

**IN THE TENNESSEE PUBLIC UTILITY COMMISSION
AT NASHVILLE, TENNESSEE**

IN RE:)	
)	
APPLICATION OF LIMESTONE)	
WATER UTILITY OPERATING)	
COMPANY, LLC FOR AUTHORITY TO)	
SELL OR TRANSFER TITLE TO THE)	DOCKET NO. 21-00055
ASSETS, PROPERTY AND REAL)	
ESTATE OF A PUBLIC UTILITY AND)	
FOR A CERTIFICATE OF)	
CONVENIENCE AND NECESSITY)	
)	

**LIMESTONE WATER UTILITY OPERATING COMPANY, LLC RESPONSE TO
CONSUMER ADVOCATE’S FIRST SET OF DISCOVERY REQUESTS**

RESPONSES TO THE FIRST SET OF DISCOVERY REQUESTS

1-1. Refer to the *Application of Limestone Water Utility Operating Company, LLC, for Authority to Sell or Transfer Title to the Assets, Property, and Real Estate of a Public Utility and For a Certificate of Public Convenience and Necessity* (“Petition”) at Exhibit 7, the Sale Agreement. Provide a comprehensive explanation indicating how the purchase price was determined. Include within the response all analytical support, workpapers, and other supporting documents used to calculate and negotiate the purchase price contained within the Exhibit.

RESPONSE: The purchase price was arrived at through an arm’s length negotiation between buyer and seller. When evaluating a system for possible acquisition, CSWR routinely consults publicly available documents (such as Commission annual reports and information available from health and environmental regulators) and conducts site visits to gauge the plant configuration and the condition of equipment. However, the final purchase

price is based on arms-length negotiations between the parties, with CSWR's objective to pay the least amount the seller will accept.

1-2. Refer to the Petition at Exhibit 7, the Sale Agreement, at Page 5. Provide an estimate of expenses for both the services of the surveyor and the cost of the easement. Additionally, indicate whether it is the intention of Limestone to recover these expenses from ratepayers in a future docket.

RESPONSE: The estimated cost for the surveying is \$50,000. The cost of acquired easements is included in the purchase price. Limestone expects that surveying costs would be included in its rate base in a future docket.

1-3. Refer to the Petition at Exhibit 11 (Confidential), which contains a pro-forma balance sheet and income statement. Provide a pro-forma balance sheet separating balances by system.

RESPONSE: Please see the attached balance sheets separating balances by system.

1-4. Refer to the Petition at Exhibit 11 (Confidential), which contains a pro-forma balance sheet and income statement. Provide a pro-forma income statement separating balances by system.

RESPONSE: Please see the attached income statements separating balances by system.

1-5. Provide a pro-forma projected income statement for the Shiloh Falls wastewater system for the years 2023 through 2025.

RESPONSE: Please see the attachments provided in response to DR 4 for a pro-forma income statement that reflects projected information for the years 2023-2025.

1-6. Provide the projected accounting entries to be added to the books of Limestone to record the Shiloh Falls acquisition based upon applicable Shiloh Falls balances as of December 31, 2020, and reconciled with the purchase price.

RESPONSE: Please see the Accounting Schedules filed by the Company on January 27, 2022 in response to Rule 1220-04-13-.08 (2)(h) to cure the Minimum Filing Requirement Deficiencies.

1-7. Refer to Pages 5–6 of the Petition. Provide a detailed cost estimate of the anticipated repairs, upgrades, and/or replacements discussed on these pages.

RESPONSE: Please see the attachment "DR 7 - Engineering Memo". The current total repair and upgrade estimate to be performed by Limestone is found on page 7 of the engineering memo. The amount includes \$68,500 of "triage" and \$440,500 of "improvements" for a total of \$509,000. The further estimates marked "disposal options" were evaluated and being handled by the owner/seller Shiloh Falls. Shiloh Falls is currently working to locate and install/connect an additional spray field(s) in order to correct the disposal issues in the current undersized spray field. This work is scheduled to be completed prior to acquisition by Limestone.

1-8. Before entering into the purchase agreement with Shiloh Falls, did Limestone (including affiliates) review the accounting practices and records of Shiloh Falls? If so, what steps did Limestone undertake to review such documents and practices?

RESPONSE: Yes, Limestone and affiliates reviewed the accounting practices and records of Shiloh Falls. Limestone generally requests any and all annual reports, financial records, and miscellaneous documents/records that may help broaden Limestone's understanding of how the system is run.

1-9. Does Limestone contend that Shiloh Falls' historic accounting practices and records provide sufficient information from which a reasoned determination can be made as to the prudence of acquiring the system?

RESPONSE: Yes, Limestone contends that Shiloh Falls' historic accounting practices and records provide sufficient information from which a reasoned determination can be made as to the prudence of acquiring the system. That said, CSWR, LLC, has often found in other jurisdictions that sellers sometimes do not properly account for the reinvestment in their system. In many cases, they improperly expense various repairs and reinvestments that should instead be capitalized and included in rate base. After operating a system for a period of time, CSWR, LLC, has often found that various plant components have a higher asset value than previously assigned. Limestone contends that there are many factors outside of historic accounting records and practices that lend themselves to the prudence of acquiring any given system. At this time, Limestone does not believe that these potential mis-categorizations affect the prudence of acquiring the system.

