

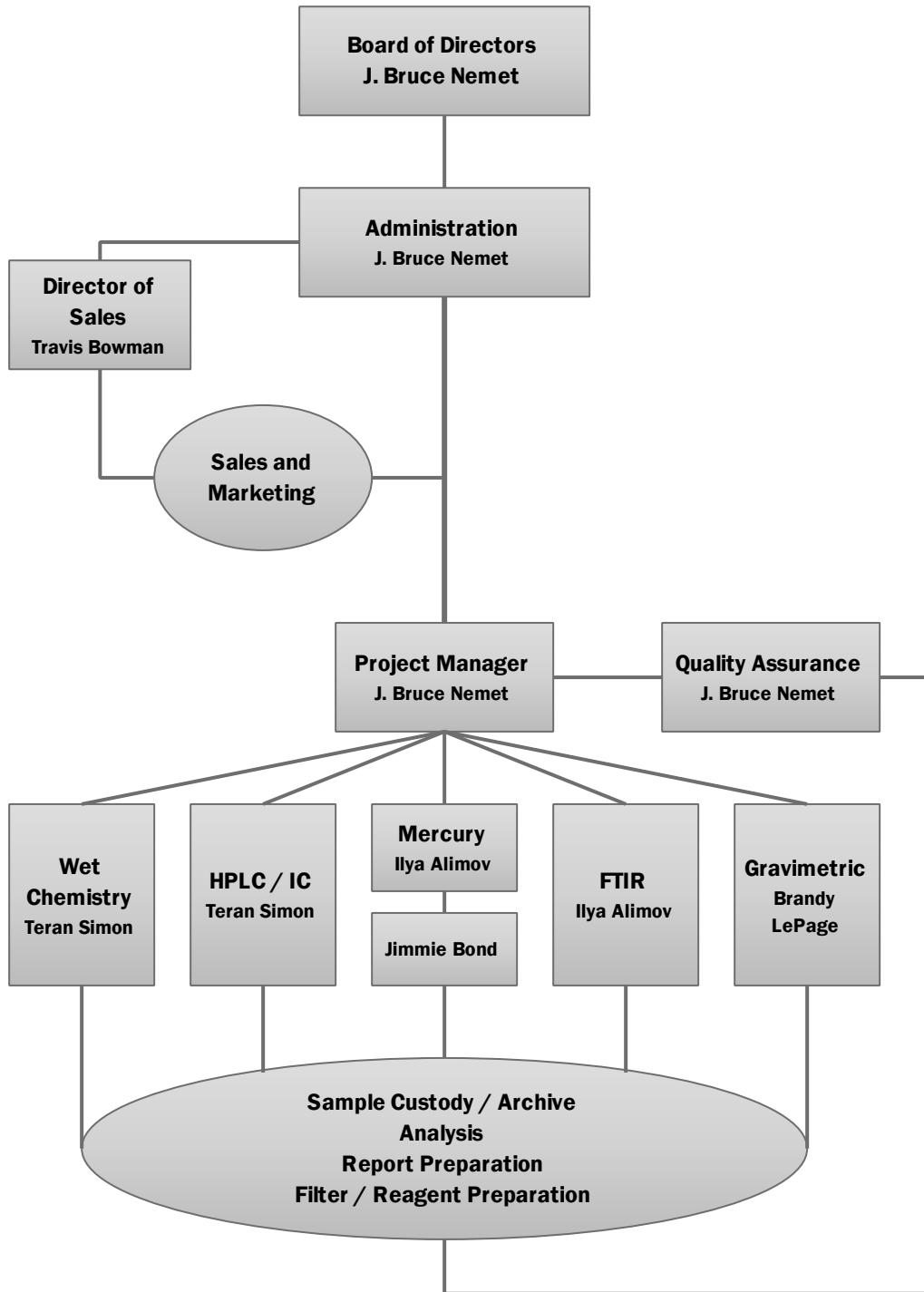
RESOLUTION ANALYTICS, INC.

