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[trinityconsultants.com](http://trinityconsultants.com)



VIA E-MAIL: [OBZPAE@orangetown.com](mailto:OBZPAE@orangetown.com)

July 17, 2015

Mr. John Giardiello, PE  
Director, Office of Building, Zoning, Planning, Administration & Enforcement  
Town of Orangetown  
20 Greenbush Road  
Orangeburg, New York 10962

RE: *Continued Air Quality Consulting Services*  
*Trinity Consultants Proposal No. 153101.0052*

Dear Mr. Giardiello:

Trinity Consultants (Trinity) appreciates the opportunity to provide continued air quality consulting services to the Town of Orangetown, NY. Trinity understands that Anellotech has received conditional approval (from the Town of Orangetown Planning Board) to proceed with construction and operation of a biomass to chemicals Research and Development (R&D) facility in Pearl River, NY. One condition of the approval calls for Anellotech to submit to periodic air monitoring (at the R&D facility, "DS3") consistent with an agreed upon air emissions monitoring protocol. The Town of Orangetown has requested Trinity's assistance with the development of the air emissions monitoring protocol and oversight of future monitoring (or testing) events at DS3. The following sections of this proposal provide a scope of work and a budget estimate for the proposed project.

## BENEFITS OF SELECTING TRINITY

Trinity is an environmental consulting firm that focuses its efforts primarily on Clean Air Act permitting and compliance. Founded in 1974, Trinity consists of over 500 employees in 46 offices across North America and in China, Europe and the Middle East. Since its founding, Trinity has established a reputation for dependable, high-quality consulting services in the areas of air quality permitting and reporting, air dispersion modeling, and compliance management.

As an ISO-9001 certified company, Trinity is committed to providing customers with exceptional quality products and services. Trinity can be of particular value to the Town of Orangetown because of our expertise in and focus on air quality permitting and compliance in New York. Trinity is uniquely positioned to the Town's expectations based on our:

- > Expertise in air permitting and compliance in New York;
- > Extensive partnerships with stack testing firms and our in-house familiarity and expertise in stack test methodologies and emissions quantification;

HEADQUARTERS >

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North America | Europe | Middle East | Asia

- Unmatched expertise in emissions estimation and our familiarity with chemical manufacturing or production; and
- Decades of experience in matters related to this work scope and related industry.

For these reasons, we believe Trinity will offer a great value to the Town.

## BACKGROUND

As described by Anellotech, the DS3 unit is a small R&D reactor system that converts non-food biomass to benzene, toluene, and xylenes (BTX) and lower concentrations of carbon monoxide, carbon dioxide, water, methane, light olefins, light paraffins, and other hydrocarbons. Potential emissions from DS3 will be controlled by an electric, catalytic oxidizer system (with destruction efficiencies of up to 99.5%). While Anellotech does not have plans to operate DS3 at maximum capacity, they have provided the following potential emissions from the operation:

Figure 1: DS3 Emissions

	Uncontrolled		Controlled	
	lb/hr	lb/yr	lb/hr	lb/yr
CO	14.045	123,032	0.72	6,307.20
Methane	1.303	11,416		
VOC	0.733	6,417	0.0147	128.77
Benzene	0.083	729	0.00166	14.54
BTX	0.15	1,310	0.00299	26.19

Notes:

- Controlled lb/yr emissions based on lb/hr time 8760 hours.
- Anellotech submittal to NYSDEC represented slightly different controlled BTX compound emission rates.
- The above data is based on information provided to Trinity on January 12, 2015.

Due to the expressed concerns of the town and its citizens related to the aforementioned emissions, Anellotech has been asked to utilize an emissions monitoring system and implement an air emissions monitoring protocol. Anellotech has provided details on the parametric monitoring and emissions monitoring methodology they plan to utilize in association with the operation of DS3. These monitoring methods include:

- Monitor temperature across the catalyst bed of the oxidizer (i.e., change in temperature across the catalyst). Typically, the change in temperature is an indicator of destruction efficiency within a catalytic oxidizer;
- Routine measurements of the flows, temperatures, and pressures of the streams that are combined to form the facility's emissions;
- Utilization of Gas Chromatographs (GCs) to measure pollutant concentrations both before and after the oxidizer (on a periodic basis);

In addition to the aforementioned emissions monitoring or control assurance methods discussed above, Anellotech has also expressed a desire to use toluene as “tracer gas” during project commissioning. The company plans to utilize toluene to confirm the performance, or destruction efficiency, of the oxidizer prior to actual DS3 operation (and the generation of benzene emissions). Anellotech assumes that biomass conversation within DS3 will commence near May 2016.

