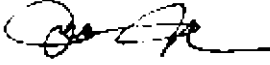
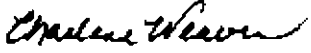
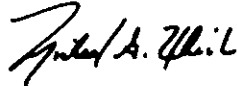


Date: 10/16/2014		AGENDA ITEM		Item: 31
☐ Ordinance	☐ Resolution	☐ Budget Resolution	☒ Other	
Department: Public Works				
Division: Water Resources and Utilities				
Subject: Multiple awards for laboratory analysis and sampling, 14-B-148AK.				
John Angiulli Interim Director Public Works 	Jeaniene Jennings Director Purchasing  Approved in Accordance with Purchasing Policies and Procedures	Legal Daniel D. Eckert County Attorney Director Legal Department 	County Manager's Office Charlene Weaver, CPA, CFO Deputy County Manager 	
Michael Ulrich Director Water and Utilities 	Phyllis Schwarz Proxy for Tammy Bong Director Management and Budget Approved as to Budget Requirements	Approved as to Form and Legality		
Council Action: Approved As Recommended				
Modification: Patterson/ Denys 7-0				
Fund Number(s):	Description:	Amount:		
457 Water And Sewer Utilities	457-780-4000 or 5000-3400--WRU	\$122,000.00		
450 Solid Waste	3196 (Laboratory)--Solid Waste	\$130,000.00		
Total Item Budget: \$252,000.00				
Staff Contact(s):	Phone:	Ext.		
John Angiulli	386 736 5965	12712		
Michael Ulrich	386 943 7027	12724		
Leonard Marion	386 943 7889	21347		
Summary/Highlights:				
The county received four responses, detailed on the attached tabulation sheet, to an invitation to bid to provide laboratory analysis and sampling. Staff recommends an award to the two lowest responsive and responsible bidders: Advanced Environmental Laboratories (AEL), Inc., Altamonte Springs, and Pace Analytical Services, Inc., Ormond Beach. Staff recommends a three year award with two subsequent one year renewals with council approval. Estimated annual expenditures will be \$252,000. The contract and exhibits are available for review in the purchasing and contracts division.				
Recommended Motion: Approval.				

SUBMIT TO: COUNTY OF VOLUSIA PURCHASING & CONTRACTS 123 W. INDIANA AVE., RM. 302 DELAND, FL 32720-4608		 INVITATION TO BID	
CONTACT PERSON: Andrew G. Kokitus..... 386-943-7009		AN EQUAL OPPORTUNITY EMPLOYER	
DELAND: 386-736-5935 DAYTONA BEACH:..... 386-257-6000 NEW SMYRNA BEACH: 386-423-3300		www.volusia.org/purchasing	
TITLE: LABORATORY ANALYSIS AND SAMPLING		NUMBER: 14-B-148AK	SUBMITTAL DEADLINE: Friday, September 19, 2014 at 3:00 p.m., EDT
DO <u>NOT</u> RESPOND TO THIS SOLICITATION ON LINE – SEE SECTION 2.3, <i>DELIVERY OF BIDS</i>			
PRE BID DATE, TIME AND LOCATION: Thursday, August 28, 2014 at 9:30 A.M. EDT Budget Conference Room, Third Floor, 123 W. Indiana Avenue, DeLand, FL 32720			<i>SUBMITTALS RECEIVED AFTER ABOVE DATE AND TIME WILL <u>NOT</u> BE CONSIDERED</i>
FIRM'S NAME:		The vendor acknowledges that information provided in this Bid is true and correct. x _____ Authorized Signature _____ Typed Name _____ Title _____ Date	
MAILING ADDRESS:			
CITY – STATE – ZIP:			
E-MAIL ADDRESS:			
TELEPHONE NO:	FAX NO:		
FEDERAL ID NO. OR SOCIAL SECURITY NO.			
THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR RESPONSE GENERAL CONDITIONS AND INSTRUCTIONS * * * * PLEASE READ CAREFULLY * * * * Individuals covered by the Americans with Disabilities Act of 1990 in need of accommodations to attend public openings or meetings sponsored by the Volusia County Purchasing and Contracts Division shall contact the County's ADA Coordinator at 386-248-1760, at least two (2) business days prior to the scheduled opening or meeting.			
1. SUBMISSION OF OFFERS: All offers shall be submitted in a sealed envelope or package. The invitation number, title, and opening date shall be clearly displayed on the outside of the sealed envelope or package. The delivery of responses to the Volusia County Purchasing and Contracts Division Office prior to the specified date and time is solely and strictly the responsibility of the offeror. Any submittal received in the Purchasing and Contracts Division Office after the specified date and time will not be considered. Responses shall be submitted on forms provided by the County. Additional information may be attached to the submittal. Facsimile submissions are NOT acceptable. No offer may be modified after acceptance. No offer may be withdrawn after opening for a period of ninety (90) days unless otherwise specified. 6. INTERPRETATION/ADDENDA: Any questions concerning conditions and specifications shall be directed to the designated contact person. Those interpretations which may affect the eventual outcome of the invitation/offer shall be furnished in writing to prospective offerors. No interpretation shall be considered binding unless provided in writing by the County of Volusia Purchasing and Contracts Division in the form of an addendum. Any addenda issued shall be acknowledged by signature and returned with offeror's response. Failure to acknowledge addenda may result in the offer not being considered.			
2. EXECUTION OF OFFER: Offer shall contain a manual signature in the space(s) provided of a representative authorized to legally bind the offeror to the provisions therein. All spaces requesting information from the offeror shall be completed. Responses shall be typed or printed in ink. Use of erasable ink or pencil is not permitted. Any correction made by the offeror to any entry must be initialed. 7. INCURRED EXPENSES: This invitation does not commit the County to make an award nor shall the County be responsible for any cost or expense which may be incurred by any Bidder in preparing and submitting a reply, or any cost or expense incurred by any Bidder prior to the execution of a purchase order or Contract/Agreement.			
3. OPENING: Opening shall be public in the Volusia County Purchasing and Contracts Division immediately following the advertised deadline date and time for receipt of submittals. Pursuant to Section 119.07(3) (0) Florida Statutes (1991) no further information regarding offers submitted will be made public until such time of intended award or thirty (30) days, whichever is earlier. 8. DISADVANTAGED BUSINESSES: The County of Volusia, Florida, has adopted policies which assure and encourage the full participation of Disadvantaged Business Enterprises (DBE) in the provision of goods and services.			
4. PUBLIC RECORD: The County of Volusia, Florida, is governed by the Public Record Law, Chapter 119, Florida Statutes. 9. LOCAL BUSINESSES: The County Council has established a policy to encourage participation of local businesses in the provision of goods and services. The County will endeavor to assist local businesses to achieve this goal.			
5. CLARIFICATION/CORRECTION OF ENTRY: The County of Volusia reserves the right to allow for the clarification of questionable entries and the correction of OBVIOUS MISTAKES. A. General Conditions Local Businesses: A prime contractor or subcontractor duly licensed and authorized to engage in the particular business in Lake, Orange, Osceola, Seminole or Volusia County, Florida, and holds a valid local business tax receipt for that place of business for a minimum six (6) months prior to the date of submittal of the Bid or quote to the County.			

CONTINUED ON NEXT PAGE

- 10. PRICING:** Unless otherwise specified prices offered shall remain firm for a period of at least ninety (90) days; all pricing of goods shall include FOB DESTINATION, all packing, handling, shipping charges and delivery to any point(s) within the County to a secure area or inside delivery; all prices of services shall include all expenses necessary to provide the service at the location specified.
- 11. ADDITIONAL TERMS & CONDITIONS:** The County of Volusia reserves the right to reject offers containing terms or conditions contradictory to those requested in the invitation specifications.
- 12. TAXES:** The County of Volusia is exempt from Federal Excise Taxes and all sales taxes. Florida State Exemption Certificate No. 85-8012622393C-9.
- 13. DISCOUNTS:** All discounts except those for prompt payment shall be considered in determining the lowest net cost for evaluation purposes.
- 14. MEETS SPECIFICATIONS:** The offeror represents that all offers to this invitation shall meet or exceed the minimum requirements specified.
- 15. BRAND NAME OR EQUAL:** If items requested by this invitation have been identified in the specifications by a Brand Name "OR EQUAL" description, such identification is intended to be descriptive and not restrictive and is to indicate the quality and characteristics of products that will be acceptable. Offers proposing "equal" products will be considered for award if such products are clearly identified in the offer and are determined by the County to meet fully the salient characteristic requirements listed in the specifications.
- Unless the offeror clearly indicates in his/her offer that he/she is proposing an "equal" product, the offer shall be considered as offering the same brand name product referenced in the specifications.
- If the offeror proposes to furnish an "equal" product, the brand name of the product to be furnished shall be clearly identified. The evaluation of offers and the determination as to equality of the product offered shall be the responsibility of the County and will be based on information furnished by the offeror. The Purchasing and Contracts Division is not responsible for locating or securing any information which is not identified in the response and reasonably available to the Purchasing and Contracts Division. To insure that sufficient information is available the offeror shall furnish as part of the response all descriptive material necessary for the Purchasing and Contracts Division to determine whether the product offered meets the salient characteristics required by the specifications and establish exactly what the offeror proposes to furnish and what the County would be binding itself to purchase by making an award.
- 16. SAMPLES:** When required, samples of products shall be furnished with response to the County at no charge. Samples may be tested and will not be returned to the offeror. The result of any and all testing shall be made available upon written request.
- 17. SILENCE OF SPECIFICATIONS:** The apparent silence of these specifications or any supplemental specifications as to details or the omission from same of any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size, and design are to be used. All workmanship shall be first quality. All interpretations of specifications shall be made upon the basis of this statement.
- 18. GOVERNING LAWS:** Any Agreement to purchase resulting from this invitation shall be governed by the laws, regulations, and ordinances of the State of Florida and the County of Volusia, Florida. Venue shall be non-jury in the Circuit Court of Volusia County, Florida.
- 19. ASSIGNMENT:** Any agreement to purchase issued pursuant to this invitation and award thereof and the monies which may become due hereunder are not assignable except with the prior written approval of the County Director of Purchasing and Contracts.
- 20. CONTENT OF INVITATION/RESPONSE:** The contents of this invitation, all terms, conditions, specifications, and requirements included herein and the accepted and awarded response thereto may be incorporated into an agreement to purchase and become legally binding. Any terms, conditions, specifications, and/or requirements specific to the item or service requested herein shall supersede the requirements of the "GENERAL CONDITIONS AND INSTRUCTIONS."
- 21. LIABILITY:** The supplier/provider shall hold and save the County of Volusia, its officers, agents, and employees harmless against claims by third parties resulting from breach of contract or negligence by the supplier/provider.
- 22. PATENTS, COPYRIGHT, AND ROYALTIES:** The supplier/provider, without exception, shall indemnify and save harmless the County of Volusia, its officers, agents and employees from liability of any nature of kind, including cost and expenses for or on account of any copyrighted, registered, patented, or unpatented invention, process, or article manufactured or used in the provision of goods and/or services, including use by the County of Volusia. If the supplier/provider uses any design, device, or materials covered by letters, patent, copyright, or registration, it is mutually agreed and understood without exception that the quoted price shall include all royalties or costs arising from the use of such design, device, or materials in any way involved.
- 23. TRAINING:** Unless otherwise specified suppliers/providers may be required at the convenience of and at no expense to the County to provide training to County personnel in the operation and maintenance of any item purchased as a result of this invitation.
- 24. ACCEPTANCE:** Products purchased as a result of this invitation may be tested for compliance with specifications. Items delivered not conforming to specifications may be rejected and returned at Bidder's expense. Those items and items not delivered by the delivery date specified in accepted offer and/or purchase order may be purchased on the open market. Any increase in cost may be charged against the Bidder.
- 25. SAFETY WARRANTY:** Any awarded supplier/provider including dealers, distributors, and/or manufacturers shall be responsible for having complied with all Federal, State, and local standards, regulations, and laws concerning the product or service specified, and the use thereof, applicable and effective on the date of manufacture or use or date in service including safety and environmental standards as apply to both private industry and governmental agencies.
- 26. WARRANTY:** The offeror agrees that, unless otherwise specified, the product and/or service furnished as a result of this invitation and award thereto shall be covered by the most favorable commercial warranty the offeror gives to any customer for comparable quantities of such products and/or services and that the right and remedies provided herein are in addition to and do not limit any rights afforded to the County of Volusia by any other provision of the invitation/offer.
- 27. AWARD:** As the best interest of the County may require, the County reserves the right to make award(s) by individual item, group of items, all or none, or a combination thereof; on a geographical basis and/or on a countywide basis with one or more supplier(s) or provider(s); to reject any and all offers or waive any irregularity or technicality in offers received. Offerors are cautioned to make no assumptions unless their offer has been evaluated as being responsive. Any or all award(s) made as a result of this invitation shall conform to applicable ordinances of the County of Volusia, Florida.
- 28. VIOLATIONS:** Any violation of any of the stipulations, terms, and/or conditions listed and/or included herein may result in the offeror/Bidder being removed from the County Bid list and the offeror/Bidder being disqualified from doing business with the County for a period of time to be determined on a case-by-case basis.
- 29.** For purposes of this Invitation and evaluation of responses hereto the following shall apply: unit prices shall prevail over extended prices; written matter shall prevail over typed matter; numbers spelled in word form shall prevail over Arabic numerals ("one" over "1"). When not inconsistent with context words used in the present tense include the future, words in the plural number include the singular number, and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.
- 30. DEFINITIONS:**
COUNTY – The term "County" herein refers to the County of Volusia, Florida, and its duly authorized representatives and any jurisdiction within Volusia County.
OFFEROR – The term "offeror" used herein refers to any dealer, manufacturer, representative, distributor, or business organization submitting an offer to the County in response to this invitation.
BIDDER – The term "Bidder" used herein refers to any dealer, manufacturer, representative, distributor, or business organization that will be or has been awarded a contract and/or purchase order pursuant to the terms and conditions of the invitation and accepted offer.
USING AGENCY – The term "using agency" used herein refers to any department, division, agency, commission, board, committee, authority, or another unit in the County government using supplies or procuring contractual services as provided for in the Purchasing Ordinance of the County of Volusia, Florida.
HEAVY DUTY - The item(s) to which the term "Heavy Duty" is applied shall exceed the usual quality and/or capacity supplied with standard production equipment and shall be able to withstand unusual strain, exposure, temperature, wear and use.

**THE COUNTY OF VOLUSIA RESERVES THE RIGHT TO REJECT ANY OR ALL OFFERS,
TO WAIVE INFORMALITIES, AND TO ACCEPT ALL OR ANY PART OF ANY OFFER
AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE COUNTY**

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The purpose of this Invitation to Bid (ITB) is to solicit competitive sealed Bids to furnish Laboratory Analysis and Sampling for the County of Volusia, Florida.

1.0 SCOPE OF WORK

The County of Volusia is soliciting bids for the provision of field sampling and laboratory analysis for the Solid Waste Division and the Utilities Division, as required by the State of Florida.

1.1 Overview

- A. Requested sample tests shall include, but not be limited to, ground water, surface water, landfill leachate, industrial wastewater, industrial sludge, soils, sediments, drinking water and domestic wastewater.
- B. Bidders shall submit prices for field sampling and laboratory analysis for both Solid Waste and Utilities. Site locations and the number of locations to be sampled are included in Sections 1.4 and 1.5.
- C. The Contractor shall waive sampling fees for tests and test results that are not completed within the specified timeframe or if re-sampling is required due to vendor error.
- D. The Contractor providing courier transportation of samples shall comply with the designated sample hold for the requested analysis.
- E. The Contractor shall coordinate and schedule all sampling, collection and analysis with the County Project Manager for each site.
- F. Sample quantities listed elsewhere in this ITB are estimates only and in no way guarantee future expenditures by the County of Volusia.
- G. The Contractor shall have the capability to provide sample collection and limited analysis seven (7) days a week on an emergency basis.
- H. The Contractor shall not bill the County an hourly rate for any travel time. Billing shall begin when the vendor arrives at a County site and shall end when a vendor leaves a County site.
- I. Any subcontractors used in the performance of this contract shall meet all of the requirements of this ITB and shall be preapproved by the County Project Manager at least 30 days prior to scheduled service.
- J. The Contractor shall provide courier services for sample pickup at the Volusia County Utilities and Solid Waste sites listed below.

Site #1 Southwest Regional Wasterwater Reclamation Facility
800 DeBary Plantation Boulevard DeBary, Florida

Site #2	Deltona North Water Wasterwater Reclamation Facility 290 Wolf Pack Run Deltona, Florida
Site #3	Southeast Water Reclamation Facility 325 Beacon Light Road Oak Hill, Florida
Site #4	Halifax Plantation Water Treatment Facility 3401 Utility Drive, Ormond Beach, Florida
Site #5	Tomoka Landfill 1990 Tomoka Farms Road, Daytona Beach, Florida
Site #6	West Volusia Transfer Station 3151 E. State Road 44, DeLand, Florida
Site #7	Glen Abby Water Treatment Facility 880 Signature Drive, Orange City, Florida

1.2 Contractor Qualifications

- A. The Contractor shall be certified by the State of Florida's Department of Health to perform all certification-required laboratory tests to include but not limited to metals, nutrients demands, organic extractables, general parameters I & II, microbiology, pesticides/herbicides/PCBs, purgeable organics, EPA 40 CFR Part 258 Appendix I & II, and basis environmental laboratory. The Contractor must be able to perform 90% of the chemical analysis and 100% of the bacteriological analysis on site. No subcontracting of any short holding time analysis (all samples with ≤ 48 hour hold times), excluding asbestos, will be permitted under this contract. The County Project Manager may allow for some special circumstances, which must be approved prior.
- K. The Contractor shall be certified, licensed, and meet all state and local government requirements to provide all the requested services and tests specified within the context of this bid. The Contractor shall have current National Environmental Laboratory Accreditation Program (NELAP) certification.
- C. The Contractor shall possess the capacity and capability to perform emergency sampling within one (1) hour from request by the County Project Manager or the County's consultant. Any subcontracting must be approved prior.
- D. The Contractor shall have achieved an overall acceptable score averaging at least 90% on the last two years Performance Evaluation (PE) study. **Vendor must also have achieved a "Satisfactory" rating for FDEP's Performance Audit Inspection in accordance with F.A.C. Rule 62-160.650, Quality Assurance Chapter.** Any successful participation in official proficiency evaluation programs or inter-laboratory studies will also be considered (i.e. EPA-ICR, USGS, other State Certifications, DMR, etc). Submittal of proficiency results shall be required.

- E. The Contractor shall be capable of performing bacteriological testing within sufficient time of sample pick-up to ensure analysis are performed within specified sample hold times. Cost of re-sampling and re-testing for any missed holding times shall be at the Contractor's expense.
- F. The Contractor shall possess the technical expertise to conduct certified lab studies and support/represent the County in legal and/or regulatory proceedings regarding technical issues for landfills, water & wastewater treatment facilities, at the County's request at an hourly rate for legal proceedings (this is for vendor laboratory representation if it becomes legal issue).
- G. The Contractor shall have a minimum of five years experience performing sampling and testing services for landfills and for water and wastewater treatment facilities. The Project Manager assigned to this contract shall have a minimal of two years experience in Laboratory Project Management. A resume of the Project manager shall be provided to verify this work experience.
- H. The Contractor must employ a full time Quality Control Officer to ensure all NELAP requirements are being met.
- I. The Contractor shall provide copies of the most recent NELAP and State inspections of any facility intended to be utilized for the services outlined in this ITB. The findings of these inspections will be evaluated as a part of this ITB selection process, i.e. the number of findings, severity of findings, and repeat findings.
- J. The Contractor shall demonstrate the ability to perform the services outlined in the ITB by providing three (3) references each for Solid Waste and Water Utilities. Laboratories found to be non-compliant with Volusia County's agreements in the past ten (10) years will not be considered for this ITB.
- K. For sampling performed for the Volusia County Solid Waste Division, the Contractor shall have the latest FDEP-approved data management system, ADaPT, as it pertains to the Solid Waste permit and Waste Clean Up requirements. Total well depth, groundwater levels, copies of the Chain of Custody (COC), Field Sampling Logs, and Field Calibration Logs shall all be provided along with all the analytical results.
- L. The Contractor shall have a web base data handling/reporting system which will allow the County to access analytical reports on an as-needed basis. Said web based system shall provide for multiple users.

1.3 Sample Collection and Analysis

The following specifications shall apply to the Solid Waste Division, but may also apply to the Utilities Division.

- A. The Contractor shall be responsible for field collection of the samples and providing all necessary equipment including pumps, monitoring equipment,

sample bottles/kits, and personal protective equipment. Said equipment shall be properly maintained, serviced, and calibrated, as required by governing authorities. When field sampling is done by County personnel, the Contractor shall be responsible for providing sample bottles/kits, including coolers, within 24 hours.

- B. The Contractor shall be capable of performing field testing sampling collection and preservation in accordance with the following:
- Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOP) for Field Activities 001/01 including labeling of sample containers and completing the COC, Field Sampling Logs, and Field Calibration Logs.
 - Chapter 62-160 Florida Administrative Code (FAC).
 - Approved methods as published by FDEP or Standard Methods, ASTM, or EPA Methods.
- C. The Contractor's Detection Limits shall meet groundwater classification GII Class IIIF surface water standards (62-302.530).
- D. All reporting shall be completed within twenty-one (21) days after collection event in accordance with all State deadlines.
- a. A twenty percent (20%) reduction in fees shall be given for late submission of reports, plus an extra thirty (30) days will be added to payment terms.
 - b. Reports returned to the Contractor due to error(s) or discrepancies by the Contractor shall be assessed an additional ten percent (10%) reduction in fees.
- E. No minimum charges shall be expressed to, or accepted by, the County.
- F. The Contractor shall perform all testing and services in a professional manner and at the date and time specified by the County Project Manager.
- G. The Contractor's personnel shall work closely with County Project Managers and field personnel at all times during time of agreement.
- H. The Contractor shall be responsible for notifying FDEP fourteen (14) days prior to sampling events when required by County permit.
- I. Collection of groundwater and surface water elevation data must be collected within one-day period and measured to the nearest 0.01 foot then converted to NGVD.

1.4 Solid Waste Division Semi Annual Groundwater Parameters

The following is the **estimated** minimum number of field sampling requirements needed by the Volusia County Solid Waste Division at this time. Frequency, number of sample locations, and number of events are subject to change according to regulation and permit requirements.

Event	Number of Wells/Sites	Time of Year
Tomoka Semi-Annual Groundwater	54	May & November
Tomoka Semi-Annual Surface Water	7	May & November
Tomoka B5/B37 and B5 Remediation	34	March & September
Tomoka Benzene Remediation	14	May & November
Plymouth Semi-Annual	24	June & December
Plymouth Remediation	7	June & December
Leachate Pretreatment Plant Effluent	1	Monthly, quarterly, and semi-annual
Sprayfield	9	Semi-annual

Each event shall require the normal field parameters such as total well depth, water elevation, temperature, dissolved oxygen, pH, specific conductance, and turbidity plus permit required parameters along with required analytical. Specific analytical parameters for each event will be provided once bid is awarded.

1.5 Laboratory Analyses and Sampling for Volusia County Utilities Operations

Volusia County Water Resources and Utilities requests pricing to perform sampling/testing of forty-six ground water monitoring wells. The ground water table below identifies the sampling events and **estimated** number of parameters required for testing.

Location/Event	Number of Wells/Sites	Time of Year
Deltona North WWTP/Groundwater	7 wells	Quarterly
Southwest Regional WWTP/Groundwater	16 wells	Quarterly
Southeast Regional WWTP/Groundwater	10 wells	Quarterly
Halifax Plantation WWTP/Groundwater	4 wells	Quarterly
Four Townes WWTP/Groundwater	13 wells	Quarterly
Hope of Seville WWTP/Groundwater	1 well	Bi-Annual
Ocean Dunes WWTP/Groundwater	1 well	Bi-Annual
Spruce Creek WTP/Groundwater	5 wells	Quarterly

Ground Water Parameters	Number of Events per year
Nitrate	170
TDS	188
Chloride	200
Fecal Coliform	180
pH	200
Sodium	84
Sulfate	84
Turbidity	200
TTHM	40
Bis(2-ethylhexyl)phlate (BEPH)	8

Volusia County Water Resources and Utilities will provide sample collection for parameters identified in the wastewater, drinking water and ground water tables below.

The **estimated** annual wastewater testing requirements are listed in the table below.

WASTEWATER:	Number of Events per year
CBOD 5	400
Fecal Coliform, MF	1145
Nitrate	200
TKN: Kjeldahl N, Total	1
Sludge analysis, 503.18	4
TSS	1260
TRPH	12
Giardia and Cryptosporidium	4 (in a five year period)
Primary & Secondary Potable Water Chemical Analysis (Reuse Requirement)	5 (in a five year period)

The **estimated** triennial drinking water testing requirements are listed in the table below.

DRINKING WATER:	Number of Events/3-year cycle
Unregulated Group List One	4
Asbestos	11
Inorganic Analysis	10
Lead & Copper	1,220
Nitrate	50
Nitrite	50
DRINKING WATER (cont):	Number of Events/3-year cycle

Ortho-phosphates	10
Pesticides and PCB's	10
Radiochemical Analysis: Gross Alpha including Uranium	10
Radiochemical Analysis: Radium 228 + Radium 226	10
Secondary Chemical Analysis	10
Total Coliform	4,300
Trihalomethane Analysis	93
Total Haloacetic Acids Analysis	93
Volatile Organic Analysis	10
Chloride	160
Sulfate	45
Calcium	45
Magnesium	45
Sodium	45
Potassium	45
Total Iron	45
Total Hardness	45
TDS	160
Specific Conductance	57
pH	45
Total Alkalinity	38
Turbidity	11
Ammonia	60
Total Nitrogen	60
Fluoride	60
Manganese	12
Boron	12
Total Sulfide	24
Total Organics	45
Dioxin	12

Other sampling and laboratory work shall be on an as needed basis to satisfy NPDES Permit and other regulatory requirements.

2.0 GENERAL TERMS & CONDITIONS

2.1 Bid Closing Date

Bids must be received by the Volusia County Purchasing and Contracts Office, Room 302, Third Floor, 123 West Indiana Avenue, DeLand, FL, 32720-4608, **no later than 3:00 p.m., EDT, on Friday, September 19, 2014.** Bids received after this time will not be considered.

2.2 Proposed Schedule

August 13, 2014 Invitation to Bid Available
August 28, 2014 Pre-bid Conference
September 5, 2014 Last Day to Receive Written Questions
September 19, 2014 Bid Closing Date

2.3 Delivery of Bids

DO NOT RESPOND TO THIS SOLICITATION ON LINE

All Bids shall be sealed and delivered or mailed to (faxes/e-mails will *not* be accepted):

County of Volusia, Florida
Purchasing and Contracts Office, Room 302
123 West Indiana Avenue, 3rd floor
DeLand, Florida 32720-4608
Mark package(s) **“Bid #14-B-148AK, Laboratory Analysis and Sampling”**

Note: Please ensure that if a third party carrier (Federal Express, UPS, USPS, etc.) is used, that the third party is properly instructed to deliver the Bid Submittal **only** to Room 302, in the Purchasing and Contracts Office on the third (3rd) floor at the above address. To be considered, a Bid must be received and accepted in the Purchasing and Contracts Office before the Bid closing date and time.

2.4 Pre-bid Conference

- A. A pre-bid conference will be held in the **Budget Conference Room, Third Floor, 123 W. Indiana Ave., DeLand, FL 32720, at 9:30 a.m., EDT, Thursday, August 28, 2014.** While this is not mandatory, all interested parties are encouraged to attend and participate.
- B. In accordance with the American Disabilities Act and Section 286.26, Florida Statutes, persons with disabilities needing a special accommodation to participate in the proceedings, or an interpreter to participate in any proceedings, should contact the County’s ADA Coordinator at 386-248-1760 for assistance, at least two (2) business days before any meeting date.

Assisted listening system receivers are available for the hearing impaired, and can be obtained from the Deputy Clerk by contacting the County’s ADA Coordinator at 386-248-1760.

Read the full ADA Notice under The American with Disabilities Act (Title II), at <http://www.volusia.org/core/fileparse.php/4175/urlt/ADANotice.pdf>.

Read the [County of Volusia Grievance Procedure](#) under The Americans with Disabilities Act (Title II).

2.5 Public Bid Opening

- A. Pursuant to Section 119.071, Florida Statutes, Bids or proposals (“responses”) and the completed tabulation will be available for inspection within thirty (30) days of response opening. Contact the Purchasing and Contracts Office during regular business hours to inspect responses and the completed tabulation or go to <http://vcservices.vcgov.org/bidlistnet1/> for inspection of the completed tabulation. The foregoing notwithstanding, if, prior to the County’s making responses available for inspection, the County rejects all responses and concurrently provides notice of the County’s intent to reissue the solicitation, then the County may avail itself of the exemption for rejected responses set forth in Section 119.071, Florida Statutes, to the extent such Section may apply.
- B. In accordance with the American Disabilities Act and Section 286.26, Florida Statutes, persons with disabilities needing a special accommodation to participate in the proceedings, or an interpreter to participate in any proceedings, should contact the County’s ADA Coordinator at 386-248-1760 for assistance, at least two (2) business days before any meeting date.

Assisted listening system receivers are available for the hearing impaired, and can be obtained from the Deputy Clerk by contacting the County’s ADA Coordinator at 386-248-1760.

Read the full ADA Notice under The American with Disabilities Act (Title II), at <http://www.volusia.org/core/fileparse.php/4175/urlt/ADANotice.pdf>.

Read the [County of Volusia Grievance Procedure](#) under The Americans with Disabilities Act (Title II).

2.6 Public Records

Public Records - §119.0701, Florida Statutes. Contractor acknowledges that the services and work to be performed pursuant to this Agreement may be performed by the County itself as a political subdivision of the State of Florida, which is subject to the public records requirements of Chapter 119, Florida Statutes and Article I, §24 of the Florida Constitution. Given the foregoing, the Contractor hereby agrees to:

- A. Keep and maintain public records that ordinarily and necessarily would be required by the County to perform the services and work provided pursuant to this Agreement;
- B. Provide the public with access to public records on the same terms and conditions that the County would provide the records and at a cost that does not exceed the

cost provided in Chapter 119, Florida Statutes, or as otherwise may be provided by law;

- C. Ensure that public records that are statutorily exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law;
- D. Meet all requirements for retaining public records and transfer, at no cost, to the County all public records in the possession of the Contractor upon termination of the Agreement and destroy any duplicate public records that are statutorily exempt or confidential and exempt from statutory public records disclosure requirements. For the purposes of complying with this paragraph, all records stored electronically must be provided to the County in a format that is compatible with the information technology systems of the public agency;
- E. In responding to any public records request, Contractor shall (i) notify the County of the request and the Contractor's intentions with regard to such request and (ii) provide the County with copies of all records requested and produced, as well as copies of all correspondence between the Contractor and the requestor. Contractor further agrees not to release any records that are statutorily exempt from disclosure or statutorily confidential and exempt without first receiving prior written authorization from the County, it being understood that the legislature has designated such records exempt or otherwise confidential based upon important public policy or safety reasons.

Contractor shall indemnify the County for and hold the County harmless against any and all claims, damage awards, and causes of action arising from the Contractor's failure to perform or otherwise adhere to the requirements of this Section, including, but not limited to, any third party claims or awards for attorneys fees and costs arising therefrom, claims for negligent disclosure of confidential or exempt records, and claims for failure to produce or otherwise timely produce records subject to disclosure. County shall further be authorized to seek declaratory, injunctive, or other appropriate relief from a court of competent jurisdiction on an expedited basis to enforce the requirements of this Section, it being understood that the maintenance and production of public records is of paramount public importance under Florida law. Regardless of the foregoing, the enumeration of the remedies recited herein shall not be interpreted to limit or otherwise restrict the County from seeking any other appropriate cause of action against or remedy from the Contractor, whether in law or in equity, in the County's enforcement of the requirements of this Section.

2.7 Bid Submittal Form

- A. See *Submittal Requirements* for complete details.
- B. Each Bidder shall submit five (5) complete sets of the Bid Submittal:
 - **One (1)** hard copy marked "ORIGINAL"
 - **Three (3)** hard copies marked "COPY"Note: It is not necessary to return every page of the original solicitation document with the hard copies of the Bid Submittal ORIGINAL and

COPY(ies); return only the pages that require signatures or information as detailed in Section 3.0.

- **One (1) COMPLETE** electronic copy on a CD or USB drive in PDF format (Excel spreadsheets shall not be recorded in PDF). The electronic copy of the Bid Submittal shall include all submittal requirements as detailed in Section 3.0.

Note the solicitation number and name of company on the CD or USB drive.

Do not send confidential information, proprietary information, or trade secrets.

- C. Terms and conditions differing from those in this Bid shall be cause for disqualification of the Bid Submittal.
- D. The Invitation to Bid page and the Bid Submittal Form must be signed by an official authorized to legally bind the Bidder to all Bid provisions. The Bid Submittal Form (Section 4.0) shall be signed by an authorized agent of the firm with documentation, such as a Memorandum of Authority, that the individual is authorized to commit the firm to a contract.

2.8 Questions, Exceptions, and Addenda Concerning ITB #14-B-148AK

- A. It is incumbent upon each Bidder to carefully examine this solicitation's specifications, scope of work/service, terms, and conditions. Questions and exceptions concerning any Section of this Bid shall be directed by letter, facsimile transmission or by e-mail to the Procurement Analyst named in 2.8, B, below, who shall be the official point of contact for this Bid. Questions and exceptions shall be submitted no later than fourteen (14) days before the closing date. Thereafter, no further questions or exceptions will be accepted or reviewed by the County and Bidders' right to submit questions or exceptions will terminate and any questions or exceptions not previously made shall be deemed waived. The issuance of a written addendum is the only official method by which interpretation, clarification, or additional information can be given and oral representations will not be binding on the County.
- B. Mark cover page or envelope(s) "Questions, Exceptions and Addenda Concerning ITB #14-B-148AK, Lab Analysis and Sampling.

Submit questions to:

Andrew G. Kokitus, Procurement Analyst
Telephone:.....386-943-7009
Fax: 386-740-5158
E-mail:.....akokitus@volusia.org

- C. If it becomes necessary for the County to revise any part of this ITB, an addendum will be posted on the County's web site. It is each Bidder's responsibility to check the Volusia County web site for any addenda at <http://vcservices.vcgov.org/bidlistnet1>. Each Bidder should ensure that they have received all addenda to this ITB before submitting their proposal. In their

proposals, Bidders must provide proof of receipt of each addendum by signing and returning each addendum to the County. Failure to provide this proof may cause Bidder's proposal to be rendered non-responsive.

- D. Each addendum issued by the County shall become a material part of this solicitation. The resulting Agreement shall be the final decision on the subject of the addendum.

2.9 Award

The County reserves the right to award the Agreement to the Bidder(s) that the County deems to offer the lowest responsive and responsible Bid(s), as defined elsewhere in this solicitation. The County is therefore not bound to accept a Bid based only on lowest price. In addition, the County has the sole discretion and reserves the right to cancel this ITB, to reject any/all Bids, to waive any/all informalities and/or irregularities, or to re-advertise with either the identical or revised specifications, if it is deemed to be in the best interest of the County to do so. Nothing prohibits the County from rejecting / rebidding when responses exceed budget and the County must change the solicitation to lower costs. The County also reserves the right to make multiple awards based on experience and qualifications or to award only a portion of the items and/or services specified, if deemed to be in the County's best interest or award only a portion of the solicitation.

2.10 Local Bid Preference

Effective January 1, 2012, Volusia County adopted a local Bid preference. A Bidder or prime contractor which has a permanent location at least six (6) months prior to the Bid closing, as proven by a business tax receipt, in the following counties: Lake, Orange, Osceola, Seminole or Volusia County ("Local"), shall be granted a preference of three percent (3%) of the total Bid price or quote. A Bidder which is a prime contractor and is utilizing subcontractors, and the Bid price or quote of the work to be performed by all subcontractors, that qualify as a local business, constitutes fifty-one percent (51%) or greater of the total work to be performed through subcontracting a two percent (2%) Bid preference will apply. In the event that a prime contractor qualifies for a preference and subcontractor qualifies for a preference, the preference shall not exceed a total of five percent (5%). Preference shall not be given to Bids where the difference of the total Bid price or quote exceeds twenty-five thousand dollars (\$25,000.00) from the nearest competing Bid price or quote for that solicitation.

This Section does not apply to any purchase that is funded, in whole or in part, by an entity prohibiting local preference by grant agreement or applicable federal, state, or local law. Solicitations for emergency purchases subject to Section 2-275 of the Code are additionally exempt. All Bidders, including prime and subcontractors, awarded an Agreement as a part of this process must maintain its status as a local business through the term of the Agreement. Any Bidder, including prime and subcontractors, awarded an Agreement as a result of this preference will be required to post any job openings for this project with the Center for Business Excellence (CBE). Noncompliance with the requirements of this Section will be deemed as a material breach and may be subject to Agreement termination or disqualification from bidding on future projects.

This Bid is not funded by monies that prohibit this provision and local preference does apply.

2.11 Definition of Responsive and Responsible for this Bid

Each Bid submittal shall be evaluated for conformance as responsive and responsible using the following criteria:

- A. Proper submittal of ALL documentation as required by this Bid. (Responsive)
- B. The greatest benefits to Volusia County as it pertains to: (Responsible)
 - 1. Total Cost (per Attachment A);
 - 2. Delivery;
 - 3. Past Performance. In order to evaluate past performance, all Bidders are required to submit a list of six (6) references completed within the last three (5) years that are the same or similar in magnitude to this ITB. Three (3) reference shall be from Solid Waste departments and three (3) shall be for Water Utilities departmentents. The County of Volusia shall not be listed as a reference;
 - 4. All technical specifications associated with this Bid;
 - 5. Resume of Project Manager;
 - 6. Financial Stability: Demonstrated ability, capacity and/or resources to acquire and maintain required staffing; and,
 - 7. Inspection reports from different governing bodies as specified in §1.2(D)

Bidders are reminded that award may not necessarily be made to the lowest Bid. Rather, award will be made to the lowest responsive, responsible, Bidder whose Bid represents the best overall value to the County when considering all evaluation factors.

2.12 Other Agencies

- A. All Bidders awarded Agreements from this Bid may, upon mutual agreement, permit any municipality or other governmental agency to participate in the Agreement under the same prices, terms, and conditions, if agreed to by both parties.
- B. It is understood that at no time will any city, municipality, or other agency be obligated for placing an order for any other city, municipality, or agency; nor will any city, municipality, or agency be obligated for any bills incurred by any other city, municipality, or agency. Further, it is understood that each agency will issue its own purchase order to the awarded Bidder(s).

2.13 F.O.B. Point

The F.O.B. point for this Agreement and for all purchases made under it shall be as specified by the using department (in accordance with the Bid Submittal Form), in Volusia County, Florida. Delivery will not be complete until the using department has accepted each item. Delivery to a common carrier shall not constitute delivery to the ordering agency. All disputes shall be between the Contractor and the carrier.

2.14 Use of County Logo

The County owns and retains all proprietary rights in its logos, trademarks, trade names, and copyrighted images (Intellectual Property). As such, nothing in this solicitation permits or shall be construed as authorizing Bidder to use or display County's Intellectual Property on Bidder's submittal documents or proposal (including any exhibits attached thereto) submitted to County by or on behalf of Bidder in response to this solicitation. The County has the right to redact the County Logo displayed on any proposal submitted.

2.15 Assignment

Contractor may not assign or otherwise convey Contractor's rights and/or obligations under this Agreement without first providing County with a processing fee of Five Hundred Dollars (US \$500.00) and obtaining County's prior written consent, which consent County may withhold, limit and/or condition in County's sole discretion, including, but not limited to posting a performance bond. Any consent by the County under this Section shall be by written amendment to the Agreement in a form and substance specified by the County in its sole discretion. If Contractor desires to assign or otherwise convey its rights and/or obligations under this Agreement, Contractor shall, no less than one hundred-twenty (120) days prior to the assignment's proposed effective date, provide County with a written request for County's consent.

Failure by the Contractor to obtain the County's consent in accordance with this Section prior to assignment or other conveyance shall: 1) constitute a material breach of the Agreement; and 2) entitle the County to retain any and all legal rights, claims and defense to enforce this Section, including, but not limited to, injunctive, declaratory, damages and attorney's fees and costs. Payment of any sum by the County in accordance with the Agreement to the Contractor or any person or entity prior to the Contractor obtaining the County's consent to the assignment shall not constitute a waiver of the rights of the County under this Section 2.15.

Nothing herein shall preclude the right of the County to waive its rights under this Section but no waiver shall be granted by the County without amendment to the Agreement. The Contractor is hereby placed on notice that the County may demand a discount of up ten percent (10%) from those rates or compensation for the goods or services established in the Agreement as a condition to execution of the amendment.

2.16 Agreement

- A. The contents of this Bid, any subsequent addenda, and all provisions of the successful proposal deemed pertinent by the County shall be considered as contractual documents and shall become legally binding. A separate Agreement document, other than a Purchase Order or Master Agreement, will not be issued.
- B. The Director of Purchasing and Contracts, County Manager, and County Chair are the sole Contracting Officers for the County of Volusia, Florida, and only they or their designee are authorized to make changes to any Agreement.
- C. The County shall be responsible for only those orders placed by the County on an authorized signed Purchase Order or Master Agreement. The County shall not be

responsible for any order, change, substitution, or any other discrepancy from the Purchase Order or Master Agreement. If there is any question about the authenticity of a Purchase Order, Master Agreement, or change order, the Bidder should promptly contact the Purchasing and Contracts Office at 386-736-5935.

2.17 Disclosure of Bid Content

- A. All material submitted becomes the property of the County and may be returned only at the County's option. The County has the right to use any or all ideas presented in any reply to this Bid. Selection or rejection of any Bid Submittal does not affect this right.
- B. The County of Volusia, Florida, is governed by the Public Record Law, Chapter 119, Florida Statutes (F.S.).

2.18 Disqualification of Bidders

- A. **One (1) Bid:** Only one (1) Bid submittal from an individual firm, partnership or corporation under the same or under different name will be considered. If a Bidder submitted more than one (1) Bid for the work involved, all Bids submitted from such Bidder will be rejected.
- B. **Collusion Among Bidders:** If it is believed that collusion exists among the Bidders, the Bids of all participants in such collusion shall be rejected and no participants in such collusion will be considered in future proposals for the same work.

2.19 Bidder's Responsibility

The Bidder, by submitting a Bid, represents that:

- A. The Bidder has read and understands the Invitation to Bid in its entirety and that the Bid is made in accordance therewith;
- B. The Bidder possesses the capabilities, resources, and personnel necessary to provide efficient and successful service to the County;
- C. The Bidder has made all investigations and examinations necessary to ascertain site and/or local conditions and requirements affecting the full performance of the Agreement and to verify any representations made by the County of Volusia, Florida, upon which the Bidder will rely. If the Bidder receives an award because of its Bid Submittal, failure to have made such investigations and examinations will in no way relieve the Bidder from its obligations to comply in every detail with all provisions and requirements of the Agreement, nor will a plea of ignorance of such conditions and requirements be accepted as a basis for any claim by the Bidder for additional compensation or relief; and
- D. The Bidder will be held responsible for any and all discrepancies, errors, etc., in discounts or rebates which are discovered during the Agreement term or up to and including three (3) fiscal years following the County's annual audit.

2.20 Payment Terms

- A. The County will remit full payment on all undisputed invoices within forty-five (45) days from receipt by the appropriate person(s) (to be designated at time of Agreement) of the invoice(s) or receipt of all products or services ordered.
- B. Pursuant to Chapter 218, Florida Statutes, the County will pay interest not to exceed one percent (1%) per month on all undisputed invoices not paid within thirty (30) days after the due date.
- C. The County has the capability of Electronic Funds Transfer (EFT). List any discounts for prompt payment and/or willingness to accept Electronic Funds Transfer (EFT) and the discount to be applied to such payments. Vendors offering prompt payment discounts, for example 1% - net 10, the discount shall be taken if the check issue date is within specified time period from date of invoice.
- D. By submitting a Bid (offer) to the County of Volusia, Florida, the Bidder expressly agrees that, if awarded a Agreement, the County may withhold from any payment monies owed by the Bidder to the County for any legal obligation between the Bidder and the County including, but not limited to, real property taxes, personal property taxes, fees, and commissions.

2.21 Special Conditions

These County facilities are administrative facilities that provide services to the Volusia County public and any agencies that it serves. As such, activities in all buildings are critical to the provisioning of services to the public and shall not be interrupted by the Bidder's work activities.

2.22 Minor Irregularities

The County reserves the right to waive minor irregularities in Bid Submittals, providing such action is in the best interest of the County. Minor irregularities are defined as those that have no adverse effect on the County's best interests, and will not affect the outcome of the selection process by giving the Bidder an advantage or benefit not enjoyed by other Bidders.

2.23 Licenses, Certificates, and Permits

- A. The County reserves the right to require proof that the Bidder is an established business and is abiding by the ordinances, regulations, and laws of their community and the state of Florida, such as but not limited to: Business Tax Receipts, business licenses, Florida sales tax registration, Federal Employers Identification Number, Registration with the Florida Department of State, Division of Corporations' Sunbiz at www.sunbiz.org, AND;
- B. The Bidder shall be required, upon notification of recommendation of award, to register with the Florida Department of State Division of Corporations at www.sunbiz.org in order to provide services under the resulting Agreement.

- C. If a license is required, the Bidder shall be licensed to perform the required work in accordance with the laws of the State of Florida and local ordinances. Bidder shall also verify that his/her subcontractors are licensed to perform the work in accordance with the laws of the State of Florida and local ordinances.

2.24 Insurance

A. Required Types of Insurance

The Contractor shall purchase and maintain at its own expense, during the term of this Agreement the following types and amounts of insurance with limits no less than those shown below, in the form and from companies satisfactory to the County:

SCHEDULE

LIMITS

Workers' Compensation	Florida Statutory Coverage
Employers Liability	\$100,000. Each Accident
(including Appropriate Federal Acts)	\$500,000. Disease Policy Limit
	\$100,000. Each Employee/Disease

Commercial General Liability	\$2,000,000. General Aggregate
Premises-Operations	\$2,000,000. Products/CompOps Aggregate
Products-Completed Operation.....	\$1,000,000. Personal/Advertising Injury
Blanket Contractual Liability.....	\$1,000,000. Each Occurrence

(The County of Volusia shall be named as an additional insured under all of the above Commercial General Liability coverage.)

Auto Liability.....\$1,000,000. CSL
All autos-owned, hired or no-owned
(Symbol 1 Coverage)

Professional Liability.....\$1,000,000
(Errors & Omissions)

1. Minimum underlying coverages shall include Commercial General Liability, Automobile Liability and Workers' Compensation/Employer's Liability. (Umbrella liability limit will not be required to be carried by subcontractors.)

(If the services provided require the disposal of any hazardous or non-hazardous materials off the job site, the disposal site operator must furnish a certificate of insurance for Pollution Legal Liability with coverage for bodily injury and property damage for losses that arise from the facility that is accepting the waste under this Agreement).

2. Umbrella or Excess Liability policies may be used to obtain the total limits of liability required to meet the required limits of coverage stated above.

Evidence of such coverage should clearly demonstrate the underlying coverages/policies that are included.

3. Workers' Compensation Insurance. Per Section 2.24, A, Workers' Compensation insurance is required for all employees of the Contractor, employed or hired to perform or provide work or services under this Agreement or that is in any way connected with work or services performed under this Agreement, without exclusion for any class of employee, and shall comply fully with the Florida Workers' Compensation Law (Chapter 440, Florida Statutes, Workers' Compensation Insurance) and include Employers' Liability Insurance with limits no less than the statutory amount shown above per occurrence.
 - a. Contractor and its Subcontractors, or any associated or subsidiary company doing work on County property or under this Agreement must be named in the Workers' Compensation coverage or provide proof of their own Workers' Compensation coverage, without exclusion of any class of employee, and with a minimum of the statutory limits per occurrence for Employer's liability coverage. Further, if the Contractor's Subcontractors fail to obtain Workers' Compensation insurance and a claim is made against the County by the uncovered employee of said Subcontractor of the Contractor, the Contractor shall indemnify, defend, and hold harmless the County from all claims for all costs including attorney's fees and costs arising under said employee(s) Workers' Compensation insurance claim(s).
4. Commercial General Liability Insurance. Per Section 2.24, A, Commercial General Liability insurance, with a limit of not less than the amounts shown above with an aggregate limit and per occurrence basis, including coverage for the Contractor's operations, independent Contractors, Subcontractors and "broad form" property damage coverages protecting itself, its employees, agents, Contractors or subsidiaries, and their employees or agents for claims for damages caused by bodily injury, property damage, or personal or advertising injury, products liability/completed operations including what is commonly known as groups A, B, and C (libel, false arrest, slander). Such policies shall include coverage for claims by any person as a result of actions directly or indirectly related to the employment of such person or entity by the Contractor or by any of its Subcontractors arising from work or services performed under this Agreement. Public liability coverage shall include either blanket contractual insurance or a designated contract contractual liability coverage endorsement, indicating expressly the Contractor's Agreement to indemnify, defend, and hold harmless the County as provided in this Agreement. The commercial general liability policy shall be endorsed to include the County as an additional insured. The commercial general liability policy shall provide exclusive coverage for the location or project site where the work or services are to be performed under this Agreement. In the alternative, the commercial general liability policy shall be endorsed to provide the designated aggregate per location

endorsement or equivalent on a form approved or requested by the County Risk Manager.

5. Motor Vehicle Liability. Per Section 2.24, A, the Contractor shall secure and maintain during the term of this Agreement, motor vehicle coverage in the split limit amounts of no less than the amounts shown above per person, per occurrence for bodily injury and for property damage or a combined single limit of the amount shown above **with “Any Auto”, Coverage Symbol 1, providing coverage for all autos operated regardless of ownership,** and protecting itself, its employees, agents or lessees, or subsidiaries and their employees or agents against claims arising from the ownership, maintenance, or use of a motor vehicle.
6. Professional Liability. Per Section 2.24, A, the Contractor shall ensure that it secures and maintains, during the term of this Agreement, Professional Liability insurance with limits of no less than the amount shown above in respect only to the project contemplated by this Agreement. Such policy shall cover all the Contractor’s or its Subcontractor’s professional liabilities whether occasioned by the Contractor or its Subcontractors, or their agents or employees.
 - a. If the Contractor fails to secure and maintain the professional liability insurance coverage required herein, the Contractor shall be liable to the County and agrees to indemnify, defend, and hold harmless the County against all claims, actions, losses or damages that would have been covered by such insurance.
 - b. The Contractor must maintain a retroactive date prior to or equal to the effective date of this Agreement. The Contractor shall purchase a Supplemental Extended Reporting Period (“SERP”) with a minimum reporting period of not less than three (3) years in the event a Subcontractor’s policy is canceled, not renewed, switched to occurrence form, or any other event which requires a purchase of SERP to cover a gap in insurance for claims which may arise under or related to this Agreement. The Contractor’s purchase of the SERP shall not relieve the Contractor of the obligation to provide replacement coverage. In addition, the Contractor shall require have the Subcontractor’s carrier immediately inform the Contractor, and the County of Volusia’s Risk Management Division and the Purchasing and Contracts Division of any contractual obligations that may alter its professional liability coverage under this Agreement.
7. Primary and Excess Coverage. Any insurance required may be provided by primary and excess insurance policies.

B. Insurance Requirements

1. General Insurance Requirements:

- a. All insurance policies shall be issued by insurers licensed and/or duly authorized under Florida Law to do business in the State of Florida and all insuring companies are required to have a minimum rating of A- in the "Best Key Rating Guide" published by A.M. Best & Company, Inc.
- b. Approval by County of any policy of insurance shall not relieve Contractor from its responsibility to maintain the insurance coverage required herein for the performance of work or services by the Contractor or its Subcontractors for the entire term of this Agreement and for such longer periods of time as may be required under other clauses of this Agreement.
- c. Waiver of Subrogation. The Contractor hereby waives all rights against the County and its Subcontractors to the extent of the risk coverage by any insurance policy required hereunder for damages by reason of any claim, demand, suit or settlement (including workers' compensation) for any claim for injuries or illness of anyone, or perils arising out of this Agreement. The Contractor shall require similar waivers from all its Subcontractors. This provision applies to all policies of insurance required under this Agreement (including Workers' Compensation, and general liability).
- d. County Not Liable for Paying Deductibles. For all insurance required by Contractor, the County shall not be responsible or liable for paying deductibles for any claim arising out of or related to the Contractor's business or any Subcontractor performing work or services on behalf of the Contractor or for the Contractor's benefit under this Agreement.
- e. Cancellation Notices. During the term of this Agreement, Contractor shall be responsible for promptly advising and providing the County's Risk Management and the Purchasing and Contracts divisions with copies of notices of cancellation or any other changes in the terms and conditions of the original insurance policies approved by the County under this Agreement within two (2) business days of receipt of such notice or change.
- f. For any on-site work performed by or on behalf of Contractor on County property, the County shall be named as an additional insured or additional named insured subject to review and determination by County's Risk Manager on all policies required under this Agreement except professional liability and workers compensation.
- g. Deductibles Contractors that maintain and administer a self-insured retention or a large deductible program exceeding the insurance requirements listed in this solicitation using a formal program to fund either program may submit an exception in accordance with Section 2.8, Questions, Exceptions, and Addenda Concerning ITB #14-B-148AK, to be considered for this solicitation.

The request must include a summary of the program's design, funding method, and the program's supporting financial information. If additional information is necessary, the County will request more specific information, which must be provided by the Contractor. The County's Risk Manager will review the information submitted and determine whether the program is acceptable to the County.

Contractors with no formal risk management program in place to manage and fund deductibles or self-insured retentions may not be considered. Subject to County approval, Contractor may obtain a letter

of credit in the amount equivalent to the deductible, which shall remain in effect during the term of the Agreement at no additional cost to the County.

C. Proof of Insurance

1. The Contractor shall be required to furnish evidence of all required insurance in the form of certificates of insurance, which shall clearly outline all hazards covered as itemized herein, the amounts of insurance applicable to each hazard and the expiration dates.
2. The Contractor shall furnish proof of insurance acceptable to the County prior to or at the time of execution of this Agreement and the Contractor shall not commence work or provide any service until the Contractor has obtained all the insurance required under this Agreement and such insurance has been filed with and approved by the County. Upon request from the County, the Contractor shall furnish copies of the following types of insurance policies and any changes or amendments thereto, immediately, to the County and County's Risk Management and Purchasing and Contracts Divisions, prior to the commencement of any contractual obligations. This Agreement may be terminated by the County, without penalty or expense to County, if at any time during the term of this Agreement proof of any insurance required hereunder is not provided to the County.
3. All certificates of insurance shall clearly indicate that the Contractor has obtained insurance of the type, amount and classification required by this Section. No work or services by Contractor or its Subcontractors shall be commenced until County has approved these policies or certificates of insurance. Further, the Contractor agrees that the County shall make no payments pursuant to the terms of this Agreement until all required proof or evidence of insurance has been provided to the County. This Agreement may be terminated by the County, without penalty or expense, if proof of any insurance required hereunder is not provided to the County.
4. The Contractor shall file replacement certificates with the County at the time of expiration or termination of the required insurance occurring during the term of this Agreement. In the event such insurance lapses, the County expressly reserves the right to renew the insurance policies at the

Contractor's expense or terminate this Agreement but County has no obligation to renew any policies.

- D. The provisions of this Section 2.24, shall survive the cancellation or termination of this Agreement.

2.25 Safety

The Bidder shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed by the Bidder in performing the work. The Bidder shall at all times comply with the regulations set forth by federal, state, and local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations, and standards. The Bidder shall indemnify and hold harmless the County from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) which may be imposed on the County because of the Bidder, Subcontractor, or supplier's failure to comply with the regulations.

2.26 Governing Law and Venue

All legal proceedings brought in connection with this Agreement shall only be brought in a state or federal court located in the State of Florida. Venue in state court shall be in Volusia County, Florida. Venue in federal court shall be in the United States District Court, Middle District of Florida, Orlando division. Each party hereby agrees to submit to the personal jurisdiction of these courts for any lawsuits filed there against such party arising under or in connection with this Agreement. In the event that a legal proceeding is brought for the enforcement of any term of the Agreement, or any right arising therefrom, the parties expressly waive their respective rights to have such action tried by jury trial and hereby consent to the use of non-jury trial for the adjudication of such suit.

All questions concerning the validity, operation, interpretation, construction and enforcement of any terms, covenants or conditions of this Agreement shall in all respects be governed by and determined in accordance with the laws of the State of Florida without giving effect to the choice of law principles thereof and unless otherwise preempted by federal law.

2.27 Additional Terms

The attached Invitation to Bid cover pages contains additional terms and conditions. These written specifications within this solicitation will take precedence over terms and conditions on the Invitation to Bid cover pages.

2.28 Award Term

The County is looking to promote partnership relationships within the policies and procedures of public procurement. Pursuant toward that end, the successful Contractor(s) shall be awarded an Agreement for an initial three (3) year term with the option for two (2) subsequent one (1) year renewals. All renewals will be contingent upon mutual written agreement and, when applicable, approval of County Council.

2.29 Price Redeterminations

- A. The Contractor may petition the Director of Purchasing and Contracts for price redetermination based on the increased costs of wages and fuel. Any price redetermination will be based solely upon changes as documented by the Employment Cost Index (ECI) or Producer Price Index (PPI) as published by the Bureau of Labor Statistics. The base index number for the ECI will be for the quarter in which the Bid opens. The base index number for the PPI will be for the month the Bid opens. Any subsequent price redeterminations shall use the last price redetermination as the “base index number”.
- B. Wage Price Redetermination may be requested on the anniversary date of the Agreement. The Contractor shall refer to the Employment Cost Index, Total Compensation, Private Industry, Index Number and Occupational Group at <http://data.bls.gov/PDQ/outside.jsp?survey=ci>. The base figure will be tied to Professional, scientific, and technical services under the heading Service Providing Industries.

Minimum Wage Price Redetermination. If the minimum wage increases during the term of the Agreement and any renewal, the Contractor may petition the Director of Purchasing and Contracts for price redetermination for those job categories where the pay to the Contractor’s employee(s) is the current minimum wage. The County will grant an increase of exactly the amount of the minimum wage increase (not the percentage increase). The Contractor must increase the pay to the employee(s) by the amount the Contractor has requested, which shall not exceed the amount of the minimum wage increase. The amount paid to the Contractor will be the increase plus any written and documented increase in FICA, Medicare, and Workers' Compensation insurance. The Contractor must supply written documentation of any other increase that is beyond the scope and control of the Contractor. All written documentation must satisfy the reasonable expectations of the Director of Purchasing and Contracts and Internal Auditor.

Example: Minimum wage increases from \$7.31 to \$7.56 per hour. The Contractor may petition for an increase of \$0.25 per hour to be paid to the affected employee(s) and shall provide written and documented cost increases for FICA, Medicare and Workers' Compensation. The resulting increase in costs shall be incorporated into fees/rates billed to the County.

If the Contractor bills the County at a higher price according to any price redetermination granted by the County, and the Contractor fails to increase the hourly rate paid to the employee for the same period, the Contractor will be considered in Agreement default and the Agreement will be immediately terminated.

- C. Fuel Price Redetermination may be requested if/when the price of fuel increases by a minimum of ten (10%) percent. If the Contractor petitions for such an increase, the Contractor shall also petition for a price redetermination decrease if/when the price of fuel decreases by a minimum of ten (10%) percent; failure to make such petition may be grounds for Agreement termination. Any fuel price redetermination will be based solely upon changes as documented by the

Producer Price Index (PPI) for the commodities “Unleaded Gasoline - WPU057104” or “#2 diesel fuel - WPU057303”.

D. All Price Redeterminations shall be calculated as follows:

Example: Contractor indicated on the Bid Submittal Form that thirty percent (30%) of the cost to provide the product/service is directly attributed to the redetermination category (wages, fuel, or materials).

Base index PPI	=		\$179.20
Current applicable PPI	=		\$200.50
PPI increased by \$10.30 (\$200.50 – \$179.20 = \$21.30)			
		or (21.30 ÷ \$179.20 = .1188).....	11.9%

Unit cost of the service is.....	\$100.00
30% of \$100.00 is directly attributed to the redetermination category.....	\$30.00
\$30.00 X 11.9%	=\$3.57
New unit price for the product/service is (\$100 + \$3.57).....	\$103.57

E. If the County and the Contractor cannot agree on any price redetermination, then the Agreement will expire without penalty or further expense to either party. The County reserves the right to award any remaining tasks under the expired Agreement to the next most responsive and responsible, and available Contractor.

2.30 Unusual Costs

The Bidder may petition the County at any time for an additional rate adjustment on the basis of extraordinary and unusual changes in the costs of operation that could not reasonably be foreseen by a prudent operator and which, by all reasonable expectations, will continue for at least one (1) year. If the Bidder petitions for such an increase, the Bidder shall also petition for a rate reduction on the basis of extraordinary and unusual changes in the costs of operation that could not reasonably be foreseen by a prudent operator and which, by all reasonable expectations, will continue for at least one (1) year; failure to make such petition may be grounds for Agreement termination.

The Bidder’s request shall contain substantial proof and justification to support the need for the rate adjustment. The County may request from the Bidder, and the Bidder shall provide, such further information as may be reasonably necessary in making its determination. The County shall approve or deny the request, in whole or in part, within sixty (60) days of receipt of the request and all other additional information required by the County. Any price redetermination shall be solely based upon the documentation provided and the County reserves the right to rescind any price relief granted should the circumstances change and prices go down.

2.31 Waiver of Claims

Once this Agreement expires, or final payment has been requested and made, the awarded Bidder shall have no more than thirty (30) calendar days to present or file any claims against the County concerning this Agreement. After that period, the County will

consider the Bidder to have waived any right to claims against the County concerning this Agreement.

2.32 Termination

- A. The resulting Agreement may be terminated by (a) either party upon the material breach by the other party if such breach is not cured within thirty (30) days written notice from the non-breaching party, or (b) by County upon at least thirty (30) calendar days, prior written notice to Contractor whenever the County shall determine that such termination is in the best interest of the County.
- B. County may terminate the resulting Agreement for convenience or non-appropriation upon at least thirty (30) calendar days' prior written notice to Contractor.
- C. The Contractor may cancel the resulting Agreement with one-hundred eighty (180) days written notice to the Director of Purchasing and Contracts. Failure to provide proper notice to the County may result in the Bidder being barred from future business with the County.
- D. After Contractor's receipt of a notice of termination pursuant to Paragraph A above (or to the extent Contractor has not cured a material breach within thirty (30) days notice from County), and except as otherwise directed by the County, the Contractor shall:
 - 1. Stop work under the Agreement or applicable statement of work on the date specified in the notice of termination;
 - 2. Place no further orders or subcontracts for materials, services or facilities;
 - 3. Terminate all orders and subcontracts to the extent that they relate to the performance of work or services terminated by the notice of termination; and
 - 4. With the approval of the County and to the extent required by the County, settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts. County's approval of such settlements shall be final for all the purposes of this Section 2.32, Termination.
- E. After receipt of a notice of termination, the Contractor shall submit to the County its termination claim for amounts owed by County (which shall include, without limitation, all amounts due for work or services performed through the date of termination), in the form and with a certification as prescribed by the County. Such claim shall be submitted promptly but in no event later than thirty (30) days from the effective date of termination, unless one or more extensions in writing are granted by the County, upon request of the Contractor made in writing within such thirty (30) days period or authorized extension thereof. Upon failure of the Contractor to submit its termination claim within the time allowed, the County may determine on the basis of information available to it, the amount, if any, due

to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined. In the event County terminates for convenience or non-appropriation, Contractor shall not be obligated to refund to County any prepaid fees.

- F. **Non-Appropriation.** The resulting Agreement may be terminated by the County or Contractor if the County does not appropriate the funding in any fiscal year necessary to pay the compensation set forth in the resulting Agreement.
- G. In the event that the resulting Agreement is terminated by the County or Contractor for non-appropriation, Contractor shall be paid in accordance with terms of the resulting Agreement. Contractor shall be paid to the date of termination on a prorated basis for any for any work that has been completed but not yet been paid. County's obligation to pay Contractor under this Section 2.32, Termination, and the resulting Agreement is limited to the budgeted amount for the fiscal year approved by the Volusia County Council for the then current fiscal year of the resulting Agreement. Contractor shall have no right to compel the Volusia County Council to appropriate funds for any fiscal year to pay the compensation.
- H. Upon being notified of County's election to terminate for default of Contractor, non-appropriation or convenience, Contractor and its Subcontractors shall refrain from performing further work or incurring additional expenses under the terms of the resulting Agreement, which is not specifically authorized in the notice of termination.
- I. If termination of the resulting Agreement occurs for any reason:
 - 1. Except as otherwise provided in the resulting Agreement, Contractor shall return to the County, or destroy, all County confidential information in Contractor's possession and shall certify the destruction or return of said information in a written document signed by the duly authorized representative of the Contractor that all such information has been destroyed or returned, provided that Contractor shall be permitted to retain an archival copy of any such confidential information (provided it continues to maintain the confidentiality of such as prescribed herein) to the extent necessary to have a record of the Service performed hereunder.
 - 2. For all undisputed outstanding invoices submitted to the County for work completed or deliverables delivered prior to the effective date of the termination, the County shall cause payments to be made to Contractor within forty-five (45) days of receipt of invoice. Contractor shall invoice the County for any sums Contractor claims to be owed by County under the resulting Agreement for work performed from the last invoice to the effective date of termination. County shall review such invoice for payment within fifteen (15) days of receipt and County shall pay any undisputed amount within forty-five (45) days.
- J. In the event of termination by the County for non-appropriation, for all items or products ordered by Contractor before receipt by Contractor of the notice of

termination which Contractor could not cancel without imposition of a fee, the County shall cause payments to be made to Contractor within forty-five (45) days of receipt of an undisputed invoice for all cancellation, restocking or residual fees resulting from the cancellation or return of third party products ordered from or shipped by the vendor thereof prior to the effective date of the termination.

2.33 Incurred Expenses

This ITB does not commit the County of Volusia to award an Agreement, nor shall the County of Volusia be responsible for any cost or expense which may be incurred by the Bidder in preparing and submitting the submittal called for in this ITB, or any cost or expense incurred by the Bidder prior to the execution of an Agreement.

2.34 Minimum Specifications

The specifications listed in the scope of service are the minimum required performance specifications for this ITB; they are not intended to limit competition nor specify any particular Bidder, but to ensure that the County receives quality services.

2.35 Compliance with Laws and Regulations

The Bidder shall be responsible to know and to apply all applicable federal and state laws, all local laws, ordinances, rules, regulations, and all orders and decrees of bodies or tribunals having jurisdiction or authority which in any manner affect the work, or which in any way affect the conduct of the work. Bidder shall observe and comply with all such laws, ordinances, rules, regulations, orders, and decrees for all work or services performed under this Agreement. The Bidder shall protect and indemnify County and all its officers, agents, servants, or employees against any liability or claim made against the County arising from or based on the violation of any such law, ordinance, rule, regulation, order, or decree caused or committed by Bidder, its representatives, Subcontractors, sub-consultants, professional associates, agents, servants, or employees.

