

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY AND TRANSPORTATION

PUBLIC WORKS SOLID WASTE DIVISION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

**REQUEST FOR PROPOSALS NO. 108147
LANDFILL GAS COMPRESSOR SYSTEM
DANE COUNTY LANDFILL SITE #2
7102 U.S. HIGHWAY 12 & 18
MADISON, WISCONSIN**

Opening Date / Time: **THURSDAY, DECEMBER 18, 2008 / 2:00 P.M.** Location: **PUBLIC WORKS OFFICE**

Performance / Payment Bond: **100% OF CONTRACT AMOUNT**

FOR INFORMATION ON THIS REQUEST FOR PROPOSALS, PLEASE CONTACT:

MIKE DIMAGGIO, SOLID WASTE MANAGER
TELEPHONE NO.: 608/266-4990
FAX NO.: 608/267-1533
E-MAIL: DIMAGGIO.MIKE@CO.DANE.WI.US



DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Kathleen M. Falk

1919 Alliant Energy Center Way ♦ Madison, Wisconsin 53713
Phone: (608) 266-4018 ♦ Fax: (608) 267-1533

Commissioner / Director
Gerald J. Mandli

November 20, 2008

INVITATION FOR PROPOSALS

You are invited to submit a professional cost proposal for the design, fabrication, and delivery of a landfill fuel gas compression system (FGC) to the Rodefild Landfill in Madison, Wisconsin. Proposals for the installation, and start-up of the FGC will also be accepted, but are optional. Proposals for providing the building to house the FGC will also be accepted, but are optional. The Proposals are due on or before **2:00 PM, Thursday, December 18, 2008**. No proposal bond is required for this project. However, the selected vendor will be required to post a performance bond equal to the value of the contract.

SPECIAL INSTRUCTIONS

Please be sure to complete one unbound original and four bound copies of the entire proposal package. To submit your proposal, please follow these instructions:

1. Place the signed Signature Page on top as page 1.
2. Place the signed Fair Labor Practices Certification after the Signature Page as page 2.
2. After the first 2 pages, place Proposal information in order and including all items, as outlined in Sections E and F of the Requested Services and Business Information
3. Clearly label your envelope containing your proposal in the lower left-hand corner as follows:
"Proposal No. 108147
Landfill Gas Compressor System
2:00 PM, Thursday, December 18, 2008"
4. Mail to:
Dane County Solid Waste Division
Attention: Mike DiMaggio
1919 Alliant Energy Center Way
Madison, WI 53713

If any additional information about this Request for Proposals is needed, please call Mike DiMaggio at 608/266- 4990 or send email to dimaggio.mike@co.dane.wi.us.

Sincerely,

Mike DiMaggio
Solid Waste manager

Encl.: Request for Proposals No. 108147 Package

DOCUMENT INDEX FOR RFP NO. 108147

PROPOSAL REQUIREMENTS

RFP Cover Page
RFP Cover Letter
Documents Index and Dane County Vendor Registration Program
Invitation to Propose (Legal Notice)
Signature Page
Fair Labor Practices Certification
Requested Services and Business Information
Landfill Gas Compressor System Specifications

Attachments

Attachment 1 – Landfill gas laboratory test results.

DANE COUNTY VENDOR REGISTRATION PROGRAM

All bidders / proposers wishing to submit a bid / proposal should be registered with Dane County Purchasing before bid / proposal opening & must be registered before award of contract. Complete a Vendor Registration Form at www.danepurchasing.com, or obtain one by calling 608/266-4131.

LEGAL NOTICE

INVITATION TO PROPOSE

Dane County Solid Waste Department, 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Proposals until:

2:00 P.M., THURSDAY, DECEMBER 18, 2008

REQUEST FOR PROPOSALS NO. 108147

**LANDFILL GAS COMPRESSOR SYSTEM
DANE COUNTY LANDFILL SITE #2
7102 U. S. HIGHWAY 12 & 18
MADISON, WISCONSIN**

Dane County requests proposals for the design, fabrication, and delivery of a landfill fuel gas compression system (FGC) to the Rodefild Landfill in Madison, Wisconsin. Proposals for the installation, and start-up of the FGC will also be accepted, but are optional. Proposals for providing the building to house the FGC will also be accepted, but are optional. Only firms with capabilities, experience & expertise with similar projects should request this packet & submit Proposals.

Request for Proposal package may be obtained at Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, by calling 608/266-4018, or downloading it from www.countyofdane.com/pwht/bid/logon.aspx. Please call Mike DiMaggio, Solid Waste Manager, at 608/266-4990 for any questions or additional information.

All Proposers wishing to submit Proposals should be registered vendor with Dane County Purchasing before proposal opening & must be registered before award of contract. Complete Vendor Registration Form at www.danepurchasing.com or obtain one by calling 608/266-4131.

**PUBLISH: NOVEMBER 20 & 27, 2008 - WISCONSIN STATE JOURNAL
 NOVEMBER 24, 2008 & DECEMBER 1, 2008 - WESTERN BUILDER**



SIGNATURE PAGE

County of Dane
 DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
 Room 425, City-County Building
 210 Martin Luther King, Jr. Blvd.
 Madison, Wisconsin 53703
 (608) 266-4131

| | | | | | | | | | | | |
|---|------------------------------------|------------------|----------------------------|--|-------|----------------------------|--------------------------------|---------------|--|--|--|
| COMMODITY / SERVICE: Landfill Gas Compressor System | | | | | | | | | | | |
| REQUEST FOR PROPOSAL NO.: 108147 | PROPOSAL OPENING DATE: 12/18/08 | BID BOND: N/A | PERFORMANCE BOND: 100 % | | | | | | | | |
| <p>PROPOSAL INVALID WITHOUT SIGNATURE THE UNDERSIGNED, SUBMITTING THIS PROPOSAL, HEREBY AGREES WITH ALL TERMS, CONDITIONS AND REQUIREMENTS OF THE ABOVE REFERENCED REQUEST FOR PROPOSAL, AND DECLARES THAT THE ATTACHED PROPOSAL AND PRICING ARE IN CONFORMITY THEREWITH.</p> <table border="1"> <tr> <td>SIGNATURE OF PROPOSER REQUIRED: (Do Not Type or Print)</td> <td>DATE:</td> </tr> <tr> <td>SUBMITTED BY: (Typed Name)</td> <td>TELEPHONE: (Include Area Code)</td> </tr> <tr> <td colspan="2">COMPANY NAME:</td> </tr> <tr> <td colspan="2">ADDRESS: (Street, City, State, Zip Code)</td> </tr> </table> | | | | SIGNATURE OF PROPOSER REQUIRED: (Do Not Type or Print) | DATE: | SUBMITTED BY: (Typed Name) | TELEPHONE: (Include Area Code) | COMPANY NAME: | | ADDRESS: (Street, City, State, Zip Code) | |
| SIGNATURE OF PROPOSER REQUIRED: (Do Not Type or Print) | DATE: | | | | | | | | | | |
| SUBMITTED BY: (Typed Name) | TELEPHONE: (Include Area Code) | | | | | | | | | | |
| COMPANY NAME: | | | | | | | | | | | |
| ADDRESS: (Street, City, State, Zip Code) | | | | | | | | | | | |

CONTRACT COMPLIANCE PROGRAM WORKSHEET

- A. Dane County has an established Contract Compliance Program that encourages targeted groups identified below to do business with Dane County, and requires Dane County to actively solicit bids from these businesses.
- B. Information from your response to this worksheet will be entered in the Purchasing Division's Advanced Procurement Systems database to provide data that will be valuable to Dane County's Contract Compliance Program as well as establishing computerized bidder lists for future solicitations. All vendors will be added to the database whether or not they qualify as a targeted business.
- C. **Contract Compliance Program:** Following are abbreviated definitions of ethnic and group codes used by Contract Compliance Program. See reverse side for full definitions:
 - 1. DBE Disadvantaged Business Enterprise
 - 2. MBE Minority Business Enterprise
 - 3. WBE Women Business Enterprise
 - 4. ESB Emerging Small Business
- D. Please select category / categories that best describe your business by marking letter for each column in box provided at bottom of column:

| | | | | | | | |
|----------------------------|-----|----------------------------|-----------------------------------|----------------------------|--------|----------------------------|-----|
| <input type="checkbox"/> D | DBE | <input type="checkbox"/> B | African American | <input type="checkbox"/> L | Male | <input type="checkbox"/> E | ESB |
| <input type="checkbox"/> M | MBE | <input type="checkbox"/> H | Hispanic American | <input type="checkbox"/> F | Female | | |
| <input type="checkbox"/> W | WBE | <input type="checkbox"/> N | Native American / American Indian | | | | |
| | | <input type="checkbox"/> A | Asian Pacific American | | | | |
| | | <input type="checkbox"/> I | Asian-Indian American | | | | |
| ↓ | | ↓ | | ↓ | | ↓ | |
| <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> | |

- E. I hereby certify that all of the above information given is true. If no category / categories are marked, I do not meet the requirements for any of the targeted groups.

Signature: _____ Date: _____

(over)

DANE COUNTY CONTRACT COMPLIANCE PROGRAM DEFINITIONS

- A. **Disadvantaged Business Enterprise (DBE):** A small business concern:
1. Which is at least fifty-one percent (51%) owned by one or more socially and economically disadvantaged individuals, or in the case of any publicly owned business, at least fifty-one percent (51%) of the stock of which is owned by one or more socially and economically disadvantaged individuals; and
 2. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.
 3. Socially and Economically Disadvantaged Individuals:
 - a) Any person having a current Section 8 (a) Certification from the Small Business Administration is considered socially and economically disadvantaged.
 - b) Individuals who are citizens of the United States (of lawfully permanent residents) are socially and economically disadvantaged:
 - 1) Women;
 - 2) Black Americans, which includes persons having origins in any of the black racial groups of Africa;
 - 3) Hispanic Americans, which includes persons of Mexican, Puerto Rican, Cuban, Central, or South American, or other Spanish or Portuguese culture or origin, regardless of race;
 - 4) Native Americans, which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
 - 5) Asian-Pacific Americans, which includes persons whose origins are from Burma, Thailand, Malaysian, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia, the Philippines, Samoa, Guam, the U.S. Trust territories of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, or the Commonwealth of the Northern Mariana Islands; and
 - 6) Asian-Indian Americans, which includes persons whose origins are from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal.
- B. **Minority Business Enterprise (MBE):** A minority person(s) owned and controlled independent and valid business concern. A minority person(s) must own fifty-one percent (51%) of the business and must control the management daily operation of the business.
- C. **Women Owned Enterprise (WBE):** A woman or women owned and controlled independent and valid business concern. A woman or women must own fifty-one percent (51%) of the business and must control the management daily operation of the business.
- D. **Emerging Small Business (ESB):**
1. An independent business concern that has been in business for at least one (1) year.
 2. Business is located in the State of Wisconsin.
 3. Business is comprised of less than twenty-five (25) employees.
 4. Business must not have gross sales in excess of three million over the past three (3) years.
 5. Business does not have a history of failing to complete projects.

FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has submitted a proposal, bid or application for a contract with the county of Dane.

B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

Officer or Authorized Agent Signature

Date

Printed or Typed Name and Title

Printed or Typed Business Name

NOTE: You can find information regarding the violations described above at: www.nlr.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.11(28)(a) is as follows:

(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder’s responsibility to perform the contract.

If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.

REQUESTED SERVICES AND BUSINESS INFORMATION

- A. Dane County is inviting professional cost proposals for the design, fabrication, and delivery of a landfill fuel gas compression system (FGC) to the Rodefild Landfill in Madison, Wisconsin.
- B. Proposals for the installation, and start-up of the FGC will also be accepted, but are optional.
- C. Proposals for providing the building to house the FGC will also be accepted, but are optional.
- D. The selected contractor will be required to post a performance bond equal to the value of the contract.
- E. To ensure consideration, and for ease of review and evaluation, all proposals should be prepared in accordance with the following format.
 - a. Pages are limited in size to 8 ½" x 11" except drawings shall be on 11"x17" paper.
 - b. Each page and exhibit of the proposal should have the following information in the top right corner.

Dane County Solid Waste Department
Landfill Gas Compressor System Proposal
Project: RFP 108147
Bidder: _____
Page # of #

- F. Proposers are requested to submit the following information in their proposal, in 9 distinct sections.

