

Department of Health
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State Health Commissioner

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Memorandum of Understanding and Agreement

This Memorandum of Understanding and Agreement, made this ~~15th~~ day of ~~August~~, 20¹⁹, 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 ~~Clearstream Wastewater Systems, Inc.~~, the "Manufacturer."

The Manufacturer agrees to test and evaluate the efficacy of ~~Clearstream Model DA~~, also known as the "Treatment Unit", in accordance with the evaluation protocol set forth below and in Guidance, Memoranda and Policy 2016-03 or successor policy. The Manufacturer and the Division agree to:

1. As described in this Agreement, GMP 2016-03 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 ~~August 15, 2022~~ (insert date 3 years from above date). 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 are to be operated and maintained in accordance with the site specific Operation and Maintenance (O&M) manual required under 12 VAC 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 operation and maintenance logs are to 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. 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 to be provided as an addendum to the Agreement. The QA/QC plan includes information on the collection, transport, and handling of samples.
- i. The third party is: Gulf Coast Testing, LLC, 5261 Highland Road #347
Baton Rouge, LA 70808
Contact information: William Daniel IV, P.E., Cell 225-281-3792,
email william.daniel@gctla.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, BOD₅, and TSS. The Manufacturer agrees to test and report effluent results for flow, pH, BOD₅, 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 in order 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 may waive influent sampling if it is not practical to obtain valid samples.

If the influent does not reflect the average or normal values for residential wastewater, then the Division may require additional testing or eliminate that specific residence from consideration as part of the evaluation. Influent sampling is required for justification to remove a site from the test group if non-residential activity, such as a daycare, is suspected.

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 BOD₅ may be used. Chain of custody documentation will be maintained for each sampling event and provided with the quarterly report.

The certified lab(s) are: Gulf Coast Testing, LLC, 5261 Highland Road #347
Baton Rouge, LA 70808

Contact information: William Daniel IV, P.E., Cell 225-281-3792,
email william.daniel@gctla.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 spreadsheet 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 as described in GMP 2016-3.

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 identified third party must prepare a final report including the following (at a minimum):
 - 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 any O&M performed;
 - iv. Chain of Custody forms;
 - v. List of key participants;
 - vi. Description of sampling methods and list of analytical methods;

- vii. All testing results including all sample data and any 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/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.
- 9. The undersigned agree to the conditions of this Agreement.

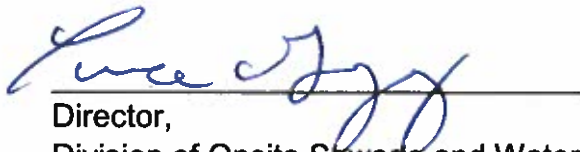

Lance Gregory
Division Director


Manufacturer

**Memorandum of Understanding and Agreement
Attachment "A"**

1. In Item 2.iii & iv it addresses the sampling of influent wastewater and the reasons which is to establish that the unit is receiving residential strength wastewater at that specific site. Clearstream would like to request a waiver to limit the influent sampling to one (1) sample at each site at the start of the sampling process which would verify that we are receiving residential wastewater but the remainder of the four (4) sample events would be effluent samples only. Our reasons are the influent sampling is problematic to sample and costly to Clearstream without a reasonable expectation of providing any data that would change the outcome of this sampling process. Also the one influent sample would verify that the home site is producing typical household waste strength influent which would meet the requirement of Virginia's proposed GMP 2015.

The undersigned agree to the conditions of this Attachment A:



Director,
Division of Onsite Sewage and Water Services
Environmental Engineering and Mariana Programs



President
Clearstream Wastewater
Systems, Inc.