1-10. Will Limestone seek to reserve the opportunity to modify any historical account balances of Shiloh Falls as a result of any prospective review of its accounting practices?

RESPONSE: As it did in Docket No. 21-00053, Limestone will seek to reserve the opportunity to modify historical account balances. Please see the Company's response to DR 1-9 for further information into why this may be necessary.

1-11. Confirm that notwithstanding any language in the Sales Agreement, Limestone intends to carry over the balance of Contributions in Aid of Construction from Shiloh at the date of closing and incorporate this balance into that of Limestone.

RESPONSE: Confirmed.

1-12. Confirm that Limestone intends to maintain separate accounting records for the Shiloh system such that the assets, liabilities, revenues, and expenses incurred in operating the system will be separately identifiable from the financial results of other Limestone operating systems.

RESPONSE: Confirmed.

1-13. Shiloh Falls does not report Income Tax Expense within its TPUC annual report. Estimate the Income Tax Expense that will be incurred by the Limestone – Shiloh Falls system for the 2023–2025 period.

RESPONSE: Please see the Pro Forma income statements attached as a response to DR 4 for the estimated income tax expenses for the next three years.

1-14. Refer to Page 9 of the Petition, which states that the provision of services by Limestone will not adversely impact the availability of affordable utility service. With respect to this statement, respond to the following:

- a. Provide all underlying supporting information that leads Limestone to conclusion that affordability of utility service will not be adversely impacted as a result of this acquisition; and
- b. How does Limestone define affordable utility service, and over what time frame does this statement apply?

RESPONSE:

a. Limestone’s contention that the provision of service will not be adversely impacted by the acquisition is based on the fact Limestone proposes to adopt Shiloh Falls current rates. No change in rates means rates the affordability of rates won’t be adversely affected.

b. Limestone defines “affordable rates” as rates that are fair and reasonable. Shiloh Falls’ current rates were set by the Commission, which is legally obligated to set rates that are fair and reasonable to both the utility and its customers. Any future change in rates must be approved by the Commission using the same standard.

1-15. Refer to the testimony of Limestone’s witness Josiah Cox at Page 10 of Exhibit 9 to the Petition, wherein Mr. Cox discusses to the hiring of a non-affiliated, third-party O&M firm to provide services at the former Aqua system. Provide the following:

- a. A copy of the contractual agreement with the referenced third-party firm; and
- b. The monthly O&M costs incurred by the Aqua system associated with these third-party services since the date Limestone acquired the system.

RESPONSE:

- a. Please see the attached confidential contractual agreement to provide services at the former Aqua System.**
- b. Please see the section titled "Compensation to Operator" for the monthly O&M costs.**

1-16. Refer to the testimony of Limestone’s witness Josiah Cox at Page 13. Provide an estimate of Shiloh Falls’ anticipated capital expenditures by project to be made in the 2023–2025 period.

RESPONSE: Please see the Company's response to DR 7 above. The anticipated capital expenditures will likely be completed within 2 years of acquisition of the facility. There are no improvement projects currently planned beyond the first two years, but future capital projects will be determined by the needs identified by operations staff.

1-17. Counsel associated with Farris Bobango PLC represented to the Consumer Advocate that the firm will represent both parties—the buyer and the seller—in this Docket. Will attorneys’ fees and costs be billed separately for each party?

RESPONSE: No. All costs related to the current regulatory proceeding will be billed to Limestone.

1-18. Provide a statement detailing how attorneys' fees and costs are recorded for each party and provide the total attorneys' fees and costs incurred to date for each party. This is an ongoing request and should be updated by the 15th of every month covering the prior month's regulatory expenses.

RESPONSE: Attorney's fees and costs related to this proceeding are being properly recorded in NARUC USOA preliminary survey and investigation charge accounts. The total charges incurred as of April 30, 2022 are \$41,683. This amount includes fees paid to outside counsel, local counsel, and title attorneys.

1-19. Refer to Page 5 of Exhibit 7 to the Petition (the Sales Agreement). Provide the following:

- a. A detailed list of the real property owned by the Shackelford Company that will be conveyed to Limestone;
- b. A narrative response detailing why the Shackelford Company was in possession of some of the assets necessary to provide wastewater service to this community; and
- c. A statement of whether either party is compensating the Shackelford Company for the transfer of these assets, beyond the stated purchase price.

RESPONSE: Please see the Company's response to DR 7 above. Shiloh Falls is currently working to locate and install/connect an additional spray field(s) in order to correct the disposal issues in the current undersized sprayfield. This work is scheduled to be completed prior to acquisition by Limestone.

- a. At this time, the Company does not have a detailed list of the real property that will be conveyed to Limestone.
- b. The Company is unaware why Shackelford Company is in possession of certain assets necessary to provide service to the community.
- c. Similarly, no decisions have been made regarding compensation beyond the stated purchase price.