Section 1 – Executive Summary / Project Summary

The Executive Summary section should provide a description of the proposed gas compression system, operation and maintenance considerations, and any subcontractors used to design, supply, or operate and maintain the system.

Section 2 – Proposer's Qualifications

This section should include, but not be limited to, the following information:

- Primary and secondary contact information;
- Corporate/business structure, including primary and secondary businesses;
- A list of the Proposer's currently operating and under construction gas compression systems including High Btu Plants over the last five (5) years. For each project on this list, include the name, address, and telephone number of the client for whom the work was done;
- Description of any past, current, or pending litigation concerning landfill gas compression systems and payments; and

- Separate descriptions, as appropriate, for each member if there is a consortium or partnership of two or more firms proposing, and a description of the relationship between the entities for this Proposal.

Section 3 – System Controls

This section should include the types of controls proposed to regulate and monitor system operation, and how the controls for each piece of equipment in the system are integrated. In addition, the type of training necessary to understand the operation of the controls should be included, as this will help Dane County in staffing operators for the proposed system.

Section 4 – Exceptions to the Specifications

This section should include a description of all exceptions to the specifications for the FGC system.

The specifications describe an acceptable unit. Minor variations in specification may be accepted if, in the opinion of County staff, they do not adversely affect the quality, maintenance or performance of the equipment. Any exceptions from these requirements must be identified in detail and must include a description of why the proposed item(s) meets, exceeds, or is irregular from the specification.

Any deviation from the minimum specifications stated herein must be identified in detail and must include a description of how the proposed item/s differ from the bid requirements, along with detailed justification for such deviation. Bidder shall include photos and schematics as necessary, for complete clarification.

If no variations are listed, it will be assumed that all specifications are met.

Any deletions, additions, or variations from the following specifications must be noted. Any items appearing in the manufacturer's regular published specifications furnished by the bidder, are assumed to be included in Bidders Proposal.

Section 5 – System Cost Estimate

This section shall include information related to the cost of the following proposed gas compression system components.

- Compression system equipment, including fabrication and delivery (f.o.b. Rodefild Landfill, 7102 US Highway 12 & 18, Madison, WI 53718)
- Installation and start-up of FGC (optional proposal)
- Provide building to house FGC (optional proposal)

Bids should not include Federal Excise and Wisconsin Sales Taxes as Dane County is exempt from payment of such taxes; State Statute No. 77.54(9a).

Section 6 – Schedule

In this section, include the following items and required time (with dates) assuming a contract award date of January 30, 2009.

- Submittals, as described in paragraph 1.03 of the gas compressor system specifications;
- System design;
- System fabrication;
- Equipment arrival.

If additional items are necessary for the system to become operational include those items in the schedule.

Dane County reserves the right to charge contractor liquidated damages if proposer does not complete work by the date agreed upon in the contract. These values will be negotiated during contract negotiations.

Section 7 – Instillation and Start Up (optional)

Off-loading, inspection, on-site storage, installation, and start-up of FGC by the Proposer is optional. If the Proposer chooses to include this Work as part of the bid, this section should include a scope of services and qualifications of the Proposer or his subcontractor(s). Also include contract terms, schedule, and pricing for installing and performing start-up of the system.

Section 8 – Building to House FGC (optional)

Providing the building to house the FGC by the Proposer is optional. If the Proposer chooses to include this Work as part of the bid, this section should include a scope of services, qualifications of the Proposer or his subcontractor(s), contract terms, schedule, and pricing.

Section 9 – Other Information

This section provides the opportunity to describe other aspects of the proposal that may not fit into the above categories.

- G. The proposed unit shall be the manufacturer's heaviest duty current production model, meeting or exceeding these specifications. All items and components must be of a standard production model and not modified for bid purposes.
- H. All equipment sold to Dane County must meet Federal, State and local government safety, air emission and noise standards. The bidder must be a manufacturer or authorized dealer bidding on regularly manufactured equipment of this type. A bid will not be considered if the bidder has failed to show, without a doubt, that the bid is for regularly manufactured equipment, tried, proven and in current use.
- I. All costs of proposal development are to be borne by the proposer. Dane County will not reimburse any proposer for costs incurred in responding to this RFP or for the costs incurred during any subsequent negotiations.

- J. Dane County will provide all necessary and available site information to selected proposing company.
- K. Listed below are specific and estimated dates and times of events related to this RFP. The events with specific dates must be completed as indicated unless otherwise changed by Dane County. In the event that Dane County finds it necessary to change any of the specific dates and times in the calendar of events listed below, it will do so by issuing an addendum to this RFP. There may or may not be a formal notification issued for changes in the estimated dates and times.

| <u>DATE</u> | <u>EVENT</u> |
|----------------------------------|--|
| November 20, 2008 | RFP issued |
| December 8, 2008 | Written inquiries due |
| December 11, 2008 | Last Addendum (if necessary) |
| December 18, 2008, 2:00 p.m. CST | Proposals due |
| December 23, 2008 | Decision on feasibility of proposals |
| January 9, 2009 (estimated) | Submit additional information |
| January 15, 2009 (estimated) | Contract and terms of sale negotiated |
| January 30, 2009 (estimated) | Purchase approved by County Boards and Purchase Order issued |

- L. One unbound original and **four** bound copies of the entire proposal should be sent to the following address:
 Dane County Solid Waste Division
 Attention: Mike Dimaggio
 1919 Alliant Energy Center Way
 Madison, WI 53713
- M. To obtain information regarding this project or to schedule a site visit, please contact Mike DiMaggio, Solid Waste Manager, 608/266-4990. Proposers must submit all questions in writing by December 8, 2008 to the following email address: dimaggio.mike@co.dane.wi.us. All responses to questions will be posted on the Dane County web site, www.countyofdane.com/pwht/bid/logon.aspx, in the form of Addenda.
- N. Proposers may download an electronic copy of the RFP from Proposing company is responsible to check regularly at www.countyofdane.com/pwht/bid/logon.aspx, the Dane County web site, for Addenda.
- O. **All Proposals must be submitted by 2:00 P.M. CST, Thursday, December 18, 2008.**
- P. Dane County reserves the right to accept or reject any Proposal submitted.
- Q. Proposals will be received and reviewed in two separate phases. Information submitted will allow Dane County to determine the feasibility of the proposed gas compression system. Upon completing the review of proposals (Phase 1), Dane County will inform respondents of the status of their proposal. Proposers whose proposals are reviewed favorably by Dane County may be asked to submit more detailed information (Phase 2) either in writing or in a conference call with Dane County and their technical representatives. Those participating in a conference call shall be prepared to discuss their approach for the design and completion of this Work, a timetable, and the basis of their fee schedule.

- R. Dane County will assess all proposals to determine which proposals are economical, innovative, and viable options for compressing the landfill gas from the Rodefild Landfill. The assessment will be based primarily on costs, but it will also take into account non-price factors, such as **schedule** and proposed contract terms.
- S. Selection will be based only on the proposal submitted and subsequent interviews / requested information. Therefore, the proposals must be complete. Submission of a proposal shall constitute a valid offer.
- T. Dane County reserves the right, without qualification and in its sole discretion, to reject any and/or all proposals or to waive any informality, technicality or deficiency in proposals received. Dane County reserves the right to consider proposals or alternatives outside of this solicitation. In addition, Dane County reserves the right, in its sole discretion, to modify or waive any of the criteria contained herein and/or the process described herein. Those who submit proposals agree to do so without recourse against Dane County for either rejection or failure to execute a contract for any reason.
- U. Dane County reserves the right to negotiate an Agreement after the successful firm is selected. The commencement of negotiations between any proposer and Dane County does not create or imply any commitment by Dane County to enter into an agreement with that proposer.
- V. Dane County is an Equal Opportunity Employer.

LANDFILL GAS COMPRESSOR SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION OF WORK AND DEFINITIONS

A. System Description

This specification covers the design and performance requirements for a landfill fuel gas compression system (FGC). The FGC shall be of variable speed design and capable of operating at flow rates between 800 and 2000 scfm. System controls on the FGC shall be capable of automatically adjusting blower speed based on back pressure in the piping between the FGC and the generators. The FGC shall consist of a skid-mounted gas compression system designed to operate in an automated, unattended mode for continuous operation 24 hours per day, 365 days per year. The FGC shall be designed for indoor or outdoor installation with the exception of the gas cooler which shall be located outdoors. Design objectives shall strive to avoid complex control systems, facilitate ease of maintenance and to operate the equipment at a high degree of reliability. Each piece of equipment shall be selected for its performance characteristics and proven satisfactory operation in landfill gas or comparable service. The design shall be an efficient system applying proven engineering practices and state-of-the-art technology. All components shall be new, of high quality, free from defects in manufacture and workmanship, low in maintenance, and intended for a long service life.

B. Definitions

1. Vendor - Manufacturer/Supplier of the landfill fuel gas compression system.
2. Contractor - General Contractor or his Subcontractor performing installation and construction work at the jobsite.
3. FGC - Landfill fuel gas compression and clean-up system consisting of blower, electric motors, oil management system, suction liquid knockout vessel, aerial after cooler, discharge coalescing gas filter, gas reheat exchanger, piping, controls, safety shutdowns, on-skid electrical wiring, local gauge/control panel, skid frame and all other equipment and materials as described in this specification.
4. Buyer - Responsible party, whether General Contractor or landfill owner, for purchasing and receiving of FGC.

C. Vendor Responsibility

Vendor shall provide all labor, materials, equipment, freight, taxes and supervision for the design, fabrication and delivery of the equipment as described herein, with all appurtenances necessary to perform the specified function, whether expressly described or not, F.O.B. jobsite.

D. Work By Others

1. Off-loading, inspection, on-site storage, installation, and start-up of FGC. Proposals for providing this Work will also be accepted, but are optional.
2. Providing power from power source to power connections on Vendor-supplied, skid-mounted equipment and control panels.
3. Control wiring from FGC summary shutdown contacts to remote mounted controls or annunciator panel (not part of FGC).

4. Field welding of Vendor supplied interconnecting pipe spools between FGC main blower skid and off-skid aftercooler.

1.02 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI B31.3 - Power Piping, Latest Edition

B. American Society of Mechanical Engineers (ASME):

1. ASME Boiler and Pressure Vessel Code Section VIII, Division 1, Latest Edition

C. Code of Federal Regulations (CFR) Title 49 Part 192, Latest Edition

D. National Electrical Code (NEC), Latest Edition

E. Occupational Safety and Health Administration (OSHA) General Industry Standards, Latest Edition

F. Steel Structures Painting Council (SSPC), Latest Edition

1.03 SUBMITTALS

A. General

Unless specified otherwise, all submittals described in this section shall consist of four (4) sets of requested information.

Unless specified otherwise, all submittals described in this section shall consist of a CD with digital copies of all requested information.

Drawings furnished shall contain sufficient information that when combined with other Documents, the FGC may be properly installed, operated and maintained. Each drawing is to have a title block in the lower right hand corner with certification, reference, revision number, date and drawing title.

B. Project Schedule

A project schedule (bar chart) showing the major activities with their commencement dates and projected completion dates shall be issued to Buyer at time of receipt of Purchase Order. This schedule shall be resubmitted at any time changes are made.

C. Progress Reports

Written progress reports shall be issued every two weeks to Buyer starting from date of purchase order to include:

1. Project schedule status
2. Scheduling problems
3. Possible delays
4. Deviations from initial schedule

D. Design Information

Eight (8) weeks after the receipt of the purchase order, the following will be provided to the Buyer for design of the FGC facility:

1. Utility Requirements

Submit utility requirements for all energy consumers such as pumps, electric motors, heaters, pneumatic actuators, etc. within four (4) weeks after receipt of purchase order. Preliminary requirements shall be submitted with proposal.