Specialists in Air Emissions Analysis



Statement of Qualifications







Resolution Analytics has had extensive experience in air quality analysis, particularly with regards to stationary source testing. Our experience ranges from collaboration with various agencies and private firms in the development of new methods (including ASTM 8A, CTM-027 and OTM-028) to on-site test projects to certify CEM Instruments and removal efficiencies. We distinguish ourselves from our competition by providing custom-tailored analytical service at competitive pricing utilizing state-of-the-art equipment and EPA reference method procedures.

Our clients know the difference that separates us from our competition and it is something that we are very proud of. With minimal sales & marketing effort, Resolution Analytics, Inc. has developed a reputation in the industry for outstanding service and quality analysis which speaks for itself.

The following is a brief overview of some of our accomplishments:

Gravimetric:

- Consulted with EPA's prime contractor and performed all analysis for the initial development of OTM-028 (Dry Impinger 202). Consequently, today we are able to offer specialized support to our clients assuring they meet all QA criteria for sampling and analysis for this method.
- Acquired and incorporated state-of-the-art technology and procedures in non-static handling of small particulate matter utilizing lightweight, chemically inert Teflon™ "baggie" containers.

HPLC/Ion Chromatography:

- Helped develop both CTM-027 (ammonia emissions from stationary sources) and NCASI 8A (Sulfuric Acid and SO₃ from stationary sources).
- Developed an HPLC procedure for the analysis of Nicotine from stationary sources
- Have performed more EPA 26/26A than any other lab in the country. (EPA M26/26A was our initial analytical service when Resolution Analytics was founded in 1994).

SAMPLE PROJECTS:

1) HCl on-site RATA performed at COVANTA Lancaster County RRF in Bainbridge, PA annually since 1998

2) NH₃ on-site RATA performed at COVANTA Lee County RRF in Ft Myers, FL annually



Mercury:

- Provide multiple techniques for the analysis of mercury in stationary source samples. We routinely cross-check our results utilizing both techniques to ensure our accuracy. We believe that we are the only lab in the country to routinely incorporate this procedure for the analysis of mercury.
- Discovered presence of naphthalene in a particular source of air emission samples. (Naphthalene is an interferent during the analysis of mercury by AAS and biases results positive.) This discovery was determined by cross-instrument comparison by both cold-vapor and thermal decomposition techniques. The samples were treated by solid-phase extraction to remove hydrocarbons and analytical results were considerably lower than those previously provided by other labs that utilized traditional cold-vapor techniques without sample pretreatment.
- Have performed more than forty on-site mercury RATA tests in the past 18 months, with all but one RATA certification passing. In each case results were provided to the client before leaving the job site.

SAMPLE PROJECTS:

1) Mercury RATA tests performed on-site for several PPL coal-fired utility plants throughout Pennsylvania performed annually.

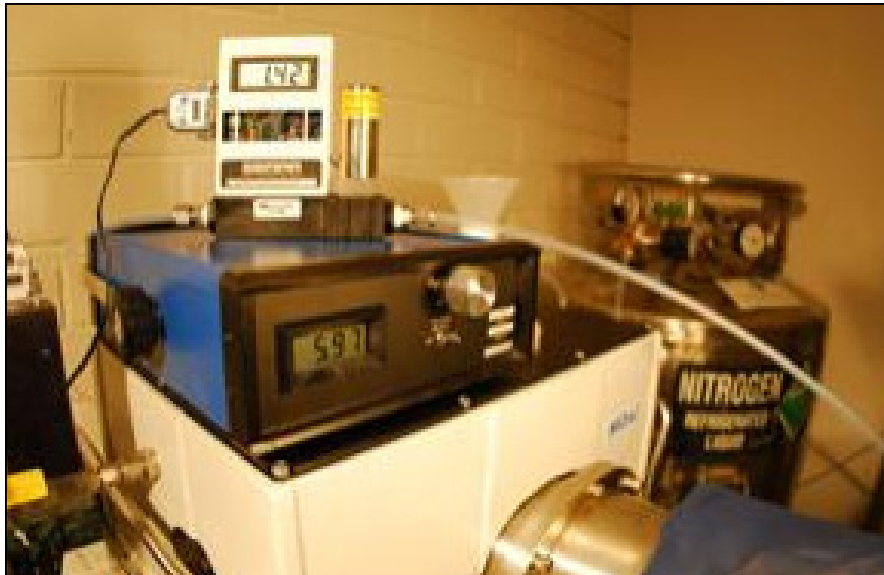
2) Mercury RATA performed on-site at JEA Utility in Jacksonville, FL. Test also performed annually. Plant has hired different testing contractors but routinely asks that Resolution Analytics perform the lab analysis (EPA 30B) on-site.