1-20. Refer to Section 6.B. on Page 5 of Exhibit 7 to the Petition (the Sales Agreement). Section 6.B. contains general language regarding the assumption of liabilities associated with the proposed transaction, further indicating liabilities/obligations of the Seller incurred prior to the date of the transaction shall remain with the Seller. On May 28, 2021, and on September 27, 2021, the Tennessee Department of Environment and Conservation (“TDEC”) issued Notice of Violations (“NOVs”) identifying multiple deficiencies in the wastewater treatment process. The NOVs are attached to this request as Exhibits 1 and 2, respectively. In reference to these NOVs, respond to the following:

- a. Before receiving this request, was Limestone aware of the NOVs?
- b. If Limestone was aware, were these deficiencies considered during the sales negotiations? Additionally, reconcile the listed deficiencies with the anticipated repairs/upgrades/replacements projects mentioned on marked Pages 5 and 6 of the Joint Petition and provide cost estimates?
- c. During the period leading up the signing of the Sales Agreement, did a representative of Limestone or CSWR ever physically visit the wastewater treatment facilities of Shiloh Falls?
- d. The NOV states that “there is clear evidence to indicate that the existing spray field is not sufficiently sized to allow for the disposal of the volumes of water being applied.” Is it Limestone’s intention to secure more land for the drip field? Has land already been acquired to remedy this issue?
- e. Provide a comprehensive explanation identifying what portion (if any) of the findings in the NOV(s) will be the financial obligation of Limestone. This response shall include a comprehensive discussion of how the requirements set out in this directive shall be transitioned from Shiloh Falls to Central States and then assigned to Limestone and an identification of the financial implications of this distinction.

RESPONSE:

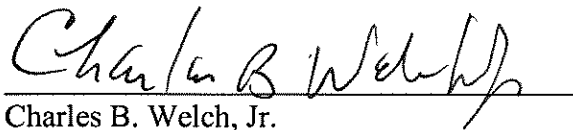
- a. **Yes, Limestone was aware of the NOVs prior to receiving this data request.**
- b. **Yes. For the 5/28/21 NOV deficiencies’, Item 1 is addressed in the "triage" section of the engineering memo (attachment "DR 7 - Engineering Memo"), Item 2 is part of our standard initial operations startup procedure and Items 3, 4 and the inspection portion of Item 1 are currently being addressed by the owner/seller, Shiloh Falls and scheduled to be completed prior to acquisition by Limestone.**
- c. **Yes, representatives of Limestone and CSWR visited the wastewater treatment facilities of Shiloh Falls prior to signing the Sales Agreement.**

- d. As stated above in B, the owner/seller is currently working to locate and install/connect an additional spray field(s) in order to correct the disposal issues of the current undersized sprayfield and this work is scheduled to be completed prior to acquisition by Limestone.
- e. Please see the Company's responses to b and d above.

1-21. Refer to the Petition, Exhibit 7, Sales Agreement at Page 3, § 4. The Agreement is dated October 31, 2018, approximately three and a half years ago. Have there been any material changes to the terms of that agreement, including the purchase price? If yes, list the change(s) and explain the justification for the change(s). If no, admit that all of the terms of the parties' agreement remain as set forth in the Sales Agreement (Exhibit 7 to the Petition).

RESPONSE: There have been no material changes to the terms of the agreement. All of the terms remain as set forth in the Sales Agreement.

RESPECTFULLY SUBMITTED,



Charles B. Welch, Jr.

Tyler A. Cosby

Farris Bobango PLC

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served via U.S. Mail, with
a courtesy copy by electronic mail, upon:

JAMES P. URBAN (BPR No. 033599)
Deputy Attorney General
KAREN H. STACHOWSKI (BPR No. 019607)
Senior Assistant Attorney General
Office of the Tennessee Attorney General
Financial Division, Consumer Advocate Unit
P.O. Box 20207
Nashville, Tennessee 37202-0207
Phone: (615) 741-3739
Fax: (615) 741-8151
Email: james.urban@ag.tn.gov
Email: karen.stachowski@ag.tn.gov

On this the 16th day of June 2022.


Charles B. Welch, Jr.

BALANCE SHEET

	Year 1	Year 2	Year 3
ASSETS			
Cash	\$ -	\$ -	\$ -
Accounts Recievable	\$ 8,223	\$ 8,223	\$ 8,223
Total Current Assets	\$ 8,223	\$ 8,223	\$ 8,223
Property, Plant, and Equipment	\$ 441,000	\$ 634,000	\$ 634,000
Preliminary Survey	\$ 127,000	\$ -	\$ -
Total Long-Term Assets	\$ 568,000	\$ 634,000	\$ 634,000
Total Assets	\$ 576,223	\$ 642,223	\$ 642,223
LIABILITIES			
Accounts Payable	\$ 9,269	\$ 9,269	\$ 9,269
Accrued Interest	\$ 19,845	\$ 48,375	\$ 76,905
Total Current Liabilities	\$ 29,114	\$ 57,644	\$ 86,174
Notes Payable	\$ 220,500	\$ 317,000	\$ 317,000
Working Capital Transfer from Parent	\$ 60,465	\$ 128,732	\$ 196,998
Total Long-Term Liabilities	\$ 280,965	\$ 445,732	\$ 513,998
Total Liabilities	\$ 310,080	\$ 503,376	\$ 600,172
EQUITY			
Equity Capital Contributed	\$ 347,500	\$ 317,000	\$ 317,000
Retained Earnings	\$ (81,356)	\$ (178,153)	\$ (274,949)
Total Equity	\$ 266,144	\$ 138,847	\$ 42,051
Total Liabilities and Equity	\$ 576,223	\$ 642,223	\$ 642,223