2. Heat rejection data shall be supplied for the following:

- a. Blower
- b. Process piping
- c. Gas Cooler
- d. Oil Cooler
- e. Utility piping
- f. Total heat rejection of the FGC

E. Preliminary Issue

The following shall be submitted to Buyer "For Approval" within eight weeks after receipt of purchase order and shall be reviewed and approved by Buyer or Buyer's representative prior to ordering materials and fabrication:

1. Customer drawings for the FGC:
 - a. Flow, P&ID and utility diagrams.
 - b. Electrical wiring diagrams and cable schedule.
 - c. General arrangement plans and elevations with customer connections noted on a legend located on the drawings upper right hand corner (certified dimensionally correct). All customer connections should be identified (including electrical motors, heaters, controls, etc.).
2. Equipment list, specifications and equipment flow charts.
3. Control panel layout with name plate wording.
4. Control logic and start sequence (narrative).
5. Performance curves for the FGC showing capacity, pressure, and power (kW) required from 0% to 120% of rated capacity.
6. Electric motor curves (motor speed vs. torque and current, and time vs. current)
7. Expected condensate volumes.
8. Equipment noise data shall be furnished for the FGC and each major component (including aerial cooler) and shall contain expected noise levels (in dbA) at the following frequencies: 31.5, 63, 125, 250, 500, 1K, 2K, 4K and 8K Hz. Approval shall be given for the noise emissions levels prior to purchase of such equipment.
9. Weight and size information of all equipment requiring foundations shall be supplied. Information shall be sufficient to design and construct equipment foundations (by others) and shall include anchor bolt patterns, overall dimensions, vibration information, operating weights, etc. Information shall be included on general arrangement drawings.
10. Dimensions of main blower skid, cooler skid, and all other equipment.
11. Leveling procedures and grouting recommendations.
12. Initial oil fill and cooling capacities, including make up due to loss or consumption, lubrication recommendations and filter sizes and quantities.

F. "Certified" Submittal

Four (4) weeks after review and approval comments have been received by Vendor, all Drawings and Documents listed in 1.03.E shall be submitted to Buyer. Drawings shall be certified dimensionally correct. All Drawings and Documents shall be issued "Certified".

G. "As-Built" Drawings

Within four (4) weeks after the FGC fabrication is completed submit "as-builts" with all revisions noted, certified and dated.

H. "As-Installed" Drawings – This is included in the optional proposal for installing and performing start-up of the FGC.

After the system is installed at the jobsite, submit "as-installed" drawings. These drawings shall be submitted no later than four (4) weeks after the FGC has been placed in commercial operation or has achieved substantial completion.

I. Operation and Maintenance Manuals

Provide written instructions to enable the installation, operation and maintenance of the FGC. This information shall be completed in manuals with title pages containing index sheets and section titles. The Operation and Maintenance Manual shall be prepared specifically for this installation.

Two (2) sets and one (1) digital copy on CD of Operation and Maintenance manuals per unit, one of which will be the master manual with the original vendor information, shall be supplied at time of FGC delivery and shall include the following information:

1. Catalog descriptions of all equipment utilized in the system as well as performance criteria for the operating conditions.
2. Recommended spare parts lists for all equipment, to include part name, manufacturer, part #, manufacturer's part #, cost and supplier, etc.
3. Operating instructions for the FGC under the conditions for which it was designed.
 - a. Start-up and shutdown procedures
 - b. Preventive maintenance schedule
 - c. Operating and safety procedures
 - d. Maintenance procedures
 - e. Emergency shutdown
 - f. Rigging procedures
 - g. Methods of disassembly
 - h. Methods of reassembly
4. A table indicating the proper control settings for all instrumentation on the FGC.
5. Certified copies of as-built drawings (to be replaced by as-installed drawings).
6. Troubleshooting instructions.

Two (2) copies of preliminary operating and maintenance manuals shall be supplied within two weeks following completion of FGC fabrication.

J. Requests for Payment

To ensure prompt payment, successful bidder must submit one (1) request for payment at least six (6) weeks prior to shipping date.

1.04 SITE CONDITIONS

A. The unit will be located at the Dane County Landfill – Site #2 in Madison, Wisconsin.

B. Specific Site Conditions

| | | |
|----|-------------------------------|------------------------------|
| 1. | Plant Elevation | 878 FASL |
| 2. | Ambient Pressure | 14.50 psia |
| 3. | Maximum Relative Humidity | 100% |
| 4. | Average Annual Precipitation | 31 inches |
| 5. | Ambient Temperature Range | 100 F Max. -30 F Min. |
| 6. | Avg. Annual Snow Accumulation | 70 inches |
| 7. | Area Classification | NEC Class 1, Div. 2, Group D |

1.05 GENERAL SERVICE DESCRIPTION

A. System Description

The FGC shall be designed to compress, clean, and deliver a volume of landfill gas at a specified pressure and quality. The design of the FGC shall strive for efficiency, one that minimizes initial cost, seeks to operate at the lowest possible horsepower, but meets all required performance and material standards as described in this specification. The FGC shall be designed for indoor or outdoor installation.

The FGC shall consist of a blower, electric motors, inlet liquid knockout vessel, gas reheat exchanger, discharge gas coalescing filter, interconnecting piping, relief valves, safety shutdowns, on-skid electrical wiring, and local control panel, all skid-mounted. The aerial aftercooler shall be mounted off the main skid. FGC skid shall have a single flanged suction connection with a manual butterfly valve and a single flanged discharge connection.

Initial cleaning of the gas shall be accomplished by a liquid knockout vessel with a stainless steel mesh pad demister at the suction of the blower. Compression of the gas shall be followed by cooling of the gas in an aerial aftercooler. Prior to the blower discharge aftercooler, the gas shall pass through a shell and tube gas-to-gas heat exchanger for reheating the gas following final filtration. The final gas filter shall be a two stage, coalescing filter to remove condensed liquids and particulates.

All equipment, instrumentation, interconnecting piping, and controls are to be furnished for the jobsite in an integrated packaged system by the Vendor. The package components shall be fabricated such that unloading and setting on a foundation at the jobsite requires minimal field interconnection of piping and wiring. Skid-mounted means the process equipment is assembled and pre-piped on a steel structure of such a size and weight that permits its shipment by highway or other transport from point of fabrication to the jobsite. All freight charges shall be FOB Jobsite and paid by the Vendor and billed to Buyer at cost.

B. Functional Conditions

1. Landfill Gas Inlet Design Conditions

| | | |
|----|------------------------|---------------------------|
| a. | Suction Pressure, max. | 11.8 psia (-6" Hg vacuum) |
| b. | Suction Temperature | 100 F |
| c. | Design Flow Rate, wet | 600 - 2000 scfm |
| d. | Guaranteed Capacity | + 3% |
| e. | Water Content | Saturated |

2. Suction temperature of the gas may vary between 30°F and 120°F.
3. Calculated Gas Properties
 - a. Molecular Weight 28.770
 - b. Specific Gravity 0.992 Dry
4. Final Discharge Gas Requirements (at FGC system discharge flange)
 - a. Discharge Pressure 4 psig
 - b. Discharge Temperature Min. 20°F above gas dew point
Max. 140°F
 - c. Discharge Guaranteed Flow Rate 600 - 2000 scfm
 - e. Oil Carryover, max. 50 ppmv
 - f. Total Particulates Less than 30 ppmw
 - g. Maximum Particle Size 8 micron

1.06 QUALITY ASSURANCE

The FGC shall be manufactured at facilities to the same standards, specifications, and quality requirements as detailed in the Vendor's Quality Control Program. Quality Control Program shall be incorporated with specific inspection and test points through the entire manufacturing process. Included are the following requirements.

A. Buyout Components

Vendor procurement specifications and supplier quality requirements shall be submitted to all major suppliers. Approved vendors must have in place a specific quality plan. Suppliers shall be monitored for compliance through facility visits and through specific project inspection, both in vendor shop and via receiving inspection procedures. Supplier's standard inspection documents shall be furnished to Buyer upon request. Tests and inspections shall be to Vendor's standards.

B. Shop Manufacturing

Welding, fabrication, and assembly shall be accomplished via formal shop planning and related manufacturer specifications. Welding and weld procedures shall be in accordance with recognized industry standards (ASME, API, ANSI, etc.). All pressure vessels shall be fabricated and inspected to ASME code requirements.

PART 2 PRODUCTS

2.01 BLOWER

A. Description

1. Positive displacement, dry rotary lobe blower
2. Belt driven via electric motor
3. Blower driven lube oil pump
4. Oil heater
5. Expansion joints at suction and discharge
6. Dresser Roots 1018 RGS-J, or equal, as approved by Dane County Solid Waste Manager

2.02 ELECTRICAL MOTORS

A. Description

1. National Electric Code (NEC) Class 1, Division 2, Group D requirements.
2. Totally enclosed, fan cooled (TEFC)
3. Variable speed design, capable of operating between 600 and 2000 scfm.
4. 480 volts AC, 60 Hz, 3 phase for blower drive motor;
480 volts AC, 60 Hz, 3 phase for all other motors ½ HP and larger
120 volts AC, 60 Hz, 1 phase for all other motors less than ½ HP
5. 1.15 Service Factor (S.F.)
6. Include 110 VOLTS AC, 1 phase space heater
7. Continuous duty operation at ambient temperatures of 105 °F or above.
8. Motor starters shall not be furnished as part of the packaged system.

B. Manufacturers

1. Siemens
2. U.S. Electric Motor
3. Or equal.

2.03 CONTROL SYSTEM

A. Control System Description

1. Stand alone NEMA construction for mounting in a NEC Class 1, Division 2 area.
2. Automatic start/stop logic sequencing initiated by a single system start or stop pushbutton.
3. One (1) system control panel locally mounted on-skid.
4. Intrinsically safe control components.
5. "First Out" annunciators that indicate the primary cause of shutdown and then the subsequent failures.
6. Each wire, tube and gauge shall be clearly marked or tagged with their respective termination point for ease of field installation (pencil or ink marking is not satisfactory).
7. Thermocouples/capillaries shall be installed at time of fabrication.
8. Flexible conduit runs on the skid shall be limited to 3 feet in length.
9. Temperature gauges/devices shall have stainless steel thermowells.
10. Local temperature gauges shall be 4 inch min. dial face with flexible head.
11. Pressure gauges/devices will have pulsation dampeners and isolation valves.
12. Wires shall be clearly marked on both ends and the panel shall have wires placed in

- wire raceways and tie-wrapped.
- 13. Contact devices shall have dust covers.
- 14. Wire termination points shall be clearly marked for proper location with black name plates and white letters.
- 15. The FGC shall have a system emergency stop pushbutton on the locally mounted skid panel.
- 16. The variable frequency drive to control blower speed shall be based on backpressure (automatic mode) or on rpm (manual mode).
- 17. Instrument control devices (e.g. dump valves, bypass controls) shall be pneumatically operated (instrument air supplied by others). Landfill gas as a pneumatic control media is unacceptable.

B. Local Control Panel

- 1. General
 - a. Each device mounted on the face of the control panel shall be identified with a phenolic laminated, engraved nameplate. The nameplates are to be black with white letters.
 - b. All wires, tubes and gauges in the rear or inside of the panel shall be clearly labeled or tagged with their respective termination point for ease of maintenance.
- 2. The following items shall be included in the FGC control panel (but not limited to):
 - a. One (1) explosion proof (EP) box for pushbuttons and switches.
 - b. One (1) push to start FGC.
 - c. One (1) push to stop FGC.
 - d. One (1) alarm reset.
 - e. One (1) key switch (on/off control).
 - f. One (1) EP horn (sounds for three seconds prior to starting FGC).
 - g. One (1) EP alarm red strobe light (shutdown indication).
 - h. One (1) EP box on skid for terminal block interconnect.
 - i. One (1) emergency shutdown.
 - j. Automatic cooler fan speed control. Include low temperature cut-out switch and timer for high to low speed transition.
 - k. FGC capacity controls (may mount external to control panel).
 - l. Runtime hour meter.
 - m. Power On indicator light
 - n. VFD controls, including the ability to set backpressure high and low limits and blower speed rpm.
- 3. Gauges (Panel mounted unless otherwise indicated.)
 - a. One (1) U-tube (mercury) manometer for system suction pressure w/ shutoff valve
 - b. One (1) blower suction pressure w/ s.s. trim.
 - c. One (1) blower discharge pressure w/ s.s. trim.
 - d. One (1) blower suction temperature w/ s.s. capillary or thermocouple.
 - e. One (1) blower discharge temperature w/ s.s. capillary or thermocouple.
 - f. Inlet gas flow meter.
 - g. Outlet gas flow meter.
 - h. Bypass gas flow meter.