At time of Bid submittal, Bidder shall hold the required licensure to be the prime Contractor for all work to be performed under the Bid Agreement. If Bidder proposes to use a Subcontractor or sub-consultant to perform any work under the Bid Agreement such subcontractor and/or sub-consultant shall, at the time of Bid submittal, hold the required licensure for all work to be performed under this Bid Agreement as a subcontractor and shall maintain such license(s) in full force and effect during the term of this Bid Agreement. All licenses and permits required to perform Bidder's duties under this Bid Agreement whether such license or permit is required by the federal government, State of Florida, Volusia County, or any municipality, shall be at Bidder's sole cost and expense, and shall not be a cost of the County. All required licenses and permits shall be maintained in full force and effect during the term of this Bid Agreement.

2.36 Limitation of Liability and Indemnification of County

- A. The Contractor shall, at its own expense, indemnify, defend, and hold harmless the County and its public officials (elected and appointed), successors and successors in interest, officers, agents, attorneys and employees, from and against all claims of every kind and nature (including losses incurred or suffered in

consequences either of bodily injury to an person or damage to property), damages, losses and expenses, including reasonable attorney's fees to the extent caused by the negligence, recklessness or intentionally wrongful conduct of the Contractor and its Subcontractors or Sub-subcontractors or agents performing work or services under this Agreement, caused in whole or in part by any negligent act or omission of Contractor, Subcontractors or Sub-subcontractors, anyone employed by any of them or anyone for whose acts any of them may be liable, except the Contractor will not be required to indemnify and hold the County harmless if such claim, damage, loss and expense is the result of the sole negligence of the County, or anyone employed by the County or anyone for whose acts the County may be liable. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Agreement.

- B. In all claims against the County, or any of its public officials (elected and appointed), successors and successors in interest, officers, agents, attorneys, and employees by any employee of Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, no indemnification obligation shall be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor, or any Subcontractor or Sub-subcontractor under Florida's Workers' Compensation acts, disability benefit acts, or other employee benefit acts.
- C. Contractor's indemnification obligations under this Section 2.36, Limitation of Liability and Indemnification of County, are subject to County or the indemnified party giving Contractor (a) prompt written notice of any indemnifiable claim; (b) reasonable assistance in Contractor's defense of the indemnifiable claim; and (c) sole authority to defend or settle the indemnifiable claim, provided that County or the indemnified party shall have the right to approve any settlement of an indemnifiable claim to the extent such settlement imposes any obligations on County or the indemnified party. County, or the indemnified party, may retain its own legal counsel at its own expense to monitor such litigation
- D. Sovereign Immunity. County expressly retains all rights, benefits and immunities of sovereign immunity in accordance with Section 768.28, Florida Statutes (as amended). Notwithstanding anything set forth in any Section of this Agreement to the contrary, nothing in this Agreement shall be deemed as a waiver of immunity of limits of liability of County beyond any statutory limited waiver of immunity of limits of liability which may have been adopted by the Florida Legislature or may be adopted by the Florida Legislature and the cap on the amount and liability of County for damages regardless of the number or nature of claims in tort, equity or contract shall not exceed the dollar amount set by the legislature for tort. Nothing in this Agreement shall inure to the benefit on any third party for the purpose of allowing any claim against County which would otherwise be barred under the Doctrine of Sovereign Immunity or operation of law.

2.37 Records & Right to Audit

The Bidder shall maintain such financial records and other records as may be prescribed by the County or by applicable federal and state laws, rules, and regulations. The Bidder

shall retain these records for a period of three (3) years after final payment, or until the County audits them, whichever event occurs first. These records shall be made available during the term of the Agreement and the subsequent three (3) year period for examination, transcription, and audit by the County, its designees, or other entities authorized by law.

2.38 Change in Scope of Work/Service

- A. The County may order changes in the work/service consisting of additions, deletions, or other revisions within the general scope of the Agreement. No claims may be made by the Bidder that the scope of the project or of the Bidder's services has been changed, requiring changes to the amount of compensation to the Bidder or other adjustments to the Agreement, unless such changes or adjustments have been made by written amendment or change order to the Agreement signed by the County Representative, County Director of Purchasing and Contracts, and the Bidder.
- B. If the Bidder believes that any particular work/service is not within the scope of work/service of the Agreement, is a material change, or will otherwise require more compensation to the Bidder, the Bidder must immediately notify the County's Representative in writing of this belief. The Bidder and County shall negotiate modifications to the Agreement in good faith and agree upon equitable adjustment for any changes in services or other obligations required of the Bidder due to such modifications. The Bidder must assert its right to an adjustment under this clause within thirty (30) days from the date of receipt of the written order.
- C. The County reserves the right to negotiate with the awarded Bidder(s) without completing the competitive bidding process for materials, products, and/or services similar in nature to those specified within this ITB for which requirements were not known when the ITB was released.

2.39 Modifications Due to Public Welfare or Change in Law

The County shall have the power to make changes in the Agreement as the result of changes in law and/or ordinances of Volusia County to impose new rules and regulations on the Bidder under the Agreement relative to the scope and methods of providing services as shall, from time to time, be necessary and desirable for the public welfare. The County shall give the Bidder notice of any proposed change and an opportunity to be heard concerning those matters. The scope and method of providing services as referenced herein shall also be liberally construed to include, but is not limited to, the manner, procedures, operations and obligations, financial or otherwise, of the Bidder. In the event any future change in Federal, State or County law or the ordinances of Volusia County materially alters the obligations of the Bidder, or the benefits to the County, then the Agreement shall be amended consistent therewith. Should these amendments materially alter the obligations of the Bidder, then the Bidder or the County shall be entitled to an adjustment in the rates and charges established under the Agreement. Nothing contained in the Agreement shall require any party to perform any act or function contrary to law. The County and Bidder agree to enter into good faith negotiations regarding modifications to the Agreement, which may be required in order

to implement changes in the interest of the public welfare or due to change in law. When such modifications are made to the Agreement, the County and the Bidder shall negotiate in good faith, a reasonable and appropriate adjustment for any changes in services or other obligations required of the Bidder directly and demonstrably due to any modification in the Agreement under this clause.

2.40 Right to Require Performance

- A. The failure of the County or Bidder at any time to require performance by the other of any provision hereof shall in no way affect the right of the County or Bidder thereafter to enforce same, nor shall waiver by the County of any breach of any provision hereof be taken or held to be a waiver of any succeeding breach of such provision or as a waiver of any provision itself.
- B. In the event of failure of the Bidder to deliver services in accordance with the Agreement terms and conditions, the County, after due written notice, may procure the services from other sources and hold the Bidder responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies that the County may have.

2.41 Force Majeure

Neither party shall be liable for any failure or delay in the performance of its obligations under the Agreement to the extent such failure or delay necessarily results from the occurrence of a Force Majeure Event beyond the control or reasonable anticipation of either party, including, but not limited to, compliance with any unanticipated government law or regulation not otherwise in effect at the time of execution of this Agreement, acts of God, unforeseeable governmental acts or omissions, fires, strikes, natural disasters, wars, riots, transportation problems, and/or any other unforeseeable cause whatsoever beyond the reasonable control of the parties (and such cause being referred to as a “Force Majeure Event”). Accordingly, the parties further agree that:

- A. Upon the occurrence of Force Majeure Event, the non-performing party shall be excused from any further performance of those obligations under this Agreement that are affected by the Force Majeure Event for as long as (a) the Force Majeure Event continues; and (b) the non-performing party continues to use commercially reasonable efforts to recommence performance whenever and to whatever extent possible without delay.
- B. Upon the occurrence of a Force Majeure Event, the non-performing party shall notify the other party of the occurrence of such event and describe in reasonable detail the effect(s) of such event upon the party’s performance of its obligations and duties pursuant to this Agreement. Such notice shall be delivered or otherwise communicated to the other party within two (2) business days following the failure or delay caused by the Force Majeure Event, or as soon as possible after such failure or delay if the Force Majeure Event precludes the non-performing party from providing notice within such time period.
- C. In the event of a Force Majeure Event, the time for performance by the parties under the applicable statement of work shall be extended for a period of time

equal to the time lost by reason of such cause through execution of a Change Order pursuant to the terms of the Agreement.

2.42 Bidder's Personnel

During the performance of the Agreement, the Bidder agrees to the following:

- A. The Bidder shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, handicap, or national origin, except when such condition is a bona fide occupational qualification reasonably necessary for the normal operations of the Bidder. The Bidder agrees to post in conspicuous places, visible to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The Bidder, in all solicitations or advertisements for employees placed by or on behalf of the Bidder, shall state that such Bidder is an Equal Opportunity Employer;
- B. The Bidder shall be responsible for ensuring that its employees, agents, and subcontractors comply with all applicable laws and regulations and meet federal, state, and local requirements related to their employment and position;
- C. The Bidder certifies that it does not and will not during the performance of the Agreement employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986, as amended;
- D. Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this Section 2.42;
- E. The Bidder shall include the provisions of the foregoing paragraphs A, B, C, and D, above, in every subcontract or purchase order so that the provisions will be binding upon each Bidder;
- F. The Bidder and any Subcontractor shall pay all employees working on this Agreement not less than minimum wage specified in the Fair Labor Standards Act (29 CFR 510-794) as amended;
- G. Any information concerning the County, its products, services, personnel, policies, or any other aspect of its business learned by the Bidder or personnel furnished by the Bidder in the course of providing services pursuant to the Agreement and exempt from disclosure pursuant to Section 119.01, F.S., shall be held in confidence and shall not be disclosed by the Bidder or any employee or agents of the Bidder or personnel furnished by the Bidder, without the prior written consent of the County; and
- H. Both Bidder and Subcontractors awarded an Agreement as a result of Section 2.10, *Local Preference*, shall register all open positions related to this Agreement with the Center for Business Excellence (CBE), and submit appropriate affidavit (Sections 10.0 and 11.0 of this document) showing compliance.

2.43 Claim Notice

The Bidder shall immediately report in writing to the County's designated representative or agent any incident that might reasonably be expected to result in any claim under any of the coverage mentioned herein. The Bidder agrees to cooperate with the County in promptly releasing reasonable information periodically as to the disposition of any claims, including a résumé of claims experience relating to all Bidder operations at the County project site. The designated representative for the County shall be:

Name: County of Volusia, Florida
Personnel/Risk Management Division
Address: 230 North Woodland Boulevard, Suite 250
DeLand, Florida 32720
Telephone: 386-736-5963
Fax: 386-822-5006

2.44 Disadvantaged Business Enterprise Program

The County Council has adopted policies, which assure and encourage the full participation of Disadvantaged Business Enterprises (DBE) in the provision of goods and services. The County encourages joint ventures between majority-owned firms and qualified disadvantaged / minority / women-owned firms.

2.45 County/Bidder Relationship

The County of Volusia reserves the right to award one or more Agreements to provide the required services as deemed to be in the best interest of the County.

Any awarded Bidder shall provide the services required herein strictly under a contractual relationship with the County and is not, nor shall be, construed to be an agent or employee of the County. As an independent Bidder the awarded Bidder shall pay any and all applicable taxes required by law; shall comply with all pertinent Federal, State, and local statutes including, but not limited to, the Fair Labor Standards Act, The Americans with Disabilities Act, the Federal Civil Rights Act, and any and all relevant employment laws. The Bidder shall be responsible for all income tax, FICA, and any other withholdings from its employees' or Subcontractor's wages or salaries. Benefits for same shall be the responsibility of the Bidder including, but not limited to, health and life insurance, mandatory Social Security, retirement, liability/risk coverage, and workers' and unemployment compensation.

The independent Bidder shall hire, compensate, supervise, and terminate members of its work force; shall direct and control the manner in which work is performed including conditions under which individuals will be assigned duties, how individuals will report, and the hours individuals will perform.

The independent Bidder shall not be provided special space, facilities, or equipment by the County to perform any of the duties required by the Agreement, nor shall the County pay for any business, travel, or training expenses or any other Agreement performance expenses not explicitly set forth in the specifications.

The independent Bidder, except as expressly set forth herein, shall not be exclusively bound to the County and may provide professional services to other private and public entities as long as it is not in direct conflict and does not provide a conflict of interest with the services to be performed for the County.

2.46 Damages

Due to the nature of the services to be provided and the potential impact to the County for loss, the Contractor cannot disclaim consequential or special damages related to the performance of this Agreement. The Contractor shall be responsible and accountable for any and all damages, directly or indirectly, caused by the actions or inaction of its employees, staff, or Subcontractors. There are no limitations to this liability.

2.47 Conflict of Interest Form

All Bidders shall properly complete, have notarized, and include with their Bid Submittal the attached form disclosing any potential conflict of interest that the Bidder may have due to ownership, other clients, contracts, or interests associated with this project.

2.48 Definitions

As used in this Bid, the following terms shall have the meanings set forth below:

Agreement: The document resulting from this solicitation between the County and the Contractor, including this Bid, along with any written addenda and other written documents, which are expressly incorporated by reference.

Agreement Administrator: The Director of Purchasing and Contracts or designee shall serve as Agreement Administrator. The Agreement Administrator shall be responsible for addressing any concerns within the scope of the Agreement. Any changes to the resulting Agreement shall be made in writing and authorized by the Director of Purchasing and Contracts.

Bid: A Contractor's offer to the County in response to an invitation to bid (ITB) issued by a purchasing authority.

Bidder: That person or entity, including employees, servants, partners, principals, agents, and assignees of the person or entity that has submitted a Bid proposal for the purpose of obtaining business with the County to provide the product and/or services set forth herein. (Used interchangeably with Respondent)

Construction Services: Means all labor, services, and materials provided in connection with the construction, alteration, repair, demolition, reconstruction, or any other improvements to real property. The term "construction services" does not include contracts or work performed for the Department of Transportation.

Contractor: That person or entity duly authorized to submit a Bid proposal for the purpose of obtaining business with the County to provide the product and/or services set forth herein and incurring liability for the same.

Contractor's Project Manager: The Project Manager has responsibility for administering this Agreement for the successful Bidder(s) and will be designated prior to the issue of the resulting Master Agreement or Purchase Order.

County: The word County refers to the County of Volusia, Florida.

County's Project Manager(s): The Project Manager(s) have responsibility for the day-to-day administration of the resulting Agreement for the County and will be designated prior to award of the resulting Master Agreement or Purchase Order.

Day: The word "day" means each calendar day or accumulation of calendar days.

Director: The Director of Purchasing and Contracts for the County of Volusia, FL.

Master Agreement: The payment vehicle through with the successful Bidder(s) shall be compensated. This Agreement will be issued in accordance with the specifications, terms, and conditions of this Bid document and shall be valid for a specified period of time with a specific dollar value, which shall not be exceeded annually.

Person or Persons: An individual, firm, partnership, corporation, association, executor, administrator, trustee, or other legal entity, whether singular or plural, masculine or feminine, as the context may require.

Preference: The method of the reducing the proposed Bid or quote price by a designated percentage for the sole purpose of determining the lowest price when compared to other prices submitted during a competitive solicitation.

Respondent: That person or entity, including employees, servants, partners, principals, agents, and assignees of the person or entity that has submitted a Bid proposal for the purpose of obtaining business with the County to provide the product and/or services set forth herein. (Used interchangeably with Bidder)

Subcontractor: A person other than a materialman or laborer who enters into a contract with a Contractor for the performance of any part of the Agreement documents.

Sub-subcontractor: A person other than a materialman or laborer who enters into a contract with a Subcontractor for the performance of any part of such Subcontractor's Agreement.

Turnkey Solution: A complete solution that is supplied, installed, or purchased in a condition ready for immediate use, occupation, or operation within a specified time frame.

3.0 SUBMITTAL REQUIREMENTS *(Submit in the following order)*

It is not necessary to return every page of this document with the Proposal; return *only* the pages that require signatures or information requested below.

- 3.1 Completed Invitation To Bid Cover Pages** (includes two pages) signed by an authorized agent of the firm, as listed on the Florida Department of State, Division of Corporations' Sunbiz report available at www.sunbiz.org (Sunbiz), shall be required. If anyone other than the officers listed on the Sunbiz website will be signing this ITB, a memorandum of authority signed by an officer of the firm allocating authorization shall be required. If firm is not currently registered as a vendor in the State of Florida (Sunbiz), include documentation designation of contracting authority. The memorandum of authority shall be on the firm's letterhead and shall clearly state the name, title and contact information for the individual designated by the firm.
- 3.2** Provide a Florida Department of State, Division of Corporations' Sunbiz report available at www.sunbiz.org.
- 3.3 Completed Bid Submittal Form** (use attached form Section 4.0).
- 3.4 References** - List at least six (6) recent references (three (3) from Solid Waste Departments and three (3) from Water Utilities Departments) where the proposed services has been provided within the past five (5) years. See §2.11, Definition of Responsible and Responsive. Use of the attached form (Section 5.0) will aid in evaluation. Unless specifically asked by the County, the County of Volusia shall *not* be listed as a reference.
- 3.5 Business Tax Receipt (BTR)**

To be responsive to this solicitation, each Bidder who is currently required to have a Business Tax Receipt (BTR) at the time of submittal shall provide a copy of their current BTR in their response to this solicitation.

There are two exceptions to this Bid submission requirement:

1. If Bidder's business does not have a physical location in Lake, Orange, Osceola, Seminole, or Volusia County, no submission is required, *OR*
2. If Bidder's business type is exempt, submit with proposal a *Proof of Exemption* approved by the Volusia County Revenue Director (see Section 7.0).

See <http://www.volusia.org/services/financial-and-administrative-services/revenue-services/local-business-tax/business-tax-frequently-asked-questions.stml> for more information and to access *Ch. 114, Article I, Sect. 114-1* of the Volusia County Code of Ordinances.

- 3.6 Insurance** - Evidence of required insurance coverage or proof of insurability in the amounts indicated. If available, a properly completed ACORD Form is preferable. **Final forms must contain the correct solicitation and/or project number and Volusia County contact person.**

Firms that have owner/operators that have filed a "Notice of Election to be Exempt" shall submit a copy with the proposal.

Incorporated and unincorporated firms that qualify for an exemption under the Florida Workers' Compensation law in Chapter 440, Florida Statutes, shall submit an executed *Hold Harmless Agreement* (see Section 8.0) relieving the County of liability in the event

they and/or their employees are injured while providing goods and/or services to the County.

- 3.7 Conflict of Interest Form** (use attached form Section 9.0) All Bidders shall properly complete, have notarized, and include with their Bid Submittal the attached statement disclosing any potential conflict of interest that the Bidder may have due to ownership, other clients, contracts, or interests associated with this project.
- 3.8 Addenda** issued subsequent to the release of this solicitation must be signed and returned with the firm's Bid. Failure to return signed addenda may be cause for the Bid to be considered non-responsive.
- 3.9 Taxpayer Identification Number (TIN) and Certification Form** – Include a completed TIN form. If the firm is not registered with Volusia County, on-line registration is available at www.volusia.org/purchasing under Vendor Self Service, which links to the registration site and the TIN form can be accessed through this site as well.
- 3.10 Certification Affidavit by Local Business** (use attached forms Section 10.0 and 11.0) All Bidders shall complete, have notarized, and include with their Bid Submittal the attached statement(s) confirming Local Preference Eligibility.
- 3.11 Drug-Free Work Place form** (use attached form Section 12.0).
- 3.12 Certification Regarding Debarment – Prime** (use attached form Section 13.0).
- 3.13 Certification Regarding Debarment – Sub *if applicable*** (use attached form Section 14.0).
- 3.14 Copy of current NELAP Certification**
- 3.15 Last two years of Performance Evaluations studies showing 90% average as per §1.2(D)**
- 3.16 FDEP Performance Audit Inspections showing “Satisfactory”**
- 3.17 Resume of Project Manager as per §1.2(G)**
- 3.18 State and NELAP inspections as per §1.2(I)**

All Bidders shall be prepared to supply a financial statement upon request, preferably a certified audit, but a third party prepared financial statement and the latest D & B report will be accepted.

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_____, 2014

4.0 BID SUBMITTAL FORM

TO: County of Volusia, Florida
Office of Director of Purchasing and Contracts
123 W. Indiana Avenue, Room 302
DeLand, FL 32720-4608

The undersigned hereby declare(s) that [firm name] _____
_____ has carefully examined the specifications to furnish Lab Analysis and Sampling, for which Bid Submittals were advertised to be received **no later than 3:00 p.m., EDT, on Friday, September 19, 2014**, and further declares that the firm will furnish the Laboratory Analysis and Sampling according to specifications.

Complete Attachment A and B
(Open Attachment A and B from website, perform “file save as” and save spreadsheet to your computer. Fill in pricing, preferably electronically.)

Include Attachment, in excel format (not pdf), on CD/USB drive with the rest of your submittal documents.

The County reserves the right to negotiate with the Contractor for additional services similar in nature not known at the time of Bid closing.

Sole Proprietor ☐ **Yes** ☐ **No** **Total number employees** _____

The following information is required in order to be granted a price redetermination.

Assuming that the prices quoted include costs for vehicles, maintenance, repair, insurance, fuel, wages, insurances and other employee benefits, materials, overhead, operating expenses, etc., what percentage of the rate is **directly** attributed to the cost of fuel? _____%

Which does the firm use: ☐ **Diesel fuel** or ☐ **Gasoline?**

Assuming that the prices quoted include costs for vehicles, maintenance, repair, insurance, fuel, wages, materials, overhead, operating expenses, etc., what percentage of the rate is **directly** attributed to the cost of wages? _____%

Prompt payment discount, if applicable: _____ %, _____ Days; Net 45 Days

Do you accept electronic funds transfer (EFT)? ☐ **YES** ☐ **NO**

Do you offer a discount for electronic funds transfer (EFT)? ☐ **YES, _____ %** ☐ **NO**

Have you supplied all the Submittal Requirements outlined below?

- ☐ Invitation to Bid cover pages. (Includes two pages)
- ☐ Florida Department of State, Division of Corporations' Sunbiz Report for your firm
- ☐ Completed and executed Bid Submittal form
- ☐ References, in accordance with Section 2.11, *Definition of Responsive and Responsible*
- ☐ If you have a physical location in Lake, Orange, Osceola, Seminole or Volusia County, submit one of these:
 - ☐ Current Business Tax Receipt, OR ☐ Proof of Exemption Form
- ☐ Proof of Insurance, per Section 2.24
- ☐ Hold Harmless Agreement and/or Notice of Election to be Exempt, if required
- ☐ Conflict of Interest form
- ☐ Any addenda pertaining to this ITB
- ☐ Taxpayer Identification Number and Certification Form
- ☐ Certification Affidavit confirming Local Preference Eligibility, if applicable
- ☐ Licenses, per Section 2.23
- ☐ Drug-Free Work Place Form
- ☐ Certification Regarding Debarment – Prime Form
- ☐ Certification Regarding Debarment – Sub Form
- ☐ Copy of current NELAP Certification
- ☐ Last two years of Performance Evaluations studies showing 90% average as per §1.2(D)
- ☐ FDEP Performance Audit Inspections showing “Satisfactory”
- ☐ Resume of Project Manager as per §1.2(G)
- ☐ State and NELAP inspections as per §1.2(I)
- ☐ Printouts of completed Attachments A & B.
- ☐ Did you include a CD or USB drive, as required in the *Section 2.7, Bid Submittal Form*?

The County of Volusia reserves the right to reject any or all proposals, to waive informalities, and to accept all or any part of any proposal as may be deemed to be in the best interest of the County.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

I hereby certify that I have read and understand the requirements of this Invitation to Bid No. **14-B-148AK, Laboratory Analysis and Sampling**, and that I, as the Bidder, will comply with all requirements, and that I am duly authorized to execute this proposal/offer document and any Agreement(s) and/or other transactions required by award of this ITB.

Further, as attested to by below signature, I will provide the required insurance, per §2.24, Insurance, upon notification of recommendation of award.

The vendor acknowledges that information provided in this Bid is true and correct:

x

Authorized Signature

Printed Name

Title

Date

Company Name

Full Address

Telephone

Fax

E-mail Address

Dunn & Bradstreet #

Federal I.D. #

5.0 REFERENCES

Agency #1	
Address	
City, State, ZIP	
Contact Person	
E-mail	Phone:
Date(s) of Service	
Type of Service	
Comments:	
Agency #2	
Address	
City, State, ZIP	
Contact Person	
E-mail	Phone:
Date(s) of Service	
Type of Service	
Comments:	
Agency #3	
Address	
City, State, ZIP	
Contact Person	
E-mail	Phone:
Date(s) of Service	
Type of Service	
Comments:	

6.0 NOTIFICATION REGARDING PUBLIC ENTITY CRIME & DISCRIMINATORY VENDOR LIST REQUIREMENTS & DISQUALIFICATION PROVISION

A. Pursuant to Florida Statutory requirements, potential Bidders are notified:

287.133(2)(a) A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a Bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list.

287.133(2)(b) A public entity may not accept any Bid, proposal, or reply from, award any contract to, or transact any business in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO with any person or affiliate on the convicted vendor list for a period of 36 months following the date that person or affiliate was placed on the convicted vendor list unless that person or affiliate has been removed from the list pursuant to paragraph (3)(f). A public entity that was transacting business with a person at the time of the commission of a public entity crime resulting in that person being placed on the convicted vendor list may not accept any Bid, proposal, or reply from, award any contract to, or transact any business with any other person who is under the same, or substantially the same, control as the person whose name appears on the convicted vendor list so long as that person's name appears on the convicted vendor list.

287.134(2)(a) An entity or affiliate who has been placed on the discriminatory vendor list may not submit a Bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a Bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity.

287.134(2)(b) A public entity may not accept any Bid, proposals, or replies from, award any contract to, or transact any business with any entity or affiliate on the discriminatory vendor list for a period of 36 months following the date that entity or affiliate was placed on the discriminatory vendor list unless that entity or affiliate has been removed from the list pursuant to paragraph (3)(f). A public entity that was transacting business with an entity at the time of the discrimination resulting in that entity being placed on the discriminatory vendor list may not accept any Bid, proposal, or reply from, award any contract to, or transact any business with any other entity who is under the same, or substantially the same, control as the entity whose name appears on the discriminatory vendor list so long as that entity's name appears on the discriminatory vendor list.

B. By submitting a proposal, the Bidder represents and warrants that the submission of its proposal does not violate Section 287.133, Florida Statutes (2005), nor Section 287.134, Florida Statutes (2005).

C. In addition to the foregoing, the Bidder represents and warrants that Bidder, Bidder's subcontractors and Bidder's implementer, if any, is not under investigation for violation of such statutes.

D. Bidder should read carefully all provisions of 287.133 and 287.134, Florida Statutes (2005).

7.0 PROOF OF EXEMPTION



FINANCIAL AND ADMINISTRATIVE SERVICES

REVENUE DIVISION

123 W. INDIANA AVE. • ROOM 103 • DE LAND, FL 32720-4602

PHONE: 386-736-5938 • FAX: 386-822-5729

<http://volusia.org/revenue/>

I certify that the business known as (*business name*) _____,
providing _____ services, which is located at (*street address*) _____
_____, (*city*) _____, falls under the business tax exemption described in:

☐ Florida Statute 205. 063	☐ Florida Statute 205. 065	☐ Florida Statute 205. 191
☐ Florida Statute 205. 064	☐ Florida Statute 205. 162	☐ Florida Statute 205. 192
	☐ Florida Statute 205. 171	

<http://www.volusia.org/services/financial-and-administrative-services/revenue-services/local-business-tax/business-tax-frequently-asked-questions.stml>

OR is the type of business indicated below:

☐ Child Care – Residential	☐ Insurance Adjuster, Agent, or Company	☐ Radio/Television Station
☐ Commercial Rentals	☐ Pharmacist/Pharmacy (Prescription Drugs Only)	☐ Religious Institution
☐ Door to Door/Peddler Sales		☐ Residential Rentals over 6months
		☐ Sale of Alcoholic Products only

(Authorized Signature)

(Printed Name)

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this _____ day of _____, 20____, by
_____, who is/are personally known to me **or**
who has/have produced _____ as identification.

NOTARY PUBLIC – STATE OF _____

Type or print name:

Commission No.: _____

Commission Expires: _____

(Seal)

A business that falls under one of the exempt classifications listed above is not required to have a Volusia County Business Tax Receipt.

Revenue Director

8.0 HOLD HARMLESS AGREEMENT

I, _____, (*print owner's name*), am the owner of _____ (*print company name*), an incorporated / unincorporated business operating in the State of Florida. As such, I am bound by all laws of the state of Florida, including but not limited to those regarding the workers' compensation law.

I hereby affirm that I or [the above-named business] employs fewer than four employees, all of whom are listed below, including myself, and therefore, the business is exempt from the statutory requirement for workers' compensation insurance for its employees. I certify that I will provide the County of Volusia with the name of each new employee together with all required waivers and releases for each prior to any employee being allowed to work to provide services under the contract set forth below. If any such employee is allowed to work without a signed waiver and release, such action will be a material breach of this Agreement. All signed waivers and releases shall be furnished before the commencement of any work by an employee or the undersigned to the County Project Manager or designated county representative.

On _____, 20____, the County of Volusia and I or [the above-named business] entered into a contract for _____ (*please insert name of contract*), (hereinafter "Agreement") which is incorporated by reference herein.

On behalf of myself, my business, and the employees listed below, I and they hereby agree to waive and release any and all workers' compensation claims or liens under Chapter 440, Florida Statutes, against the County of Volusia and its agents, officials and employees, arising from any work or services provided under the Agreement whether or not it shall be alleged or determined that the act was caused by intention, or through negligence or omission of the County of Volusia or its agents, officials and employees or subcontractors.

In the event that a workers' compensation claim or lien is made against the County of Volusia and/or its agents, officials or employees by myself or my employees or agents as a result of any work or services performed under the Agreement, I agree to indemnify, keep and hold harmless the County of Volusia, Florida, its agents, officials and employees, against all injuries, deaths, losses, damages, claims, liabilities, judgments, costs and expenses, direct, indirect or consequential (including, but not limited to, fees and charges of attorneys and other professionals) arising out of the Agreement with the County of Volusia, whether or not it shall be alleged or determined that the act was caused by intention or through negligence or omission of the County of Volusia or its employees, agents, or subcontractors. I or the above-named business shall pay all charges of attorneys and all costs and other expenses incurred in connection with the indemnity provided herein, and if any judgment shall be rendered against the County of Volusia in any action indemnified hereby, I or the above-named business shall, at my or its own expense, satisfy and discharge the same. The foregoing is not intended nor should it be construed as, a waiver of sovereign immunity of the COUNTY OF VOLUSIA under Section 768.28, Florida Statutes.

Owner: _____ (print name) _____ (signature)
Employee 1: _____ (print name) _____ (signature)
Employee 2: _____ (print name) _____ (signature)
Employee 3: _____ (print name) _____ (signature)

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____, by
_____, who is/are personally known
to me **or** who has/have produced _____ as identification.

NOTARY PUBLIC – STATE OF _____

Type or print name: _____

Commission No.: _____

Commission Expires: _____

(Seal)

9.0 CONFLICT OF INTEREST FORM

I HEREBY CERTIFY that

1. I, *(printed name)* _____, am the
(title) _____ and the duly authorized representative
of the firm of *(Firm Name)* _____ whose address is
_____, and that I possess the
legal authority to make this affidavit on behalf of myself and the firm for which I am acting; and,
2. Except as listed below, no employee, officer, or agent of the firm have any conflicts of interest,
real or apparent, due to ownership, other clients, contracts, or interests associated with this
project; and,
3. This Bid Submittal is made without prior understanding, agreement, or connection with any
corporation, firm, or person submitting a Bid for the same services, and is in all respects fair and
without collusion or fraud.

EXCEPTIONS to items above (List): _____

Signature: _____

Printed Name: _____

Firm Name: _____

Date: _____

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____, by
_____, who is/are personally known to me **or**
who has/have produced _____ as identification.

NOTARY PUBLIC – STATE OF _____

Type or print name:

Commission No.: _____

Commission Expires: _____

(Seal)

10.0 CERTIFICATION AFFIDAVIT BY PRIME CONTRACTOR AS LOCAL BUSINESS

This form must be signed and sworn to in the presence of a notary public or other official authorized to administer oaths.

A. This sworn statement is submitted to County of Volusia, FL, Purchasing and Contracts;

By: _____
(Authorized individuals name and title)

For: _____
(Name of Company/Individual submitting sworn statement)

B. Local Preference Eligibility

1. Vendor has been in business for a minimum of six (6) months prior to the date of Bids or quote ☐ Yes ☐ No
2. Vendor has proof of local business in the form of a business tax receipt from a local jurisdiction per Volusia County Local Preference ordinance ☐ Yes ☐ No

I understand that the submission of this form to the contracting officer for Volusia County, Florida, is valid through the end of term of the awarded Agreement. I also understand that failure to notify the County of Volusia of a change in address out of the local area may result in breach of Agreement.

(Signature)

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____, by _____, who is/are personally known to me **or** who has/have produced _____ as identification.

NOTARY PUBLIC – STATE OF _____

Type or print name:

Commission No.: _____

Commission Expires: _____

(Seal)

11.0 CERTIFICATION AFFIDAVIT BY SUB CONTRACTOR AS LOCAL BUSINESS

This form must be signed and sworn to in the presence of a notary public or other official authorized to administer oaths.

A. This sworn statement is submitted to County of Volusia, FL, Purchasing and Contracts;

By: _____
(Authorized individuals name and title)

For: _____
(Name of Company/Individual submitting sworn statement)

B. Local Preference Eligibility

1. Vendor has been in business for a minimum of six (6) months prior to the date of Bids or quote ☐ Yes ☐ No
2. Vendor has proof of local business in the form of a business tax receipt from a local jurisdiction per Volusia County Local Preference ordinance ☐ Yes ☐ No

I understand that the submission of this form to the contracting officer for Volusia County, Florida, is valid through the end of term of the awarded Agreement. I also understand that failure to notify the County of Volusia of a change in address out of the local area may result in breach of Agreement.

(Signature)

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____, by _____, who is/are personally known to me **or** who has/have produced _____ as identification.

NOTARY PUBLIC – STATE OF _____

Type or print name:

Commission No.: _____

Commission Expires: _____

(Seal)

12.0 DRUG-FREE WORK PLACE

The undersigned firm, in accordance with Florida statute 287.087, hereby certifies that

_____ does:
(Name of Firm)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are proposed a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will propose by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Name and Title

Date

Signature

Firm

Street address

City, State, Zip

13.0 CERTIFICATION REGARDING DEBARMENT (PRIME)

**Certification Regarding
Debarment, Suspension,
And Other Responsibility Matters
Primary Covered Transactions**

TO BE COMPLETED BY PRIME CONTRACTOR

- A. The prospective primary participant (contractor) certifies to the best of its knowledge and belief, that it and its principals (subcontractors and suppliers):
1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 2. Have not within a three (3) year period preceding this bid proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
 3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
 4. Have not within a three-year period preceding this bid proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- B. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid proposal.

Name and Title

Date

Signature

Firm

Street address

City, State, Zip

14.0 CERTIFICATION REGARDING DEBARMENT (SUB)

Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion

TO BE COMPLETED BY ALL SUB-CONTRACTORS

- A. The prospective participant (sub-contractor) certifies to the best of its knowledge and belief, that it and its principals (subcontractors and suppliers):
1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 2. Have not within a three (3) year period preceding this bid proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
 3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
 4. Have not within a three-year period preceding this bid proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- B. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid proposal.

Name and Title

Date

Signature

Firm

Street address

City, State, Zip



COUNTY OF VOLUSIA
PURCHASING & CONTRACTS DIVISION
123 West Indiana Avenue, Room 302
DeLand, Florida 32720-4608
(386) 736-5935 ♦ Fax: (386) 736-5972
www.volusia.org

September 3, 2014

ADDENDUM NO. 1
Laboratory Analysis
ITB No. 14-B-148AK

The purpose of this addendum is to provide the following clarifications, changes, modifications and/or additions to the solicitation documents. This addendum is an integral part of the Solicitation/Contract Documents.

The following questions have been received:

Q1: Is the pricing for Hourly Rate for time in field during regular working hours (Attachment B, Page 6, bottom of page) based on Portal to Portal?

A1: No. The hourly rate is based on arrival time and departure time from the required site.

Q2: In reference to §1.1(J), is there an estimate on the number of times per week for pickup?

A2:

Site	Frequency	Comments
1	4 days/week	8:00 a.m. pull time
2	4 days/week	8:00 a.m. pull time
3	4 days/week	8:00 a.m. pull time
4	2x per month	No pick up
5	Please refer to bid	
6	2x per year	
7	As needed/when needed	

Q3: What is the shortest hold time?

A3: The shortest hold time is six (6) hours.

Q4: Do we have to sample in the month listed?

A4: Yes.

Q5: Have you been outsourcing Giardia and Cryptosporidium?

A5: Yes.

Q6: What does Total Organics refer to?

A6: Total Organics Carbon (TOC).

All other terms and conditions remain unchanged.

END OF ADDENDUM NO. 1

Total Pages: 2

If there are any questions, please contact the staff member responsible for this project, Andrew Kokitus, Procurement Analyst I, at (386) 943-7009 or via E-mail: akokitus@volusia.org.



Shaira Resto, MBA, CPPB, FCCM
Procurement-Contracts Manager

Please sign and return Addendum 1 with bid 14-B-148AK

Vendor: _____

Signed by (Name/Position): _____

Phone No.: _____ Date: _____

***FAILURE TO RETURN THIS FORM WITH THE QUOTE SUBMITTAL
MAY CAUSE THE PROPOSAL TO BE RENDERED NON-RESPONSIVE***



COUNTY OF VOLUSIA
PURCHASING & CONTRACTS DIVISION
123 West Indiana Avenue, Room 302
DeLand, Florida 32720-4608
(386) 736-5935 ♦ Fax: (386) 736-5972
www.volusia.org

September 8, 2014

**ADDENDUM NO. 2
Laboratory Analysis
ITB No. 14-B-148AK**

The purpose of this addendum is to provide the following clarifications, changes, modifications and/or additions to the solicitation documents. This addendum is an integral part of the Solicitation/Contract Documents.

The following questions have been received:

Q1: In regards to §3.15, would the summary reports of the PE study be acceptable?

A1: Yes, the summary report shall be acceptable; however, the County reserves the right to request the full report.

Q2: Since the summary report is long, is it possible to submit it only on the CD-ROM or UBS drive?

A2: Yes.

All other terms and conditions remain unchanged.

END OF ADDENDUM NO. 2

Total Pages: 1

If there are any questions, please contact the staff member responsible for this project, Andrew Kokitus, Procurement Analyst I, at (386) 943-7009 or via E-mail: akokitus@volusia.org.


Shaira Resto, MBA, CPPB, FCCM
Procurement-Contracts Manager

Please sign and return Addendum No. 2 with bid 14-B-148AK

Vendor: _____

Signed by (Name/Position): _____

Phone No.: _____ Date: _____

***FAILURE TO RETURN THIS FORM WITH THE QUOTE SUBMITTAL
MAY CAUSE THE PROPOSAL TO BE RENDERED NON-RESPONSIVE***



**Invitation to Bid #14-B-148AK
Laboratory Analysis and Sampling
Volusia County
Due 3:00 PM, September 19, 2014**

Pace Analytical Services, Inc.
David M. Chaffman
386-672-5668
David.Chaffman@pacelabs.com
8 East Tower Circle
Ormond Beach, Florida 32174



Analytical Laboratory Services

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1. DOH Certification and In- house Analysis
2. License and ability to perform specified Test
3. Emergency Response Sampling within 1 Hour
4. PE and (90% Satisfactory rating)
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6. Technical Expertise and Representation at hourly rate
7. Five years of Experience and Project Manager
8. Full Time QA Officer
9. Most Recent NELAP and State inspections
10. References
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E. Required Submittals

1. Completed Invitation to Bid Cover Pages
2. Florida Department of State Sunbiz Certification
3. Complete Bid Submittal Form (Form 4.0)
4. References, 3 SWA and 3 Utilities
5. Business Tax Receipt (BTR)
6. Evidence of Insurance (COI)
7. Conflict of Interest Form
8. Addendums
9. Taxpayer Identification Number (TIN) and Cert Form
10. Certification Affidavit by Local Business
11. Drug-Free Workplace Form (form 12)
12. Certification of Debarment of Prime (form 13)
13. Certification of Debarment of Sub (form 14)
14. Copy of NELAP Certification
15. Last Two years of Performance Evaluations
16. FDEP Performance Audit Inspections
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19. Printouts of completed Attachments A & B

Section A: Letter of Transmittal



September 18, 2014

County of Volusia
Purchasing & Contracts
123 West Indiana Avenue, Room 302
Deland, Florida 32720-4608
Attn: Andrew G Kokitus

Subject: Laboratory Analysis and Sampling
Bid No: 14-B-148AK

Dear Mr. Kokitus,

Pursuant to your request for the aforementioned ITB, please find enclosed Pace Analytical Service's response. Pace Analytical Services has over 36 years of experience and past performance on similar municipal contracts, which gives us a clear understanding of the specific analytical testing needs for Volusia County. Pace is deeply committed to meeting the goals and objectives of this contract for years to come.

Pace Analytical Services, Inc. (Pace Analytical) was established in 1978. We are a privately held, full service sampling and analytical services firm operating a network of 23 environmental laboratories and 22 service centers nationwide, plus two Life Sciences laboratories. All of our full-service environmental laboratories are NELAC accredited. Our laboratories utilize U.S. EPA, ASTM, Standard Methods, NIOSH, and other accepted test procedures and methods, in accordance with federal and state regulations.

The company consists of three divisions: Environmental, Life Sciences and Lab Ops. Analytical testing and related services include analytical chemistry, on-site field sampling, product and material testing, microbiology services, medical device and drug-device combination product testing, professional laboratory staffing, and lab equipment sales and services. Pace Analytical maintains a comprehensive list of certifications and methodologies throughout our laboratories. In addition to offering full service environmental analytical services, Pace Analytical provides the following specialty environmental testing services:

◆ Drinking Water	◆ Aquatic Toxicity / Bioassay
◆ Water / Wastewater	◆ Radiochemistry
◆ Air Toxics	◆ Low Level Mercury Analysis
◆ Industrial Hygiene	◆ Vapor Intrusion
◆ Microbiological	◆ PCB Congeners
◆ Mixed Waste Characterization	◆ On-Site Gas Phase FTIR
◆ Field Sampling and Analysis	◆ Dioxin / Furan

Pace Florida provides comprehensive environmental laboratory services from its Ormond Beach and Pompano Beach, Florida locations. The Pace Florida laboratory was expanded to 20,000 square feet and completely renovated in 2010. In addition, at that time the



operation began operating on a 24 hour a day schedule Monday through Friday, and 12 hour a day schedule on Saturday and Sunday. As a result the average turnaround time for mainstream parameters is less than our industry competitors.

Pace Florida provides field sampling and laboratory testing services to numerous Municipal and Solid Waste facilities around the state. All analytical services and field services associated with Volusia County will be completed at our Ormond Beach, FL facility. We will also, be utilizing the Local WBE IntraNet Lab Services to facilitate local sample pick-up and logistics services to help our team respond to Volusia County locally. We will also be utilizing the subcontractors list in Section B.4 of this document.

Pace is currently the lab contractor for:

- ◆ Collier County
- ◆ Volusia County
- ◆ Orlando Utilities Commission (OUC)
- ◆ City of Sanford
- ◆ City of Port Orange
- ◆ Seminole County
- ◆ Miami-Dade County
- ◆ St. Lucie County
- ◆ Brevard County
- ◆ Palm Beach County SWA
- ◆ Lake County
- ◆ Sarasota County

A strength of Pace's is the production of ADaPT Electronic Data Deliverables (EDDs). Pace was one of the first labs to routinely generate the EDD, both for field sampling and lab data. Pace has automated this process as much as it can be automated and delivers EDDs within a day of final report generation.

Pace is the only national laboratory company that has ever lab operating on a uniform Laboratory Information Management System (LIMS). This system coupled with PacePort enables clients and Pace Project Managers to accurately schedule and modify client accounts and projects. PacePort is Pace's password protected website that provides clients with access 24/7 to their data and other tools:

- ◆ Access to all records such as final reports, ADaPT files, chain-of-custodies, invoices, and preliminary data
- ◆ Automated and customized container ordering, and COC creation
- ◆ Immediate notification of sample receipt and itemized sample log-in information
- ◆ Automated notification of exceedances of action and permit limits
- ◆ Automated creation of EDDs such as ADaPT customized to your specifications and formats
- ◆ Rush project tracking
- ◆ Automated delivery of reports and EDD's via email to multiple addresses
- ◆ Indefinite historical retention of all data



Our Management Team and Department Managers have on average at least 20 years of experience in the analytical testing arena, which gives us a clear understanding of how to work with large scale clients like Volusia County with environmental needs in multiple disciplines.

Thanks in advance for your time and support of Pace Analytical Services and we look forward to continuing a long-term win-win relationship with Volusia County. Please do not hesitate to contact us if you have any further questions or needs. I am the main contact for this submittal and can be reached directly at 386-672-5668 ext. 35-4816 and my email is david.chaffman@pacelabs.com

Best Regards,

A handwritten signature in grey ink, appearing to read "Dave Chaffman", followed by a horizontal line.

Dave Chaffman
Florida Sales Manager



Section B: Executive Summary and Financial Strength

1. Executive Overview

Name: Pace Analytical Services, Inc.

Address: 8 East Tower Circle, Ormond Beach, FL 32174

Phone: 386-676-4816, David Chaffman

FED ID: 41-1821617

Pace Analytical Services, Inc. (Pace Analytical) was established in 1978. Pace Analytical is a privately held, full service sampling and analytical services firm operating a network of 23 environmental laboratories and 22 service centers nationwide, plus two Life Sciences laboratories. All of our full-service environmental laboratories are NELAC accredited. Our laboratories utilize U.S. EPA, ASTM, Standard Methods, NIOSH, and other accepted test procedures and methods, in accordance with federal and state regulations.

The company consists of three divisions: Environmental, Life Sciences and Lab Ops. Analytical testing and related services include analytical chemistry, on-site field sampling, product and material testing, microbiology services, medical device and drug-device combination product testing, professional laboratory staffing, and lab equipment sales and services. Pace Analytical maintains a comprehensive list of certifications and methodologies throughout our laboratories. In addition to offering full service environmental analytical services, Pace Analytical provides the following specialty environmental testing services:

◆ Water/Wastewater	◆ Aquatic Toxicity / Bioassay
◆ Drinking Water Analysis	◆ Radiochemistry
◆ Industrial Hygiene	◆ Low Level Mercury Analysis
◆ Microbiological	◆ Vapor Intrusion
◆ Mixed Waste Characterization	◆ PCB Congeners
◆ Field Sampling and Analysis	◆ On-Site Gas Phase FTIR
◆ Dioxin / Furan	◆ Stack Testing

Pace Florida provides comprehensive environmental laboratory services from its Ormond Beach and Pompano Beach, Florida locations. The Pace Florida laboratory was expanded to 20,000 square feet and completely renovated in 2010. In addition, at that time the operation began operating on a 24 hour a day schedule Monday through Friday, and 12 hour a day schedule on Saturday and Sunday. As a result the average turnaround time for mainstream parameters is less than 4 business days.

Pace Florida provides field sampling and laboratory testing services for numerous municipal and solid waste facilities around the state. Field sampling and Analytical Services for Volusia County will be serviced from the Ormond Beach laboratory.

A strength of Pace's is the production of ADaPT Electronic Data Deliverables (EDDs). Pace was one of the first labs to routinely generate the EDD, both for field sampling and lab data. Pace has automated this process as much as it can be automated and delivers EDDs within a day of final report generation.

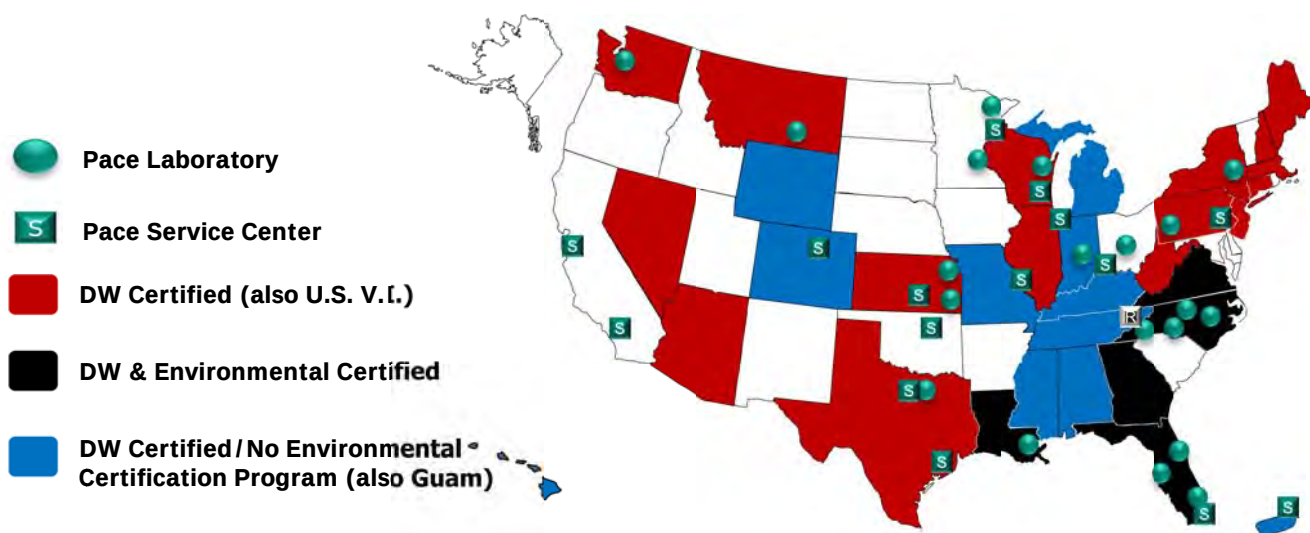
Pace is currently the lab contractor for, among others:

- ◆ Palm Beach County
- ◆ Miami-Dade County
- ◆ City of Sanford
- ◆ Martin County
- ◆ Brevard County
- ◆ Volusia County
- ◆ Lake County
- ◆ Sarasota County
- ◆ Collier County

Pace Florida Instrumentation:

◆ 16 Gas Chromatograph/Mass Spectrometer Systems	◆ 2 Inductively Coupled Plasma/Mass Spectrometer Systems
◆ 17 Gas Chromatograph Systems	◆ 2 Inductively Coupled Plasma Systems
◆ 3 High Pressure Liquid Chromatographs	◆ 2 Mercury Analyzers
◆ 1 Liquid Chromatograph-Mass Spectrometer/Mass Spectrometer System	◆ 7 Ion Chromatographs
	◆ 2 TOC Analyzers

Pace Florida State by State Certifications:



Section B: Executive Summary and Financial Strenght

2. Financial Strength



Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Michael Prasch
Chief Financial Officer
Pace Analytical Services, Inc.

Re: Financial Strength of Pace Analytical Services, Inc.

Pace Analytical Services, Inc. is a privately held company owned by Rod Burwell and Steve Vanderboom. The audited financial statements include other entities and are, therefore, not useful for the purposes of your qualification request. I will explain the history and the ownership of Pace Analytical.

Rod Burwell, a local entrepreneur, and Steve Vanderboom bought Pace Analytical in 1995. Along with Pace Analytical, Rod owns several businesses including: Silvertree Hotel of Snowmass, Colorado, Concourse Hotel of Madison, Wisconsin, Pace Analytical Life Sciences, LLC, and C&B Investments Inc., which consists of multiple John Deere dealerships.

Since its inception, Pace Analytical has shown steady growth in both revenue and operating income. The Pace network is now the 2nd largest laboratory network in the United States. Large amounts of capital have gone into the development of top of the line systems, facilities and equipment. In the past two years, Pace Analytical has invested over \$6,500,000 on new equipment and facilities to make our labs state-of-the-art.

Thank you for your consideration of Pace Analytical as a vendor. Feel free to contact me at (612) 607-6327 if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Michael R. Prasch".

Michael R. Prasch
Chief Financial Officer

Section C: Scope of Work

1. Project Approach and Management Plan

Understanding the Scope of Work

The laboratory understands the scope of work as provided within this Bid, which includes providing Volusia County with scientifically defensible information on chemical, physical, and biological characteristics of the County's Solid Waste and Utility needs. The samples and data collected will be in support of ground waters, surface waters, landfill leachates, industrial wastewater, industrial sludge, soils, sediments, drinking waters and domestic wastewater. Pace Analytical Services, Inc. (PASI) understands that this contract will need service for sampling and analysis seven (7) days a week and on an emergency response (1) hour basis.

Pace Analytical Services, Inc. is located within 30 miles of any location define for pickups by the County under Section **1.1.J.** We understand that based on emergency response situations we will need to be at any of these locations within (1) hour of notification to perform sampling and or analytical support.

Pace understands that we will providing both field and analytical services for the well locations listed in Table 1.4 and 1.5 as they related to the Tomoka and Plymouth Landfills and multiple wells locations at 8 different utility operations. All Field testing and Sample collection will be in compliance with our QAM on file with DEP and or the FDEP (SOP) for field activities 001/01 including: labeling of sample containers and completing COC, Field Logs, and Field Calibration logs and Chapter 62-160 of the FAC and approved methods as published by FDEP or Standard Methods, ASTM, or EPA methods. Pace will meet the Detection Limits as defined by the groundwater classification GII Class IIIF surface water standards (62-302.530).

Pace understands that we will be working with the Volusia County Project Managers in a professional manner and that we will provide a 14 day notice prior to any sampling events required by county permits. We also understand that we will be dealing with multiple project managers on the County's side due the fact that we are dealing with both the Solid Waste and Utility Departments. With relationship to the multiple locations for water and wastewater support, Pace Analytical Services, Inc. will work with each plant representative to provide the best schedule for pickup and delivery of sample and kits to make it as efficient and painless for Volusia County.

Pace understands that all the data and reporting related to this contract will be in 21 days from the time of collection of samples and that reporting where applicable will be in compliance with the ADaPT requirement of Volusia County Solid Waste Department. Additionally, Pace will notify the Volusia County PMs ASAP if there is an exceedance on MCL for Bacteria samples.



If awarded the contract, Mr. Jeff Baylor will be assigned as the dedicated Project Manager and the Client Services point of Contact for Volusia County. Each Project Manager is also assigned to a team with two other Project Managers who also are familiar and can provide support should the need arise. This also allows the client to always have at least three primary contacts within the laboratory who are closely involved with their project. As a NELAC approved laboratory, PASI will continue to maintain strict compliance to the standards as they relate to all laboratory operations.

PASI will courier the pre-labeled containers with the appropriate preservatives and associated forms. The laboratory will analyze samples via approved and certified methods and approved laboratory Standard Operating Procedures (SOPs). The results will be reported within the specified turnaround time for each group of parameters where pricing is provided, and the laboratory's Final Report will be NELAC compliant and will list any laboratory deviations, which would also be communicated to the County prior to the generation of the Final Report.

The location where the County's analyses will be conducted is our Ormond Beach Laboratory at 8 East Tower Circle. It is our goal to provide the County with the most efficient client support system and in turn with the most effective client/project management relationship. As required in the bid document PASI will not subcontract any portion on the Bacteriological sample and will perform all of them in-house. The only other analyses we will subcontract during the life of this contract are Asbestos and Giardia / Cryptosporidium, which appear to be 15 samples for the life of the contract.

Section C: Scope of Work

2. Analysis Plan and Project Control

The purpose of the project being presented in this bid is to provide Volusia County with analytical information on ground waters, surface waters, landfill leachates, industrial wastewater, industrial sludge, soils, sediments, drinking waters and domestic wastewater. The anticipated project length is for 1 three year with the option of extension for no more than two years. The sampling events are scheduled quarterly to begin about late 2014 the specific objectives of the water monitoring program is to determine the following:

- ❖ Whether the water quality at sampling sites exceeds water quality standards
- ❖ Assess the status of water quality in Volusia County
- ❖ Provide analytical water quality information that describes present conditions and trends

To deal with the large volume of samples and complexity of the analyses performed, PASI employs a comprehensive Laboratory Information Management System (LIMS), with customized modules for processing, tracking, and reporting data generated in the laboratories. The same LIMS is in use throughout our laboratory facilities, in order to permit workload sharing during peak times, data-exchange, and process-enhancement.

The centralized LIMS has the capabilities to create a bottle order to meet Client and Project specific requirements. When the laboratory provides the kits for sampling, prior to Project inception, the Project Manger provides the Field Sampling section with a Bottle Kit, which is inclusive of the Clients Project requirements.

As samples arrive at the laboratory sample IDs are automatically assigned. Each sample is monitored throughout its life cycle; and all results are carefully validated. Electronic implementation of various Total Quality Management techniques ensures on-time performance and uncompromised data quality. Internal reports concerned with work flow and process control ensure that nothing "falls through the cracks." Turnaround time is tracked and optimized, while customers' expectations are recorded, tracked and compared with final deliveries. Throughout, automation is utilized to track and enhance communication and process flow while reducing and eliminating unnecessary expense. PASI's LIMS reporting and EDD modules can be customized for various regulatory report formats and client-specific requirements. This flexibility greatly enhances the ability to meet the industry's ever-changing requirements and minimizes the probability of errors inherent in repetitive manual handling of large volumes of data. "Real time" project status reports are available at any moment to the Project Managers. This assures a prompt, accurate response to our clients' inquiries as to the status of projects.

All data associated with a complete Final Report, are linked together through the LIMS, which allows for a complete report inclusive of sample and Batch QC data. This



integrated and centralized system is a huge asset to both our laboratory and the Clients who are being served.

PASI, Inc. provides analytical results via a variety of Electronic Data Deliverables (EDDs). Deliverables are provided electronically (via CD, diskette, the Internet) in a variety of data transfer formats including Delimited-text; MS-Access; Excel, etc. Printed and electronic (i.e. Acrobat) reports are available, and the flexibility exists to provide customized output in almost any format. The laboratory's capabilities also extend to providing the Clients with various State specific forms for sample data such as ADaPT and DOH Drinking Water forms.

Pace Analytical Services, Inc. has implemented a comprehensive Quality Control Program that surpasses industry standards. It is our policy to maintain an active QA/QC program that provides analytical data of a known and defensible quality.

QC activities are practiced and enforced by analysts, their immediate supervisors and the Laboratory Director within the laboratory structure. Overall company-wide Quality Assurance is the responsibility of the QA Officer, who functions as an independent auditor for clients to make certain that the required Quality Control practices are consistently adhered to.

The laboratory quality control system consists of three parts: (1) Defensibility of Analytical Results, (2) Control of Sample Integrity, and (3) Documentation.

The Defensibility of Analytical Results

Pace Analytical Services, Inc. operates under a comprehensive QC program to safeguard the quality of analyses performed on clients' samples. The Florida Department of Health (DOH), a National Environmental Laboratory Accreditation (NELAP) accrediting authority, approves the comprehensive quality assurance manuals for Pace Analytical Services, Inc.'s laboratory. In each analytical department, the analysts are responsible for developing QC acceptance criteria for: (1) precision, the relative percent difference of duplicate spikes and samples, and (2) accuracy, the spike recovery ranges for each method performed by the laboratory. Precision and accuracy data in EPA approved methods have been used as a basis for developing acceptable criteria for assessing the precision and accuracy of generated data, but ultimately, the QC criteria are based on project or client requirements and the historical performance of the method.

QC samples analyzed with most sample lots include sample matrix spikes, laboratory control spikes and method blanks. Sample matrix replicates, laboratory control spike replicates, post digestion spikes, surrogates, and internal standards are run as appropriate to the methodology or as otherwise required. Field QC samples, including equipment blanks, field blanks, trip blanks and field duplicates, are also included as required or specified for each task.

In order to comply with regulatory requirements, the laboratory participates in multiple Pollution WP and Supply WS Studies annually, copies of which are provided in **(Section E.15)** of this submittal. The laboratory reviews the results of each study thoroughly and performs corrective actions as needed. Performance Evaluations are logged into the Laboratory Information Management System (LIMS), just as samples, and are tracked and analyzed like samples. Pace Analytical Services, Inc. also participates in PT studies for other States and regulatory agencies as well as several private client PT programs.

The QA department also performs quality systems assessments and performs data audit / review on 1% of all Work Orders reviewed. These assessments and data audits / reviews establish a baseline for the data quality for the results generated by the laboratory on a monthly basis. The laboratory on an on-going basis enhances its data quality while meeting Client expectations and overall data quality objectives.

The laboratory provides each employee associated with data reporting training on the Standard Operating Procedure (SOP) and furthermore tracks and records each employee's Demonstration of Capability (DOC) that is associated with specific methods and parameters. The training program also includes data integrity and ethics training for all employees at their initial orientation and at least annually to emphasize the importance of results that are reported. During the course of the year, employees are offered training during quarterly meetings and items such as safety are covered. During quarterly meetings, employees are kept abreast of the Company's overall performance and challenges. Training on specific methods and technologies are also offered to employees that are associated with complex instrumentations and methods and these courses may be performed using either internal or external resources. *Our employees are our biggest asset and the Company invests in their training and enhancement.*

The Control of Sample Integrity

Pace Analytical Services, Inc. maintains a stringent sample control program to ensure the integrity of samples to be analyzed in the laboratory. For the collection of field samples, a document is prepared to contain the following planning information:

1. Sampling schedules and projected sample arrival dates;
2. Sample, preservations and quantities of each to be collected;
3. Number of samples to be analyzed;
4. List of parameters required for analysis at each station, including method and/or detection limit requirements;
5. Completion date required; and,
6. Indication of project specific Data Quality Objectives (DQQ's)

Upon arrival at the laboratory, the Sample Control Staff checks in samples. Each sample contained in the shipment is compared to the project chain of custody (COC) to ensure that all the samples designated have been received and information provided matches the COC. The samples are also checked for proper preservation and adequate volume for the analyses requested. The information from the COC is entered into the LIMS; this



activates the assignment of analytical parameters for the samples collected and received by the laboratory.

All samples are assigned storage locations in a secure storage area according to receipt dates. Samples requiring refrigeration are stored in either designated refrigerators or walk in cold rooms, and access is limited to laboratory personnel. Those samples not requiring refrigeration are stored in a secure area under the control of laboratory personnel.

Documentation

It is of utmost importance to be able to track the progress of samples and data through the laboratory, including sample check in, storage, preparation and analysis of samples and the final report. Good sample and procedural documentation is mandatory to maintain high quality defensible data.

Instrument, parameter and analyst notebooks are maintained for further documentation of sample analysis, including standard preparation, QC sample data, instrument condition, dates of analysis, data batch information, standard method references, etc.

Pace Analytical Services, Inc. maintains all documents, including raw data and final reports, in secure areas for long-term storage. The QA Officer conducts routine inspections to ensure that the documents are accurate and can be used for the reconstruction of defensible data regardless of what documentation medium is used.

The laboratory's centralized and integrated LIMS system also records and stores all corrective action reports and employee training records, which allows for easy access and review of these items, which are critical to assess the data quality provided by the laboratory. The LIMS is also capable of tracking and performing historical data evaluation and statistical evaluations for QA/QC samples and parameters.

LIMS and Reporting Capabilities

Pace Analytical Services, Inc.'s data processing system integrates the latest products from Microsoft, Novell, and other vendors and is designed for stability, security and ease of use. A tight network security mask, coupled with the internal security of several applications, ensures the integrity, reliability and privacy of our clients' data. Hardware redundancy and a disaster recovery plan ensure stable operation, while a simple, graphical "user interface" permits authorized user's easy access to information.

To deal with the large volume and array of samples and the complexity of the analyses performed, Pace Analytical Services, Inc. employs a comprehensive Laboratory Information Management System (LIMS), with customized modules for processing, tracking, and reporting data generated in the laboratories. The LIMS permits the laboratory to optimize workloads during peak times, enhances data-exchange, and facilitates process-enhancement.



The laboratory uses an integrated approach to all of its data as each of the instruments with electronic capabilities linked to the centralized network and data is directly downloaded into the LIMS. Using this approach, each applicable data point for a result can be tracked electronically from anywhere in the laboratory. This advantage allows a Project Manager to provide a status on a Project on a real-time basis, which assists our Clients in making their strategic decisions.

As samples arrive at the laboratory, from the field or are delivered by our clients, sample IDs are automatically assigned. Each sample is monitored throughout the entire analytical process and all results are carefully validated. Electronic implementation of various Total Quality Management techniques enhances on-time performance and data quality. Internal reports concerned with work flow and process control ensure that laboratory activities are properly monitored and completed. Turnaround time is tracked and optimized, while customers' expectations are recorded, tracked and compared with final deliveries. Throughout, automation is utilized to track and enhance communication and process flow, while reducing and eliminating unnecessary expense. Pace Analytical Services, Inc.'s LIMS reporting and EDD modules can be customized for various regulatory report formats and client-specific requirements. This flexibility greatly enhances our ability to meet the industry's ever-changing requirements and minimizes the probability of errors inherent in repetitive manual handling of large volumes of data.

With a high functioning LIMS, the laboratory provides its Clients a wide variety of Final Reports and is capable in meeting all of the National Environmental Laboratory Accreditation Program's (NELAP) regulatory reporting requirements. The LIMS enables the laboratory to provide its Clients with a report, which provides a complete picture of the data. A typical Final Report would provide not just the results but also a Case Narrative with any relevant information about the sample and a complete Quality Control report, which provides all applicable Batch QC information, which is relevant to the sample data reported. The centralized LIMS also is capable of reporting data in various State specific forms, including Florida's Drinking Water and Groundwater forms. In order to expedite reporting, the laboratory can provide Final Reports and Forms in electronic format via email.

LIMS Capabilities Overview

- Pre-Project support through preparation of bottle kits and delivery schedule
- Project specific information per sampling event or site can be preset to allow for easy sample login to reduce technical method / parameter login errors and invoicing errors
- Integrated system from sample receipt to sample delivery
- Status of sample can be tracked until Project completion
- On-going Project analytical and technical support past laboratory completion date
- Historical Project data evaluation and trending capabilities
- Direct downloads from instruments that reduce data entry errors
- Integrated batch and analytical run QA/QC information

- Corrective action reports recording and tracking
- Control limits charting and evaluation
- Employee training records documentation
- Variety of reporting capabilities for Final Reports and EDD's
- Electronic delivery of Final Reports and EDD's



Section C: Scope of Work

3. Project Team

Pace Analytical Services, Inc. Florida believes we have put together a great team, who will help support Volusia County in all of the analyses proposed within this bid. The Project Manager handle all aspects of each client's analytical requirements, including pre-project planning, which includes analytical methodology and cost evaluation; sample kit coordination; project login and subsequent client technical requirement disbursement to the analytical staff; final report evaluation, which includes a quality control check and a final assessment of whether client regulatory and technical objectives have been met; project invoicing at client agreed-upon rates; and regulatory agency interaction on behalf of each client, if needed. Each Project Manager is also assigned to a team with two other Project Managers who also are familiar and can provide support should the need arise. This also allows the client to always have at least three primary contacts within the laboratory who are closely involved with their project.