## SCOPE OF WORK

As part of this scope of work, Trinity envisions the following tasks:

- Trinity will either contract a third party stack testing firm (or provide the name of a reputable firm to both the Town of Orangetown and Anellotech) to perform an initial stack testing program following full scale R&D Operations of DS3. Trinity envisions that the selected firm will measure the concentrations and mass emission rates of the pollutants of concern at both the inlet and outlet to the oxidizer. Similar to compliance stack testing activities, Trinity and the selected firm will develop a brief stack test protocol that will outline the test methods to be utilized, the test location, anticipated stack gas parameters (and necessary analytical methods), and the expectations for operational conditions during the testing. Prior to any stack testing, a draft of the protocol will be submitted to Orangetown and Anellotech for review, and Trinity will work with all parties to finalize a mutually agreeable final test protocol. Trinity envisions two conference calls (of 1-hour each) to finalize the protocol with the Town and Anellotech. Trinity will be present at the aforementioned stack testing event (assume one 8-hour event) for test oversight and coordination;
- Trinity will review a draft of the resulting stack test report once completed by the selected testing firm. Trinity will utilize our knowledge of test methods, calculation methodology and the source activity to ensure that the test results are accurate and consistent with the observed operation. Following completion of the draft review, Trinity will provide comments and work with the testing firm to issue a final test report (with emission comparisons to the previously reported Anellotech emission rates);
- Following issuance of the stack test report, Trinity will work with Anellotech to correlate GC recorded data (from the time period coinciding with the stack test) with the actual stack test results. The objective of this task will be to develop a method of demonstrating the approximate actual emissions (based on stack test data) associated with pollutant specific measurements performed real-time with the GC (and via parametric monitors). In other words, correlating test results to GC measurements will allow for Anellotech and the Town of Orangetown to utilize future GC results to approximate actual emissions from DS3. A subsequent report, by Trinity, will be issued to document this correlation. Trinity envisions working directly with Anellotech to develop this report;
- Trinity will review, on a quarterly basis, the parametric monitoring data and the (continuous) GC analytical results collected by Anellotech to ensure consistency with the aforementioned correlation report. Trinity will work with Anellotech data to identify any periods of suspect “excess emissions”. Such periods will be discussed with Anellotech to understand the DS3 operations associated with the excess emissions. A report of the data review findings will be issued within 30 days of the end of each quarter; and

- Trinity recommends at least one additional stack testing event within approximately 12 months of the initial test event. While (low levels of) actual emissions from the oxidizer may not warrant additional testing, Trinity understands that there is public desire for continued confirmation of emissions (by a third party). Utilizing the protocol discussed above, Trinity will again work with a third party testing firm on a second round of stack testing at the DS3 oxidizer. The testing process will follow the logic outlined in the above bullet.

In addition to the testing related tasks mentioned above, Trinity has also been asked to utilize appropriate emissions estimating software to confirm the potential emissions that were previously estimated/calculated by Anellotech (for the 5 waste gas streams vented to the oxidizer). Trinity will use the Emissions Master software (or similar) and data inputs provided by Anellotech to derive emission rates for each of the reactor (and/or process) steps contemplated by Anellotech. Following the emissions determination, Trinity will develop a written report for the town's use and records. Any findings of inconsistency will be reviewed with Anellotech to determine if all assumptions and data inputs were accurate.

Trinity has assumed a moderate level of effort associated with this emissions estimation task. At this time, Trinity is assuming an 8-hour on-site meeting between one of our Chemical Engineers and Anellotech, 5-hours of commute time, and 19 hours of related emissions calculation and report generation time (including internal QA/QC efforts). This represents a reasonable effort of the anticipated effort. However, Trinity will notify the Town prior to exerting any effort in excess of the aforementioned (for this task).

### PROPOSED BUDGET

The budgetary estimate for this project is provided below. This per task breakdown is not intended to serve as a limit for each of the tasks mentioned below. This table is provided to assist the Town in budgeting for the desired scope of work (and understanding the potential cost associated with future test event oversight or additional quarterly data reviews).

Task	Description	Estimated Cost
1	Protocol Development & Conference Calls	\$2,000
2	Test Oversight	\$2,300
3	Stack Test Report Review	\$1,500
4	Monitoring Data - Test Data Correlation	\$1,500
5	Quarterly Data Review (Per Quarter)	\$1,300
6	Follow-up Stack Test Oversight and Report Review	\$3,800
7	Emissions Quantification & Report	\$6,700
	<b>Total Estimate (Assuming 2 Test Events &amp; 4 Quarterly Reviews)</b>	<b>\$23,000</b>

This estimate does not include any of the costs for a third party stack testing firm (including, but not limited to, their portion of protocol development and the stack testing services).