4. Shutdown Indications
 - a. Suction gas pressure low/high.
 - b. Blower gas discharge pressure high.
 - c. Suction gas temperature high.
 - d. Blower gas discharge temperature high.
 - e. Final gas discharge temperature high.
 - f. Blower oil pressure low.
 - g. Blower oil temperature high.
 - h. Blower oil level low.
 - i. Inlet knockout vessel high liquid level.
 - j. Final coalescing filter high liquid level (upper/lower).
 - k. Blower vibration high.
 - l. Blower motor vibration high.
 - m. Gas cooler fan(s) vibration high.
 - n. Emergency shutdown (from local emergency stop pushbutton)
 - o. Customer emergency shutdown (signal by others)
 - p. Spare.
 - q. Spare.

5. One (1) set of control contacts/terminations for the following:
 - a. Gas aftercooler fan speed controls.
 - b. Blower main motor control.
 - c. Remote FGC running indication.
 - d. Remote FGC emergency shutdown.

C. Local Mounted Gauges

1. Final discharge gas pressure w/ s.s. trim and pulsation/shutoff valve.
2. Final discharge gas temperature.
2. After reheat exchanger gas temperature.
3. Blower aftercooler discharge gas temperature.
4. Skid suction gas temperature.
5. Blower oil temperature.

D. Capacity Control

1. Pressure control via blower recycle valve.
2. Recycle capacity shall be sized for 100% of actual recycle flow (zero discharge flow).
3. Recycle valve to have stainless steel valve body and trim.
4. Local mounted pneumatic controller.

2.04 PRESSURE VESSELS

A. Description

1. General - All Vessels
 - a. ASME Boiler and Pressure Vessel Code, Section VIII, Division I, latest edition.
 - b. ASME code stamped with a National Board number affixed. Vessels to be code stamped:
 1. Inlet knockout vessel
 2. Final coalescing filter

3. Gas reheat exchanger

- c. Bolted in place.
- d. Fabricated with removable heads and demisters.
- e. Equipped with automatic and manual liquid dump control valves for unattended operation. Automatic controls shall have isolation valves for maintenance.
- f. Vessel connections 2 inches and larger shall be flanged. Vessel connections smaller than 2 inches may be flanged at Vendor's option.
- g. Threaded fittings shall be stainless steel.
- h. Manways 6 inches or larger to have flanged davits for ease of installation and removal. Davits shall have grease fittings to lubricate the davit arm.
- i. Gaskets
 - 1. Vessel closure or manway flanges prior to the blower in the process stream - non-asbestos, compound type gaskets, Garlock Gylon blue or similar.
 - 2. Vessel closure or manway flanges downstream of the blower - wire wound, non-asbestos filled, Flexitallic type gaskets, or similar.

2. Inlet Liquid Knockout

- a. Carbon steel, internally epoxy coated or 304/316 stainless steel.
- b. Supplied with an automatic, pneumatic drain pump to remove liquids.
- c. Liquid level sight gauges.
- d. Stainless steel wire meshpad demister.

3. Final Coalescing Filter

- a. 304/316 stainless steel.
- b. Coalescing filter/separator.
- c. 0.3 micron absolute particulate size rating.
- d. Liquid level sight gauges.

2.05 PUMPS

A. General

- 1. Isolation ball valves to allow removal without draining system.
- 2. ANSI type pumps.
- 3. Continuous duty operation.
- 4. NEC Class 1, Division 2, Group D.

2.06 GAS AFTERCOOLER/LUBE OIL COOLER

A. Description

- 1. Blower aftercooling.
- 2. Blower lube oil cooling.

B. Construction

- 1. ASME Boiler and Pressure Vessel Code, Section VIII, Division I, latest edition.
- 2. Unitized, horizontal, forced draft, air-cooled heat exchanger having a vertical air discharge.

3. Incorporate final gas temperature control via manual fan motor speed control and manual louvers over blower aftercooling section.
4. Entire cooler structure, not including cooling section tubes shall be coated with epoxy paint - color shall be same as skid. (See Section 2.13 for painting specifications.)

C. Gas Aftercooler Section

1. Header removable tube type construction.
2. Stainless steel tubes with carbon steel header boxes.
3. ANSI raised face, flanged connections.

D. Blower Lube Oil Cooler Section

1. Double pass finned tubes.
2. Carbon steel tubes.
3. NPT or tubing connections.

2.07 LUBRICATION SYSTEM

A. Description

1. Blower oil system provides lubrication for the bearings and gears.
2. Heaters with thermostats and temperature control valves to maintain proper lube oil temperatures when FGC is not in operation.
3. Oil filters shall be designed to have a dirt loading capacity of a minimum of three (3) month filter change interval.
4. Provided with oil sample location (i.e., sample valve prior to filter).

B. Blower Lube Oil System

1. Carbon steel construction.
2. Blower driven lube oil pump.
2. Blower manufacturer recommended lube oil filtration system.
3. Thermostatic temperature control (Amot or equal) to provide bypass of aerial cooler for cold starts.

2.08 MATERIALS OF CONSTRUCTION

| <u>Description</u> | <u>Material</u> |
|-------------------------------------|--|
| Sight gauges | Carbon steel with stainless steel trim |
| Vessel trim | 304/316 stainless steel |
| Inlet knockout vessel | Epoxy coated carbon steel or 304/316 stainless steel |
| Final gas filter | 304/316 stainless steel |
| Blower discharge pulsation dampener | 304/316 stainless steel |
| Gas cooler sections | 304/316 stainless steel tubes & carbon steel headers; carbon steel structure and supporting legs |

| | |
|--|---|
| Gas reheat exchanger | 304/316 stainless steel |
| Blower oil cooler section | Carbon steel tubes |
| Condensate piping | 304/316 stainless steel |
| Instrument air piping | Carbon steel |
| All piping that comes in contact with landfill gas | 304/316 stainless steel |
| Blower oil piping | Carbon steel |
| Pipe flanges for stainless piping | Stainless steel |
| Inlet valve | Carbon steel, stainless steel trim |
| Dump and liquid level controls | Stainless steel |
| Instrument air tubing | Stainless steel |
| Process tubing | All tubing in contact with landfill gas shall be stainless steel. |
| Blower oil filters | Manufacturer standard material |
| Shims | Stainless steel |
| Gas interconnecting piping | Stainless steel |
| Relief valves | Carbon steel with stainless steel trim |
| Capacity control recycle valve | Stainless steel valve body and trim |

2.09 CONSTRUCTION

- A. Piping and equipment arrangements shall be designed to provide adequate clearance areas and safe access for operation and maintenance.
- B. Blower discharge piping shall be equipped with a pressure safety relief valve (PSV) that is piped to an atmospheric vent.
- C. Clear overhead access shall be provided over all equipment that requires a hoist for removal.
- D. FGC skid shall include a minimum of four lifting eyes for ease of installation.
- E. Mounting surfaces shall be machined milled and leveled within 0.005 inch (i.e. motor, blower, etc.). Mounting hardware for all equipment shall have lock and flat washers.
- F. Maintenance items 5 feet above the base of the skid shall have ladders and step-offs (i.e. liquid knockout and filter vessels) meeting OSHA Standards for ease of access and maintenance.
- G. Driven equipment shall have OSHA approved guards for personnel protection.
- H. Skids shall have jacking screws placed approximately 5 feet on center for leveling and setting. All equipment shall have jacking screws for X, Y and Z axis alignment (i.e., blower and electric motor).

2.10 WELDING

- A. Welding on pipe spools shall conform with ANSI B31.3.
- B. Welders shall be ASME certified and all necessary documentation shall be produced upon request of Buyer.
- C. Welds shall be verified by in-process inspection and shall be documented in a certified report and submitted at the completion of fabrication. A minimum of 5% of all welds shall be radiographed at Vendor's selection and attached to the final report.

2.11 PIPING

- A. Piping and piping fabrication shall be consistent with recognized industry specifications and shall be 304 or 316L stainless steel unless otherwise noted on the Materials of Construction, Section 2.08.
- B. Size all FGC system piping to be capable of handling 600 - 2000 SCFM.
- C. Piping flanges shall be ANSI 150 lbs. rated. Fabricated flanges are not acceptable.
- D. Flange connections upstream of the blower shall use Garlock type gaskets. Flange connections downstream of the blower shall use non-asbestos, wire wound, Flexitallic type gaskets.
- E. Piping 2 inches (nominal) and larger shall be butt welded and flanged.
- F. Piping wall thickness shall be designed for a minimum of 1.5 times the operating pressure.
- G. Screwed piping shall have a minimum wall thickness of ANSI schedule 40 pipe with minimum 150 lb. fittings. Close thread nipples or street elbows shall not be used.
- H. Stainless steel tubing and fittings may be substituted for piping 1 inch (nominal) or smaller; piping 1/2 inch and smaller shall use stainless steel tubing and fittings.
- I. Tubing and fittings shall be 304 or 316L stainless steel unless otherwise noted in Section 2.08.
- J. Condensate drain lines shall be manifolded to one location on the skid with all necessary check valves at each vessel for safe operation. A shut-off ball valve shall be provided at skid edge.
- K. Gas piping, where it is possible for liquids to collect, shall have drain connections (manual ball valves) and shall ensure complete drainage through low points without disassembly. Low points in gas piping are to be avoided.
- L. Isolation valves shall be placed in piping around all components to avoid loss of gas pressure and fluids during scheduled or unscheduled maintenance of the components.
- M. Instrument air lines shall be manifolded and have a coalescing filter with a shutoff ball valve. Regulation of air pressure shall be by a single point gauge and regulator (except where required by individual devices for correct operation). Dedicated instrument control connections shall be provided for all gauges and shutdowns.

- N. Oil system drain shall be brought to the skid edge. A shut-off ball valve shall be provided at skid edge.
- O. Interconnecting pipe spools shall be provided with one field weld in each X, Y and Z axis. All field welded pipe to be shipped loose is to be stamped with identifying marking to match with adjoining pipe.
- P. Interconnecting instrument air tubing shall be tagged at both ends for ease of field installation.

2.12 CLEANING

- A. Prior to testing and final assembly, all gas process piping, vessels, and utility piping shall be thoroughly cleaned. The cleaning procedure proposed shall be submitted to Buyer for approval one month prior to actual performance of any such cleaning and shall be a proven method to remove foreign materials, corrosion products and mill scale.
- B. All stainless steel piping shall be cleaned and filed with stainless steel files and wire wheels prior to welding. At no time shall stainless steel piping or components come in contact with carbon steel cleaning devices.
- C. Oil systems shall meet the cleanliness intent of API 614 standard.

2.13 PAINTING

- A. All piping, vessels, mechanical equipment and skid shall be painted per SSPC paint specification. (Alternative method shall be Ameron Amerlock 400 paint system per manufacturer's specifications.)
 - 1. Commercial sandblast per SSPC-SP6-63
 - 2. Prime inorganic Zinc - 0.0635 mm dry minimum thickness
 - 3. Top coat Epoxy Polyamide - 0.0762 to 0.1016 mm dry minimum thickness
 - 4. Color - Solar grey (paint chip available upon request)
- B. Prior to cleaning and painting, openings shall be plugged and all nameplates, labels, tags, manufacturers information and glass shall be covered. All coverings shall be removed when painting is complete.
- C. Stainless steel items shall also be sandblasted and painted. (Only exception shall be stainless steel tubing and fittings.)
- D. Piping on the underside of the skid, the underside of vessel skirts, cast aluminum boxes and subvendor supplied items shall be hand cleaned per SSPC-SP2-63 and primed with one coat of epoxy primer and finish coat.

2.14 INSPECTION AND TESTING

- A. All testing protocols shall be submitted to Buyer for review and approval prior to the start of fabrication.
- B. All utility systems shall be run tested at Vendor's shop. Tests shall be performed at operating pressures and temperatures. Any exceptions must be submitted to and approved by Buyer thirty (30) days prior to testing.
- C. The following utility piping shall be hydro-tested prior to assembly to 1.5 times its operating

pressure or to a minimum of 25 psi gauge pressure.