FTIR:

- Have performed six on-site tests over the past 6 months. Projects included testing for HCL, ammonia, and formaldehyde and were performed alongside reference-method RATA tests for each of these analytes. We incorporate high resolution spectroscopy and utilize reference spectra obtained specifically on our instrument which provides us with a much greater interference resolution capability.
- We provide our own sampling equipment, including super heated lines, and are capable of performing FTIR spectroscopy at port locations, if necessary.

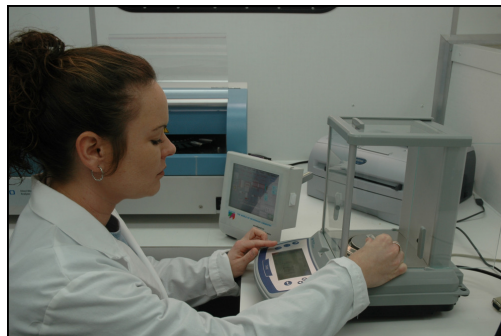
SAMPLE PROJECTS:

Please inquire.



Gravimetric:

- EPA Method 5
- EPA Method 201/201A
- EPA Method 202
- EPA OTM-027 and 028
- Cascade Particle Sizing



Equipment & Instrumentation: *Denver Inst. A-250 & PI-114 Analytical Balances, SIMCO 500 Static Control Air Gun, U-Shaped Static Electrode*

Wet Chemistry:

- EPA Method 6
- EPA Method 8
- EPA Method 323
- EPA Method 316



Equipment & Instrumentation: *Thermo Spectronic Genesys 20 Spectrophotometer, Heidolph Rotary Evaporator, Zymark TurboVap LV Evaporator*

HPLC:

- SW-846 0011
- Ambient Air Methods: TO-11, TO-5, TO-8
- NCASI, NIOSH Methods
- Select ASTM Methods

Equipment & Instrumentation: *Shimadzu SIL/SCL-10A HPLC with SPD-10AV UV-Vis Programmable Detector and LC-600 Dual Pumps*

Ion Chromatography:

- EPA Method 26/26A
- EPA CTM-027
- SW-846 0097
- NCASI, NIOSH Methods
- Custom analyses by proprietary procedure

Equipment & Instrumentation: *Shimadzu LC-10AD Ion Chromatograph with CDD-6A Conductivity Detector*

Mercury:

- EPA Method 29
- EPA 30B
- ASTM Method D6784-02 (Ontario-Hydro Method)

Equipment & Instrumentation: *Thomas Cain DEENA Automated Digestion System, CETAC QuickTrace M-7500 Mercury Cold-Vapor AAS, Denver Inst. PI-114 Analytical Balance, SPEX M-5100 Mill, Milestone DMA-80 Direct Mercury Analyzer*

FTIR:

- EPA Method 318, 320, 321
- EPA Method 7E

Equipment & Instrumentation: *MIDAC FTIR Spectrometer Model II301, Vector Scientific FTIR Sampling System Assy with Sierra Instruments MFC and Orion high-temp heated lines*



SAMPLE CUSTODY PROCEDURES

Samples that arrive in the laboratory are checked by the sample custodian to ensure that the samples have been properly collected and preserved and that the proper paperwork (*Chain of Custody* and *Request for Analysis*) accompanies the samples.

