

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for certificate to provide
wastewater service in Charlotte
County by Environmental Utilities, LLC

Docket NO. 20200226-SU

REBUTTAL TESTIMONY

OF

JONATHAN H. COLE, P.E.

on behalf of

Environmental Utilities, LLC

1 **Q. Please state your, name profession and address.**

2 A. My name is Jonathan H. Cole, P.E. I am a professional engineer and President of Giffels-
3 Webster Engineers, Inc. My business address is 900 Pine Street, Suite 225, Englewood,
4 Florida 34223.

5 **Q. Have you previously filed direct testimony in this proceeding?**

6 A. Yes.

7 **Q. What is the purpose of your rebuttal testimony?**

8 A. To respond to some statements made in the WEC memo dated November 18, 2021, and
9 offer input regarding septic systems.

10 **Q. What issues are you addressing in your testimony?**

11 A. Several relating to the viability and recommendation of Low pressure sewer rather than
12 vacuum sewer.

13 **Q. Have you reviewed the Weiler Engineering Corporation (WEC) memo dated
14 November 18, 2021 regarding the GWE “Evaluation of Wastewater Collection
15 Technologies” technical memo dated April 2, 2021?**

16 A. Yes.

17 **Q. Do you have any comments on that WED memo?**

18 A. I do, as follows:

19 Two systems were evaluated. There was an initial comment by WEC regarding the
20 definition of low pressure system that “*system technically does not operate at low
21 pressure since the pumps are high head*”

22 The proposed system was evaluated using the CCU approved standard septic tank pump
23 system which was mandated as the fundamental basis for the evaluation and not grinder
24 pumps. The CCU details are in the appendix and they call their details “LPS” even though

1 it technically may be a Septic Tank Effluent System (“STEP”) system. The effluent
2 pumps normally do not operate at a very high head (like a grinder pump). We used the
3 term “LPS” for consistency with the County STEP system details. Regardless, I believe
4 the precise definition of LPS is inconsequential to the evaluation.

5 WEC further stated: *“It is worth noting that in both systems a master pump station would*
6 *need to be incorporated. A detailed cost of that station was not provided and assumed*
7 *would be installed by Charlotte County.”* WEC is correct. The analysis assumes a CCU
8 built lift station in Cape Haze to receive flow from the collection system. Since that cost
9 is the same regardless of collection system type it has no bearing on the comparative
10 analysis or our recommendation.

11 WEC addressed the methodology of evaluation economics and O&M. WEC made the
12 following comment:

13 *“..no hurricane or emergency operation cost were factored out*
14 *individually as opposed to a vacuum station which is central and*
15 *more resilient during storm events”*

16 *“Another ongoing maintenance concern that was not addressed is in*
17 *consideration of LPS is that the proposed tank systems allow for*
18 *settling of solids and only moves water. This will result in periodic*
19 *cleaning that will be need of the basin as opposed to a traditional*
20 *grinder pump system or vacuum system which processes solids to the*
21 *wastewater facility. The additional costs of cleaning the basins*
22 *should be factored into the O&M unless the burden falls on the*
23 *homeowner.”*

24 Some relatively minor costs for both system types were neglected. The cost for individual

1 occasional septic tank pump out at perhaps five to up to fifteen year intervals is
2 relatively low, when annualized. Similarly, the cost to paint the Vacuum station as well
3 as the annual cost for mulch bed replacement was also not included because as those costs
4 are also relatively low. The significant costs are the LPS pump rebuilding, replacement
5 and labor costs. Our conclusion is that the LPS system will have over twice the operation
6 and maintenance cost of a vacuum system or about \$200/yr./edu for LPS vs \$95/yr./edu
7 for vacuum. While some other costs for both systems could be added and our
8 assumptions for labor, electrical or pump repair could be adjusted for either system, we
9 don't believe it will significantly affect the relative maintenance costs, comparative
10 analysis or our final recommendation.