1. Oil lines (air tested - soap bubble tested)
 2. Instrument air lines after final assembly (air tested - soap bubble tested)
 3. Condensate drain lines greater than one inch diameter
- D. Gas piping shall be hydro-tested prior to assembly to 1.5 times its operating pressure or to a minimum of 25 psi gauge pressure and the reading shall be recorded with a chart recorder for a minimum of one hour. Gas piping connections shall be air tested for flange leaks after assembly. The test shall be performed at operating pressure for a minimum of thirty (30) minutes to check for leaks when subjected to a soap-bubble test or to another approved leak test.
- E. All pressure vessels shall be tested per code requirements:
1. Final gas filter
 2. Inlet liquid knockout
 3. Gas cooler
- F. All purchased items shall have the necessary documentation to confirm code conformance.
- G. Buyer shall be notified one week prior to all testing described and tests shall include but not be limited to the following:
1. Control panel tests
 2. Vessel closures and pressure tests
 3. Pipe spool hydrostatic testing
 4. Utility system tests
 5. Shutdown safety test
 6. Blower factory tests
- H. Buyer shall also be notified for the following activities:
1. Alignment of the blower to the electric motor
 2. After skid is sandblasted and prior to painting
- I. Each manufacturer shall supply written certification that all tests have been performed together with the results of such tests.
- J. All safeties shall be checked and gauges proved operational for both temperature and pressure.
- K. Vessels shall be sufficiently filled with water to ensure the correct operation of dump valves, controls and high liquid level shutdowns.
- L. A mechanical bar-over test for the blower and electric motors shall be performed prior to shipment.
- M. Control panels shall be witness tested by Vendor and Buyer.
- N. Relief valves on all gas piping shall be certified at correct settings.
- O. Drive sheaves and belts shall be installed after the unit and the electric motor have been positioned and aligned.

- P. The Buyer's representative shall have the right to reject any components that do not conform with the specifications. The Buyer's acceptance of shop test results shall not constitute waiver of Vendor's obligation to provide equipment which meets the design operating requirements of the FGC.

2.15 COMMISSIONING AND START-UP – This is included in the optional proposal for installing and performing start-up of the FGC.

- A. Vendor shall include a three (3) day start-up period including travel and subsistence to begin upon notice of Buyer. Vendor shall provide additional start-up assistance as required by Buyer at Vendor's standard service rates. Vendor shall provide standard service rates to Owner prior to start-up.
- B. Vendor shall provide services for commissioning and start-up with Service Representatives who are experienced and qualified in all electrical, mechanical and process control equipment that is part of the system supplied.
- C. Part of the start-up procedure shall include verification of correct equipment installation and alignment. Alignment shall be checked at a cold setting and once again after the unit has run for a minimum of three consecutive days.
- D. Vendor shall provide an equipment start-up and check off sheet to Buyer to certify that necessary start-up activities are accomplished. Vendor shall record and supply all initial start up data and blower log readings to compare actual verses design readings and explanations for variances.
- E. The Vendor's Service Representative shall be trained in the design, operation, and servicing of the fuel gas blower package and will be involved during factory assembly and testing to supplement training for these specific machines at no cost to Buyer.
- F. Start-up will include 4 hours of demonstration through a familiarization training session for Buyer operator personnel on the blower packages.

2.16 PREPARATION FOR SHIPMENT

- A. Flanged connections shall be covered with wood discs and bolted.
- B. Screw connections shall be sealed with plastic covers.
- C. Instruments vulnerable to shipping damage shall be removed, boxed and packed for reinstallation at the jobsite.
- D. Buyer is to be notified twelve (12) weeks after receipt of purchase order which items will ship loose and require field assembly.
- E. Each unit shall be suitably prepared for at least six (6) months of outdoor storage from time of shipment in a manner requiring no major reassembly prior to operation, except as required in Item C above.
- F. Ship loose items shall have weather resistant tags indicating item identification and serial number.
- G. Exterior machined surfaces shall be coated with a suitable rust preventive.
- H. The FGC shall be delivered to the Jobsite with a complete bill of materials noting all items shipped.
- I. The FGC shall be canvassed or covered with polyethylene during the shipping process.

PART 3 EXECUTION

3.01 WARRANTY

It shall be the responsibility of the Vendor to design and provide an integrated system including blower, motors, vessels, controls, etc. which meets all requirements of the specifications. The FGC shall be supplied as a complete and operable package and shall be warranted as a single package for a minimum period of 18 months after shipment and 12 months after start-up. Individual component warranties shall not be carried through unless they exceed the warranty of the package. The warranty shall ensure the proper operation of the FGC package as designed and of all components supplied.

3.02 INSTALLATION

Vendor may submit a proposal for installing and performing start-up of the FGC in accordance with the installation instructions provided by the Vendor. Such proposals will be accepted for consideration, but are optional.

Attachment 1

Landfill Gas Laboratory Test Results



AN ENVIRONMENTAL ANALYTICAL LABORATORY

11/11/2008

Mr. Chris Jimieson
BT2, Inc.
2830 Dairy Drive

Madison WI 53718

Project Name: Rodefeld L.f.
Project #: 2385

Dear Mr. Chris Jimieson

The following report includes the data for the above referenced project for sample(s) received on 10/31/2008 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1945 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brandon Dunmore at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

A handwritten signature in black ink that reads 'Brandon M. Dunmore'.

Brandon Dunmore
Project Manager



AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0810725B

Work Order Summary

CLIENT: Mr. Chris Jimieson
 BT2, Inc.
 2830 Dairy Drive
 Madison, WI 53718

BILL TO: Mr. Chris Jimieson
 BT2, Inc.
 2830 Dairy Drive
 Madison, WI 53718

PHONE: 608-216-7367
FAX: 608-224-2839
DATE RECEIVED: 10/31/2008
DATE COMPLETED: 11/11/2008

P.O. #
PROJECT # 2385 Rodefeld L.f.
CONTACT: Brandon Dunmore

| <u>FRACTION #</u> | <u>NAME</u> | <u>TEST</u> | <u>RECEIPT VAC./PRES.</u> | <u>FINAL PRESSURE</u> |
|-------------------|---------------------------|----------------------|-------------------------------|---------------------------|
| 01A | Blower Bld. | Modified ASTM D-1945 | Tedlar Bag | Tedlar Bag |
| 01AA | Blower Bld. Lab Duplicate | Modified ASTM D-1945 | Tedlar Bag | Tedlar Bag |
| 02A | Lab Blank | Modified ASTM D-1945 | NA | NA |
| 02B | Lab Blank | Modified ASTM D-1945 | NA | NA |
| 03A | LCS | Modified ASTM D-1945 | NA | NA |
| 03B | LCS | Modified ASTM D-1945 | NA | NA |

CERTIFIED BY: 

DATE: 11/11/08

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
 NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
 Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1945
BT2, Inc.
Workorder# 0810725B

One 1 Liter Tedlar Bag sample was received on October 31, 2008. The laboratory performed analysis via modified ASTM Method D-1945 for Methane and fixed gases in natural gas using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

| <i>Requirement</i> | <i>ASTM D-1945</i> | <i>ATL Modifications</i> |
|-------------------------|--|--|
| Normalization | Sum of original values should not differ from 100.0% by more than 1.0%. | Sum of original values may range between 85-115%. Normalization of data not performed. |
| Sample analysis | Equilibrate samples to 20-50° F. above source temperature at field sampling | No heating of samples is performed. |
| Sample calculation | Response factor is calculated using peak height for C5 and lighter compounds. | Peak areas are used for all target analytes to quantitate concentrations. |
| Reference Standard | Concentration should not be < half of nor differ by more than 2 X the concentration of the sample. Run 2 consecutive checks; must agree within 1%. | A minimum 3-point linear calibration is performed. The acceptance criterion is %RSD <= 15%. All target analytes must be within the linear range of calibration (with the exception of O2, N2, and C6+ Hydrocarbons). |
| Sample Injection Volume | 0.50 mL to achieve Methane linearity. | 1.0 mL. |

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Six qualifiers may have been used on the data analysis sheets and indicate as follows:

J - Estimated value.

- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the detection limit.
- M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

Client Sample ID: Blower Bld.

Lab ID#: 0810725B-01A

| Compound | Rpt. Limit (%) | Amount (%) |
|----------------|----------------|------------|
| Oxygen | 0.10 | 0.46 |
| Nitrogen | 0.10 | 2.5 |
| Methane | 0.00010 | 55 |
| Carbon Dioxide | 0.010 | 41 |
| Propane | 0.0010 | 0.0014 |
| C6+ | 0.010 | 0.014 |
| Hydrogen | 0.010 | 0.012 |

Client Sample ID: Blower Bld. Lab Duplicate

Lab ID#: 0810725B-01AA

| Compound | Rpt. Limit (%) | Amount (%) |
|----------------|----------------|------------|
| Oxygen | 0.10 | 0.46 |
| Nitrogen | 0.10 | 2.5 |
| Methane | 0.00010 | 56 |
| Carbon Dioxide | 0.010 | 41 |
| Propane | 0.0010 | 0.0014 |
| C6+ | 0.010 | 0.014 |
| Hydrogen | 0.010 | 0.014 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld.

Lab ID#: 0810725B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

| | | |
|---------------------|----------------|--|
| File Name: | 9103116 | Date of Collection: 10/30/08 |
| Dil. Factor: | 1.00 | Date of Analysis: 10/31/08 03:36 PM |

| Compound | Rpt. Limit (%) | Amount (%) |
|-----------------|-----------------------|-------------------|
| Oxygen | 0.10 | 0.46 |
| Nitrogen | 0.10 | 2.5 |
| Carbon Monoxide | 0.010 | Not Detected |
| Methane | 0.00010 | 55 |
| Carbon Dioxide | 0.010 | 41 |
| Ethane | 0.0010 | Not Detected |
| Ethene | 0.0010 | Not Detected |
| Acetylene | 0.0010 | Not Detected |
| Propane | 0.0010 | 0.0014 |
| Isobutane | 0.0010 | Not Detected |
| Butane | 0.0010 | Not Detected |
| Neopentane | 0.0010 | Not Detected |
| Isopentane | 0.0010 | Not Detected |
| Pentane | 0.0010 | Not Detected |
| C6+ | 0.010 | 0.014 |
| Hydrogen | 0.010 | 0.012 |

Container Type: 1 Liter Tedlar Bag



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld. Lab Duplicate

Lab ID#: 0810725B-01AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

| | | | |
|--------------|---------|---------------------|-------------------|
| File Name: | 9103117 | Date of Collection: | 10/30/08 |
| Dil. Factor: | 1.00 | Date of Analysis: | 10/31/08 03:59 PM |

| Compound | Rpt. Limit (%) | Amount (%) |
|-----------------|----------------|--------------|
| Oxygen | 0.10 | 0.46 |
| Nitrogen | 0.10 | 2.5 |
| Carbon Monoxide | 0.010 | Not Detected |
| Methane | 0.00010 | 56 |
| Carbon Dioxide | 0.010 | 41 |
| Ethane | 0.0010 | Not Detected |
| Ethene | 0.0010 | Not Detected |
| Acetylene | 0.0010 | Not Detected |
| Propane | 0.0010 | 0.0014 |
| Isobutane | 0.0010 | Not Detected |
| Butane | 0.0010 | Not Detected |
| Neopentane | 0.0010 | Not Detected |
| Isopentane | 0.0010 | Not Detected |
| Pentane | 0.0010 | Not Detected |
| C6+ | 0.010 | 0.014 |
| Hydrogen | 0.010 | 0.014 |

Container Type: 1 Liter Tedlar Bag



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0810725B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

| | | |
|--------------|---------|-------------------------------------|
| File Name: | 9103104 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 10/31/08 08:39 AM |

| Compound | Rpt. Limit (%) | Amount (%) |
|-----------------|----------------|--------------|
| Oxygen | 0.10 | Not Detected |
| Nitrogen | 0.10 | Not Detected |
| Carbon Monoxide | 0.010 | Not Detected |
| Methane | 0.00010 | Not Detected |
| Carbon Dioxide | 0.010 | Not Detected |
| Ethane | 0.0010 | Not Detected |
| Ethene | 0.0010 | Not Detected |
| Acetylene | 0.0010 | Not Detected |
| Propane | 0.0010 | Not Detected |
| Isobutane | 0.0010 | Not Detected |
| Butane | 0.0010 | Not Detected |
| Neopentane | 0.0010 | Not Detected |
| Isopentane | 0.0010 | Not Detected |
| Pentane | 0.0010 | Not Detected |
| C6+ | 0.010 | Not Detected |

Container Type: NA - Not Applicable



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0810725B-02B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

| | | | |
|---------------------|-----------------|----------------------------|--------------------------|
| File Name: | 9103103b | Date of Collection: | NA |
| Dil. Factor: | 1.00 | Date of Analysis: | 10/31/08 08:18 AM |

| Compound | Rpt. Limit (%) | Amount (%) |
|-----------------|-----------------------|-------------------|
| Hydrogen | 0.010 | Not Detected |

Container Type: NA - Not Applicable



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0810725B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

| | | |
|--------------|---------|-------------------------------------|
| File Name: | 9103127 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 10/31/08 09:25 PM |

| Compound | %Recovery |
|-----------------|-----------|
| Oxygen | 100 |
| Nitrogen | 100 |
| Carbon Monoxide | 103 |
| Methane | 101 |
| Carbon Dioxide | 100 |
| Ethane | 99 |
| Ethene | 100 |
| Acetylene | 96 |
| Propane | 101 |
| Isobutane | 100 |
| Butane | 100 |
| Neopentane | 100 |
| Isopentane | 100 |
| Pentane | 100 |
| C6+ | 108 |

Container Type: NA - Not Applicable



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0810725B-03B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1945

| | | |
|---------------------|-----------------|--|
| File Name: | 9103128b | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 10/31/08 09:52 PM |

| Compound | %Recovery |
|-----------------|------------------|
| Hydrogen | 94 |

Container Type: NA - Not Applicable



AN ENVIRONMENTAL ANALYTICAL LABORATORY

11/5/2008

Mr. Chris Jimieson
BT2, Inc.
2830 Dairy Drive

Madison WI 53718

Project Name: Rodefeld L.f.
Project #: 2385

Dear Mr. Chris Jimieson

The following report includes the data for the above referenced project for sample(s) received on 10/31/2008 at Air Toxics Ltd.