The person responsible for submitting this bid is Mr. Dave Chaffman (Florida Sales Manager) and Mr. Bob Dempsey (Florida General Manager).

If awarded the contract, Mr. Jeff Baylor will coordinate all analytical activities that will ultimately result in one comprehensive analytical report to the County. Due to the nature of the Ormond facility's comprehensive analytical certifications and capabilities, shipping samples to other network facilities will be limited and will only be required for specialty tests such as Giardia / Cryptosporidium, and Asbestos. The Project Manager will review the final report and will submit it directly to the County.

All questions with reference to the submitted Bid can be directed to Mr. David Chaffman phone or email at David.Chaffman@pacelabs.com

Physical Location / Mailing Address of the Laboratory

Pace Analytical Services, Inc.
Florida Laboratory
8 East Tower Circle
Ormond Beach, Florida 32174
386-672-5668

Direct Extensions

Jeff Baylor	386-676-4806
David Chaffman	386-676-4816 (772-349-7965) 24 hours a day



The following section has a brief description of responsibilities and roles within the organization.

Project Manager: Serves as the primary technical and administrative liaison between clients and Pace Analytical Services, Inc. through daily coordination of activities including taking orders, reporting data and analytical results. Represents laboratory services to prospective and existing clients and maintains client records.

General Manager: Responsible for all aspects of laboratory operations including the organic and inorganic departments, field services department, support services department as well as directing sales, client services, and laboratory quality functions.

Quality Manager: Directly responsible for ensuring the overall quality performance of the laboratory. This includes successfully facilitating the total quality program efforts.

Sales Manager: Responsible for achieving regional revenue objectives via tactical market planning focused sales activities, and maintaining positive client relationships. Additionally, the person should manage and train other sales staff.

Section Group Leader

Responsible for the overall operation of the section, which includes supply procurement, oversight and development, analytical process control and documentation, and overall quality control process implementation. The laboratory's sections are divided as Wet Chem/Micro, Metals, Extractions, Volatiles, Semi-Volatiles, and Field Sampling/Bottle Prep/Custody.

Lab Scientists

Responsible for preparing samples & performing analyses according to established procedures. Prepare reagents, standards, load instruments, maintain instruments, enter data, and sign off on data.

Lab Technicians

Responsible for preparing samples & performing analyses according to established procedures. Prepare reagents, standards, load instruments, maintain instruments, enter data and assist the lab scientists in their duties.

Our Florida Laboratory currently has over 107 employees serving clients from its two convenient locations including its main laboratory located in Ormond Beach and through its Tampa Service Center and Lab. In order to ensure on-time performance and uncompromised data quality, our staff is scheduled in shifts to accommodate the labs needs based on higher volume or shorter turn-around times. Our project management and group leaders meet daily to coordinate projects based upon their volume and turn-around time and to optimize the use of the instruments and lab personnel. A skeleton staff is also scheduled to be available on weekends and during holidays. Our last three months of 2014 On- Time Deliverables percentage is shown below:

<u>Month</u>	<u>Number of Reports</u>	<u># of Sample test</u>	<u>% on Time</u>
May	3651	35,003	96.0%
June	4057	34,885	95.0%
July	4257	34,912	95.0%

A list of the project management team and their relevant past experience are to follow:

JEFF BAYLOR
PROJECT MANAGER / CLIENT SERVICES MANAGER

EDUCATION

B.S., Biology (Pennsylvania State University, 1996)

REGISTRATIONS

American Chemical Society

EXPERIENCE

Mr. Baylor has been a project manager for the laboratory since 2001 specializing in landfills, NPDES, drinking water, solid waste, and other State programs. His many years of service with the laboratory have given him a background that allows him to help clients with their site- specific work plans, applicable methodologies, turnaround time requirements, and project data quality objectives. In the capacity as Project Manager, Mr. Baylor provides his Clients as the one point of contact for all their production and technical needs. He serves as a liaison between the Client and the laboratory operations and currently serves a diverse group of Clients, including many cities, counties, utilities, and consultants.

Prior to assuming the position of Project Manager, Mr. Baylor was the Supervisor of the laboratory's Biology Laboratory. He oversaw all areas of the department including the Microbiology and Toxicity sections. For the Microbiology section, he was in charge of the following: media preparation; quality control; detection and enumeration of densities of Fecal and total Coliforms, *Fecal Streptococcus*, *Enterococcus*, and heterotrophic bacteria. In 2002, he led the effort for ELAB to become EPA certified for testing for *Aeromonas* bacteria in drinking water under the Unregulated Contaminant Monitoring Rule (UCMR) program. For the toxicity section, he was responsible for organism breeding, quality control, freshwater and saltwater bioassays using EPA certified methods



for both Acute and Chronic tests, and statistical evaluation of toxicity tests performed for client's NPDES permits.

Prior to this, Mr. Baylor supervised the Inorganic Department for several years after working as an analyst in the Metals and General Chemistry departments for six years. While in the General Chemistry department, he utilized gravimetric, potentiometric, titrimetric, and colormetric approved methodologies to test samples of varied matrices including drinking water, ground water, surface water, waste water, solids, and sludges. He used a wide variety of instrumentation including manual and automated colorimetric analyzers, Ion Chromatograph, IR Chromatograph, and digestion/distillation apparatus. In the Metals department, he was responsible for all aspects of testing including digestion, analytical, and quality control. He is proficient with the instrumentation used for the quantification of metallic elements such as flame and graphite furnace AA and cold vapor analysis of mercury.

During his tenure, Mr. Baylor help set up the Toxicity Characteristic Leaching Procedure methods now used by the laboratory for testing materials for clients under the RCRA program. He also supervised and conducted the setup and incubation of samples for Simulated Distribution Systems (SDS) and Biodegradable Organic Carbon (BDOC) analysis, which is related to the Information Collection Rule program.

JOSEPH VONDRICK

EDUCATION

B.S., Chemistry (Baldwin-Wallace College, 1978)

Mr. Vondrick has more than twenty (20) years of laboratory experience in various phases of laboratory operations. He directed projects involving laboratory analyses and coordinated schedules from sample collection through report completion. He managed projects that required analyses on samples from the various U.S. Army installations under the U.S. Army Environmental Center (USAEC) Quality Control Program, including data transfer to IRDMIS. As the laboratory's former QA Officer, Mr. Vondrick was responsible for data validation, regulatory compliance, and quality criteria conformance of all phases of the lab, quality assurance documents, laboratory analytical protocols and laboratory certification maintenance. He acted as a liaison between the laboratory and state/federal regulatory agencies on quality control issues. Mr. Vondrick performed the internal performance and system audits on a regular basis.



VINCENT (BO) GARCIA

EDUCATION

B.S., Biology, (Florida State University, 1983)

Mr. Garcia has over 15 years of dedicated laboratory experience in environmental analysis and laboratory management. Mr. Garcia's previous responsibilities have included the management of three groups of chemists in the Semi-Volatile Organic Laboratory: (1) the mass spectrometry team (SV-MS); (2) the gas chromatography team (SV-GC); and, (3) the high performance liquid chromatography team (SV-LC). Mr. Garcia has also managed the Volatiles Organic Laboratory. His daily assignments include project scheduling, technical supervision, instrument troubleshooting, project coordination and quality control activities.

He also serves as the internal point of contact for all other Pace network laboratories for samples that are sent to the Ormond facility for analysis.

SAKINA MCKENZIE

EDUCATION

B.S. Marine Biology (University of Southern Mississippi)

Sakina has been an employee of Pace since August 2007. Ms. McKenzie has been a project manager for the laboratory since 2008 specializing in landfills, NPDES, drinking water, solid waste, and other State programs. In the capacity as Project Manager, Ms. McKenzie provides her Clients as the one point of contact for all their production and technical needs. She serves as a liaison between the Client and the laboratory operations and currently serves a diverse group of Clients, including many cities, counties, utilities, and consultants.

Prior to assuming the position of Project Manager, Ms. McKenzie worked in the Wet Chemistry Laboratory. She has performs a wide range of analyses including full EPA 100-400 services and Standard Methods procedures.

MARTHA MONTERO

EDUCATION

Pasante in Chemistry (UNAM, 1982)

Ms. Montero has been involved in the laboratory services industry for over 17 years and is currently a satellite-based Project Manager located in Jacksonville, Florida. Her daily responsibilities at Pace include managing the relationships with key clients including other laboratories around the State and U.S. many of Florida's major governmental agencies such as the South Florida and the St. John's River Water Management Districts. Ms. Montero is proficient at employing specialty software packages such as ADAPT and some of those required for analytical projects associated with the Department of Defense

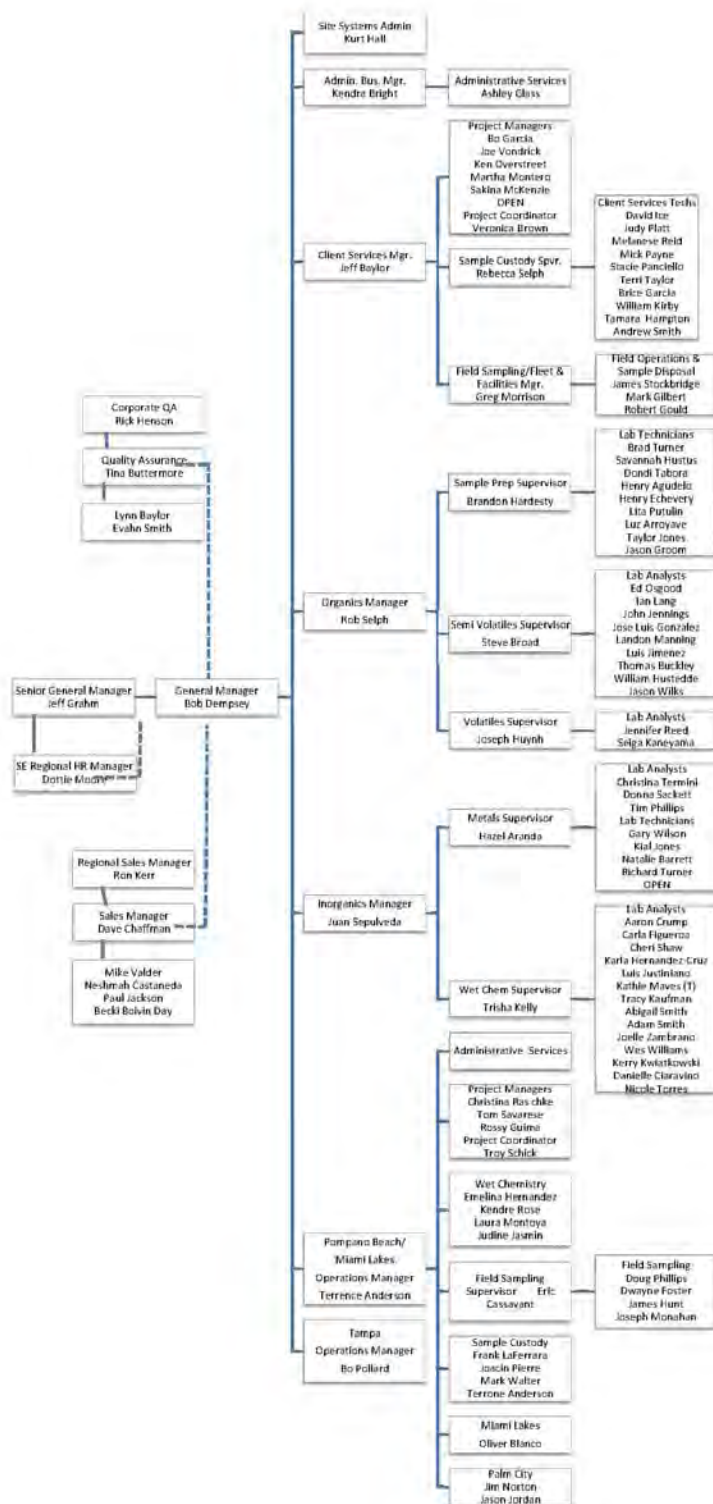


and the US Army Corps of Engineers. She has extensive experience working with regulatory agencies including the Florida Department of Health, the Florida Department of Environmental Protection, the Puerto Rico Department of Health, the Puerto Rico Environmental Quality Board and other major clients in the Puerto Rico market.

Section C: Scope of Work

4. Staffing Plan

a) Organization Chart



Admin 3500		5	Semi-MS 3530		4
8857	Bob Dempsey		9474	Steve Broad	
9471	Greg Morrison		8370	Edward Osgood	
	Dottie Moore (Regional)		8684	Will Hustedde	
8511	Kendra Bright		9104	Thomas Buckley	
3260	Ashley Glass				
Supervisors are listed in bold			Semi-Vol 3531		6
QA 3501		3	9474	Steve Broad	
9489	Tina Buttermore		9483	Jose Luis Gonzalez	
8393	Lynn Baylor		8375	Landon Manning	
9718	Evahn Smith		9228	Ian Lang	
			9237	Luis Jimenez	
			9716	John Jennings	
IT 3501		1	9844	Rocky Ferris	
9519	Kurt Hall				
Sales 3502		4	Oprep 3532		9
3115	David Chaffman		8910	Brandon Hardesty	
9490	Neshmah Castaneda		8360	Lita Putulin	
8543	Paul Jackson		8449	Dondi Tabora	
8347	Mike Valder		3202	Daniel Ingram	
	OPEN		9685	Jason Wilks	
		10	9482	Henry Agudelo	
Custody 3503			9478	Henry Echevarry	
9471	Greg Morrison		9473	Luz Arroyave	
8880	Rebecca Selph		3412	Brad Turner	
8724	Paula Lightfoot				
8389	Judith Platt		Volatiles 3534		3
8391	Debbie Salimi		5091	Robert Selph	
3131	Savannah Hustus		8385	Seiga Kaneyama	
3308	Melanese Reid		8362	Jennifer Reed	
9591	Terry Taylor			OPEN	
3021	Leslie (Mick) Payne		Tampa 3568		1
3499	David Ice		8337	Bo Pollard	
	Stacie Panciello				
Client Services 3530		7			
8349	Jeff Baylor				
8386	Sakina McKenzie				
8352	Martha Montero				



8353 Bo Garcia
 8351 Joe Vondrick
 9739 Ken Overstreet
 3200 Veronica Brown

Field Sampling 3515

3

9471 **Greg Morrison**
 8365 James Stockbridge
 3191 Mark Gilbert
 3132 Robert Gould (Occ)

Metals 3520

7

8342 **Juan Sepulveda**
 8376 Hazel Aranda
 8378 Donna Sackett
 8377 Tim Phillips
 3549 Christina Termini
 9946 Kial Jones
 3516 Natalie Barrett

Wet Chem 3521

14

8342 **Juan Sepulveda**
 8374 **Trisha Kelly**
 8835 Karla Hernandez
 9208 Abigail Smith
 9477 Sophia Andre
 3153 Joelle Zambrano
 3103 Cheri Shaw
 3442 Aaron Crump
 3668 Luis Justiniano
 8392 Adam Smith
 3366 Tracy Kaufman
 9979 Cory Salimi
 3557 Sarah O'Brien
 9717 Wes Williams
 Carla Figueroa

South Florida 3567

20

9488 **Terrence Anderson**
 3438 Yolande Kalicharan
 9751 Oliver Blanco
 9997 Kendre Rose
 9503 Laura Montoya
 3190 Emelina Hernandez

9495 Christina Raschke
 9996 Tom Savarese
 9500 Rossy Guima

3037 Troy Schick
 9486 Joacin Pierre

OPEN

9497 Frank LaFerrara
 9492 Mark Walter

3021 Jim Norton
 3020 Jason Jordan

9491 **Eric Casavant**
 9496 Doug Phillips
 9505 James Hunt
 9507 Joseph Monahan
 3481 Dwayne Foster

Red = Technical
Green = Non-Technical
Blue = No Degree

column1 54
 column2 43
Total Employees 97

Section C: Scope of Work

4. Staffing Plan

b) Supervisory Staff and Key Resumes



BOB DEMPSEY
GENERAL MANAGER, FLORIDA

EDUCATION

B.S., Chemistry, Minor Biology (University of Pittsburgh, 1998)

EXPERIENCE

Mr. Dempsey has been a lab manager in the environmental industry since 2003. Mr. Dempsey is responsible for the direction and coordination of the daily activities for 100+ staff scientists, administrative personnel and service technicians at the company's Florida operations. He is responsible for maintaining project management oversight and direction in conjunction with corporate sales directives and goals, and he provides guidance and direction to the laboratory's Quality Assurance staff in conjunction with corporate goals, EPA guidelines, NELAC guidelines, and various other state and federal guidelines.

Prior to assuming the position of General Manager with Pace, Mr. Dempsey has over 23 years of environmental analytical laboratory experience includes over eight years at the analytical bench in the organic laboratory. He is knowledgeable and proficient in a number of analytical protocols, including: GC, GC-MS, HPLC instrumentation and organic prep utilizing SW-846 and NCASI methods. He has also served and as a laboratory manager for over 7 years of his tenure in the environmental field, he has been able to assist a wide variety of clients through the laboratory analytical processes and their related regulatory, quality control and financial issues, often identifying alternative approaches that ensure project data quality and turnaround times are met and that expenses are minimized.



TINA BUTTERMORE
QUALITY MANAGER, FLORIDA

EDUCATION

M.S. in Pharmacy (University of Florida, 2005)

B.S. in Biochemistry and BS in Microbiology and Cell Science (University of Florida, 2003)

EXPERIENCE

Ms. Buttermore has the responsibility to ensure that the Quality Systems in place at Pace Analytical-Florida are fully implemented and followed in order for the laboratory to achieve established standards of quality. This includes maintaining regulatory compliance, data validation, laboratory analytical protocols, quality assurance documentation and conformance to quality criteria. She serves as a liaison between Pace Analytical-Florida and state/federal regulatory agencies on quality control issues. Ms. Buttermore provides technical support to laboratory operations and clients regarding methodology and project QA/QC requirements and is responsible for performing internal performance audits as well as systems audits on a regular basis.

Ms. Buttermore has ten years of experience in the environmental industry in both the analytical and regulatory sectors. She joined Pace Analytical in 2011 as the Technical and Operations Manager for the South Florida operations. As Technical Director and Operations Manager for the South Florida facility of Pace Analytical Services, Ms. Buttermore had direct management responsibility for over 20 employees covering client services, analytical services and field services. She has previously held the positions of Quality Assurance Director, Technical Director, and various section management and analyst positions within the laboratory specializing in metals analyses (including ICP-AES, ICP-MS, cold vapor AA) and microbiology and wet chemistry techniques. She has also performed the role of Compliance and Enforcement Officer for both the Florida Department of Environmental Protection and the Florida Department of Health.



LYNN BAYLOR
QA DEPARTMENT

EDUCATION

B.S., Biology (Stetson University, 1994)

REGISTRATIONS

FSEA (Florida Society of Environmental Analyst)

EXPERIENCE

Ms. Baylor joined ELAB in 1994 as a laboratory analyst and worked until 2005. Ms. Baylor took time away from ELAB to teach Middle and High School sciences. She then rejoined ELAB in 2007 working in the QA Department. She has many years of service working within different departments at ELAB which has given her a solid background to aid her in monitoring the laboratory data quality. Some of her duties are as follows: Support the Quality Manager and Sales staff by providing administrative and clerical support services; sort and maintain files for quality assurance reports, certification materials, and quality records; provide back-up support in technical and administrative Quality Assurance and Safety functions related to laboratory operations as directed by the Quality Manager; and participate in a variety of meetings and work groups to integrate activities, communicate issues, obtain approvals, resolve problems and maintain specified level of knowledge pertaining to new developments, requirements, and policies.

Prior to assuming the position in the QA Department, Ms. Baylor was a bench analyst in several labs including General Chemistry, Microbiology, Semi-Volatiles, and Extractions.

She specialized in HPLC for eight years. Her Semi-Volatiles experience includes Methods 531.1, 547, 549.1, 549.2, FL-PRO, DRO, 504.1, 8011, 507, 8141, 508.1, 608, 8081, 8082, 515.1, 8151, and 610/8310. Ms. Baylor also performed many of the above listed extractions on both aqueous and solid samples. She was also in charge of the ordering for Semi-Volatiles and Extractions for five years.

Prior to this, Ms. Baylor worked as an analyst in the Microbiology and General Chemistry departments for three years. While in the General Chemistry department, she utilized gravimetric, potentiometric, titrimetric, and colormetric approved methodologies to test samples of varied matrices including drinking water, ground water, surface water, waste water, solids, and sludges. She used a wide variety of instrumentation including manual and automated colorimetric analyzers, Ion Chromatograph, IR Chromatograph, and digestion/distillation apparatus. For the toxicity section, she assisted in organism breeding, quality control, freshwater and saltwater bioassays using EPA certified methods for both Acute and Chronic tests, and statistical evaluation of toxicity tests performed for client's NPDES permits. Ms. Baylor was responsible for media preparation; quality control; detection and enumeration of densities of Fecal and Total Coliforms, *Fecal Streptococcus*, *Enterococcus*, and heterotrophic bacteria in Microbiology.



JEFF BAYLOR
PROJECT MANAGER / CLIENT SERVICES MANAGER

EDUCATION

B.S., Biology (Pennsylvania State University, 1996)

REGISTRATIONS

American Chemical Society

EXPERIENCE

Mr. Baylor has been a project manager for the laboratory since 2001 specializing in landfills, NPDES, drinking water, solid waste, and other State programs. His many years of service with the laboratory have given him a background that allows him to help clients with their site- specific work plans, applicable methodologies, turnaround time requirements, and project data quality objectives. In the capacity as Project Manager, Mr. Baylor provides his Clients as the one point of contact for all their production and technical needs. He serves as a liaison between the Client and the laboratory operations and currently serves a diverse group of Clients, including many cities, counties, utilities, and consultants.

Prior to assuming the position of Project Manager, Mr. Baylor was the Supervisor of the laboratory's Biology Laboratory. He oversaw all areas of the department including the Microbiology and Toxicity sections. For the Microbiology section, he was in charge of the following: media preparation; quality control; detection and enumeration of densities of Fecal and total Coliforms, *Fecal Streptococcus*, *Enterococcus*, and heterotrophic bacteria. In 2002, he led the effort for ELAB to become EPA certified for testing for *Aeromonas* bacteria in drinking water under the Unregulated Contaminant Monitoring Rule (UCMR) program. For the toxicity section, he was responsible for organism breeding, quality control, freshwater and saltwater bioassays using EPA certified methods for both Acute and Chronic tests, and statistical evaluation of toxicity tests performed for client's NPDES permits.

Prior to this, Mr. Baylor supervised the Inorganic Department for several years after working as an analyst in the Metals and General Chemistry departments for six years. While in the General Chemistry department, he utilized gravimetric, potentiometric, titrimetric, and colormetric approved methodologies to test samples of varied matrices including drinking water, ground water, surface water, waste water, solids, and sludges. He used a wide variety of instrumentation including manual and automated colorimetric analyzers, Ion Chromatograph, IR Chromatograph, and digestion/distillation apparatus. In the Metals department, he was responsible for all aspects of testing including digestion, analytical, and quality control. He is proficient with the instrumentation used for the quantification of metallic elements such as flame and graphite furnace AA and cold vapor analysis of mercury.



During his tenure, Mr. Baylor help set up the Toxicity Characteristic Leaching Procedure methods now used by the laboratory for testing materials for clients under the RCRA program. He also supervised and conducted the setup and incubation of samples for Simulated Distribution Systems (SDS) and Biodegradable Organic Carbon (BDOC) analysis, which is related to the Information Collection Rule program.



MARTHA MONTERO
PROJECT MANAGER

EDUCATION

Pasante in Chemistry (UNAM, 1982)

REGISTRATIONS

Florida Society of Environmental Analysts

Florida Association of Environmental Professionals

EXPERIENCE

Ms. Montero has been involved in the laboratory services industry for over 17 years and has held numerous responsible positions in the environmental laboratory including Analyst, Organics Supervisor, QA Officer, Inorganics Supervisor, Operations Manager, Project Manager and Client Services Manager.

Her daily responsibilities at Pace include managing the relationships with key clients including other laboratories around the State and U.S., many of Florida's major governmental agencies such as the South Florida and the St. John's River Water Management Districts, and one of the largest water utilities in the Western Hemisphere. Ms. Montero is proficient at employing specialty software packages such as ADAPT and some of those required for analytical projects associated with the Department of Defense and the US Army Corps of Engineers. She has extensive experience working with regulatory agencies including the Florida Department of Health, the Florida Department of Environmental Protection, the Puerto Rico Department of Health, the Puerto Rico Environmental Quality Board and other major clients in the Puerto Rico market. Ms. Montero is also very knowledgeable about the compliance standards governed under the National Environmental Laboratory Accreditation Program and the US EPA. Her familiarity with the regulatory standards of the Safe Drinking Water Act, the Clean Water Act, the Clean Air Act, RCRA, CERCLA and SW 846 enable her to provide helpful guidance to the many clients she supports in her role at Pace, Florida.



VINCENT (BO) GARCIA
PROJECT MANAGER

EDUCATION

B.S., Biology, (Florida State University, 1983)

EXPERIENCE

In the capacity as a Project Manager, Mr. Garcia serves as the primary liaison between Pace's clients and the resources available to them through the laboratory. With an experience level of over 14-years in environmental analysis and laboratory management, Mr. Garcia handles all aspects of each client's analytical requirements, including pre-project planning, which includes analytical methodology and cost evaluation; sample kit coordination; project login and subsequent client technical requirement disbursement to the analytical staff; final report evaluation, which includes a quality control check and a final assessment of whether client regulatory and technical objectives have been met; project invoicing at client agreed-upon rates; and regulatory agency interaction on behalf of each client, if needed.

Mr. Garcia's previous responsibilities have included the management of three groups of chemists in the Semi-Volatile Organic Laboratory: (1) the mass spectrometry team (SV-MS); (2) the gas chromatography team (SV-GC); and, (3) the high performance liquid chromatography team (SV-LC). Mr. Garcia has over ten years of experience in organic analyses and laboratory management. His daily assignments include project scheduling, technical supervision, instrument troubleshooting, project coordination and quality control activities. Under his direction, the laboratory is performing analyses for a heavy workload of samples for literally all phases of environmental and drinking water monitoring programs. Mr. Garcia directs the sample preparation activities using modern sample extraction and preparation techniques, including liquid-liquid extraction, robotic gel permeation chromatography, sample clean-up workstation, sonication extraction, gas steam and sub-ambient vacuum sample concentration and solid phase extractions. His teams have developed efficient methods to deal with difficult sample matrices to meet clients' requirements. Mr. Garcia has also managed the Volatiles Organic Laboratory, which employs mainly the purge-trap technology for analyzing low parts per billion (ppb) levels of aromatic and chlorinated hydrocarbons in solid and water matrices.

Mr. Garcia's has over fifteen years of dedicated laboratory experience, which have all been here at the Ormond Beach laboratory. His experience includes three years in the micro-biology and bioassay department, where he initiated and maintained the breeding program of several of the lab's test organisms. His work in the overall laboratory operations qualify him to provide a high level of technical support to all of Pace's clients. He also serves as the internal point of contact for all other Pace network laboratories for samples that are sent to the Ormond facility for analysis.



JOSEPH VONDRICK
PROJECT MANAGER

EDUCATION

B.S., Chemistry (Baldwin-Wallace College, 1978)

REGISTRATIONS

Class 3 Operators License for Wastewater Treatment Plants

American Chemical Society

Florida Association of Environmental Professionals

EXPERIENCE

In February of 2000, Mr. Vondrick transferred to Pace Florida's Project Management department. His clients include environmental consultants, county governments, and he is the primary contact for the laboratory's contract with the U.S. EPA for UCMR analysis and support. As the laboratory's former QA Officer, Mr. Vondrick was responsible for data validation, regulatory compliance, and quality criteria conformance of all phases of the lab, quality assurance documents, laboratory analytical protocols and laboratory certification maintenance. He acted as a liaison between the laboratory and state/federal regulatory agencies on quality control issues. Mr. Vondrick performed the internal performance and system audits on a regular basis.

Mr. Vondrick has more than twenty (20) years of laboratory experience in various phases of laboratory operations. He directed projects involving laboratory analyses and coordinated schedules from sample collection through report completion. He managed projects that required analyses on samples from the various U.S. Army installations under the U.S. Army Environmental Center (USAEC) Quality Control Program, including data transfer to IRDMIS. Mr. Vondrick is very familiar with data packages and electronic deliverables for many major federal programs such as CLP and Hazwrap project management.

Mr. Vondrick possesses many years of hands-on experience in laboratory techniques, such as GC/MS, GC, AAS, ICP and RCRA testing procedures. He has in-depth knowledge on method selection, method development and regulatory compliance issues.

Mr. Vondrick has over 8-years of serving many county, utility, and city Clients, including the City of Palm Bay, and continues to be a technical and logistics resource and support in meeting client's needs.



SAKINA McKENZIE
PROJECT MANAGER

EDUCATION

B.S. Marine Biology (University of Southern Mississippi)

EXPERIENCE

Ms. McKenzie has been an employee of Pace since August 2007. Ms. McKenzie has been a project manager for the laboratory since 2008 specializing in landfills, NPDES, drinking water, solid waste, and other State programs. In the capacity as Project Manager, Ms. McKenzie provides her Clients as the one point of contact for all their production and technical needs. She serves as a liaison between the Client and the laboratory operations and currently serves a diverse group of Clients, including many cities, counties, utilities, and consultants.

Prior to assuming the position of Project Manager, Ms. McKenzie worked in the Wet Chemistry Laboratory. She has performed a wide range of analyses including full EPA 100-400 services and Standard Methods procedures.



KEN OVERSTREET
PROJECT MANAGER

EDUCATION

B.S. Limnology (University of Central Florida)

EXPERIENCE

Mr. Overstreet joined Pace Analytical Services in 2012. He is currently serving as Project Manager. He is responsible for serving as the primary technical and administrative liaison between clients and Pace Analytical Services. His job duties include:

- Responsible for preparation of routine quotations and reports.
- Responsible for solicitation of work requests, assisting with proposal preparation and project initiation/preparation with clients and operationally within Pace Analytical. Utilize client and internal resources to assist in preparing Quality Assurance Plan, analytical methods, set data quality objectives and define data deliverable requirements.
- Responsible for project setup, oversight of sample receipts, monitoring project status and ensuring samples are collected, analyzed, documented and reported in conformance with client requirements. Routinely the Project Manager submits project status reports to clients and Pace Analytical management and submits project deliverable and invoice to the client.
- Responsible for client follow-up to include client satisfaction, additional projects, market status, to potentially increase revenue with clients.
- Assisting in Field Sampling, Kit Preparation, and Sample Receiving as needed.

Prior to joining Pace, Mr. Overstreet worked at Florida Department of Health and Golder Associates, Inc. He managed projects that required:

- Inspected and documented petroleum storage tank installations, closures, and compliance.
- Monitored drinking water potable wells adjacent to petroleum and dry-cleaning contaminated sites for the State's Super Act Program.
- Issued well permits and advised well contractors and water system operators on regulations, maintenance, and operations.
- Inspected well installations, repairs, and abandonments.
- Inspected commercial and community water systems for regulatory compliance.
- Conducted laboratory operations and water testing as laboratory Quality Assurance Officer.
- Investigated environmental and sanitary nuisance complaints, issuing legal notices when appropriate.
- Wetland delineation, wetland restoration monitoring, power corridor biological investigations, aquatic biota sampling, construction monitoring for protection of wetlands and species of special concern, gopher tortoise surveys, phosphorus complex study, metals monitoring in Central Florida lakes.



JUAN A. SEPULVEDA
METALS LABORATORY SUPERVISOR

EDUCATION

B.A. Chemistry (University of Puerto Rico, 1993)

REGISTRATIONS

PR Licensed chemist, PR Chemist Board (Colegio de Químicos de Puerto Rico) 1994
FSEA, member, 2006

EXPERIENCE

Mr. Sepúlveda is responsible for the direction and coordination of the daily activities of the metal's analysis area. His technical background helps him minimize instrumental down times in his area, thus allowing for a consistent and continuous performance of analyses. In order to be able to maintain short turnaround times, he is responsible of maintaining communication with project management and his area's analysts, making sure of the efficient scheduling of the workload. He is also responsible for maintaining his area validated in accordance with the directives of the QA office, as well as within EPA guidelines, NELAC guidelines, and various other state and federal guidelines.

After obtaining his degree in chemistry, Mr. Sepúlveda passed his revalidation test for his Chemist license, as required in his natal Puerto Rico, and in his first attempt. Ever since being hired by Pace, Mr. Sepúlveda has maintained his currency as a licensed chemist by keeping up with the continuous education requirements dictated by PR law. This currency allows him to validate and sign reports for our Puerto Rico's clients.

Since the beginning of his career, Mr. Sepúlveda has advanced quickly in all the laboratories he have worked, thanks to his talent for troubleshooting instrumentation and providing imaginative and creative solutions to operational and technical problems. His analytical and technical knowledge has made him a source of information for both his peers and superiors alike. Also, his knowledge of programming has made him instrumental in the development of automatic uploads for his area and others alike, such as Wet Chemistry and Semi-Volatiles.

Mr. Sepulveda's 15 years of environmental analytical laboratory experience includes work as an analyst in Wet Chemistry, Metals and Semi-volatiles areas, and two years as Senior Scientist with Pace. He is knowledgeable and proficient in a number of analytical protocols, including: metals analyses employing flame and graphite furnace AA (Perking-Elmer's 3100AA, 2800AA, Zeeman 3030 AA, Varian's 300 and 400); ICPAES (PE's Optima-XL, TJA's Plasma-2000 and 61E Trace); ICPMS (Thermo-Electron's Xi ICPMS); hydride and cold vapor AA instrumentation (PE, Varian and Leeman Labs'); organic analyses employing GC/MS instrumentation; and general (wet) chemistry analyses employing Lachat's Quick-Chem IV and 4000 FIA's, as well as gravimetric, colorimetric, potentiometric and nephelometric instrumentation.



ROBERT W. SELPH
VOLATILES LABORATORY SUPERVISOR

EDUCATION

B.S. Biochemistry (University of South Carolina, 2001)

EXPERIENCE

Mr. Selph is responsible for the direction and coordination of the daily activities of the organics laboratory. His duties include loading and maintenance of instrumentation to maintain production through the lab, data review and posting to LIMS for final reporting, and data reduction through peer review. Mr. Selph also implements and manages improvements to optimize efficiency and capacity within the department. Mr. Selph serves on the safety committee to represent the volatiles department. Supervisory duties include the management and overseeing of the volatiles and semi-volatiles department by managing work load, instrumentation and exploring new technologies to help improve efficiency and production for the groups.

Mr. Selph's 13 years of experience at every level of organics laboratory production from extractions to all applicable technologies, including GC, GC/MS, various detector systems, and purge and trap systems, enable him to effectively ensure quality and throughput for the department.



STEVEN MICHAEL BROAD
SEMIVOLATILES LABORATORY MANAGER

EDUCATION

Geology Studies (Florida Atlantic University)

EXPERIENCE

Mr. Steven Broad joined Pace Analytical Services 2011. He is currently serving as Semivolatiles supervisor. He is responsible for the day to day operations of the Semivolatiles instrument lab and his duties include:

- Management of the Semivolatiles staff
- Validation of analytical data
- Balancing the budget/expenses
- Method Development

Prior to joining Pace, Mr. Broad worked at other environmental laboratories as:

- Extraction Technician
- Analyst
- Management of the Extractions laboratory
- Management of the Semivolatiles instrument group
- Handling of the waste stream for the entire building
- Head of the safety committee



TRISHA L. KELLY
WET CHEMISTRY SUPERVISOR

EDUCATION

B.S. Biology (Radford University, 2003)

EXPERIENCE

Ms. Kelly is responsible for the direction and coordination of the daily activities of the Wet Chemistry analysis area. Her technical background helps her minimize instrumental down times in her area, thus allowing for a consistent and continuous performance of analyses. In order to be able to maintain short turn-around times, she is responsible of maintaining communication with project management and her area's analysts, making sure of the efficient scheduling of the workload. She is also responsible for maintaining her area is validated in accordance with the directives of the QA office, as well as within EPA guidelines, NELAC guidelines, and various other state and federal guidelines.

Since the beginning of her career, Ms. Kelly has advanced quickly in the laboratories she has worked, thanks to her talent, eagerness to learn new methods, and troubleshooting abilities. Her analytical and technical knowledge has made her a source of information for her peers. Her ambitious nature has made her very willing to accept new and specialized projects which may require planning and organization.

Ms. Kelly's eight years of environmental analytical laboratory experience includes work as an analyst in Wet Chemistry and Microbiology. She is knowledgeable and proficient in a number of analytical protocols, including wet chemistry analyses of COD, BOD, TOC, IC (major anions), LACHAT(NO_x, NO₃, NO₂, OP, NH₃, TKN, TP, PHENOL), pH, Turbidity, Color, Odor, MBAS, Residual Chlorine, Chlorine Dioxide, Sulfide, Alkalinity, Conductivity, Salinity and Flash Point. Microbiology methods include: Standard Plate Count/ Heterotrophic Plate Count (SPC/HPC), Total Coliforms by MMO and membrane filtration, Fecal Coliforms by Most Probable Number (MPN) and membrane filtration.



TERRENCE ANDERSON
OPERATIONS MANAGER, POMPAÑO BEACH

EDUCATION

BS Environmental Studies (Florida International University)

AS Environmental/Agricultural (Science College of Agriculture Science & Education)

EXPERIENCE

Mr. Anderson joined Pace through an acquisition in 2011. As Client Services Manager his main role is to serve as liaison between laboratory personnel and clients to ensure effective project management, ensuring the laboratory is meeting customers' turnaround time and their project specifications, including reporting limits and QA/AC requirements. His responsibilities include:

- Prepare and sign environmental laboratory reports for industrial and commercial customers
- Coordinate environmental sampling, provide technical support to customers
- Supervise project managers
- Assign project managers for new customers
- Prepare special EDD reports including ADaPT
- Point of contact between clients and laboratory
- Perform technical review of projects for clients
- Address customers concerns

Prior to working at Pace Analytical he worked as a senior project manager at KSA environmental laboratory, and supervised the field staff and sample custody departments. From 2004-2007 Mr. Anderson worked as a pollution control inspector for Miami Dade County Department of Environmental Resources Management (DERM). At the County I inspected permitted facilities to ensure they are operating within their permit requirements, review permit applications, identify sources of environmental pollution, analyze and interpret annual emission reports, conduct site inspections and initiate enforcement actions where there are permit violations.



CHRISTINA RASCHKE
PROJECT MANAGER

EDUCATION

Master of Physical Therapy (Nova Southeastern University, Fort Lauderdale, FL)

B.S. in Biology (Nova Southeastern University, Fort Lauderdale, FL)

EXPERIENCE

Christina Raschke has joined Pace Analytical Services, Inc. with the acquisition of XENCO Laboratories in July 2011. Ms. Raschke was a Project Manager for XENCO Laboratories and Genapure Analytical Services from 2008 until the merger with Pace Analytical. Ms. Raschke has been in the Environmental Laboratory field since April of 2006 and brings 2 years of hands-on experience including supervisory position in the laboratory and 3 years of Client Services/Project Manager experience with her. Ms. Raschke's responsibilities include:

- Responsible for the coordination and tracking of tasks, schedules, and deliverables for projects related to environmental analysis, compliance, permitting, remediation, etc.
- Generate & review reports, invoices & deliverables prepared by team before submitting to client
- Responsible for preparation and submittal of specified reporting formats, such as EDDs, ADaPT, Drinking Water Forms, etc.
- Effectively enforce project standards
- Minimize risks on projects
- Ensure project documents are complete, current, and stored appropriately
- Manage day-to-day client interaction
- Develop lasting relationships with client personnel that foster client ties



ROSSY GUIMA
PROJECT MANAGER

EDUCATION

Associate in Science Major: Business Administration (Broward College)

Associate degree in Pre Medical (Federico Villareal University, School of Medicine, Lima, Peru)

EXPERIENCE

Mrs. Guima joined Pace Analytical Services, Inc. with the acquisition of Xenco laboratories in July 2011. Mrs. Guima was a Project Manager for XENCO Laboratories until the merger with Pace Analytical. Mrs. Guima has been in the Environmental Laboratory field since April of 2007 and brings 4 years of Client Services/Project Manager experience with her. As Project Manager her main role is to serve as liaison between laboratory personnel and client to ensure effective project management, ensuring the laboratory is meeting customer's turnaround time and their project specifications, including reporting limits and QA/AC requirements.

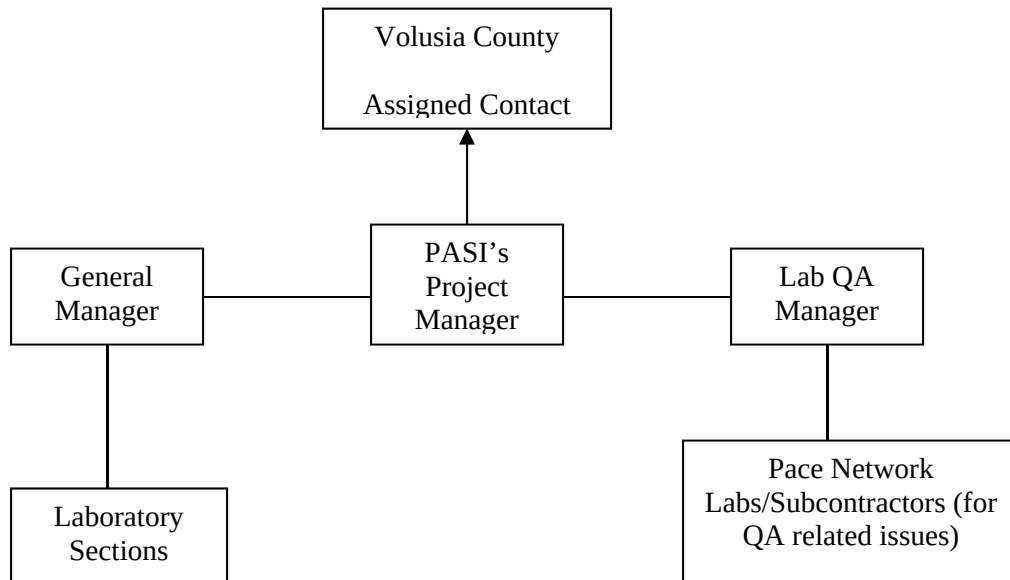
- Responsible for the coordination and tracking of tasks, schedules, and deliverables for projects related to environmental analysis, compliance, permitting, remediation, etc.
- Generate & review reports, invoices & deliverables prepared by team before submitting to client
- Responsible for preparation and submittal of specified reporting formats, such as EDDs, ADaPT, Drinking Water Forms, etc.
- Ensure reports are complete, current, and properly stored
- Serve as point of contact between clients and laboratory
- Address customers concerns
- Effectively enforce project standards
- Minimize risks on projects
- Manage day-to-day client interaction
- Develop lasting relationships with client personnel that foster client ties

Section C: Scope of Work

4. Staffing Plan

c) Sample Flow

As is provided within the corporate and the Florida organizational charts, each location of Pace has its structure. Each location is similar in their focus on organizational efficiencies / optimizations and enhanced quality. Each location works through similar key positions and roles to effectively communicate and work together in order to meet the Clients project objectives. The following is how the Projects for Volusia County will flow through the laboratory:



Section C: Scope of Work

5. Equipment List

Pace Analytical Services, Inc. utilizes state-of-the-art equipment and instruments for chemical analyses and field sampling activities. The management of Pace Analytical Services, Inc. is committed to keeping its laboratories up-to-date with the best quality and most reliable equipment available. Major laboratory equipment and instruments are listed in the following table. A complete list is available, upon request.

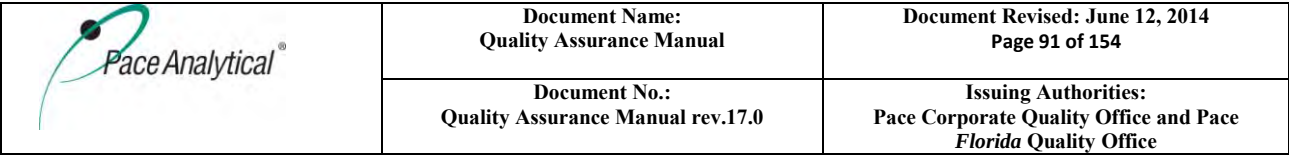
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ATTACHMENT III- EQUIPMENT LIST (CURRENT AS OF ISSUE DATE)

Description	Department	Model	Manufacturer
Analytical Balance	Client Services	AC2115	Sartorius
Top Load Scale	Client Services	Scoutpro	OHAUS
Walk In Cooler	Client Services	Custom Built	
Walk In Cooler	Client Services	Custom Built	
3-D Orbital Shaker	Extractions	SR3616-746-7-56C	Glas-Col
3-D Orbital Shaker	Extractions	SR3616-746-7-56C	Glas-Col
Drying Oven	Extractions	Catalog# 97027-668	VWR
Sonic Water Bath	Extractions	8510R-MT	Branson
Turbovap	Extractions	Biotage	Caliper Life Sciences
Turbovap	Extractions	ZW-8002	Zymark
Turbovap	Extractions	Turbovap II	Caliper Life Sciences
Turbovap	Extractions	Turbovap II	Caliper Life Sciences
Turbovap	Extractions	Turbovap II	Zymark
Water Bath	Extractions	MW-1110A-1	General Signal
Water Bath	Extractions	MW-1110A-1	General Signal
Soil Extraction Microwave Oven	Extractions	MARS 5	CEM
Micro Extraction Shaker	Extractions	6010	Eberback Corporation
Centrifuge	Extractions		Becton Dickinson
Drying Oven	Extractions		QL
Turbovap	Extractions	Turbovap II	Caliper Life Sciences
Turbovap	Extractions	Turbovap II	Zymark
Separatory Funnel Rotator	Extractions		Custom Built
Turbovap	Extractions	LV	Zymark
N-EVAP	Extractions	NEVAP 112 8125	Organization
Drying Oven	Extractions	DR-63	Baxter
Drying Oven	Extractions	DK-63	Baxter
pH Meter	Extractions	pHTestr 10	Oakton
Analytical Balance	Extractions	AZ002	Sartorius
Top Load Scale	Extractions	Practum 2101-1S	Sartorius
Freezer	Extractions		Kenmore
Mercury Analyzer	Metals	M-7500	Cetac
ICP-MS	Metals	X2	Thermo Elemental
ICP-MS	Metals	X2	Thermo Fisher
ICAP 6500 DUO	Metals	iCAP 6500 DUO	Thermo Elemental
ICAP 6500 DUO	Metals	iCAP 6500 DUO	Thermo Elemental
Digestion Block	Metals	540 Series	Environmental Express
Digestion Block	Metals	SC154	Environmental Express
Digestion Block	Metals	SC154	Environmental Express
Digestion Block	Metals	SC100	Environmental Express
Digestion Block	Metals	DigiPrep LS	SCP
Digestion Block	Metals	DigiPrep LS	SCP
TCLP Tumbler	Metals	Tumbler	Environmental Express

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TCLP Tumbler	Metals	Tumbler	Home-made
TCLP filtration vessel	Metals	3750-LHWF	Associated Design Mfg, Co
Centrifuge	Metals	Model 5	Garver MFG.
Turbidimeter	Metals	2008	La Motte
Turbidimeter	Metals	2100A	HACH
Analytical Balance	Metals	B-120-5	Sartorius
Top Load Scale	Metals	Practum 2101-1S	Sartorius
Refrigerator	Microbiology	SR-365X	Sanyo
Refrigerator/Freezer	Microbiology	Eterna Series	GE
Refrigerator/Freezer	Microbiology	Eterna Series	GE
Dual GC/ECD	Semi-Volatile	5890E Series II	Agilent
Dual GC/ECD	Semi-Volatile	5890E Plus	Agilent
Dual GC/TSD	Semi-Volatile	CP3800	Varian
Dual FID	Semi-Volatile	6890	Hewlett Packard
GC/Dual uECD	Semi-Volatile	6890	Agilent
GC/Dual uECD	Semi-Volatile	7890	Agilent
Dual FID	Semi-Volatile	6890	Agilent
GC/Dual uECD	Semi-Volatile	6890N	Agilent
GC/Dual uECD	Semi-Volatile	6890	Hewlett Packard
GC/Dual uECD	Semi-Volatile	6890N	Agilent
GC/Dual uECD	Semi-Volatile	6890	Agilent
Dual GC/ECD	Semi-Volatile	6890	Agilent
HPLC	Semi-Volatile	1100	Agilent
HPLC	Semi-Volatile	1100	Agilent
HPLC	Semi-Volatile	1100	Agilent
LC MS/MS	Semi-Volatile	TSQ-46000	Thermo Scientific
GC/MS	Semi-Volatile	5890 Series II	Agilent
GC/MS	Semi-Volatile	6890 Plus	Agilent
GC/MS	Semi-Volatile	6890 N	Agilent
GC/MS	Semi-Volatile	7890	Agilent
GC/MS	Semi-Volatile	6890 A	Agilent
GC/MS	Semi-Volatile	6890 A	Agilent
Top Load Scale	Semi-Volatile	1872	Agilent
GC/MS	Semi-Volatile	7890	Agilent
Refrigerator	Semi-Volatile	SR-365X	Sanyo
Refrigerator	Semi-Volatile	SR-365X	Sanyo
Refrigerator/Freezer	Semi-Volatile	RT18WWXSQ00	Roper/Whirlpool
Refrigerator/Freezer	Semi-Volatile	RT18WWXSQ00	Roper/Whirlpool
Freezer	Semi-Volatile	FFU21F5HWB	Frigidaire
Freezer	Semi-Volatile	FKFU13M3HW4	Frigidaire
Walk-In Cooler	SFL		American Cold Storage
Fridge	SFL	D1002W	Danby
Freezer	SFL	RTRP19KGAL00	Kitchenaid
Fridge	SFL	RRT160DRGW0	White-Westing
Incubator	SFL	MFU2083BW3	Precision

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ZHE Rotator	Volatiles		Associated Design
Centrifuge	Volatiles	Dynac	Clay Adams
Oven	Volatiles	1510E	VWR
ZHE Rotator	Volatiles		Millipore
Top Load Scale	Volatiles	AV412	Adventurer Pro
Drying Oven	Wet Chemistry	1390FM	VWR
Autoclave	Wet Chemistry	STM-E	Market Forge
Block Digester	Wet Chemistry	BD-46	Lachat Instruments
Block Digester	Wet Chemistry	BD-46	Lachat Instruments
BOD Incubator	Wet Chemistry	Low Temp	Thermo
BOD Probe	Wet Chemistry	5010	YSI
BOD Probe	Wet Chemistry	59858	YSI
BOD Probe	Wet Chemistry	59858	YSI
BOD Probe	Wet Chemistry	5905	YSI
Centrifuge	Wet Chemistry	TDS	Fisher
CIO2 Pocket Colorimeter	Wet Chemistry		Hach
CN BLOCK	Wet Chemistry		Custom Built
COD Reactor	Wet Chemistry		HACH
COD Reactor	Wet Chemistry	DRB 200	HACH
Colony Counter	Wet Chemistry	3352	LEICA
Conductivity Meter	Wet Chemistry	3200-115V	YSI
Conductivity Meter	Wet Chemistry	ECT5STRI	Oakton
Conductivity Meter	Wet Chemistry	ECTestr11 Dual range	Eutech
Cyanide Block (Midi)	Wet Chemistry		Custom Built
Centrifuge	Wet Chemistry	SHNS11	Damon/IBC
Digestion System 40	Wet Chemistry	1016	Tecator
Digestion System 40	Wet Chemistry	1016	Tecator
Centrifuge	Wet Chemistry	Table Top	Fisher Scientific
Flashpoint Tester	Wet Chemistry	152800	Boekel
Ion Chromatography System	Wet Chemistry	ICS-1100	Dionex
Ion Chromatography System	Wet Chemistry	ICS-2000	Dionex
Ion Chromatography System	Wet Chemistry	ICS-200	Dionex
Ion Chromatography System	Wet Chemistry	881 Compact IC	Metrohm
Lachat 2 Channel	Wet Chemistry	QuickChem 8000	Lachat
Lachat 2 Channel	Wet Chemistry	QuickChem 8000	Lachat
Lachat Quick Chem 8500	Wet Chemistry	Quick Chem 8500	Lachat
Muffle Furnance	Wet Chemistry		Fisher Scientific
PH Meter	Wet Chemistry	410A	Orion
PH Meter	Wet Chemistry	420A+	Thermo
QC-Titrator	Wet Chemistry	Man-Tech Titrator	Man-Tech
Res. Chlorine Titrator	Wet Chemistry	17T2012AXX	Severn Trent
Ryobi 10" Drill Press	Wet Chemistry	DP101	Ryobi
Spectrophotometer, UV	Wet Chemistry	50 Bio	Carey/Varian
TKN Block Digester	Wet Chemistry	BD46	Lachat
TOC Analyzer	Wet Chemistry	TOC-V CSH	Shimadzu
TOC Analyzer	Wet Chemistry	TOC-V CSH	Shimadzu

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Turbidimeter	Wet Chemistry	2100N	Hach
UV Light	Wet Chemistry	UVL-56	Entela
Water Bath	Wet Chemistry	2207	Fisher Scientific
Water Bath	Wet Chemistry	2868	Thermo Scientific
Ion Chromatography System	Wet Chemistry	881 Compact IC	Metrohm
Analytical Balance	Wet Chemistry	CP224S	Sartorius
Top Load Scale	Wet Chemistry	SPE402	OHAUS
Refrigerator	Wet Chemistry	FPU17B2JW18	Fridgidaire

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Section C: Scope of Work

6. Quality Assurance Manual

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QUALITY ASSURANCE MANUAL

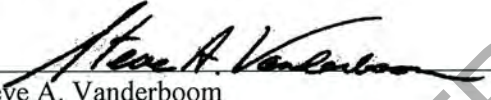
Quality Assurance/Quality Control Policies and Procedures

Pace Analytical Services

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Ormond Beach, FL 32174

Pace Analytical Services – *South Florida*
3610 N Park Central Blvd.
Pompano Beach, FL 33064

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6-16-2014
Date


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06/16/14
Date

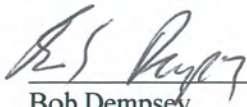
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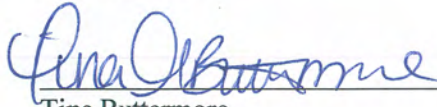
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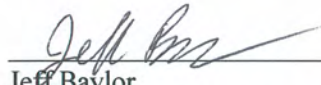
Bob Dempsey
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386-672-5668

6-17-14
Date



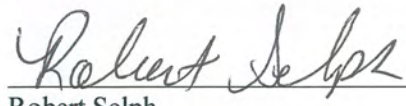
Tina Buttermore
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Date



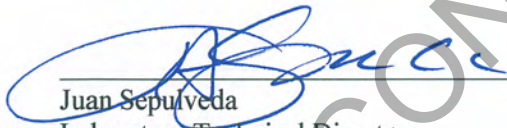
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6/12/14
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6.12.14
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Date

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**ATTACHMENT VIII- METHOD HOLD TIME, CONTAINER AND PRESERVATION GUIDE
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ATTACHMENT IX- ANALYTE LIST (CURRENT AS OF ISSUE DATE)

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1.0. INTRODUCTION AND ORGANIZATIONAL STRUCTURE

“Working together to protect our environment and improve our health”

Pace Analytical Services Inc. - Mission Statement

1.1. Introduction to PASI

1.1.1. Pace Analytical Services, Inc. (PASI) is a privately held, full-service analytical testing firm operating a nationwide system of laboratories. PASI offers extensive services beyond standard analytical testing, including: bioassay for aquatic toxicity, air toxics, dioxins and coplanar PCB's by high resolution mass spectroscopy, radiochemical analyses, product testing, pharmaceutical testing, field services and mobile laboratory capabilities. PASI has implemented a consistent Quality System in each of its laboratories and service centers. In addition, the company utilizes an advanced data management system that is highly efficient and allows for flexible data reporting. Together, these systems ensure data reliability and superior on-time performance. This document defines the Quality System and QA/QC protocols.

1.1.2. Our goal is to combine our expertise in laboratory operations with customized solutions to meet the specific needs of our customers.

1.2. Statement of Purpose

1.2.1. To meet the business needs of our customers for high quality, cost-effective analytical measurements and services.

1.3. Quality Policy Statement and Goals of the Quality System

1.3.1. PASI management is committed to maintaining the highest possible standard of service for our customers by following a documented quality system that is fully compliant with the applicable NELAC or TNI standards. The overall objective of this quality system is to provide reliable data of known quality through adherence to rigorous quality assurance policies and quality control procedures as documented in this Quality Assurance Manual.

1.3.2. All personnel within the PASI network are required to be familiar with all facets of the quality system relevant to their position and implement these policies and procedures in their daily work. This daily focus on quality is applied with initial project planning, continued through all field and laboratory activities, and is ultimately included in the final report generation.

1.3.3. PASI management demonstrates its commitment to quality by providing the resources, including facilities, equipment, and personnel to ensure the adherence to these documented policies and procedures and to promote the continuous improvement of the quality system. All PASI personnel must comply with all current applicable state, federal, and industry standards (2003 NELAC Standard, 2009 TNI Standard, etc.), and are required to perform all tests in accordance with stated methods and customer requirements.

1.4. Core Values

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1.4.1. **Integrity-** Pace personnel are required to abide by the PASI Code of Ethics and all Pace employees must go through Data Integrity/Ethics training upon initial orientation and as an annual refresher.

1.4.2. **Value Employees-** Pace management views employees as our most important asset and communicates to them the relevance and importance of their activities within their job functions and how they contribute to the achievement of the objectives of the quality management system.

1.4.3. **Know Our Customers-** Pace makes every effort to know our customers and address their sampling and analytical needs. More information on this item can be found in section 2.0.

1.4.4. **Honor Commitments-** Pace labs focus on making solid commitments with regards to quality, capacity, and agreed upon turnaround time to our customers.

1.4.5. **Flexible Response To Demand-** Pace labs are equipped with both the material and personnel resources to enable them to be responsive to the demands of customers when situations or projects need change.

1.4.6. **Pursue Opportunities-** Pace is committed to pursuing opportunities for the growth of the company by constantly exploring markets and areas where we can expand.

1.4.7. **Continuously Improve-** Pace has committed much time and effort into establishing a continuous improvement program where company personnel meet on a regular basis to share ideas in cost reduction, production improvement and standardization in order to develop best practices. This information, as well as company financial and production metrics, are tracked, evaluated, and shared with each Pace facility.

1.5. Code of Ethics

1.5.1. PASI's fundamental ethical principles are as follows:

1.5.1.1. Each PASI employee is responsible for the propriety and consequences of his or her actions;

1.5.1.2. Each PASI employee must conduct all aspects of Company business in an ethical and strictly legal manner, and must obey the laws of the United States and of all localities, states and nations where PASI does business or seeks to do business;

1.5.1.3. Each PASI employee must reflect the highest standards of honesty, integrity and fairness on behalf of the Company with customers, suppliers, the public, and one another.

1.5.1.4. Each PASI employee must recognize and understand that our daily activities in environmental laboratories affect public health as well as the environment and that environmental laboratory analysts are a critical part of the system society depends upon to improve and guard our natural resources:

1.5.2. Strict adherence by each PASI employee to this Code of Ethics and to the Standards of Conduct is essential to the continued vitality of PASI and to continue the pursuit of our common mission to protect our environment and improve our health.

1.5.3. Failure to comply with the Code of Ethics and Standards of Conduct will result in disciplinary action up to and including termination and referral for civil or criminal prosecution where appropriate. An employee will be notified of an infraction and given an opportunity to explain, as prescribed under current disciplinary procedures.

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1.5.4. Any Pace employee can contact corporate management to report an ethical concern by calling the anonymous hotline at 612-607-6431.

1.6. Standards of Conduct

1.6.1. Data Integrity

1.6.1.1. The accuracy and integrity of the analytical results and its supporting documentation produced at PASI are the cornerstones of the company. Lack of data integrity is an assault on our most basic values putting PASI and its employees at grave financial and legal risk and will not be tolerated. Therefore, employees are to accurately prepare and maintain all technical records, scientific notebooks, calculations, and databases. Employees are prohibited from making false entries or misrepresentations of data for any reason.

1.6.1.2. Managerial staff must make every effort to ensure that personnel are free from any undue pressures that may affect the quality or integrity of their work including commercial, financial, over-scheduling, and working condition pressures.

1.6.2. Confidentiality

1.6.2.1. PASI employees must not use or disclose confidential or proprietary information except when in connection with their duties at PASI. This is effective over the course of employment and for an additional period of two years thereafter.

1.6.2.2. Confidential or proprietary information, belonging to either PASI and/or its customers, includes but is not limited to test results, trade secrets, research and development matters, procedures, methods, processes and standards, company-specific techniques and equipment, marketing and customer information, inventions, materials composition, etc.

1.6.3. Conflict of Interest

1.6.3.1. PASI employees must avoid situations that might involve a conflict of interest or could appear questionable to others. The employee must be careful in two general areas:

1.6.3.1.1. Participation in activities that conflict or appear to conflict with the employees' PASI responsibilities.

1.6.3.1.2. Offering or accepting anything that might influence the recipient or cause another person to believe that the recipient may be influenced to behave or in a different manner than he would normally. This includes bribes, gifts, kickbacks, or illegal payments.

1.6.3.2. Employees are not to engage in outside business or economic activity relating to a sale or purchase by the Company. Other problematic activities include service on the Board of Directors of a competing or supplier company, significant ownership in a competing or supplier company, employment for a competing or supplier company, or participation in any outside business during the employee's work hours.

1.6.4. Compliance

1.6.4.1. All employees are required to read, understand, and comply with the various components of the standards listed in this document. As confirmation that they understand their responsibility, each employee is required to sign an acknowledgment form annually that then becomes part of the employee's permanent record. Employees will be held accountable for complying with the Quality Systems as summarized in the Quality Assurance Manual.

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1.7. Laboratory Organization

1.7.1. The PASI Corporate Office centralizes company-wide accounting, business development, financial management, human resources development, information systems, marketing, quality, safety, and training activities. PASI's Director of Quality is responsible for assisting the development, implementation and monitoring of quality programs for the company. See Attachment IIB for the Corporate Organizational structure.

1.7.2. Each laboratory within the system operates with local management, but all labs share common systems and receive support from the Corporate Office.

1.7.3. A Senior General Manager (SGM) oversees all laboratories and service centers in their assigned region. Each laboratory or facility in the company is then directly managed by an SGM, a General Manager (GM), an Assistant General Manager (AGM), or an Operations Manager (OM). Quality Managers (QM) or Senior Quality Managers (SQM) at each laboratory report directly to the highest level of local laboratory management, however named, that routinely makes day-to-day decisions regarding that facility's operations. The QMs and SQMs will also receive guidance and direction from the corporate Director of Quality.

1.7.4. The SGM, GM, AGM or OM, or equivalent functionality in each facility, bears the responsibility for the laboratory operations and serves as the final, local authority in all matters. In the absence of these managers, the SQM/QM serves as the next in command, unless the manager in charge has assigned another designee. He or she assumes the responsibilities of the manager, however named, until the manager is available to resume the duties of their position. In the absence of both the manager and the SQM/QM, management responsibility of the laboratory is passed to the Technical Director, provided such a position is identified, and then to the most senior department manager until the return of the lab manager or SQM/QM. The most senior department manager in charge may include the Client Services Manager or the Administrative Business Manager at the discretion of the SGM/GM/AGM/OM.

1.7.5. A Technical Director who is absent for a period of time exceeding 15 consecutive calendar days shall designate another full-time staff member meeting the qualifications of the technical director to temporarily perform this function. The laboratory SGM/GM/AGM/OM or SQM/QM has the authority to make this designation in the event the existing Technical Director is unable to do so. If this absence exceeds 35 consecutive calendar days, the primary accrediting authority shall be notified in writing.

1.7.6. The SQM/QM has the responsibility and authority to ensure the Quality System is implemented and followed at all times. In circumstances where a laboratory is not meeting the established level of quality or following the policies set forth in this Quality Assurance Manual, the SQM/QM has the authority to halt laboratory operations should he or she deem such an action necessary. The SQM/QM will immediately communicate the halting of operations to the SGM/GM/AGM/OM and keep them posted on the progress of corrective actions. In the event the SGM/GM/AGM/OM and the SQM/QM are not in agreement as to the need for the suspension, the Chief Operating Officer and Director of Quality will be called in to mediate the situation.

1.7.7. The technical staff of the laboratory is generally organized into the following functional groups:

- Organic Sample Preparation
- Wet Chemistry Analysis
- Metals Analysis

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- Volatiles Analysis
- Semi-volatiles Analysis
- Radiochemical Analysis
- Microbiology

1.7.8. Appropriate support groups are present in each laboratory. The actual organizational structure for PASI – Florida/South Florida is listed in Attachment IIA. In the event of a change in SGM/GM/AGM/OM, SQM/QM, or any Technical Director, the laboratory will notify its accrediting authorities and revise the organizational chart in the Quality Assurance Manual (QAM) within 30 days. For changes in Department Managers or Supervisors or other laboratory personnel, no notifications will be sent to the laboratory's accrediting agencies; changes to the organizational chart will be updated during or prior to the annual review process. Changes or additions in these key personnel will also be noted by additional signatures on the QAM, as applicable. In any case, the QAM will remain in effect until the next scheduled revision.

1.7.9. The PASI-Florida business unit consists of laboratory locations in Ormond Beach, FL and Pompano Beach, FL as well as service centers throughout the state. The PASI-Florida unit operates under a single General Manager and Quality Manager.

1.8. Laboratory Job Descriptions

1.8.1. Senior General Manager

- Oversees all functions of all the operations within their designated region;
- Oversees the development of local GMs/AGMs/OMs within their designated region;
- Oversees and authorizes personnel development including staffing, recruiting, training, workload scheduling, employee retention and motivation;
- Oversees the preparation of budgets and staffing plans for all operations within their designated region;
- Ensures compliance with all applicable state, federal and industry standards;
- Works closely with Regional Sales Management.

1.8.2. General Manager

- Oversees all functions of their assigned operations;
- Authorizes personnel development including staffing, recruiting, training, workload scheduling, employee retention and motivation;
- Prepares budgets and staffing plans;
- Monitors the Quality Systems of the laboratory and advises the SQM/QM accordingly;
- Ensures compliance with all applicable state, federal and industry standards.

1.8.3. Assistant General Manager / Operations Manager

- In the absence of the SGM/GM, performs all duties as listed above for the SGM or GM;
- Oversees the daily production and quality activities of all departments;
- Manages all departments and works with staff to ensure department objectives are met;
- Works with all departments to ensure capacity and customer expectations are accurately understood and met;

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- Works with SGM/GM to prepare appropriate budget and staffing plans for all departments;
- Responsible for prioritizing personnel and production activities within all departments;
- Performs formal and informal performance reviews of departmental staff.

