

February 11, 2020

Mr. Carl Kilgore, Jr.
Chief Operator
Ithaca Area WWTP
525 Third Street
Ithaca, NY 14850

**RE: PROPOSAL FOR PROFESSIONAL SERVICES
BOILER ROOM EVALUATION
ITHACA AREA WWTP**

Dear Mr. Kilgore:

We are pleased to present our proposal for assistance in evaluating the existing condition of the equipment in the boiler room at the WWTP, and identifying what equipment will be most useful in the future.

I. Background

The boiler room at the WWTP has a number of boilers used for comfort heating of indoor spaces and for process heating of the anaerobic digesters. After the major WWTP upgrade in 1987 the boiler room contained one biogas boiler, one natural boiler and one dual fuel boiler. In 2015 the natural gas boiler was replaced with two new high efficiency CAMUS Model DRNH-2000-MSI natural gas boilers. The biogas boiler and the dual fuel boiler have been in service for 32 years and are approaching the end of their useful lives, as evidenced by frequent water leaks. Both of the newer high efficiency boilers have proved to be maintenance intensive and one may already be approaching the end of its useful life.

More recent improvements, installed as part of the microturbine and biogas upgrade project in 2007-2009, resulted in the installation of biogas monitoring, pressurization, and storage systems. These improvements have allowed for higher utilization of biogas in both the boilers and microturbines in recent years. A study is needed to determine if the

biogas produced is more valuable when used in boilers to produce heat, or in the microturbines to produce heat and electricity, or a combination of both.

II. Scope of Services and Compensation

MRB Group will assist the City in performing the following services:

Boiler Evaluation: Our sub-consultant, Jade Stone Engineering, will visit the boiler room and assess the condition of the existing boilers based on visual inspection. Jade Stone will then:

- A. Identify what large, durable, cast iron or other design sectional boilers are commercially available for WWTP boiler room service, and obtain pricing quotations for these items sized to replace the existing dual fuel boilers (2 boilers or different sizes). Obtain pricing quotations from 3 different vendors, if that many vendors exist.
- B. Identify what high efficiency natural gas boilers are commercially available for WWTP boiler room service and obtain pricing quotations from 3 vendors for these boilers based on the same heat input as for the dual fuel boilers in item A above.
- C. Identify commercially available boilers with dual fuel (natural gas or biogas) burners and comment on how the blower controls on these dual fuel boilers must be changed in order to switch between fuels. If such boilers are commercially available, obtain pricing quotations from 3 vendors for equipment sized to replace the existing dual fuel boilers.
- D. Provide a letter report:
 1. Describing the current condition of the existing boilers and a priority order for replacement of the boilers if that is indicated
 2. Including the information gathered as part of items A-C above.

Energy Evaluation: MRB Group staff will provide the following services:

- E. Gather the records of the last three years of biogas production and usage to determine how much biogas has been produced, how much has been used in microturbines, how much has been used in boilers, and how much has been flared. A table reflecting the

monthly biogas usage will be prepared to allow the City to observe the seasonal changes in how biogas is used.

- F. Gather the records of the last three years of natural gas usage and prepare a table showing this data on a monthly basis. We will verify that all of the natural gas used at the plant is used for comfort and process heating.
- G. Evaluate the existing comfort and process heating loads at the WWTP to determine how much boiler capacity is required currently and make estimates of future heat needs which will be affected by the sludge thickening project and other planned projects.
- H. Determine the current cost of electricity and natural gas based on monthly utility bills and identify the billing rate structure for each energy source. Understanding the demand/usage billing rate for electricity is critical in the analysis of energy usage, and will be described in the report prepared for this project.
- I. Quantify the cost to own and operate the boilers and the microturbines by determining the ongoing capital costs for each item, including the cost to operate the biogas cleaning skid, and the cost of contract maintenance on the boilers and microturbine systems.
- J. Use the data gathered on biogas production, utility costs, and operation and maintenance costs to determine the most economically beneficial biogas usage plan.
- K. Evaluate redundancy/back-up provisions. The original design had a form of redundancy with a single dual fuel boiler being available as a back up to either the natural gas boiler or the biogas boiler. We will comment on what redundancy makes sense for an updated boiler room arrangement.
- L. Evaluate the effect of using high efficiency boilers versus lower efficiency (more robust) boilers on both fuel and maintenance costs. The lower efficiency boilers have lasted over 30 years in the existing boiler room and clearly have certain advantages over the higher efficiency boilers. Our report will quantify the economic cost of fuel usage and maintenance of low and high efficiency boilers.
- M. Check the current NYSEDA PON schedule, and WIAA list of grant opportunities, to see if either the study, design work, or the construction phase of a future boiler room project might be eligible for grant funding.

- N. Prepare a report containing the information gathered during the project and provide the City with 3 paper copies of the report plus an electronic copy.
- O. Meet with you and other City staff to discuss the draft findings and respond to any questions or comments in our draft report.
- P. Provide you with 3 paper copies and a pdf copy of our final report.

We propose to perform the scope of services described on a lump sum fee basis.

Boiler Room Study Report (Lump Sum)..... \$18,500.00

The cost figures shown above represent our lump sum amount. Any additional work beyond this fee and outside the scope of this proposal would be reviewed with the Client. MRB Group shall submit monthly statements for services rendered during each invoicing period based on the efforts performed during that period. MRB Group Standard Rates are subject to annual adjustment.

III. Additional Services

The following items, not included in the above services can be provided on an hourly basis, but would only be performed upon receipt of the City's authorization.

- A. Detailed design work for boiler, pumping, or piping systems.
- B. Preparation of construction documents for the boiler room project.
- C. Preparation of grant funding applications.
- D. Additional review meetings beyond those described.
- E. Preparation of drawings of the boiler room.