The data and associated QC analyzed by ASTM D-5504 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brandon Dunmore at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

A handwritten signature in black ink that reads 'Brandon M. Dunmore'.

Brandon Dunmore
Project Manager



AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0810725A

Work Order Summary

CLIENT: Mr. Chris Jimieson
 BT2, Inc.
 2830 Dairy Drive
 Madison, WI 53718

BILL TO: Mr. Chris Jimieson
 BT2, Inc.
 2830 Dairy Drive
 Madison, WI 53718

PHONE: 608-216-7367
FAX: 608-224-2839
DATE RECEIVED: 10/31/2008
DATE COMPLETED: 11/05/2008

P.O. #
PROJECT # 2385 Rodefeld L.f.
CONTACT: Brandon Dunmore

| <u>FRACTION #</u> | <u>NAME</u> | <u>TEST</u> | <u>RECEIPT VAC./PRES.</u> | <u>FINAL PRESSURE</u> |
|-------------------|-------------|-------------|-------------------------------|---------------------------|
| 01A | Blower Bld. | ASTM D-5504 | Tedlar Bag | Tedlar Bag |
| 02A | Lab Blank | ASTM D-5504 | NA | NA |
| 03A | LCS | ASTM D-5504 | NA | NA |

CERTIFIED BY: 

DATE: 11/05/08

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
 NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
 Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
ASTM D-5504
BT2, Inc.
Workorder# 0810725A

One 1 Liter Tedlar Bag sample was received on October 31, 2008. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 2.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The Reporting Limit was raised to 12 ppbv for 3-Methyl Thiophene/n-ButylSH/EtMe on GC-B.

Ethyl Methyl Sulfide and n-Butyl Mercaptan coelute with 3-Methyl Thiophene.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: Blower Bld.

Lab ID#: 0810725A-01A

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) |
|------------------|------------------------------|--------------------------|
| Hydrogen Sulfide | 12000 | 380000 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld.

Lab ID#: 0810725A-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

| | | |
|---------------------|----------------|--|
| File Name: | b103116 | Date of Collection: 10/30/08 |
| Dil. Factor: | 3000 | Date of Analysis: 10/31/08 12:21 PM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) |
|---|------------------------------|--------------------------|
| Hydrogen Sulfide | 12000 | 380000 |
| Carbonyl Sulfide | 12000 | Not Detected |
| Methyl Mercaptan | 12000 | Not Detected |
| Ethyl Mercaptan | 12000 | Not Detected |
| Dimethyl Sulfide | 12000 | Not Detected |
| Carbon Disulfide | 15000 | Not Detected |
| Isopropyl Mercaptan | 12000 | Not Detected |
| tert-Butyl Mercaptan | 12000 | Not Detected |
| n-Propyl Mercaptan | 12000 | Not Detected |
| Thiophene | 12000 | Not Detected |
| Isobutyl Mercaptan | 12000 | Not Detected |
| 3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide | 36000 | Not Detected |
| Diethyl Sulfide | 12000 | Not Detected |
| Dimethyl Disulfide | 12000 | Not Detected |
| Tetrahydrothiophene | 12000 | Not Detected |
| 2-Ethylthiophene | 12000 | Not Detected |
| 2,5-Dimethylthiophene | 12000 | Not Detected |
| Diethyl Disulfide | 12000 | Not Detected |

Container Type: 1 Liter Tedlar Bag



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0810725A-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

| | | |
|--------------|---------|-------------------------------------|
| File Name: | b103103 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 10/31/08 08:06 AM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) |
|---|-------------------|---------------|
| Hydrogen Sulfide | 4.0 | Not Detected |
| Carbonyl Sulfide | 4.0 | Not Detected |
| Methyl Mercaptan | 4.0 | Not Detected |
| Ethyl Mercaptan | 4.0 | Not Detected |
| Dimethyl Sulfide | 4.0 | Not Detected |
| Carbon Disulfide | 5.0 | Not Detected |
| Isopropyl Mercaptan | 4.0 | Not Detected |
| tert-Butyl Mercaptan | 4.0 | Not Detected |
| n-Propyl Mercaptan | 4.0 | Not Detected |
| Thiophene | 4.0 | Not Detected |
| Isobutyl Mercaptan | 4.0 | Not Detected |
| 3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide | 12 | Not Detected |
| Diethyl Sulfide | 4.0 | Not Detected |
| Dimethyl Disulfide | 4.0 | Not Detected |
| Tetrahydrothiophene | 4.0 | Not Detected |
| 2-Ethylthiophene | 4.0 | Not Detected |
| 2,5-Dimethylthiophene | 4.0 | Not Detected |
| Diethyl Disulfide | 4.0 | Not Detected |

Container Type: NA - Not Applicable



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0810725A-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

| | | |
|--------------|---------|-------------------------------------|
| File Name: | b103102 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 10/31/08 07:41 AM |

| Compound | %Recovery |
|---|-----------|
| Hydrogen Sulfide | 112 |
| Carbonyl Sulfide | 104 |
| Methyl Mercaptan | 109 |
| Ethyl Mercaptan | 111 |
| Dimethyl Sulfide | 113 |
| Carbon Disulfide | 96 |
| Isopropyl Mercaptan | 109 |
| tert-Butyl Mercaptan | 110 |
| n-Propyl Mercaptan | 113 |
| Thiophene | 104 |
| Isobutyl Mercaptan | 114 |
| 3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide | 112 |
| Diethyl Sulfide | 130 |
| Dimethyl Disulfide | 105 |
| Tetrahydrothiophene | 122 |
| 2-Ethylthiophene | 98 |
| 2,5-Dimethylthiophene | 103 |
| Diethyl Disulfide | 116 |

Container Type: NA - Not Applicable



AN ENVIRONMENTAL ANALYTICAL LABORATORY

11/13/2008

Mr. Chris Jimieson
BT2, Inc.
2830 Dairy Drive

Madison WI 53718

Project Name: Rodefeld L.f.
Project #: 2385

Dear Mr. Chris Jimieson

The following report includes the data for the above referenced project for sample(s) received on 10/31/2008 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brandon Dunmore at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

A handwritten signature in black ink that reads 'Brandon M. Dunmore'.

Brandon Dunmore
Project Manager



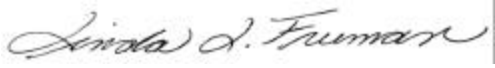
AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0810738

Work Order Summary

| | | | |
|------------------------|--|------------------|--|
| CLIENT: | Mr. Chris Jimieson BT2, Inc. 2830 Dairy Drive Madison, WI 53718 | BILL TO: | Mr. Chris Jimieson BT2, Inc. 2830 Dairy Drive Madison, WI 53718 |
| PHONE: | 608-216-7367 | P.O. # | |
| FAX: | 608-224-2839 | PROJECT # | 2385 Rodefeld L.f. |
| DATE RECEIVED: | 10/31/2008 | CONTACT: | Brandon Dunmore |
| DATE COMPLETED: | 11/12/2008 | | |

| <u>FRACTION #</u> | <u>NAME</u> | <u>TEST</u> | <u>RECEIPT VAC./PRES.</u> | <u>FINAL PRESSURE</u> |
|-------------------|-------------|----------------|-------------------------------|---------------------------|
| 01A | Blower Bld. | Modified TO-15 | 0.0 "Hg | 15 psi |
| 02A | Lab Blank | Modified TO-15 | NA | NA |
| 03A | CCV | Modified TO-15 | NA | NA |
| 04A | LCS | Modified TO-15 | NA | NA |

CERTIFIED BY: 
 Laboratory Director

DATE: 11/13/08

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
 NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
 Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
BT2, Inc.
Workorder# 0810738

One 1 Liter Summa Canister sample was received on October 31, 2008. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

| <i>Requirement</i> | <i>TO-15</i> | <i>ATL Modifications</i> |
|-------------------------|----------------------------|---|
| Daily CCV | <= 30% Difference | <= 30% Difference; Compounds exceeding this criterion and associated data are flagged and narrated. |
| Sample collection media | Summa canister | ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request |
| Method Detection Limit | Follow 40CFR Pt.136 App. B | The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases |

Receiving Notes

Sample identification for sample Blower Bld. was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction no performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: Blower Bld.

Lab ID#: 0810738-01A

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|----------------------------------|----------------------|------------------|-----------------------|-------------------|
| Freon 12 | 40 | 680 | 200 | 3400 |
| Freon 114 | 40 | 66 | 280 | 460 |
| Vinyl Chloride | 40 | 600 | 100 | 1500 |
| Chloroethane | 40 | 110 | 110 | 300 |
| Freon 11 | 40 | 70 | 230 | 390 |
| Ethanol | 160 | 4600 | 300 | 8600 |
| Acetone | 160 | 1800 | 380 | 4200 |
| 2-Propanol | 160 | 1100 | 400 | 2600 |
| Carbon Disulfide | 40 | 70 | 120 | 220 |
| Methylene Chloride | 40 | 130 | 140 | 470 |
| Hexane | 40 | 1100 | 140 | 3900 |
| 1,1-Dichloroethane | 40 | 81 | 160 | 330 |
| 2-Butanone (Methyl Ethyl Ketone) | 40 | 2100 | 120 | 6300 |
| cis-1,2-Dichloroethene | 40 | 470 | 160 | 1800 |
| Tetrahydrofuran | 40 | 3200 | 120 | 9300 |
| Cyclohexane | 40 | 950 | 140 | 3300 |
| 2,2,4-Trimethylpentane | 40 | 420 | 190 | 2000 |
| Benzene | 40 | 590 | 130 | 1900 |
| Heptane | 40 | 1600 | 160 | 6400 |
| Trichloroethene | 40 | 280 | 220 | 1500 |
| Toluene | 40 | 14000 | 150 | 53000 |
| Tetrachloroethene | 40 | 200 | 270 | 1300 |
| Ethyl Benzene | 40 | 5000 | 180 | 22000 |
| m,p-Xylene | 40 | 8600 | 180 | 38000 |
| o-Xylene | 40 | 2700 | 180 | 12000 |
| Styrene | 40 | 410 | 170 | 1700 |
| Propylbenzene | 40 | 370 | 200 | 1800 |
| 4-Ethyltoluene | 40 | 1100 | 200 | 5600 |
| 1,3,5-Trimethylbenzene | 40 | 390 | 200 | 1900 |
| 1,2,4-Trimethylbenzene | 40 | 1000 | 200 | 5100 |
| 1,4-Dichlorobenzene | 40 | 370 | 240 | 2200 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld.