1.8.4. Senior Quality Manager

- Provides quality oversight for multiple laboratories where there is not a local quality manager or for labs where there are multiple and separately distinct quality systems in the same facility;
- Responsible for implementing, maintaining and improving the quality system while functioning independently from laboratory operations. Reports directly to the highest level of local laboratory facility management, however named, that routinely makes day-to-day decisions regarding laboratory operations, but receives direction and assistance from the Corporate Director of Quality;
- Ensures that communication takes place at all levels within the lab regarding the effectiveness of the quality system and that all personnel understand their contributions to the quality system;
- Monitors Quality Assurance/Quality Control activities to ensure that the laboratory achieves established standards of quality (as set forth by the Corporate Quality office). The Quality Manager is responsible for reporting the lab's level of compliance to these standards to the Corporate Director of Quality on a quarterly basis;
- Maintains records of quality control data and evaluates data quality;
- Conducts periodic internal audits and coordinates external audits performed by regulatory agencies or customer representatives;
- Reviews and maintains records of proficiency testing results;
- Maintains the document control system;
- Assists in development and implementation of appropriate training programs;
- Provides technical support to laboratory operations regarding methodology and project QA/QC requirements;
- Maintains certifications from federal and state programs;
- Ensures compliance with all applicable state, federal and industry standards;
- Maintains the laboratory training records, including those in the Learning Management System (LMS), and evaluates the effectiveness of training;
- Monitors correctives actions;
- Maintains the currency of the Quality Manual.

1.8.5. Quality Manager

- Responsible for implementing, maintaining and improving the quality system while functioning independently from laboratory operations. Reports directly to the highest level of local laboratory facility management, however named, that routinely makes day-to-day decisions regarding laboratory operations, but receives direction and assistance from the Corporate Director of Quality. They may also report to a Senior Quality Manager within the same facility;
- Ensures that communication takes place at all levels within the lab regarding the effectiveness of the quality system and that all personnel understand their contributions to the quality system;
- Monitors Quality Assurance/Quality Control activities to ensure that the laboratory achieves established standards of quality (as set forth by the Corporate Quality office). The Quality Manager is responsible for reporting the lab's level of compliance to these standards to the Corporate Director of Quality on a quarterly basis;

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- Maintains records of quality control data and evaluates data quality;
- Conducts periodic internal audits and coordinates external audits performed by regulatory agencies or customer representatives;
- Reviews and maintains records of proficiency testing results;
- Maintains the document control system;
- Assists in development and implementation of appropriate training programs;
- Provides technical support to laboratory operations regarding methodology and project QA/QC requirements;
- Maintains certifications from federal and state programs;
- Ensures compliance with all applicable state, federal and industry standards;
- Maintains the laboratory training records, including those in the Learning Management System (LMS), and evaluates the effectiveness of training;
- Monitors correctives actions;
- Maintains the currency of the Quality Manual.

1.8.6. Quality Analyst

- Assists the SQM/QM in the performance of quality department responsibilities as delegated by the SQM/QM;
- Assists in monitoring QA/QC data;
- Assists in internal audits;
- Assists in maintaining training records;
- Assists in maintaining the document control system;

1.8.7. Technical Director

- Monitors the standards of performance in quality assurance and quality control data;
- Monitors the validity of analyses performed and data generated;
- Reviews tenders, contracts and QAPPs to ensure the laboratory can meet the data quality objectives for any given project;
- Serves as the manager of the laboratory in the absence of the SGM/GM/AGM/OM and SQM/QM;
- Provides technical guidance in the review, development, and validation of new methodologies.

1.8.8. Administrative Business Manager

- Responsible for financial and administrative management for the entire facility;
- Provides input relative to tactical and strategic planning activities;
- Organizes financial information so that the facility is run as a fiscally responsible business;
- Works with staff to confirm that appropriate processes are put in place to track revenues and expenses;
- Provide ongoing financial information to the SGM/GM/AGM/OM and the management team so they can better manage their business;
- Utilizes historical information and trends to accurately forecast future financial positions;

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- Works with management to ensure that key measurements are put in place to be utilized for trend analysis—this will include personnel and supply expenses, and key revenue and expense ratios;
- Works with SGM/GM/AGM/OM to develop accurate budget and track on an ongoing basis;
- Works with entire management team to submit complete and justified capital budget requests and to balance requests across departments;
- Works with project management team and administrative support staff to ensure timely and accurate invoicing.

1.8.9. Client Services Manager

- Oversees all the day to day activities of the Client Services Department which includes Project Management and, possibly, Sample Control;
- Responsible for staffing and all personnel management related issues for Client Services;
- Serves as the primary senior consultant to customers on all project related issues such as set up, initiation, execution and closure;
- Performs or is capable of performing all duties listed for that of Project Manager.

1.8.10. Project Manager

- Coordinates daily activities including taking orders, reporting data and analytical results;
- Serves as the primary technical and administrative liaison between customers and PASI;
- Communicates with operations staff to update and set project priorities;
- Provides results to customers in the requested format (verbal, hardcopy, electronic, etc.);
- Works with customers, laboratory staff, and other appropriate PASI staff to develop project statements of work or resolve problems of data quality;
- Responsible for solicitation of work requests, assisting with proposal preparation and project initiation with customers and maintain customer records;
- Mediation of project schedules and scope of work through communication with internal resources and management;
- Responsible for preparing routine and non-routine quotations, reports and technical papers;
- Interfaces between customers and management personnel to achieve customer satisfaction;
- Manages large-scale complex projects;
- Supervises less experienced project managers and provide guidance on management of complex projects;
- Arranges bottle orders and shipment of sample kits to customers;
- Verifies login information relative to project requirements and field sample Chains-of-Custody.

1.8.11. Project Coordinator

- Responsible for preparation of project specifications and provides technical/project support;
- Coordinates project needs with other department sections and assists with proposal preparation;
- Prepares routine proposals and invoicing;
- Responsible for scanning, copying, assembling and binding final reports;

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- Other duties include filing, maintaining forms, process outgoing mail, maintaining training database and data entry.

1.8.12. Department Manager/Supervisor

- Oversees the day-to-day production and quality activities of their assigned department;
- Ensures that quality assurance and quality control criteria of analytical methods and projects are satisfied;
- Assesses data quality and takes corrective action when necessary;
- Approves and releases technical and data management reports;
- Ensures compliance with all applicable state, federal and industry standards.

1.8.13. Group Supervisor/Leader

- Trains analysts in laboratory operations and analytical procedures;
- Organizes and schedules analyses with consideration for sample holding times;
- Implements data verification procedures by assigning data verification duties to appropriate personnel;
- Evaluates instrument performance and supervises instrument calibration and preventive maintenance programs;
- Reports non-compliance situations to laboratory management including the SQM/QM.

1.8.14. Laboratory Analyst

- Performs detailed preparation and analysis of samples according to published methods and laboratory procedures;
- Processes and evaluates raw data obtained from preparation and analysis steps;
- Generates final results from raw data, performing primary review against method criteria;
- Monitors quality control data associated with analysis and preparation. This includes examination of raw data such as chromatograms as well as an inspection of reduced data, calibration curves, and laboratory notebooks;
- Reports data in LIMS, authorizing for release pending secondary approval;
- Conducts routine and non-routine maintenance of equipment as required;
- Performs or is capable of performing all duties associated with that of Laboratory Technician.

1.8.15. Laboratory Technician

- Prepares standards and reagents according to published methods or in house procedures;
- Performs preparation and analytical steps for basic laboratory methods;
- Works under the direction of a Laboratory Analyst on complex methodologies;
- Assists Laboratory Analysts on preparation, analytical or data reduction steps for complex methodologies;
- Monitors quality control data as required or directed. This includes examination of raw data such as chromatograms as well as an inspection of reduced data, calibration curves, and laboratory notebooks.

1.8.16. Field Technician

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- Prepares and samples according to published methods, PASI Quality Assurance Manual and/or customer directed sampling objectives;
- Capable of the collection of representative environmental or process related air samples;
- Use computer software to compile, organize, create tables, create graphics and write test reports;
- Reviews project documentation for completeness, method compliance and contract fulfillment;
- Train less experienced environmental technicians and provide guidance on sampling and analysis;
- Responsible for project initiation and contact follow-up;
- Develop sampling plans and prepare test plan documents.

1.8.17. Field Analyst

- Analyzes field samples according to published methods, PASI Quality Assurance Manual and/or customer directed sampling objectives,
- Capable of the collection and analysis of representative environmental or process related air samples,
- Proficient in a variety of analytical tests; specifically on-site gas-phase organic and inorganic compounds by extractive fourier transform infrared spectroscopy (FTIR),
- Train less experienced staff and provide guidance on FTIR sampling and analysis,
- Assist in reporting tasks and project management responsibilities, and
- Perform back-up support for manager tasks such as reporting needs and customer concerns.

1.8.18. Sample Management Personnel

- Signs for incoming samples and verifies the data entered on the Chain of custody forms;
- Enters the sample information into the Laboratory Information Management System (LIMS) for tracking and reporting;
- Stages samples according to EPA requirements;
- Assists Project Managers and Coordinators in filling bottle orders and sample shipments.

1.8.19. Systems Administrator or Systems Manager

- Assists with the creation and maintenance of electronic data deliverables (EDDs);
- Coordinates the installation and use of all hardware, software and operating systems;
- Performs troubleshooting on all aforementioned systems;
- Trains new and existing users on systems and system upgrades;
- Maintains all system security passwords;
- Maintains the electronic backups of all computer systems.

1.8.20. Safety/Chemical Hygiene Officer

- Maintains the laboratory Chemical Hygiene Plan;
- Plans and implements safety policies and procedures;
- Maintains safety records;
- Organizes and/or performs safety training;

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- Performs safety inspections and provides corrective/preventative actions;
- Assists personnel with safety issues.

1.8.21. Program Director/Hazardous Waste Coordinator (or otherwise named)

- Evaluates waste streams and helps to select appropriate waste transportation and disposal companies;
- Maintains complete records of waste disposal including waste manifests and state reports;
- Assists in training personnel on waste-related issues such as waste handling and storage, waste container labeling, proper satellite accumulation, secondary containment, etc.;
- Conducts a weekly inspection of the waste storage areas of the laboratory.

1.9. Training and Orientation

1.9.1. Training for Pace employees is managed through a web-based Learning Management System. After a new employee has been instructed in matters of human resources, they are given instructional materials for the LMS and a password for access.

1.9.2. A new hire training checklist is provided to the new employee that lists training items for the employee to work through either independently on LMS or with their supervisor or trainer. The training items that can be completed independently include:

- Reading through applicable Standard Operating Procedures;
- Reviewing the Quality Manual and Chemical Hygiene Plan;
- Core training modules such as quality control indicators, basic laboratory skills, etc.;
- Quality Systems training including traceability of measurements, method calibration, calibration verification, accuracy, precision and uncertainty of measurements, corrective actions, documentation, and root cause analysis;
- Data Integrity/Ethics training.

1.9.3. The new employee's Department Supervisor provides the employee with a basic understanding of the role of the laboratory within the structure of PASI and the basic elements of that individual's position. Supervised training uses the following techniques:

- Hands-on training
- Training checklists/worksheets
- Lectures and training sessions
- Method-specific training
- Conferences and seminars
- Short courses
- Specialized training by instrument manufacturers
- Proficiency testing programs.
- On-line courses

1.9.4. Group Supervisors/Leaders are responsible for providing documentation of training and proficiency for each employee under their supervision. The employee's training file indicates what procedures an analyst or a technician is capable of performing, either independently or with supervision. The files also include documentation of continuing capability, which are fully detailed in Section 3.4.

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Training documentation files for each person are maintained by the Quality Office either in hardcopy format or within the LMS.

1.9.5. All procedures and training records are maintained and available for review during laboratory audits. These procedures are reviewed/updated periodically by laboratory management. Additional information can be found in SOP S-ALL-Q-020 **Training and Employee Orientation** or its equivalent revision or replacement.

1.10. Data Integrity System

1.10.1. The data integrity system at PASI provides assurances to management that a highly ethical approach is being applied to all planning, training and implementation of methods. Data integrity is crucial to the success of our company and Pace Analytical is committed to creating and maintaining a culture of quality throughout the organization. To accomplish this goal, PASI has implemented a data integrity system that encompasses the following four requirements:

1.10.1.1. A data integrity training program: standardized training is given to each new employee and a yearly refresher is presented to all employees. Key topics addressed by this training include:

- 1.10.1.1.1. Need for honesty and transparency in analytical reporting
- 1.10.1.1.2. Process for reporting data integrity issues
- 1.10.1.1.3. Specific examples of unethical behavior and improper practices
- 1.10.1.1.4. Documentation of non-conforming data that is still useful to the data user
- 1.10.1.1.5. Consequences and punishments for unethical behavior
- 1.10.1.1.6. Examples of monitoring devices used by management to review data and systems

1.10.1.2. Signed data integrity documentation for all employees: this includes a written quiz following the Ethics training session and written agreement to abide by the Code of Ethics and Standards of Conduct explained in the employee manual.

1.10.1.3. In-depth, periodic monitoring of data integrity including peer data review and validation, internal raw data audits, proficiency testing studies, etc.

1.10.1.4. Documentation of any review or investigation into possible data integrity infractions. This documentation, including any disciplinary actions involved, corrective actions taken, and notifications to customers must be retained for a minimum of five years.

1.10.2. PASI management makes every effort to ensure that personnel are free from any undue pressures that affect the quality of their work including commercial, financial, over scheduling, and working condition pressures.

1.10.3. Corporate management also provides all PASI facilities a mechanism for confidential reporting of data integrity issues that ensures confidentiality and a receptive environment in which all employees are comfortable discussing items of ethical concern. The anonymous message line is monitored by the Corporate Director of Quality who will ensure that all concerns are evaluated and, where necessary, brought to the attention of executive management and investigated. Any Pace employee can contact corporate management to report an ethical concern by calling the anonymous hotline at 612-607-6431.

1.11. Laboratory Safety

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1.11.1. It is the policy of PASI to make safety and health an integral part of daily operations and to ensure that all employees are provided with safe working conditions, personal protective equipment, and requisite training to do their work without injury. Each employee is responsible for his/her own safety as well as those working in the immediate area by complying with established company rules and procedures. These rules and procedures as well as a more detailed description of the employees' responsibilities are contained in the corporate Safety Manual and Chemical Hygiene Plan.

1.12. Security and Confidentiality

1.12.1. Security is maintained by controlled access to laboratory buildings. Exterior doors to laboratory buildings remain either locked or continuously monitored by PASI staff. Keyless door lock combinations and computer access codes/logins are changed as needed. Posted signs direct visitors to the reception office and mark all other areas as off limits to unauthorized personnel. All visitors, including PASI staff from other facilities, must sign the Visitor's Logbook maintained by the receptionist. A staff member will accompany them during the duration of their stay on the premises unless the SGM/GM/AGM/OM, SQM/QM, or Technical Director specify otherwise. In this instance, the staff member will escort the visitor back to the reception area at the end of his/her visit where he/she signs out. The last staff member to leave their department for the day must ensure that all outside access points to that area are secure.

1.12.2. Additional security is provided where necessary, (e.g., specific secure areas for sample, data, and customer report storage), as requested by customers, or cases where national security is of concern. These areas are lockable within the facilities, or are securely offsite. Access is limited to specific individuals or their designees. Security of sample storage areas is the responsibility of the Sample Custodian. Security of samples and data during analysis and data reduction is the responsibility of Group Supervisors. Security of customer report archives is the responsibility of the Client Services Manager. These secure areas are locked whenever these individuals or their designees are not present in the facility.

1.12.3. Access to designated laboratory sample storage locations is limited to authorized personnel only. Provisions for lock and key access are provided. No samples are to be removed without proper authorization. If requested by customer or contract, samples are not to be removed from secure storage areas without filling out an associated internal chain of custody.

1.12.4. Standard business practices of confidentiality are applied to all documents and information regarding customer analyses. Specific protocols for handling confidential documents are described in PASI SOPs. Additional protocols for sample identification by internal laboratory identification numbers only are implemented as required under contract specific Quality Assurance Project Plans (QAPPs).

1.12.5. All information pertaining to a particular customer, including national security concerns will remain confidential. Data will be released to outside agencies only with written authorization from the customer or where federal or state law requires the company to do so.

1.13. Communications

1.13.1. Management within each lab bears the responsibility of ensuring that appropriate communication processes are established and that communication takes place regarding the effectiveness of the management/quality system. These communication processes may include email, regular staff meetings, senior management meetings, etc.

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1.13.2. Corporate management bears the responsibility of ensuring that appropriate communication processes are established within the network of facilities and that communication takes place at a company-wide level regarding the effectiveness of the management/quality systems of all Pace facilities. These communication processes may include email, quarterly continuous improvement conference calls for all lab departments, and annual continuous improvement meetings for all department supervisors, quality managers, client services managers, and other support positions.

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2.0. SAMPLE CUSTODY

2.1. Sampling Support

2.1.1. Each individual PASI laboratory provides shipping containers, properly preserved sample containers, custody documents, and field quality control samples to support field-sampling events. Guidelines for sample container types, preservatives, and holding times for a variety of methods are listed in Attachment VIII. Note that all analyses listed are not necessarily performed at all PASI laboratories and there may be additional laboratory analyses performed that are not included in these tables. Customers are encouraged to contact their local Pace Project Manager for questions or clarifications regarding sample handling. PASI - Florida/South Florida may provide pick-up and delivery services to their customers when needed.

2.2. Field Services

2.2.1. Pace Analytical has a large Field Services Division which is based in their Minneapolis facility as well as limited field service capabilities in some of our other facilities. Field Services provides comprehensive nationwide service offerings including:

- Stack Testing
- Ambient Air
- CEM Certification Testing
- Air Quality Monitoring
- Onsite Analytical Services- FTIR and GC
- Real-time Process Diagnostic/Optimization Testing
- Wastewater, Groundwater and Drinking Water Monitoring
- Storm Water and Surface Water Monitoring
- Soil and Waste Sampling
- Mobile Laboratory Services

2.2.2. Field Services operates under the PASI Corporate Quality System, with applicable and necessary provisions to address the activities, methods, and goals specific to Field Services. All procedures and methods used by Field Services are documented in Standard Operating Procedures and Procedure Manuals.

2.3. Project Initiation

2.3.1. Prior to accepting new work, the laboratory reviews its performance capability. The laboratory confirms that sufficient personnel, equipment capacity, analytical method capability, etc., are available to complete the required work. Customer needs, certification requirements, and data quality objectives are defined and the appropriate sampling and analysis plan is developed to meet the project requirements by project managers or sales representatives. Members of the management staff review current instrument capacity, personnel availability and training, analytical procedures capability, and projected sample load. Management then informs the sales and client services personnel whether or not the laboratory can accept the new project via written correspondence, email, and/or daily operations meetings.

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2.3.2. The laboratory maintains records of all such reviews, including discussions with customers. Routine analytical project documentation of quotes, notes, dates, initials, and/or recordings is maintained in a project folder by project management. Conditions for new and more complex contracts are determined by the SGM/GM/AGM/OM and sales representatives. Quality Management is consulted on technical requirements and operations staff provides input on volume capacities. Evidence of these reviews is maintained in the form of awarded Request for Proposals (RFPs), signed quotes or contracts, and a Customer Relationship Management (CRM) database. If a review identifies a potential mismatch between customer requirements and laboratory capabilities and/or capacities, Pace will specify its level of commitment by listing these exceptions to the requirements within the RFP, quote or contract.

2.3.3. Additional information regarding specific procedures for reviewing new work requests can be found in SOP SOT-ALL-C-006 **Review of Analytical Requests** or its equivalent revision or replacement.

2.4. Chain of Custody

2.4.1. A chain of custody (COC) provides the legal documentation of samples from time of collection to completion of analysis. PASI has implemented Standard Operating Procedures to ensure that sample custody traceability and responsibility objectives are achieved for every project.

2.4.2. Field personnel or client representatives must complete a chain of custody for all samples that are received by the laboratory. The importance of completeness of COCs is stressed to the samplers and is critical to efficient sample receipt and to insure the requested methods are used to analyze the correct samples.

2.4.3. If sample shipments are not accompanied by the correct documentation, the Sample Receiving department notifies a Project Manager. The Project Manager then obtains the correct documentation/information from the customer in order for analysis of samples to proceed.

2.4.4. The sampler is responsible for providing the following information on the chain of custody form:

- Customer project name
- Project location or number
- Field sample number/identification
- Date and time sampled
- Sample matrix
- Preservative
- Requested analyses
- Sampler signature
- Relinquishing signature
- Date and time relinquished
- Sampler remarks as needed
- Custody Seal Number if present
- Regulatory Program Designation
- The state where the samples were collected to ensure all applicable state requirements are met
- Turnaround time requested
- Purchase order number

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2.4.5. The COC is filled out completely and legibly with indelible ink. Errors are corrected by drawing a single line through the initial entry and initialing and dating the change. All transfers of samples are recorded on the chain of custody in the “relinquished” and “received by” sections. All information except signatures is printed.

2.4.6. Additional information can be found in SOT-ALL-C-001 **Sample Management** or its equivalent revision or replacement.

2.5. Sample Acceptance Policy

2.5.1. In accordance with regulatory guidelines, PASI complies with the following sample acceptance policy for all samples received.

2.5.2. If the samples do not meet the sample receipt acceptance criteria outlined below, the laboratory is required to document all non-compliances, contact the customer, and either reject the samples or fully document any decisions to proceed with analyses of samples which do not meet the criteria. Any results reported from samples not meeting these criteria are appropriately qualified on the final report.

2.5.2.1. For Ohio VAP samples, the narrative for any report that includes qualified data must also include a discussion of any bias in the results.

2.5.3. All samples must:

- Have unique customer identification that is clearly marked with indelible ink on durable waterproof labels affixed to the sample containers that match the chain of custody.
- Have clear documentation on the chain of custody related to the location of the sampling site with the time and date of sample collection.
- Have the sampler’s name and signature.
- Have all requested analyses clearly designated on the COC.
- Have clear documentation of any special analytical or data reporting requirements.
- Be in appropriate sample containers with clear documentation of the preservatives used.
- Be correctly preserved unless the method allows for laboratory preservation.
- Be received within holding time. Any samples with hold times that are exceeded will not be processed without prior customer approval.
- Have sufficient sample volume to proceed with the analytical testing. If insufficient sample volume is received, analysis will not proceed without customer approval.
- Be received within appropriate temperature ranges - not frozen but $\leq 6^{\circ}\text{C}$ (See Note 1), unless program requirements or customer contractual obligations mandate otherwise (see Note 2). The cooler temperature is recorded directly on the COC and the SCUR. Samples that are delivered to the laboratory immediately after collection are considered acceptable if there is evidence that the chilling process has been started. For example, by the arrival of the samples on ice. If samples arrive that are not compliant with these temperature requirements, the customer will be notified. The analysis will NOT proceed unless otherwise directed by the customer. If less than 72 hours remain in the hold time for the analysis, the analysis may be started while the customer is contacted to avoid missing the hold time. Data associated with any deviations from the above sample acceptance policy requirements will be appropriately qualified.

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Note 1: Temperature will be read and recorded based on the precision of the measuring device. For example, temperatures obtained from a thermometer graduated to 0.1°C will be read and recorded to $\pm 0.1^\circ\text{C}$. Measurements obtained from a thermometer graduate to 0.5°C will be read to $\pm 0.5^\circ\text{C}$. Measurements read at the specified precision are not to be rounded down to meet the $\leq 6^\circ\text{C}$ limit

Note 2: Some microbiology methods allow sample receipt temperatures of up to 10°C. Consult the specific method for microbiology samples received above 6°C prior to initiating corrective action for out of temperature preservation conditions.

Note 3: Biological Tissue Samples must be received frozen at $\leq 0^\circ\text{C}$.

2.5.4. Upon sample receipt, the following items are also checked and recorded:

- Presence of custody seals or tapes on the shipping containers;
- Sample condition: Intact, broken/leaking, bubbles in VOA samples;
- Sample holding time;
- Sample pH and residual chlorine when required;
- Appropriate containers.

2.5.5. Samples for drinking water analysis that are improperly preserved, or are received past holding time, are rejected at the time of receipt, with the exception of VOA samples that are tested for pH at the time of analysis.

2.5.6. Additional information can be found in SOT-ALL-C-001 **Sample Management** or its equivalent revision or replacement.

2.6. Sample Log-in

2.6.1. After sample inspection, all sample information on the chain of custody is entered into the Laboratory Information Management System (LIMS). This permanent record documents receipt of all sample containers including:

- Customer name and contact
- Customer number
- Pace Analytical project number
- Pace Analytical Project Manager
- Sample descriptions
- Due dates
- List of analyses requested
- Date and time of laboratory receipt
- Field ID code
- Date and time of collection
- Any comments resulting from inspection for sample rejection

2.6.2. All samples received are logged into the LIMS within one working day of receipt. Sample login may be delayed due to customer clarification of analysis needed, corrective actions for sample receipt non-conformance, or other unusual circumstances. If the time collected for any sample is unspecified and Pace is unable to obtain this information from the customer, the laboratory will use 08:00 as the

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time sampled. All hold times will be based on this sampling time and qualified accordingly if exceeded.

2.6.3. For DoD work, if the time of the sample collection is not provided, the laboratory must assume the most conservative time of day. This is defined as 12:01am.

2.6.4. The LIMS automatically generates a unique identification number for each sample created in the system. The LIMS sample number follows the general convention of 3512345001. This unique identification number is placed on the sample container as a durable label and becomes the link between the laboratory's sample management system and the customer's field identification; it will be a permanent reference number for all future interactions.

2.6.5. Current division codes are noted below. These division codes are used primarily for accounting purposes and LIMS sample identifications. For smaller facilities, these codes may be used primarily for accounting purposes. More division codes may be added, revised or removed without updating this document.

00 = Corporate	50 = Indianapolis/Columbus
10 = Minnesota/Montana/Virginia MN	51 = Columbus (accounting only)
12 = Virginia/Duluth MN	55/56 = Pace Energy Labs
20 = New Orleans/Puerto Rico	60 = Kansas
30 = Pittsburgh	65 = New York (Schenectady)
35 = Florida/South Florida	70 = Long Island
36 = South Florida (accounting only)	75 = Dallas
40 = Green Bay	92 = Carolinas

2.6.6. Sample labels are printed from the LIMS and affixed to each sample container.

2.6.7. Samples with hold times that are near expiration date/time may be sent directly to the laboratory for analysis at the discretion of the Project Manager and/or SGM/GM/AGM/OM.

2.6.8. Additional information can be found in SOT-ALL-C-001 **Sample Management** or its equivalent revision or replacement.

2.7. Sample Storage

2.7.1. Storage Conditions

2.7.1.1. Samples are stored away from all standards, reagents, or other potential sources of contamination. Samples are stored in a manner that prevents cross contamination. Volatile samples are stored separately from other samples. All sample fractions, extracts, leachates, and other sample preparation products are stored in the same manner as actual samples or as specified by the analytical method.

2.7.1.2. Storage blanks, consisting of two 40mL aliquots of reagent water, are stored with volatile samples and are used to measure cross-contamination acquired during storage. If applicable, laboratories must have documented procedures and criteria for evaluating storage blanks, appropriate to the types of samples being stored.

2.7.1.3. Additional information can be found in SOT-ALL-Q-018 **Monitoring Temperature Controlled Units**.

2.7.2. Temperature Monitoring

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2.7.2.1. Samples are taken to the appropriate storage location immediately after sample receipt and check-in procedures are completed. All sample storage areas are located in limited access areas and are monitored to ensure sample integrity.

2.7.2.2. The temperature of each refrigerated storage area is maintained at $\leq 6^{\circ}\text{C}$ (but above freezing) unless state or program requirements differ. The temperature of each freezer storage area is maintained at $< -10^{\circ}\text{C}$ unless state or program requirements differ. The temperature of each storage area is checked and documented each day of use (each calendar day). If the temperature falls outside the acceptable limits, the following corrective actions are taken and appropriately documented:

- The temperature is rechecked after two hours to verify temperature exceedance. Corrective action is initiated and documented if necessary.
- The SQM/QM and/or laboratory management are notified if the problem persists.
- The samples are relocated to a proper environment if the temperature cannot be maintained after corrective actions are implemented.
- The affected customers are notified.
- Documentation is provided on analytical report.

Additional information can be found in SOT-ALL-Q-018 **Monitoring Temperature Controlled Units**.

2.7.3. Hazardous Materials

2.7.3.1. Pure product or potentially heavily contaminated samples must be tagged as "hazardous" or "lab pack" and stored separately from other samples.

2.7.4. Foreign/Quarantined Soils

2.7.4.1. Depending on the soil disposal practices of the laboratory, foreign soils and soils from USDA regulated areas are adequately segregated to enable proper sample disposal. The USDA requires these samples to be incinerated or sterilized by an approved treatment procedure. Additional information regarding USDA regulations and sample handling can be found in applicable local laboratory SOPs.

2.7.4.2. Additional information on sample storage can be found in SOT-ALL-C-001 **Sample Management** or its equivalent revision or replacement and in SOT-ALL-W-002 **Waste Handling and Management**.

2.8. Sample Protection

2.8.1. PASI laboratory facilities are operated under controlled access protocols to ensure sample and data integrity. Visitors must register at the front desk and be properly escorted at all times.

2.8.2. Samples are removed from storage areas by designated personnel and returned to the storage areas, if necessary, immediately after the required sample quantity has been taken.

2.8.3. Upon customer request, additional and more rigorous chain of custody protocols for samples and data can be implemented. For example, some projects may require internal chain-of-custody protocols.

2.8.4. Additional information can be found in SOT-ALL-C-001 **Sample Management** or its equivalent revision or replacement.

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2.9. Subcontracting Analytical Services

2.9.1. Every effort is made to perform all analyses for PASI customers within the laboratory that receives the samples. When subcontracting to a laboratory other than the receiving laboratory, whether inside or outside the PASI network, becomes necessary, a preliminary verbal communication with that laboratory is undertaken. Customers are notified in writing of the laboratory's intention to subcontract any portion of the testing to another laboratory. Work performed under specific protocols may involve special considerations.

2.9.2. Prior to subcontracting samples to a laboratory outside Pace Analytical, the potential subcontract laboratory will be pre-qualified by verifying that the subcontractor meets the following criteria:

- All certifications required for the proposed subcontract are in effect,
- Sufficient professional liability and other required insurance coverage is in effect, and
- Is not involved in legal action by any federal, state, or local government agency for data integrity issues and has not been convicted in such investigation at any time during the past 5 years.

2.9.3. The contact and preliminary arrangements are made between the PASI Project Manager and the appropriate subcontract laboratory personnel. The specific terms of the subcontract laboratory agreement include:

- Method of analysis
- Number and type of samples expected
- Project specific QA/QC requirements
- Deliverables required
- Laboratory certification requirement
- Price per analysis
- Turn-around time requirements

2.9.4. Chain-of-custody forms are generated for samples requiring subcontracting to other laboratories. Sample receiving personnel re-package the samples for shipment, create a transfer chain of custody form and record the following information:

- Pace Analytical Laboratory Number
- Matrix
- Requested analysis
- Special instructions regarding turnaround, required detection or reporting limits, or any unusual information known about the samples or analytical procedure.
- Signature in "Relinquished By"

2.9.5. All subcontracted sample data reports are sent to the PASI Project Manager. Pace will provide a copy of the subcontractor's report to the client when requested.

2.9.6. Any Pace Analytical work sent to other labs within the PASI network is handled as subcontracted work and all final reports are labeled clearly with the name of the laboratory performing the work. Any non-TNI work is clearly identified. PASI will not be responsible for analytical data if the subcontract laboratory was designated by the customer.

2.9.7. Additional information can be found in SOT-ALL-C-003 **Subcontracting Samples** or its equivalent revision or replacement.

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2.9.8. Subcontracted labs used for DoD work must be accredited by DoD or its designated representatives. Subcontracted labs must receive project specific approval from the DoD client before any samples are analyzed. These requirements also apply to the use of any laboratory under the same corporate umbrella, but at a different facility or location.

2.10. Sample Retention and Disposal

2.10.1. Samples, extracts, digestates, and leachates must be retained by the laboratory for the period of time necessary to protect the interests of the laboratory and the customer.

2.10.2. Unused portions of samples are retained by each laboratory based on program or customer requirements for sample retention and storage. The minimum sample retention time is 30 days from receipt of the samples. Samples requiring thermal preservation may be stored at ambient temperature when the hold time is expired, the report has been delivered, and/or allowed by the customer, program, or contract. Samples requiring storage beyond the minimum sample retention time due to special requests or contractual obligations may be stored at ambient temperature unless the laboratory has sufficient capacity and their presence does not compromise the integrity of other samples.

2.10.3. After this period expires, non-hazardous samples are properly disposed of as non-hazardous waste. The preferred method for disposition of hazardous samples is to return the excess sample to the customer. If it is not feasible to return samples, or the customer requires PASI to dispose of excess samples, proper arrangements will be made for disposal by an approved contractor.

2.10.4. Additional information can be found in SOT-ALL-W-002 **Waste Handling and Management** and SOT-ALL-C-001 **Sample Management** or their equivalent revisions or replacements.

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3.0. ANALYTICAL CAPABILITIES

3.1. Analytical Method Sources

3.1.1. PASI laboratories are capable of analyzing a full range of environmental samples from a variety of matrices, including air, surface water, wastewater, groundwater, soil, sediment, biota, and other waste products. The latest valid editions of methodologies are applied from regulatory and professional sources including EPA, ASTM, USGS, NIOSH, Standard Methods, and State Agencies. Section 11 is a representative listing of general analytical protocol references. PASI discloses in writing to its customers and regulatory agencies any instances in which modified methods are being used in the analysis of samples.

3.1.2. In the event of a customer-specific need, instrumentation constraint or regulatory requirement, PASI laboratories reserve the right to use valid versions of methods that may not be the most recent edition available.

3.2. Analytical Method Documentation

3.2.1. The primary form of PASI laboratory documentation of analytical methods is the Standard Operating Procedure (SOP). SOPs contain pertinent information as to what steps are required by an analyst to successfully perform a procedure. The required contents for the SOPs are specified in the company-wide SOP for Preparation of SOPs (S-ALL-Q-001).

3.2.2. The SOPs may be supplemented by other training materials that further detail how methods are specifically performed. This training material will undergo periodic, documented review along with the other Quality System documentation.

3.3. Analytical Method Validation and Instrument Validation

3.3.1. In some situations, PASI develops and validates methodologies that may be more applicable to a specific problem or objective. When non-standard methods are required for specific projects or analytes of interest, or when the laboratory develops or modifies a method, the laboratory validates the method prior to applying it to customer samples. Method validity is established by meeting criteria for precision and accuracy as established by the data quality objectives specified by the end user of the data. The laboratory records the validation procedure, the results obtained and a statement as to the usability of the method. The minimum requirements for method validation include evaluation of sensitivity, quantitation, precision, bias, and selectivity of each analyte of interest.

3.4. Demonstration of Capability (DOC)

3.4.1. Analysts complete an initial demonstration of capability (IDOC) study prior to performing a method or when there is a change in instrument type, personnel, or test method, or at any time that a method has not been performed by the laboratory or analyst in a 12-month period. The mean recovery and standard deviation of each analyte, taken from 4 replicates of a quality control standard is calculated and compared to method criteria (if available) or established laboratory criteria for evaluation of acceptance. Each laboratory maintains copies of all demonstrations of capability, including those that fail acceptance criteria and corresponding raw data for future reference and must

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document the acceptance criteria prior to the analysis of the DOC. Demonstrations of capability are verified on an annual basis.

3.4.2. For Continuing Demonstrations of Capability, the laboratories may use Performance Testing (PT) samples in lieu of the 4-replicate approach listed above. For methods or procedures that do not lend themselves to the “4-replicate” approach, the demonstration of capability requirements will be specified in the applicable SOP. Drinking Water DOCs must be done at or below the MCL.

3.4.3. Additional information can be found in SOP S-ALL-Q-020 **Training and Employee Orientation** or its equivalent revision or replacement.

3.5. Regulatory and Method Compliance

3.5.1. PASI understands that expectations of our customers commonly include the assumption that laboratory data will satisfy specific regulatory requirements. Therefore PASI attempts to ascertain, prior to beginning a project, what applicable regulatory jurisdiction, agency, or protocols apply to that project. This information is also required on the chain of custody submitted with samples.

3.5.2. PASI makes every effort to detect regulatory or project plan inconsistencies, based upon information from the customer, and communicate them immediately to the customer in order to aid in the decision making process. PASI will not be liable if the customer chooses not to follow PASI recommendations.

3.5.3. It is PASI policy to disclose in a forthright manner any detected noncompliance affecting the usability of data produced by our laboratories. The laboratory will notify customers within 30 days of fully characterizing the nature of the nonconformance, the scope of the nonconformance and the impact it may have on data usability.

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4.0. QUALITY CONTROL PROCEDURES

Quality control data is analyzed and where they are found to be outside pre-defined criteria, planned action is taken to correct the problem in order to prevent incorrect results from being reported. Quality control samples are to be processed in the same manner as client samples.

4.1. Method Blank

4.1.1. A method blank is used to evaluate contamination in the preparation/analysis system and is processed through all preparation and analytical steps with its associated samples.

4.1.2. A method blank is processed at a minimum frequency of one per preparation batch (see glossary section of this document for further clarification of the definition of batch). In the case of a method that has no separate preparation step, a method blank is processed with no more than 20 samples of a specific matrix performed by the same analyst, using the same method, standards, and reagents.

4.1.3. The method blank consists of a matrix similar to the associated samples that is known to be free of analytes of interest. Method blanks are not applicable for certain analyses, such as pH, conductivity, flash point and temperature.

4.1.4. Each method blank is evaluated for contamination. The source of any contamination is investigated and documented corrective action is taken when the concentration of any target analyte is detected above the reporting limit and is greater than 1/10 of the amount of that analyte found in any associated sample. Some labs, due to client requirements, etc., may have to evaluate their method blanks down to ½ the reporting limit or down to the method detection limit as opposed to the reporting limit itself. Corrective actions for blank contamination may include the re-preparation and re-analysis of all samples (where possible) and quality control samples. Data qualifiers must be applied to results that are considered affected by contamination in a method blank.

4.1.5. For UCMR3 samples, the measured concentration of each target analyte must be $\leq 1/3\text{MRL}$ for all methods except for 524.3. For 524.3, the measured concentration of each target analyte must be $\leq 1/2\text{MRL}$. Data for samples processed with an method blank that fails this criteria may not be reported.

4.1.6. For DoD samples, the method blank will be considered to be contaminated if: 1) The concentration of any target analyte in the blank exceeds 1/2 the reporting limit and is greater than 1/10 the amount measured in any sample or 1/10 the regulatory limit whichever is greater; 2) The concentration of any common laboratory contaminant in the blank exceeds the reporting limit and is greater than 1/10 the amount measured in any sample or 1/10 the regulatory limit whichever is greater or 3) The blank result otherwise affects the sample results as per the test method requirements or the project-specific objectives. If the method blank is contaminated as described above, then the laboratory shall reprocess affected samples in a subsequent preparation batch, except when sample results are below the LOD. If insufficient sample volume remains for reprocessing, the results shall be reported with appropriate data qualifiers.

4.1.7. Deviations made from this policy must be approved by the SQM/QM prior to release of the data.

4.1.8. For Ohio VAP projects, the laboratory must minimize the use of qualified data. In the case of method blank having any reportable contamination, the laboratory is required to reanalyze the associated samples with an acceptable method blank if there is sufficient sample remaining.

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Acceptable method blanks are those that are free of contamination below the reporting limit. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding method blanks for Ohio VAP projects. The narrative for any report that includes qualified data must also include a discussion of any bias in the results.

4.2. Laboratory Control Sample

4.2.1. The Laboratory Control Sample (LCS) is used to evaluate the performance of the entire analytical system including preparation and analysis.

4.2.2. An LCS is processed at a minimum frequency of one per preparation batch. In the case of a method that has no separate preparation step, an LCS will be processed with no more than 20 samples of a specific matrix performed by the same analyst, using the same method, standards, and reagents.

4.2.3. The LCS consists of a matrix similar to the associated samples that is known to be free of the analytes of interest that is then spiked with known concentrations of target analytes.

4.2.4. The LCS contains **all** analytes specified by a specific method or by the customer or regulatory agency, which may include full list of target compounds, with certain exceptions. These exceptions may include analyzing only specific Aroclors when PCB analysis is requested or not spiking with all EPA Appendix IX compounds when a full Appendix IX list of compounds is requested. However, the lab must ensure that all target components in its scope of accreditation are included in the spike mixture for the LCS over a two (2) year period. In the absence of specified components, the laboratory will spike the LCS with the following compounds:

- For multi-peak analytes (e.g. PCBs, technical chlordane, toxaphene), a representative standard will be processed.
- For methods with long lists of analytes, a representative number of target analytes may be chosen. The following criteria is used to determine the number of LCS compounds used:
 - For methods with 1-10 target compounds, the laboratory will spike with all compounds;
 - For methods with 11-20 target compounds, the laboratory will spike with at least 10 compounds or 80%, whichever is greater;
 - For methods with greater than 20 compounds, the laboratory will spike with at least 16 compounds.

4.2.5. The LCS is evaluated against the method default or laboratory-derived acceptance criteria. For those methods that require laboratory-derived limits, method default control limits may be used until the laboratory has a minimum of 20, but preferably greater than 30, data points from which to derive internal acceptance criteria. Any compound that is outside of these limits is considered to be 'out of control' and must be qualified appropriately. Any associated sample containing an 'out-of-control' compound must either be re-analyzed with a successful LCS or reported with the appropriate data qualifier. When the acceptance criteria for the LCS are exceeded high, and there are associated samples that are non-detects, then those non-detects can be reported with data qualifiers, or when the acceptance criteria are exceeded low, those associated sample results may be reported if they exceed the maximum regulatory limit/decision level with data qualifiers.

4.2.6. For LCSs containing a large number of analytes, it is statistically likely that a few recoveries will be outside of control limits. This does not necessarily mean that the system is out of control, and therefore no corrective action would be necessary (except for proper documentation). TNI has allowed for a minimum number of marginal exceedances, defined as recoveries that are beyond the

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LCS control limits (3X the standard deviation) but less than the marginal exceedance limits (4X the standard deviation). The number of allowable exceedances depends on the number of compounds in the LCS. If more analyte recoveries exceed the LCS control limits than is allowed (see below) or if any one analyte exceeds the marginal exceedance limits, then the LCS is considered non-compliant and corrective actions are necessary. The number of allowable exceedances is as follows:

- >90 analytes in the LCS- 5 analytes
- 71-90 analytes in the LCS- 4 analytes
- 51-70 analytes in the LCS- 3 analytes
- 31-50 analytes in the LCS- 2 analytes
- 11-30 analytes in the LCS- 1 analyte
- <11 analytes in the LCS- no analytes allowed out)

4.2.6.1 The use of marginal exceedances is not acceptable for data reported to South Carolina Department of Health and Environmental Control.

4.2.7. A matrix spike (MS) can be used in place of a non-compliant LCS in a batch as long as the MS passes the LCS acceptance criteria (this is a TNI allowance). When this happens, full documentation must be made available to the data user. If this is not allowed by a customer or regulatory body, the associated samples must be rerun with a compliant LCS (if possible) or reported with appropriate data qualifiers.

4.2.8. Deviations made from this policy must be approved by the SQM/QM prior to release of the data.

4.2.9. For UCMR3 projects, an LCS must be analyzed at or below the MRL prior to analyzing field samples. The laboratory may elect to re-run the LCS for any analyte in the low-level ($\leq$ MRL) LCS. However, if it fails again, the laboratory must correct the problem before analyzing field samples. Data for samples processed with an LCS that fails the method criteria may not be reported.

4.2.10. For Ohio VAP projects, the laboratory must minimize the use of qualified data. In the case of LCS failures, the laboratory is required to reanalyze the associated samples with an acceptable LCS for all target compounds if there is sufficient sample remaining. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding LCSs for Ohio VAP projects. The narrative for any report that includes qualified data must also include a discussion of any bias in the results.

4.2.11. For Department of Defense projects, the laboratory is not allowed to have any target analytes that exceed DoD LCS control limits. In the case of LCS failures, the laboratory is required to reanalyze the associated samples with an acceptable LCS for all target compounds if there is sufficient sample remaining. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding LCSs for Department of Defense projects. All LCS failures must be accounted for in project case narratives. See applicable method SOPs for further corrective action.

4.3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

4.3.1. A matrix spike (MS) is used to determine the effect of the sample matrix on compound recovery for a particular method. The information from these spikes is sample or matrix specific and is not used to determine the acceptance of an entire batch unless the MS is actually used as the LCS.

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4.3.2. A **Matrix Spike/Matrix Spike Duplicate** (MS/MSD) set is processed at a frequency specified in a particular method or as determined by a specific customer request. This frequency will be specified in the applicable method SOP or customer QAPP. In the absence of such requirements, an MS/MSD set is routinely analyzed once per every 20 samples per matrix per method.

4.3.3. The MS and MSD consist of the sample matrix that is then spiked with known concentrations of target analytes. Laboratory personnel spike customer samples that are specifically designated as MS/MSD samples or, when no designated samples are present in a batch, randomly select samples to spike that have adequate sample volume or weight. Spiked samples are prepared and analyzed in the same manner as the original samples and are selected from different customers if possible.

4.3.4. The MS and MSD contain all analytes specified by a specific method or by the customer or regulatory agency. In the absence of specified components, the laboratory will spike the MS/MSD with the same number of compounds as previously discussed in the LCS section. However, the lab must ensure that all targeted components in its scope of accreditation are included in the spike mixture for the MS/MSD over a two (2) year period.

4.3.5. The MS and MSD are evaluated against the method or laboratory derived criteria. Any compound that is outside of these limits is considered to be 'out of control' and must be qualified appropriately. Batch acceptance, however, is based on method blank and LCS performance, not on MS/MSD recoveries. The spike recoveries give the data user a better understanding of the final results based on their site specific information.

4.3.6. A matrix spike and sample duplicate will be performed instead of a matrix spike and matrix spike duplicate when specified by the customer or method.

4.3.7. Deviations made from this policy must be approved by the SQM/QM prior to release of the data.

4.3.8. For Ohio VAP projects, the laboratory must minimize the use of qualified data. In the case of MS/MSD failures, the laboratory is required to reanalyze the associated samples only when the associated LCS also fails acceptance criteria and if there is sufficient sample remaining. When an LCS is acceptable and the MS results are outside of criteria, and no system anomaly is detected, the samples will be reported with appropriate data qualifiers indicating matrix interference. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding LCSs for Ohio VAP projects.

4.3.9. For DoD work, each preparation batch of samples must contain an associated MS and MSD (or sample duplicate) using the same matrix collected for the specific DoD project. If adequate sample material is not available, then the lack of MS/MSDs shall be noted in the case narrative. Additional MS/MSDs may be required on a project-specific basis. The MS/MSD must be spiked with all target analytes with the exception of PCB analysis, which is spiked per the method. The concentration of the spiked compounds shall be at or below the midpoint of the calibration range or at the appropriate concentration of concern. Multiple spiked samples may need to be prepared to avoid interferences.

4.3.10. For DoD work, the results of all MS/MSD must be evaluated using the same acceptance criteria used for the LCS.

4.4. Sample Duplicate

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4.4.1. A sample duplicate is a second portion of sample that is prepared and analyzed in the laboratory along with the first portion. It is used to measure the precision associated with preparation and analysis. A sample duplicate is processed at a frequency specified by the particular method or as determined by a specific customer.

4.4.2. The sample and duplicate are evaluated against the method or laboratory derived criteria for relative percent difference (RPD). Any duplicate that is outside of these limits is considered to be 'out of control' and must be qualified appropriately.

4.4.3. Deviations made from this policy must be approved by the SQM/QM prior to release of the data.

4.4.4. For Ohio VAP projects, the laboratory must minimize the use of qualified data. In the case of duplicate samples exceeding the RPD criteria found in applicable analytical SOPs, the laboratory is required to reanalyze the associated sample and duplicate as long as no sampling error was detected if there is sufficient sample remaining. If the sample and duplicate still do not agree, a comment would be made stating there may be sample non-homogeneity. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding sample duplicates for Ohio VAP projects. The narrative for any report that includes qualified data must also include a discussion of any bias in the results.

4.5. Surrogates

4.5.1. Surrogates are compounds that reflect the chemistry of target analytes and are typically added to samples for organic analyses to monitor the effect of the sample matrix on compound recovery.

4.5.2. Surrogates are added to each customer sample (for applicable organics), method blank, LCS, MS, and calibration standard prior to extraction or analysis. The surrogates are evaluated against the method or laboratory derived acceptance criteria or against project-specific acceptance criteria specified by the client, if applicable. Any surrogate compound that is outside of these limits is considered to be 'out of control' and must be qualified appropriately. Samples with surrogate failures are typically re-extracted and/or re-analyzed to confirm that the out-of-control value was caused by the matrix of the sample and not by some other systematic error. An exception to this would be samples that have high surrogate values but no reportable hits for target compounds. These samples would be reported, with a qualifier, because the implied high bias would not affect the final results. For methods with multiple surrogates, documentation regarding acceptance and associated compounds will be found in the individual method SOPs. Insert any additional lab-specific procedures for dealing with out-of control surrogates.

4.5.2.1. For UCMR3 projects, data for samples with failed surrogate standard recovery must not be reported. If the surrogate recovery in a method blank or LCS fails acceptance criteria, all data for other samples in the batch are invalid and must not be reported. If the surrogate recovery in an MS or MSD fails acceptance criteria, but all other batch QC passes, only the MS/MSD with the failing surrogate cannot be reported. If both MS and MSD surrogates fail, then no matrix spike data is reported and does not invalidate the associated sample results.

4.5.2.2. For Ohio VAP samples, the narrative for any report that includes qualified data must also include a discussion of any bias in the results.

4.5.3. Deviations made from this policy must be approved by the SQM/QM prior to release of the data.

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4.6. Internal Standards

4.6.1. Internal Standards are method-specific analytes added to every standard, method blank, laboratory control sample, matrix spike, matrix spike duplicate, sample, and calibration standard at a known concentration, prior to analysis for the purpose of adjusting the response factor used in quantifying target analytes. At a minimum, the laboratory will follow method specific guidelines for the treatment of internal standard recoveries as they are related to the reporting of data.

4.6.2. Deviations made from this policy must be approved by the SQM/QM prior to release of the data.

4.6.3. For UCMR3 projects, data for samples with failed internal standard recovery must not be reported. If the internal standard recovery in a method blank or LCS fails acceptance criteria, all data for other samples in the batch are invalid and must not be reported. If the internal standard recovery in an MS or MSD fails acceptance criteria, but all other batch QC passes, only the MS/MSD with the failing internal standard cannot be reported. If both MS and MSD internal standards fail, then no matrix spike data is reported and does not invalidate the associated sample results.

4.6.4. For Ohio VAP projects, samples with internal standard that are outside of method criteria must be reanalyzed to confirm sample matrix effect. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding internal standards for Ohio VAP projects. The narrative for any report that includes qualified data must also include a discussion of any bias in the results.

4.7. Field Blanks

4.7.1. Field blanks are blanks prepared at the sampling site in order to monitor for contamination that may be present in the environment where samples are collected. These field quality control samples are often referenced as field blanks, rinsate blanks, or equipment blanks. The laboratory analyzes these field blanks as normal samples and informs the customer if there are any target compounds detected above the reporting limits.

4.8. Trip Blanks

4.8.1. Trip blanks are blanks that originate from the laboratory as part of the sampling event and are used to monitor for contamination of samples during transport. These blanks accompany the empty sample containers to the field and then accompany the collected samples back to the laboratory. These blanks are routinely analyzed for volatile methods where ambient background contamination is likely to occur.

4.9. Limit of Detection (LOD)

4.9.1. PASI laboratories are required to use a documented procedure to determine a limit of detection for each analyte of concern in each matrix reported. All sample processing steps of the preparation and analytical methods are included in this determination including any clean ups. For any test that does not have a valid LOD, sample results below the limit of quantitation (LOQ) cannot be reported.

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4.9.2. The LOD is initially established for the compounds of interest for each method in a clean matrix with no target analytes present and no interferences at a concentration that would impact the results. The LOD is then determined every time there is a change in the test method that affects how the test is performed or when there has been a change in the instrument that affects the sensitivity. If required by customer, method or accreditation body, the LOD will be re-established annually for all applicable methods.

4.9.3. Unless otherwise noted, the method used by PASI laboratories to determine LODs is based on the Method Detection Limit (MDL) procedure outlined in 40 CFR Part 136, Appendix B. Where required by regulatory program or customer, the above referenced procedure will be followed.

4.9.4. Where specifically stated in the published method, LODs or MDLs will be performed at the listed frequency.

4.9.5. The validity of the LOD must be shown by detection (a value above zero) of the analytes in a QC sample in each quality system matrix. The QC sample must contain the analyte at no more than 3X the LOD for a single analyte test and 4X the LOD for multiple analyte tests. This verification must be performed on each instrument used for sample analysis and reporting of data. The validity of the LOD must be verified as part of the LOD determination process. This verification must be done prior to the use of the LOD for sample analysis.

4.9.6. An LOD study is not required for any analyte for which spiking solutions or quality control samples are not available such as temperature.

4.9.7. The LOD, if required, shall be verified annually for each quality system matrix, technology and analyte. In lieu of performing full LOD (MDL) studies annually, the laboratory can verify the LOD (MDL) on an annual basis, providing this verification is fully documented and does not contradict other customer or program requirements that the laboratory must follow. The requirements of this verification are:

- The spike concentration of the verification must be no more than 3X times the LOD for single analyte tests and 4X the LOD for multiple analyte tests.
- The laboratory must verify the LOD on each instrument used for the reporting of sample data.
- The laboratory must be able to identify all target analytes in the verification standard (distinguishable from noise).

4.9.8. For Ohio VAP projects, a valid MDL must be in place prior to sample analysis. MDLs must be spiked at or below the reporting limit and will not be accepted if it was spike higher than the reporting limit.

4.9.9. DoD definition for LOD- The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate is 1%.

4.9.10. Additional information can be found in SOP SOT-ALL-Q-004 **Determination of LOD and LOQ** or its equivalent revision or replacement.

4.10. Limit of Quantitation (LOQ)

4.10.1. A limit of quantitation (LOQ) for every analyte of concern must be determined. For PASI laboratories, this LOQ is referred to as the RL, or Reporting Limit. This RL is based on the lowest

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calibration standard concentration that is used in each initial calibration. Results below this level are not allowed to be reported without qualification since the results would not be substantiated by a calibration standard. For methods with a determined LOD, results can be reported out below the LOQ but above the LOD if they are properly qualified (e.g., J flag).

4.10.2. The LOQ must be higher than the LOD.

4.10.3. To verify the LOQ, the laboratory will prepare a sample in the same matrix used for the LCS. The sample will be spiked with each target analyte at a concentration equivalent to the RL or 2X the RL. This sample must undergo the routine sample preparation procedure including any routine sample cleanup steps. The sample is then analyzed and the recovery of each target analyte determined. The recovery for each target analyte must meet the laboratories current control limits for an LCS. The annual LOQ verification is not required if the LOD was determined or verified annually on that instrument.

4.10.4. For DoD approved methods, the LOQ and LOD shall be verified quarterly and valid LOQ must be in place prior to sample analysis.

4.10.5. Additional information can be found in SOP SOT-ALL-Q-004 **Determination of LOD and LOQ** or its equivalent revision or replacement.

4.11. Estimate of Analytical Uncertainty

4.11.1. PASI laboratories can provide an estimation of uncertainty for results generated by the laboratory. The estimate quantifies the error associated with any given result at a 95% confidence interval. This estimate does not include bias that may be associated with sampling. The laboratory has a procedure in place for making this estimation. In the absence of a regulatory or customer-specific procedure, PASI laboratories base this estimation on the recovery data obtained from the Laboratory Control Spikes. The uncertainty is a function of the standard deviation of the recoveries multiplied by the appropriate Student's t Factor at 95% confidence. Additional information pertaining to the estimation of uncertainty and the exact manner in which it is derived are contained in the SOP SOT-ALL-Q-031 **Estimation of Measurement Uncertainty** or its equivalent revision or replacement.

4.11.2. The measurement of uncertainty is provided only on request by the customer, as required by specification or regulation and when the result is used to determine conformance within a specification limit.

4.12. Proficiency Testing (PT) Studies

4.12.1. PASI laboratories participate in the TNI defined proficiency testing program. PT samples are obtained from NIST approved providers and analyzed and reported at a minimum of two times per year for the relevant fields of testing per matrix.

4.12.2. The laboratory initiates an investigation whenever PT results are deemed 'unacceptable' by the PT provider. All findings and corrective actions taken are reported to the SQM/QM or their designee. A corrective action plan is initiated and this report is sent to the appropriate state accreditation agencies for their review. Additional PTs will be analyzed and reported as needed for certification purposes.

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4.12.3. PT samples are treated as typical customer samples, utilizing the same staff, methods, equipment, facilities, and frequency of analysis. PT samples are included in the laboratory's normal analytical processes and do not receive extraordinary attention due to their nature.

4.12.4. Comparison of analytical results with anyone participating in the same PT study is prohibited prior to the close of the study.

4.12.5. Additional information can be found in SOP SOT-ALL-Q-010 **Proficiency Testing Program** or its equivalent revision or replacement.

4.13. Rounding and Significant Figures

4.13.1. In general, the PASI laboratories report data to no more than three significant digits. Therefore, all measurements made in the analytical process must reflect this level of precision. In the event that a parameter that contributes to the final result has less than three significant figures of precision, the final result must be reported with no more significant figures than that of the parameter in question. The rounding rules listed below are descriptive of the LIMS and not necessarily of any supporting program such as Excel.

4.13.2. Data is compared to the reporting limits and MDLs to determine if qualifiers are needed before the rounding step occurs.

4.13.3. **Rounding:** PASI-Florida/South Florida follows the odd / even guidelines for rounding numbers:

- If the figure following the one to be retained is less than five, that figure is dropped and the retained ones are not changed (with three significant figures, 2.544 is rounded to 2.54).
- If the figure following the ones to be retained is greater than five, that figure is dropped and the last retained one is rounded up (with three significant figures, 2.546 is rounded to 2.55).
- If the figure following the ones to be retained is five and if there are no figures other than zeros beyond that five, then the five is dropped and the last figure retained is unchanged if it is even and rounded up if it is odd (with three significant figures, 2.525 is rounded to 2.52 and 2.535 is rounded to 2.54).

4.13.4. Significant Digits

4.13.4.1. PASI-Florida/South Florida follows the following convention for reporting to a specified number of significant figures. Unless specified by federal, state, or local requirements or on specific request by a customer, the laboratory reports:

Values > 10 – Reported to 3 significant digits

Values ≤ 10 – Reported to 2 significant digits

4.14. Retention Time Windows

4.14.1. When chromatographic conditions are changed, retention times and analytical separations are often affected. As a result, two critical aspects of any chromatographic method are the determination and verification of retention times and analyte separation. Retention time windows must be established for the identification of target analytes. The retention times of all target analytes

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in all calibration verification standards must fall within the retention time windows. If an analyte falls outside the retention time window in an ICV or CCV, new absolute retention time windows must be calculated, unless instrument maintenance fixes the problem. When a new column is installed, a new retention time window study must be performed.

4.14.2. One process for the production of retention time windows: Make 3 injections of all single component or multi-component analytes over a 72-hour period. Record the retention time in minutes for each analyte and surrogate to 3 decimal places. Calculate the mean and standard deviation of the three absolute retention times for each target analyte and surrogate. For multi-component analytes, choose 3-5 major peaks and calculate the mean and standard deviation for each of the peaks. If the standard deviation of the retention times of a target analyte is 0.000, the lab may use a default standard deviation of 0.01. The width of the retention time window for each analyte and surrogate and major peak in a multi-component analyte is defined as ± 3 times the standard deviation of the mean absolute retention time established during that 72-hour period or 0.03 minutes, whichever is greater.

4.14.3. The center of the retention time window is established for each analyte and surrogate by using the absolute retention times from the CCV at the beginning of the analytical shift. For samples run with an initial calibration, use the retention time of the mid-point standard of the initial calibration curve.

4.14.4. For more information, please reference the local facility's analytical SOPs.

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5.0. DOCUMENT MANAGEMENT AND CHANGE CONTROL

5.1. Document Management

5.1.1. Additional information can be found in SOP SOT-ALL-Q-002 **Document Control and Management** or its equivalent revision or replacement. Information on Pace's policy for electronic signatures can also be found in this SOP.

5.1.2. Pace Analytical Services, Inc. has an established procedure for managing documents that are part of the quality system. The list of managed documents includes, but is not limited to, Standard Operating Procedures (both technical and non-technical), Quality Assurance Manuals, quality policy statements, training documents, work-processing documents, charts, posters, memoranda, notices, forms, software, and any other procedures, tables, plans, etc. that have a direct bearing on the quality system (including applicable data records and non-technical documents).

5.1.3. A master list of all managed documents is maintained at each facility identifying the current revision status and distribution of the controlled documents. This establishes that there are no invalid or obsolete documents in use in the facility. All documents are reviewed periodically and revised if necessary. Obsolete documents are systematically discarded or archived for audit or knowledge preservation purposes. Copies of all quality systems documentation provided to DoD for review must be in English.

5.1.4. Each managed document is uniquely identified to include the date of issue, the revision identification, page numbers, the total number of pages and the issuing authorities. For complete information on document numbering, refer to SOP S-ALL-Q-003 **Document Numbering**.

5.1.5. SOPs, specifically, are available to all laboratory staff via the Learning Management System (LMS) which is a secure repository that is accessed through an internet portal. As a local alternative to the hard copy system of controlled documents, secured electronic copies of controlled documents may be maintained on the laboratory's local server. These document files must be read-only for all personnel except the Quality Department and system administrator. Other requirements for this system are as follows:

- Electronic documents must be readily accessible to all facility employees.
- All hardcopy SOPs must be obtained from the Quality Department.

5.1.6. **Quality Assurance Manual (QAM):** The Quality Assurance Manual is the company-wide document that describes all aspects of the quality system for PASI. The base QAM template is distributed by the Corporate Quality Department to each of the SQMs/QMs. The local management personnel modify the necessary and permissible sections of the base template and submit those modifications to the Corporate Director of Quality for review. Once approved and signed by both the CEO and the Director of Quality; the SGM/GM/AGM/OM, the SQM/QM, and any Technical Directors sign the Quality Assurance Manual. Each SQM/QM is then in charge of distribution to employees, external customers or regulatory agencies and maintaining a distribution list of controlled document copies. The Quality Assurance Manual template is reviewed on an annual basis by all of the PASI SQMs/QMs and revised accordingly by the Director of Quality.

5.1.7. **Standard Operating Procedures (SOPs)**

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5.1.7.1. SOPs fall into two categories: company-wide documents and facility specific documents. Company-wide SOPs start with the prefix S-ALL- and local SOPs start with the individual facility prefix.

5.1.7.2. The purpose of the company-wide SOPs is to establish policies and procedure that are common and applicable to all PASI facilities. Company-wide SOPs are document-controlled by the corporate quality office and signed copies are distributed to all of the SQMs/QMs. The local management personnel sign the company-wide SOPs. The SQM/QM is then in charge of distribution to employees, external customers, or regulatory agencies and maintaining a distribution list of controlled document copies.

5.1.7.3. Local PASI facilities are responsible for developing facility-specific SOPs applicable to their respective facility. The local facility develops these facility-specific SOPs based on the corporate-wide SOP template. This template is written to incorporate a set of minimum method requirements and PASI best practice requirements. The local facilities may add to or modify the corporate-wide SOP template provided there are no contradictions to the minimum method or best practice requirements. Facility-specific SOPs are controlled by the applicable SQM/QM according to the corporate document management policies.

5.1.7.4. SOPs are reviewed every two years at a minimum although a more frequent review may be required by some state or federal agencies or customers. If no revisions are made based on this review, documentation of the review itself is made by the addition of new signatures on the cover page. If revisions are made, documentation of the revisions is made in the revisions section of each SOP and a new revision number is applied to the SOP. This provides a historical record of all revisions.

5.1.7.5. All copies of superseded SOPs are removed from general use and the original copy of each SOP is archived for audit or knowledge preservation purposes. This ensures that all PASI employees use the most current version of each SOP and provides the SQM/QM with a historical record of each SOP.

5.1.7.6. Additional information can be found in SOP S-ALL-Q-001 **Preparation of SOPs** or its equivalent revision or replacement.

5.1.7.7. For Ohio VAP certification, it is required by the Ohio Administrative Code that the laboratory must seek Ohio VAP review and approval of all SOPs and Quality Manual subsequent modifications prior to implementation.

5.1.7.8. For DoD approval, all technical SOPs are reviewed for accuracy and adequacy annually and whenever method procedures change and updated as appropriate. All such reviews are documented and made available for assessment. Non-technical SOPs that are not required elements of the quality system are considered administrative SOPs and are not required to be reviewed annually.

5.2. Document Change Control

5.2.1. Changes to managed documents are reviewed and approved in the same manner as the original review. Any revision to a document requires the approval of the applicable signatories. After revisions are approved, a revision number is assigned and the previous version of the document is officially retired. Copies may be kept for audit or knowledge preservation purposes.

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5.2.2. All controlled copies of the previous document are replaced with controlled copies of the revised document and the superseded copies are destroyed or archived. All affected personnel are advised that there has been a revision and any necessary training is scheduled.

5.3. Management of Change

5.3.1. The process for documenting necessary changes within the laboratory network are not typically handled using the corrective or preventive action system as outlined in section 9.0. Management of Change is a proactive approach to dealing with change to minimize the potential negative impact of systematic change in the laboratory and to ensure that each change has a positive desired outcome. This process will primarily be used for the implementation of large scale projects and information system changes as a means to apply consistent systems or procedures within the laboratory network. The request for change is submitted by the initiator and subsequently assigned to an individual or team for development and planning. The final completion of the process culminates in final approval and verification that the procedure was effectively implemented. Additional information can be found in SOP SOT-ALL-Q-036 **Management of Change** or its equivalent revision or replacement.

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6.0. EQUIPMENT AND MEASUREMENT TRACEABILITY

Each PASI facility is equipped with sufficient instrumentation and support equipment to perform the relevant analytical testing or field procedures performed by each facility. Support equipment includes chemical standards, thermometers, balances, disposable and mechanical pipettes, etc. This section details some of the procedures necessary to maintain traceability and to perform proper calibration of instrumentation and support equipment. See Attachment III for a list of equipment currently used at the (Florida/South Florida) PASI facility.

6.1. Standards and Traceability

6.1.1. Each PASI facility retains all pertinent information for standards, reagents, and chemicals to assure traceability to a national standard. This includes documentation of purchase, receipt, preparation, and use.

6.1.2. Upon receipt, all purchased standard reference materials are recorded into a standard logbook or database and assigned a unique identification number. The entries include the facility's unique identification number, the chemical name, manufacturer name, manufacturer's identification numbers, receipt date, and expiration date. Vendor's certificates of analysis for all standards, reagents, or chemicals are retained for future reference.

