# APPENDIX 2

Appendix B:

## Memorandum of Understanding and Agreement

This Memorandum of Understanding and Agreement, made this _____ day of _____, 20 17 , is by and between the Commissioner of Health, with delegated authority to the Director of the Division of Onsite Sewage, Water Services, Environmental Engineering, and Marina Programs (the Division or Division Director) and Fuji Clean USA, LLC, the "Manufacturer."

The Manufacturer agrees to test and evaluate the efficacy of the CEN5, CEN7, and CEN10, also known as the "Treatment Unit", in accordance with the evaluation protocol set forth below and in Guidance, Memoranda and Policy 2015-03 or successor policy. The Manufacturer and the Division agree to:

1. As described in this Agreement, GMP 2016-3 or its successor, or as outlined in an approved variance, within three years of the date this Agreement is executed, complete an evaluation of a minimum of 20 Treatment Units located and installed in the Commonwealth of Virginia. The Manufacturer must conclude the evaluation on or before June 30, 2020. The Treatment Units will be jointly agreed upon by the Manufacturer and Division.

    i. Each of the 20 Treatment Units selected for evaluation must be designed and used for a single-family residential dwelling with a design flow less than or equal to 1,000 GPD, used as expected for a permanently occupied home for 12 months. Residential design flows shall be calculated using the rate of 150 GPD/bedroom. For existing data sets, the manufacturer must demonstrate the appropriateness of the Treatment Unit population represented by the data.

    ii. No evaluation or testing will be accepted for seasonal occupancy or seasonal rental use.

    iii. When new performance data is to be collected for evaluation, the Manufacturer will contact the Division when a viable Treatment Unit for that evaluation is installed or identified. Upon notice by the Manufacturer, the Division will confirm whether the Treatment Unit is suitable for testing

    iv. The Manufacturer will maintain an electronic database of Treatment Units selected for evaluation and report that database to the Division on a quarterly basis, along with the results of influent and effluent sampling conducted as described in section v (below). The Manufacturer will retain copies of the Chain of Custody forms for sample collection, transport, and measurement and provide them to the Division within five days of submitting the quarterly database report.

    v. The Manufacturer will hire and use a third party, as described in this section and accepted by the Division, to oversee and administer the testing and evaluation protocol. At a minimum, four consecutive quarterly influent and effluent samples are to be collected for 12 months from each of the 20 Treatment Units. Quarters shall run from January 1 to

March 31, April 1 to June 30, July 1 to September 30, and October 1 to December 31. Treatment Units must be in operation for at least 3 months before sampling begins.

All procedures to collect, transport, and measure samples, with proper chain of custody, must be conducted under the supervision of a suitable third party such as a faculty member in an appropriate program of an accredited college or university, a licensed professional engineer experienced in the field of environmental engineering, or by a testing firm acceptable to and pre-approved by the Division.

vi. Failure of the Manufacturer to report in accordance with section iv (above), or failure of the Manufacturer to make progress toward the goal as evidenced by the installation and monitoring of the Treatment Units, may result in the termination of this Agreement.

vii. All units must be operated and maintained in accordance with the site specific Operation and Maintenance (O&M) manual required by12VAC 5-613-170. A manufacturer may ensure that a unit is in proper working order at the start of the study; however O&M during the course of the study must be conducted by an independent, properly licensed operator identified to the Division. O&M must be conducted in accordance with the approved O&M manual. The impact of any additional O&M on the final results must be assessed in the final report. The O&M must be submitted for each site with the final report.