All charges will be billed on a time-and-materials basis per the Terms and Conditions listed in **Attachment 1**. Invoices for services performed and not previously billed will be submitted to the Town monthly by Trinity and

shall be payable within 30 days of receipt. Trinity is prepared to commence work on this project upon receipt of the signed work authorization provided in **Attachment 2**.

\*\*\*\*

We greatly appreciate the opportunity to work with you on this very important project. If you have any questions or comments about the information presented in this letter, please do not hesitate to call me at (609) 375-2665.

Sincerely,

TRINITY CONSULTANTS

A handwritten signature in blue ink, appearing to read "Michael A. Trupin". The signature is stylized and cursive.

Michael A. Trupin  
Principal Consultant

Attachments

ATTACHMENT 1

Terms and Conditions



## STANDARD TERMS AND CONDITIONS

- (1) Acceptance      This order, of which these terms and conditions are an integral part, shall become a binding contract when accepted by Client's acknowledgment of the commencement of performance hereof. No revisions to this order shall be valid unless in writing and signed by an authorized representative of Consultant; and no conditions stated by Client in accepting or acknowledging this order shall be binding upon Consultant unless expressly accepted in writing by Consultant.
- (2) Payment        Compensation for Consultant's services to Client shall be payable for each project as stated in the Consultant's Price Schedule. Invoices for services performed and not previously billed shall be submitted to Client monthly by Consultant. Payments are due thirty (30) days after invoice date. Overdue invoices are subject to interest at the rate of eighteen per cent (18%) per annum. Consultant shall have the right to suspend its work performance when, in its sole opinion, any uncollected accounts receivable have aged to a point it considers severely delinquent. Payments to the Consultant shall be made as follows: Trinity Consultants, Inc., P.O. Box 972047, Dallas, TX 75397-2047, Attention: Accounts Receivable, collections@trinityconsultants.com. Consultant also accepts ACH payments as well as Visa, Mastercard and AMEX payments.
- (3) Changes        Client shall have the right at any time to make changes in the drawings, designs, specifications, materials, time and place of delivery and method of transportation. If any such changes cause an increase or decrease in the cost, or the time required for the performance, an equitable adjustment shall be made and this Agreement shall be modified in writing accordingly. Billings to Client shall incorporate the effect of any such changes.
- (4) Assignments    Any assignment of this Agreement, in whole or in part, or of any interest hereunder by one party without the other party's prior written consent shall be void.
- (5) Termination    Except as otherwise provided in this Agreement, if either party breaches any material terms, conditions, or covenants of this Agreement and such breach continues for 15 days after notice thereof by the other party requiring that such breach be cured or corrected and stating its intention to terminate this Agreement if there is no cure or correction, then, in addition to all other rights and remedies of the non-breaching party, at law or in equity or otherwise, this Agreement shall be terminated at the expiration of such 15-day period if there has been no cure or correction. If this Agreement is terminated under said conditions, Consultant shall be entitled to payment, within 15 days of such termination, for all services rendered and products produced by Consultant, as well as reimbursement for all costs incurred theretofore incurred by Consultant for the benefit of Client, through the effective date of such termination and for services utilized to complete the termination of the Agreement after the effective date of the termination.
- (6) Software Licensing    To the extent that Consultant delivers licensable software as part of this Agreement, Consultant will provide a license agreement for use of the software at the location or locations specified in the Scope of Work. Client shall agree to be bound by the Terms and Conditions of the license. Consultant shall retain the rights to all source code generated under the agreed scope of work.
- (7) Limitation on Liability      Consultant hereby disclaims all warranties, expressed or implied, including (but not limited to) the implied, warranties of merchantability and fitness for a particular purpose. Consultant shall have no liability (a) beyond the aggregate amounts paid to Consultant if such liability arises out of a particular project, or under this Agreement otherwise, or (b) if the damage is covered by insurance, beyond the limits of the applicable insurance coverage; and any liability hereunder shall be solely to Client and not to any other person. Consultant will not be responsible or liable for any special, indirect, consequential or incidental damages arising out of such services of this agreement, whether such damages are suffered by client, any customer of client, or any other third party, even if Consultant has been advised of the possibility of such damages.