6.1.3. Subsequent preparations of intermediate or working solutions are also documented in a standard logbook or database. These entries include the stock standard name and lot number, the manufacturer name, the solvents used for preparation, the solvent lot number and manufacturer, the preparation steps, preparation date, expiration dates, preparer's initials, and a unique PASI identification number. This number is used in any applicable sample preparation or analysis logbook so the standard can be traced back to the standard preparation record. This process ensures traceability back to the national standard.

6.1.4. All prepared standard or reagent containers include the PASI identification number, the standard or chemical name, the date of preparation, the date of expiration, the concentration with units, and the preparer's initials. This ensures traceability back to the standard preparation logbook or database.

6.1.5. For containers that are too small to accommodate labels that list all of the above information associated with a standard, the minimum required information will be PASI standard ID, concentration, and expiration date. This assures that no standard will be used past its assigned expiration date.

6.1.6. If a second source standard is required to verify an existing calibration or spiking standard, this standard must be obtained from a different manufacturer or from a different lot unless client specific QAPP requirements state otherwise.

6.1.7. Additional information concerning standards and reagent traceability can be found in the SOP SOT-ALL-Q-025 **Standard and Reagent Management and Traceability** or its equivalent revision or replacement.

6.2. General Analytical Instrument Calibration Procedures (Organic and Inorganic)

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6.2.1. All support equipment and instrumentation are calibrated or checked before use to ensure proper functioning and verify that the laboratory's requirements are met. All calibrations are performed by, or under the supervision of, an experienced analyst at scheduled intervals against either certified standards traceable to recognized national standards or reference standards whose values have been statistically validated.

6.2.2. Calibration standards for each parameter are chosen to establish the linear range of the instrument and must bracket the concentrations of those parameters measured in the samples. The lowest calibration standard is the lowest concentration for which quantitative data may be reported. Data reported below this level is considered to have less certainty and must be reported using appropriate data qualifiers or explained in a narrative. The highest calibration standard is the highest concentration for which quantitative data may be reported. Data reported above this level is considered to have less certainty and must be reported using appropriate data qualifiers or explained in the narrative. Any specific method requirement for number and type of calibration standards supersedes the general requirement. Instrument and method specific calibration criteria are explained within the specific analytical standard operating procedures for each facility.

6.2.3. Results from all calibration standards analyzed must be included in constructing the calibration curve with the following exceptions:

6.2.3.1. The lowest level calibration standard may be removed from the calibration as long as the remaining number of concentration levels meets the minimum established by the method and standard operating procedure. For multi-parameter methods, this may be done on an individual analyte basis. The reporting limit must be adjusted to the lowest concentration included in the calibration curve;

6.2.3.2. The highest level calibration standard may be removed from the calibration as long as the remaining number of concentration levels meets the minimum established by the method and standard operating procedure. For multi-parameter methods, this may be done on an individual analyte basis. The upper limit of quantitation must be adjusted to the highest concentration included in the calibration curve;

6.2.3.3. Multiple points from either the high end or the low end of the calibration curve may be excluded as long as the remaining points are contiguous in nature and the minimum number of levels remains as established by method or standard operating procedure. The reporting limit or quantitation range, whichever is appropriate, must be adjusted accordingly;

6.2.3.4. Results from a concentration level between the lowest and highest calibration levels can only be excluded from an initial calibration curve for a documentable and acceptable cause with approval from the responsible department supervisor and the local SQM/QM or their designee. An acceptable cause is defined as an obvious sample introduction issue that resulted in no response or a documented response that is less than the lowest standard used in the ICAL. A suspected incorrectly prepared standard is not considered to be an acceptable cause. The results for all analytes are to be excluded and the point must be replaced by re-analysis. Re-analysis of this interior standard must occur within the same 12-hour tune time period for GC/MS methodologies and within 8 hours of the initial analysis of that standard for non-GC/MS methodologies. All samples analyzed prior to the re-analyzed calibration curve point must be re-analyzed after the calibration curve is completed and re-processed against the final calibration curve.

6.2.4. Instrumentation or support equipment that cannot be calibrated to specification or is otherwise defective is clearly labeled as out-of-service until it has been repaired and tested to demonstrate it meets the laboratory's specifications. All repair and maintenance activities including service calls are

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documented in the maintenance log. Equipment sent off-site for calibration testing is packed and transported to prevent breakage and is in accordance with the calibration laboratory's recommendations.

6.2.5. In the event that recalibration of a piece of test equipment indicates the equipment may have been malfunctioning during the course of sample analysis, an investigation is performed. The results of the investigation along with a summary of the information reviewed are documented and maintained by the quality manager. Customers must be notified within 30 days after the data investigation is completed and the impact to final results is assessed. This allows for sufficient investigation and review of documentation to determine the impact on the analytical results. Instrumentation found to be consistently out of calibration is either repaired and positively verified or taken out of service and replaced.

6.2.6. Raw data records are retained to document equipment performance. Sufficient raw data is retained to reconstruct the instrument calibration and explicitly connect the continuing calibration verification to the initial calibration.

6.2.7. **General Organic Calibration Procedures**

6.2.7.1. Calibration standards are prepared at a minimum of five concentrations for organic analyses (unless otherwise stipulated in the method).

6.2.7.2. Initial calibration curves are evaluated against appropriate statistical models as required by the analytical methods. Curves that do not meet the appropriate criteria require corrective action that may include re-running the initial calibration curve. Rounding to meet initial calibration criteria is not allowed, that is, 15.3 cannot be rounded down to meet a $\leq 15\%$ RSD requirement. This also applies to linear and non-linear fit requirements. All initial calibrations are verified with an initial calibration verification standard (ICV) obtained from a second manufacturer or second lot from the same manufacturer if that lot can be demonstrated as prepared independently from other lots prior to the analysis of samples. Sample results are quantitated from the initial calibration unless otherwise required by regulation, method, or program.

6.2.7.2.1. Non-linear calibration models are not acceptable for data reported to South Carolina Department of Health and Environmental Control or Wisconsin.

6.2.7.3. The calibration curve is periodically verified by the analysis of a mid-level continuing calibration verification (CCV) standard during the course of sample analysis. This standard is from the same source as the initial calibration unless otherwise specified in the source method to be from an alternate source material. Rounding to meet continuing calibration criteria is not allowed. Continuing calibration verification is performed at the beginning and end of each analytical batch except if an internal standard is used, then only one verification at the beginning of the batch is needed, whenever it is expected that the analytical system may be out of calibration, if the time period for calibration has expired, or for analytical systems that have specific calibration verification requirements. This verification standard must meet acceptance criteria in order for sample analysis to proceed.

6.2.7.4. In the event that the CCV does not meet the acceptance criteria, a second CCV may be injected as part of the diagnostic evaluation and corrective action investigation. If the second CCV is acceptable, the analytical sequence may be continued. If both CCVs fail, the analytical sequence is terminated and corrective action is initiated. Sample analysis cannot begin until after documented corrective action has been completed and either two consecutive passing CCVs have been analyzed or the instrument has successfully passed a new initial calibration. All samples analyzed since the last compliant CCV are re-analyzed for methodologies utilizing external calibration.

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6.2.7.4.1. For DoD labs: the lab must re-analyze CCVs and all samples analyzed since the last successful calibration verification. If re-analysis is not possible, the lab must notify the client prior to reporting data associated with a non-compliant CCV. If these data are reported, the data must be qualified and explained in the case narrative. If the lab routinely analyzes two CCVs, then both CCVs must be evaluated. If either CCV fails, the lab must perform all required corrective actions and re-analyze all samples since the last acceptable calibration verification.

6.2.7.5. When instruments are operating unattended, autosamplers may be programmed to inject consecutive CCVs as a preventative measure against CCV failure with no corrective action. In this case, both CCVs must be evaluated to determine potential impact to the results. A summary of the decision tree and necessary documentation are listed below:

- If both CCVs meet the acceptance criteria, the analytical sequence is allowed to continue without corrective action. The 12 hour clock begins with the injection of the second CCV.
- If the first CCV does not meet the acceptance criteria and the second CCV is acceptable, the analytical sequence is continued and the results are reported.
- If the first CCV meets the acceptance criteria and the second CCV is out of control, the samples after the out of control CCV must be re-analyzed in a compliant analytical sequence.
- If both CCVs are out of control, all samples since the last acceptable CCV must be re-analyzed in a compliant analytical sequence.

6.2.7.6. Some analytical methods require that samples be bracketed by passing CCVs analyzed both before and after the samples. This is specific to each method but, as a general rule, all external calibration methods require bracketing CCVs. Most internal standard calibrations do not require bracketing CCVs.

6.2.7.7. Some analytical methods require verification based on a time interval; some methods require a frequency based on an injection interval. The type and frequency of the calibration verifications is dependent on both the analytical method and possibly on the quality program associated with the samples. The type and frequency of calibration verification will be documented in the method specific SOP employed by each laboratory.

6.2.7.8. For Ohio VAP projects, the laboratory must minimize the use of qualified data. In the case of calibration verification standard failures, the laboratory is required to reanalyze the CCV and the associated samples so as not to report qualified data. Sample results maybe reported if the CCV failure produces a high bias and the samples are non-detect. Where possible, the second attempt should be made using the original aliquot of the standard unless there is reason to suspect that the standard is the cause of failure. The laboratory must make every effort to take the appropriate corrective actions and resolve any anomalies regarding calibration verification standard failures for Ohio VAP projects. The narrative for any report that includes qualified data must also include a discussion of any bias in the results.

6.2.8. General Inorganic Calibration Procedures

6.2.8.1. The instrument is initially calibrated with standards at multiple concentrations to establish the linearity of the instrument's response. A calibration blank is also included. Initial calibration curves are evaluated against appropriate statistical models as required by the analytical methods. Rounding to meet initial calibration criteria is not allowed. This also applies to linear and non-linear fit requirements. The number of calibration standards used depends on the specific method criteria or customer project requirements, although normally a minimum of three standards is used.

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6.2.8.2. The ICP and ICP/MS can be standardized with a zero point and a single point calibration if:

- Prior to analysis, the zero point and the single point calibration are analyzed and a linear range has been established,
- Zero point and single point calibration standards are analyzed with each batch
- A standard corresponding to the LOQ is analyzed with the batch and meets the established acceptance criteria
- The linearity is verified at the frequency established by the method or manufacturer.

6.2.8.3. All initial calibrations are verified with an initial calibration verification standard (ICV) obtained from a second manufacturer or second lot from the same manufacturer if the lot can be demonstrated as prepared independently from other lots prior to the analysis of samples. Sample results are quantitated from the initial calibration unless otherwise required by regulation, method, or program.

6.2.8.4. During the course of analysis, the calibration curve is periodically verified by the analysis of calibration verification standards (CCV). A calibration verification standard is analyzed within each analytical batch at method/program specific intervals to verify that the initial calibration is still valid. The CCV is also analyzed at the end of the analytical batch.

6.2.8.5. A calibration blank is also run with each calibration verification standard to verify the cleanliness of the system. All reported results must be bracketed by acceptable CCVs. Instrument and method specific calibration acceptance criteria are explained within the specific analytical standard operating procedures for each facility.

6.2.8.6. Interference check standards are also analyzed per method requirements and must meet acceptance criteria for metals analyses.

6.3. Support Equipment Calibration Procedures

6.3.1. All support equipment is calibrated or verified at least annually using NIST traceable references over the entire range of use. The results of calibrations or verifications must be within the specifications required or the equipment will be removed from service until repaired. The laboratory maintains records to demonstrate the correction factors applied to working thermometers.

6.3.2. On each day the equipment is used, balances, ovens, refrigerators (those used to keep samples and standards at required temperatures), freezers, and water baths are checked in the expected use range with NIST traceable references in order to ensure the equipment meets laboratory specifications and these checks are documented appropriately.

6.3.3. Analytical Balances

6.3.3.1. Each analytical balance is calibrated or verified at least annually by a qualified service technician. The calibration of each balance is verified each day of use with weights traceable to NIST bracketing the range of use. Calibration weights are ASTM Class 1 or other class weights that have been calibrated against a NIST standard weight and are re-certified every 5 years at a minimum against a NIST traceable reference. Some accrediting agencies may require more frequent checks. If balances are calibrated by an external agency, verification of their weights must be provided. All information pertaining to balance maintenance and calibration is recorded in the individual balance logbook and/or is maintained on file in the Quality department.

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6.3.4. **Thermometers**

6.3.4.1. Certified, or reference, thermometers are maintained for checking calibration of working thermometers. Reference thermometers are provided with NIST traceability for initial calibration and are re-certified, at a minimum, every 3 years with equipment directly traceable to NIST.

6.3.4.2. Working thermometers are compared with the reference thermometers annually according to corporate metrology procedures. Each thermometer is individually numbered and assigned a correction factor based on the NIST reference source. In addition, working thermometers are visually inspected by laboratory personnel prior to use and temperatures are documented.

6.3.4.3. Laboratory thermometer inventory and calibration data are maintained in the Quality department.

6.3.5. **pH/Electrometers**

6.3.5.1. The meter is calibrated before use each day, using fresh buffer solutions.

6.3.6. **Spectrophotometers**

6.3.6.1. During use, spectrophotometer performance is checked at established frequencies in analysis sequences against initial calibration verification (ICV) and continuing calibration verification (CCV) standards.

6.3.7. **Mechanical Volumetric Dispensing Devices**

6.3.7.1. Mechanical volumetric dispensing devices including bottle top dispensers (those that are critical in measuring a required amount of reagent), pipettes, and burettes, excluding Class A volumetric glassware, are checked for accuracy on a quarterly basis.

6.3.7.2. Additional information regarding calibration and maintenance of laboratory support equipment can be found in SOP SOT-ALL-Q-013 **Support Equipment** or its equivalent revision or replacement.

6.4. **Instrument/Equipment Maintenance**

6.4.1. The objectives of the Pace Analytical maintenance program are twofold: to establish a system of instrument care that maintains instrumentation and equipment at required levels of calibration and sensitivity, and to minimize loss of productivity due to repairs.

6.4.2. The Operations Manager and/or department manager/supervisors are responsible for providing technical leadership to evaluate new equipment, solve equipment problems, and coordinate instrument repair and maintenance. Analysts have the primary responsibility to perform routine maintenance.

6.4.3. To minimize downtime and interruption of analytical work, preventative maintenance is routinely performed on each analytical instrument. Up-to-date instructions on the use and maintenance of equipment are available to staff in the department where the equipment is used.

6.4.4. Department manager/supervisors are responsible for maintaining an adequate inventory of spare parts required to minimize equipment downtime. This inventory includes parts and supplies that are subject to frequent failure, have limited lifetimes, or cannot be obtained in a timely manner should a failure occur.

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6.4.5. All major equipment and instrumentation items are uniquely identified to allow for traceability. Equipment/instrumentation is, unless otherwise stated, identified as a system and not as individual pieces. The laboratory maintains equipment records that include the following:

- The name of the equipment and its software
- The manufacturer's name, type, and serial number
- Approximate date received and date placed into service
- Current location in the laboratory
- Condition when received (new, used, etc.)
- Copy of any manufacturer's manuals or instructions
- Dates and results of calibrations and next scheduled calibration (if known)
- Details of past maintenance activities, both routine and non-routine
- Details of any damage, modification or major repairs

6.4.6. All instrument maintenance is documented in maintenance logbooks that are assigned to each particular instrument or system.

6.4.7. The maintenance log entry must include a summary of the results of that analysis and verification by the analyst that the instrument has been returned to an in-control status. In addition, each entry must include the initials of the analyst making the entry, the dates the maintenance actions were performed, and the date the entry was made in the maintenance logbook, if different from the date(s) of the maintenance.

6.4.8. Any equipment that has been subjected to overloading or mishandling, or that gives suspect results, or has been shown to be defective, is taken out of service and clearly identified. The equipment shall not be used to analyze customer samples until it has been repaired and shown to perform satisfactorily. In the event of instrumentation failure, to avoid hold time issues, the lab may subcontract the necessary samples to another Pace lab or to an outside subcontract lab if possible.

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7.0. CONTROL OF DATA

Analytical results processing, verification, and reporting are procedures employed that result in the delivery of defensible data. These processes include, but are not limited to, calculation of raw data into final concentration values, review of results for accuracy, evaluation of quality control criteria and assembly of technical reports for delivery to the data user.

All analytical data undergo a well-defined, well-documented multi-tier review process prior to being reported to the customer. This section describes procedures used by PASI for translating raw analytical data into accurate final sample reports as well as PASI data storage policies.

7.1. Analytical Results Processing

7.1.1. When analytical, field, or product testing data is generated, it is either recorded in a bound laboratory logbook (e.g., Run log or Instrument log) or copies of computer-generated printouts that are appropriately labeled and filed. These logbooks and other laboratory records are kept in accordance with each facility's Standard Operating Procedure for documentation storage and archival. If the laboratory chooses to minimize or eliminate its paper usage, these records can be kept on electronic media. In this case, the laboratory must ensure that there are sufficient redundant electronic copies so no data is lost due to unforeseen computer issues.

7.1.2. The primary analyst is responsible for initial data reduction and review. This includes confirming compliance with required methodology, verifying calculations, evaluating quality control data, noting non-conformances in logbooks or as footnotes or narratives, and uploading analytical results into the LIMS. The primary analyst must be clearly identified in all applicable logbooks, spreadsheets and LIMS fields.

7.1.3. The primary analyst then compiles the initial data package for verification. This compilation must include sufficient documentation for data review. It may include standard calibrations, chromatograms, manual integration documentation, electronic printouts, chain of custody forms, and logbook copies.

7.1.4. Some agencies or customers require different levels of data reporting. For these special levels, the primary analyst may need to compile additional project information, such as initial calibration data or extensive spectral data, before the data package proceeds to the verification step.

7.2. Data Verification

7.2.1. Data verification is the process of examining data and accepting or rejecting it based on pre-defined criteria. This review step is designed to ensure that reported data are free from calculation and transcription errors, that quality control parameters are evaluated, and that any non-conformances are properly documented.

7.2.2. Analysts performing the analysis and subsequent data reduction have primary responsibility for quality of the data produced. The primary analyst initiates the data verification process by reviewing and accepting the data, provided QC criteria have been met for the samples being reported. Data review checklists, either hardcopy or electronic, are used to document the data review process. The primary analyst is responsible for the initial input of the data into the LIMS. The primary analyst and reviewer must be clearly identified on all applicable data review checklists.

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7.2.3. The completed data package is then sent to a designated qualified reviewer (this cannot be the primary analyst). The following criteria have been established to qualify someone as a data reviewer. To perform secondary data review, the reviewer must:

7.2.3.1. Have a current Demonstration of Capability (DOC) study on file and have an SOP acknowledgement form on file for the method/procedure being reviewed; or, ^{See Note}

7.2.3.2. Have a DOC on file for a similar method/technology (i.e., GC/MS) and have an SOP acknowledgment form on file for the method/procedure being reviewed; or, ^{See Note}

7.2.3.3. Supervise or manage a Department and have an SOP acknowledgment form on file for the method/procedure being reviewed; or,

7.2.3.4. Have significant background in the department/methods being reviewed through education or experience and have an SOP acknowledgment form on file for the method/procedure being reviewed.

7.2.4. **Note:** Secondary reviewer status must be approved personally by the SQM/QM or SGM/GM/AGM/OM in the event that this person has no prior experience on the specific method or general technology.

7.2.5. This reviewer provides an independent technical assessment of the data package and technical review for accuracy according to methods employed and laboratory protocols. This assessment involves a quality control review for use of the proper methodology and detection limits, compliance to quality control protocol and criteria, presence and completeness of required deliverables, and accuracy of calculations and data quantitation. The reviewer validates the data entered into the LIMS and documents approval of manual integrations.

7.2.6. Once the data have been technically reviewed and approved, authorization for release of the data from the analytical section is indicated by initialing and dating the data review checklist or otherwise initialing and dating the data (or designating the review of data electronically). The Operations or Project Manager examines the report for method appropriateness, detection limits and QC acceptability. Any deviations from the referenced methods are checked for documentation and validity, and QC corrective actions are reviewed for successful resolution. Alternately, final reports can be set to auto email to the client after the analytical results are final and have been run through the Data Checker program for errors. These are set up on a case-by-case basis.

7.2.7. Additional information regarding data review procedures can be found in SOP SOT-ALL-Q-037 **Data Review** or its equivalent revision or replacement, as well as in SOP SOT-ALL-Q-016 **Manual Integration** or its equivalent revision or replacement.

7.2.8. The Data Checker program will process validated data for a given project against a set of pre-determined requirements and known chemistry relationships. The program creates a report that includes a series of warnings and errors for any requirement or condition determined to be suspect or incorrect. These warnings and error counts are displayed on the "Project Inquiry by Client" screen and on the final Data Checker reports. For projects that have any number of warnings or errors, the Data Checker report will provide a message that identifies the source and condition of the error or warning.

7.2.9. Some reports and/or data packages may be reviewed by the QM or SQM or designee based on program requirements (e.g., DoD) or client requirements. In this case a thorough review for completeness and accuracy may include a compilation of raw data and QC summaries in addition to the final report to produce a full deliverable package. In the case of DoD, 100% of all packages must have a final administrative review (to confirm that primary and secondary reviews were completed and documented and that data packages are complete) and 10% of all data packages must be reviewed by the

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Quality Manager for technical completeness/accuracy. This 10% review can be done after the data packages have been submitted to the clients. See SOP SOT-ALL-Q-011 (or equivalent replacement), **Audits and Inspections**, for full Quality department final report and raw data review requirements.

7.3. Data Reporting

7.3.1. Data for each analytical fraction pertaining to a particular PASI project number are delivered to the Project Manager for assembly into the final report. All points mentioned during technical and QC reviews are included in data qualifiers on the final report or in a separate case narrative if there is potential for data to be impacted.

7.3.2. Final reports are prepared according to the level of reporting required by the customer and can be transmitted to the customer via hardcopy or electronic deliverable. A standard PASI final report consists of the following components:

- 7.3.2.1. A title which designates the report as "Final Report", "Laboratory Results", "Certificate of Results", etc.;
- 7.3.2.2. Name and address of laboratory (or subcontracted laboratories, if used);
- 7.3.2.3. Phone number and name of laboratory contact to where questions can be referred;
- 7.3.2.4. A unique identification number for the report. The pages of the report shall be numbered and a total number of pages shall be indicated;
- 7.3.2.5. Name and address of customer and name of project;
- 7.3.2.6. Unique identification of samples analyzed as well as customer sample IDs;
- 7.3.2.7. Identification of any sample that did not meet acceptable sampling requirements of the relevant governing agency, such as improper sample containers, holding times missed, sample temperature, etc.;
- 7.3.2.8. Date and time of collection of samples, date of sample receipt by the laboratory, dates of sample preparation and analysis, and times of sample preparation and analysis when the holding time for either is 72 hours or less;
- 7.3.2.9. Identification of the test methods used;
- 7.3.2.10. Identification of sampling procedures if sampling was conducted by the laboratory;
- 7.3.2.11. Deviations from, additions to, or exclusions from the test methods. These can include failed quality control parameters, deviations caused by the matrix of the sample, etc., and can be shown as a case narrative or as defined footnotes to the analytical data;
- 7.3.2.12. Identification of whether calculations were performed on a dry or wet-weight basis;
- 7.3.2.13. Reporting limits used;
- 7.3.2.14. Final results or measurements, supported by appropriate chromatograms, charts, tables, spectra, etc.;
- 7.3.2.15. A signature and title, electronic or otherwise, of person accepting responsibility for the content of the report;
- 7.3.2.16. Date report was issued;

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7.3.2.17. A statement clarifying that the results of the report relate only to the samples tested or to the samples as they were received by the laboratory;

7.3.2.18. If necessary, a statement indicating that the report must not be reproduced except in full, without the written approval of the laboratory;

7.3.2.19. Identification of all test results provided by a subcontracted laboratory or other outside source;

7.3.2.20. Identification of results obtained outside of quantitation levels.

In addition to the requirements listed above, final reports shall also contain the following items when necessary for the interpretation of results:

7.3.2.21. Deviations from, additions to, or exclusions from the test method, and information on specific test conditions, such as environmental conditions;

7.3.2.22. Where relevant, a statement of compliance/non-compliance with requirements and/or specifications (e.g., the TNI standard);

7.3.2.23. Where applicable, a statement on the estimated uncertainty of measurement; information on uncertainty is needed in test reports when it is relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit;

7.3.2.24. Where appropriate and needed, opinions and interpretations, which may include opinions on the compliance/non-compliance of the results with requirements, fulfillment of contractual requirements, recommendations on how to use the results, and guidance to be used for improvement;

7.3.2.25. Identification of applicable laboratory certification identification number

7.3.2.26. Identification of any analysis conducted outside the laboratory scope of accreditation.

7.3.3. Additional items may be required per Client QAPPs or different state regulations, i.e. Affidavit for Ohio VAP reports.

7.3.4. For DoD labs, in reference to item 7.3.2.8 listed above, both date and time of preparation and analysis are considered essential information, regardless of the length of the holding time, and shall be included as part of the laboratory report.

7.3.5. Any changes made to a final report shall be designated as "Revised" or equivalent wording. The laboratory must keep sufficient archived records of all laboratory reports and revisions. For higher levels of data deliverables, a copy of all supporting raw data is sent to the customer along with a final report of results. When possible, the PASI facility will provide electronic data deliverables (EDD) as required by contracts or upon customer request.

7.3.6. Customer data that requires transmission by telephone, telex, facsimile or other electronic means undergoes appropriate steps to preserve confidentiality.

7.3.7. The following positions are the only approved signatories for PASI final reports:

- Senior General Manager
- General Manager
- Assistant General Manager
- Senior Quality Manager

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- Quality Manager
- Client Services Manager
- Project Manager
- Project Coordinator

7.4. Data Security

7.4.1. All data including electronic files, logbooks, extraction/digestion/distillation worksheets, calculations, project files and reports, and any other information used to produce the technical report are maintained secured and retrievable by the PASI facility.

7.5. Data Archiving

7.5.1. All records compiled by PASI are maintained legible and retrievable and stored secured in a suitable environment to prevent loss, damage, or deterioration by fire, flood, vermin, theft, and/or environmental deterioration. Records are retained for a minimum of five years unless superseded by federal, state, contractual, and/or accreditation requirements. These records may include, but are not limited to, customer data reports, calibration and maintenance of equipment, raw data from instrumentation, quality control documents, observations, calculations, and logbooks. These records are retained in order to provide for possible historical reconstruction including sampling, receipt, preparation, analysis, and personnel involved. TNI-related records will be made readily available to accrediting authorities. Access to archived data is documented and controlled by the SQM/QM or a designated Data Archivist.

7.5.1.1. Records relating to data reported to the Massachusetts Department of Environmental Protection must be retained for ten years.

7.5.1.2. Records relating to data reported to ESI-BPXA must be retained for 6 years.

7.5.2. Records that are computer generated have either a hard copy or electronic write protected backup copy. Hardware and software necessary for the retrieval of electronic data is maintained with the applicable records. Archived electronic records are stored protected against electronic and/or magnetic sources.

7.5.3. In the event of a change in ownership, accountability or liability, reports of analyses performed pertaining to accreditation will be maintained by the acquiring entity for a minimum of five years. In the event of bankruptcy, laboratory reports and/or records will be transferred to the customer and/or the appropriate regulatory entity upon request.

7.6. Data Disposal

7.6.1. Data that has been archived for the facility's required storage time may be disposed of in a secure manner by shredding, returning to customer, or utilizing some other means that does not jeopardize data confidentiality. Records of data disposal will be archived for a minimum of five years unless superseded by federal, contractual, and/or accreditation requirements. Data disposal includes any preliminary or final reports that are disposed.

7.6.2. For Ohio VAP labs, all documents and data prepared or acquired in connection to VAP work must be retained for a period of 10 years after the data of reporting. After 10 years, if the laboratory wishes to dispose of the records, the laboratory must notify the VAP agency by certified mail of such

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intent and provide the agency an opportunity to request the materials from Pace. The documents must not be disposed of until notification has been received in response to the Pace request for disposal.

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8.0. QUALITY SYSTEM AUDITS AND REVIEWS

8.1. Internal Audits

8.1.1. Responsibilities

8.1.1.1. The SQM/QM is responsible for designing and/or conducting internal audits in accordance with a predetermined schedule and procedure. Since internal audits represent an independent assessment of laboratory functions, the auditor must be functionally independent from laboratory operations to ensure objectivity. The auditor must be trained, qualified, and familiar enough with the objectives, principles, and procedures of laboratory operations to be able to perform a thorough and effective evaluation. The SQM/QM evaluates audit observations and verifies the completion of corrective actions. In addition, a periodic corporate audit will be conducted. The corporate audits will focus on the effectiveness of the Quality System as outlined in this manual but may also include other quality programs applicable to an individual laboratory.

8.1.2. Scope and Frequency of Internal Audits

8.1.2.1. The complete internal audit process consists of the following four sections:

- Raw Data Review audits- conducted according to a schedule per local SQM/QM. A certain number of these data review audits are conducted per quarter to accomplish this yearly schedule;
- Quality System audits- considered the traditional internal audit function and includes analyst interviews to help determine whether practice matches method requirements and SOP language;
- Final Report reviews;
- Corrective Action Effectiveness Follow-up.

8.1.2.2. Internal systems audits are conducted yearly at a minimum. The scope of these audits includes evaluation of specific analytical departments or a specific quality related system as applied throughout the laboratory.

8.1.2.3. Where the identification of non-conformities or departures cast doubt on the laboratory's compliance with its own policies and procedures, the lab must ensure that the appropriate areas of activity are audited as soon as possible. Examples of system-wide elements that can be audited include:

- Quality Systems documents, such as Standard Operating Procedures, training documents, Quality Assurance Manual, and all applicable addenda
- Data records and non-technical documents
- Personnel and training files.
- General laboratory safety protocols.
- Chemical handling practices, such as labeling of reagents, solutions, and standards as well as all associated documentation.
- Documentation concerning equipment and instrumentation, calibration/maintenance records, operating manuals.
- Sample receipt and management practices.
- Analytical documentation, including any discrepancies and corrective actions.

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- General procedures for data security, review, documentation, reporting, and archiving.
- Data integrity issues such as proper manual integrations.

8.1.2.4. When the operations of a specific department are evaluated, a number of additional functions are reviewed including:

- Detection limit studies
- Internal chain of custody documentation
- Documentation of standard preparations
- Quality Control limits and Control charts

8.1.2.5. Certain projects may require an internal audit to ensure laboratory conformance to site work plans, sampling and analysis plans, QAPPs, etc.

8.1.2.6. A representative number of data audits are completed annually. Findings from these data audits are handled in the same manner as those from other internal and external audits.

8.1.2.7. The laboratory, as part of their overall internal audit program, ensures that a review is conducted with respect to any evidence of inappropriate actions or vulnerabilities related to data integrity. Discovery and reporting of potential data integrity issues are handled in a confidential manner. All investigations that result in findings of inappropriate activity are fully documented, including the source of the problem, the samples and customers affected the impact on the data, the corrective actions taken by the laboratory, and which final reports had to be re-issued. Customers must be notified within 30 days after the data investigation is completed and the impact to final results is assessed.

8.1.3. Internal Audit Reports and Corrective Action Plans

8.1.3.1. Additional information can be found in SOP SOT-ALL-Q-011 **Internal and External Audits** or its equivalent revision or replacement.

8.1.3.2. A full description of the audit, including the identification of the operation audited, the date(s) on which the audit was conducted, the specific systems examined, and the observations noted are summarized in an internal audit report. Although other personnel may assist with the performance of the audit, the SQM/QM writes and issues the internal audit report identifying which audit observations are deficiencies that require corrective action.

8.1.3.3. When audit findings cast doubt on the effectiveness of the operations or on the correctness of validity of the laboratory's environmental test results, the laboratory will take timely corrective action and notify the customer in writing within three business days, if investigations show that the laboratory results may have been affected.

8.1.3.4. Once completed, the internal audit report is issued jointly to the SGM/GM/AGM/OM and the manager(s)/supervisor(s) of the audited operation at a minimum. The responsible manager(s)/supervisor(s) responds within 14 days with a proposed plan to correct all of the deficiencies cited in the audit report. The SQM/QM may grant additional time for responses to large or complex deficiencies (not to exceed 30 days). Each response must include timetables for completion of all proposed corrective actions.

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8.1.3.5. The SQM/QM reviews the audit responses. If the response is accepted, the SQM/QM uses the action plan and timetable as a guideline for verifying completion of the corrective action(s). If the SQM/QM determines that the audit response does not adequately address the correction of cited deficiencies, the response will be returned for modification.

8.1.3.6. To complete the audit process, the SQM/QM performs a re-examination of the areas where deficiencies were found to verify that all proposed corrective actions have been implemented. An audit deficiency is considered closed once implementation of the necessary corrective action has been audited and verified. This is usually within 60-90 days after implementation. If corrective action cannot be verified, the associated deficiency remains open until that action is completed.

8.2. External Audits

8.2.1. PASI laboratories are audited regularly by regulatory agencies to maintain laboratory certifications and by customers to maintain appropriate specific protocols.

8.2.2. Audit teams external to the company review the laboratory to assess the effectiveness of systems and degree of technical expertise. The SQM/QM and other QA staff host the audit team and assist in facilitation of the audit process. Generally, the auditors will prepare a formalized audit report listing deficiencies observed and follow-up requirements for the laboratory. In some cases, items of concern are discussed during a debriefing convened at the end of the on-site review process.

8.2.3. The laboratory staff and supervisors develop corrective action plans to address any deficiencies with the guidance of the SQM/QM. The SGM/GM/AGM/OM provides the necessary resources for staff to develop and implement the corrective action plans. The SQM/QM collates this information and provides a written response to the audit team. The response contains the corrective action plan and expected completion dates for each element of the plan. The SQM/QM follows-up with the laboratory staff to ensure corrective actions are implemented and that the corrective action was effective.

8.3. Quarterly Quality Reports

8.3.1. The SQM/QM is responsible for preparing a quarterly report to management summarizing the effectiveness of the laboratory Quality Systems. This status report will include:

- Overview of quality activities for the quarter
- Certification status
- Proficiency Testing study results
- SOP revision activities
- Internal audit (method/system) findings
- Manual integration audit findings (Mintminer)
- Raw Data and Final Report review findings
- MDL activities
- Other significant Quality System items

8.3.2. The Corporate Director of Quality utilizes the information from each laboratory to make decisions impacting the quality program compliance of the company as a whole. Each

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SGM/GM/AGM/OM utilizes the quarterly report information to make decisions impacting Quality Systems and operational systems at a local level.

8.3.3. Additional information can be found in SOP S-ALL-Q-014 **Quality System Review** or its equivalent revision or replacement.

8.4. Annual Managerial Review

8.4.1. A managerial review of Management and Quality Systems is performed on an annual basis at a minimum. This allows for assessing program effectiveness and introducing changes and/or improvements.

8.4.2. The managerial review must include the following topics of discussion:

- Suitability of quality management policies and procedures
- Manager/Supervisor reports
- Internal audit results
- Corrective and preventive actions
- External assessment results
- Proficiency testing studies
- Sample capacity and scope of work changes
- Customer feedback, including complaints
- Recommendations for improvement
- Other relevant factors, such as quality control activities, resources, and staffing.

8.4.3. This managerial review must be documented for future reference by the SQM/QM and copies of the report are distributed to laboratory staff. Results must feed into the laboratory planning system and must include goals, objectives, and action plans for the coming year. The laboratory shall ensure that any actions identified during the review are carried out within an appropriate and agreed upon timescale.

8.5. Customer Service Reviews

8.5.1. As part of the annual managerial review listed previously, the sales staff is responsible for reporting on customer feedback, including complaints. The acquisition of this information is completed by performing surveys.

8.5.2. The sales staff continually receives customer feedback, both positive and negative, and reports this feedback to the laboratory management in order for them to evaluate and improve their management system, testing activities and customer service.

8.5.3. In addition, the labs must be willing to cooperate with customers or their representatives to clarify customer requests and to monitor the laboratory's performance in relation to the work being performed for the customers. This cooperation may include providing the customer reasonable access to relevant areas of the lab for the witnessing of tests being performed; or the preparation of samples or data deliverables to be used for verification purposes.

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8.5.4. Customer service is an important aspect to Pace's overall objective of providing a quality product. Good communication should be provided to the customer's throughout projects. The lab should inform the customer of any delay or major deviations in the performance of analytical tests.

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9.0. CORRECTIVE ACTION

Additional information can be found in SOP SOT-ALL-Q-012 **Corrective and Preventive Actions** or its equivalent revision or replacement.

During the process of sample handling, preparation, and analysis, or during review of quality control records, or during reviews of non-technical portions of the lab, certain occurrences may warrant the necessity of corrective actions. These occurrences may take the form of analyst errors, deficiencies in quality control, method deviations, or other unusual circumstances. The Quality System of PASI provides systematic procedures for the documentation, monitoring, completion of corrective actions, and follow-up verification of the effectiveness of these corrective actions. This can be done using PASI's LabTrack system or other system that lists among at a minimum, the deficiency by issue number, the deficiency source, responsible party, root cause, resolution, due date, and date resolved.

9.1. Corrective Action Documentation

9.1.1. The following items are examples of sources of laboratory deviations or non-conformances that warrant some form of documented corrective action:

- Internal Laboratory Non-Conformance Trends
- PE/PT Sample Results
- Internal and External Audits
- Data or Records Review (including non-technical records)
- Client Complaints
- Client Inquiries
- Holding Time violations

9.1.2. Documentation of corrective actions may be in the form of a comment or footnote on the final report that explains the deficiency (e.g., matrix spike recoveries outside of acceptance criteria) or it may be a more formal documentation (either paper system or computerized spreadsheet). This depends on the extent of the deficiency, the impact on the data, and the method or customer requirements for documentation.

9.1.3. The person who discovers the deficiency or non-conformance initiates the corrective action documentation on the Non-Conformance Corrective/ Preventive Action report and/or LabTrack. The documentation must include the affected projects and sample numbers, the name of the applicable Project Manager, the customer name, and the sample matrix involved. The person initiating the corrective action documentation must also list the known causes of the deficiency or non-conformance as well as any corrective/preventative actions that they have taken. Preventive actions must be taken in order to prevent or minimize the occurrence of the situation.

9.1.4. In the event that the laboratory is unable to determine the cause, laboratory personnel and management staff will start a root cause analysis by going through an investigative process. During this process, the following general steps must be taken into account: defining the non-conformance, assigning responsibilities, determining if the condition is significant, and investigating the root cause of the nonconformance. General non-conformance investigative techniques follow the path of the sample through the process looking at each individual step in detail. The root cause must be documented within LabTrack or on the Corrective/Preventive Action Report.

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9.1.5. After all the documentation is completed, the routing of the Corrective/Preventive Action Report and /or LabTrack will continue from the person initiating the corrective action, to their immediate supervisor or the applicable Project Manager and finally to the SQM/QM, if applicable, who may be responsible for final review and signoff of corrective/preventive actions.

9.1.6. In the event that analytical testing or results do not conform to documented laboratory policies or procedures, customer requirements, or standard specifications, the laboratory shall investigate the significance of the non-conformance and document appropriate corrective actions. The proper level of laboratory management will review any departure from these requirements for technical suitability. These departures are permitted only with the approval of the SGM/GM/AGM/OM or the SQM/QM. Where necessary, Project Management will notify the customer of the situation and will advise of any ramifications to data quality (with the possibility of work being recalled). The procedures for handling non-conforming work are detailed in SOP SOT-ALL-Q-012 **Corrective and Preventive Actions** or its equivalent revision or replacement.

9.2. Corrective Action Completion

9.2.1. Internal Laboratory Non-Conformance Trends

9.2.1.1. There are several types of non-conformance trends that may occur in the laboratory that would require the initiation of a corrective action report. Laboratories may choose to initiate a corrective action for all instances of one or more of these categories if they so choose, however the intent is that each of these would be handled according to its severity; one time instances could be handled with a footnote or qualifier whereas a systemic problem with any of these categories may require an official corrective action process. These categories, as defined in the Corrective Action SOP are as follows:

- Login error
- Preparation Error
- Contamination
- Calibration Failure
- Internal Standard Failure
- LCS Failure
- Laboratory accident
- Spike Failure
- Instrument Failure
- Final Reporting error

9.2.2. PE/PT Sample Results

9.2.2.1. Any PT result assessed as “not acceptable” requires an investigation and applicable corrective actions. The operational staff is made aware of the PT failures and they are responsible for reviewing the applicable raw data and calibrations and list possible causes for error. The SQM/QM reviews their findings and initiates another external PT sample or an internal PT sample to try and correct the previous failure. Replacement PT results must be monitored by the SQM/QM and reported to the applicable regulatory authorities.

9.2.3. Internal and External Audits

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9.2.3.1. The SQM/QM is responsible for documenting all audit findings and their corrective actions. This documentation must include the initial finding, the persons responsible for the corrective action, the due date for responding to the auditing body, the root cause of the finding, and the corrective actions needed for resolution. The SQM/QM is also responsible for providing any back-up documentation used to demonstrate that a corrective action has been completed.

9.2.4. Data Review

9.2.4.1. In the course of performing primary and secondary review of data or in the case of raw data reviews (e.g., by the SQM/QM), errors may be found which require corrective actions. Any finding that affects the quality of the data requires some form of corrective action, which may include revising and re-issuing of final reports.

9.2.5. Client Complaints

9.2.5.1. Project Managers are responsible for issuing corrective action forms, when warranted, for customer complaints. As with other corrective actions, the possible causes of the problem are listed and the form is passed to the appropriate analyst or supervisor for investigation. After potential corrective actions have been determined, the Project Manager reviews the corrective action form to ensure all customer needs or concerns are being adequately addressed.

9.2.6. Client Inquiries

9.2.6.1. When an error on the customer report is discovered, the Project Manager is responsible for initiating a formal corrective action form that describes the failure (e.g., incorrect analysis reported, reporting units are incorrect, or reporting limits do not meet objectives). The Project Manager is also responsible for revising the final report if necessary and submitting it to the customer.

9.2.7. Holding Time Violations

9.2.7.1. In the event that a holding time has been missed, the analyst or supervisor must complete a formal corrective action form. The Project Manager and the SQM/QM must be made aware of all holding time violations.

9.2.7.2. The Project Manager must contact the customer in order that appropriate decisions are made regarding the hold time excursion and the ultimate resolution is then documented and included in the customer project file.

9.3. Preventive Action Documentation

9.3.1. Pace laboratories can take advantage of several available information sources in order to identify needed improvements in all of their systems including technical, managerial, and quality. These sources may include:

- Management Continuous Improvement Plan (CIP) metrics which are used by all production departments within Pace. When groups compare performance across the company, ways to improve systems may be discovered. These improvements can be made within a department or laboratory-wide.
- Annual managerial reviews- part of this TNI-required and NVLAP-required review is to look at all processes and procedures used by the laboratory over the past year and to determine ways to improve these processes in the future.
- Quality systems reviews- any frequent checks of quality systems (monthly logbook reviews, etc.) can uncover issues that can be corrected or adjusted before they become a larger issue.

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9.3.2. When improvement opportunities are identified or if preventive action is required, the laboratory can develop, implement, and monitor preventive action plans.

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10.0. GLOSSARY

The source of some of the definitions is indicated previous to the actual definition (e.g., TNI, DoD).

3P Program	The Pace Analytical continuous improvement program that focuses on Process, Productivity, and Performance. Best Practices are identified that can be used by all PASI labs.
Acceptance Criteria	TNI- Specified limits placed on characteristics of an item, process, or service defined in requirement documents.
Accreditation	TNI- The process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards, thereby accrediting the laboratory.
Accreditation Body	DoD- Entities recognized in accordance with the DoD-ELAP that are required to operate in accordance with ISO/IEC 17011, <i>Conformity assessment: General requirements for accreditation bodies accrediting conformity assessment bodies</i> . The AB must be a signatory, in good standing, to the International Laboratory Accreditation Cooperation (ILAC) mutual recognition arrangement (MRA) that verifies, by evaluation and peer assessment, that its signatory members are in full compliance with ISO/IEC 17011 and that its accredited laboratories comply with ISO/IEC 17025.
Accuracy	TNI- The degree of agreement between an observed value and an accepted reference value. Accuracy includes a combination of random error (precision) and systematic error (bias) components that are due to sampling and analytical operations; a data quality indicator.
Aliquot	A discrete, measured, representative portion of a sample taken for analysis.
Analysis	A combination of sample preparation and instrument determination.
Analysis Code (Acode)	All the set parameters of a test, such as Analytes, Method, Detection Limits and Price.
Analysis Sequence	A compilation of all samples, standards and quality control samples run during a specific amount of time on a particular instrument in the order they are analyzed.
Analyst	TNI- The designated individual who performs the “hands-on” analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent quality controls to meet the required level of quality.
Analyte	The specific chemicals or components for which a sample is analyzed; it may be a group of chemicals that belong to the same chemical family and are analyzed together.
Analytical Uncertainty	TNI- A subset of Measurement Uncertainty that includes all laboratory activities performed as part of the analysis.
Assessment	TNI - The evaluation process used to measure or establish the performance, effectiveness, and conformance of an organization and/or its system to defined criteria (to the standards and requirements of laboratory accreditation). DoD- An all-inclusive term used to denote any of the following: audit, performance evaluation, peer review, inspection, or surveillance conducted on-site.
Atomic Absorption Spectrometer	Instrument used to measure concentration in metals samples.

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Atomization	A process in which a sample is converted to free atoms.
Audit	TNI- A systematic and independent examination of facilities, equipment, personnel, training, procedures, record-keeping, data validation, data management, and reporting aspects of a system to determine whether QA/QC and technical activities are being conducted as planned and whether these activities will effectively achieve quality objectives.
Batch	TNI- Environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents. A preparation batch is composed of one to 20 environmental samples of the same quality systems matrix, meeting the above-mentioned criteria and with a maximum time between the start of processing of the first and last sample in the batch to be 24 hours. An analytical batch is composed of prepared environmental samples (extracts, digestates or concentrates) which are analyzed together as a group. An analytical batch can include prepared samples originating from various quality system matrices and can exceed 20 samples. South Carolina- same definition as TNI except 24 hours should be changed to 8 hours.
Bias	TNI- The systematic or persistent distortion of a measurement process, which causes errors in one direction (i.e., the expected sample measurement is different from the sample's true value).
Blank	TNI and DoD- A sample that has not been exposed to the analyzed sample stream in order to monitor contamination during sampling, transport, storage or analysis. The blank is subjected to the usual analytical and measurement process to establish a zero baseline or background value and is sometimes used to adjust or correct routine analytical results. DoD- Blank samples are negative control samples, which typically include field blank samples (e.g., trip blank, equipment (rinsate) blank, and temperature blank) and laboratory blank samples (e.g., method blank, reagent blank, instrument blank, calibration blank, and storage blank).
Blind Sample	A sub-sample for analysis with a composition known to the submitter. The analyst/laboratory may know the identity of the sample but not its composition. It is used to test the analyst's or laboratory's proficiency in the execution of the measurement process.
BNA (Base Neutral Acid compounds)	A list of semi-volatile compounds typically analyzed by mass spectrometry methods. Named for the way they can be extracted out of environmental samples in an acidic, basic or neutral environment.
BOD (Biochemical Oxygen Demand)	Chemical procedure for determining how fast biological organisms use up oxygen in a body of water.

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Calibration	TNI- A set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards. 1) In calibration of support equipment, the values realized by standards are established through the use of reference standards that are traceable to the International System of Units (SI); 2) In calibration according to test methods, the values realized by standards are typically established through the use of Reference Materials that are either purchased by the laboratory with a certificate of analysis or purity, or prepared by the laboratory using support equipment that has been calibrated or verified to meet specifications.
Calibration Curve	TNI- The mathematical relationship between the known values, such as concentrations, of a series of calibration standards and their instrument response.
Calibration Method	A defined technical procedure for performing a calibration.
Calibration Range	The range of values (concentrations) between the lowest and highest calibration standards of a multi-level calibration curve. For metals analysis with a single-point calibration, the low-level calibration check standard and the high standard establish the linear calibration range, which lies within the linear dynamic range.
Calibration Standard	TNI- A substance or reference material used for calibration.
Certified Reference Material (CRM)	TNI- Reference material accompanied by a certificate, having a value, measurement uncertainty, and stated metrological traceability chain to a national metrology institute.
Chain of Custody	An unbroken trail of accountability that verifies the physical security of samples, data, and records.
Chain of custody Form (COC)	TNI- Record that documents the possession of the samples from the time of collection to receipt in the laboratory. This record generally includes: the number and type of containers; the mode of collection, the collector, time of collection; preservation; and requested analyses.
Chemical Oxygen Demand (COD)	A test commonly used to indirectly measure the amount of organic compounds in water.
Client (referred to by ISO as Customer)	Any individual or organization for whom items or services are furnished or work performed in response to defined requirements and expectations.
Code of Federal Regulations (CFR)	A codification of the general and permanent rules published in the Federal Register by agencies of the federal government.
Comparability	An assessment of the confidence with which one data set can be compared to another. Comparable data are produced through the use of standardized procedures and techniques.
Completeness	The percent of valid data obtained from a measurement system compared to the amount of valid data expected under normal conditions. The equation for completeness is: $\% \text{ Completeness} = (\text{Valid Data Points} / \text{Expected Data Points}) * 100$

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Confirmation	TNI- Verification of the identity of a component through the use of an approach with a different scientific principle from the original method. These may include, but are not limited to: second-column confirmation; alternate wavelength; derivatization; mass spectral interpretation; alternative detectors; or additional cleanup procedures. DoD- Includes verification of the identity and quantity of the analyte being measured by another means (e.g., by another determinative method, technology, or column). Additional cleanup procedures alone are not considered confirmation techniques.
Conformance	An affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements.
Congener	A member of a class of related chemical compounds (e.g., PCBs, PCDDs).
Consensus Standard	DoD- A standard established by a group representing a cross-section of a particular industry or trade, or a part thereof.
Continuing Calibration Blank (CCB)	A blank sample used to monitor the cleanliness of an analytical system at a frequency determined by the analytical method.
Continuing Calibration Check Compounds (CCC)	Compounds listed in mass spectrometry methods that are used to evaluate an instrument calibration from the standpoint of the integrity of the system. High variability would suggest leaks or active sites on the instrument column.
Continuing Calibration Verification	DoD- The verification of the initial calibration. Required prior to sample analysis and at periodic intervals. Continuing calibration verification applies to both external and internal standard calibration techniques, as well as to linear and non-linear calibration models.
Continuing Calibration Verification (CCV) Standard	Also referred to as a CVS in some methods, it is a standard used to verify the initial calibration of compounds in an analytical method. CCVs are analyzed at a frequency determined by the analytical method.
Continuous Emission Monitor (CEM)	A flue gas analyzer designed for fixed use in checking for environmental pollutants.
Contract Laboratory Program (CLP)	A national network of EPA personnel, commercial labs, and support contractors whose fundamental mission is to provide data of known and documented quality.
Contract Required Detection Limit (CRDL)	Detection limit that is required for EPA Contract Laboratory Program (CLP) contracts.
Contract Required Quantitation Limit (CRQL)	Quantitation limit (reporting limit) that is required for EPA Contract Laboratory Program (CLP) contracts.
Control Chart	A graphic representation of a series of test results, together with limits within which results are expected when the system is in a state of statistical control (see definition for Control Limit)
Control Limit	A range within which specified measurement results must fall to verify that the analytical system is in control. Control limit exceedances may require corrective action or require investigation and flagging of non-conforming data.
Correction	DoD- Action taken to eliminate a detected non-conformity.

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Corrective Action	The action taken to eliminate the causes of an existing non-conformity, defect, or other undesirable situation in order to prevent recurrence. A root cause analysis may not be necessary in all cases.
Corrective and Preventative Action (CAPA)	The primary management tools for bringing improvements to the quality system, to the management of the quality system's collective processes, and to the products or services delivered which are an output of established systems and processes.
Customer	Any individual or organization for which products or services are furnished or work performed in response to defined requirements and expectations.
Data Quality Objective (DQO)	Systematic strategic planning tool based on the scientific method that identifies and defines the type, quality, and quantity of data needed to satisfy a specified use or end user.
Data Reduction	TNI- The process of transforming the number of data items by arithmetic or statistical calculation, standard curves, and concentration factors, and collating them into a more usable form.
Definitive Data	DoD- Analytical data of known quantity and quality. The levels of data quality on precision and bias meet the requirements for the decision to be made. Data that is suitable for final decision-making.
Demonstration of Capability	TNI- A procedure to establish the ability of the analyst to generate analytical results of acceptable accuracy and precision. DoD- A procedure to establish the ability of the analyst to generate analytical results by a specific method that meet measurement quality objectives (e.g., for precision and bias).
Detection Limit (DL)	DoD- The smallest analyte concentration that can be demonstrated to be different than zero or a blank concentration at the 99% confidence. At the DL, the false positive rate (Type 1 error) is 1%. A DL may be used as the lowest concentration for reliably reporting a detection of a specific analyte in a specific matrix with a specific method with 99% confidence.
Diesel Range Organics (DRO)	A range of compounds that denote all the characteristic compounds that make up diesel fuel (range can be state or program specific).
Digestion	A process in which a sample is treated (usually in conjunction with heat and acid) to convert the sample to a more easily measured form.
Document Control	The act of ensuring that documents (and revisions thereto) are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed properly and controlled to ensure use of the correct version at the location where the prescribed activity is performed.
Documents	DoD- Written components of the laboratory management system (e.g., policies, procedures, and instructions).
Dry Weight	The weight after drying in an oven at a specified temperature.
Duplicate (also known as Replicate or Laboratory Duplicate)	The analyses or measurements of the variable of interest performed identically on two subsamples of the same sample. The results of duplicate analyses are used to evaluate analytical or measurement precision but not the precision of sampling, preservation or storage internal to the laboratory.
Electron Capture Detector (ECD)	Device used in GC methods to detect compounds that absorb electrons (e.g., PCB compounds).
Electronic Data Deliverable (EDD)	A summary of environmental data (usually in spreadsheet form) which clients request for ease of data review and comparison to historical results.

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Eluent	A solvent used to carry the components of a mixture through a stationary phase.
Elute	To extract, specifically, to remove (absorbed material) from an absorbent by means of a solvent.
Elution	A process in which solutes are washed through a stationary phase by movement of a mobile phase.
Environmental Data	DoD- Any measurements or information that describe environmental processes, locations, or conditions; ecological or health effects and consequences; or the performance of environmental technology.
Environmental Monitoring	The process of measuring or collecting environmental data.
Environmental Sample	A representative sample of any material (aqueous, non-aqueous, or multimedia) collected from any source for which determination of composition or contamination is requested or required. Environmental samples can generally be classified as follows: • Non Potable Water (Includes surface water, ground water, effluents, water treatment chemicals, and TCLP leachates or other extracts) • Drinking Water - Delivered (treated or untreated) water designated as potable water • Water/Wastewater - Raw source waters for public drinking water supplies, ground waters, municipal influents/effluents, and industrial influents/effluents • Sludge - Municipal sludges and industrial sludges. • Soil - Predominately inorganic matter ranging in classification from sands to clays. • Waste - Aqueous and non-aqueous liquid wastes, chemical solids, and industrial liquid and solid wastes
Equipment Blank	A sample of analyte-free media used to rinse common sampling equipment to check effectiveness of decontamination procedures.
Facility	A distinct location within the company that has unique certifications, personnel and waste disposal identifications.
False Negative	A result that fails to identify (detect) an analyte or reporting an analyte to be present at or below a level of interest when the analyte is actually above the level of interest.
False Positive	A result that erroneously identifies (detects) an analyte or reporting an analyte to be present above a level of interest when the analyte is actually present at or below the level of interest.
Field Blank	A blank sample prepared in the field by filling a clean container with reagent water and appropriate preservative, if any, for the specific sampling activity being undertaken.
Field Measurement	Determination of physical, biological, or radiological properties, or chemical constituents that are measured on-site, close in time and space to the matrices being sampled/measured, following accepted test methods. This testing is performed in the field outside of a fixed-laboratory or outside of an enclosed structure that meets the requirements of a mobile laboratory.
Field of Accreditation	TNI- Those matrix, technology/method, and analyte combinations for which the accreditation body offers accreditation.

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Finding	TNI- An assessment conclusion referenced to a laboratory accreditation standard and supported by objective evidence that identifies a deviation from a laboratory accreditation standard requirement. DoD- An assessment conclusion that identifies a condition having a significant effect on an item or activity. An assessment finding may be positive, negative, or neutral and is normally accompanied by specific examples of the observed condition. The finding must be linked to a specific requirement (e.g., this standard (DoD QSM), ISO requirements, analytical methods, contract specifications, or laboratory management systems requirements).
Flame Atomic Absorption Spectrometer (FAA)	Instrumentation used to measure the concentration of metals in an environmental sample based on the fact that ground state metals absorb light at different wavelengths. Metals in a solution are converted to the atomic state by use of a flame.
Flame Ionization Detector (FID)	A type of gas detector used in GC analysis where samples are passed through a flame which ionizes the sample so that various ions can be measured.
Gas Chromatography (GC)	Instrumentation which utilizes a mobile carrier gas to deliver an environmental sample across a stationary phase with the intent to separate compounds out and measure their retention times.
Gas Chromatograph/Mass Spectrometry (GC/MS)	In conjunction with a GC, this instrumentation utilizes a mass spectrometer which measures fragments of compounds and determines their identity by their fragmentation patterns (mass spectra).
Gasoline Range Organics (GRO)	A range of compounds that denote all the characteristic compounds that make up gasoline (range can be state or program specific).
Graphite Furnace Atomic Absorption Spectrometry (GFAA)	Instrumentation used to measure the concentration of metals in an environmental sample based on the absorption of light at different wavelengths that are characteristic of different analytes.
High Pressure Liquid Chromatography (HPLC)	Instrumentation used to separate, identify and quantitate compounds based on retention times which are dependent on interactions between a mobile phase and a stationary phase.
Holding Time	TNI- The maximum time that can elapse between two specified activities. 40 CFR Part 136- The maximum time that samples may be held prior to preparation and/or analysis as defined by the method and still be considered valid or not compromised. For sample prep purposes, hold times are calculated using the time of the start of the preparation procedure. DoD- The maximum time that may elapse from the time of sampling to the time of preparation or analysis, or from preparation to analysis, as appropriate.
Homogeneity	The degree to which a property or substance is uniformly distributed throughout a sample.
Homologue	One in a series of organic compounds in which each successive member has one more chemical group in its molecule than the next preceding member. For instance, methanol, ethanol, propanol, butanol, etc., form a homologous series.
Improper Actions	DoD- Intentional or unintentional deviations from contract-specified or method-specified analytical practices that have not been authorized by the customer (e.g., DoD or DOE).

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Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)	Analytical technique used for the detection of trace metals which uses plasma to produce excited atoms that emit radiation of characteristic wavelengths.
Inductively Coupled Plasma- Mass Spectrometry (ICP/MS)	An ICP-AES that is used in conjunction with a mass spectrometer so that the instrument is not only capable of detecting trace amounts of metals and non-metals but is also capable of monitoring isotopic speciation for the ions of choice.
Infrared Spectrometer (IR)	An instrument that uses infrared light to identify compounds of interest.
Initial Calibration (ICAL)	The process of analyzing standards, prepared at specified concentrations, to define the quantitative response relationship of the instrument to the analytes of interest. Initial calibration is performed whenever the results of a calibration verification standard do not conform to the requirements of the method in use or at a frequency specified in the method.
Initial Calibration Blank (ICB)	A blank sample used to monitor the cleanliness of an analytical system at a frequency determined by the analytical method. This blank is specifically run in conjunction with the Initial Calibration Verification (ICV) where applicable.
Initial Calibration Verification (ICV)	Verifies the initial calibration with a standard obtained or prepared from a source independent of the source of the initial calibration standards to avoid potential bias of the initial calibration.
Instrument Blank	A clean sample (e.g., distilled water) processed through the instrumental steps of the measurement process; used to determine instrument contamination.
Instrument Detection Limits (IDLs)	Limits determined by analyzing a series of reagent blank analyses to obtain a calculated concentration. IDLs are determined by calculating the average of the standard deviations of three runs on three non-consecutive days from the analysis of a reagent blank solution with seven consecutive measurements per day.
Interference, spectral	Occurs when particulate matter from the atomization scatters incident radiation from the source or when the absorption or emission from an interfering species either overlaps or is so close to the analyte wavelength that resolution becomes impossible.
Interference, chemical	Results from the various chemical processes that occur during atomization and later the absorption characteristics of the analyte.
Internal Standards	TNI- A known amount of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method.
Intermediate Standard Solution	Reference solutions prepared by dilution of the stock solutions with an appropriate solvent.
International System of Units (SI)	The coherent system of units adopted and recommended by the General Conference on Weights and Measures.
Ion Chromatography (IC)	Instrumentation or process that allows the separation of ions and molecules based on the charge properties of the molecules.
Isomer	One of two or more compounds, radicals, or ions that contain the same number of atoms of the same element but differ in structural arrangement and properties. For example, hexane (C ₆ H ₁₄) could be n-hexane, 2-methylpentane, 3-methylpentane, 2,3-dimethylbutane, 2,2-dimethylbutane.

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Laboratory	A body that calibrates and/or tests.
Laboratory Control Sample (LCS)	TNI- (however named, such as laboratory fortified blank (LFB), spiked blank, or QC check sample): A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes and taken through all sample preparation and analytical steps of the procedure unless otherwise noted in a reference method. It is generally used to establish intra-laboratory or analyst-specific precision and bias or to evaluate the performance of all or a portion of the measurement system.
Laboratory Duplicate	Aliquots of a sample taken from the same container under laboratory conditions and processed and analyzed independently.
Laboratory Information Management System (LIMS)	DoD- The entirety of an electronic data system (including hardware and software) that collects, analyzes, stores, and archives electronic records and documents.
LabTrack	Database used by Pace Analytical to store and track corrective actions and other laboratory issues.
Learning Management System (LMS)	A web-based database used by the laboratories to track and document training activities. The system is administered by the corporate training department and each laboratory's learn centers are maintained by a local administrator.
Legal Chain-of-Custody Protocols	TNI- Procedures employed to record the possession of samples from the time of sampling through the retention time specified by the client or program. These procedures are performed at the special request of the client and include the use of a Chain-of-Custody (COC) Form that documents the collection, transport, and receipt of compliance samples by the laboratory. In addition, these protocols document all handling of the samples within the laboratory.
Limit(s) of Detection (LOD)	TNI- A laboratory's estimate of the minimum amount of an analyte in a given matrix that an analytical process can reliably detect in their facility. DoD- The smallest concentration of a substance that must be present in a sample in order to be detected at the DL with 99% confidence. At the LOD, the false negative rate (Type II error) is 1%. A LOD may be used as the lowest concentration for reliably reporting a non-detect of a specific analyte in a specific matrix with a specific method at 99% confidence.
Limit(s) of Quantitation (LOQ)	TNI- The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. DoD- The smallest concentration that produces a quantitative result with known and recorded precision and bias. For DoD/DOE projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard and within the calibration range.
Linear Dynamic Range	DoD- Concentration range where the instrument provides a linear response.
Liquid chromatography/tandem mass spectrometry (LC/MS/MS)	Instrumentation that combines the physical separation techniques of liquid chromatography with the mass analysis capabilities of mass spectrometry.
Lot	A quantity of bulk material of similar composition processed or manufactured at the same time.

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Management	Those individuals directly responsible and accountable for planning, implementing, and assessing work.
Management System	System to establish policy and objectives and to achieve those objectives.
Manager (however named)	The individual designated as being responsible for the overall operation, all personnel, and the physical plant of the environmental laboratory. A supervisor may report to the manager. In some cases, the supervisor and the manager may be the same individual.
Matrix	TNI- The substrate of a test sample.
Matrix Duplicate	TNI- A replicate matrix prepared in the laboratory and analyzed to obtain a measure of precision.
Matrix Spike (MS) (spiked sample or fortified sample)	TNI- A sample prepared, taken through all sample preparation and analytical steps of the procedure unless otherwise noted in a referenced method, by adding a known amount of target analyte to a specified amount of sample for which an independent test result of target analyte concentration is available. Matrix spikes are used, for example, to determine the effect of the matrix on a method's recovery efficiency.
Matrix Spike Duplicate (MSD) (spiked sample or fortified sample duplicate)	TNI- A replicate matrix spike prepared in the laboratory and analyzed to obtain a measure of the precision of the recovery for each analyte.
Measurement Performance Criteria (MPC)	DoD- Criteria that may be general (such as completion of all tests) or specific (such as QC method acceptance limits) that are used by a project to judge whether a laboratory can perform a specified activity to the defined criteria.
Measurement System	TNI and DoD- A test method, as implemented at a particular laboratory, and which includes the equipment used to perform the sample preparation, test and the operator(s).
Measurement Uncertainty	DoD- An estimate of the error in a measurement often stated as a range of values that contain the true value, within a certain confidence level. The uncertainty generally includes many components which may be evaluated from experimental standard deviations based on repeated observations or by standard deviations evaluated from assumed probability distributions based on experience or other information. For DoD/DOE, a laboratory's Analytical Uncertainty (such as use of LCS control limits) can be reported as the minimum uncertainty.
Method	TNI- A body of procedures and techniques for performing an activity (e.g., sampling, chemical analysis, quantification), systematically presented in the order in which they are to be executed.
Method Blank	TNI- A sample of a matrix similar to the batch of associated samples (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.
Method Detection Limit (MDL)	One way to establish a Detection Limit; defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

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Method of Standard Additions	A set of procedures adding one or more increments of a standard solution to sample aliquots of the same size in order to overcome inherent matrix effects. The procedures encompass the extrapolation back to obtain the sample concentration.
MintMiner	Program used by Pace Analytical to review large amounts of chromatographic data to monitor for errors or data integrity issues.
Mobile Laboratory	TNI- A portable enclosed structure with necessary and appropriate accommodation and environmental conditions for a laboratory, within which testing is performed by analysts. Examples include but are not limited to trailers, vans, and skid-mounted structures configured to house testing equipment and personnel.
National Institute of Standards and Technology (NIST)	TNI- A federal agency of the US Department of Commerce's Technology Administration that is designed as the United States national metrology institute (or NMI).
National Pollutant Discharge Elimination System (NPDES)	A permit program that controls water pollution by regulating point sources that discharge pollutants into U.S. waters.
Negative Control	Measures taken to ensure that a test, its components, or the environment do not cause undesired effects, or produce incorrect test results.
Nitrogen Phosphorus Detector (NPD)	A detector used in GC analyses that utilizes thermal energy to ionize an analyte. With this detector, nitrogen and phosphorus can be selectively detected with a higher sensitivity than carbon.
Nonconformance	An indication or judgment that a product or service has not met the requirement of the relevant specifications, contract, or regulation; also the state of failing to meet the requirements.
Not Detected (ND)	The result reported for a compound when the detected amount of that compound is less than the method reporting limit.
Operator Aid	DoD- A technical posting (such as poster, operating manual, or notepad) that assists workers in performing routine tasks. All operator aids must be controlled documents (i.e., a part of the laboratory management system).
Performance Based Measurement System (PBMS)	An analytical system wherein the data quality needs, mandates or limitations of a program or project are specified and serve as criteria for selecting appropriate test methods to meet those needs in a cost-effective manner.
Photo-ionization Detector (PID)	An ion detector which uses high-energy photons, typically in the ultraviolet range, to break molecules into positively charged ions.
Polychlorinated Biphenyls (PCB)	A class of organic compounds that were used as coolants and insulating fluids for transformers and capacitors. The production of these compounds was banned in the 1970's due to their high toxicity.
Positive Control	Measures taken to ensure that a test and/or its components are working properly and producing correct or expected results from positive test subjects.
Post-Digestion Spike	A sample prepared for metals analyses that has analytes spike added to determine if matrix effects may be a factor in the results.
Power of Hydrogen (pH)	The measure of acidity or alkalinity of a solution.
Practical Quantitation Limit (PQL)	Another term for a method reporting limit. The lowest reportable concentration of a compound based on parameters set up in an analytical method and the laboratory's ability to reproduce those conditions.