11 WEC also discusses the tech memo regarding advantages and disadvantages, bridge
12 connections, corrosion land acquisitions, and included the following comment:

13 *“However as can be seen in the calculation appendix table below*
14 *the velocities are less than 2 fps in several lines which is the*
15 *recommended minimum scouring velocity”*
16 *“Another concern is the proposed system pipe sizes is the low TDH*
17 *on several lines this will cause the pumps to operate inefficiently and*
18 *possibly result in damage”*

19 The preliminary line sizes for the LPS system were based on the EPA Manual. Depending
20 on the assumed flow per home, the velocities may indeed be slightly below than the 2 fps
21 guideline in some lines because the EPA assumes a higher flow per home than Charlotte
22 County. However, the primary purpose of the preliminary hydraulics is to conservatively
23 estimate future mainline pipe diameters. The lines assumed are slightly larger which is
24 *more conservative* from a cost estimating standpoint which increases the total cost

1 estimate for the LPS system. Final line sizes will be determined and may be reduced in
2 the final design. If anything the final mains will be smaller than preliminary estimated
3 which, assuming unit prices hold, should correspond to a lower cost for the LPS.

4 It is the opinion of WEC *“based solely on the Technical Memo that connection via low-*
5 *pressure sewer is not required or necessarily the best system for the application as*
6 *presented.”*

7 The type of system recommended is not a requirement. It is an analysis as to which
8 collection system makes the most sense to install on these barrier islands taking cost as
9 well as several other important factors into consideration. It is unclear what type of system
10 WEC is recommending but it appears that they are recommending vacuum over LPS.
11 While we have designed more vacuum than any other engineer in Florida and have
12 recommended vacuum for many large areas, my opinion remains that for this barrier
13 island and its associated constraints a LPS system is preferable to a Vacuum system for
14 the reasons stated in the report including:

- 15 • Construction of a vacuum station is difficult and expensive on a barrier island subject to
16 wave action, or in in a velocity (V) zone. While there are some pockets of AE flood zones
17 (as opposed to V zones) the majority of these islands are a velocity flood zone some of
18 which is seaward of the coastal construction control line (CCCL). Structures in a velocity
19 zone must have its lowest horizontal member elevated above the FEMA regulatory
20 velocity flood elevation. Moreover critical utility stations like this are typically elevated
21 two feet *above* the FEMA regulatory elevation. Vacuum stations have “basement” walls
22 and floors for the collection tank that are structural, and therefore those walls and floors
23 need to be elevated above the regulatory FEMA V zone elevation. This requirement
24 defeats the entire purpose of creating a vacuum station “basement” which is specifically

1 designed to lower the hydraulic (vacuum) losses making the viability of a vacuum
2 collection system most uncertain on these islands. We are not aware of any vacuum
3 station built anywhere in a FEMA V zone with similar constraints.

- 4 • Finding available vacuum station sites is difficult. If only the AE zones are viable due to
5 the aforementioned V zone structural issues, those areas are highly developed with
6 existing homes. Finding a lot available in these areas of developed homes will be difficult.
7 Not only should it be located so it will serve the area, but buffering, neighborhood
8 concerns with odor and noise must be addressed and a special exception process and
9 public meetings for approval is necessary. One of the significant advantages of a LPS
10 system is that it doesn't need a central station so none of this is necessary.
- 11 • We also have designed vacuum lines crossing bridges however those bridges were
12 relatively level. There is added difficulty in crossing up and over "humpback" bridges
13 with vacuum mains including the need to maintain clearance for boat traffic, bridge
14 connection structural details and perhaps most importantly the unknown hydraulic losses
15 at this conceptual level that will be encountered during the final design in order to climb
16 up and over the bridge. Those losses may be significant for the flow making vacuum not
17 viable and its recommendation risky at this preliminary stage. On the other hand,
18 directionally drilling a pressure line under the canals rather than attaching to a bridge is
19 all that is needed for a LPS system, and there are few if any hydraulic concerns with that
20 type of system.
- 21 • Valve pits are generally made of fiberglass or plastic with a cast iron manhole lid. It is
22 primarily designed for vertical (downward) loading on the MH cover from vehicle tires
23 but not designed for side impacts on the rim and cover or the valve pit. The valve pit is
24 normally installed in stabilized grass areas along the edge of a paved road or in the

1 pavement itself. However many roads on these islands are simply sand or shell that is
2 not stable. Erosion, wheel ruts and shifting sand requires ongoing maintenance to regrade,
3 and that regrading process in addition to tires from golf carts or vehicles could easily
4 cause impacts to the plastic sides or shift the rim and covers of vacuum valve pits, unless
5 special additional concrete is provided. This concern is eliminated with a LPS system
6 because there aren't any above ground structures needed in the road system with LPS.
7 In addition to the above concerns vacuum systems requires specialized operator training
8 with more technical capabilities to monitor the station, and maintain the lines and vacuum
9 valves. LPS is relatively straight forward to maintain only requiring basic pump
10 maintenance, and occasional tank pumping and line repairs.