Samples and their paperwork should contain the following information:

- The sample ID (run number, sample name, etc.)
- The sample matrix (Filter, Front 1/2 Acetone rinse, Water, 0.1 N NaOH, etc.)
- The compounds to be analyzed (the methodology to be stated on the accompanying *RFA*)
- The client's name
- Identifying project number (Job #, etc.)
- Sample transferer signature along with date and time of transfer
- Any additional information (Quick turn-around requests, etc.)

A completed *RFA* should contain all information necessary to inform the laboratory of the requested analyses.

If any samples have been damaged or information on accompanying forms found to be insufficient, the laboratory manager is notified and a note explaining the discrepancy is entered on the *Chain of Custody*. The client is then immediately informed of the problem and corrective action taken, if any.

Samples that require refrigeration are then placed under their proper storage temperatures until time for analysis. Cooled samples are always given two hours time immediately prior to analysis to come to ambient temperature. If a sample requires treatment, an aliquot is taken and prepared.

Copies of the *RFA* for each group of samples is then handed to the laboratory manager or designated representative. The analysis is then posted on the Analyses To Be Done Chart placed in the laboratory where it remains until analysis has been completed. The laboratory manager or representative checks this chart daily to determine the progress of each analysis.

After the samples have been analyzed for all requested analytes and the results validated by the QA manager, a report and invoice is generated and sent to the client. All samples are stored for a period of six months in case the client requests additional analysis or reanalysis. After the archival period (unless otherwise requested by the client), samples are disposed of by the laboratory in accordance with all local, state, and federal regulations (see section titled SAMPLE HANDLING PROCEDURES: Waste Disposal).

In-Field Sample Custody Procedures

When performing on-site analyses, the analyst is directly responsible for maintaining all required sample information until returning to the laboratory at which time the samples will be archived and the data filed as usual. A full (and final) report is customarily done on-site by the analyst with workbench results (including calibration and audit data) being approved by the laboratory QA manager via facsimile or email prior to submittal to the client.

SAMPLE HANDLING PROCEDURES

Sample Preservation

Samples are preserved/stored under the conditions listed in the following section. If the client wishes to deviate from this procedure written notification on the RFA must accompany the samples at the time they are received by the laboratory. The pH of all pH-sensitive samples is checked using a pH indicator electrode.

Sample Tracking

A list of analyses to be performed is maintained and posted on a daily basis by the laboratory manager or a designated representative. As analyses are completed, the laboratory QA manager checks that all required benchsheets and analytical (case) narrative have been completed and signed by the analyst(s). A report is then submitted to the client only after all analyses have been completed and approved by the QA manager. Copies of the reports are kept on permanent file by the laboratory manager.

Sample Archival

Once reports for completed analyses have been prepared and sent to the clients, samples are archived for a period of 6 months. During the archival period, a client may request additional or repeated analyses at the prior approval of the laboratory manager. Billing for repeated analyses is handled at the discretion of the laboratory manager.

Sample Disposal

All samples (unless otherwise requested by the client) are automatically disposed of at the end of their archival period of six months in accordance with both state and federal regulations. Routine non-hazardous samples are treated to achieve a pH between 5-9 then disposed of into the local city water treatment system. Organic waste, generated from within the laboratory and by client samples, is removed by a certified waste removal firm. After contents disposal, sample containers are then rinsed by tap water then transferred to a municipal waste recycling facility. Sample labels are first either removed or otherwise made illegible by sample custodian prior to recycling of containers.

Confidentiality of Data

All data obtained on samples from any client are strictly confidential. To ensure conformance with this policy, all requests for analytical information are routed to the laboratory manager or a designated representative. No data are to be given to anyone except the client without the client's written approval.