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Precision	TNI- The degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed as standard deviation, variance or range, in either absolute or relative terms.
Preservation	TNI and DoD- Any conditions under which a sample must be kept in order to maintain chemical, physical, and/or biological integrity prior to analysis.
Procedure	TNI- A specified way to carry out an activity or process. Procedures can be documented or not.
Proficiency Testing	TNI- A means of evaluating a laboratory's performance under controlled conditions relative to a given set of criteria through analysis of unknown samples provided by an external source.
Proficiency Testing Program	TNI- The aggregate of providing rigorously controlled and standardized environmental samples to a laboratory for analysis, reporting of results, statistical evaluation of the results and the collective demographics and results summary of all participating laboratories.
Proficiency Testing Sample (PT)	TNI- A sample, the composition of which is unknown to the laboratory and is provided to test whether the laboratory can produce analytical results within the specified acceptance criteria.
Protocol	TNI- A detailed written procedure for field and/or laboratory operation (e.g., sampling, analysis) that must be strictly followed.
Qualitative Analysis	Analysis designed to identify the components of a substance or mixture.
Quality Assurance (QA)	TNI- An integrated system of management activities involving planning, implementation, assessment, reporting and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected by the client.
Quality Assurance Manual (QAM)	A document stating the management policies, objectives, principles, organizational structure and authority, responsibilities, accountability, and implementation of an agency, organization, or laboratory, to ensure the quality of its product and the utility of its product to its users.
Quality Assurance Project Plan (QAPP)	A formal document describing the detailed quality control procedures by which the quality requirements defined for the data and decisions pertaining to a specific project are to be achieved.
Quality Control (QC)	TNI- The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality; also the system of activities and checks used to ensure that measurement systems are maintained within prescribed limits, providing protection against "out of control" conditions and ensuring that the results are of acceptable quality.
Quality Control Sample (QCS)	TNI- A sample used to assess the performance of all or a portion of the measurement system. One of any number of samples, such as Certified Reference Materials, a quality system matrix fortified by spiking, or actual samples fortified by spiking, intended to demonstrate that a measurement system or activity is in control.
Quality Manual	TNI- A document stating the management policies, objectives, principles, organizational structure and authority, responsibilities, accountability, and implementation of an agency, organization, or laboratory, to ensure the quality of its product and the utility of its product to its users.

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Quality System	TNI and DoD- A structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required quality assurance and quality control activities.
Quality System Matrix	TNI and DoD- These matrix definitions are to be used for purposes of batch and quality control requirements: • Air and Emissions: Whole gas or vapor samples including those contained in flexible or rigid wall containers and the extracted concentrated analytes of interest from a gas or vapor that are collected with a sorbant tube, impinger solution, filter, or other device • Aqueous: Any aqueous sample excluded from the definition of Drinking Water or Saline/Estuarine. Includes surface water, groundwater effluents, and TCLP or other extracts. • Biological Tissue: Any sample of a biological origin such as fish tissue, shellfish or plant material. Such samples shall be grouped according to origin. • Chemical Waste: A product or by-product of an industrial process that results in a matrix not previously defined. • Drinking Water: Any aqueous sample that has been designated a potable or potentially potable water source. • Non-aqueous liquid: Any organic liquid with <15% settleable solids • Saline/Estuarine: Any aqueous sample from an ocean or estuary, or other salt water source such as the Great Salt Lake. • Solids: Includes soils, sediments, sludges, and other matrices with >15% settleable solids.
Quantitation Range	DoD- The range of values (concentrations) in a calibration curve between the LOQ and the highest successively analyzed initial calibration standard. The quantitation range lies within the calibration range.
Quantitative Analysis	Analysis designed to determine the amounts or proportions of the components of a substance.
Random Error	The EPA has established that there is a 5% probability that the results obtained for any one analyte will exceed the control limits established for the test due to random error. As the number of compounds measured increases in a given sample, the probability for statistical error also increases.
Raw Data	TNI- The documentation generated during sampling and analysis. This documentation includes, but is not limited to, field notes, electronic data, magnetic tapes, untabulated sample results, QC sample results, print outs of chromatograms, instrument outputs, and handwritten records.
Reagent Blank (method reagent blank)	A sample consisting of reagent(s), without the target analyte or sample matrix, introduced into the analytical procedure at the appropriate point and carried through all subsequent steps to determine the contribution of the reagents and of the involved analytical steps.

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Reagent Grade	Analytical reagent (AR) grade, ACS reagent grade, and reagent grade are synonymous terms for reagents that conform to the current specifications of the Committee on Analytical Reagents of the American Chemical Society.
Records	DoD- The output of implementing and following management system documents (e.g., test data in electronic or hand-written forms, files, and logbooks).
Reference Material	TNI- Material or substance one or more of whose property values are sufficiently homogenized and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials.
Reference Standard	TNI- Standard used for the calibration of working measurement standards in a given organization or at a given location.
Relative Percent Difference (RPD)	A measure of precision defined as the difference between two measurements divided by the average concentration of the two measurements.
Reporting Limit (RL)	The level at which method, permit, regulatory and customer-specific objectives are met. The reporting limit may never be lower than the Limit of Detection (i.e., statistically determined MDL). Reporting limits are corrected for sample amounts, including the dry weight of solids, unless otherwise specified. There must be a sufficient buffer between the Reporting Limit and the MDL. DoD- A customer-specified lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
Reporting Limit Verification Standard (or otherwise named)	A standard analyzed at the reporting limit for an analysis to verify the laboratory's ability to report to that level.
Representativeness	A quality element related to the ability to collect a sample reflecting the characteristics of the part of the environment to be assessed. Sample representativeness is dependent on the sampling techniques specified in the project work plan.
Requirement	Denotes a mandatory specification; often designated by the term "shall".
Retention Time	The time between sample injection and the appearance of a solute peak at the detector.
Sample	Portion of material collected for analysis, identified by a single, unique alphanumeric code. A sample may consist of portions in multiple containers, if a single sample is submitted for multiple or repetitive analysis.
Sample Condition Upon Receipt Form (SCURF)	Form used by Pace Analytical sample receiving personnel to document the condition of sample containers upon receipt to the laboratory (used in conjunction with a COC).
Sample Delivery Group (SDG)	A unit within a single project that is used to identify a group of samples for delivery. An SDG is a group of 20 or fewer field samples within a project, received over a period of up to 14 calendar days. Data from all samples in an SDG are reported concurrently.
Sample Receipt Form (SRF)	Letter sent to the client upon login to show the tests requested and pricing.

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Sample Tracking	Procedures employed to record the possession of the samples from the time of sampling until analysis, reporting and archiving. These procedures include the use of a Chain of custody Form that documents the collection, transport, and receipt of compliance samples to the laboratory. In addition, access to the laboratory is limited and controlled to protect the integrity of the samples.
Sampling	TNI- Activity related to obtaining a representative sample of the object of conformity assessment, according to a procedure.
Selective Ion Monitoring (SIM)	A mode of analysis in mass spectrometry where the detector is set to scan over a very small mass range, typically one mass unit. The narrower the range, the more sensitive the detector.
Selectivity	TNI- The ability to analyze, distinguish, and determine a specific analyte or parameter from another component that may be a potential interferent or that may behave similarly to the target analyte or parameter within the measurement system.
Sensitivity	TNI- The capability of a method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest.
Serial Dilution	The stepwise dilution of a substance in a solution.
Shall	Denotes a requirement that is mandatory whenever the criterion for conformance with the specification requires that there be no deviation. This does not prohibit the use of alternative approaches or methods for implementing the specification as long as the requirement is fulfilled.
Should	Denotes a guideline or recommendation whenever noncompliance with the specification is permissible.
Signal-to-Noise Ratio (S/N)	S/N is a measure of signal strength relative to background noise. The average strength of the noise of most measurements is constant and independent of the magnitude of the signal. Thus, as the quantity being measured (producing the signal) decreases in magnitude, S/N decreases and the effect of the noise on the relative error of a measurement increases.
Spike	A known mass of target analyte added to a blank sample or sub-sample; used to determine recovery efficiency or for other quality control purposes.
Standard (Document)	TNI- The document describing the elements of a laboratory accreditation that has been developed and established within the consensus principles of standard setting and meets the approval requirements of standard adoption organizations procedures and policies.
Standard (Chemical)	Standard samples are comprised of a known amount of standard reference material in the matrix undergoing analysis. A standard reference material is a certified reference material produced by US NIST and characterized for absolute content, independent of analytical test method.
Standard Blank (or Reagent Blank)	A calibration standard consisting of the same solvent/reagent matrix used to prepare the calibration standards without the analytes. It is used to construct the calibration curve by establishing instrument background.
Standard Method	A test method issued by an organization generally recognized as competent to do so.
Standard Operating Procedure (SOP)	TNI- A written document that details the method for an operation, analysis, or action with thoroughly prescribed techniques and steps. SOPs are officially approved as the methods for performing certain routine or repetitive tasks.

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Standard Reference Material (SRM)	A certified reference material produced by the US NIST or other equivalent organization and characterized for absolute content, independent of analytical method.
Statement of Qualifications (SOQ)	A document that lists information about a company, typically the qualifications of that company to compete on a bid for services.
Stock Standard	A concentrated reference solution containing one or more analytes prepared in the laboratory using an assayed reference compound or purchased from a reputable commercial source.
Storage Blank	A sample of analyte-free media prepared by the laboratory and retained in the sample storage area of the laboratory. A storage blank is used to record contamination attributable to sample storage at the laboratory.
Supervisor	The individual(s) designated as being responsible for a particular area or category of scientific analysis. This responsibility includes direct day-to-day supervision of technical employees, supply and instrument adequacy and upkeep, quality assurance/quality control duties and ascertaining that technical employees have the required balance of education, training and experience to perform the required analyses.
Surrogate	A substance with properties that mimic the analyte of interest. It is unlikely to be found in environment samples and is added to them for quality control purposes.
Systems Audit	An on-site inspection or assessment of a laboratory's quality system.
Target Analytes	Analytes or chemicals of primary concern, identified by the customer on a project-specific basis.
Technical Director	Individual(s) who has overall responsibility for the technical operation of the environmental testing laboratory.
Technology	TNI- A specific arrangement of analytical instruments, detection systems, and/or preparation techniques.
Test	A technical operation that consists of the determination of one or more characteristics or performance of a given product, material, equipment, organism, physical phenomenon, process or service according to a specified procedure. The result of a test is normally recorded in a document sometimes called a test report or a test certificate.
Test Method	A definitive procedure that determines one or more characteristics of a given substance or product.
Test Methods for Evaluating Solid Waste, Physical/ Chemical (SW-846)	EPA Waste's official compendium of analytical and sampling methods that have been evaluated and approved for use in complying with RCRA regulations.
Total Petroleum Hydrocarbons (TPH)	A term used to denote a large family of several hundred chemical compounds that originate from crude oil. Compounds may include gasoline components, jet fuel, volatile organics, etc.
Toxicity Characteristic Leaching Procedure (TCLP)	A solid sample extraction method for chemical analysis employed as an analytical method to simulate leaching of compounds through a landfill.

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Traceability	TNI- The ability to trace the history, application, or location of an entity by means of recorded identifications. In a calibration sense, traceability relates measuring equipment to national or international standards, primary standards, basic physical conditions or properties, or reference materials. In a data collection sense, it relates calculations and data generated throughout the project back to the requirements for the quality of the project.
Training Document	A training resource that provides detailed instructions to execute a specific method or job function.
Trip Blank	This blank sample is used to detect sample contamination from the container and preservative during transport and storage of the sample. A cleaned sample container is filled with laboratory reagent water and the blank is stored, shipped, and analyzed with its associated samples.
Tuning	A check and/or adjustment of instrument performance for mass spectrometry as required by the method.
Ultraviolet Spectrophotometer (UV)	Instrument routinely used in quantitative determination of solutions of transition metal ions and highly conjugated organic compounds.
Uncertainty Measurement	The parameter associated with the result of a measurement that characterized the dispersion of the values that could be reasonably attributed to the measurand (i.e. the concentration of an analyte).
Unethical actions	DoD- Deliberate falsification of analytical or quality control results, where failed method or contractual requirements are made to appear acceptable.
Unregulated Contaminate Monitoring Rule (UCMR)	EPA program to monitor unregulated contaminants in drinking water.
Validation	DoD- The confirmation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled.
Verification	TNI- Confirmation by examination and objective evidence that specified requirements have been met. Note: In connection with the management of measuring equipment, verification provides a means for checking that the deviations between values indicated by a measuring instrument and corresponding known values of a measured quantity are consistently smaller than the maximum allowable error defined in a standard, regulation or specification peculiar to the management of the measuring equipment. The result of verification leads to a decision either to restore in service, to perform adjustment, to repair, to downgrade, or to declare obsolete. In all cases, it is required that a written trace of the verification performed shall be kept on the measuring instrument's individual record.
Whole Effluent Toxicity (WET)	The aggregate toxic effect to aquatic organisms from all pollutants contained in a facility's wastewater (effluent).

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11.0. REFERENCES

- 11.1. "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act." Federal Register, 40 CFR Part 136.
- 11.2. "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846.
- 11.3. "Methods for Chemical Analysis of Water and Wastes", EPA 600-4-79-020, 1979 Revised 1983, U.S. EPA.
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- 11.15. Requirements for Quality Control of Analytical Data for the Environmental Restoration Program, Martin Marietta, ES/ER/TM-16, December, 1992.
- 11.16. Quality Assurance Manual for Industrial Hygiene Chemistry, AIHA, 1988.
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- 11.18. ISO/IEC 17025:2005, General requirements for the competence of testing and calibration laboratories.
- 11.19. Department of Defense Quality Systems Manual (QSM), version 5.0, March 2013.
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- 11.21. UCMR3 Laboratory Approval Requirements and Information Document, version 2.0, January 2012.

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12.0. REVISIONS

The PASI Corporate Quality Office files both a paper copy and electronic version of a Microsoft Word document with tracked changes detailing all revisions made to the previous version of the Quality Assurance Manual. This document is available upon request. All revisions are summarized in the table below.

Document Number	Reason for Change	Date
Quality Assurance Manual 17.0	Section 2.6.5: Updated facility codes. Section 6.3.7.1: Removed last sentence about syringes. Section 6.4.8: Added sentence about instrumentation failure. Section 7.2.6: Added language regarding auto email function. Section 7.5.1.1: Added red letter section for special data retention requirements. Section 9.2.7.2: Removed sentence regarding hold time reporting by QMs. Section 10: Updated DoD definitions per DoD/DOE QSM, revision 5.0. Also added definitions for LC/MS/MS and UCMR. Section 11: Revised DoD reference and added UCMR3 reference. Attachment VIII: added several drinking water methods and added note 4 regarding hexavalent holding time and preservation. Section 4 added specific requirements for UCMR3 program Sections 4 and 6 added South Carolina specific criteria Updated corporate phone number Updated Attachment IIA, III, V, VI, IX to current as of date of issue	05April2014

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ATTACHMENT I- QUALITY CONTROL CALCULATIONS

PERCENT RECOVERY (%REC)

$$\%REC = \frac{(MSConc - SampleConc)}{TrueValue} * 100$$

NOTE: The SampleConc is zero (0) for theLCS and Surrogate Calculations

PERCENT DIFFERENCE (%D)

$$\%D = \frac{MeasuredValue - TrueValue}{TrueValue} * 100$$

where:

TrueValue = Amount spiked (can also be the $\overline{CF}$ or $\overline{RF}$ of the ICAL Standards)

Measured Value = Amount measured (can also be the CF or RF of the CCV)

PERCENT DRIFT

$$\%Drift = \frac{Calculated Concentration - Theoretical Concentration}{Theoretical Concentration} * 100$$

RELATIVE PERCENT DIFFERENCE (RPD)

$$RPD = \frac{|(R1 - R2)|}{(R1 + R2) / 2} * 100$$

where:

R1 = Result Sample 1

R2 = Result Sample 2

CORRELATION COEFFICIENT (R)

$$CorrCoeff = \frac{\sum_{i=1}^N W_i * (X_i - \bar{X}) * (Y_i - \bar{Y})}{\sqrt{\left(\sum_{i=1}^N W_i * (X_i - \bar{X})^2 \right) * \left(\sum_{i=1}^N W_i * (Y_i - \bar{Y})^2 \right)}}$$

With: N Number of standard samples involved in the calibration
i Index for standard samples
Wi Weight factor of the standard sample no. i
Xi X-value of the standard sample no. i
X(bar) Average value of all x-values
Yi Y-value of the standard sample no. i

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Y(bar) Average value of all y-values

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ATTACHMENT I- QUALITY CONTROL CALCULATIONS (CONTINUED)

STANDARD DEVIATION (S)

$$S = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{(n-1)}}$$

where:

n = number of data points
 X_i = individual data point
 $\bar{X}$ = average of all data points

AVERAGE ($\bar{X}$)

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

where:

n = number of data points
 X_i = individual data point

RELATIVE STANDARD DEVIATION (RSD)

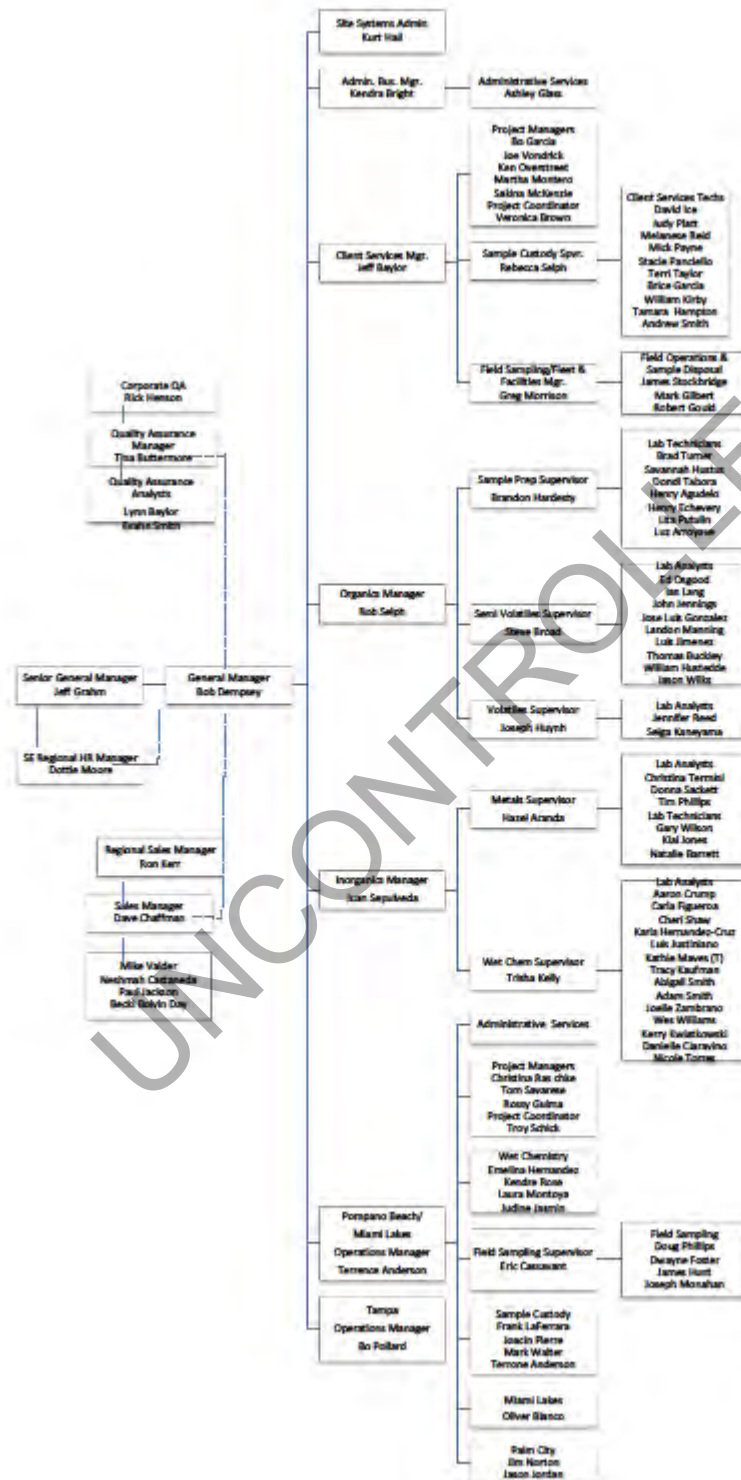
$$RSD = \frac{S}{\bar{X}} * 100$$

where:

S = Standard Deviation of the data points
 $\bar{X}$ = average of all data points

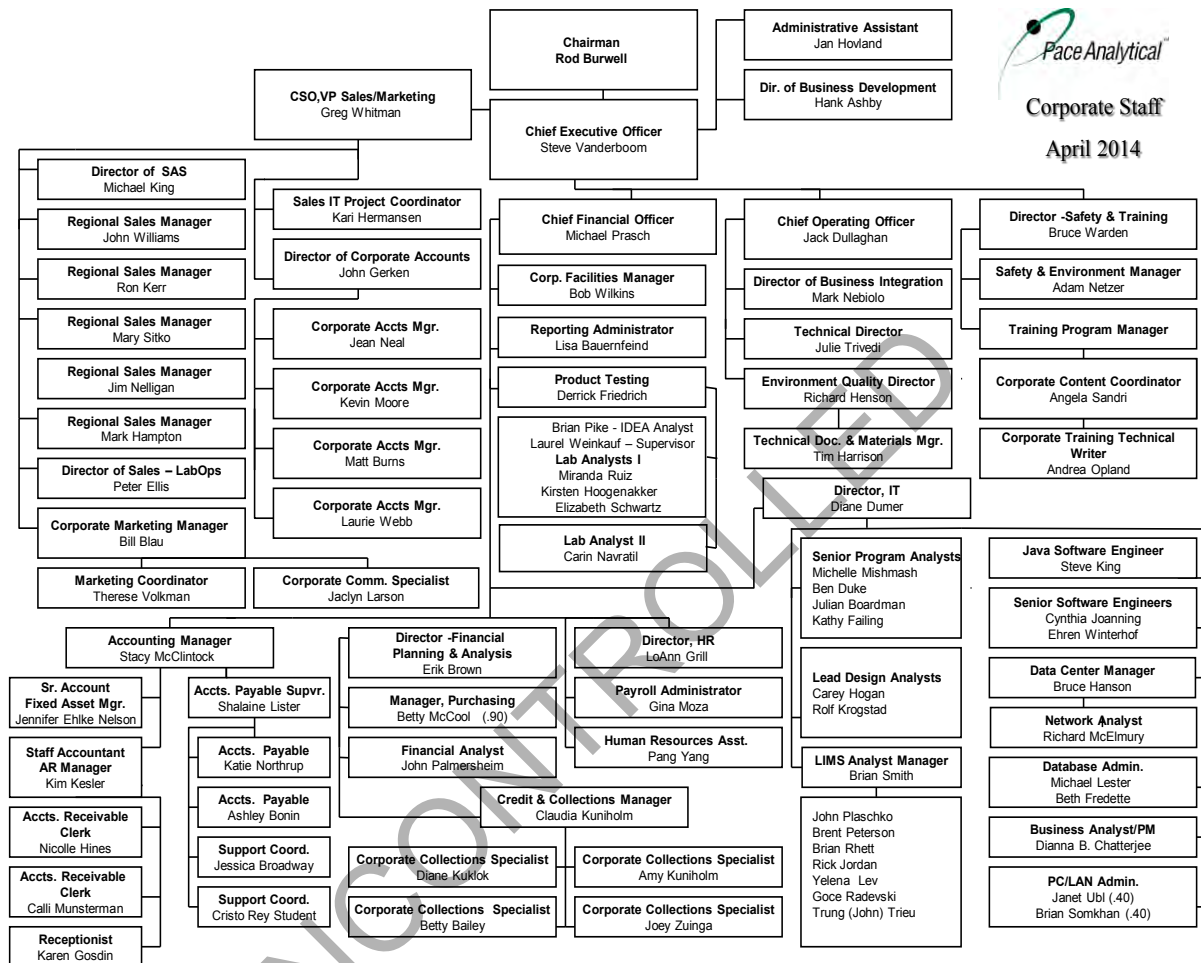
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ATTACHMENT IIA- LABORATORY ORGANIZATIONAL CHART (CURRENT AS OF ISSUE DATE)



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ATTACHMENT IIB- CORPORATE ORGANIZATIONAL CHART (CURRENT AS OF ISSUE DATE)



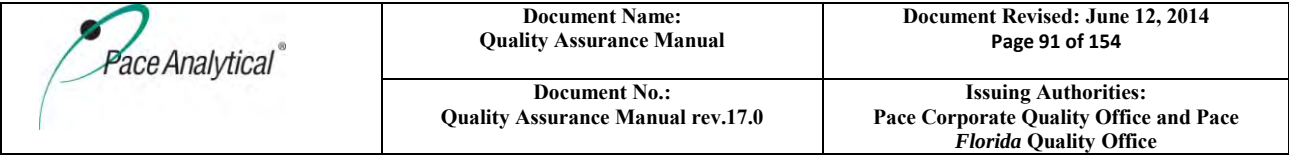
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ATTACHMENT III- EQUIPMENT LIST (CURRENT AS OF ISSUE DATE)

Description	Department	Model	Manufacturer
Analytical Balance	Client Services	AC2115	Sartorius
Top Load Scale	Client Services	Scoutpro	OHAUS
Walk In Cooler	Client Services	Custom Built	
Walk In Cooler	Client Services	Custom Built	
3-D Orbital Shaker	Extractions	SR3616-746-7-56C	Glas-Col
3-D Orbital Shaker	Extractions	SR3616-746-7-56C	Glas-Col
Drying Oven	Extractions	Catalog# 97027-668	VWR
Sonic Water Bath	Extractions	8510R-MT	Branson
Turbovap	Extractions	Biotage	Caliper Life Sciences
Turbovap	Extractions	ZW-8002	Zymark
Turbovap	Extractions	Turbovap II	Caliper Life Sciences
Turbovap	Extractions	Turbovap II	Caliper Life Sciences
Turbovap	Extractions	Turbovap II	Zymark
Water Bath	Extractions	MW-1110A-1	General Signal
Water Bath	Extractions	MW-1110A-1	General Signal
Soil Extraction Microwave Oven	Extractions	MARS 5	CEM
Micro Extraction Shaker	Extractions	6010	Eberback Corporation
Centrifuge	Extractions		Becton Dickinson
Drying Oven	Extractions		QL
Turbovap	Extractions	Turbovap II	Caliper Life Sciences
Turbovap	Extractions	Turbovap II	Zymark
Separatory Funnel Rotator	Extractions		Custom Built
Turbovap	Extractions	LV	Zymark
N-EVAP	Extractions	NEVAP 112 8125	Organization
Drying Oven	Extractions	DR-63	Baxter
Drying Oven	Extractions	DK-63	Baxter
pH Meter	Extractions	pHTestr 10	Oakton
Analytical Balance	Extractions	AZ002	Sartorius
Top Load Scale	Extractions	Practum 2101-1S	Sartorius
Freezer	Extractions		Kenmore
Mercury Analyzer	Metals	M-7500	Cetac
ICP-MS	Metals	X2	Thermo Elemental
ICP-MS	Metals	X2	Thermo Fisher
ICAP 6500 DUO	Metals	iCAP 6500 DUO	Thermo Elemental
ICAP 6500 DUO	Metals	iCAP 6500 DUO	Thermo Elemental
Digestion Block	Metals	540 Series	Environmental Express
Digestion Block	Metals	SC154	Environmental Express
Digestion Block	Metals	SC154	Environmental Express
Digestion Block	Metals	SC100	Environmental Express
Digestion Block	Metals	DigiPrep LS	SCP
Digestion Block	Metals	DigiPrep LS	SCP
TCLP Tumbler	Metals	Tumbler	Environmental Express

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TCLP Tumbler	Metals	Tumbler	Home-made
TCLP filtration vessel	Metals	3750-LHWF	Associated Design Mfg, Co
Centrifuge	Metals	Model 5	Garver MFG.
Turbidimeter	Metals	2008	La Motte
Turbidimeter	Metals	2100A	HACH
Analytical Balance	Metals	B-120-5	Sartorius
Top Load Scale	Metals	Practum 2101-1S	Sartorius
Refrigerator	Microbiology	SR-365X	Sanyo
Refrigerator/Freezer	Microbiology	Eterna Series	GE
Refrigerator/Freezer	Microbiology	Eterna Series	GE
Dual GC/ECD	Semi-Volatile	5890E Series II	Agilent
Dual GC/ECD	Semi-Volatile	5890E Plus	Agilent
Dual GC/TSD	Semi-Volatile	CP3800	Varian
Dual FID	Semi-Volatile	6890	Hewlett Packard
GC/Dual uECD	Semi-Volatile	6890	Agilent
GC/Dual uECD	Semi-Volatile	7890	Agilent
Dual FID	Semi-Volatile	6890	Agilent
GC/Dual uECD	Semi-Volatile	6890N	Agilent
GC/Dual uECD	Semi-Volatile	6890	Hewlett Packard
GC/Dual uECD	Semi-Volatile	6890N	Agilent
GC/Dual uECD	Semi-Volatile	6890	Agilent
Dual GC/ECD	Semi-Volatile	6890	Agilent
HPLC	Semi-Volatile	1100	Agilent
HPLC	Semi-Volatile	1100	Agilent
HPLC	Semi-Volatile	1100	Agilent
LC MS/MS	Semi-Volatile	TSQ-46000	Thermo Scientific
GC/MS	Semi-Volatile	5890 Series II	Agilent
GC/MS	Semi-Volatile	6890 Plus	Agilent
GC/MS	Semi-Volatile	6890 N	Agilent
GC/MS	Semi-Volatile	7890	Agilent
GC/MS	Semi-Volatile	6890 A	Agilent
GC/MS	Semi-Volatile	6890 A	Agilent
Top Load Scale	Semi-Volatile	1872	Agilent
GC/MS	Semi-Volatile	7890	Agilent
Refrigerator	Semi-Volatile	SR-365X	Sanyo
Refrigerator	Semi-Volatile	SR-365X	Sanyo
Refrigerator/Freezer	Semi-Volatile	RT18WWXSQ00	Roper/Whirlpool
Refrigerator/Freezer	Semi-Volatile	RT18WWXSQ00	Roper/Whirlpool
Freezer	Semi-Volatile	FFU21F5HWB	Frigidaire
Freezer	Semi-Volatile	FKFU13M3HW4	Frigidaire
Walk-In Cooler	SFL		American Cold Storage
Fridge	SFL	D1002W	Danby
Freezer	SFL	RTRP19KGAL00	Kitchenaid
Fridge	SFL	RRT160DRGW0	White-Westing
Incubator	SFL	MFU2083BW3	Precision

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ZHE Rotator	Volatiles		Associated Design
Centrifuge	Volatiles	Dynac	Clay Adams
Oven	Volatiles	1510E	VWR
ZHE Rotator	Volatiles		Millipore
Top Load Scale	Volatiles	AV412	Adventurer Pro
Drying Oven	Wet Chemistry	1390FM	VWR
Autoclave	Wet Chemistry	STM-E	Market Forge
Block Digestor	Wet Chemistry	BD-46	Lachat Instruments
Block Digestor	Wet Chemistry	BD-46	Lachat Instruments
BOD Incubator	Wet Chemistry	Low Temp	Thermo
BOD Probe	Wet Chemistry	5010	YSI
BOD Probe	Wet Chemistry	59858	YSI
BOD Probe	Wet Chemistry	59858	YSI
BOD Probe	Wet Chemistry	5905	YSI
Centrifuge	Wet Chemistry	TDS	Fisher
CIO2 Pocket Colorimeter	Wet Chemistry		Hach
CN BLOCK	Wet Chemistry		Custom Built
COD Reactor	Wet Chemistry		HACH
COD Reactor	Wet Chemistry	DRB 200	HACH
Colony Counter	Wet Chemistry	3352	LEICA
Conductivity Meter	Wet Chemistry	3200-115V	YSI
Conductivity Meter	Wet Chemistry	ECT5STRI	Oakton
Conductivity Meter	Wet Chemistry	ECTestr11 Dual range	Eutech
Cyanide Block (Midi)	Wet Chemistry		Custom Built
Centrifuge	Wet Chemistry	SHNS11	Damon/IBC
Digestion System 40	Wet Chemistry	1016	Tecator
Digestion System 40	Wet Chemistry	1016	Tecator
Centrifuge	Wet Chemistry	Table Top	Fisher Scientific
Flashpoint Tester	Wet Chemistry	152800	Boekel
Ion Chromatography System	Wet Chemistry	ICS-1100	Dionex
Ion Chromatography System	Wet Chemistry	ICS-2000	Dionex
Ion Chromatography System	Wet Chemistry	ICS-200	Dionex
Ion Chromatography System	Wet Chemistry	881 Compact IC	Metrohm
Lachat 2 Channel	Wet Chemistry	QuickChem 8000	Lachat
Lachat 2 Channel	Wet Chemistry	QuickChem 8000	Lachat
Lachat Quick Chem 8500	Wet Chemistry	Quick Chem 8500	Lachat
Muffle Furnance	Wet Chemistry		Fisher Scientific
PH Meter	Wet Chemistry	410A	Orion
PH Meter	Wet Chemistry	420A+	Thermo
QC-Titrator	Wet Chemistry	Man-Tech Titrator	Man-Tech
Res. Chlorine Titrator	Wet Chemistry	17T2012AXX	Severn Trent
Ryobi 10" Drill Press	Wet Chemistry	DP101	Ryobi
Spectrophotometer, UV	Wet Chemistry	50 Bio	Carey/Varian
TKN Block Digestor	Wet Chemistry	BD46	Lachat
TOC Analyzer	Wet Chemistry	TOC-V CSH	Shimadzu
TOC Analyzer	Wet Chemistry	TOC-V CSH	Shimadzu

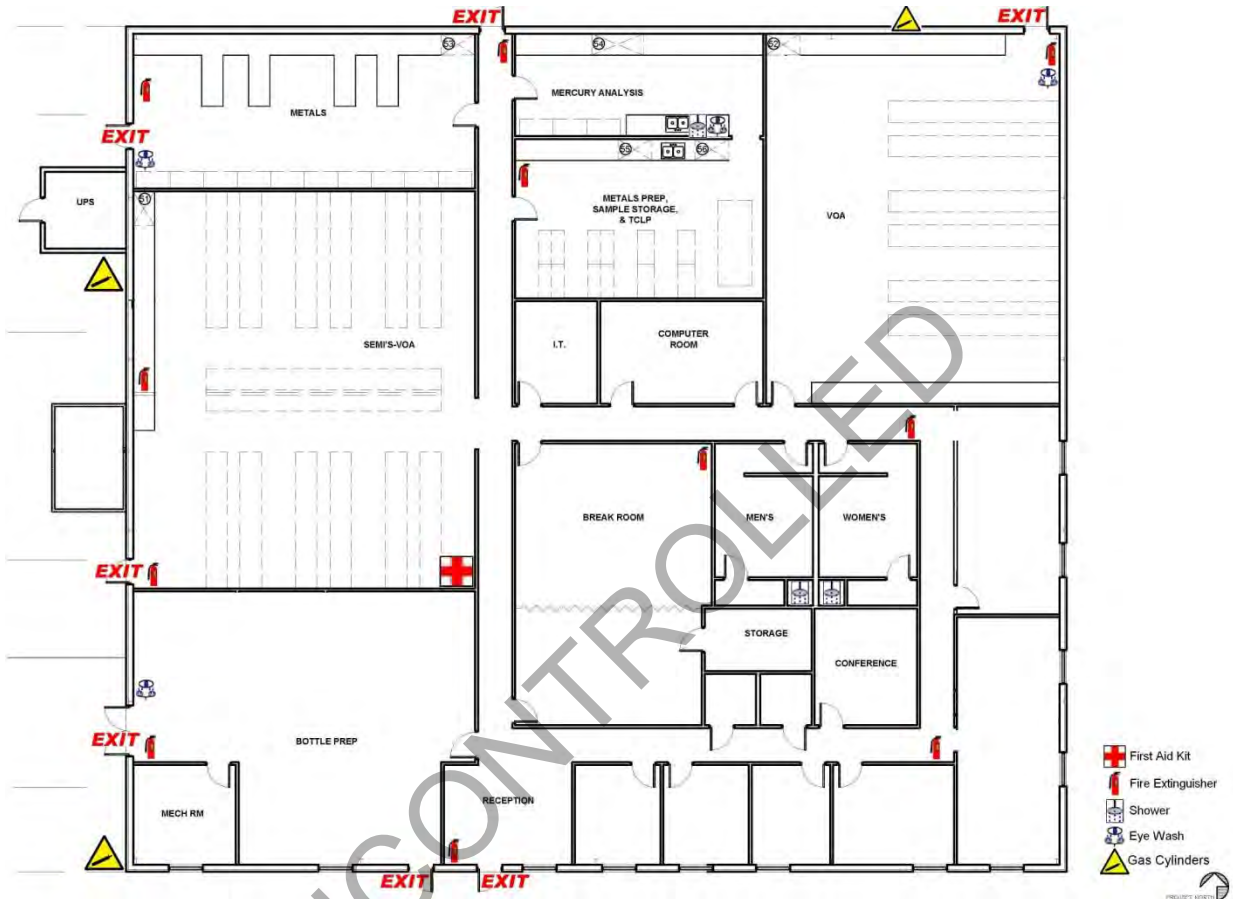
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Turbidimeter	Wet Chemistry	2100N	Hach
UV Light	Wet Chemistry	UVL-56	Entela
Water Bath	Wet Chemistry	2207	Fisher Scientific
Water Bath	Wet Chemistry	2868	Thermo Scientific
Ion Chromatography System	Wet Chemistry	881 Compact IC	Metrohm
Analytical Balance	Wet Chemistry	CP224S	Sartorius
Top Load Scale	Wet Chemistry	SPE402	OHAUS
Refrigerator	Wet Chemistry	FPU17B2JW18	Fridgidaire

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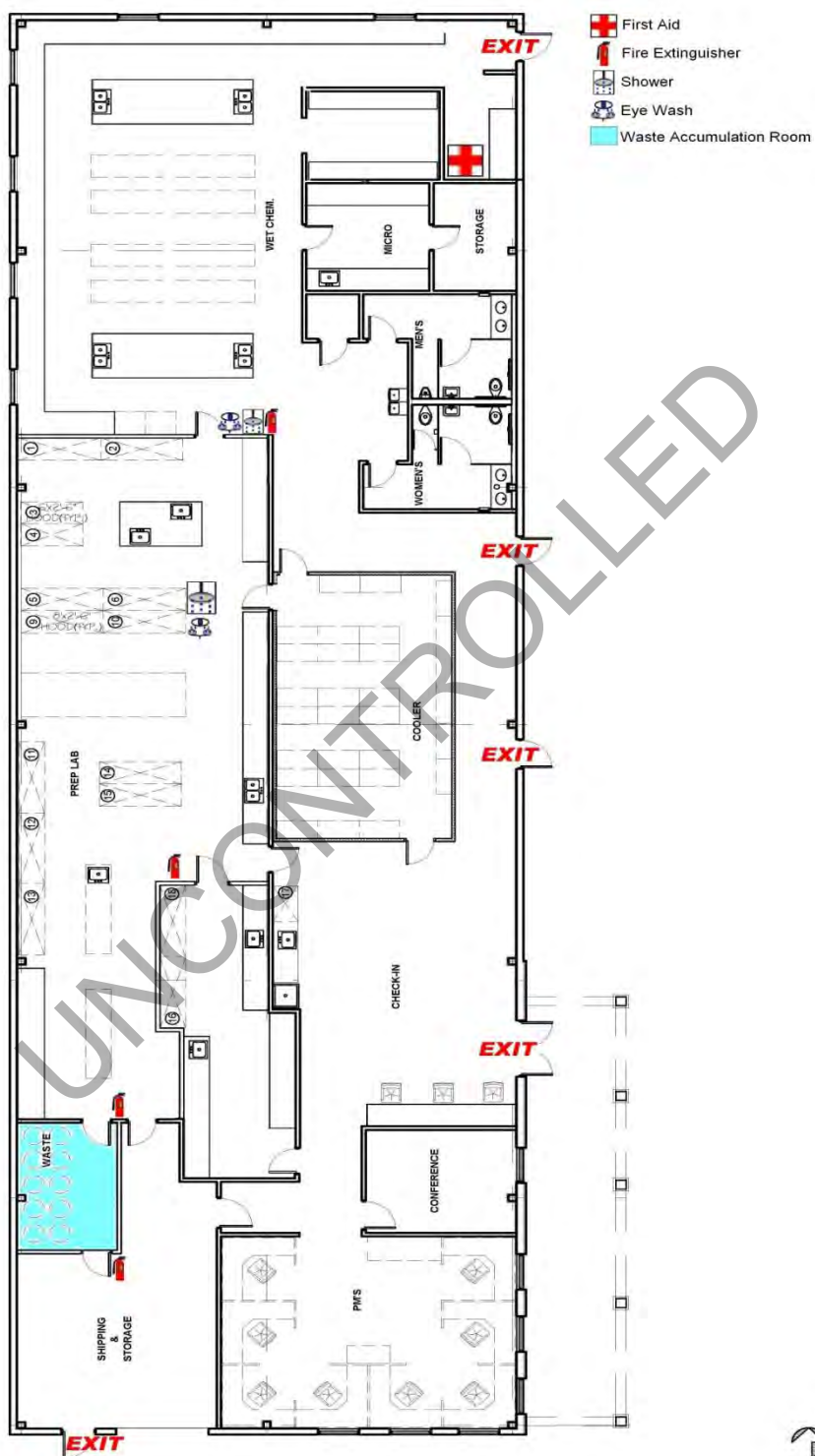
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ATTACHMENT IV- LABORATORY FLOOR PLAN (CURRENT AS OF ISSUE DATE)
ORMOND BEACH BUILDING 1



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ORMOND BEACH BUILDING 2



POMPANO BEACH BUILDING

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ATTACHMENT V- LABORATORY SOP LIST (CURRENT AS OF ISSUE DATE)

Description	SOP Number
Quality Assurance Manual	Quality Manual
Procedure for Laboratory Water Quality Monitoring and Bottle Lot Testing	S-FL-Q-004
Laboratory Calculations	S-FL-Q-006
Use and Application of Labtrack	S-FL-Q-007
Field Sampling Guidelines	S-FL-F-001
General Lab Housekeeping and Glassware Cleaning	S-FL-L-001
Preparation of Anhydrous Sodium Sulfate for Extraction Purposes	S-FL-L-002
TCLP Preparation	S-FL-M-007
SPLP Preparation	S-FL-M-008
ICP-AES for Metals in Water, 200.7/SM2340B/6010	S-FL-M-003
ICP - MS for Metals in Water, EPA 200.8/6020	S-FL-M-004
Mercury	S-FL-M-005
Metals Prep	S-FL-M-011
Haloacetic Acids (HAAs) in Drinking Water by GC-ECD Analysis	S-FL-O-001
Herbicides in Drinking Water (Chlorinated Acids) 515.3	S-FL-O-003
8151 Analysis for Herbicides	S-FL-O-005
8151 Preparation of Herbicides in Water by Separatory Funnel Extraction	S-FL-O-006
1,2-Dibromomethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) in Water by Micro-Extraction and Gas Chromatography	S-FL-O-007
Determination of Chlorinated Pesticides, Herbicides, and Organohalides by Liquid-Solid Extraction and Electron Capture Gas Chromatography	S-FL-O-014
525.2, GCMS Analysis for DW SV compounds	S-FL-O-019
Carbamates by HPLC, EPA 531.1	S-FL-O-012
Glyphosate by HPLC, EPA 547	S-FL-O-013
Endothall in Drinking Water by Gas Chromatography/Mass Spectrometry	S-FL-O-016
Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid Extraction and High Performance Liquid Chromatography with Ultraviolet Detection	S-FL-O-010
General Principles of Aqueous Extractions & Techniques for Dealing with Emulsions	S-FL-O-018
FL-PRO by GC analysis	S-FL-O-021

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NP Pesticides by GC TSD, EPA 8141B	S-FL-O-023
Pest/PCB Analysis, EPA 608, 8081, 8082	S-FL-O-024
BN/A Extractables by GCMS, EPA 625/8270	S-FL-O-025
Oil & Grease/TRPH in Water by EPA 1664A, Gravimetric	S-FL-O-027
Sep Funnel Extraction for Water Samples (EPA 3510)	S-FL-O-028
Acid Cleanup for PCBs and Toxaphene Using Method 3665	S-FL-O-031
Waste Dilution Prep, EPA 3580	S-FL-O-032
Copper Cleanup for Sulfur (EPA 3660B)	S-FL-O-036
GCMS Volatiles Drinking Water	S-FL-O-033
ZHE for TCLP/SPLP	S-FL-O-034
GCMS Volatiles Water and Soil	S-FL-O-037
Volatile Soil Preparation	S-FL-O-038
TO-18	S-FL-O-042
Microwave Extraction of Pesticides/PCBs in Solids	S-FL-O-043
Ion Balance	S-FL-I-006
Alkalinity	S-FL-I-007
BOD/CBOD	S-FL-I-008
Ammonia	S-FL-I-009
Chlorine Dioxide, CLO2	S-FL-I-010
Residual Chlorine	S-FL-I-011
Chlorophyll A,B,C & Pheophytin	S-FL-I-012
COD	S-FL-I-013
Color	S-FL-I-014
Conductivity	S-FL-I-015
Corrosivity	S-FL-I-016
Cyanide	S-FL-I-005
Flash Point	S-FL-I-018
MBAS	S-FL-I-019
NOx	S-FL-I-020
Odor	S-FL-I-021
pH	S-FL-I-023
Phenolics	S-FL-I-001
Silica	S-FL-I-004
Sulfide	S-FL-I-025
TKN	S-FL-I-026
TDS	S-FL-I-027
TS	S-FL-I-028
TSS	S-FL-I-029
Turbidity	S-FL-I-030

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TOC/DOC	S-FL-I-031
UV 254	S-FL-I-032
Ion Chromatography, IC	S-FL-I-035
Perchlorate	S-FL-I-037
EPA 300.1, Anions in DW	S-FL-I-039
Low TP	S-FL-I-040
Low OP	S-FL-I-041
Paint Filter	S-FL-I-042
Percent Moisture/Percent Solids	S-FL-I-043
Solid Sulfides	S-FL-I-044
Ignitability, Solids	S-FL-I-024
Acidity	S-FL-I-049
Hexavalent Chromium	S-FL-I-050
SFL Redox Potential	S-FL-I-051
SFL Salinity	S-FL-I-052
Preparation of Microbiological Media	S-FL-MB-001
Fecal Coliform by MPN (Solids)	S-FL-MB-002
Total Coliform by MMO-MUG	S-FL-MB-003
HPC	S-FL-MB-004
Total Coliform by Membrane Filter (MF)	S-FL-MB-005
Fecal Coliform by Membrane Filter (MF)	S-FL-MB-006
Micro QC/Maintenance	S-FL-MB-007
Micro Use Test	S-FL-MB-008
HPC Simplate	S-FL-MB-009
SFL Fecal Strep	S-FL-MB-010
SFL Fecal Coliform MPN	S-FL-MB-011
Waste Management Training Requirements	S-FL-S-003
1,4-Dioxane by Solid Phase Extraction and GC/MS with SIM	S-FL-O-044
Selected Perfluorinated Alkyl Acids by Solid Phase Extraction and LC/MS/MS	S-FL-O-045
Hormones by Solid Phase Extraction and LC-ESI-MS/MS	S-FL-O-046
Dissolved Oxygen	S-FL-I-055
Specific Gravity	S-FL-I-056
Determination of Drinking Water Volatiles by GC/MS	S-FL-O-048
SFL Nitrate/Nitrite	S-FL-I-057
SFL Hexavalent Chromium	S-FL-I-058
SFL Enterococci	S-FL-MB-012
Settable Solids	S-FL-I-059
Perchlorate by LC/MS/Ms	S-FL-O-051

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ICP-MS Analytical Method for Trace Metals	S-FL-M-012
Hexavalent Chromium by UV	S-FL-I-060
Enterococci MPN by Enterolert Quanti-Tray/2000	S-FL-MB-013
Total Coliform and E. coli MPN by Colilert Quanti-Tray/2000	S-FL-MB-014
8318 Modified	S-FL-O-054
Preparation of Standard Operating Procedures	S-ALL-Q-001
Document Management	S-ALL-Q-002
Document Numbering	S-ALL-Q-003
Determination of Limit of Detection and Limit of Quantitation	S-ALL-Q-004
Purchasing of Lab Supplies	S-ALL-Q-005
Receipt and Storage of Lab Supplies	S-ALL-Q-006
Laboratory Documentation	S-ALL-Q-009
Proficiency Testing Program	S-ALL-Q-010
Internal & External Audits	S-ALL-Q-011
Corrective and Preventative Actions	S-ALL-Q-012
Support Equipment	S-ALL-Q-013
Quarterly Quality Report	S-ALL-Q-014
Review of Laboratory Management System	S-ALL-Q-015
Manual Integration	S-ALL-Q-016
Monitoring of Storage Units	S-ALL-Q-018
Orientation and Training Procedures	S-ALL-Q-020
Sample Homogenization and Sub-Sampling	S-ALL-Q-021
3P Program: Continuous Process Improvement	S-ALL-Q-022
Standard and Reagent Prep and Traceability	S-ALL-Q-025
Software Validation	S-ALL-Q-026
Evaluation and Qualification of Vendors	S-ALL-Q-027
Use and Operation of Labtrack	S-ALL-Q-028
MintMinor Data File Review for Data Integrity Monitoring	S-ALL-Q-029
Operation of Data Checker for EPIC-PRO	S-ALL-Q-030
Estimation of Measurement and Uncertainty	S-ALL-Q-031
Control Chart Generation & Trend Analysis	S-ALL-Q-032
MCL Violation Reporting	S-ALL-Q-033
Anonymous Hotline Procedure	S-ALL-Q-034
Data Recall	S-ALL-Q-035
Management of Change	S-ALL-Q-036
Data Review Process	S-ALL-Q-037
Processing TICs for GCMS	S-ALL-Q-038
Sample Management	S-ALL-C-001
Bottle Order Database	S-ALL-C-002

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Sub-Contract Lab Process	S-ALL-C-003
Bottle Preparation	S-ALL-C-004
Operation of PacePort Customer Feedback Form	S-ALL-C-005
Review of Analytical Requests	S-ALL-C-006
Hazard Assessments	S-ALL-S-001
LMS Sub-Learn Center System and Training Administrator Responsibilities	S-ALL-T-002
Sub-Learn Center System Administrator Manual	T-ALL-T-001
Sub-Learn Center Content Administrator Manual	T-ALL-T-002
Sub-Learn Center Training Administrator Manual	T-ALL-T-003
Sub-Learn Center Report Manager Manual	T-ALL-T-004
Waste Management Training Requirements	S-ALL-W-003
Processing Tentatively Identified Compounds for GC/MS	S-ALL-O-038
Waste Handling and Management	S-ALL-W-002
Chemical Hygiene Plan/Safety Manual	Safety Manual

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ATTACHMENT VI- LABORATORY CERTIFICATION LIST (CURRENT AS OF ISSUE DATE)
SCOPE AND APPLICATION CERTIFICATES ARE MAINTAINED AND FILED IN THE LOCAL QUALITY
DEPARTMENT

ORMOND BEACH LABORATORY			
Accrediting Authority	Program Category	Accrediting Agency	Certification #
Alabama	Drinking Water	DEM	41320
Arizona	Drinking Water	DHS	AZ0735
Colorado	Drinking Water	DPHE	
Connecticut	DW & Env	DPH	PH-0216
Delaware	Drinking Water	DHSS	
Florida (Ormond Beach)	DW & Env	FL DOH	E83079
Georgia	Drinking Water	DNR	955
Guam	Drinking Water	EPA	13-003r
Hawaii	Drinking Water	DOH (NELAP)	
Illinois	Drinking Water	IL EPA	200068
Indiana	Drinking Water	DOH (NELAP)	
Kansas	Drinking Water	DOHE	E-10383
Kentucky	Drinking Water	DEP	90050
Louisiana	Drinking Water	DOHH	LA 130012
Louisiana	Environmental	DEQ	5007
Marlyand	Drinking Water	MDE	346
Massachusetts	Drinking Water	DEP	M-FL1264
Michigan	Drinking Water	DEQ	9911
Mississippi	Drinking Water	DOH	
Missouri	Drinking Water	DNR	
Montana	Drinking Water	DPHHS	OO74
Nebraska	Drinking Water	DHHS	NE-OS-28-14
Nevada	Drinking Water	DEP	
New Hampshire	Drinking Water	DES	2958
New Jersey	Drinking Water	DEP	FL765
New York	Drinking Water	DOH	11608
North Carolina	Drinking Water	DOHHS	12710
North Carolina	Environmental	DOENR	667
Pennsylvania	Drinking Water	DEP	DEP 68-00547
Puerto Rico	Drinking Water	DOH	FL01264
South Carolina	Drinking Water	DHEC	96042001
Tennessee	Drinking Water	DOEC	TNO2974

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Texas	Drinking Water	DOH	
US Virgin Islands	Drinking Water	DOPNR	
Virginia	Drinking Water	DGS	432
Washington	Drinking Water	DOE	C955
West Virginia	Drinking Water	DHHR	9962C
Wisconsin	Drinking Water	DNR	399079670
Wyoming / Region 8 (Tribal Waters)	Drinking Water	EPA Reg 8	8TMS-QA
EPA UCMR3	Drinking Water	EPA	FL01264

POMPANO BEACH LABORATORY			
Accrediting Authority	Program Category	Accrediting Agency	Certification #
Florida (Pompano Beach)	DW & Env	FL DOH	E86240
Florida (Pompano Beach)	WW	FL DOH	E96080

UNCONTROLLED

ATTACHMENT VII- PACE CHAIN-OF-CUSTODY (CURRENT AS OF ISSUE DATE)



Pace Analytical
www.pacean.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: _____ Address: _____ Email To: _____ Phone: _____ Fax: _____ Requested Due Date/TAT: _____		Section B Required Project Information: Report To: _____ Copy To: _____ Purchase Order No.: _____ Project Name: _____ Project Number: _____		Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ POC Quote Reference: _____ POC Project Manager: _____ POC Profile #: _____		Page: _____ of _____	
Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE		Matrix Codes MATRIX CODE Drinking Water DW Water WT Waste Water WW Product P Solid S Oil OL Wipe WP Air AR Tissue TS Other OT		Matrix CODE (see valid codes to left) SAMPLE TYPE (G=GRAB C=COMP) DATE TIME DATE TIME COMPOSITE START COMPOSITE END/GRAB # OF CONTAINERS PRESERVATIVES Unpreserved H2SO4 HNO3 HCl NaOH Na2CO3 Methanol Other		Requested Analysis Filtered (Y/N) Residual Chlorine (Y/N)	
ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION DATE TIME		ACCEPTED BY / AFFILIATION DATE TIME		SAMPLE CONDITIONS Received on Ice (Y/N) Custody Sealed (Y/N) Samples Intact (Y/N)	
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SIGNATURE of SAMPLER:							

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**ATTACHMENT VIII- METHOD HOLD TIME, CONTAINER AND PRESERVATION GUIDE
(CURRENT AS OF ISSUE DATE)**

THE HOLDING TIME INDICATED IN THE CHART BELOW IS THE MAXIMUM ALLOWABLE TIME FROM COLLECTION TO EXTRACTION AND/OR ANALYSIS PER THE ANALYTICAL METHOD. FOR METHODS THAT REQUIRE PROCESSING PRIOR TO ANALYSIS, THE HOLDING TIME IS DESIGNATED AS ‘PREPARATION HOLDING TIME/ANALYSIS HOLDING TIME’.

Parameter	Method	Matrix	Container	Preservative	Max Hold Time
Acidity	SM2310B	Water	Plastic/Glass	≤ 6°C	14 Days
Actinides	HASL-300	Water		pH<2 HNO ₃	180 Days
Actinides	HASL-300	Solid		None	180 Days
Alkalinity	SM2320B/ 310.2	Water	Plastic/Glass	≤ 6°C	14 Days
Alkylated PAHs		Water		≤ 6°C; pH<2 1:1 HCl (optional)	14/40 Days preserved; 7/40 Days unpreserved
Alkylated PAHs		Solid		≤ 10°C	1 Year/40 Days
Total Alpha Radium (see note 3)	9315/903.0	Water	Plastic/Glass	pH<2 HNO ₃	180 days
Total Alpha Radium (see note 3)	9315	Solid		None	180 days
Anions (Br, Cl, F, NO ₂ , NO ₃ , o-Phos, SO ₄ , bromate, chlorite, chlorate)	300.0/300.1 /SM4110B	Water	Plastic/Glass (opaque or amber if chlorite requested)	≤ 6°C; EDA if bromate or chlorite run	All analytes 28 days except: NO ₂ , NO ₃ , o-Phos (48 Hours); chlorite (immediately for 300.0; 14 Days for 300.1). NO ₂ /NO ₃ combo 28 days.
Anions (Br, Cl, F, NO ₂ , NO ₃ , o-Phos, SO ₄ , bromate, chlorite, chlorate)	300	Solid	Plastic/Glass	≤ 6°C	All analytes 28 days except: NO ₂ , NO ₃ , o-Phos (48 hours); chlorite (immediately). NO ₂ /NO ₃ combo 28 days.
Anions (Br, Cl, F, NO ₂ , NO ₃ , o-Phos, SO ₄)	9056	Water/ Solid	Plastic/Glass	≤ 6°C	28 days
Aromatic and Halogenated Volatiles (see note 1)	8021	Solid	5035 vial kit	See note 1	14 days
Aromatic and Halogenated Volatiles	602/8021	Water	40mL vials	pH<2 HCl; ≤ 6°C; Na ₂ S ₂ O ₃ if Cl present	14 Days (7 Days for aromatics if unpreserved)

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Acid Volatile Sulfide	Draft EPA 1629	Solid	8oz Glass	$\leq 6^{\circ}\text{C}$	14 Days
Bacteria, Total Plate Count	SM9221D	Water	Plastic/WK	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$	24 Hours
Base/Neutrals and Acids	8270	Solid	8oz Glass	$\leq 6^{\circ}\text{C}$	14/40 Days
Base/Neutrals and Acids	625/8270	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	7/40 Days
Base/Neutrals, Acids & Pesticides	525.2	Water	1L Amber Glass	$\text{pH} < 2$ HCl; $\leq 6^{\circ}\text{C}$; Na sulfite if Cl present	14/30 Days
Biomarkers		Water	$\leq 6^{\circ}\text{C}$; $\text{pH} < 2$ 1:1 HCl (optional)	14/40 Days preserved; 7/40 Days unpreserved	$\leq 6^{\circ}\text{C}$; $\text{pH} < 2$ 1:1 HCl (optional)
Biomarkers		Solid	$\leq 10^{\circ}\text{C}$	1 Year/40 Days	$\leq 10^{\circ}\text{C}$
BOD/cBOD	SM5210B	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	48 hours
BTEX/Total Hydrocarbons	TO-3	Air	Summa Canister	None	14 Days
BTEX/Total Hydrocarbons	TO-3	Air	Tedlar Bag or equivalent	None	48 Hours
Carbamates	531.1	Water	Glass	$\text{Na}_2\text{S}_2\text{O}_3$, Monochloroacetic acid $\text{pH} < 3$; $\leq 6^{\circ}\text{C}$	28 Days
Cation/Anion Balance	SM1030E	Water	Plastic/Glass	None	None
Cation Exchange	9081	Solid	8oz Glass	None	unknown
Chloride	SM4500Cl-C,E	Water	Plastic/Glass	None	28 Days
Chlorine, Residual	SM4500Cl-D,E,G/330.5/Hach 8167	Water	Plastic/Glass	None	15 minutes
Chlorophyll	SM10200H	Water	Opaque bottle or aluminum foil	$\leq 6^{\circ}\text{C}$	48 Hours to filtration
COD	SM5220C, D/410.4/Hach 8000	Water	Plastic/Glass	$\text{pH} < 2$ H_2SO_4 ; $\leq 6^{\circ}\text{C}$	28 Days
Coliform, Fecal	SM9222D	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours
Coliform, Fecal	SM9222D	Solid	100mL Plastic	$\leq 6^{\circ}\text{C}$	6 Hours
Coliform, Fecal	SM9221E	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours
Coliform, Fecal	SM9221E	Solid	100mL Plastic	$\leq 6^{\circ}\text{C}$	24 Hours
Coliform, Total	SM9222B	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours
Coliform, Total	SM9221B	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours

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Coliform, Total and E. coli	SM9223B	Drinking Water	100mL Plastic	$\leq 10^{\circ}\text{C}$	30 Hours after collection; \
Color	SM2120B, E	Water	Covered Plastic/Acid Washed Amber Glass	$\leq 6^{\circ}\text{C}$	24 Hours
Condensable Particulate Emissions	EPA 202	Air	Solutions	None	180 Days
Cyanide, Reactive	SW846 chap.7	Water	Plastic/Glass	None	28 Days
Cyanide, Reactive	SW846 chap.7	Solid	Plastic/Glass	None	28 Days
Cyanide, Total and Amenable	SM4500C N- A,B,C,D,E, G,I,N/9010 / 9012/335.4	Water	Plastic/Glass	$\text{pH} \geq 12 \text{ NaOH}; \leq 6^{\circ}\text{C};$ ascorbic acid if Cl present	14 Days
					(24 Hours if sulfide present- applies to SM4500CN only)
Diesel Range Organics- Alaska DRO	AK102	Solid	8oz Glass	$\leq 6^{\circ}\text{C}$	14/40 Days
Diesel Range Organics- Alaska DRO	AK102	Water	1L Glass	$\text{pH} < 2 \text{ HCl}; \leq 6^{\circ}\text{C}$	14/40 Days
Diesel Range Organics- TPH DRO	8015	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	14/40 Days
Diesel Range Organics- TPH DRO	8015	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}; \text{Na}_2\text{S}_2\text{O}_3$ if Cl present	7/40 Days
Diesel Range Organics- TPH DRO	8015	Tissue	1L Amber Glass	$\leq - 10^{\circ}\text{C}$	1 Year if frozen/40 Days
Diesel Range Organics- NwTPH-Dx	Nw-TPH-Dx	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	14/40 Days
Diesel Range Organics- NwTPH-Dx	Nw-TPH-Dx	Water	1L Amber Glass	$\text{pH} < 2 \text{ HCl}; \leq 6^{\circ}\text{C}$	14/40 Days; 7 Days from collection to extraction if unpreserved
Diesel Range Organics- Wisconsin DRO	WI MOD DRO	Solid	Tared 4oz Glass Jar	$\leq 6^{\circ}\text{C}$	10/47 Days
Diesel Range Organics- Wisconsin DRO	WI MOD DRO	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}; \text{pH} < 2 \text{ HCl}$	14/40 Days
Dioxins and Furans	1613B	Solid	8oz Glass	$\leq 6^{\circ}\text{C}$	1 year
Dioxins and Furans	1613B	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}; \text{Na}_2\text{S}_2\text{O}_3$ if Cl present	1 year
Dioxins and Furans	1613B	Fish/Tissue	Aluminum foil	$\leq 6^{\circ}\text{C}$	1 year

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Dioxins and Furans	8290	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	30/45 Days
Dioxins and Furans	8290	Solid	8oz Glass	$\leq 6^{\circ}\text{C}$	30/45 Days
Dioxins and Furans	8290	Fish/Tissue	Not specified	$< -10^{\circ}\text{C}$	30/45 Days
Dioxins and Furans	TO-9	Air	PUF	None	30/45 Days
Diquat/Paraquat	549.2	Water	Amber Plastic	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$	7/21 Days
EDB/DBCP/1,2,3-TCP	504.1/8011	Water	40mL vials	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	14 Days
Endothall	548.1	Water	Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$	7/14 Days
Enterococci	EPA 1600	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours
Explosives	8330/8332	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$	7/40 Days
Explosives	8330/8332	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	14/40 Days
Extractable Petroleum Hydrocarbons (aliphatic and aromatic)	MA-EPH	Water	1L Amber Glass	$\text{pH} < 2 \text{ HCl}$; $\leq 6^{\circ}\text{C}$	14/40 Days
Extractable Petroleum Hydrocarbons (aliphatic and aromatic)	MA-EPH	Solid	4oz Glass Jar	$\leq 6^{\circ}\text{C}$	7/40 Days
Fecal Streptococci	SM9230B	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours
Ferrous Iron	SN3500Fe-D	Water	Glass	None	Immediate
Flashpoint/Ignitability	1010	Liquid	Plastic/Glass	None	28 Days
Florida PRO (TPH)	FLPRO DEP(11/1/95)	Liquid	Glass, PTFE lined cap	$\leq 6^{\circ}\text{C}$, H_2SO_4 or HCl $\text{pH} < 2$	7/40 Days
Fluoride	SM4500Fl-C,D	Water	Plastic	None	28 Days
Gamma Emitting Radionuclides	901.1	Water	Plastic/Glass	$\text{pH} < 2 \text{ HNO}_3$	180 days
Gasoline Range Organics	8015	Water	40mL vials	$\text{pH} < 2 \text{ HCl}$	14 Days
Gasoline Range Organics	8015	Solid	5035 vial kit	See note 1	14 days
Gasoline Range Organics- Alaska GRO	AK101	Solid	5035 vial kit	See 5035 note*	28 Days if GRO only (14 Days with BTEX)
Gasoline Range Organics- Alaska GRO	AK101	Water	40mL vials	$\text{pH} < 2 \text{ HCl}$; $\leq 6^{\circ}\text{C}$	14 Days
Gasoline Range Organics- NwTPH-Gx	Nw-TPH-Gx	Water	40mL vials	$\text{pH} < 2 \text{ HCl}$; $\leq 6^{\circ}\text{C}$	7 Days unpreserved; 14 Days preserved