EXHIBIT

tabbles

DR-3

BALANCE SHEET

	Year 1	Year 2	Year 3
ASSETS			
Cash	\$ -	\$ -	\$ -
Accounts Recievable	\$ 28,573	\$ 28,573	\$ 28,573
Total Current Assets	\$ 28,573	\$ 28,573	\$ 28,573
Property, Plant, and Equipment	\$ 2,184,250	\$ 2,557,500	\$ 2,557,500
Preliminary Survey	\$ 189,000	\$ -	\$ -
Total Long-Term Assets	\$ 2,373,250	\$ 2,557,500	\$ 2,557,500
Total Assets	\$ 2,401,823	\$ 2,586,073	\$ 2,586,073
LIABILITIES			
Accounts Payable	\$ 30,636	\$ 30,636	\$ 30,636
Accrued Interest	\$ 98,291	\$ 213,379	\$ 328,466
Total Current Liabilities	\$ 128,927	\$ 244,015	\$ 359,102
Notes Payable	\$ 1,092,125	\$ 1,278,750	\$ 1,278,750
Working Capital Transfer from Parent	\$ 215,362	\$ 445,851	\$ 676,339
Total Long-Term Liabilities	\$ 1,307,487	\$ 1,724,601	\$ 1,955,089
Total Liabilities	\$ 1,436,414	\$ 1,968,615	\$ 2,314,191
EQUITY			
Equity Capital Contributed	\$ 1,281,125	\$ 1,278,750	\$ 1,278,750
Retained Earnings	\$ (315,716)	\$ (661,292)	\$ (1,006,868)
Total Equity	\$ 965,409	\$ 617,458	\$ 271,882
Total Liabilities and Equity	\$ 2,401,823	\$ 2,586,073	\$ 2,586,073

EXHIBIT

tabbles

D2-3

INCOME STATEMENT

	Year 1	Year 2	Year 3
OPERATING REVENUE			
Metered service revenue	\$ 23,176	\$ 23,176	\$ 23,176
Flat rate service revenue	\$ 196,995	\$ 196,995	\$ 196,995
EPA testing surcharge	\$ -	\$ -	\$ -
Re-connect fees	\$ 4,635	\$ 4,635	\$ 4,635
Returned check charge	\$ 2,318	\$ 2,318	\$ 2,318
Late payment charge	\$ 4,635	\$ 4,635	\$ 4,635
Other operating revenue	\$ -	\$ -	\$ -
Total Operating Revenue	\$ 231,759	\$ 231,759	\$ 231,759
OPERATING EXPENSES			
Total salaries and wages (employees only)	\$ -	\$ -	\$ -
Outside labor expenses (non-employees)	\$ 188,529	\$ 188,529	\$ 188,529
Administrative and office expense	\$ 37,750	\$ 37,750	\$ 37,750
Maintenance and repair expense	\$ 20,611	\$ 20,611	\$ 20,611
Purchased water	\$ 38,235	\$ 38,235	\$ 38,235
Purchased sewage treatment	\$ -	\$ -	\$ -
Electric power expense (exclude office)	\$ 67,200	\$ 67,200	\$ 67,200
Chemicals expense	\$ 2,290	\$ 2,290	\$ 2,290
Testing fees	\$ -	\$ -	\$ -
Transportation expense	\$ -	\$ -	\$ -
Other operating expense	\$ 18,120	\$ 18,120	\$ 18,120
Total Operating Expenses	\$ 372,735	\$ 372,735	\$ 372,735
Annual Depreciation Expense	\$ 76,449	\$ 89,513	\$ 89,513
Interest Expense	\$ 98,291	\$ 115,088	\$ 115,088
Total Expenses	\$ 547,475	\$ 577,335	\$ 577,335
INCOME TAXES			
Total Income Taxes	\$ -	\$ -	\$ -
Net income (Loss)	\$ (315,716)	\$ (345,576)	\$ (345,576)

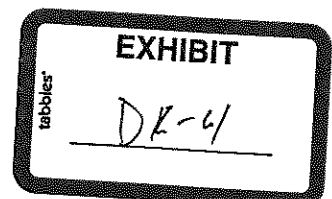
EXHIBIT

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DR-4

INCOME STATEMENT

	Year 1	Year 2	Year 3
OPERATING REVENUE			
Metered service revenue	\$ 6,670	\$ 6,670	\$ 6,670
Flat rate service revenue	\$ 56,696	\$ 56,696	\$ 56,696
EPA testing surcharge	\$ -	\$ -	\$ -
Re-connect fees	\$ 1,334	\$ 1,334	\$ 1,334
Returned check charge	\$ 667	\$ 667	\$ 667
Late payment charge	\$ 1,334	\$ 1,334	\$ 1,334
Other operating revenue	\$ -	\$ -	\$ -
Total Operating Revenue	\$ 66,701	\$ 66,701	\$ 66,701
OPERATING EXPENSES			
Total salaries and wages (employees only)	\$ -	\$ -	\$ -
Outside labor expenses (non-employees)	\$ 56,433	\$ 56,433	\$ 56,433
Administrative and office expense	\$ 12,650	\$ 12,650	\$ 12,650
Maintenance and repair expense	\$ 9,406	\$ 9,406	\$ 9,406
Purchased water	\$ -	\$ -	\$ -
Purchased sewage treatment	\$ -	\$ -	\$ -
Electric power expense (exclude office)	\$ 23,514	\$ 23,514	\$ 23,514
Chemicals expense	\$ 4,703	\$ 4,703	\$ 4,703
Testing fees	\$ -	\$ -	\$ -
Transportation expense	\$ -	\$ -	\$ -
Other operating expense	\$ 6,072	\$ 6,072	\$ 6,072
Total Operating Expenses	\$ 112,777	\$ 112,777	\$ 112,777
Annual Depreciation Expense	\$ 15,435	\$ 22,190	\$ 22,190
Interest Expense	\$ 19,845	\$ 28,530	\$ 28,530
Total Expenses	\$ 148,057	\$ 163,497	\$ 163,497
INCOME TAXES			
Total Income Taxes	\$ -	\$ -	\$ -
Net income (Loss)	\$ (81,356)	\$ (96,796)	\$ (96,796)