11 WEC commented that we assumed that the costs are higher for vacuum design: "*these*
12 *costs seem disproportionately high*" *Much of the scope such as profiles and engineering*
13 *would be similar*"

14 I disagree. The vacuum design is *considerably* more effort to design and construct as it
15 requires detailed profiles, surveying, hydraulic modeling, and very accurate elevations
16 for vacuum lifts. The profiles would definitely *not be similar* since LPS is a pressure line
17 independent of minor elevation changes and vacuum is very specific and its success if
18 dependent on precise line elevations. In addition, the design of a vacuum station building
19 and site with its associated building plans and structural details, odor control, generator
20 access and site development, and special exception process is a significant cost. A LPS
21 design does not have a central station which avoids all these costs, and the main line
22 design is not as critical for the profile design, nor are the record drawing profiles as critical
23 for a LPS since it's a pressurized system.

24 It was WEC's position that environmental concerns were not taken into account.

1 It is our opinion that any Environmental issues with protected species will either be
2 equivalent or perhaps less with a LPS system. Environmental issues are normally
3 addressed in the design process and not at this level with the conceptual comparative
4 analysis. In the event there are protected species, the design and installation of a LPS
5 collection system is significantly easier than vacuum sewer because the mains can be
6 drilled perhaps avoiding any species, rather than open cut through an area of special
7 concern. Waterway crossings can also be drilled avoiding impacts at wetlands. For our
8 analysis, we assumed environmental costs are equivalent and will not significantly impact
9 the ultimate selection.

10 WEC explains how a valve pit and a vacuum system works.

11 GWE understands how a vacuum system works and understands its benefits over LPS.

12 We understand that the vacuum mains can at times cross bridges. We understand that it
13 has one generator at the station vs multiple generators at each home. We understand the
14 benefits of a vacuum system and recommend it for many areas. Yet even though we
15 almost always recommend vacuum over LPS for large developed areas in Florida, in this
16 special case we recommend LPS because of the additional concerns of these barrier
17 islands that are bifurcated with canals and have significant other constraints previously
18 outlined.

19 WEC suggests cost savings options such as multiple residents to a single LPS station
20 located in the ROW and reduced pipe sizes.

21 The purpose of this analysis is to develop comparative costs between conventional system
22 types using *CCU standard details and the EPA manual as the base design*. Any cost
23 savings that don't conform to these basic standards at this conceptual level are not
24 considered nor do we believe prudent at this time. Cost savings can be looked at during

1 the design phase but for the purpose of this tech memo the costs should be conservative
2 based on standards for comparative analysis.

3 WECs evaluation provides:

4 *“The purpose ...of the technical memorandum ...was to compare two*
5 *methods of wastewater collection and to compare estimated cost*
6 *only. The technical memo does not state that the residents of PIE*
7 *most connect via low pressure sewer, nor does it give an absolute*
8 *estimate construction cost. Report has several design constraints*
9 *related to vacuum such as max line length and absolutes when they*
10 *are not. Report also shows some issues in scouring velocities and*
11 *hear pressures and down not address system benefits or drawbacks*
12 *related to hurricanes. Further evaluation is needed to ascertain*
13 *what other environmental permitting conditions might impact this*
14 *project such as Charlotte County comprehensive plan CCSMP,*
15 *State of Florida Land trust USACE SWFWMD etc....”*

16 We understand the purpose of the tech memo and its purpose does not include the legal
17 issues of PIE connecting. We use conservative design parameters for both LPS and use
18 vacuum guidelines based on AIRVAC standards. We understand that the guidelines and
19 standards are not necessarily absolute and could be modified during the design, however
20 the comparative study level is not the place to do it. We also understand the advantages
21 and disadvantages of each system including initial costs, long term maintenance and
22 emergency power issues and integrated these concerns into our final recommendation.