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Gasoline Range Organics- NwTPH-Gx	Nw-TPH-Gx	Solid	40mL vials	$\leq 6^{\circ}\text{C}$; packed jars with no headspace	14 Days
Gasoline Range Organics- Wisconsin GRO	WI MOD GRO	Water	40mL vials	$\text{pH} < 2 \text{ HCl}$; $\leq 6^{\circ}\text{C}$	14 Days
Gasoline Range Organics- Wisconsin GRO	WI MOD GRO	Solid	40mL MeOH vials	$\leq 6^{\circ}\text{C}$ in MeOH	21 Days
Glyphosate	547	Water	Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$	14 Days (18 mo. Frozen)
Gross Alpha (NJ 48Hr Method)	NJAC 7:18-6	Water	Plastic/Glass	$\text{pH} < 2 \text{ HNO}_3$	48 Hrs
Gross Alpha and Gross Beta	9310/900.0	Water	Plastic/Glass	$\text{pH} < 2 \text{ HNO}_3$	180 Days
Gross Alpha and Gross Beta	9310	Solid	Glass	None	180 Days
Haloacetic Acids	552.1/552.2	Water	40mL Amber vials	NH_4Cl ; $\leq 6^{\circ}\text{C}$	14/7 Days if extracts stored $\leq 6^{\circ}\text{C}$ or 14/14 Days if extracts stored at $\leq -10^{\circ}\text{C}$
Hardness, Total (CaCO_3)	SM2340B, C/130.1	Water	Plastic/Glass	$\text{pH} < 2 \text{ HNO}_3$	6 Months
Heterotrophic Plate Count (SPC/HPC)	SimPlate	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	8 Hours
Heterotrophic Plate Count (SPC/HPC)	SM9215B	Water	100mL Plastic	$\leq 6^{\circ}\text{C}$	24 Hours
Herbicides, Chlorinated	8151	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	14/40 Days
Herbicides, Chlorinated	8151	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	7/40 Days
Herbicides, Chlorinated	515.1/515.3	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	14/28 Days
Hexavalent Chromium	EPA 218.6, EPA 218.7, 7196A, SM3500Cr C/D	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	24 Hours
Hexavalent Chromium (Hex Cr, Cr^{6+})	EPA 218.6, EPA 218.7, SM3500Cr C/D	Water	Plastic/Glass	$(\text{NH}_4)_2\text{SO}_4/(\text{NH}_4)\text{OH}$ buffer ⁴ to pH 9.3-9.7	28 Days ^{4,5,6,7}

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Hexavalent Chromium (Hex Cr, Cr6+)	EPA 218.6, EPA 218.7	Drinking Water & UCMR	HDPE or propylene	Na ₂ CO ₃ /NaHCO ₃ /(NH ₄) ₂ SO ₄ ⁵ ; pH≥8	14 Days ⁸
Hexavalent Chromium	7196 (with 3060A)	Solid	Plastic/glass	≤ 6°C	24 Hours after extraction
Hexavalent Chromium	7199 (with 3060A)	Solid	Plastic/Glass	≤ 6°C	30 days to extraction/7days to analysis
Hydrogen Halide and Halogen Emissions	EPA 26	Air	Solutions	None	6 Months
Ignitability of Solids	1030	Non-liquid Waste	Plastic/Glass	None	28 Days
Lead Emissions	EPA 12	Air	Filter/Solutions	None	6 Months
Lipids	Pace Lipids	Tissue	Plastic/Glass	≤ -10°C	1 Year if frozen
Mercury, Low-Level	1631E	Solid			
Mercury, Low-Level	1631E	Water	Fluoropolymer bottles (Glass if Hg is only analyte being tested)	12N HCl or BrCl	48 Hours for preservation or analysis; 28 Days to preservation if sample oxidized in bottle; 90 Days for analysis if preserved
Mercury, Low-Level	1631E	Tissue	Plastic/Glass	≤ - 10°C	28 Days if frozen
Mercury	7471	Solid	8oz Glass Jar	≤ 6°C	28 days
Mercury	7470/245.1/245.2	Water	Plastic/Glass	pH<2 HNO ₃	28 Days
Mercury	7471/245.6	Tissue	Plastic/Glass	≤ - 10°C	28 Days if frozen
Metals (GFAA)	7000/200.9	Water	Plastic/Glass	pH<2 HNO ₃	180 Days
Metals (ICP)	NIOSH 7300A/7303	Air	Filters	None	180 Days
Metals (ICP/ICPMS)	6010/6020	Solid	8oz Glass Jar	None	180 Days
Metals (ICP/ICPMS)	6010/6020/200.7/200.8	Water	Plastic/Glass	pH<2 HNO ₃	180 Days
Metals (ICP/ICPMS)	6020	Tissue	Plastic/Glass	≤ -10°C	180 Days if frozen
Methane, Ethane, Ethene	8015 modified	Water	40mL vials	HCl	14 Days
Methane, Ethane, Ethene	RSK-175	Water	40mL vials	HCl	14 Days
Methane, Ethane, Ethene	EPA 3C	Air	Summa Canister	None	14 Days
Methane, Ethane, Ethene	EPA 3C	Air	Tedlar Bag or equivalent	None	48 Hours

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Methanol, Ethanol	8015 modified	Water	40mL vials	$\leq 6^{\circ}\text{C}$	14 Days
Methanol, Ethanol	8015 modified	Solid	2oz Glass	$\leq 6^{\circ}\text{C}$	14 Days
Nitrogen, Ammonia	SM4500N H3/350.1	Water	Plastic/Glass	$\text{pH} < 2 \text{ H}_2\text{SO}_4; \leq 6^{\circ}\text{C}$	28 Days
Nitrogen, Kjeldahl (TKN)	351.2	Solid	Plastic/Glass	$\leq 6^{\circ}\text{C}$	28 Days
Nitrogen, Kjeldahl (TKN)	SM4500-Norg/351.2	Water	Plastic/Glass	$\text{pH} < 2 \text{ H}_2\text{SO}_4; \leq 6^{\circ}\text{C}$	28 Days
Nitrogen, Nitrate	SM4500-NO3/352.1	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	24 Hours preferred
Nitrogen, Nitrate & Nitrite combination	353.2	Solid	Plastic/Glass	$\leq 6^{\circ}\text{C}$	28 Days
Nitrogen, Nitrate & Nitrite combination	SM4500-NO3/353.2	Water	Plastic/Glass	$\text{pH} < 2 \text{ H}_2\text{SO}_4; \leq 6^{\circ}\text{C}$	28 Days
Nitrogen, Nitrite or Nitrate separately	SM4500-NO2/353.2	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	48 Hours
Nitrogen, Organic	SM4500-Norg/351.2	Water	Plastic/Glass	$\text{pH} < 2 \text{ H}_2\text{SO}_4; \leq 6^{\circ}\text{C}$	28 Days
Non-Methane Organics	EPA 25C	Air	Summa Canister	None	14 Days
Non-Methane Organics	EPA 25C	Air	Tedlar Bag or equivalent	None	48 Hours
Odor	SM2150B	Water	Glass	$\leq 6^{\circ}\text{C}$	24 Hours
Oil and Grease/HEM	1664A/SM 5520B/9070	Water	Glass	$\text{pH} < 2 \text{ H}_2\text{SO}_4 \text{ or } \text{HCl}; \leq 6^{\circ}\text{C}$	28 Days
Oil and Grease/HEM	9071	Solid	Glass	$\leq 6^{\circ}\text{C}$	28 Days
PBDEs	1614	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$	1 Year/1 Year
PBDEs	1614	Solid	Wide Mouth Jar	$\leq 6^{\circ}\text{C}$	1 Year/1 Year
PBDEs	1614	Tissue	Aluminum Foil	$\leq -10^{\circ}\text{C}$	1 Year/1 Year
PCBs and Pesticides, Organochlorine (OC)	TO-4/TO-10	Air	PUF	None	7/40 Days
PCBs and Pesticides, Organochlorine (OC)	608	Water	1L Amber Glass		Pest: 7/40 Days; PCB: 1 Year/1 Year
<u>Pesticides (OC), Herbicides, PCBs</u>	508.1	Water	Glass	$\text{Na}_2\text{SO}_3, \text{HCl pH} < 2; \leq 6^{\circ}\text{C}$	14/30 Days
Perchlorate	331	Water	Plastic/Glass	$\geq 0-6^{\circ}\text{C}$	28 Days

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Pesticides, Organochlorine (OC)	8081	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	7/40 Days
Pesticides, Organochlorine (OC)	8081	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	14/40 Days
Pesticides, Organochlorine (OC)	8081	Tissue	8oz Glass Jar	$\leq -10^{\circ}\text{C}$	1 Year if frozen/40 Days
Pesticides, Organophosphorous (OP)	8141	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	14/40 Days
Pesticides, Organophosphorous (OP)	8141	Water	1L Amber Glass	pH 5-8 with NaOH or H_2SO_4 ; $\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	7/40 Days
PCBs (Aroclors)	8082	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	1 Year/1 Year
PCBs (Aroclors)	8082	Solid	8oz Glass Jar	$\leq 6^{\circ}\text{C}$	1 Year/1 Year
PCBs (Aroclors)	8082	Tissue	Plastic/Glass	$\leq -10^{\circ}\text{C}$	1 Year if frozen/1 Year
PCB Congeners	1668A	Water	1L Amber Glass	$\leq 6^{\circ}\text{C}$ but above freezing	1 Year/1 Year
PCB Congeners	1668A	Solid	4-8oz Glass Jar	$\leq 6^{\circ}\text{C}$ but above freezing	1 Year/1 Year
PCB Congeners	1668A	Tissue	4-8oz Glass Jar	$\leq -10^{\circ}\text{C}$	1 Year/1 Year
Oil Range Organics-ORO					
Oxygen, Dissolved (Probe)	SM4500-O	Water	Glass	None	15 minutes
Paint Filter Liquid Test	9095	Water	Plastic/Glass	None	N/A
Particulates	PM-10	Air	Filters	None	180 Days
Permanent Gases	EPA 3C	Air	Summa Canister	None	14 Days
Permanent Gases	EPA 3C	Air	Tedlar Bag or equivalent	None	48 Hours
pH	SM4500H+ B/9040	Water	Plastic/Glass	None	15 minutes
pH	9045	Solid	Plastic/Glass	None	
Phenol, Total	420.1/420.4 /9065/9066	Water	Glass	pH<2 H_2SO_4 ; $\leq 6^{\circ}\text{C}$	28 Days
Phosphorus, Orthophosphate	SM4500P/3 65.1/365.3	Water	Plastic	Filter; $\leq 6^{\circ}\text{C}$	Filter within 15 minutes, Analyze within 48 Hours
Phosphorus, Total	SM4500P/ 365.1/365.3 /365.4	Water	Plastic/Glass	pH<2 H_2SO_4 ; $\leq 6^{\circ}\text{C}$	28 Days

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Phosphorus, Total	365.4	Solid	Plastic/Glass	≤ 6°C	28 Days
Polynuclear Aromatic Hydrocarbons (PAH)	TO-13	Air	PUF	None	7/40 Days
Polynuclear Aromatic Hydrocarbons (PAH)	8270 SIM	Solid	8oz Glass Jar	≤ 6°C	14/40 Days
Polynuclear Aromatic Hydrocarbons (PAH)	8270 SIM	Water	1L Amber Glass	≤ 6°C; Na ₂ S ₂ O ₃ if Cl present	7/40 Days
Polynuclear Aromatic Hydrocarbons (PAH)	8270 SIM	Tissue	Plastic/Glass	≤ -10°C	1 Year if frozen/40 Days
Radioactive Strontium	905	Water	Plastic/Glass	pH<2 HNO ₃	180 days
Radium-226	903.0/903.1	Water	Plastic/Glass	pH<2 HNO ₃	180 days
Radium-228 (see note 3)	9320/904.0	Water	Plastic/Glass	pH<2 HNO ₃	180 days
Radium-228 (see note 3)	9320	Solid			
Residual Range Organics- Alaska RRO	AK103	Solid	8oz Glass	≤ 6°C	14/40 Days
Saturated Hydrocarbons		Water	≤ 6°C; pH<2 1:1 HCl (optional)	14/40 Days preserved; 7/40 Days unpreserved	≤ 6°C; pH<2 1:1 HCl (optional)
Saturated Hydrocarbons		Solid	≤ 10°C	1 Year/40 Days	≤ 10°C
Silica, Dissolved	SM4500Si-D	Water	Plastic	≤ 6°C	28 Days
Solids, Settleable	SM2540F	Water	Glass	≤ 6°C	48 Hours
Solids, Total	SM2540B	Water	Plastic/Glass	≤ 6°C	7 Days
Solids, Total	SM2540G	Solid	Plastic/Glass	≤ 6°C	7 Days
Solids, Total (FOC, OM, Ash)	ASTM D2974	Solid	Plastic/Glass	≤ 6°C	7 Days
Solids, Total Dissolved	SM2540C	Water	Plastic/Glass	≤ 6°C	7 Days
Solids, Total Suspended	SM2540D/USGS I-3765-85	Water	Plastic/Glass	≤ 6°C	7 Days
Solids, Total Volatile	160.4/SM2540E	Water	Plastic/Glass	≤ 6°C	7 Days
Solids, Total Volatile	160.4	Solid	Plastic/Glass	≤ 6°C	7 Days
Specific Conductance	SM2510B/9050/120.1	Water	Plastic/Glass	≤ 6°C	28 Days
Stationary Source Dioxins and Furans	EPA 23	Air	XAD Trap	None	30/45 Days
Stationary Source Mercury	EPA 101	Air	Filters	None	180 Days, 28 Days for Hg

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Stationary Source Metals	EPA 29	Air	Filters	None	180 Days, 28 Days for Hg
Stationary Source PM10	EPA 201A	Air	Filters	None	180 Days
Stationary Source Particulates	EPA 5	Air	Filter/Solutions	None	180 Days
Sulfate	SM4500SO 4/9036/9038/375.2 /ASTM D516	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	28 Days
Sulfide, Reactive	SW-846 Chap.7	Water	Plastic/Glass	None	28 Days
Sulfide, Reactive	SW-846 Chap.7	Solid	Plastic/Glass	None	28 Days
Sulfide, Total	SM4500S/9030	Water	Plastic/Glass	pH>9 NaOH; ZnOAc; $\leq 6^{\circ}\text{C}$	7 Days
Sulfite	SM4500SO 3	Water	Plastic/Glass	None	15 minutes
Surfactants (MBAS)	SM5540C	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	48 Hours
Total Organic Carbon (TOC)	SM5310B, C,D/9060	Water	Glass	pH<2 H ₂ SO ₄ or HCl; $\leq 6^{\circ}\text{C}$	28 Days
Total Organic Carbon (TOC)	9060/Walkley Black	Solid	Glass	$\leq 6^{\circ}\text{C}$	14 Days
Total Organic Halogen (TOX)	SM5320/9020/9021	Water	Glass; no headspace	$\leq 6^{\circ}\text{C}$	14 Days
Tritium	906	Water	Glass	None	180 days
Turbidity	SM2130B/180.1	Water	Plastic/Glass	$\leq 6^{\circ}\text{C}$	48 Hours
Total Uranium	908.0/ASTM D5174-97	Water	Plastic/Glass	pH<2 HCl	180 days
Volatile Petroleum Hydrocarbons (aliphatic and aromatic)	MA-VPH	Water	40mL vials	pH<2 HCl; $\leq 6^{\circ}\text{C}$	14 Days preserved
Volatile Petroleum Hydrocarbons (aliphatic and aromatic)	MA-VPH	Solid	4-8oz Glass Jar	$\leq 6^{\circ}\text{C}$; packed jars with no headspace	7/28 Days
Volatiles	TO-14	Air	Summa Canister	None	30 Days
Volatiles	TO-14	Air	Tedlar Bag or equivalent	None	48 Hours
Volatiles	TO-15	Air	Summa Canister	None	30 Days

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Volatiles	TO-18/8260	Air	Tedlar Bag or equivalent	None	72 Hours
Volatiles	8260	Solid	5035 vial kit	See note 1	14 days
Volatiles	8260	Water	40mL vials	pH<2 HCl; $\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	14 Days
Volatiles	8260	Conc. Waste	5035 vial kit or 40mL vials	$\leq 6^{\circ}\text{C}$	14 Days
Volatiles	624	Water	40mL vials	pH<2 HCl; $\leq 6^{\circ}\text{C}$; $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present	14 Days (7 Days for aromatics if unpreserved)
Volatiles (see note 2)	524.2	Water	40mL vials (in duplicate)	pH<2 HCl; $\leq 6^{\circ}\text{C}$; Ascorbic acid or $\text{Na}_2\text{S}_2\text{O}_3$ if Cl present ²	14 Days
UV254	SM5910B	Water	Glass	$\leq 6^{\circ}\text{C}$	48 Hours
UCMR3 Metals	200.8	Water	Plastic or glass	pH<2 HNO_3	28 Days
UCMR3 Hexavalent Chromium	218.7	Water	HDPE or propylene	$\text{Na}_2\text{CO}_3/\text{NaHCO}_3/(\text{NH}_4)_2\text{SO}_4$; pH>8	14 Days
UCMR3 Chlorate	300.1	Water	Plastic or glass	EDA	28 Days
UCMR3 Hormones	539	Water	Amber glass	$\text{Na}_2\text{S}_2\text{O}_3$, 2-mercaptopyridine-1-oxide, sodium salt	28 Days
UCMR3 Perfluorinated Compounds	537	Water	Polypropylene	Trizma	14 Days
UCMR3 Volatiles	524.3	Water	40 mL amber glass vials	Ascorbic acid. Maleic acid pH~2	14 Days
UCMR3 1, 4 Dioxane	522	Water	Glass	Na_2SO_3 , NaHSO_4 ; pH<4	28 Days

¹ **5035/5035A Note:** 5035 vial kit typically contains 2 vials water, preserved by freezing **or**, 2 vials aqueous sodium bisulfate preserved at 4°C , **and** one vial methanol preserved at $\leq 6^{\circ}\text{C}$ **and** one container of unpreserved sample stored at $\leq 6^{\circ}\text{C}$.

² Method 524.2 lists ascorbic acid as the preservative when residual chlorine is suspected, unless gases or Table 7 compounds are NOT compounds of interest and then sodium thiosulfate is the preservative recommended.

³ Methods 9315 and 9320 both state that if samples are unpreserved, the samples should be brought to the lab within 5 days of collection, preserved in the lab, and then allowed to sit for a minimum of 16 hours before sample preparation/analysis.

⁴ For non-potable waters reported under CWA, the sample must be preserved in the field with the sample adjustment buffer to pH 9.3-9.7. The holding time is 28 days after preservation. This deviates from the pH range specified in the 218.6 method, this method requirement was updated in the 2012 EPA Method Update Rule.

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⁵ For ESI BP-XA, samples must be preserved with the sample adjustment buffer within 7 days of collection to pH of 9.3-9.7. The holding time is 14 days after preservation for analysis by EPA 218.6.

⁶ For ESI SRG-Tampa, samples must be preserved with adjustment buffer to pH >8. If sample pH is not >8, the laboratory may add additional buffer upon sample receipt to extend the holding time to 14 days for analysis by EPA 218.7.

⁷ Preservation is done using the buffer solution from EPA 218.6. To prepare buffer solution dissolve 33 g of ammonium sulphate in 75 mL of ASTM Type 1 water and add 6.5 mL of ammonium hydroxide. Dilute to 100 mL with ASTM Type 1 water.

⁸ Preservation is done using one of the two buffer solutions (liquid or solid) from EPA 218.7. For the solid preservative, use 13.3 mg of sodium carbonate, 10.5 mg of sodium bicarbonate, and 33 mg of ammonium sulphate per 100 mL of sample. These are the appropriate amount for a 100 mL sample. Weigh 1-1.25 times these values and transfer to a sample bottle. For the liquid preservative, dissolve 3.3 g of ammonium sulphate in 75 mL of reagent water. Add 6.5 mL of ammonium hydroxide and dilute to 100 mL final volume. The liquid preservative expires one month from preparation when stored at room temperature.

UNCONTROLLED

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ATTACHMENT IX- ANALYTE LIST (CURRENT AS OF ISSUE DATE)

Ormond Beach Laboratory

Matrix	Analyte	Method
Drinking Water	Butachlor	EPA 508.1
Drinking Water	Dieldrin	EPA 508.1
Drinking Water	Metolachlor	EPA 508.1
Drinking Water	Metribuzin	EPA 508.1
Drinking Water	Propachlor (Ramrod)	EPA 508.1
Drinking Water	Acifluorfen	EPA 515.3
Drinking Water	Dicamba	EPA 515.3
Drinking Water	2,2 ,3 ,4,6-Pentachlorobiphenyl (525.2 typo for 2,2 ,3,4 ,6 - Pentachlorobiphenyl)	EPA 525.2
Drinking Water	2,2 ,3,3 ,4,5 ,6,6 -Octachlorobiphenyl (BZ 201)	EPA 525.2
Drinking Water	2,2 ,4,4 -Tetrachlorobiphenyl (BZ 47)	EPA 525.2
Drinking Water	2-Chlorobiphenyl (BZ 1)	EPA 525.2
Drinking Water	Aldrin	EPA 525.2
Drinking Water	Ametryn	EPA 525.2
Drinking Water	Atraton	EPA 525.2
Drinking Water	Bromacil	EPA 525.2
Drinking Water	Butachlor	EPA 525.2
Drinking Water	Carboxin (qualitative only)	EPA 525.2
Drinking Water	Chlorpropham	EPA 525.2
Drinking Water	Cycloate	EPA 525.2
Drinking Water	Diazinon	EPA 525.2
Drinking Water	Dichlorvos (DDVP, Dichlorvos)	EPA 525.2
Drinking Water	Dieldrin	EPA 525.2
Drinking Water	Diphenamid	EPA 525.2
Drinking Water	Disulfoton	EPA 525.2
Drinking Water	Disulfoton sulfone	EPA 525.2
Drinking Water	Disulfoton sulfoxide	EPA 525.2
Drinking Water	EPTC (Eptam, s-ethyl-dipropyl thio carbamate)	EPA 525.2
Drinking Water	Ethoprop	EPA 525.2
Drinking Water	Fenamiphos	EPA 525.2
Drinking Water	Fenarimol	EPA 525.2
Drinking Water	Fluridone	EPA 525.2
Drinking Water	Hexazinone (Velpar)	EPA 525.2
Drinking Water	MGK-264	EPA 525.2
Drinking Water	Merphos	EPA 525.2
Drinking Water	Methyl paraoxon	EPA 525.2

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Drinking Water	Metolachlor	EPA 525.2
Drinking Water	Metribuzin	EPA 525.2
Drinking Water	Mevinphos	EPA 525.2
Drinking Water	Napropamide	EPA 525.2
Drinking Water	Norflurazon	EPA 525.2
Drinking Water	Pebulate	EPA 525.2
Drinking Water	Prometon	EPA 525.2
Drinking Water	Prometryn	EPA 525.2
Drinking Water	Pronamide (Kerb)	EPA 525.2
Drinking Water	Propachlor (Ramrod)	EPA 525.2
Drinking Water	Simetryn	EPA 525.2
Drinking Water	Stirofos	EPA 525.2
Drinking Water	Tebuthiuron	EPA 525.2
Drinking Water	Terbacil	EPA 525.2
Drinking Water	Trifluralin (Treflan)	EPA 525.2
Drinking Water	3-Hydroxycarbofuran	EPA 531.1
Drinking Water	Aldicarb (Temik)	EPA 531.1
Drinking Water	Aldicarb sulfone	EPA 531.1
Drinking Water	Aldicarb sulfoxide	EPA 531.1
Drinking Water	Carbaryl (Sevin)	EPA 531.1
Drinking Water	Methiocarb (Mesurol)	EPA 531.1
Drinking Water	Methomyl (Lannate)	EPA 531.1
Drinking Water	Bromoacetic acid	EPA 552.2
Drinking Water	Bromochloroacetic acid	EPA 552.2
Drinking Water	Chloroacetic acid	EPA 552.2
Drinking Water	Dibromoacetic acid	EPA 552.2
Drinking Water	Dichloroacetic acid	EPA 552.2
Drinking Water	Trichloroacetic acid	EPA 552.2
Drinking Water	Dichloran	PACE SOP S-FL-O-019/GC-MS
Drinking Water	1,2,3-Trichloropropane	EPA 504.1
Drinking Water	1,1,1,2-Tetrachloroethane	EPA 524.2
Drinking Water	1,1,2,2-Tetrachloroethane	EPA 524.2
Drinking Water	1,1-Dichloroethane	EPA 524.2
Drinking Water	1,1-Dichloropropene	EPA 524.2
Drinking Water	1,2,3-Trichlorobenzene	EPA 524.2
Drinking Water	1,2,3-Trichloropropane	EPA 524.2
Drinking Water	1,2,4-Trimethylbenzene	EPA 524.2
Drinking Water	1,3,5-Trimethylbenzene	EPA 524.2
Drinking Water	1,3-Dichlorobenzene	EPA 524.2

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Drinking Water	1,3-Dichloropropane	EPA 524.2
Drinking Water	2,2-Dichloropropane	EPA 524.2
Drinking Water	2-Chlorotoluene	EPA 524.2
Drinking Water	4-Chlorotoluene	EPA 524.2
Drinking Water	4-Isopropyltoluene	EPA 524.2
Drinking Water	Acetone	EPA 524.2
Drinking Water	Bromobenzene	EPA 524.2
Drinking Water	Bromochloromethane	EPA 524.2
Drinking Water	Chloroethane	EPA 524.2
Drinking Water	Dibromomethane	EPA 524.2
Drinking Water	Dichlorodifluoromethane	EPA 524.2
Drinking Water	Hexachlorobutadiene	EPA 524.2
Drinking Water	Isopropylbenzene	EPA 524.2
Drinking Water	Methyl bromide (Bromomethane)	EPA 524.2
Drinking Water	Methyl chloride (Chloromethane)	EPA 524.2
Drinking Water	Methyl tert-butyl ether (MTBE)	EPA 524.2
Drinking Water	Naphthalene	EPA 524.2
Drinking Water	Trichlorofluoromethane	EPA 524.2
Drinking Water	cis-1,3-Dichloropropene	EPA 524.2
Drinking Water	m/p-Xylenes	EPA 524.2
Drinking Water	n-Butylbenzene	EPA 524.2
Drinking Water	n-Propylbenzene	EPA 524.2
Drinking Water	o-Xylene	EPA 524.2
Drinking Water	sec-Butylbenzene	EPA 524.2
Drinking Water	tert-Butylbenzene	EPA 524.2
Drinking Water	trans-1,3-Dichloropropene	EPA 524.2
Drinking Water	Bromodichloromethane	EPA 524.2
Drinking Water	Bromoform	EPA 524.2
Drinking Water	Butyl benzyl phthalate	EPA 525.2
Drinking Water	Di-n-butyl phthalate	EPA 525.2
Drinking Water	Diethyl phthalate	EPA 525.2
Drinking Water	Dimethyl phthalate	EPA 525.2
Drinking Water	Fluorene	EPA 525.2
Drinking Water	Indeno(1,2,3-cd)pyrene	EPA 525.2
Drinking Water	Pyrene	EPA 525.2
Drinking Water	Escherichia coli	COLISURE
Drinking Water	Total coliforms	COLISURE
Drinking Water	Heterotrophic plate count	SIMPLATE

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Drinking Water	Heterotrophic plate count	SM 9215 B
Drinking Water	Escherichia coli	SM 9223 B
Drinking Water	Total coliforms	SM 9223 B
Drinking Water	1,1,1-Trichloroethane	EPA 524.2
Drinking Water	1,1,2-Trichloroethane	EPA 524.2
Drinking Water	1,1-Dichloroethylene	EPA 524.2
Drinking Water	1,2,4-Trichlorobenzene	EPA 524.2
Drinking Water	1,2-Dichlorobenzene	EPA 524.2
Drinking Water	1,2-Dichloroethane	EPA 524.2
Drinking Water	1,2-Dichloropropane	EPA 524.2
Drinking Water	1,4-Dichlorobenzene	EPA 524.2
Drinking Water	Benzene	EPA 524.2
Drinking Water	Carbon tetrachloride	EPA 524.2
Drinking Water	Chlorobenzene	EPA 524.2
Drinking Water	Dichloromethane (DCM, Methylene chloride)	EPA 524.2
Drinking Water	Ethylbenzene	EPA 524.2
Drinking Water	Styrene	EPA 524.2
Drinking Water	Tetrachloroethylene (Perchloroethylene)	EPA 524.2
Drinking Water	Toluene	EPA 524.2
Drinking Water	Total trihalomethanes	EPA 524.2
Drinking Water	Trichloroethene (Trichloroethylene)	EPA 524.2
Drinking Water	Vinyl chloride	EPA 524.2
Drinking Water	Xylene (total)	EPA 524.2
Drinking Water	cis-1,2-Dichloroethylene	EPA 524.2
Drinking Water	trans-1,2-Dichloroethylene	EPA 524.2
Drinking Water	Chloroform	EPA 524.2
Drinking Water	Dibromochloromethane	EPA 524.2
Drinking Water	Arsenic	EPA 200.7
Drinking Water	Barium	EPA 200.7
Drinking Water	Beryllium	EPA 200.7
Drinking Water	Cadmium	EPA 200.7
Drinking Water	Calcium	EPA 200.7
Drinking Water	Chromium	EPA 200.7
Drinking Water	Magnesium	EPA 200.7
Drinking Water	Nickel	EPA 200.7
Drinking Water	Silica as SiO ₂	EPA 200.7
Drinking Water	Sodium	EPA 200.7
Drinking Water	Antimony	EPA 200.8

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Drinking Water	Arsenic	EPA 200.8
Drinking Water	Barium	EPA 200.8
Drinking Water	Beryllium	EPA 200.8
Drinking Water	Cadmium	EPA 200.8
Drinking Water	Chromium	EPA 200.8
Drinking Water	Cobalt	EPA 200.8
Drinking Water	Lead	EPA 200.8
Drinking Water	Nickel	EPA 200.8
Drinking Water	Selenium	EPA 200.8
Drinking Water	Thallium	EPA 200.8
Drinking Water	Chromium VI	EPA 218.6
Drinking Water	Chromium VI	EPA 218.7
Drinking Water	Mercury	EPA 245.1
Drinking Water	Bromide	EPA 300.0
Drinking Water	Nitrate	EPA 300.0
Drinking Water	Nitrite	EPA 300.0
Drinking Water	Orthophosphate as P	EPA 300.0
Drinking Water	Total nitrate-nitrite	EPA 300.0
Drinking Water	Bromate	EPA 300.1
Drinking Water	Bromide	EPA 300.1
Drinking Water	Chlorate	EPA 300.1
Drinking Water	Perchlorate	EPA 331
Drinking Water	Chlorite	EPA 300.1
Drinking Water	Cyanide	EPA 335.4
Drinking Water	Nitrate	EPA 353.2
Drinking Water	Nitrite	EPA 353.2
Drinking Water	Total nitrate-nitrite	EPA 353.2
Drinking Water	Orthophosphate as P	EPA 365.1
Drinking Water	Alkalinity as CaCO ₃	SM 2320 B
Drinking Water	Conductivity	SM 2510 B
Drinking Water	Chlorine	SM 4500-Cl D
Drinking Water	Chlorine dioxide, res. disinfectant	SM 4500-ClO ₂ D
Drinking Water	Silica as SiO ₂	SM 4500-Si D (18th/19th Ed.)/UV-VIS
Drinking Water	Dissolved organic carbon (DOC)	SM 5310 B
Drinking Water	Total organic carbon	SM 5310 B
Drinking Water	UV 254	SM 5910 B
Drinking Water	Copper	EPA 200.7

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Drinking Water	Copper	EPA 200.8
Drinking Water	Fluoride	EPA 300.0
Drinking Water	Sulfate	EPA 300.0
Drinking Water	Uranium	EPA 200.8
Drinking Water	Turbidity	EPA 180.1
Drinking Water	Aluminum	EPA 200.7
Drinking Water	Hardness (calc.)	EPA 200.7
Drinking Water	Iron	EPA 200.7
Drinking Water	Manganese	EPA 200.7
Drinking Water	Potassium	EPA 200.7
Drinking Water	Silver	EPA 200.7
Drinking Water	Zinc	EPA 200.7
Drinking Water	Aluminum	EPA 200.8
Drinking Water	Manganese	EPA 200.8
Drinking Water	Silver	EPA 200.8
Drinking Water	Zinc	EPA 200.8
Drinking Water	Chloride	EPA 300.0
Drinking Water	Strontium	PACE SOP S-FL-M-004/ICP-MS
Drinking Water	Color	SM 2120 B
Drinking Water	Odor	SM 2150 B
Drinking Water	Corrosivity (langlier index)	SM 2330 B
Drinking Water	Hardness	SM 2340 B
Drinking Water	Total dissolved solids	SM 2540 C
Drinking Water	pH	SM 4500-H+-B
Drinking Water	Surfactants - MBAS	SM 5540 C
Drinking Water	1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1
Drinking Water	1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 504.1
Drinking Water	Alachlor	EPA 508.1
Drinking Water	Aroclor-1016 (PCB-1016)	EPA 508.1
Drinking Water	Aroclor-1221 (PCB-1221)	EPA 508.1
Drinking Water	Aroclor-1232 (PCB-1232)	EPA 508.1
Drinking Water	Aroclor-1242 (PCB-1242)	EPA 508.1
Drinking Water	Aroclor-1248 (PCB-1248)	EPA 508.1
Drinking Water	Aroclor-1254 (PCB-1254)	EPA 508.1
Drinking Water	Aroclor-1260 (PCB-1260)	EPA 508.1
Drinking Water	Atrazine	EPA 508.1

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Drinking Water	Chlordane (tech.)	EPA 508.1
Drinking Water	Endrin	EPA 508.1
Drinking Water	Heptachlor	EPA 508.1
Drinking Water	Heptachlor epoxide	EPA 508.1
Drinking Water	Hexachlorobenzene	EPA 508.1
Drinking Water	Hexachlorocyclopentadiene	EPA 508.1
Drinking Water	Methoxychlor	EPA 508.1
Drinking Water	PCBs	EPA 508.1
Drinking Water	Simazine	EPA 508.1
Drinking Water	Toxaphene (Chlorinated camphene)	EPA 508.1
Drinking Water	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 508.1
Drinking Water	2,4,5-T	EPA 515.3
Drinking Water	2,4-D	EPA 515.3
Drinking Water	2,4-DB	EPA 515.3
Drinking Water	Bentazon	EPA 515.3
Drinking Water	Dalapon	EPA 515.3
Drinking Water	Dichloroprop (Dichlorprop)	EPA 515.3
Drinking Water	Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 515.3
Drinking Water	Pentachlorophenol	EPA 515.3
Drinking Water	Picloram	EPA 515.3
Drinking Water	Silvex (2,4,5-TP)	EPA 515.3
Drinking Water	1,4-Dioxane (1,4-Diethyleneoxide)	EPA 522
Drinking Water	Benzo(a)pyrene	EPA 525.2
Drinking Water	Di(2-ethylhexyl)adipate	EPA 525.2
Drinking Water	bis(2-Ethylhexyl) phthalate (DEHP)	EPA 525.2
Drinking Water	Carbofuran (Furadan)	EPA 531.1
Drinking Water	Oxamyl	EPA 531.1
Drinking Water	Glyphosate	EPA 547
Drinking Water	Endothall	EPA 548.1
Drinking Water	Diquat	EPA 549.2
Drinking Water	Paraquat	EPA 549.2
Drinking Water	Total haloacetic acids (HAA5)	EPA 552.2
Non-Potable Water	1,2,4-Trichlorobenzene	EPA 625
Non-Potable Water	1,2-Dichlorobenzene	EPA 625
Non-Potable Water	1,2-Diphenylhydrazine	EPA 625
Non-Potable Water	1,3-Dichlorobenzene	EPA 625
Non-Potable Water	1,4-Dichlorobenzene	EPA 625

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Non-Potable Water	1-Methylnaphthalene	EPA 625
Non-Potable Water	2,4,6-Trichlorophenol	EPA 625
Non-Potable Water	2,4-Dichlorophenol	EPA 625
Non-Potable Water	2,4-Dimethylphenol	EPA 625
Non-Potable Water	2,4-Dinitrophenol	EPA 625
Non-Potable Water	2,4-Dinitrotoluene (2,4-DNT)	EPA 625
Non-Potable Water	2,6-Dinitrotoluene (2,6-DNT)	EPA 625
Non-Potable Water	2-Chloronaphthalene	EPA 625
Non-Potable Water	2-Chlorophenol	EPA 625
Non-Potable Water	2-Methyl-4,6-dinitrophenol	EPA 625
Non-Potable Water	2-Methylnaphthalene	EPA 625
Non-Potable Water	2-Methylphenol (o-Cresol)	EPA 625
Non-Potable Water	2-Nitrophenol	EPA 625
Non-Potable Water	3,3 -Dichlorobenzidine	EPA 625
Non-Potable Water	3/4-Methylphenols (m/p-Cresols)	EPA 625
Non-Potable Water	4-Bromophenyl phenyl ether	EPA 625
Non-Potable Water	4-Chloro-3-methylphenol	EPA 625
Non-Potable Water	4-Chlorophenyl phenylether	EPA 625
Non-Potable Water	4-Nitrophenol	EPA 625
Non-Potable Water	Acenaphthene	EPA 625
Non-Potable Water	Acenaphthylene	EPA 625
Non-Potable Water	Anthracene	EPA 625
Non-Potable Water	Benzidine	EPA 625
Non-Potable Water	Benzo(a)anthracene	EPA 625
Non-Potable Water	Benzo(a)pyrene	EPA 625
Non-Potable Water	Benzo(b)fluoranthene	EPA 625
Non-Potable Water	Benzo(g,h,i)perylene	EPA 625
Non-Potable Water	Benzo(k)fluoranthene	EPA 625

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Non-Potable Water	Butyl benzyl phthalate	EPA 625
Non-Potable Water	Chrysene	EPA 625
Non-Potable Water	Di-n-butyl phthalate	EPA 625
Non-Potable Water	Di-n-octyl phthalate	EPA 625
Non-Potable Water	Dibenz(a,h)anthracene	EPA 625
Non-Potable Water	Diethyl phthalate	EPA 625
Non-Potable Water	Dimethyl phthalate	EPA 625
Non-Potable Water	Fluoranthene	EPA 625
Non-Potable Water	Fluorene	EPA 625
Non-Potable Water	Hexachlorobenzene	EPA 625
Non-Potable Water	Hexachlorobutadiene	EPA 625
Non-Potable Water	Hexachlorocyclopentadiene	EPA 625
Non-Potable Water	Hexachloroethane	EPA 625
Non-Potable Water	Indeno(1,2,3-cd)pyrene	EPA 625
Non-Potable Water	Isophorone	EPA 625
Non-Potable Water	Naphthalene	EPA 625
Non-Potable Water	Nitrobenzene	EPA 625
Non-Potable Water	Pentachlorophenol	EPA 625
Non-Potable Water	Phenanthrene	EPA 625
Non-Potable Water	Phenol	EPA 625
Non-Potable Water	Pyrene	EPA 625
Non-Potable Water	bis(2-Chloroethoxy)methane	EPA 625
Non-Potable Water	bis(2-Chloroethyl) ether	EPA 625
Non-Potable Water	bis(2-Chloroisopropyl) ether (2,2 -Oxybis(1-chloropropane))	EPA 625
Non-Potable Water	bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625
Non-Potable Water	n-Nitrosodi-n-propylamine	EPA 625
Non-Potable Water	n-Nitrosodimethylamine	EPA 625
Non-Potable	n-Nitrosodiphenylamine	EPA 625

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Water		
Non-Potable Water	1,2,4,5-Tetrachlorobenzene	EPA 8270
Non-Potable Water	1,2,4-Trichlorobenzene	EPA 8270
Non-Potable Water	1,2-Dichlorobenzene	EPA 8270
Non-Potable Water	1,2-Dinitrobenzene	EPA 8270
Non-Potable Water	1,2-Diphenylhydrazine	EPA 8270
Non-Potable Water	1,3,5-Trinitrobenzene (1,3,5-TNB)	EPA 8270
Non-Potable Water	1,3-Dichlorobenzene	EPA 8270
Non-Potable Water	1,3-Dinitrobenzene (1,3-DNB)	EPA 8270
Non-Potable Water	1,4-Dichlorobenzene	EPA 8270
Non-Potable Water	1,4-Naphthoquinone	EPA 8270
Non-Potable Water	1,4-Phenylenediamine	EPA 8270
Non-Potable Water	1-Methylnaphthalene	EPA 8270
Non-Potable Water	1-Naphthylamine	EPA 8270
Non-Potable Water	2,3,4,6-Tetrachlorophenol	EPA 8270
Non-Potable Water	2,4,5-Trichlorophenol	EPA 8270
Non-Potable Water	2,4,6-Trichlorophenol	EPA 8270
Non-Potable Water	2,4-Dichlorophenol	EPA 8270
Non-Potable Water	2,4-Dimethylphenol	EPA 8270
Non-Potable Water	2,4-Dinitrophenol	EPA 8270
Non-Potable Water	2,4-Dinitrotoluene (2,4-DNT)	EPA 8270
Non-Potable Water	2,6-Dichlorophenol	EPA 8270
Non-Potable Water	2,6-Dinitrotoluene (2,6-DNT)	EPA 8270
Non-Potable Water	2-Acetylaminofluorene	EPA 8270
Non-Potable Water	2-Chloronaphthalene	EPA 8270
Non-Potable Water	2-Chlorophenol	EPA 8270
Non-Potable Water	2-Methyl-4,6-dinitrophenol	EPA 8270
Non-Potable Water	2-Methylnaphthalene	EPA 8270

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Non-Potable Water	2-Methylphenol (o-Cresol)	EPA 8270
Non-Potable Water	2-Naphthylamine	EPA 8270
Non-Potable Water	2-Nitroaniline	EPA 8270
Non-Potable Water	2-Nitrophenol	EPA 8270
Non-Potable Water	2-Picoline (2-Methylpyridine)	EPA 8270
Non-Potable Water	3,3 -Dichlorobenzidine	EPA 8270
Non-Potable Water	3,3 -Dimethylbenzidine	EPA 8270
Non-Potable Water	3-Methylcholanthrene	EPA 8270
Non-Potable Water	3-Nitroaniline	EPA 8270
Non-Potable Water	3/4-Methylphenols (m/p-Cresols)	EPA 8270
Non-Potable Water	4-Aminobiphenyl	EPA 8270
Non-Potable Water	4-Bromophenyl phenyl ether	EPA 8270
Non-Potable Water	4-Chloro-3-methylphenol	EPA 8270
Non-Potable Water	4-Chloroaniline	EPA 8270
Non-Potable Water	4-Chlorophenyl phenylether	EPA 8270
Non-Potable Water	4-Dimethyl aminoazobenzene	EPA 8270
Non-Potable Water	4-Nitroaniline	EPA 8270
Non-Potable Water	4-Nitrophenol	EPA 8270
Non-Potable Water	5-Nitro-o-toluidine	EPA 8270
Non-Potable Water	7,12-Dimethylbenz(a) anthracene	EPA 8270
Non-Potable Water	Acenaphthene	EPA 8270
Non-Potable Water	Acenaphthylene	EPA 8270
Non-Potable Water	Acetophenone	EPA 8270
Non-Potable Water	Aniline	EPA 8270
Non-Potable Water	Anthracene	EPA 8270
Non-Potable Water	Aramite	EPA 8270
Non-Potable Water	Benzaldehyde	EPA 8270
Non-Potable Water	Benzidine	EPA 8270

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Non-Potable Water	Benzo(a)anthracene	EPA 8270
Non-Potable Water	Benzo(a)pyrene	EPA 8270
Non-Potable Water	Benzo(b)fluoranthene	EPA 8270
Non-Potable Water	Benzo(g,h,i)perylene	EPA 8270
Non-Potable Water	Benzo(k)fluoranthene	EPA 8270
Non-Potable Water	Benzoic acid	EPA 8270
Non-Potable Water	Benzyl alcohol	EPA 8270
Non-Potable Water	Biphenyl	EPA 8270
Non-Potable Water	Butyl benzyl phthalate	EPA 8270
Non-Potable Water	Carbazole	EPA 8270
Non-Potable Water	Chrysene	EPA 8270
Non-Potable Water	Di-n-butyl phthalate	EPA 8270
Non-Potable Water	Di-n-octyl phthalate	EPA 8270
Non-Potable Water	Dibenz(a,h)anthracene	EPA 8270
Non-Potable Water	Dibenzofuran	EPA 8270
Non-Potable Water	Diethyl phthalate	EPA 8270
Non-Potable Water	Dimethyl phthalate	EPA 8270
Non-Potable Water	Ethyl methanesulfonate	EPA 8270
Non-Potable Water	Fluoranthene	EPA 8270
Non-Potable Water	Fluorene	EPA 8270
Non-Potable Water	Hexachlorobenzene	EPA 8270
Non-Potable Water	Hexachlorobutadiene	EPA 8270
Non-Potable Water	Hexachlorocyclopentadiene	EPA 8270
Non-Potable Water	Hexachloroethane	EPA 8270
Non-Potable Water	Hexachloropropene	EPA 8270
Non-Potable Water	Indeno(1,2,3-cd)pyrene	EPA 8270
Non-Potable Water	Isophorone	EPA 8270
Non-Potable Water	Isosafrole	EPA 8270

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Non-Potable Water	Methapyrilene	EPA 8270
Non-Potable Water	Methyl methanesulfonate	EPA 8270
Non-Potable Water	Naphthalene	EPA 8270
Non-Potable Water	Nitrobenzene	EPA 8270
Non-Potable Water	Nitroquinoline-1-oxide	EPA 8270
Non-Potable Water	Pentachlorobenzene	EPA 8270
Non-Potable Water	Pentachlorophenol	EPA 8270
Non-Potable Water	Phenacetin	EPA 8270
Non-Potable Water	Phenanthrene	EPA 8270
Non-Potable Water	Phenol	EPA 8270
Non-Potable Water	Pronamide (Kerb)	EPA 8270
Non-Potable Water	Pyrene	EPA 8270
Non-Potable Water	Pyridine	EPA 8270
Non-Potable Water	Safrole	EPA 8270
Non-Potable Water	a,a-Dimethylphenethylamine	EPA 8270
Non-Potable Water	bis(2-Chloroethoxy)methane	EPA 8270
Non-Potable Water	bis(2-Chloroethyl) ether	EPA 8270
Non-Potable Water	bis(2-Chloroisopropyl) ether (2,2 -Oxybis(1-chloropropane))	EPA 8270
Non-Potable Water	bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270
Non-Potable Water	n-Nitroso-di-n-butylamine	EPA 8270
Non-Potable Water	n-Nitrosodi-n-propylamine	EPA 8270
Non-Potable Water	n-Nitrosodiethylamine	EPA 8270
Non-Potable Water	n-Nitrosodimethylamine	EPA 8270
Non-Potable Water	n-Nitrosodiphenylamine	EPA 8270
Non-Potable Water	n-Nitrosomethylethylamine	EPA 8270
Non-Potable Water	n-Nitrosomorpholine	EPA 8270
Non-Potable Water	n-Nitrosopiperidine	EPA 8270
Non-Potable	n-Nitrosopyrrolidine	EPA 8270

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Water		
Non-Potable Water	o-Toluidine	EPA 8270
Non-Potable Water	Total Petroleum Hydrocarbons (TPH)	FL-PRO
Non-Potable Water	Un-ionized Ammonia	DEP SOP 10/03/83
Non-Potable Water	Ignitability	EPA 1010
Non-Potable Water	Conductivity	EPA 120.1
Non-Potable Water	Residue-volatile	EPA 160.4
Non-Potable Water	Oil & Grease	EPA 1664A
Non-Potable Water	Total Petroleum Hydrocarbons (TPH)	EPA 1664A
Non-Potable Water	Turbidity	EPA 180.1
Non-Potable Water	Chromium VI	EPA 218.6
Non-Potable Water	Bromide	EPA 300.0
Non-Potable Water	Chloride	EPA 300.0
Non-Potable Water	Fluoride	EPA 300.0
Non-Potable Water	Nitrate as N	EPA 300.0
Non-Potable Water	Nitrate-nitrite	EPA 300.0
Non-Potable Water	Nitrite as N	EPA 300.0
Non-Potable Water	Orthophosphate as P	EPA 300.0
Non-Potable Water	Sulfate	EPA 300.0
Non-Potable Water	Bromate	EPA 300.1
Non-Potable Water	Chlorate	EPA 300.1
Non-Potable Water	Chlorite	EPA 300.1
Non-Potable Water	Cyanide	EPA 335.4
Non-Potable Water	Ammonia as N	EPA 350.1
Non-Potable Water	Kjeldahl nitrogen - total	EPA 351.2
Non-Potable Water	Nitrate as N	EPA 353.2
Non-Potable Water	Nitrate-nitrite	EPA 353.2
Non-Potable Water	Nitrite as N	EPA 353.2

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Non-Potable Water	Orthophosphate as P	EPA 365.1
Non-Potable Water	Phosphorus, total	EPA 365.3
Non-Potable Water	Phosphorus, total	EPA 365.4
Non-Potable Water	Chemical oxygen demand	EPA 410.4
Non-Potable Water	Total phenolics	EPA 420.4
Non-Potable Water	Total cyanide	EPA 9012
Non-Potable Water	Sulfide	EPA 9030/9034
Non-Potable Water	pH	EPA 9040
Non-Potable Water	Bromide	EPA 9056
Non-Potable Water	Chloride	EPA 9056
Non-Potable Water	Fluoride	EPA 9056
Non-Potable Water	Nitrate	EPA 9056
Non-Potable Water	Nitrite	EPA 9056
Non-Potable Water	Orthophosphate as P	EPA 9056
Non-Potable Water	Sulfate	EPA 9056
Non-Potable Water	Total nitrate-nitrite	EPA 9056
Non-Potable Water	Total phenolics	EPA 9066
Non-Potable Water	Chlorophylls	SM 10200 H
Non-Potable Water	Color	SM 2120 B
Non-Potable Water	Alkalinity as CaCO ₃	SM 2320 B
Non-Potable Water	Corrosivity (langlier index)	SM 2330 B
Non-Potable Water	Conductivity	SM 2510 B
Non-Potable Water	Residue-total	SM 2540 B
Non-Potable Water	Residue-filterable (TDS)	SM 2540 C
Non-Potable Water	Residue-nonfilterable (TSS)	SM 2540 D
Non-Potable Water	Chromium VI	SM 3500-Cr B (20th/21st Ed.)UV-VIS
Non-Potable Water	Residual free chlorine	SM 4500-Cl D
Non-Potable Water	pH	SM 4500-H+-B

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Non-Potable Water	Sulfide	SM 4500-S F
Non-Potable Water	Silica-dissolved	SM 4500-Si D (18th/19th Ed.)/UV-VIS
Non-Potable Water	Biochemical oxygen demand	SM 5210 B
Non-Potable Water	Carbonaceous BOD (CBOD)	SM 5210 B
Non-Potable Water	Total organic carbon	SM 5310 B
Non-Potable Water	Surfactants - MBAS	SM 5540 C
Non-Potable Water	Total nitrogen	TKN + Total nitrate-nitrite
Non-Potable Water	Organic nitrogen	TKN minus AMMONIA
Non-Potable Water	Aluminum	EPA 200.7
Non-Potable Water	Antimony	EPA 200.7
Non-Potable Water	Arsenic	EPA 200.7
Non-Potable Water	Barium	EPA 200.7
Non-Potable Water	Beryllium	EPA 200.7
Non-Potable Water	Boron	EPA 200.7
Non-Potable Water	Cadmium	EPA 200.7
Non-Potable Water	Calcium	EPA 200.7
Non-Potable Water	Chromium	EPA 200.7
Non-Potable Water	Cobalt	EPA 200.7
Non-Potable Water	Copper	EPA 200.7
Non-Potable Water	Iron	EPA 200.7
Non-Potable Water	Lead	EPA 200.7
Non-Potable Water	Magnesium	EPA 200.7
Non-Potable Water	Manganese	EPA 200.7
Non-Potable Water	Molybdenum	EPA 200.7
Non-Potable Water	Nickel	EPA 200.7
Non-Potable Water	Potassium	EPA 200.7
Non-Potable Water	Selenium	EPA 200.7
Non-Potable Water	Silica as SiO ₂	EPA 200.7

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Non-Potable Water	Silicon	EPA 200.7
Non-Potable Water	Silver	EPA 200.7
Non-Potable Water	Sodium	EPA 200.7
Non-Potable Water	Strontium	EPA 200.7
Non-Potable Water	Thallium	EPA 200.7
Non-Potable Water	Tin	EPA 200.7
Non-Potable Water	Titanium	EPA 200.7
Non-Potable Water	Total hardness as CaCO ₃	EPA 200.7
Non-Potable Water	Vanadium	EPA 200.7
Non-Potable Water	Zinc	EPA 200.7
Non-Potable Water	Aluminum	EPA 200.8
Non-Potable Water	Antimony	EPA 200.8
Non-Potable Water	Arsenic	EPA 200.8
Non-Potable Water	Barium	EPA 200.8
Non-Potable Water	Beryllium	EPA 200.8
Non-Potable Water	Cadmium	EPA 200.8
Non-Potable Water	Chromium	EPA 200.8
Non-Potable Water	Cobalt	EPA 200.8
Non-Potable Water	Copper	EPA 200.8
Non-Potable Water	Lead	EPA 200.8
Non-Potable Water	Manganese	EPA 200.8
Non-Potable Water	Molybdenum	EPA 200.8
Non-Potable Water	Nickel	EPA 200.8
Non-Potable Water	Selenium	EPA 200.8
Non-Potable Water	Silver	EPA 200.8
Non-Potable Water	Strontium	EPA 200.8
Non-Potable Water	Thallium	EPA 200.8
Non-Potable Water	Uranium	EPA 200.8

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Non-Potable Water	Vanadium	EPA 200.8
Non-Potable Water	Zinc	EPA 200.8
Non-Potable Water	Mercury	EPA 245.1
Non-Potable Water	Aluminum	EPA 6010
Non-Potable Water	Antimony	EPA 6010
Non-Potable Water	Arsenic	EPA 6010
Non-Potable Water	Barium	EPA 6010
Non-Potable Water	Beryllium	EPA 6010
Non-Potable Water	Boron	EPA 6010
Non-Potable Water	Cadmium	EPA 6010
Non-Potable Water	Calcium	EPA 6010
Non-Potable Water	Chromium	EPA 6010
Non-Potable Water	Cobalt	EPA 6010
Non-Potable Water	Copper	EPA 6010
Non-Potable Water	Iron	EPA 6010
Non-Potable Water	Lead	EPA 6010
Non-Potable Water	Magnesium	EPA 6010
Non-Potable Water	Manganese	EPA 6010
Non-Potable Water	Molybdenum	EPA 6010
Non-Potable Water	Nickel	EPA 6010
Non-Potable Water	Potassium	EPA 6010
Non-Potable Water	Selenium	EPA 6010
Non-Potable Water	Silica as SiO ₂	EPA 6010
Non-Potable Water	Silicon	EPA 6010
Non-Potable Water	Silver	EPA 6010
Non-Potable Water	Sodium	EPA 6010
Non-Potable Water	Strontium	EPA 6010
Non-Potable Water	Thallium	EPA 6010

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Non-Potable Water	Tin	EPA 6010
Non-Potable Water	Titanium	EPA 6010
Non-Potable Water	Vanadium	EPA 6010
Non-Potable Water	Zinc	EPA 6010
Non-Potable Water	Aluminum	EPA 6020
Non-Potable Water	Antimony	EPA 6020
Non-Potable Water	Arsenic	EPA 6020
Non-Potable Water	Barium	EPA 6020
Non-Potable Water	Beryllium	EPA 6020
Non-Potable Water	Cadmium	EPA 6020
Non-Potable Water	Chromium	EPA 6020
Non-Potable Water	Cobalt	EPA 6020
Non-Potable Water	Copper	EPA 6020
Non-Potable Water	Iron	EPA 6020
Non-Potable Water	Lead	EPA 6020
Non-Potable Water	Manganese	EPA 6020
Non-Potable Water	Molybdenum	EPA 6020
Non-Potable Water	Nickel	EPA 6020
Non-Potable Water	Selenium	EPA 6020
Non-Potable Water	Silver	EPA 6020
Non-Potable Water	Thallium	EPA 6020
Non-Potable Water	Vanadium	EPA 6020
Non-Potable Water	Zinc	EPA 6020
Non-Potable Water	Mercury	EPA 7470
Non-Potable Water	Total hardness as CaCO ₃	SM 2340 B
Non-Potable Water	Total coliforms	SM 9222 B
Non-Potable Water	Fecal coliforms	SM 9222 D
Non-Potable Water	4,4 -DDD	EPA 608

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Non-Potable Water	4,4 -DDE	EPA 608
Non-Potable Water	4,4 -DDT	EPA 608
Non-Potable Water	Aldrin	EPA 608
Non-Potable Water	Aroclor-1016 (PCB-1016)	EPA 608
Non-Potable Water	Aroclor-1221 (PCB-1221)	EPA 608
Non-Potable Water	Aroclor-1232 (PCB-1232)	EPA 608
Non-Potable Water	Aroclor-1242 (PCB-1242)	EPA 608
Non-Potable Water	Aroclor-1248 (PCB-1248)	EPA 608
Non-Potable Water	Aroclor-1254 (PCB-1254)	EPA 608
Non-Potable Water	Aroclor-1260 (PCB-1260)	EPA 608
Non-Potable Water	Chlordane (tech.)	EPA 608
Non-Potable Water	Dieldrin	EPA 608
Non-Potable Water	Endosulfan I	EPA 608
Non-Potable Water	Endosulfan II	EPA 608
Non-Potable Water	Endosulfan sulfate	EPA 608
Non-Potable Water	Endrin	EPA 608
Non-Potable Water	Endrin aldehyde	EPA 608
Non-Potable Water	Heptachlor	EPA 608
Non-Potable Water	Heptachlor epoxide	EPA 608
Non-Potable Water	Mirex	EPA 608
Non-Potable Water	Toxaphene (Chlorinated camphene)	EPA 608
Non-Potable Water	alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 608
Non-Potable Water	beta-BHC (beta-Hexachlorocyclohexane)	EPA 608
Non-Potable Water	delta-BHC	EPA 608
Non-Potable Water	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 608
Non-Potable Water	2,3-Dichloroaniline	EPA 625
Non-Potable Water	Acetophenone	EPA 625
Non-Potable Water	Carbazole	EPA 625

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Non-Potable Water	n-Decane	EPA 625
Non-Potable Water	n-Octadecane	EPA 625
Non-Potable Water	4,4 -DDD	EPA 8081
Non-Potable Water	4,4 -DDE	EPA 8081
Non-Potable Water	4,4 -DDT	EPA 8081
Non-Potable Water	Aldrin	EPA 8081
Non-Potable Water	Chlordane (tech.)	EPA 8081
Non-Potable Water	Chlorobenzilate	EPA 8081
Non-Potable Water	Dieldrin	EPA 8081
Non-Potable Water	Endosulfan I	EPA 8081
Non-Potable Water	Endosulfan II	EPA 8081
Non-Potable Water	Endosulfan sulfate	EPA 8081
Non-Potable Water	Endrin	EPA 8081
Non-Potable Water	Endrin aldehyde	EPA 8081
Non-Potable Water	Endrin ketone	EPA 8081
Non-Potable Water	Heptachlor	EPA 8081
Non-Potable Water	Heptachlor epoxide	EPA 8081
Non-Potable Water	Methoxychlor	EPA 8081
Non-Potable Water	Mirex	EPA 8081
Non-Potable Water	Pentachloronitrobenzene (Quintozone)	EPA 8081
Non-Potable Water	Toxaphene (Chlorinated camphene)	EPA 8081
Non-Potable Water	alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081
Non-Potable Water	alpha-Chlordane	EPA 8081
Non-Potable Water	beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081
Non-Potable Water	delta-BHC	EPA 8081
Non-Potable Water	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081
Non-Potable Water	gamma-Chlordane	EPA 8081
Non-Potable Water	Aroclor-1016 (PCB-1016)	EPA 8082

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Non-Potable Water	Aroclor-1221 (PCB-1221)	EPA 8082
Non-Potable Water	Aroclor-1232 (PCB-1232)	EPA 8082
Non-Potable Water	Aroclor-1242 (PCB-1242)	EPA 8082
Non-Potable Water	Aroclor-1248 (PCB-1248)	EPA 8082
Non-Potable Water	Aroclor-1254 (PCB-1254)	EPA 8082
Non-Potable Water	Aroclor-1260 (PCB-1260)	EPA 8082
Non-Potable Water	Atrazine	EPA 8141
Non-Potable Water	Azinphos-methyl (Guthion)	EPA 8141
Non-Potable Water	Carbophenothion	EPA 8141
Non-Potable Water	Chlorpyrifos	EPA 8141
Non-Potable Water	Coumaphos	EPA 8141
Non-Potable Water	Demeton-o	EPA 8141
Non-Potable Water	Demeton-s	EPA 8141
Non-Potable Water	Diazinon	EPA 8141
Non-Potable Water	Dichlorovos (DDVP, Dichlorvos)	EPA 8141
Non-Potable Water	Dimethoate	EPA 8141
Non-Potable Water	Disulfoton	EPA 8141
Non-Potable Water	Ethion	EPA 8141
Non-Potable Water	Famphur	EPA 8141
Non-Potable Water	Malathion	EPA 8141
Non-Potable Water	Methyl parathion (Parathion, methyl)	EPA 8141
Non-Potable Water	Mevinphos	EPA 8141
Non-Potable Water	Monocrotophos	EPA 8141
Non-Potable Water	Parathion, ethyl	EPA 8141
Non-Potable Water	Phorate	EPA 8141
Non-Potable Water	Phosmet (Imidan)	EPA 8141
Non-Potable Water	Stirofos	EPA 8141
Non-Potable Water	Tokuthion (Prothiophos)	EPA 8141

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Non-Potable Water	2,4,5-T	EPA 8151
Non-Potable Water	2,4-D	EPA 8151
Non-Potable Water	2,4-DB	EPA 8151
Non-Potable Water	Bentazon	EPA 8151
Non-Potable Water	Dalapon	EPA 8151
Non-Potable Water	Dicamba	EPA 8151
Non-Potable Water	Dichloroprop (Dichloroprop)	EPA 8151
Non-Potable Water	Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151
Non-Potable Water	MCPA	EPA 8151
Non-Potable Water	MCPP	EPA 8151
Non-Potable Water	Pentachlorophenol	EPA 8151
Non-Potable Water	Picloram	EPA 8151
Non-Potable Water	Silvex (2,4,5-TP)	EPA 8151
Non-Potable Water	Diallate	EPA 8270
Non-Potable Water	Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8270
Non-Potable Water	Isodrin	EPA 8270
Non-Potable Water	Thionazin (Zinophos)	EPA 8270
Non-Potable Water	o,o,o-Triethyl phosphorothioate	EPA 8270
Non-Potable Water	4,4 -DDD	SM 6630 C
Non-Potable Water	4,4 -DDE	SM 6630 C
Non-Potable Water	4,4 -DDT	SM 6630 C
Non-Potable Water	Aldrin	SM 6630 C
Non-Potable Water	Dieldrin	SM 6630 C
Non-Potable Water	Endosulfan I	SM 6630 C
Non-Potable Water	Endosulfan II	SM 6630 C
Non-Potable Water	Endosulfan sulfate	SM 6630 C
Non-Potable Water	Endrin	SM 6630 C
Non-Potable Water	Endrin aldehyde	SM 6630 C

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Non-Potable Water	Heptachlor	SM 6630 C
Non-Potable Water	Heptachlor epoxide	SM 6630 C
Non-Potable Water	Methoxychlor	SM 6630 C
Non-Potable Water	alpha-BHC (alpha-Hexachlorocyclohexane)	SM 6630 C
Non-Potable Water	beta-BHC (beta-Hexachlorocyclohexane)	SM 6630 C
Non-Potable Water	delta-BHC	SM 6630 C
Non-Potable Water	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	SM 6630 C
Non-Potable Water	1,2,3-Trichloropropane	EPA 504.1
Non-Potable Water	1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1
Non-Potable Water	1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 504.1
Non-Potable Water	1,4-Dioxane (1,4-Diethyleneoxide)	EPA 522
Non-Potable Water	1,1,1-Trichloroethane	EPA 624
Non-Potable Water	1,1,2,2-Tetrachloroethane	EPA 624
Non-Potable Water	1,1,2-Trichloroethane	EPA 624
Non-Potable Water	1,1-Dichloroethane	EPA 624
Non-Potable Water	1,1-Dichloroethylene	EPA 624
Non-Potable Water	1,2-Dichlorobenzene	EPA 624
Non-Potable Water	1,2-Dichloroethane	EPA 624
Non-Potable Water	1,2-Dichloropropane	EPA 624
Non-Potable Water	1,3-Dichlorobenzene	EPA 624
Non-Potable Water	1,4-Dichlorobenzene	EPA 624
Non-Potable Water	2-Chloroethyl vinyl ether	EPA 624
Non-Potable Water	Acrolein (Propenal)	EPA 624
Non-Potable Water	Acrylonitrile	EPA 624
Non-Potable Water	Benzene	EPA 624
Non-Potable Water	Bromodichloromethane	EPA 624
Non-Potable Water	Bromoform	EPA 624
Non-Potable Water	Carbon tetrachloride	EPA 624

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Non-Potable Water	Chlorobenzene	EPA 624
Non-Potable Water	Chloroethane	EPA 624
Non-Potable Water	Chloroform	EPA 624
Non-Potable Water	Dibromochloromethane	EPA 624
Non-Potable Water	Dichlorofluoromethane	EPA 624
Non-Potable Water	Ethylbenzene	EPA 624
Non-Potable Water	Methyl bromide (Bromomethane)	EPA 624
Non-Potable Water	Methyl chloride (Chloromethane)	EPA 624
Non-Potable Water	Methyl tert-butyl ether (MTBE)	EPA 624
Non-Potable Water	Methylene chloride	EPA 624
Non-Potable Water	Tetrachloroethylene (Perchloroethylene)	EPA 624
Non-Potable Water	Toluene	EPA 624
Non-Potable Water	Trichloroethene (Trichloroethylene)	EPA 624
Non-Potable Water	Trichlorofluoromethane	EPA 624
Non-Potable Water	Vinyl chloride	EPA 624
Non-Potable Water	Xylene (total)	EPA 624
Non-Potable Water	cis-1,3-Dichloropropene	EPA 624
Non-Potable Water	m+p-Xylenes	EPA 624
Non-Potable Water	o-Xylene	EPA 624
Non-Potable Water	trans-1,2-Dichloroethylene	EPA 624
Non-Potable Water	trans-1,3-Dichloropropene	EPA 624
Non-Potable Water	1,2,3-Trichloropropane	EPA 8011
Non-Potable Water	1,2-Dibromo-3-chloropropane (DBCP)	EPA 8011
Non-Potable Water	1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8011
Non-Potable Water	1,1,1,2-Tetrachloroethane	EPA 8260
Non-Potable Water	1,1,1-Trichloroethane	EPA 8260
Non-Potable Water	1,1,2,2-Tetrachloroethane	EPA 8260
Non-Potable Water	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260