DRAFT ENGINEERING MEMO
SHILOH FALLS UTILITIES, INC.
HARDIN COUNTY, TENNESSEE
APRIL, 2021
Wastewater System

1. Introduction

a. General System Info

i. Subdivision(s) served – Shiloh Falls Subdivision and commercial properties. The wastewater system consists of four lagoons with an adjacent 1.5 acre spray field. Design plans exist and are in the possession of FandM Consultants Inc. for the collection and treatment systems.

ii. Current owner (seller) – Shiloh Falls Utilities, Inc.

iii. Customer count and type – approximately 306 existing customers, primarily resort residential. A further breakdown provided by the owner is:

On the west side of Highway 57 including the Freds Dollar Store and a strip mall
East of Highway 57

The original Shiloh Falls development

The Hampton Inn

The undeveloped property that fronts Highway 57

The Greens subdivision

The Stone Brook Apartments/Hotel on Highway 57

Cottage Grove subdivision Phases I and II

Hills of Pickwick Phases I and II

Summertime subdivision

Lands of Pickwick subdivision

57 undeveloped acres on and around Holiday Hills subdivision

A brief visual review of the Service Area Map provided by 21 Design Group indicates that a substantial amount of property is currently not developed. The owner did not have a total number of “approved lots”, but Brad Harris, P.E. with the state DEC indicated that the facility was initially permitted in 1994 for 259 homes, which is less than the number of connected customers.

iv. General geographic location of service area – Service area is located in Hardin County, Tennessee near the unincorporated community of Counce. The service area map provided is generally bounded on the east by Pickwick Lake and generally on the west by Hwy 57.

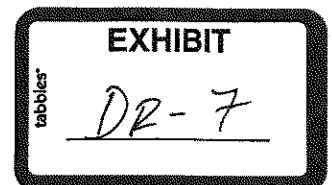
v. Are there pending developments or phases in service area? This was not explored. There appear to be numerous undeveloped lots.

vi. Permitted facility name – Shiloh Falls Utilities, Inc.

vii. Permit type – Tennessee State Operating Permit

viii. Permit number - SOP-94011

ix. Permitted flow - 55,000 gpd average daily flow



2. Wastewater Treatment Facility

a. Facility Description

- i. Facility type – three earthen lagoon cells with a fourth smaller holding cell. No aeration is provided. Disposal is to a spray irrigation field with ten sprinklers with a spray radius of approximately 30 feet each.
- ii. Approximate age of facility – First permitted in 1994.
- iii. Structural condition of tankage and equipment – The earthen lagoon levees appear to be generally stable, with steep interior slopes. The eastern slope of the eastern lagoon should be cleared of small trees that are becoming established. The depth of the middle lagoon was measured at approximately 8 feet. There appear to be three inlet pipes to the eastern cell, and the eastern two lagoons each have concrete discharge structures accessed by steel footbridges. The footbridge for the eastern pond needs a new foundation on the levee. The prefabricated fiberglass cover for a suction lift pump beside the western lagoon is damaged and has been sitting about 20 feet from the pump since 2012 (per aerials.) The metal garage-style building that houses the UV system has been damaged by high winds and should be replaced. The equipment/contents of a second fiberglass structure near the spray field pump building were not able to be observed. The filter, pump and flow meter in the spray field pump building appeared functional, but were not observed in operation. The Schedule 40 PVC piping in the spray field is installed on top of the ground and may be subject to freezing.

b. Treatment Process

- i. Description of treatment process utilized – Wastewater flows through three facultative lagoons in series, is disinfected by UV, and is then pumped to an adjacent spray field with ten sprinkler heads of approximately 30 foot radius each. The current process does not prevent odors from developing during spray of the effluent, nor does it prevent applied wastewater from leaving the spray field site.
- ii. Description of process flow – Three force mains enter the eastern cell. Effluent from this lagoon flows westward through the middle lagoon and eventually to the western lagoon. There is a suction lift pump at the north end of the western lagoon which pumps through a set of four strainers to a surge tank and thence through a Trojan UV-3000 disinfection system with four banks of bulbs. It is unclear if the disinfected flow then enters the smallest holding cell adjacent to the spray field pump building. Effluent is eventually sprayed in the fenced spray field. A 2" Badger Recordall flow meter measures flow to the spray fields, but note that there is a valved bypass around the meter. There is a 3" pipe leading to/from a float in the south end of the west lagoon, which might appear to possibly allow pumping flow directly from that lagoon; the design engineer is trying to get details on several apparent modifications to the system that have been made after that engineer's prior involvement with the facility.
- iii. Comments regarding the effectiveness of treatment process at time of site visit – The water in the first cell contains algae and some floating solids, and has the