23 **Q. Have you reviewed the prefiled testimony of some of the Petitioner’s witnesses**
24 **which argue that the existing on-site septic systems within the proposed**

1 **certificated territory are adequate now and in the future, and the proposal of**
2 **Charlotte County and Environmental Utilities ' not needed?**

3 A. I have.

4 **Q. Is there a policy in the state of Florida stating a preference for central wastewater**
5 **treatment over on-site septic systems?**

6 A. Not that I'm aware of, not directly. There are times when well designed septic systems
7 work quite well such as with large lots or areas where the distance from the bottom of
8 the leach field is well above the seasonal high water table. However, for small densely
9 spaced lots or areas where the ground water table is high or if in an area with a very
10 high percolation rate sand where the effluent does not get treated, there are many
11 studies that demonstrate that septic systems do not function well and central sewer is
12 much preferable. When one looks into all the septic to sewer projects across the state
13 over the last two decades, it's pretty clear that state and local governments often require
14 or facilitate the movement away from on-site septic systems in connection to central
15 wastewater treatment when available. I don't hold myself out to be an expert on this
16 particular question, nor have I done an exhaustive survey of every state and local
17 pronouncement on the issue however I have been involved with many septic to sewer
18 projects across the State of Florida over the last 25 years, where the goal was to
19 eliminate septic systems especially on older smaller lots that are built close to the
20 ground water table because of pollution concerns. To me it's clear that state and local
21 government are being proactive on the issue and doing what they can to remove septic
22 systems off-line when central services applicable. For instance:

- 23 • Chapter 381.0065 of the Florida statutes. In that statute, it is the self-described "intent
24 of the legislature" that the Department of Environmental Protection may permit the

1 construction, installation, abandonment, or repair of Onsite sewage treatment and
2 disposal systems *only if a publicly owned or investor-owned sewage system is not*
3 *available*. The word “available” is defined by that same statute to mean that the central
4 system is capable of being connected and has the capacity. The statute goes further to
5 express concern about the use of such on-site systems adversely affecting public health
6 or degrading groundwater or surface water. In my opinion, Chapter 381.0065 is a good
7 indication that the provision of central wastewater collection and treatment, when
8 available, is the preferred method under state policy. Moreover that the statutes
9 expressed concerns about the possibility of degradation of groundwater by on-site septic
10 systems should be particularly considered in the case of the fragile barrier bridge-less
11 islands.

12 • My understanding of the Florida Clean Waterways Act, which is 2020 legislation, is
13 that the legislature had increasing concerns about on-site septic systems and has
14 transferred jurisdiction over those types of systems to DEP from DOH and has required
15 local governments to identify onsite sewage treatment and disposal systems that would
16 be eliminated through connection to existing or future central wastewater treatment
17 systems. This legislation allows the continued use of on-site septic systems but a review
18 of the Act in my opinion clearly highlights the concern about wastewater treatment in
19 Florida and requires that wastewater treatment be accomplished in a way that is
20 consistent with maintaining public health and avoiding adverse effects on the
21 environment, which I think can best be accomplished with a connection to a central
22 wastewater system.

23 • Many communities in addition to Charlotte County such as in Marco Island, has
24 concluded that septic systems, new or old, are simply not designed or installed to

1 adequately protect waterways, and the City is therefore undertaking a program to
2 convert septic to central service. The City’s website notes that Naples, Cape Coral, the
3 City of Sanibel, and Monroe County are all replacing or eliminating septic tanks. That
4 same website has two interesting quotes from the Department of Environmental
5 Protection and the Department of Health:

6 ***Florida Department of Environmental Protection:***

7 *“Septic tanks, when properly designed, constructed and maintained, perform well in*
8 *sparsely populated rural areas where large tracts of lands are available for wastewater*
9 *disposal.”*

10 *“In urban and coastal areas, septic tank and drain-field systems can have a significant*
11 *impact on resources, particularly in residential communities interspersed with tidal*
12 *canals.”*

13 ***Florida Department of Health:***

14 *“When public sewer is available it is always the desired way to serve the urban*
15 *domestic waste needs of residents.”*

16 *“The possible interaction with tidal areas, potential flooding and septic system failures*
17 *make the public sewer system a more desirable option to protect public health in your*
18 *island environment.”*

- 19 • There are statutes that require connection to a central sewer system within a certain
20 various time frames when available. For example Section 380.0555(10)(b) provides
21 that “Franklin County and the municipalities within it shall, within 60 days after a
22 sewerage system is available for use, notify all owners and users of onsite sewage
23 disposal systems of the availability of such a system and that connection is

1 required within 180 days of the notice. Failure to connect to an available system
2 within the time prescribed shall be a misdemeanor of the second degree....”