J. Bruce Nemet- Project Supervisor, Chemist, QA Officer.

Years experience with Resolution Analytics, Inc.	15
Years experience in related fields	4.5

EDUCATION AND PROFESSIONAL REGISTRATION

Top Education Level Obtained:

- B.S. Analytical Chemistry, 1990
- University of California, Davis

Professional Registrations:

- ASTM
- CAPCA (Carolinas Air Pollution Control Association)
- AWMA (Air & Waste Management Association)

EXPERIENCE AND QUALIFICATIONS

Skills and Qualifications:

- 19.5 years experience in HPLC and ion chromatography
- Thorough knowledge of GALP and quality assurance procedures
- Strong managerial, administrative and public relations skills

Related Work Experience:

- Entropy, Inc. 1991-1994 HPLC / IC Lab Supervisor



Ilya Alimov— Director of Mercury Services, Director of FTIR Services

Years experience with Resolution Analytics, Inc. 1.5

EDUCATION

Top Education Level Obtained:

- B.S. Chemical Engineering, 2008
- North Carolina State University, Raleigh

EXPERIENCE AND QUALIFICATIONS

- Established both mercury and FTIR departments for RAI
- Created all SOP's and report templates
- Trained and manages current Mercury Assistant in Ontario Hydro analysis
- Strong technical, mechanical, mathematical and PC skills
- Excellent knowledge of organic and general chemistry



Teran Simon– HPLC / Ion Chromatography Analyst, Wet Chemistry Analyst

Years experience with Resolution Analytics, Inc. 3.5

Years experience in related fields 1.5

EDUCATION

Top Education Level Obtained:

- B.A. English , 2001
- University of Colorado, Boulder

EXPERIENCE AND QUALIFICATIONS

Skills and Qualifications:

- Gravimetric Analyst for RAI, 2005-2007. Trained current analyst.
- Strong technical, communication and PC skills
- Excellent laboratory technique and attention to detail

Related Work Experience:

- Simon Operation Services, Inc. 2003-2004 Wastewater Operator



Brandy LePage– Gravimetric Analyst

Years experience with Resolution Analytics, Inc. 1.5

Years experience in related fields 1

EDUCATION

Top Education Level Obtained:

- B.S. Biological Sciences , Minor: Chemistry, 2005
- Clemson University

EXPERIENCE AND QUALIFICATIONS

Skills and Qualifications:

- Laboratory techniques including Aseptic, Biohazard and Cell Culture
- Strong organizational and critical thinking skills

Related Work Experience:

- Lab Corp 2007 Lab Technician



Jeff Coppedge – Mercury Analyst, Sample Custodian

Years experience with Resolution Analytics, Inc. 1

Years experience in related fields 19

EDUCATION

Top Education Level Obtained:

- Associates Degree, Applied Mathematics

EXPERIENCE AND QUALIFICATIONS

Skills and Qualifications:

- Proficient in Ontario Hydro method for mercury analysis
- Excellent Laboratory technique
- Strong organizational and QA skills

Related Work Experience:

- Entropy, Inc. 1990-1997 In-House & Field Laboratory Services
- Cary Water Treatment Laboratory 1997-2001 Lab Analyst
- TESTAR, Inc. 2001-2009 Manager of Field Lab Services

TRC Environmental, Inc.

Jim Serne	Raleigh, NC	(919) 256-6231
Ken Loder	Raleigh, NC	(919) 256-6239
Mike Martin	Lowell, MA	(978) 656-3550

Air Control Techniques, Inc.

John Richards	Cary, NC	(919) 460-7811
Tom Holder	Cary, NC	“

TESTAR, Inc.

Herb Dixon	Raleigh, NC	(919) 957-9500
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GE Energy

Michael White	Mebane, NC	(919) 460-1060
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CREE, Inc.

Barry Rayfield	RTP, NC	(919) 313-5300
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Oasis Emissions Consulting

Chris Knott	Rock Springs, WY	(307) 382-3297
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Air Compliance Group, LLC

Tony Underwood Roanoke, VA (540) 265-1987

Avogadro Environmental

George Wagner Easton, PA (610) 559-8776

E. Roberts Alley & Associates, Inc.

Chris LeMay Decatur, AL (256) 351-0121