appearance of being overloaded and possibly substantial sludge accumulation. Duckweed covers approximately half of the surface of the second cell and the third cell. The fourth cell has a bright green appearance but no duckweed. Standing water in the UV system appeared to contain algae and some solids. The spray fields were saturated with ponding water and the small ditches draining the spray fields were flowing after an overnight rainfall. Fallen trees, weeds and puddles frequent the spray circles. The permitting agency stated that under ideal sandy soil conditions the maximum application rate allowed by regulations is 0.25 gpd/sf, or 7000 gallons per day for the ten sprinkler heads. A sample of the soil was identified as a "silt loam" by Burns Cooley Dennis geotechnical engineers, with a tested permeability of approximately 5.3×10^{-7} cm/sec, which is much less permeable than an ideal soil. TN Design Criteria Chapter 16 for spray irrigation systems states that the evaluation and design calculations for a spray area have to be performed by a soil scientist currently on the Ground Water Protection list of approved soil scientists. Brad Harris, P.E. with the Tennessee DEC noted that the agency no longer had the original plans or engineering design report for the system. *Pending further investigation it seems prudent to assume an allowable application rate of not more than 0.1 gpd/sf. This would result in an estimated actual capacity of the current spray field of only 2800 GPD.*

- iv. Perform an analysis to quantify the amount of the sludge buildup in aeration tankage, clarifiers and lagoon cells. Take samples of sludge to analyze and report its makeup. NOT PERFORMED YET.
 - v. Outfall location and distance from facility – NA. Since no wastewater is permitted to leave the facility, there is no approved outfall, but several small ditches do drain the spray field.
- c. Permit Info
- i. Permit status – The permit is current, effective from December 1, 2016 through November 30, 2021.
 - ii. Permitted flow vs. actual / estimated flow – 11 months of discharge data in 2020 were evaluated. The average volume sprayed per calendar day was 48,334 gpd, which is slightly less than the permitted 55,000 gpd. The average volume sprayed per day of actual spray application was much higher at 84,274 gallons, but this would not appear to be a permit violation as long as flow does not leave the property. The application of the 84,000 gallons on the 28,000 square feet of spray area would equate to a loading of 3 gallons per square foot, or 4.8 inches per square foot. The night before the site inspection a rainfall of 1.8 inches occurred and water was draining from the site the next morning, so it is highly likely that wastewater leaves the site during regular applications. If the operator believes compliance is just based on not exceeding an average daily discharge of 55,000 GPD, he may not know to report the runoff conditions. Brad Harris with TN DEC advised that their current design guidance supports a design flow of 300 GPD/home, which would equate to a design flow of 91,800 GPD for the current customer count.

The lack of adequate spray field area is a serious limitation on the capacity of the system and its ability to operate within its permit. This condition can be relieved by securing adequate additional spray field acreage, or securing a discharge permit for the effluent.

Spray field area options: For the current permitted flow, a spray field area of at least 14 acres would be required, plus adequate buffer (150 feet in woods, 300 feet in fields.) Best case, this results in 27 acres of wooded site, and almost 200 spray heads. A cost estimate for this alternative, assuming the property could be found approximately a mile from the site, is included in Section 2.d below. Note that extensive evaluation by a soil scientist would be required.

The Shiloh Falls facility originally supplied irrigation water to the nearby golf course, and this option was lost when the golf course property was sold. We understand that a series of sales has resulted in the golf course property now being owned by a Home Owner's Association. If the HOA would accept the treated wastewater, this application would now be considered "unrestricted urban reuse", and draft regulations are currently being considered by the State. There are several hurdles, and it also seems likely that the wastewater would have to be treated to a higher standard to overcome concerns about odor and pathogens. It would be more complicated than just reconnecting to an existing piping system.

Direct Discharge options: Wade Murphy with DEC described the discharge permitting process in a lengthy phone call. The State process for permitting a discharge begins with a planning conference, and the applicant must perform an engineering analysis of the proposed discharge location and model the impact on water quality to arrive at effluent limits that will protect the stream. Although the Tennessee River is only a few miles away, all access is controlled by TVA and a discharge permit could be anticipated to take years to be approved. Two other possible discharge points are Robinson Creek at approximately 3 miles from the WWTF, and the larger Chambers Branch approximately 5.5 miles away. It is expected that limits at these locations would restrict BOD to 10 mg/L or less, and ammonia to 2 mg/L or less. Discharge at either site would require installing a six inch diameter force main along public roads, with the potential need to acquire numerous private easements. Route investigation has been limited to a brief review of information available from USGS topo maps and Google Earth. A planning level cost for a force main to each potential site is included in Section 2.d.

- iii. Brief compliance review narrative – The facility does comply with state requirements for at least three facultative cells in series and appears to meet setback requirements. The first cell can be loaded at 50 pounds per acre/day of BOD, with 30 pounds per acre/day for the entire system. The resulting limits on loading are 39.5 pounds and 51 pounds respectively, which equates to 198 and 255 capita respectively. These loadings are significantly less than the loads projected from 306 customers. It is apparent that aeration should be added to relieve the excess organic loading.