## STANDARD TERMS AND CONDITIONS

- (8) **Excusable Delay** To the extent any significant delay in Consultant's performance is caused by an act or omission on the part of Client or any of its Consultants or agents who are performing work in connection with this Agreement, an adjustment shall be made in the performance schedule and an adjustment of the price provisions of this Agreement shall be made to reflect any reasonable additional costs that Consultant must incur because of such delay, unless such delay caused by Client or its Consultants or agents resulted from any causes beyond its control. If Consultant is completely and permanently prevented from completing performance of its obligations by any of the events described above, Consultant shall be excused from any such further performance. All amounts previously paid to Consultant and all additional amounts then due, as if an invoice had been sent to Client on the date of the event for work completed by Consultant, shall belong to Consultant.
- (9) **Nondisclosure** During the term hereof and for three years following the stated expiration date of this Agreement, the party receiving confidential or proprietary information ("Receiving Party") ("Confidential Information") shall: (a) restrict disclosure of the Confidential Information solely to those of its employees and agents with a need to know, and not disclose it to other persons, (b) advise its employees and agents of the obligation of confidentiality hereunder, and (c) require its employees and agents to use the same degree of care as is required with its own Confidential Information, but in no event less than reasonable care. The Receiving Party shall have no obligation to preserve the confidentiality of any information which (a) was previously known to it free of any obligation to keep it confidential, (b) is distributed to third parties by the providing party without restriction, (c) is or becomes publicly available, by other than unauthorized disclosure by it or its employees or agents, or (d) is independently developed by it. It shall not be a breach of the confidentiality obligations hereof for the Receiving party to disclose Confidential Information where, but only to the extent that, such disclosure is required by law or applicable legal process, provided in such case, the Receiving Party shall (i) give the earliest notice practicable to the party disclosing the Confidential Information ("Disclosing Party") that such disclosure is or may be required and (ii) reasonably cooperate with the Disclosing Party in protecting the Confidential Information which must so be disclosed." Subject to the provisions hereunder, the obligation to maintain confidentiality shall expire one (1) year after termination of the agreement or relationship between both parties.
- (10) **Work Product Supplied By Consultant** Consultant may provide certain work product ("Work Product") to Client during the course of this Agreement for use by Client at its facility set forth in the corresponding Work Authorization or Contract Documents ("the Licensed Facility"). Client understands that such Work Product may not be reproduced by Client without Consultant's express written consent and may not be used by Client outside the Licensed Facility or otherwise distributed outside the Licensed Facility.
- (11) **Waiver** No provision of this Agreement shall be deemed waived, amended, or modified by either party unless such waiver, amendment, or modification is in writing and signed by the party against which it is sought to be enforced.
- (12) **Insurance** Consultant shall maintain (a) workers' compensation insurance to the extent required by applicable federal and state laws and regulations, including employer's liability insurance with minimum limits of \$1,000,000/\$1,000,000/\$1,000,000, (b) commercial general liability insurance with a minimum limit of \$1,000,000 per occurrence, and (c) automobile liability insurance (covering "hired" and "non-owned") with a limit of \$1,000,000 per occurrence.
- (13) **Entire Agreement** This document constitutes the entire agreement between Client and Consultant with respect to the subject matter hereof and is only superseded by a future fully executed Master Service Agreement or Contract.



ATTACHMENT 2

**Work Authorization**



Work Authorization

Trinity Proposal #: P153101.0052

Date: July 17, 2015

Contract/MSA #:

Project # and Title: Air Quality Consulting Services

Consultant: TRINITY CONSULTANTS, INC.
100 Overlook Center, 2nd Floor
Princeton, NJ 08540
(609) 375-2665
Michael Trupin
mtrupin@trinityconsultants.com

Client: TOWN OF ORANGETOWN
Mr. John Giardiello, PE
OBZPAE@orangetown.com

Budget: \$23,000

Scope of Work:

- Please refer to the proposal provided by Michael Trupin dated July 17, 2015.

Terms and Conditions: The terms and conditions attached constitute a part of this Agreement unless superseded by an executed Master Service Agreement and/or Contract previously signed by Client and Consultant.

Client hereby authorizes Consultant to start services upon receipt of this Authorization. Client agrees to reimburse Consultant in accordance with monthly invoices.

TRINITY CONSULTANTS, INC.

Client

Consultant

Client Representative Signature

Consultant Representative Signature

Michael A. Trupin

Client Representative

Consultant Representative

Senior Consultant

Title

Title

July 17, 2015

Date

Date