Lab ID#: 0810738-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | | |
|--------------|---------|---------------------|-------------------|
| File Name: | 5111126 | Date of Collection: | 10/30/08 |
| Dil. Factor: | 80.8 | Date of Analysis: | 11/12/08 04:59 AM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|----------------------------------|-------------------|---------------|--------------------|----------------|
| Freon 12 | 40 | 680 | 200 | 3400 |
| Freon 114 | 40 | 66 | 280 | 460 |
| Chloromethane | 160 | Not Detected | 330 | Not Detected |
| Vinyl Chloride | 40 | 600 | 100 | 1500 |
| 1,3-Butadiene | 40 | Not Detected | 89 | Not Detected |
| Bromomethane | 40 | Not Detected | 160 | Not Detected |
| Chloroethane | 40 | 110 | 110 | 300 |
| Freon 11 | 40 | 70 | 230 | 390 |
| Ethanol | 160 | 4600 | 300 | 8600 |
| Freon 113 | 40 | Not Detected | 310 | Not Detected |
| 1,1-Dichloroethene | 40 | Not Detected | 160 | Not Detected |
| Acetone | 160 | 1800 | 380 | 4200 |
| 2-Propanol | 160 | 1100 | 400 | 2600 |
| Carbon Disulfide | 40 | 70 | 120 | 220 |
| 3-Chloropropene | 160 | Not Detected | 500 | Not Detected |
| Methylene Chloride | 40 | 130 | 140 | 470 |
| Methyl tert-butyl ether | 40 | Not Detected | 140 | Not Detected |
| trans-1,2-Dichloroethene | 40 | Not Detected | 160 | Not Detected |
| Hexane | 40 | 1100 | 140 | 3900 |
| 1,1-Dichloroethane | 40 | 81 | 160 | 330 |
| 2-Butanone (Methyl Ethyl Ketone) | 40 | 2100 | 120 | 6300 |
| cis-1,2-Dichloroethene | 40 | 470 | 160 | 1800 |
| Tetrahydrofuran | 40 | 3200 | 120 | 9300 |
| Chloroform | 40 | Not Detected | 200 | Not Detected |
| 1,1,1-Trichloroethane | 40 | Not Detected | 220 | Not Detected |
| Cyclohexane | 40 | 950 | 140 | 3300 |
| Carbon Tetrachloride | 40 | Not Detected | 250 | Not Detected |
| 2,2,4-Trimethylpentane | 40 | 420 | 190 | 2000 |
| Benzene | 40 | 590 | 130 | 1900 |
| 1,2-Dichloroethane | 40 | Not Detected | 160 | Not Detected |
| Heptane | 40 | 1600 | 160 | 6400 |
| Trichloroethene | 40 | 280 | 220 | 1500 |
| 1,2-Dichloropropane | 40 | Not Detected | 190 | Not Detected |
| 1,4-Dioxane | 160 | Not Detected | 580 | Not Detected |
| Bromodichloromethane | 40 | Not Detected | 270 | Not Detected |
| cis-1,3-Dichloropropene | 40 | Not Detected | 180 | Not Detected |
| 4-Methyl-2-pentanone | 40 | Not Detected | 160 | Not Detected |
| Toluene | 40 | 14000 | 150 | 53000 |
| trans-1,3-Dichloropropene | 40 | Not Detected | 180 | Not Detected |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld.

Lab ID#: 0810738-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | | |
|--------------|---------|---------------------|-------------------|
| File Name: | 5111126 | Date of Collection: | 10/30/08 |
| Dil. Factor: | 80.8 | Date of Analysis: | 11/12/08 04:59 AM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|---------------------------|-------------------|---------------|--------------------|----------------|
| 1,1,2-Trichloroethane | 40 | Not Detected | 220 | Not Detected |
| Tetrachloroethene | 40 | 200 | 270 | 1300 |
| 2-Hexanone | 160 | Not Detected | 660 | Not Detected |
| Dibromochloromethane | 40 | Not Detected | 340 | Not Detected |
| 1,2-Dibromoethane (EDB) | 40 | Not Detected | 310 | Not Detected |
| Chlorobenzene | 40 | Not Detected | 180 | Not Detected |
| Ethyl Benzene | 40 | 5000 | 180 | 22000 |
| m,p-Xylene | 40 | 8600 | 180 | 38000 |
| o-Xylene | 40 | 2700 | 180 | 12000 |
| Styrene | 40 | 410 | 170 | 1700 |
| Bromoform | 40 | Not Detected | 420 | Not Detected |
| Cumene | 40 | Not Detected | 200 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 40 | Not Detected | 280 | Not Detected |
| Propylbenzene | 40 | 370 | 200 | 1800 |
| 4-Ethyltoluene | 40 | 1100 | 200 | 5600 |
| 1,3,5-Trimethylbenzene | 40 | 390 | 200 | 1900 |
| 1,2,4-Trimethylbenzene | 40 | 1000 | 200 | 5100 |
| 1,3-Dichlorobenzene | 40 | Not Detected | 240 | Not Detected |
| 1,4-Dichlorobenzene | 40 | 370 | 240 | 2200 |
| alpha-Chlorotoluene | 40 | Not Detected | 210 | Not Detected |
| 1,2-Dichlorobenzene | 40 | Not Detected | 240 | Not Detected |
| 1,2,4-Trichlorobenzene | 160 | Not Detected | 1200 | Not Detected |
| Hexachlorobutadiene | 160 | Not Detected | 1700 | Not Detected |

Container Type: 1 Liter Summa Canister

| Surrogates | %Recovery | Method Limits |
|-----------------------|-----------|---------------|
| Toluene-d8 | 98 | 70-130 |
| 1,2-Dichloroethane-d4 | 99 | 70-130 |
| 4-Bromofluorobenzene | 96 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0810738-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | |
|--------------|---------|-------------------------------------|
| File Name: | 5111105 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/11/08 11:37 AM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|----------------------------------|-------------------|---------------|--------------------|----------------|
| Freon 12 | 0.50 | Not Detected | 2.5 | Not Detected |
| Freon 114 | 0.50 | Not Detected | 3.5 | Not Detected |
| Chloromethane | 2.0 | Not Detected | 4.1 | Not Detected |
| Vinyl Chloride | 0.50 | Not Detected | 1.3 | Not Detected |
| 1,3-Butadiene | 0.50 | Not Detected | 1.1 | Not Detected |
| Bromomethane | 0.50 | Not Detected | 1.9 | Not Detected |
| Chloroethane | 0.50 | Not Detected | 1.3 | Not Detected |
| Freon 11 | 0.50 | Not Detected | 2.8 | Not Detected |
| Ethanol | 2.0 | Not Detected | 3.8 | Not Detected |
| Freon 113 | 0.50 | Not Detected | 3.8 | Not Detected |
| 1,1-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Acetone | 2.0 | Not Detected | 4.8 | Not Detected |
| 2-Propanol | 2.0 | Not Detected | 4.9 | Not Detected |
| Carbon Disulfide | 0.50 | Not Detected | 1.6 | Not Detected |
| 3-Chloropropene | 2.0 | Not Detected | 6.3 | Not Detected |
| Methylene Chloride | 0.50 | Not Detected | 1.7 | Not Detected |
| Methyl tert-butyl ether | 0.50 | Not Detected | 1.8 | Not Detected |
| trans-1,2-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Hexane | 0.50 | Not Detected | 1.8 | Not Detected |
| 1,1-Dichloroethane | 0.50 | Not Detected | 2.0 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 0.50 | Not Detected | 1.5 | Not Detected |
| cis-1,2-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Tetrahydrofuran | 0.50 | Not Detected | 1.5 | Not Detected |
| Chloroform | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,1,1-Trichloroethane | 0.50 | Not Detected | 2.7 | Not Detected |
| Cyclohexane | 0.50 | Not Detected | 1.7 | Not Detected |
| Carbon Tetrachloride | 0.50 | Not Detected | 3.1 | Not Detected |
| 2,2,4-Trimethylpentane | 0.50 | Not Detected | 2.3 | Not Detected |
| Benzene | 0.50 | Not Detected | 1.6 | Not Detected |
| 1,2-Dichloroethane | 0.50 | Not Detected | 2.0 | Not Detected |
| Heptane | 0.50 | Not Detected | 2.0 | Not Detected |
| Trichloroethene | 0.50 | Not Detected | 2.7 | Not Detected |
| 1,2-Dichloropropane | 0.50 | Not Detected | 2.3 | Not Detected |
| 1,4-Dioxane | 2.0 | Not Detected | 7.2 | Not Detected |
| Bromodichloromethane | 0.50 | Not Detected | 3.4 | Not Detected |
| cis-1,3-Dichloropropene | 0.50 | Not Detected | 2.3 | Not Detected |
| 4-Methyl-2-pentanone | 0.50 | Not Detected | 2.0 | Not Detected |
| Toluene | 0.50 | Not Detected | 1.9 | Not Detected |
| trans-1,3-Dichloropropene | 0.50 | Not Detected | 2.3 | Not Detected |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0810738-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | |
|--------------|---------|-------------------------------------|
| File Name: | 5111105 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/11/08 11:37 AM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|---------------------------|-------------------|---------------|--------------------|----------------|
| 1,1,2-Trichloroethane | 0.50 | Not Detected | 2.7 | Not Detected |
| Tetrachloroethene | 0.50 | Not Detected | 3.4 | Not Detected |
| 2-Hexanone | 2.0 | Not Detected | 8.2 | Not Detected |
| Dibromochloromethane | 0.50 | Not Detected | 4.2 | Not Detected |
| 1,2-Dibromoethane (EDB) | 0.50 | Not Detected | 3.8 | Not Detected |
| Chlorobenzene | 0.50 | Not Detected | 2.3 | Not Detected |
| Ethyl Benzene | 0.50 | Not Detected | 2.2 | Not Detected |
| m,p-Xylene | 0.50 | Not Detected | 2.2 | Not Detected |
| o-Xylene | 0.50 | Not Detected | 2.2 | Not Detected |
| Styrene | 0.50 | Not Detected | 2.1 | Not Detected |
| Bromoform | 0.50 | Not Detected | 5.2 | Not Detected |
| Cumene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 0.50 | Not Detected | 3.4 | Not Detected |
| Propylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 4-Ethyltoluene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,3,5-Trimethylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,2,4-Trimethylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,3-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| 1,4-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| alpha-Chlorotoluene | 0.50 | Not Detected | 2.6 | Not Detected |
| 1,2-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| 1,2,4-Trichlorobenzene | 2.0 | Not Detected | 15 | Not Detected |
| Hexachlorobutadiene | 2.0 | Not Detected | 21 | Not Detected |

Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|-----------------------|-----------|---------------|
| Toluene-d8 | 99 | 70-130 |
| 1,2-Dichloroethane-d4 | 98 | 70-130 |
| 4-Bromofluorobenzene | 95 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0810738-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | |
|--------------|---------|-------------------------------------|
| File Name: | 5111102 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/11/08 09:16 AM |

| Compound | %Recovery |
|----------------------------------|-----------|
| Freon 12 | 110 |
| Freon 114 | 106 |
| Chloromethane | 108 |
| Vinyl Chloride | 110 |
| 1,3-Butadiene | 96 |
| Bromomethane | 120 |
| Chloroethane | 117 |
| Freon 11 | 112 |
| Ethanol | 102 |
| Freon 113 | 105 |
| 1,1-Dichloroethene | 104 |
| Acetone | 106 |
| 2-Propanol | 104 |
| Carbon Disulfide | 110 |
| 3-Chloropropene | 106 |
| Methylene Chloride | 108 |
| Methyl tert-butyl ether | 118 |
| trans-1,2-Dichloroethene | 105 |
| Hexane | 112 |
| 1,1-Dichloroethane | 110 |
| 2-Butanone (Methyl Ethyl Ketone) | 112 |
| cis-1,2-Dichloroethene | 109 |
| Tetrahydrofuran | 110 |
| Chloroform | 100 |
| 1,1,1-Trichloroethane | 105 |
| Cyclohexane | 108 |
| Carbon Tetrachloride | 107 |
| 2,2,4-Trimethylpentane | 110 |
| Benzene | 96 |
| 1,2-Dichloroethane | 101 |
| Heptane | 107 |
| Trichloroethene | 105 |
| 1,2-Dichloropropane | 107 |
| 1,4-Dioxane | 101 |
| Bromodichloromethane | 106 |
| cis-1,3-Dichloropropene | 106 |
| 4-Methyl-2-pentanone | 106 |
| Toluene | 104 |
| trans-1,3-Dichloropropene | 108 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0810738-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | |
|---------------------|----------------|--|
| File Name: | 5111102 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/11/08 09:16 AM |

| Compound | %Recovery |
|---------------------------|------------------|
| 1,1,2-Trichloroethane | 105 |
| Tetrachloroethene | 104 |
| 2-Hexanone | 104 |
| Dibromochloromethane | 107 |
| 1,2-Dibromoethane (EDB) | 100 |
| Chlorobenzene | 104 |
| Ethyl Benzene | 105 |
| m,p-Xylene | 105 |
| o-Xylene | 103 |
| Styrene | 96 |
| Bromoform | 106 |
| Cumene | 98 |
| 1,1,1,2-Tetrachloroethane | 104 |
| Propylbenzene | 109 |
| 4-Ethyltoluene | 106 |
| 1,3,5-Trimethylbenzene | 94 |
| 1,2,4-Trimethylbenzene | 94 |
| 1,3-Dichlorobenzene | 96 |
| 1,4-Dichlorobenzene | 96 |
| alpha-Chlorotoluene | 106 |
| 1,2-Dichlorobenzene | 92 |
| 1,2,4-Trichlorobenzene | 90 |
| Hexachlorobutadiene | 89 |

Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|-----------------------|------------------|----------------------|
| Toluene-d8 | 99 | 70-130 |
| 1,2-Dichloroethane-d4 | 103 | 70-130 |
| 4-Bromofluorobenzene | 96 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0810738-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | |
|--------------|---------|-------------------------------------|
| File Name: | 5111103 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/11/08 09:52 AM |

| Compound | %Recovery |
|----------------------------------|-----------|
| Freon 12 | 91 |
| Freon 114 | 89 |
| Chloromethane | 90 |
| Vinyl Chloride | 91 |
| 1,3-Butadiene | 80 |
| Bromomethane | 103 |
| Chloroethane | 108 |
| Freon 11 | 96 |
| Ethanol | 94 |
| Freon 113 | 101 |
| 1,1-Dichloroethene | 103 |
| Acetone | 95 |
| 2-Propanol | 93 |
| Carbon Disulfide | 99 |
| 3-Chloropropene | 96 |
| Methylene Chloride | 106 |
| Methyl tert-butyl ether | 99 |
| trans-1,2-Dichloroethene | 95 |
| Hexane | 96 |
| 1,1-Dichloroethane | 99 |
| 2-Butanone (Methyl Ethyl Ketone) | 96 |
| cis-1,2-Dichloroethene | 96 |
| Tetrahydrofuran | 94 |
| Chloroform | 88 |
| 1,1,1-Trichloroethane | 93 |
| Cyclohexane | 95 |
| Carbon Tetrachloride | 92 |
| 2,2,4-Trimethylpentane | 95 |
| Benzene | 90 |
| 1,2-Dichloroethane | 95 |
| Heptane | 98 |
| Trichloroethene | 102 |
| 1,2-Dichloropropane | 98 |
| 1,4-Dioxane | 90 |
| Bromodichloromethane | 98 |
| cis-1,3-Dichloropropene | 97 |
| 4-Methyl-2-pentanone | 97 |
| Toluene | 101 |
| trans-1,3-Dichloropropene | 96 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0810738-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

| | | |
|---------------------|----------------|--|
| File Name: | 5111103 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/11/08 09:52 AM |

| Compound | %Recovery |
|---------------------------|------------------|
| 1,1,2-Trichloroethane | 94 |
| Tetrachloroethene | 95 |
| 2-Hexanone | 94 |
| Dibromochloromethane | 96 |
| 1,2-Dibromoethane (EDB) | 88 |
| Chlorobenzene | 94 |
| Ethyl Benzene | 94 |
| m,p-Xylene | 94 |
| o-Xylene | 94 |
| Styrene | 87 |
| Bromoform | 98 |
| Cumene | 92 |
| 1,1,2,2-Tetrachloroethane | 91 |
| Propylbenzene | 101 |
| 4-Ethyltoluene | 97 |
| 1,3,5-Trimethylbenzene | 85 |
| 1,2,4-Trimethylbenzene | 86 |
| 1,3-Dichlorobenzene | 88 |
| 1,4-Dichlorobenzene | 87 |
| alpha-Chlorotoluene | 97 |
| 1,2-Dichlorobenzene | 84 |
| 1,2,4-Trichlorobenzene | 86 |
| Hexachlorobutadiene | 81 |

Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|-----------------------|------------------|----------------------|
| Toluene-d8 | 102 | 70-130 |
| 1,2-Dichloroethane-d4 | 97 | 70-130 |
| 4-Bromofluorobenzene | 94 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

11/12/2008

Mr. Chris Jimieson
BT2, Inc.
2830 Dairy Drive

Madison WI 53718

Project Name: Rodefeld LF
Project #: 2385

Dear Mr. Chris Jimieson

The following report includes the data for the above referenced project for sample(s) received on 10/31/2008 at Air Toxics Ltd.

The data and associated QC analyzed by Siloxanes are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brandon Dunmore at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

A handwritten signature in black ink that reads 'Brandon M. Dunmore'.

Brandon Dunmore
Project Manager




AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0810735

Work Order Summary

| | | | |
|------------------------|--|------------------|--|
| CLIENT: | Mr. Chris Jimieson BT2, Inc. 2830 Dairy Drive Madison, WI 53718 | BILL TO: | Mr. Chris Jimieson BT2, Inc. 2830 Dairy Drive Madison, WI 53718 |
| PHONE: | 608-216-7367 | P.O. # | |
| FAX: | 608-224-2839 | PROJECT # | 2385 Rodefeld LF |
| DATE RECEIVED: | 10/31/2008 | CONTACT: | Brandon Dunmore |
| DATE COMPLETED: | 11/12/2008 | | |

| <u>FRACTION #</u> | <u>NAME</u> | <u>TEST</u> |
|-------------------|---------------------------------|-------------|
| 01AB | Blower Bld. (A/B) | Siloxanes |
| 01ABB | Blower Bld. (A/B) Lab Duplicate | Siloxanes |
| 02A | Lab Blank | Siloxanes |
| 03A | LCS | Siloxanes |

CERTIFIED BY: 
 Laboratory Director

DATE: 11/12/08

LABORATORY NARRATIVE**Siloxanes****BT2, Inc.****Workorder# 0810735**

Two Vial samples were received on October 31, 2008. The laboratory performed analysis for siloxanes by GC/MS. A sample volume of 1.0 uL was injected directly onto the GC column. Initial results are in ug/mL. The units are converted to total micrograms (ug) by multiplying the result (ug/mL) by the total volume (mL) contained in the impinger. See the data sheets for the reporting limits for each compound.

Receiving Notes

A Temperature Blank was included with the shipment. The temperature was measured and was not within $4 \pm 2^{\circ}\text{C}$. Coolant in the form of ice/blue ice was present. Internal stability studies at Air Toxics Ltd. indicate Siloxane compounds may be stable for up to five days from collection at room temperature. Analysis proceeded.

Front and back impinger samples were received in non-uniquely labeled vials. Because the reported results are an additive combination of the two vials the discrepancy was noted in the Sample Receipt Confirmation email/fax and the analysis proceeded. Each vial was given a unique laboratory identification number.

Analytical Notes

The contents of the front and back impinger for each sample were combined prior to analysis.

Impinger volumes were measured at the laboratory using a graduated cylinder and documented in the analytical logbook.

Sampling volume was supplied by the client. A sample volume of 21.6 L was assumed for all QC samples.

Definition of Data Qualifying Flags

Six qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit.
- J - Estimated Value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds SILOXANES - GC/MS

Client Sample ID: Blower Bld. (A/B)

Lab ID#: 0810735-01AB

| Compound | Rpt. Limit (ug) | Amount (ug) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|-----------------------------------|--------------------|----------------|-----------------------|-------------------|
| Octamethylcyclotetrasiloxane (D4) | 26 | 290 | 1200 | 13000 |
| Decamethylcyclopentasiloxane (D5) | 26 | 160 | 1200 | 7500 |

Client Sample ID: Blower Bld. (A/B) Lab Duplicate

Lab ID#: 0810735-01ABB

| Compound | Rpt. Limit (ug) | Amount (ug) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|-----------------------------------|--------------------|----------------|-----------------------|-------------------|
| Octamethylcyclotetrasiloxane (D4) | 26 | 280 | 1200 | 13000 |
| Decamethylcyclopentasiloxane (D5) | 26 | 160 | 1200 | 7300 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld. (A/B)

Lab ID#: 0810735-01AB

SILOXANES - GC/MS

| | | | |
|--------------|---------|---------------------|------------------|
| File Name: | k110309 | Date of Collection: | 10/30/08 |
| Dil. Factor: | 1.00 | Date of Analysis: | 11/3/08 11:48 AM |

| Compound | Rpt. Limit (ug) | Amount (ug) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|------------------------------------|--------------------|----------------|-----------------------|-------------------|
| Octamethylcyclotetrasiloxane (D4) | 26 | 290 | 1200 | 13000 |
| Decamethylcyclopentasiloxane (D5) | 26 | 160 | 1200 | 7500 |
| Dodecamethylcyclohexasiloxane (D6) | 53 | Not Detected | 2400 | Not Detected |
| Hexamethyldisiloxane | 26 | Not Detected | 1200 | Not Detected |
| Octamethyltrisiloxane | 26 | Not Detected | 1200 | Not Detected |

Air Sample Volume(L): 21.6

Impinger Total Volume(mL): 26.3

Container Type: Vial

| Surrogates | %Recovery | Method Limits |
|----------------------------|-----------|------------------|
| Hexamethyl disiloxane -d18 | 92 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Blower Bld. (A/B) Lab Duplicate

Lab ID#: 0810735-01ABB

SILOXANES - GC/MS

| | | | |
|--------------|---------|---------------------|------------------|
| File Name: | k110310 | Date of Collection: | 10/30/08 |
| Dil. Factor: | 1.00 | Date of Analysis: | 11/3/08 12:12 PM |

| Compound | Rpt. Limit (ug) | Amount (ug) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|------------------------------------|--------------------|----------------|-----------------------|-------------------|
| Octamethylcyclotetrasiloxane (D4) | 26 | 280 | 1200 | 13000 |
| Decamethylcyclopentasiloxane (D5) | 26 | 160 | 1200 | 7300 |
| Dodecamethylcyclohexasiloxane (D6) | 53 | Not Detected | 2400 | Not Detected |
| Hexamethyldisiloxane | 26 | Not Detected | 1200 | Not Detected |
| Octamethyltrisiloxane | 26 | Not Detected | 1200 | Not Detected |

Air Sample Volume(L): 21.6

Impinger Total Volume(mL): 26.3

Container Type: Vial

| Surrogates | %Recovery | Method Limits |
|----------------------------|-----------|------------------|
| Hexamethyl disiloxane -d18 | 89 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0810735-02A

SILOXANES - GC/MS

| | | |
|---------------------|----------------|---|
| File Name: | k110306 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/3/08 10:36 AM |

| Compound | Rpt. Limit (ug) | Amount (ug) | Rpt. Limit (uG/m3) | Amount (uG/m3) |
|------------------------------------|----------------------------|------------------------|-------------------------------|---------------------------|
| Octamethylcyclotetrasiloxane (D4) | 1.0 | Not Detected | 46 | Not Detected |
| Decamethylcyclopentasiloxane (D5) | 1.0 | Not Detected | 46 | Not Detected |
| Dodecamethylcyclohexasiloxane (D6) | 2.0 | Not Detected | 92 | Not Detected |
| Hexamethyldisiloxane | 1.0 | Not Detected | 46 | Not Detected |
| Octamethyltrisiloxane | 1.0 | Not Detected | 46 | Not Detected |

Air Sample Volume(L): 21.6

Impinger Total Volume(mL): 1.00

Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|----------------------------|------------------|--------------------------|
| Hexamethyl disiloxane -d18 | 97 | 70-130 |



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0810735-03A

SILOXANES - GC/MS

| | | |
|--------------|---------|------------------------------------|
| File Name: | k110305 | Date of Collection: NA |
| Dil. Factor: | 1.00 | Date of Analysis: 11/3/08 10:11 AM |

| Compound | %Recovery |
|------------------------------------|------------|
| Octamethylcyclotetrasiloxane (D4) | 98 |
| Decamethylcyclopentasiloxane (D5) | 95 |
| Dodecamethylcyclohexasiloxane (D6) | Not Spiked |
| Hexamethyldisiloxane | 96 |
| Octamethyltrisiloxane | 95 |

Air Sample Volume(L): 21.6
Impinger Total Volume(mL): 1.00
Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|----------------------------|-----------|---------------|
| Hexamethyl disiloxane -d18 | 100 | 70-130 |