1. NOV's - A record of any NOV's will be requested from TNDEC.
2. DMR violations have not been discovered. The facility has limits for flow, effluent BOD and effluent E. Coli. DMR data will be reviewed when supplied.
3. ECHO non-compliance status, etc. - The facility does not have a NPDES permit.
4. Any other relevant sources – None believed applicable.
- iv. Copy of effluent limits table from permit – See below.
- v. Any relevant local or state requirements regarding facility capacity and expansions – None are referenced in the permit.
- d. Recommended Repairs and Improvements Summary
 - i. Triage repairs (to be performed by O&M designated contractor upon facility acquisition)
 1. Repair gangway to discharge structure in cell 1
 2. Replace treatment building
 3. Clear levee and spray field vegetation/downed trees
 4. Confirm depth of sludge and operation of UV
 5. Install Mission SCADA on treatment equipment
 - ii. Improvements and other repairs (to be performed by outside contractor through formal bid process)
 1. North levee erosion and grading repairs
 2. Install floating aerators and controls
 3. Install attached growth nitrification system.
 4. Remove and dispose of excess sludge, estimated at 100 dry tons.
 5. Repair fiberglass pump cover
 6. Replace UV bulbs as needed
 7. Add second spray field pump/discharge pump
 8. SELECT A DISPOSAL OPTION FROM THE 4 LISTED

3. Wastewater Collection System

a. Collection System Description

- i. Description of type, material, size, footages – Design plans were not provided for the collection system. FandM Consulting Inc. reported that each customer is to own and maintain their own simplex grinder pump and the Utility owns and maintains 13 pump stations to repump the flow to the treatment facility. Schedule did not allow coordination with the operator to open the lift stations, but two sites were visited and both appeared to be 48" diameter fiberglass wetwells with aluminum tops/hatches. It is assumed that single phase grinder pumps are installed for repumping.
- ii. Table of lift stations – NOT COMPLETED. The two lift stations visited did not appear to have a bypass pumping connection or SCADA. Pictures are included in Attachment D.
- iii. General flow description from lift stations to treatment facility – We have requested the plans for the force main system.

- b. Recommended Repairs and Improvements Summary
 - i. Triage repairs (to be performed by O&M designated contractor upon facility acquisition)
 - 1. Not identified yet
 - ii. Improvements and other repairs (to be performed by outside contractor through formal bid process)
 - 1. Not identified yet

Capital Estimate (per the NARUC categories provided separately)

- c. Triage Repairs (to be performed by O&M designated contractor upon facility acquisition)
 - i. General plant – monitoring, fencing, roads, buildings
 - ii. Collection & Pumping System – sewer mains, lift stations
 - iii. Treatment & Disposal – all treatment related equipment, material and structures
 - d. Improvements and Other Repairs (to be performed by outside contractor through formal bid process)
 - i. General plant – monitoring, fencing, roads, buildings
 - ii. Collection & Pumping System – sewer mains, lift stations
 - iii. Treatment & Disposal – all treatment related equipment, material and structures
4. Attachments to Wastewater Memo (if available, as separate documents)
- a. Complete wastewater permit will be attached.
 - b. Compliance history documents including inspection reports from local or state regulatory bodies – Tabulated summary of DMRs will be provided when we receive. Inspection reports will be requested.
 - c. Copies of any agreements made with surrounding utilities - NA
 - d. Plans, as-builts or system layout maps – Pictures are attached.
 - e. Recommendations for local vendors
 - i. O&M Companies
 - ii. Labs or Testing Companies
 - iii. Sludge Haulers
 - iv. General Contractors
 - v. Well Drillers
 - vi. Electricians

DRAFT Capital Estimate
Opinion of Probable Construction Costs
Shiloh Falls Utilities, Inc.
Wastewater System
Hardin County, Tennessee
April, 2021

NARUC	<u>TRIAGE PHASE - Wastewater System</u>				
Class	Description	Qty	Unit	Unit Price	Total
GP - Fixed	repair gangway to discharge structure	1	LS	\$ 6,000	\$ 6,000
T&D - Fixed	Replace treatment building, electrical and insulation	1	LS	\$ 30,000	\$ 30,000
T&D - Fixed	Clear levee and spray field vegetation	1	LS	\$ 20,000	\$ 20,000
T&D - Fixed	MISSION SCADA installation on treatment	1	EACH	\$ 12,500	\$ 12,500
	Total Triage Phase Capital Estimate:			\$	68,500

NARUC	<u>IMPROVEMENTS PHASE - Wastewater System</u>				
Class	Description	Qty	Unit	Unit Price	Total
GP - Fixed	Erosion riprap and grading - north levee	1	LS	\$ 15,000	\$ 15,000
T&D - Fixed	Floating aerator and control box	6	EACH	\$ 20,000	\$ 120,000
T&D - Fixed	Repair or replace fiberglass pump cover	1	LS	\$ 2,500	\$ 2,500
T&D - Fixed	Replace UV bulbs as needed	1	LS	\$ 8,000	\$ 8,000
T&D - Fixed	Install attached growth nitrification system	1	EACH	\$ 200,000	\$ 200,000
T&D - Fixed	Sludge removal and disposal	100	DRY TONS	\$ 700	\$ 70,000
T&D - Fixed	Add second spray field pump/discharge pump	1	LS	\$ 25,000	\$ 25,000
	Total Improvements Phase Capital Estimate:			\$	440,500