- 3 • Section 153.12, Fla. Stat. provides that counties may, upon construction of a sewage
4 disposal system and the financing of such a system by the issuance of sewer revenue
5 bonds, require that each abutting lot or parcel connect to such sewer
- 6 • Section 153.62 provides that county sewer districts authorized to regulate use of sewers
7 and prohibit use of septic tanks.
- 8 • Section 180.01 requires that cities may establish a utility service area and prescribe
9 reasonable regulations requiring all persons to connect with sewerage system.
- 10 • Likewise, Section 381.00655 declares that owner of on-site systems must connect to
11 publicly owned or investor owned system upon availability.

12 **Q: Does Charlotte County have a similar provision in place?**

13 A: Yes, it does. In fact we have designed and installed many septic to sewer areas
14 connecting thousands of homes for Charlotte County on the main land again due to the
15 aforementioned concerns of relatively small lots with septic systems that are installed
16 close to the seasonal high ground water table. Attached to my testimony as Exhibit
17 JHC-4 is Sec. 3-8-41 from the Charlotte County, Florida Code of Ordinances. That
18 ordinance, generally consistent with the other authorities I have cited, was put in place
19 by the County to facilitate and encourage the connection to central public or private
20 wastewater systems when they become available. That is exactly what Environmental
21 Utilities proposes in this case, in partnership with the County, to make such a system
22 available in the proposed certificated territory.

23 **Q: Are these examples intended to represent everything out there in either statute or**
24 **ordinance across the state of Florida on the subject?**

1 A: No, but I think they are representative of the concerns with septic systems on small lots,
2 areas with high ground water or sandy areas and are consistent and with the policies by
3 State and local governments in Florida that we should move to central wastewater in
4 areas such as this whenever possible and when available. This supports my own opinion
5 that same effect: there are various benefits moving away from on-site systems to central
6 wastewater collection and treatment when available for areas such as this It is important
7 to note that I am not aware of any state or local law, ordinance, policy, or administrative
8 code rule that supports the opposite conclusion: that on-site systems are somehow
9 preferred to central wastewater where there are small lots, sandy areas or high ground
10 water tables.

11 **Q: Are you aware of some who have studied the issue concluding that septic tanks**
12 **contribute to adverse environmental conditions such as red tide and algae blooms?**

13 A: I believe there are many studies about red tide, and again although not a red tide expert,
14 my understanding, is that red tide is certainly not helped by agricultural runoff,
15 untreated stormwater runoff or septic systems installed in sandy areas directly adjacent
16 to the Gulf waters. Anyone can search on Google and find there are substantial
17 scientific sources that are concerned about connections between on-site septic systems
18 and adverse environmental effects. What follows is just two examples, but they are
19 illustrative:

20 • "The question is not that they do or don't. The question is how big of an impact is it to
21 the algae bloom?"

22 -University of Florida professor Ed Philips

1 • Amy Sherman: What role do septic tanks play in Florida's algae bloom? PolitiFact
2 Florida (2018) [https://www.politifact.com/florida/article/2018/aug/20/what-
3 septic-tanks-play-algae-bloom-crisis-/](https://www.politifact.com/florida/article/2018/aug/20/what-role-do-septic-tanks-play-algae-bloom-crisis/)

4 **Q. Does that conclude your direct testimony?**

5 **A. Yes, it does.**

Sec. 3-8-41. - Connection to available sewer system required.