IV. Commencement of Work

Upon receipt of the signed proposal, MRB Group will begin work on the project. We anticipate completing the project in 3-4 months from starting the work.

V. Standard Terms and Conditions

Attached hereto and made part of this Agreement is MRB Group's *Standard Terms and Conditions*.

If this proposal is acceptable to you, please sign where indicated and return one copy to our office. We have included an additional copy for your records. Thank you for your consideration of our firm. We look forward to working with you on this project.

Sincerely,


Timothy P. Carpenter, P.E.
Project Manager


James J. Oberst, P.E., LEED AP
Executive Vice President/C.O.O.

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Enclosure

PROPOSAL ACCEPTED FOR THE _____ BY:		
_____	_____	_____
<i>Signature</i>	<i>Title</i>	<i>Date</i>

**MRB GROUP, ENGINEERING, ARCHITECTURE, SURVEYING, D.P.C.
AGREEMENT FOR PROFESSIONAL SERVICES
STANDARD TERMS AND CONDITIONS**

A. TERMINATION

This Agreement may be terminated by either party with seven days' written notice in the event of substantial failure to perform in accordance with the terms hereof by one party through no fault of the other party. If this Agreement is so terminated, the Professional Services Organization (hereinafter referred to as P.S.O.) shall be paid for services performed on the basis of his reasonable estimate for the portion of work completed prior to termination. In the event of any termination, the P.S.O. shall be paid all terminal expenses resulting therefrom, plus payment for additional services then due. Any primary payment made shall be credited toward any terminal payment due the P.S.O. If, prior to termination of this Agreement, any work designed or specified by the P.S.O. during any phase of the work is abandoned, after written notice from the client, the P.S.O. shall be paid for services performed on account of it prior to receipt of such notice from the client.

B. OWNERSHIP OF DOCUMENTS

All reports, drawings, specifications, computer files, field data and other documents prepared by the P.S.O. are instruments of service and shall remain the property of the P.S.O. The client shall not reuse or make any modification to the instruments of service without the written permission of the P.S.O. The client agrees to defend, indemnify and hold harmless the P.S.O. from all claims, damages, liabilities and costs, including attorneys' fees, arising from reuse or modification of the instruments of service by the client or any person or entity that acquires or obtains the instruments of service from or through the client.

C. ESTIMATES

Since the P.S.O. has no control over the cost of labor and materials, or over competitive bidding and market conditions, the estimates of construction cost provided for herein are to be made on the basis of his experience and qualifications, but the P.S.O. does not guarantee the accuracy of such estimates as compared to the Contractor's bid or the project construction cost.

D. INSURANCE

The P.S.O. agrees to procure and maintain insurance at the P.S.O.'s expense, such insurance as will protect him and the client from claims under the Workmen's Compensation Act and from claims for bodily injury, death or property damage which may arise from the negligent performance by the P.S.O. or his representative.

E. INDEPENDENT CONTRACTOR

The P.S.O. agrees that in accordance with its status as an independent contractor, it will conduct itself with such status, that it will neither hold itself out as nor claim to be an officer or employee of the client, by reason hereof, and that it will not by reason hereof make any claim, demand or application to or for any right or privilege applicable to an officer or employee of the client, including, but not limited to, Workmen's Compensation coverage, unemployment insurance benefits or Social Security coverage.

F. SUCCESSORS AND ASSIGNS

The client and the P.S.O. each binds himself and his partners, successors, executors, administrators and assigns to the other party of this Agreement and to the partners, successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement; except as above, neither the client nor the P.S.O. shall assign, submit or transfer his interest in this Agreement without the written consent of the other.

G. P.S.O. NOT RESPONSIBLE FOR SAFETY PROVISIONS

The P.S.O. is not responsible for construction means, methods, techniques, sequences or procedures, time of performance, programs, or for any safety precautions in connection with the construction work. The P.S.O. is not responsible for the Contractor's failure to execute the work in accordance with the Contract Drawings and/or Specifications.

H. INVOICES AND PAYMENT

Client will pay MRB Group, Engineering, Architecture, Surveying, D.P.C. for services in respect of the period during which Services are performed in accordance with the fee structure and work estimate set forth in the proposal. Invoices will be submitted on a periodic basis, or upon completion of Services, as indicated in the proposal or contract. All invoices are due upon receipt. Any invoice remaining unpaid after 30 days will bear interest from such date at 1.5 percent per month or at the maximum lawful interest rate, if such lawful rate is less than 1.5 percent per month. If client fails to pay any invoice when due, MRB may, at any time, and without waiving any other rights or claims against Client and without thereby incurring any liability to Client, elect to terminate performance of Services upon ten (10) days prior written notice by MRB to client. Notwithstanding any termination of Services by MRB for non-payment of Invoices, Client shall pay MRB in full for all Services rendered by MRB to the date of termination of Services plus all interest and termination costs and expenses incurred by MRB that are related to such termination. Client shall be liable to reimburse MRB for all costs and expenses of collection, including reasonable attorney's fees.

I. FEES REQUIRED FROM JURISDICTIONAL AGENCIES

MRB Group, D.P.C. is not responsible for nor does the Compensation Schedule established in the Agreement include fees or payments required of jurisdictional agencies. The client herein agrees to pay all application, entrance, recording and/or service fees required by said agencies.

J. P.S.O. NOT AN EMPLOYEE

The P.S.O. agrees not to hold himself out as an officer, employee or agent of the Owner, nor shall he make any claim against the Owner as an officer, employee or agent thereof for such benefits accruing to said officers, employees or agents.

K. INDEMNITY

The Owner will require any Contractor and Subcontractors performing the work to hold it harmless and indemnify and defend the Owner and P.S.O., their officers, employees and agents from all claims resulting from the Contractor's negligence in the performance of the work.