DISPOSAL OPTION 1 - DIRECT DISCHARGE TO CHAMBERS CREEK

NARUC	<u>IMPROVEMENTS PHASE</u>				
Class	Description	Qty	Unit	Unit Price	Total
T&D - Fixed	6" SDR-26 PVC force main with DI fittings	27000	LF	\$ 11	\$ 297,000
T&D - Fixed	Bored and cased Highway and Railroad crossings	250	LF	\$ 150	\$ 37,500
T&D - Fixed	Directional bores of drives, streams and wetlands	6000	LF	\$ 80	\$ 480,000
T&D - Fixed	Outfall Structure	1	LS	\$ 20,000	\$ 20,000
T&D - Fixed	Air Release Valves	10	EACH	\$ 8,000	\$ 80,000
T&D - Fixed	Erosion control	27000	LF	\$ 2	\$ 54,000
T&D - Fixed	Permitting and Modeling	1	LS	\$ 50,000	\$ 50,000
	Subtotal Chambers Creek Discharge Option			\$	1,018,500

DISPOSAL OPTION 2 - DIRECT DISCHARGE TO ROBINSON CREEK

NARUC	<u>IMPROVEMENTS PHASE</u>				
Class	Description	Qty	Unit	Unit Price	Total
T&D - Fixed	6" SDR-26 PVC force main with DI fittings	12000	LF	\$ 11	\$ 132,000
T&D - Fixed	Bored and cased Highway and Railroad crossings	125	LF	\$ 150	\$ 18,750
T&D - Fixed	Directional bores of drives, streams and wetlands	3000	LF	\$ 80	\$ 240,000
T&D - Fixed	Outfall Structure	1	LS	\$ 20,000	\$ 20,000
T&D - Fixed	Air Release Valves	6	EACH	\$ 8,000	\$ 48,000
T&D - Fixed	Erosion control	12000	LF	\$ 2	\$ 24,000
T&D - Fixed	Permitting and Modeling	1	LS	\$ 50,000	\$ 50,000
	Subtotal Chambers Creek Discharge Option			\$	532,750

DISPOSAL OPTION 3 - DEVELOP ADDITIONAL SPRAY IRRIGATION ACREAGE

NARUC	<u>IMPROVEMENTS PHASE</u>				
Class	Description	Qty	Unit	Unit Price	Total
T&D - Fixed	6" SDR-26 PVC force main with DI fittings	6000	LF	\$ 11	\$ 66,000
T&D - Fixed	Bored and cased Highway and Railroad crossings	125	LF	\$ 150	\$ 18,750

T&D - Fixed	Directional bores of drives, streams and wetlands	1000	LF	\$	80	\$	80,000
T&D - Fixed	Holding tank and repumping system	1	LS	\$	150,000	\$	150,000
T&D - Fixed	Air Release Valves	3	EACH	\$	8,000	\$	24,000
T&D - Fixed	Spray head and piping	200	EACH	\$	1,000	\$	200,000
T&D - Fixed	Valves, field controls	1	LS	\$	150,000	\$	150,000
T&D - Fixed	Internal roads	2000	LF	\$	50	\$	100,000
T&D - Fixed	Clearing	15	ACRES	\$	6,000	\$	90,000
T&D - Fixed	Erosion control and planting	5000	LF	\$	2	\$	10,000
T&D - Fixed	Fencing	3500	LF	\$	12	\$	42,000
GP - Fixed	Property Acquisition	27	ACRES	\$	20,000	\$	540,000
T&D - Fixed	Permitting and soil scientist work	1	LS	\$	50,000		50000
	Subtotal Additional SPRAY IRRIGATION AGREAGE					\$	1,520,750

NARUC	IMPROVEMENTS PHASE					
Class	Description	Qty	Unit	Unit Price		Total
T&D - Fixed	6" SDR-26 PVC force main with DI fittings	3000	LF	\$ 11	\$	33,000
T&D - Fixed	Bored and cased Highway and Railroad crossings	0	LF	\$ 150	\$	-
T&D - Fixed	Directional bores of drives, streams and wetlands	1000	LF	\$ 80	\$	80,000
T&D - Fixed	Holding tank and repumping system	1	LS	\$ 150,000	\$	150,000
T&D - Fixed	Air Release Valves	2	EACH	\$ 8,000	\$	16,000
T&D - Fixed	Spray head and piping	200	EACH	\$ 1,000	\$	200,000
T&D - Fixed	Valves, field controls	1	LS	\$ 150,000	\$	150,000
T&D - Fixed	Internal roads	0	LF	\$ 50	\$	-
T&D - Fixed	Clearing	0	ACRES	\$ 6,000	\$	-
T&D - Fixed	Erosion control and planting	2000	LF	\$ 2	\$	4,000
T&D - Fixed	Fencing	0	LF	\$ 12	\$	-
GP - Fixed	Property Acquisition	0	ACRES	\$ 20,000	\$	-
T&D - Fixed	Permitting and Modeling	1	LS	\$ 30,000		30000
	Subtotal Additional SPRAY IRRIGATION AGREAGE				\$	663,000