including man-hours and payroll expense projections, chemical, power, laboratory, maintenance and repair, and management expenses associated with the system. Again, these will be vetted as actual expenses at such time as KRJ may apply for rate adjustments.

SUMMARY

The costs, both capital and operation, associated with the water and wastewater systems at Rockbridge are greater than those of other, older systems for the reasons explained above.

The greater issue, I believe, is the current perception of what water and wastewater utility service should cost, which is borne of prior history. With the advent of:

- New EPA regulation of uranium monitoring requirements and institution of a regulatory concentration limit, which is estimated to require the installation of treatment equipment for over 600 wells in public water supply systems in the state in the near future; and,
 - The near cessation of issuance of NPDES permits in North Carolina
- the capital costs indicated in the W-1075 sub 5 filing will shortly become the "norm" rather than the exception for new and many existing utility systems. Further, the operating costs for both small and large systems will be significantly elevated due to these and other increasing regulatory requirements.

No one, particularly a utility that must deal with customer billing and complaint issues, wants to spend money needlessly. However, we all are properly concerned with our health and that of others; protecting and improving our environment, both natural and constructed; and complying with ever-changing regulatory requirements. There are costs associated with each.

Respectfully,



James R. Butler, P.E.
Design Engineer and Management Consultant

CERTIFICATE OF SERVICE

I hereby certify that I have today served a copy of the foregoing **Direct Testimony and Exhibits of James R. Butler, P.E.**, filed by KRJ, Inc., d/b/a KRJ Utilities in Docket No. W-1075, Sub 12, on the attorneys for the Public Staff (the only formal party to this case) in accordance with North Carolina Utilities Commission Rule R1-39, either by United States mail, first class postage pre-paid; by hand delivery; or by means of electronic delivery upon agreement of the receiving party.

This the 4th day of May, 2018.

Electronically Submitted
/s/Robert H. Bennink, Jr.
North Carolina State Bar No. 6502

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