2. The Manufacturer will provide a copy of the contract with the third party overseeing the project to the Division, which becomes an addendum to the Agreement. The contract describes the duties to be performed by both the third party and the Manufacturer. A Quality Assurance and Quality Control (QA/QC) plan, drafted jointly by the Manufacturer and the third party, is also provided and is an addendum to the Agreement. The QA/QC plan includes information on the collection, transport, and handling of samples.

i. The third party is: 3-Engineering, LLC, 1518 Willow Lawn Dr., Richmond, VA 23230

Contact information: Bennette. D. Burks, P.E., 804-873-5000 and burks@3-eng.com

ii. If requested by the Division, the Manufacturer agrees the third party will provide at least 72 hours notice before collecting samples and allow for joint collection with the Division upon request.

iii. The Manufacturer agrees to place and assure that at least two inspection and sampling ports are available on each Treatment Unit to allow the third party to adequately sample influent and effluent. Each inspection and sampling port must be located to accurately characterize the influent and effluent generated during expected residential use.

iv. The Manufacturer agrees to test and report influent results for pH, $BOD_5$, and TSS. The Manufacturer agrees to test and report effluent results for flow, pH, $BOD_5$, and TSS. Flow may be estimated from water meter readings, pump run time meters, pump run counters, number of persons in the household, or other method detailed in the QA/QC plan.

Influent testing is required to verify that the treatment unit is receiving residential strength wastewater. If influent data is not practical to collect, then the Manufacturer may report effluent from the primary settling tank (septic tank or trash tank) as influent or another point acceptable to the Division. Flow may be induced through the unit to obtain an effluent sample, provided the induced flow rate does not exceed 5 gallons per minute and shall only extend until a suitable sample volume is collected. The Division can waive influent sampling if it is not practical to obtain valid samples.

3. Hire and use a lab accepted by the Division to perform measurements using the *Standard Methods for the Examination of Water and Wastewater* for influent and effluent, in accordance with 40 CFR 136. Composite or grab samples for TSS and $BOD_5$ may be used. The Manufacturer will ensure the third party provides proper chain of custody for each sampling event, which will be provided with the quarterly report.

   The certified lab: Microbac Laboratories, Inc., 2028 Dabney Rd., Richmond, VA 23230

   Contact information: Curtis Read, Project Manager, 804-353-1999, Curtis.Read@microbac.com

4. Maintain an electronic database or spreadsheet of all system installations, and report the database to the Division Director by the 15th day of January, April, July, and October of each year the evaluation continues. The report will include the following information:

   i. Sample results for influent and effluent.

   ii. Interim observations about the Treatment Unit's performance with respect to the pass/fail criteria.

   iii. For each Treatment Unit, the level of effluent treatment required for installation.

5. The pass/fail criteria for effluent will be as follows:

| Effluent Parameter | Upper 99% Confidence Interval of Log-Transformed Data Converted Back to Native Units |
|---|---|
| $BOD_5$ (mg/l) | Less than or equal to 10 mg/l |
| TSS (mg/l) | Less than or equal to 10 mg/l |

   Each of the four quarterly samples for each Treatment Unit shall be log transformed and then averaged before applying the statistical manipulation. A one tailed t-test shall be applied with n-1 degrees of freedom where "n" is equal to the number of test sites/units. The method detection level must be reported for the required parameter analyses. For the purposes of data manipulation, values below the method detection level will be treated as one-half of the method detection level.

6. At the conclusion of its evaluation in accordance with the Agreement, the Manufacturer will have the third party submit a final report with the following minimum information:
   i. Description of each site selected, typical installation, and how each site was selected;
   ii. Geographic locations of systems tested;

iii. O&M logs and an assessment of O&M performed;
iv. Chain of Custody forms;
v. List of key participants;
vi. Description of sampling and analytical methods;
vii. All testing results, including sample data, statistical analyses or other evaluations;
viii. Rationale for exclusion of data or removal of a system from the statistical analysis, if necessary; and
ix. An overall evaluation and assessment of the study data in relation to the pass/fail criteria.

The report must include an electronic copy of the data in Excel format in the provided spreadsheet for statistical analysis or as otherwise agreed to by the Division.

7. In return for the above considerations, the Division agrees to maintain a list of Treatment Units installed in Virginia and their sampling results. Upon conclusion of the testing and evaluation in accordance with this Agreement, the Division will render a case decision regarding whether the Treatment Unit has met the effluent performance expectations.

8. This Agreement may be amended by mutual consent of the parties and may be terminated by either party.

8. The undersigned agree to the conditions of this Agreement.

for Dwayne Roadcap
Division Director

Manufacturer