- (a) All developed property must connect the plumbing system for any structure on the property to an available public or private sewer system within three hundred sixty-five (365) days after written notification by the public or private sewer system that the system is available for connection.
- (b) *Available*, for purposes of this section, means that the public or private sewer system is capable of being connected to the plumbing of a structure and has adequate permitted capacity to accept the sewage generated by the structure, and:
- (1) For developed residential property, or any non-residential structure that has an estimated sewage flow of one thousand (1,000) gallons per day or less, a public or private utility's sewer collection line exists in an easement or right-of-way that abuts the property line of the lot; or
 - (2) For a non-residential structure with an estimated sewage flow of more than one thousand (1,000) gallons per day, a public or private sewer line, force main, or lift station exists in an easement or right-of-way that abuts the property line of the lot containing the non-residential structure, or is within fifty (50) feet of the property line of the lot, as measured and accessed via existing rights-of-way or easements; or
 - (3) For proposed residential subdivisions with more than fifty (50) lots, for proposed commercial subdivisions with more than five (5) lots, or for areas zoned or used for an industrial or manufacturing purpose, a public or private sewer system exists within one-fourth ($\frac{1}{4}$) mile of the development as measured and accessed via existing easements or rights-of-way.
 - (4) For repairs or modifications within areas zoned or used for an industrial or manufacturing purpose or its equivalent, a sewer system exists within five hundred (500) feet of an establishment's or residence's sewer stub-out as measured and accessed via existing rights-of-way or easements.
- (c) For property located in an area that is served by Charlotte County Utilities, sewer charges, as contained in the adopted rate resolution, shall be in effect upon connection, or beginning three hundred sixty-five (365) days from notification of the availability of sewer service, whichever is less. Failure to pay such charges will result in initiation of Charlotte County Utilities' delinquency process.
- (d) All charges, including late charges and interest, for sewer services rendered to any real property located in an area served by Charlotte County Utilities and which remain unpaid when due, shall become a lien against and upon the real property and such lien shall be superior and paramount to the interest on such parcel or property of any owner, lessee, tenant, mortgagee or other person except the lien of county taxes and shall be on parity with the lien of any such county

taxes. Nothing provided herein with respect to the county's lien authority shall affect or preclude any other remedy authorized by law or ordinance that the county may have to collect delinquent charges or fees.

- (e) Any person failing to connect their property to an available public or private sewer system within three hundred sixty-five (365) days of written notification of availability shall be guilty of an ordinance violation for each day in excess of three hundred sixty-five (365) days that the property is not connected to the sewer system.

(Ord. No. 2018-038, § 3, 9-25-18)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing prefiled testimony has been furnished by E-mail to the following parties this 3rd day of January, 2022:

Brad Kelsky, Esquire
1250 S. Pine Island Road, Suite 250
Plantation, FL 33324
bradkelsky@kelskylaw.com
barbarallinas@kelskylaw.com

Environmental Utilities, LLC
PO Box 7
Placida, FL 33946
Lgwu7777@yahoo.com

Linda Cotherman
P. O. Box 881
Placida, FL 33946
lcotherman@yahoo.com

William Lee Roberts
2245 Stillwood Drive
Land O' Lakes, FL 34639
leerobertsdpt@gmail.com

Meryl Schaffer
Palm Island Estates Association, Inc.
PO Box 3151
Placida, FL 33946
pie@palmislandestates.org

Martin S. Friedman, Esquire
Environmental Utilities, LLC
Dean Mead Law Firm
420 S. Orange Ave. Suite 700
Orlando, FL 32801
mfriedman@deanmead.com

Jennifer Crawford, Esquire
Stephanie-Jo Osborn, Esquire
Office of General Counsel
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850
sosborn@psc.state.fl.us
jcrawfor@psc.state.fl.us

Little Gasparilla Island Property Owners
Association, Inc.
P.O. Box 3643
Placida, FL 33946
richardleydonjr@gmail.com
twrhonda@gmail.com
bdwyer31@yahoo.com
Joseph.bokar@case.edu
oranges@embarqmail.com
lgicarts@gmail.com
jltremblay@verizon.net

Richard Gentry, Esquire
Anastacia Pirrello, Esquire
Office of Public Counsel
c/o The Florida Legislature
111 W. Madison Street, Room 812
Tallahassee, FL 32399
Gentry.Richard@leg.state.fl.us
Pirrello.anastacia@leg.state.fl.us

/s/ John L. Wharton
John L. Wharton