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Non-Potable Water	1,1,2-Trichloroethane	EPA 8260
Non-Potable Water	1,1-Dichloroethane	EPA 8260
Non-Potable Water	1,1-Dichloroethylene	EPA 8260
Non-Potable Water	1,1-Dichloropropene	EPA 8260
Non-Potable Water	1,2,3-Trichlorobenzene	EPA 8260
Non-Potable Water	1,2,3-Trichloropropane	EPA 8260
Non-Potable Water	1,2,3-Trimethylbenzene	EPA 8260
Non-Potable Water	1,2,4-Trichlorobenzene	EPA 8260
Non-Potable Water	1,2,4-Trimethylbenzene	EPA 8260
Non-Potable Water	1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260
Non-Potable Water	1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260
Non-Potable Water	1,2-Dichlorobenzene	EPA 8260
Non-Potable Water	1,2-Dichloroethane	EPA 8260
Non-Potable Water	1,2-Dichloropropane	EPA 8260
Non-Potable Water	1,3,5-Trimethylbenzene	EPA 8260
Non-Potable Water	1,3-Dichlorobenzene	EPA 8260
Non-Potable Water	1,3-Dichloropropane	EPA 8260
Non-Potable Water	1,4-Dichlorobenzene	EPA 8260
Non-Potable Water	1,4-Dioxane (1,4-Diethyleneoxide)	EPA 8260
Non-Potable Water	2,2-Dichloropropane	EPA 8260
Non-Potable Water	2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260
Non-Potable Water	2-Chloroethyl vinyl ether	EPA 8260
Non-Potable Water	2-Chlorotoluene	EPA 8260
Non-Potable Water	2-Hexanone	EPA 8260
Non-Potable Water	4-Chlorotoluene	EPA 8260
Non-Potable Water	4-Methyl-2-pentanone (MIBK)	EPA 8260
Non-Potable Water	Acetone	EPA 8260
Non-Potable Water	Acetonitrile	EPA 8260

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Non-Potable Water	Acrolein (Propenal)	EPA 8260
Non-Potable Water	Acrylonitrile	EPA 8260
Non-Potable Water	Allyl chloride (3-Chloropropene)	EPA 8260
Non-Potable Water	Benzene	EPA 8260
Non-Potable Water	Bromobenzene	EPA 8260
Non-Potable Water	Bromochloromethane	EPA 8260
Non-Potable Water	Bromodichloromethane	EPA 8260
Non-Potable Water	Bromoform	EPA 8260
Non-Potable Water	Carbon disulfide	EPA 8260
Non-Potable Water	Carbon tetrachloride	EPA 8260
Non-Potable Water	Chlorobenzene	EPA 8260
Non-Potable Water	Chloroethane	EPA 8260
Non-Potable Water	Chloroform	EPA 8260
Non-Potable Water	Chloroprene	EPA 8260
Non-Potable Water	Cyclohexane	EPA 8260
Non-Potable Water	Di-isopropylether (DIPE)	EPA 8260
Non-Potable Water	Dibromochloromethane	EPA 8260
Non-Potable Water	Dibromomethane	EPA 8260
Non-Potable Water	Dichlorodifluoromethane	EPA 8260
Non-Potable Water	Diethyl ether	EPA 8260
Non-Potable Water	Ethanol	EPA 8260
Non-Potable Water	Ethyl acetate	EPA 8260
Non-Potable Water	Ethyl methacrylate	EPA 8260
Non-Potable Water	Ethyl-t-butylether (ETBE)	EPA 8260
Non-Potable Water	Ethylbenzene	EPA 8260
Non-Potable Water	Hexachlorobutadiene	EPA 8260
Non-Potable Water	Iodomethane (Methyl iodide)	EPA 8260
Non-Potable Water	Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260

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Non-Potable Water	Isopropylbenzene	EPA 8260
Non-Potable Water	Methacrylonitrile	EPA 8260
Non-Potable Water	Methyl acetate	EPA 8260
Non-Potable Water	Methyl bromide (Bromomethane)	EPA 8260
Non-Potable Water	Methyl chloride (Chloromethane)	EPA 8260
Non-Potable Water	Methyl methacrylate	EPA 8260
Non-Potable Water	Methyl tert-butyl ether (MTBE)	EPA 8260
Non-Potable Water	Methylcyclohexane	EPA 8260
Non-Potable Water	Methylene chloride	EPA 8260
Non-Potable Water	Naphthalene	EPA 8260
Non-Potable Water	Pentachloroethane	EPA 8260
Non-Potable Water	Propionitrile (Ethyl cyanide)	EPA 8260
Non-Potable Water	Styrene	EPA 8260
Non-Potable Water	T-amylmethylether (TAME)	EPA 8260
Non-Potable Water	Tetrachloroethylene (Perchloroethylene)	EPA 8260
Non-Potable Water	Toluene	EPA 8260
Non-Potable Water	Trichloroethene (Trichloroethylene)	EPA 8260
Non-Potable Water	Trichlorofluoromethane	EPA 8260
Non-Potable Water	Vinyl acetate	EPA 8260
Non-Potable Water	Vinyl chloride	EPA 8260
Non-Potable Water	Xylene (total)	EPA 8260
Non-Potable Water	cis-1,2-Dichloroethylene	EPA 8260
Non-Potable Water	cis-1,3-Dichloropropene	EPA 8260
Non-Potable Water	cis-1,4-Dichloro-2-butene	EPA 8260
Non-Potable Water	m/p-Xylenes	EPA 8260
Non-Potable Water	n-Butylbenzene	EPA 8260
Non-Potable Water	n-Propylbenzene	EPA 8260
Non-Potable Water	o-Xylene	EPA 8260

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Non-Potable Water	p-Isopropyltoluene	EPA 8260
Non-Potable Water	sec-Butylbenzene	EPA 8260
Non-Potable Water	tert-Butyl alcohol	EPA 8260
Non-Potable Water	tert-Butylbenzene	EPA 8260
Non-Potable Water	trans-1,2-Dichloroethylene	EPA 8260
Non-Potable Water	trans-1,3-Dichloropropene	EPA 8260
Non-Potable Water	trans-1,4-Dichloro-2-butene	EPA 8260
Non-Potable Water	3,3-Dimethyl-1-butanol	PACE SOP S-FL-O-037/GC-MS
Non-Potable Water	Tetrahydrofuran (THF)	PACE SOP S-FL-O-037/GC-MS
Non-Potable Water	n-Hexane	PACE SOP S-FL-O-037/GC-MS
Non-Potable Water	tert-Amyl alcohol (2-methyl-2-butanol)	PACE SOP S-FL-O-037/GC-MS
Non-Potable Water	tert-Butyl formate	PACE SOP S-FL-O-037/GC-MS
Solids	1,2,4-Trichlorobenzene	EPA 8270
Solids	1,2-Dichlorobenzene	EPA 8270
Solids	1,2-Diphenylhydrazine	EPA 8270
Solids	1,3-Dichlorobenzene	EPA 8270
Solids	1,4-Dichlorobenzene	EPA 8270
Solids	1-Methylnaphthalene	EPA 8270
Solids	2,3,4,6-Tetrachlorophenol	EPA 8270
Solids	2,4,5-Trichlorophenol	EPA 8270
Solids	2,4,6-Trichlorophenol	EPA 8270
Solids	2,4-Dichlorophenol	EPA 8270
Solids	2,4-Dimethylphenol	EPA 8270
Solids	2,4-Dinitrophenol	EPA 8270
Solids	2,4-Dinitrotoluene (2,4-DNT)	EPA 8270
Solids	2,6-Dinitrotoluene (2,6-DNT)	EPA 8270
Solids	2-Chloronaphthalene	EPA 8270
Solids	2-Chlorophenol	EPA 8270
Solids	2-Methyl-4,6-dinitrophenol	EPA 8270
Solids	2-Methylnaphthalene	EPA 8270
Solids	2-Methylphenol (o-Cresol)	EPA 8270
Solids	2-Naphthylamine	EPA 8270
Solids	2-Nitroaniline	EPA 8270
Solids	2-Nitrophenol	EPA 8270

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Solids	3,3 -Dichlorobenzidine	EPA 8270
Solids	3-Nitroaniline	EPA 8270
Solids	3/4-Methylphenols (m/p-Cresols)	EPA 8270
Solids	4-Bromophenyl phenyl ether	EPA 8270
Solids	4-Chloro-3-methylphenol	EPA 8270
Solids	4-Chloroaniline	EPA 8270
Solids	4-Chlorophenyl phenylether	EPA 8270
Solids	4-Nitroaniline	EPA 8270
Solids	4-Nitrophenol	EPA 8270
Solids	Acenaphthene	EPA 8270
Solids	Acenaphthylene	EPA 8270
Solids	Acetophenone	EPA 8270
Solids	Aniline	EPA 8270
Solids	Anthracene	EPA 8270
Solids	Benzaldehyde	EPA 8270
Solids	Benzidine	EPA 8270
Solids	Benzo(a)anthracene	EPA 8270
Solids	Benzo(a)pyrene	EPA 8270
Solids	Benzo(b)fluoranthene	EPA 8270
Solids	Benzo(g,h,i)perylene	EPA 8270
Solids	Benzo(k)fluoranthene	EPA 8270
Solids	Benzoic acid	EPA 8270
Solids	Benzyl alcohol	EPA 8270
Solids	Biphenyl	EPA 8270
Solids	Butyl benzyl phthalate	EPA 8270
Solids	Carbazole	EPA 8270
Solids	Chrysene	EPA 8270
Solids	Di-n-butyl phthalate	EPA 8270
Solids	Di-n-octyl phthalate	EPA 8270
Solids	Dibenz(a,h)anthracene	EPA 8270
Solids	Dibenzofuran	EPA 8270
Solids	Diethyl phthalate	EPA 8270
Solids	Dimethyl phthalate	EPA 8270
Solids	Fluoranthene	EPA 8270
Solids	Fluorene	EPA 8270
Solids	Hexachlorobenzene	EPA 8270
Solids	Hexachlorobutadiene	EPA 8270
Solids	Hexachlorocyclopentadiene	EPA 8270
Solids	Hexachloroethane	EPA 8270

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Solids	Indeno(1,2,3-cd)pyrene	EPA 8270
Solids	Isophorone	EPA 8270
Solids	Naphthalene	EPA 8270
Solids	Nitrobenzene	EPA 8270
Solids	Pentachlorophenol	EPA 8270
Solids	Phenanthrene	EPA 8270
Solids	Phenol	EPA 8270
Solids	Pyrene	EPA 8270
Solids	Pyridine	EPA 8270
Solids	bis(2-Chloroethoxy)methane	EPA 8270
Solids	bis(2-Chloroethyl) ether	EPA 8270
Solids	bis(2-Chloroisopropyl) ether (2,2 -Oxybis(1-chloropropane))	EPA 8270
Solids	bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270
Solids	n-Nitrosodi-n-propylamine	EPA 8270
Solids	n-Nitrosodimethylamine	EPA 8270
Solids	n-Nitrosodiphenylamine	EPA 8270
Solids	Total Petroleum Hydrocarbons (TPH)	FL-PRO
Solids	Ignitability	EPA 1010
Solids	Ignitability	EPA 1030
Solids	Toxicity Characteristic Leaching Procedure	EPA 1311
Solids	Synthetic Precipitation Leaching Procedure	EPA 1312
Solids	Ammonia as N	EPA 350.1
Solids	Kjeldahl nitrogen - total	EPA 351.2
Solids	Nitrate as N	EPA 353.2
Solids	Nitrite as N	EPA 353.2
Solids	Total nitrate-nitrite	EPA 353.2
Solids	Phosphorus, total	EPA 365.4
Solids	Total cyanide	EPA 9012
Solids	Sulfide	EPA 9030/9034
Solids	pH	EPA 9045
Solids	Bromide	EPA 9056
Solids	Chloride	EPA 9056
Solids	Fluoride	EPA 9056
Solids	Nitrate	EPA 9056
Solids	Nitrite	EPA 9056
Solids	Orthophosphate as P	EPA 9056
Solids	Sulfate	EPA 9056
Solids	Total nitrate-nitrite	EPA 9056

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Solids	Total phenolics	EPA 9066
Solids	Paint Filter Liquids Test	EPA 9095
Solids	Residue-total	SM 2540 G
Solids	Residue-volatile	SM 2540 G
Solids	Total nitrogen	TKN + Total nitrate-nitrite
Solids	Organic nitrogen	TKN minus AMMONIA
Solids	Aluminum	EPA 6010
Solids	Antimony	EPA 6010
Solids	Arsenic	EPA 6010
Solids	Barium	EPA 6010
Solids	Beryllium	EPA 6010
Solids	Boron	EPA 6010
Solids	Cadmium	EPA 6010
Solids	Calcium	EPA 6010
Solids	Chromium	EPA 6010
Solids	Cobalt	EPA 6010
Solids	Copper	EPA 6010
Solids	Iron	EPA 6010
Solids	Lead	EPA 6010
Solids	Magnesium	EPA 6010
Solids	Manganese	EPA 6010
Solids	Molybdenum	EPA 6010
Solids	Nickel	EPA 6010
Solids	Potassium	EPA 6010
Solids	Selenium	EPA 6010
Solids	Silver	EPA 6010
Solids	Sodium	EPA 6010
Solids	Strontium	EPA 6010
Solids	Thallium	EPA 6010
Solids	Tin	EPA 6010
Solids	Titanium	EPA 6010
Solids	Vanadium	EPA 6010
Solids	Zinc	EPA 6010
Solids	Arsenic	EPA 6020
Solids	Barium	EPA 6020
Solids	Beryllium	EPA 6020
Solids	Cadmium	EPA 6020
Solids	Chromium	EPA 6020
Solids	Cobalt	EPA 6020

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Solids	Copper	EPA 6020
Solids	Lead	EPA 6020
Solids	Manganese	EPA 6020
Solids	Nickel	EPA 6020
Solids	Selenium	EPA 6020
Solids	Thallium	EPA 6020
Solids	Vanadium	EPA 6020
Solids	Zinc	EPA 6020
Solids	Mercury	EPA 7471
Solids	Fecal coliforms	SM 9221 E
Solids	4,4 -DDD	EPA 8081
Solids	4,4 -DDE	EPA 8081
Solids	4,4 -DDT	EPA 8081
Solids	Aldrin	EPA 8081
Solids	Chlordane (tech.)	EPA 8081
Solids	Dieldrin	EPA 8081
Solids	Endosulfan I	EPA 8081
Solids	Endosulfan II	EPA 8081
Solids	Endosulfan sulfate	EPA 8081
Solids	Endrin	EPA 8081
Solids	Endrin aldehyde	EPA 8081
Solids	Endrin ketone	EPA 8081
Solids	Heptachlor	EPA 8081
Solids	Heptachlor epoxide	EPA 8081
Solids	Methoxychlor	EPA 8081
Solids	Mirex	EPA 8081
Solids	Toxaphene (Chlorinated camphene)	EPA 8081
Solids	alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081
Solids	alpha-Chlordane	EPA 8081
Solids	beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081
Solids	delta-BHC	EPA 8081
Solids	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081
Solids	gamma-Chlordane	EPA 8081
Solids	Aroclor-1016 (PCB-1016)	EPA 8082
Solids	Aroclor-1221 (PCB-1221)	EPA 8082
Solids	Aroclor-1232 (PCB-1232)	EPA 8082
Solids	Aroclor-1242 (PCB-1242)	EPA 8082
Solids	Aroclor-1248 (PCB-1248)	EPA 8082
Solids	Aroclor-1254 (PCB-1254)	EPA 8082

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Solids	Aroclor-1260 (PCB-1260)	EPA 8082
Solids	Atrazine	EPA 8141
Solids	Azinphos-methyl (Guthion)	EPA 8141
Solids	Carbophenothion	EPA 8141
Solids	Chlorpyrifos	EPA 8141
Solids	Coumaphos	EPA 8141
Solids	Demeton-o	EPA 8141
Solids	Demeton-s	EPA 8141
Solids	Diazinon	EPA 8141
Solids	Dichlorovos (DDVP, Dichlorvos)	EPA 8141
Solids	Dimethoate	EPA 8141
Solids	Disulfoton	EPA 8141
Solids	Ethion	EPA 8141
Solids	Famphur	EPA 8141
Solids	Malathion	EPA 8141
Solids	Methyl parathion (Parathion, methyl)	EPA 8141
Solids	Mevinphos	EPA 8141
Solids	Monocrotophos	EPA 8141
Solids	Parathion, ethyl	EPA 8141
Solids	Phorate	EPA 8141
Solids	Phosmet (Imidan)	EPA 8141
Solids	Stirofos	EPA 8141
Solids	Tokuthion (Prothiophos)	EPA 8141
Solids	2,4,5-T	EPA 8151
Solids	2,4-D	EPA 8151
Solids	2,4-DB	EPA 8151
Solids	Bentazon	EPA 8151
Solids	Dalapon	EPA 8151
Solids	Dicamba	EPA 8151
Solids	Dichloroprop (Dichlorprop)	EPA 8151
Solids	Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151
Solids	MCPA	EPA 8151
Solids	MCPP	EPA 8151
Solids	Pentachlorophenol	EPA 8151
Solids	Picloram	EPA 8151
Solids	Silvex (2,4,5-TP)	EPA 8151
Solids	1,1,1,2-Tetrachloroethane	EPA 8260
Solids	1,1,1-Trichloroethane	EPA 8260
Solids	1,1,2,2-Tetrachloroethane	EPA 8260

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Solids	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260
Solids	1,1,2-Trichloroethane	EPA 8260
Solids	1,1-Dichloroethane	EPA 8260
Solids	1,1-Dichloroethylene	EPA 8260
Solids	1,1-Dichloropropene	EPA 8260
Solids	1,2,3-Trichlorobenzene	EPA 8260
Solids	1,2,3-Trimethylbenzene	EPA 8260
Solids	1,2,3-Trichloropropane	EPA 8260
Solids	1,2,4-Trichlorobenzene	EPA 8260
Solids	1,2,4-Trimethylbenzene	EPA 8260
Solids	1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260
Solids	1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260
Solids	1,2-Dichlorobenzene	EPA 8260
Solids	1,2-Dichloroethane	EPA 8260
Solids	1,2-Dichloropropane	EPA 8260
Solids	1,3,5-Trimethylbenzene	EPA 8260
Solids	1,3-Dichlorobenzene	EPA 8260
Solids	1,3-Dichloropropane	EPA 8260
Solids	1,4-Dichlorobenzene	EPA 8260
Solids	2,2-Dichloropropane	EPA 8260
Solids	2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260
Solids	2-Chloroethyl vinyl ether	EPA 8260
Solids	2-Chlorotoluene	EPA 8260
Solids	2-Hexanone	EPA 8260
Solids	4-Chlorotoluene	EPA 8260
Solids	4-Methyl-2-pentanone (MIBK)	EPA 8260
Solids	Acetone	EPA 8260
Solids	Acetonitrile	EPA 8260
Solids	Acrolein (Propenal)	EPA 8260
Solids	Acrylonitrile	EPA 8260
Solids	Allyl chloride (3-Chloropropene)	EPA 8260
Solids	Benzene	EPA 8260
Solids	Bromobenzene	EPA 8260
Solids	Bromochloromethane	EPA 8260
Solids	Bromodichloromethane	EPA 8260
Solids	Bromoform	EPA 8260
Solids	Carbon disulfide	EPA 8260
Solids	Carbon tetrachloride	EPA 8260
Solids	Chlorobenzene	EPA 8260

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Solids	Chloroethane	EPA 8260
Solids	Chloroform	EPA 8260
Solids	Chloroprene	EPA 8260
Solids	Cyclohexane	EPA 8260
Solids	Di-isopropylether (DIPE)	EPA 8260
Solids	Dibromochloromethane	EPA 8260
Solids	Dibromomethane	EPA 8260
Solids	Dichlorodifluoromethane	EPA 8260
Solids	Diethyl ether	EPA 8260
Solids	Ethanol	EPA 8260
Solids	Ethyl acetate	EPA 8260
Solids	Ethyl methacrylate	EPA 8260
Solids	Ethyl-t-butylether (ETBE)	EPA 8260
Solids	Ethylbenzene	EPA 8260
Solids	Hexachlorobutadiene	EPA 8260
Solids	Iodomethane (Methyl iodide)	EPA 8260
Solids	Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260
Solids	Isopropylbenzene	EPA 8260
Solids	Methacrylonitrile	EPA 8260
Solids	Methyl acetate	EPA 8260
Solids	Methyl bromide (Bromomethane)	EPA 8260
Solids	Methyl chloride (Chloromethane)	EPA 8260
Solids	Methyl methacrylate	EPA 8260
Solids	Methyl tert-butyl ether (MTBE)	EPA 8260
Solids	Methylcyclohexane	EPA 8260
Solids	Methylene chloride	EPA 8260
Solids	Naphthalene	EPA 8260
Solids	Pentachloroethane	EPA 8260
Solids	Propionitrile (Ethyl cyanide)	EPA 8260
Solids	Styrene	EPA 8260
Solids	T-amylmethylether (TAME)	EPA 8260
Solids	Tetrachloroethylene (Perchloroethylene)	EPA 8260
Solids	Tetrahydrofuran (THF)	EPA 8260
Solids	Toluene	EPA 8260
Solids	Trichloroethene (Trichloroethylene)	EPA 8260
Solids	Trichlorofluoromethane	EPA 8260
Solids	Vinyl acetate	EPA 8260
Solids	Vinyl chloride	EPA 8260
Solids	Xylene (total)	EPA 8260

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Solids	cis-1,2-Dichloroethylene	EPA 8260
Solids	cis-1,3-Dichloropropene	EPA 8260
Solids	cis-1,4-Dichloro-2-butene	EPA 8260
Solids	m/p-Xylenes	EPA 8260
Solids	n-Butylbenzene	EPA 8260
Solids	n-Propylbenzene	EPA 8260
Solids	o-Xylene	EPA 8260
Solids	p-Dioxane	EPA 8260
Solids	p-Isopropyltoluene	EPA 8260
Solids	sec-Butylbenzene	EPA 8260
Solids	tert-Butyl alcohol	EPA 8260
Solids	tert-Butylbenzene	EPA 8260
Solids	trans-1,2-Dichloroethylene	EPA 8260
Solids	trans-1,3-Dichloropropene	EPA 8260
Solids	trans-1,4-Dichloro-2-butene	EPA 8260
Solids	3,3-Dimethyl-1-butanol	PACE SOP S-FL-O-037/GC-MS
Solids	Tetrahydrofuran (THF)	PACE SOP S-FL-O-037/GC-MS
Solids	n-Hexane	PACE SOP S-FL-O-037/GC-MS
Solids	tert-Amyl alcohol (2-methyl-2-butanol)	PACE SOP S-FL-O-037/GC-MS
Solids	tert-Butyl formate	PACE SOP S-FL-O-037/GC-MS

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South Florida Laboratory

Matrix	Analyte	Method
Drinking Water	Heterotrophic plate count	SIMPLATE
Drinking Water	Total coliforms	SM 9222 B
Drinking Water	Escherichia coli	SM 9223 B
Drinking Water	Total coliforms	SM 9223 B
Drinking Water	Conductivity	SM 2510 B
Drinking Water	pH	SM 4500-H+-B
Drinking Water	Turbidity	EPA 180.1
Drinking Water	Color	SM 2120 B
Drinking Water	Odor	SM 2150 B
Drinking Water	Total dissolved solids	SM 2540 C
Drinking Water	Surfactants - MBAS	SM 5540 C
Non-Potable Water	Conductivity	EPA 120.1
Non-Potable Water	Turbidity	EPA 180.1
Non-Potable Water	Chromium VI	EPA 7196
Non-Potable Water	pH	EPA 9040
Non-Potable Water	Color	SM 2120 B
Non-Potable Water	Turbidity	SM 2130 B
Non-Potable Water	Salinity	SM 2520 B
Non-Potable Water	Residue-total	SM 2540 B
Non-Potable Water	Residue-filterable (TDS)	SM 2540 C
Non-Potable Water	Residue-nonfilterable (TSS)	SM 2540 D
Non-Potable Water	Residue-settleable	SM 2540 F
Non-Potable Water	pH	SM 4500-H+-B
Non-Potable Water	Biochemical oxygen demand	SM 5210 B
Non-Potable Water	Carbonaceous BOD (CBOD)	SM 5210 B
Non-Potable Water	Surfactants - MBAS	SM 5540 C
Non-Potable Water	Heterotrophic plate count	SIMPLATE
Non-Potable Water	Total coliforms	SM 9221 B
Non-Potable Water	Fecal coliforms	SM 9221 E
Non-Potable Water	Total coliforms	SM 9222 B
Non-Potable Water	Fecal coliforms	SM 9222 D
Non-Potable Water	Fecal streptococci	SM 9230 B
Non-Potable Water	Enterococci	EPA 1600
Non-Potable Water	Enterococci	Enterolert/Quanti-Tray
Non-Potable Water	Total coliforms	Colilert/Quanti-Tray
Non-Potable Water	Escherichia coli	Colilert/Quanti-Tray

Section D: Contractor Qualifications

1. DOH Certification and In-house Analysis

Pace has provided a complete copy of our current DOH/NELAP certification document and all the analytes sheets included in the certification. They can be found in this document under **(section E. 14)**. Pace has the ability to perform over 90% of the entire specified test in this contract. We will be subcontracting the Giardia/Cryptosporidium and Asbestos samples during the life of this contract, which equal approximately 15 samples. Additional, Pace will perform 100% of all the Bacteria Analysis requested in this contract and we are located within 30 miles of all the county's facilities; therefore, we should have no problem with performing the short hold parameters within the required time frames.

2. Licenses and ability to perform specified test

Pace has provided a complete copy of our current DOH/NELAP certification document and all the analytes sheets included in the certification. They can be found in this document under **(Section E. 14)**. All of the analyte sheets will show the specific test that we are certified for and that we can completely cover the specific test required in this contract. The only item we can perform in house are identified in **(Section D. 1)**.

Our Florida Laboratory currently has over 107 employees serving clients from its two convenient locations including its main laboratory located in Ormond Beach and through its Tampa Service Center and Lab. In order to ensure on-time performance and uncompromised data quality, our staff is scheduled in shifts to accommodate the labs needs based on higher volume or shorter turn-around times. Our project management and group leaders meet daily to coordinate projects based upon their volume and turn-around time and to optimize the use of the instruments and lab personnel. A skeleton staff is also scheduled to be available on weekends and during holidays. Our last three months of 2014 On- Time Deliverables percentage is shown below:

<u>Month</u>	<u>Number of Reports</u>	<u># of Sample test</u>	<u>% on Time</u>
May	3651	35,003	96.0%
June	4057	34,885	95.0%
July	4257	34,912	95.0%

3. Emergency Response Sampling within 1 Hour

Pace Analytical Services, Inc. is located within 30 miles of any location define for pickups by the County under **(Section 1.1.J.)** of the bid document; therefore, we have the ability to provide Volusia County a 1 hour response time to be on site at any of the identified locations.

Pace offers to set Volusia County up with access to its Rapid Response program. Rapid Response is designed to provide 24/7/365 emergency access to:

- ◆ Field Sampling
- ◆ Expedited shipment or courier of sample supplies to an emergency response scene
- ◆ On-site technical support and sample logistics
- ◆ Analytical services provided as fast as physically possible

Pace provides clients with a staffed toll-free telephone number and email system that operates 24/7/365. This hotline system provides response to clients generally within 60 minutes of notification by a qualified Pace manager who is capable of engaging whatever resources are required to meet the field sampling and laboratory service requirements of the clients' emergency response. Pace provides Rapid Response service on a time and materials basis as negotiated with each client.

RAPID RESPONSE



Pace Analytical®
PACE RAPID RESPONSE TEAM

WHEN ENVIRONMENTAL DISASTER STRIKES...
The PACE RAPID RESPONSE TEAM (PRRT) is there to help.



When disaster strikes – be it a major fire, a train derailment, an oil spill or a pipeline rupture – and materials of environmental concern are released to the environment, Pace Analytical's Rapid Response Team is available to discuss urgent environmental options and implement a testing solution. PRRT responders are available 24-7 to ensure that sample containers are available, samples are collected appropriately, critical samples are expedited to the nearest laboratory, and rapid results are provided to decision makers on the scene. This level of lab support is crucial in making decisions that impact the safety of emergency personnel on site and the potential exposure of local residents to hazardous chemicals.

The PRRT can provide the following services and a flexible response to unique site challenges:

- A national network of laboratories and responders
- Expedited shipment or courier of sample supplies to the scene
- On-site technical support and sample logistics
- Rapid laboratory results to support tactical decisions
- Automated, on-line, easy to use data management tools
- Quality data at all times to ensure defensibility should legal challenges arise

The PRRT has extensive experience in a wide range of environmental disaster assistance including:

- Derailments
- Fires
- Pipeline breaks
- Industrial chemical spills or leaks
- Floods and other natural disasters (*Pace Analytical can provide references for these types of work upon request.)



PACE RAPID RESPONSE TEAM:
PH: (877) 859-7778
Email: rapidresponse@pacelabs.com





Pace Analytical Services, Inc.
Corporate Office
1701 Elm Street
Minneapolis, MN 55414
(612) 607-1700
www.pacelabs.com

4. PEs and (90% Satisfactory Rating)

Full Copy of Performance Evaluation Studies is attached in **(Section E.15)**



PT Study Breakdown First Quarter 2013

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
Ormond	WS-198	31	27	87.10%
Ormond	WS-198	49	46	93.88%
Ormond	WS-198	5	5	100.00%
Ormond	WS-198	87	77	88.51%
Ormond	WS-198	58	54	93.10%
South Florida	WS-198	9	9	100.00%
Ormond	WP-216	38	38	100.00%
Ormond	WP-216	58	58	100.00%
Ormond	WP-216	2	2	100.00%
Ormond	WP-216	167	161	96.41%
Ormond	WP-216	53	52	98.11%
South Florida	WP-216	20	19	95.00%
Ormond	Soil-81	13	12	92.31%
Ormond	Soil-81	53	53	100.00%
Ormond	Soil-81	147	146	99.32%
Ormond	Soil-81	53	53	100.00%
		843	812	96.3%

PT Study Breakdown Second Quarter 2013

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
Ormond	052013H2	2	2	100.00%
Ormond	051413I	2	2	100.00%
Ormond	WS-202	1	1	100.00%
Ormond	WS-201	6	6	100.00%
		11	11	100.0%

PT Study Breakdown Third Quarter 2013

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
Ormond	QR070113C	1	1	100%
Ormond	WS-204	30	27	90.0%
Ormond	WS-204	48	48	100%
Ormond	WS-204	4	4	100%
Ormond	WS-204	83	75	90.4%
Ormond	WS-204	58	48	82.8%
South Florida	WS-204	11	9	81.8%
Ormond	WP-222	38	34	89.5%
Ormond	WP-222	60	55	91.7%
Ormond	WP-222	2	2	100%
Ormond	WP-222	186	180	96.8%
Ormond	WP-222	57	57	100%
South Florida	WP-222	19	19	100%
Ormond	Soil-83	13	13	100%
Ormond	Soil-83	53	52	98.1%
Ormond	Soil-83	148	143	96.6%
Ormond	Soil-83	53	53	100%
Ormond	QR082813C	1	1	100%
Ormond	QR082813C	1	1	100%
		866	822	95%

PT Study Breakdown Fourth Quarter 2013

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
Ormond	WP-224	2	2	100%
Ormond	WP-226	36	36	100.0%
Ormond	WP-224	3	3	100%

Ormond	092313L2	2	2	100%
Ormond	110613O1	1	1	100.0%
Ormond	WP-224	4	4	100.0%
Ormond	WS-206	1	1	100.0%
Ormond	WS-206	9	9	100.0%
Ormond	WS-206	3	3	100.0%
Ormond	100313E	1	1	100%
Ormond	WS-207	2	1	50.0%
Ormond	111213E	4	3	75%
Ormond	111213E	9	6	67%
Ormond	112613C	1	1	100%
South Florida	WS-207	2	0	0.0%

80

73

91%

Pace - FL PT Summary Q1 2014

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
Ormond	Soil-85	267	266	99.63%
Ormond	WP-228	341	337	98.83%
South Florida	WP-228	17	16	94.12%
South Florida	WP-228	1	1	100.00%
Ormond	WS-210	223	207	92.83%
South Florida	WS-210	29	29	100.00%
Ormond	WS-211	16	15	93.75%
Ormond	QR011614E	1	1	100.00%
Ormond	QR022414I	10	9	90.00%
Ormond	QR030314D	16	16	100.00%
Ormond	QR012014A	5	5	100.00%

926

902

97.4%

Pace - FL PT Summary Q2 2014

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
Ormond	WP-230	2	2	100.00%
South Florida	WP-230	1	1	100.00%
South Florida	WP-231	3	3	100.00%
South Florida	WP-232	1	1	100.00%
Ormond	WS-212	2	2	100.00%
Ormond	QR040114N	1	1	100.00%
Ormond	QR051614C2	1	1	100.00%
Ormond	QR052714J2	1	1	100.00%
Ormond	QR051614C1	1	1	100.00%
Ormond	QR052714J1	1	1	100.00%
Ormond	QR040814E	11	11	100.00%
		25	25	100.0%

Pace - FL PT Summary Q3 2014

Location	Study	# of Analytes Reported	# Passing Analytes	% Accuracy
South Florida	QR060314G1	1	1	100.00%
South Florida	QR060314G2	2	2	100.00%
Ormond	WS-216	251	248	98.80%
South Florida	WS-216	27	27	100.00%
South Florida	WP-234	21	19	90.48%
Ormond	WP-234	367	364	99.18%
Ormond	Soil-87	179	178	99.44%
Ormond	QR070114E	21	20	95.24%
		866	856	98.8%



5. Bacteria Hold Times

Pace will perform 100% of all the Bacteria Analysis requested in this contract and we are located within 30 miles of all the county's facilities; therefore, we should have no problem with performing the short hold parameters within the required time frames.

6. Technical Expertise and Representation at hourly rate

Pace will Provide Technical Expertise and or Representation to the County for any legal and or technical issues for the landfills and utilities related to our services and data provided under this contract. This service will be billed at \$100.00/ Hours and will be facilitated by our General Manager and or QA Officer.

7. Five years of Experience and Pace Project Manager

Pace has been the incumbent contractor with Volusia County, Brevard County and Lake County for over 10 to 15 years each, which has given us a clear understanding of the specific analytical testing needs for large municipalities. Pace is deeply committed to meeting the goals and objectives of this contract for years to come. Jeff Baylor is our Project Manager for this contract has over 20 years of experience. Jeff has personally been involved directly with Volusia County for over 14 years. A copy of Jeff's full Resume of Qualifications can be found is **(Section E. 17)** of this submittal.

8. Full Time QA Officer

Pace has a full time QA Office on staff and her duties are 100% committed to QA/QC items and processes at the Pace Ormond Beach location. **A copy of Tina Buttermore's resume is included below.**

TINA BUTTERMORE QUALITY MANAGER, FLORIDA

EDUCATION

M.S. in Pharmacy (University of Florida, 2005)

B.S. in Biochemistry and BS in Microbiology and Cell Science (University of Florida, 2003)

EXPERIENCE

Ms. Buttermore has the responsibility to ensure that the Quality Systems in place at Pace Analytical-Florida are fully implemented and followed in order for the laboratory to achieve established standards of quality. This includes maintaining regulatory compliance, data validation, laboratory analytical protocols, quality assurance documentation and conformance to quality criteria. She serves as a liaison between Pace



Analytical-Florida and state/federal regulatory agencies on quality control issues. Ms. Buttermore provides technical support to laboratory operations and clients regarding methodology and project QA/QC requirements and is responsible for performing internal performance audits as well as systems audits on a regular basis.

Ms. Buttermore has ten years of experience in the environmental industry in both the analytical and regulatory sectors. She joined Pace Analytical in 2011 as the Technical and Operations Manager for the South Florida operations. As Technical Director and Operations Manager for the South Florida facility of Pace Analytical Services, Ms. Buttermore had direct management responsibility for over 20 employees covering client services, analytical services and field services. She has previously held the positions of Quality Assurance Director, Technical Director, and various section management and analyst positions within the laboratory specializing in metals analyses (including ICP-AES, ICP-MS, cold vapor AA) and microbiology and wet chemistry techniques. She has also performed the role of Compliance and Enforcement Officer for both the Florida Department of Environmental Protection and the Florida Department of Health.

9. Most Recent NELAP and State Inspections

Pace has provided a complete set of the most recent NELAP and Stat inspections/Audits for Volusia County's review. The audits are included in both **(Section E. 16 and E.18).**

10. References

Pace Analytical Services, Inc. offers the similar services to over 100 other municipal clients in the State of Florida. Please see the list of these references in **(Section E.4.)**

SOLID WASTE CONTACTS

Firm Name: Volusia County

Address: 1990 Tomoka Farms Road

Address: Daytona Beach, FL 32114

Contact: Ms. Jennifer Stirk

Telephone: 386-947-2952

Fax: 386-947-2955

Email: jstirk@co.volusia.fl.us

Scope of Work: Field sampling, lab analyses & reporting of surface & groundwater monitoring programs for landfill operations



Firm Name: Brevard County
Address: 3630 N. Courtenay Parkway
Address: Merritt Island, FL 32753-8103
Contact: Mr. Chris Cole
Telephone: 321-455-1339
Fax: 321-455-1331
Email: Christopher.cole@brevardcounty.us
Scope of Work: Field sampling & analytical support for two landfills

Firm Name: Lake County
Address: 315 West Main Street.
Address: Tavares, FL 32278
Contact: Ms. Cathie Catusus
Telephone: 352-343-9758
Fax: 352-742-2781
Email: ccatusus@co.lake.fl.us
Scope of Work: We hold the current contract for the Solid Waste Landfills work.

WATER UTILITIES CONTACTS

Organization Name: City of Holly Hill
Address: 453 LPGA BLVD
Address: Holly Hill, FL 32117
Contact: Mr. Mike Junker
Telephone: 386-248-9463
Fax: 386-248-9499
Email: mjunker@hollyhillfl.org
Scope of Work: We support the City of Holly Hill with their entire daily, weekly, and quarterly analytical needs related to the operation and distribution of water and wastewater.

Organization Name: City of Port Orange
Contact: Mr. Paul Salerno
Address: 1000 City Center Circle
Address: Port Orange, FL 32129
Telephone: (386)756-5416
Email: psalerno@port-orange.org
Scope of Work: We support the City of Port Orange with their entire daily, weekly, and quarterly analytical needs related to the operation and distribution of water and wastewater with the City's control.



Organization Name: Miami-Dade Water and Sewer Division

Address: 950 SW 232 St.

Address: Miami, FL 33190

Contact: Clive Powell

Telephone: 786-268-5512

Email: cpowe@miamidade.gov

Scope of Work: We support the Miami-Dade Water and Sewer Division with all their daily, weekly, quarterly, semi-annual, and annual needs related to the operation and distribution of water and wastewater.

11. ADaPT System

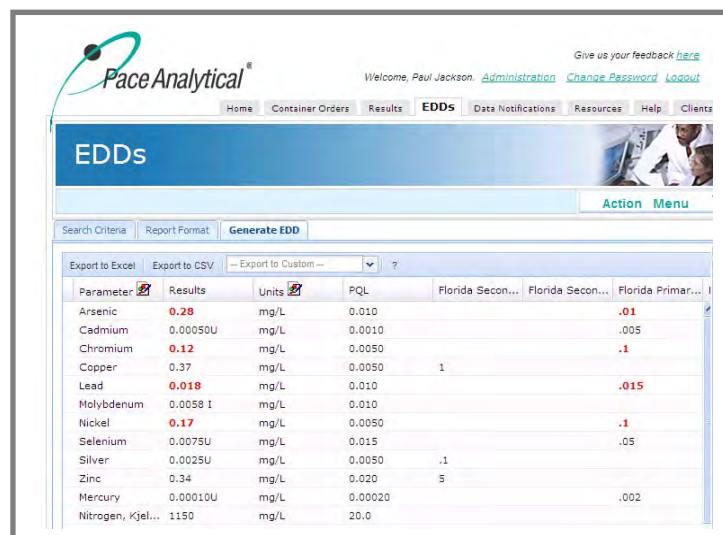
Pace has been the incumbent contractor for Volusia County and has been providing an ADaPT deliverable to the Solid Waste Division since 2009. We will continue to offer this service and delivery of Data for the duration of the new contract as well. Additionally, Pace will continue to provide the Field Data and logs in the same format as we are currently providing.

12. Web Based Data Management System

Pace Analytical has developed an Internet site called **PacePort** that allows clients of any Pace Analytical laboratory to view, download and print analytical reports and invoices. PacePort is a secured site, utilizing individual log-on ID's and passwords. Data is encrypted between the client's browser and the download site. Reports and invoices are posted on the site in Adobe® PDF format and remain available online for several years.

PacePort is a web-based data-management tool designed specifically for our customers. With up-to-the-hour data access from your computer, you have a quick resource to the information you need – when you need it.

- Quick, easy and secure access to data and files - 24/7
- Confirm sample receipt and methods requested
- Check status of samples or projects at the lab
- Automated comparison of data to regulatory action and permit limits
- Automated flagging of data that exceeds regulatory action and permit limits
- Generate custom Electronic Data Deliverables
- Improve data/report management efficiency
- Put watches on critical projects to receive email notifications of results
- Select type of notifications to receive
- Work on deadlines during non-business hours
- Archive all historical site/project data and reports
- Share data access with all interested stakeholders



The screenshot shows the 'EDDs' (Electronic Data Deliverables) interface. It includes a navigation bar with links like Home, Container Orders, Results, EDDs, Data Notifications, Resources, Help, and Clients. Below the navigation bar, there are tabs for Search Criteria, Report Format, and Generate EDD. A table displays analytical data with columns for Parameter, Results, Units, PQL, and various Florida Secondary and Primary limits. The table lists parameters such as Arsenic, Cadmium, Chromium, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Zinc, Mercury, and Nitrogen, along with their respective results and units.

Parameter	Results	Units	PQL	Florida Secon...	Florida Secon...	Florida Primar...
Arsenic	0.28	mg/L	0.010			.01
Cadmium	0.00050U	mg/L	0.0010			.005
Chromium	0.12	mg/L	0.0050			.1
Copper	0.37	mg/L	0.0050	1		
Lead	0.018	mg/L	0.010			.015
Molybdenum	0.0058 I	mg/L	0.010			
Nickel	0.17	mg/L	0.0050			.1
Selenium	0.0075U	mg/L	0.015			.05
Silver	0.0025U	mg/L	0.0050	.1		
Zinc	0.34	mg/L	0.020	5		
Mercury	0.00010U	mg/L	0.00020			.002
Nitrogen, Kjehl...	1150	mg/L	20.0			

PacePort can be accessed via the Pace Analytical Website: www.pacelabs.com. To begin using PacePort, clients must first register to obtain their user ID and password. A Pace Analytical project manager will assist the client in setup an account to access their reports on PacePort.

LIMS / Instrument Automation / EDDs

Pace Analytical has invested heavily in systems automation and electronic communications in order to enhance our turnaround time and service quality. These investments in technology were made because we believe that if we communicate to you more efficiently, you will spend less time and effort understanding and utilizing the analytical data that we provide. Our information systems support our Client Services, Accounting and Laboratory Operations. The entire network of Pace Analytical laboratories is integrated, allowing real-time sharing of information between our facilities and between the departments within those facilities.

Section E. Required Submittals

1. Completed Invitation to Bid Cover Pages

SUBMIT TO:

COUNTY OF VOLUSIA
PURCHASING & CONTRACTS
123 W. INDIANA AVE., RM. 302
DELAND, FL 32720-4608

**INVITATION TO BID****CONTACT PERSON:**

Andrew G. Kokitus.....**386-943-7009**

DELAND: 386-736-5935

DAYTONA BEACH: 386-257-6000

NEW SMYRNA BEACH: 386-423-3300

AN EQUAL
OPPORTUNITY
EMPLOYER

www.volusia.org/purchasing

TITLE:

LABORATORY ANALYSIS AND SAMPLING

NUMBER:

14-B-148AK

SUBMITTAL DEADLINE:

**Friday, September 19, 2014
at 3:00 p.m., EDT**

DO NOT RESPOND TO THIS SOLICITATION ON LINE – SEE SECTION 2.3, *DELIVERY OF BIDS*

PRE BID DATE, TIME AND LOCATION:

**Thursday, August 28, 2014 at 9:30 A.M. EDT
Budget Conference Room, Third Floor, 123 W. Indiana Avenue, DeLand, FL 32720**

*SUBMITTALS RECEIVED AFTER ABOVE DATE
AND TIME WILL NOT BE CONSIDERED*

FIRM'S NAME:

Pace Analytical Services, Inc.

MAILING ADDRESS:

8 East Tower Circle

Ormond Beach, FL 32174

CITY – STATE – ZIP:**E-MAIL ADDRESS:**

david.chaffman@pacelabs.com

TELEPHONE NO:

386-696-4816

FAX NO:

386-673-4441

FEDERAL ID NO. OR SOCIAL SECURITY NO.

41-1821617

The vendor acknowledges that information provided in this Bid is true and correct.

x *Bob Dempsey*
Authorized Signature

Bob Dempsey
Typed Name

General Manager
Title

09/18/14
Date

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR RESPONSE
GENERAL CONDITIONS AND INSTRUCTIONS**

**** PLEASE READ CAREFULLY ****

Individuals covered by the Americans with Disabilities Act of 1990 in need of accommodations to attend public openings or meetings sponsored by the Volusia County Purchasing and Contracts Division shall contact the County's ADA Coordinator at 386-248-1760, at least two (2) business days prior to the scheduled opening or meeting.

1. **SUBMISSION OF OFFERS:** All offers shall be submitted in a sealed envelope or package. The invitation number, title, and opening date shall be clearly displayed on the outside of the sealed envelope or package. The delivery of responses to the Volusia County Purchasing and Contracts Division Office prior to the specified date and time is solely and strictly the responsibility of the offeror. Any submittal received in the Purchasing and Contracts Division Office after the specified date and time will not be considered.

Responses shall be submitted on forms provided by the County. Additional information may be attached to the submittal. Facsimile submissions are NOT acceptable. No offer may be modified after acceptance. No offer may be withdrawn after opening for a period of ninety (90) days unless otherwise specified.

2. **EXECUTION OF OFFER:** Offer shall contain a manual signature in the space(s) provided of a representative authorized to legally bind the offeror to the provisions therein. All spaces requesting information from the offeror shall be completed. Responses shall be typed or printed in ink. Use of erasable ink or pencil is not permitted. Any correction made by the offeror to any entry must be initialed.

3. **OPENING:** Opening shall be public in the Volusia County Purchasing and Contracts Division immediately following the advertised deadline date and time for receipt of submittals. Pursuant to Section 119.07(3) (0) Florida Statutes (1991) no further information regarding offers submitted will be made public until such time of intended award or thirty (30) days, whichever is earlier.

4. **PUBLIC RECORD:** The County of Volusia, Florida, is governed by the Public Record Law, Chapter 119, Florida Statutes.

CLARIFICATION/CORRECTION OF ENTRY: The County of Volusia reserves the right to allow for the clarification of questionable entries and the correction of OBVIOUS MISTAKES.

6. **INTERPRETATION/ADDENDA:** Any questions concerning conditions and specifications shall be directed to the designated contact person. Those interpretations which may affect the eventual outcome of the invitation/offer shall be furnished in writing to prospective offerors.

No interpretation shall be considered binding unless provided in writing by the County of Volusia Purchasing and Contracts Division in the form of an addendum. Any addenda issued shall be acknowledged by signature and returned with offeror's response.

Failure to acknowledge addenda may result in the offer not being considered.

7. **INCURRED EXPENSES:** This invitation does not commit the County to make an award nor shall the County be responsible for any cost or expense which may be incurred by any Bidder in preparing and submitting a reply, or any cost or expense incurred by any Bidder prior to the execution of a purchase order or Contract/Agreement.

8. **DISADVANTAGED BUSINESSES:** The County of Volusia, Florida, has adopted policies which assure and encourage the full participation of Disadvantaged Business Enterprises (DBE) in the provision of goods and services.

9. **LOCAL BUSINESSES:** The County Council has established a policy to encourage participation of local businesses in the provision of goods and services. The County will endeavor to assist local businesses to achieve this goal.

A. General Conditions

Local Businesses: A prime contractor or subcontractor duly licensed and authorized to engage in the particular business in Lake, Orange, Osceola, Seminole or Volusia County, Florida, and holds a valid local business tax receipt for that place of business for a minimum six (6) months prior to the date of submittal of the Bid or quote to the County.

CONTINUED ON NEXT PAGE

10. **PRICING:** Unless otherwise specified prices offered shall remain firm for a period of at least ninety (90) days; all pricing of goods shall include FOB DESTINATION, all packing, handling, shipping charges and delivery to any point(s) within the County to a secure area or inside delivery; all prices of services shall include all expenses necessary to provide the service at the location specified.

11. **ADDITIONAL TERMS & CONDITIONS:** The County of Volusia reserves the right to reject offers containing terms or conditions contradictory to those requested in the invitation specifications.

12. **TAXES:** The County of Volusia is exempt from Federal Excise Taxes and all sales taxes. Florida State Exemption Certificate No. 85-8012622393C-9.

13. **DISCOUNTS:** All discounts except those for prompt payment shall be considered in determining the lowest net cost for evaluation purposes.

14. **MEETS SPECIFICATIONS:** The offeror represents that all offers to this invitation shall meet or exceed the minimum requirements specified.

15. **BRAND NAME OR EQUAL:** If items requested by this invitation have been identified in the specifications by a Brand Name "OR EQUAL" description, such identification is intended to be descriptive and not restrictive and is to indicate the quality and characteristics of products that will be acceptable. Offers proposing "equal" products will be considered for award if such products are clearly identified in the offer and are determined by the County to meet fully the salient characteristic requirements listed in the specifications.

Unless the offeror clearly indicates in his/her offer that he/she is proposing an "equal" product, the offer shall be considered as offering the same brand name product referenced in the specifications.

If the offeror proposes to furnish an "equal" product, the brand name of the product to be furnished shall be clearly identified. The evaluation of offers and the determination as to equality of the product offered shall be the responsibility of the County and will be based on information furnished by the offeror. The Purchasing and Contracts Division is not responsible for locating or securing any information which is not identified in the response and reasonably available to the Purchasing and Contracts Division. To insure that sufficient information is available the offeror shall furnish as part of the response all descriptive material necessary for the Purchasing and Contracts Division to determine whether the product offered meets the salient characteristics required by the specifications and establish exactly what the offeror proposes to furnish and what the County would be binding itself to purchase by making an award.

16. **SAMPLES:** When required, samples of products shall be furnished with response to the County at no charge. Samples may be tested and will not be returned to the offeror. The result of any and all testing shall be made available upon written request.

17. **SILENCE OF SPECIFICATIONS:** The apparent silence of these specifications or any supplemental specifications as to details or the omission from same of any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size, and design are to be used. All workmanship shall be first quality. All interpretations of specifications shall be made upon the basis of this statement.

18. **GOVERNING LAWS:** Any Agreement to purchase resulting from this invitation shall be governed by the laws, regulations, and ordinances of the State of Florida and the County of Volusia, Florida. Venue shall be non-jury in the Circuit Court of Volusia County, Florida.

19. **ASSIGNMENT:** Any agreement to purchase issued pursuant to this invitation and award thereof and the monies which may become due hereunder are not assignable except with the prior written approval of the County Director of Purchasing and Contracts.

20. **CONTENT OF INVITATION/RESPONSE:** The contents of this invitation, all terms, conditions, specifications, and requirements included herein and the accepted and awarded response thereto may be incorporated into an agreement to purchase and become legally binding. Any terms, conditions, specifications, and/or requirements specific to the item or service requested herein shall supersede the requirements of the "GENERAL CONDITIONS AND INSTRUCTIONS."

21. **LIABILITY:** The supplier/provider shall hold and save the County of Volusia, its officers, agents, and employees harmless against claims by third parties resulting from breach of contract or negligence by the supplier/provider.

22. **PATENTS, COPYRIGHT, AND ROYALTIES:** The supplier/provider, without exception, shall indemnify and save harmless the County of Volusia, its officers, agents and employees from liability of any nature of kind, including cost and expenses for or on account of any copyrighted, registered, patented, or unpatented invention, process, or article manufactured or used in the provision of goods and/or services, including use by the County of Volusia. If the supplier/provider uses any design, device, or materials covered by letters, patent, copyright, or registration, it is mutually agreed and understood without exception that the quoted price shall include all royalties or costs arising from the use of such design, device, or materials in any way involved.

23. **TRAINING:** Unless otherwise specified suppliers/providers may be required at the convenience of and at no expense to the County to provide training to County personnel in the operation and maintenance of any item purchased as a result of this invitation.

24. **ACCEPTANCE:** Products purchased as a result of this invitation may be tested for compliance with specifications. Items delivered not conforming to specifications may be rejected and returned at Bidder's expense. Those items and items not delivered by the delivery date specified in accepted offer and/or purchase order may be purchased on the open market. Any increase in cost may be charged against the Bidder.

25. **SAFETY WARRANTY:** Any awarded supplier/provider including dealers, distributors, and/or manufacturers shall be responsible for having complied with all Federal, State, and local standards, regulations, and laws concerning the product or service specified, and the use thereof, applicable and effective on the date of manufacture or use or date in service including safety and environmental standards as apply to both private industry and governmental agencies.

26. **WARRANTY:** The offeror agrees that, unless otherwise specified, the product and/or service furnished as a result of this invitation and award thereto shall be covered by the most favorable commercial warranty the offeror gives to any customer for comparable quantities of such products and/or services and that the right and remedies provided herein are in addition to and do not limit any rights afforded to the County of Volusia by any other provision of the invitation/offer.

27. **AWARD:** As the best interest of the County may require, the County reserves the right to make award(s) by individual item, group of items, all or none, or a combination thereof; on a geographical basis and/or on a countywide basis with one or more supplier(s) or provider(s); to reject any and all offers or waive any irregularity or technicality in offers received. Offerors are cautioned to make no assumptions unless their offer has been evaluated as being responsive. Any or all award(s) made as a result of this invitation shall conform to applicable ordinances of the County of Volusia, Florida.

28. **VIOLATIONS:** Any violation of any of the stipulations, terms, and/or conditions listed and/or included herein may result in the offeror/Bidder being removed from the County Bid list and the offeror/Bidder being disqualified from doing business with the County for a period of time to be determined on a case-by-case basis.

29. For purposes of this Invitation and evaluation of responses hereto the following shall apply: unit prices shall prevail over extended prices; written matter shall prevail over typed matter; numbers spelled in word form shall prevail over Arabic numerals ("one" over "1"). When not inconsistent with context words used in the present tense include the future, words in the plural number include the singular number, and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

30. **DEFINITIONS:**

COUNTY – The term "County" herein refers to the County of Volusia, Florida, and its duly authorized representatives and any jurisdiction within Volusia County.

OFFEROR – The term "offeror" used herein refers to any dealer, manufacturer, representative, distributor, or business organization submitting an offer to the County in response to this invitation.

BIDDER – The term "Bidder" used herein refers to any dealer, manufacturer, representative, distributor, or business organization that will be or has been awarded a contract and/or purchase order pursuant to the terms and conditions of the invitation and accepted offer.

USING AGENCY – The term "using agency" used herein refers to any department, division, agency, commission, board, committee, authority, or another unit in the County government using supplies or procuring contractual services as provided for in the Purchasing Ordinance of the County of Volusia, Florida.

HEAVY DUTY – The item(s) to which the term "Heavy Duty" is applied shall exceed the usual quality and/or capacity supplied with standard production equipment and shall be able to withstand unusual strain, exposure, temperature, wear and use.

**THE COUNTY OF VOLUSIA RESERVES THE RIGHT TO REJECT ANY OR ALL OFFERS,
TO WAIVE INFORMALITIES, AND TO ACCEPT ALL OR ANY PART OF ANY OFFER
AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE COUNTY**



Section E. Required Submittals

2. Florida Department of State Sunbiz Certification

Pace Analytical Services, Inc. is a corporation organized under the laws of the State of Minnesota, filed on July 29, 2008. The document number of this corporation is F08000003333.

Also, Attached in a Memorandum of Authority Letter for Signature and Binding Authority for Robert W. Demsey.

State of Florida

Department of State

I certify from the records of this office that PACE ANALYTICAL SERVICES, INC. is a Minnesota corporation authorized to transact business in the State of Florida, qualified on July 29, 2008.

The document number of this corporation is F08000003333.

I further certify that said corporation has paid all fees due this office through December 31, 2014, that its most recent annual report/uniform business report was filed on January 8, 2014, and its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

*Given under my hand and the
Great Seal of the State of Florida
at Tallahassee, the Capital, this
the Nineteenth day of June, 2014*



Ken DeFoner
Secretary of State

Authentication ID: CU2558940882

To authenticate this certificate, visit the following site, enter this ID, and then follow the instructions displayed.

<https://efile.sunbiz.org/certauthver.html>

Section E. Required Submittals

3. Complete Bid Submittal Form (form 4.0)

09/18/14, 2014

4.0 BID SUBMITTAL FORM

TO: County of Volusia, Florida
Office of Director of Purchasing and Contracts
123 W. Indiana Avenue, Room 302
DeLand, FL 32720-4608

The undersigned hereby declare(s) that [firm name] Pace Analytical Services, Inc. has carefully examined the specifications to furnish Lab Analysis and Sampling, for which Bid Submittals were advertised to be received **no later than 3:00 p.m., EDT, on Friday, September 19, 2014**, and further declares that the firm will furnish the Laboratory Analysis and Sampling according to specifications.

Complete Attachment A and B

(Open Attachment A and B from website, perform "file save as" and save spreadsheet to your computer. Fill in pricing, preferably electronically.)

Include Attachment, in excel format (not pdf), on CD/USB drive with the rest of your submittal documents.

The County reserves the right to negotiate with the Contractor for additional services similar in nature not known at the time of Bid closing.

Sole Proprietor ☐ Yes ☒ No

Total number employees 1500

The following information is required in order to be granted a price redetermination.

Assuming that the prices quoted include costs for vehicles, maintenance, repair, insurance, fuel, wages, insurances and other employee benefits, materials, overhead, operating expenses, etc., what percentage of the rate is directly attributed to the cost of fuel? %

Which does the firm use:

☐ Diesel fuel or ☒ Gasoline?

Assuming that the prices quoted include costs for vehicles, maintenance, repair, insurance, fuel, wages, materials, overhead, operating expenses, etc., what percentage of the rate is directly attributed to the cost of wages? %

Prompt payment discount, if applicable: N/A %, N/A Days; Net 45 Days

Do you accept electronic funds transfer (EFT)? ☒ YES ☐ NO

Do you offer a discount for electronic funds transfer (EFT)? ☐ YES, ____ % ☒ NO

Have you supplied all the Submittal Requirements outlined below?

- ☒ Invitation to Bid cover pages. (Includes two pages)
- ☒ Florida Department of State, Division of Corporations' Sunbiz Report for your firm
- ☒ Completed and executed Bid Submittal form
- ☒ References, in accordance with Section 2.11, *Definition of Responsive and Responsible*
- ☒ If you have a physical location in Lake, Orange, Osceola, Seminole or Volusia County, submit one of these:
 - ☒ Current Business Tax Receipt, OR ☐ Proof of Exemption Form
- ☒ Proof of Insurance, per Section 2.24
- ☒ Hold Harmless Agreement and/or Notice of Election to be Exempt, if required
- ☒ Conflict of Interest form
- ☒ Any addenda pertaining to this ITB
- ☒ Taxpayer Identification Number and Certification Form
- ☒ Certification Affidavit confirming Local Preference Eligibility, if applicable
- ☒ Licenses, per Section 2.23
- ☒ Drug-Free Work Place Form
- ☒ Certification Regarding Debarment – Prime Form
- ☒ Certification Regarding Debarment – Sub Form
- ☒ Copy of current NELAP Certification
- ☒ Last two years of Performance Evaluations studies showing 90% average as per §1.2(D)
- ☒ FDEP Performance Audit Inspections showing "Satisfactory"
- ☒ Resume of Project Manager as per §1.2(G)
- ☒ State and NELAP inspections as per §1.2(I)
- ☒ Printouts of completed Attachments A & B.
- ☒ Did you include a CD or USB drive, as required in the *Section 2.7, Bid Submittal Form*?

The County of Volusia reserves the right to reject any or all proposals, to waive informalities, and to accept all or any part of any proposal as may be deemed to be in the best interest of the County.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

I hereby certify that I have read and understand the requirements of this Invitation to Bid No. **14-B-148AK, Laboratory Analysis and Sampling**, and that I, as the Bidder, will comply with all requirements, and that I am duly authorized to execute this proposal/offer document and any Agreement(s) and/or other transactions required by award of this ITB.

Further, as attested to by below signature, I will provide the required insurance, per §2.24, Insurance, upon notification of recommendation of award.

The vendor acknowledges that information provided in this Bid is true and correct:

* 
Authorized Signature

Bob Dempsey
Printed Name

General Manager
Title

09/18/14
Date

Pace Analytical Services, Inc.
Company Name

8 East Tower Circle, Ormond Beach, Florida 32174
Full Address

386-676-4816
Telephone

386-673-4001
Fax

david.chaffman@pacelabs.com
E-mail Address

837332196
Dunn & Bradstreet #

41-1821617
Federal I.D. #

6.0 NOTIFICATION REGARDING PUBLIC ENTITY CRIME & DISCRIMINATORY VENDOR LIST REQUIREMENTS & DISQUALIFICATION PROVISION

A. Pursuant to Florida Statutory requirements, potential Bidders are notified:

287.133(2)(a) A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a Bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list.

287.133(2)(b) A public entity may not accept any Bid, proposal, or reply from, award any contract to, or transact any business in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO with any person or affiliate on the convicted vendor list for a period of 36 months following the date that person or affiliate was placed on the convicted vendor list unless that person or affiliate has been removed from the list pursuant to paragraph (3)(f). A public entity that was transacting business with a person at the time of the commission of a public entity crime resulting in that person being placed on the convicted vendor list may not accept any Bid, proposal, or reply from, award any contract to, or transact any business with any other person who is under the same, or substantially the same, control as the person whose name appears on the convicted vendor list so long as that person's name appears on the convicted vendor list.

287.134(2)(a) An entity or affiliate who has been placed on the discriminatory vendor list may not submit a Bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a Bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity.

287.134(2)(b) A public entity may not accept any Bid, proposals, or replies from, award any contract to, or transact any business with any entity or affiliate on the discriminatory vendor list for a period of 36 months following the date that entity or affiliate was placed on the discriminatory vendor list unless that entity or affiliate has been removed from the list pursuant to paragraph (3)(f). A public entity that was transacting business with an entity at the time of the discrimination resulting in that entity being placed on the discriminatory vendor list may not accept any Bid, proposal, or reply from, award any contract to, or transact any business with any other entity who is under the same, or substantially the same, control as the entity whose name appears on the discriminatory vendor list so long as that entity's name appears on the discriminatory vendor list.

B. By submitting a proposal, the Bidder represents and warrants that the submission of its proposal does not violate Section 287.133, Florida Statutes (2005), nor Section 287.134, Florida Statutes (2005).

C. In addition to the foregoing, the Bidder represents and warrants that Bidder, Bidder's subcontractors and Bidder's implementer, if any, is not under investigation for violation of such statutes.

D. Bidder should read carefully all provisions of 287.133 and 287.134, Florida Statutes (2005).

7.0 PROOF OF EXEMPTION



FINANCIAL AND ADMINISTRATIVE SERVICES

REVENUE DIVISION

123 W. INDIANA AVE. • ROOM 103 • DELAND, FL 32720-4602

PHONE: 386-736-5938 • FAX: 386-822-5729

<http://volusia.org/revenue/>

I certify that the business known as (business name) Pace Analytical Services, Inc,
providing Analytical Testing services, which is located at (street address) 8 East Tower Circle,
(city) Ormond Beach, FL, falls under the business tax exemption described in:

- ☐ Florida Statute 205.063
☐ Florida Statute 205.064

- ☐ Florida Statute 205.065
☐ Florida Statute 205.162
☐ Florida Statute 205.171

- ☐ Florida Statute 205.191
☐ Florida Statute 205.192

<http://www.volusia.org/services/financial-and-administrative-services/revenue-services/local-business-tax/business-tax-frequently-asked-questions.shtml>

OR is the type of business indicated below:

- ☐ Child Care – Residential
☐ Commercial Rentals
☐ Door to Door/Peddler Sales

- ☐ Insurance Adjuster, Agent,
or Company
☐ Pharmacist/Pharmacy
(Prescription Drugs Only)

- ☐ Radio/Television Station
☐ Religious Institution
☐ Residential Rentals over 6months
☐ Sale of Alcoholic Products only

[Signature]
(Authorized Signature)

Bob Dempsey
(Printed Name)

STATE OF Florida
COUNTY OF Volusia

Sworn to and subscribed before me this 15 day of September, 2014, by
Bob Dempsey, who is/are personally known to me or
who has/have produced is known as identification.



(Seal)

Kendra B Bright
NOTARY PUBLIC – STATE OF _____
Type or print name:

Commission No.: _____

Commission Expires: _____

A business that falls under one of the exempt classifications listed above is not required to have a Volusia County Business Tax Receipt.

Revenue Director

8.0 HOLD HARMLESS AGREEMENT

I, N/A, (print owner's name), am the owner of N/A (print company name), an incorporated / unincorporated business operating in the State of Florida. As such, I am bound by all laws of the state of Florida, including but not limited to those regarding the workers' compensation law.

I hereby affirm that I or [the above-named business] employs fewer than four employees, all of whom are listed below, including myself, and therefore, the business is exempt from the statutory requirement for workers' compensation insurance for its employees. I certify that I will provide the County of Volusia with the name of each new employee together with all required waivers and releases for each prior to any employee being allowed to work to provide services under the contract set forth below. If any such employee is allowed to work without a signed waiver and release, such action will be a material breach of this Agreement. All signed waivers and releases shall be furnished before the commencement of any work by an employee or the undersigned to the County Project Manager or designated county representative.

On _____, 20____, the County of Volusia and I or [the above-named business] entered into a contract for _____ (please insert name of contract), (hereinafter "Agreement") which is incorporated by reference herein.

On behalf of myself, my business, and the employees listed below, I and they hereby agree to waive and release any and all workers' compensation claims or liens under Chapter 440, Florida Statutes, against the County of Volusia and its agents, officials and employees, arising from any work or services provided under the Agreement whether or not it shall be alleged or determined that the act was caused by intention, or through negligence or omission of the County of Volusia or its agents, officials and employees or subcontractors.

In the event that a workers' compensation claim or lien is made against the County of Volusia and/or its agents, officials or employees by myself or my employees or agents as a result of any work or services performed under the Agreement, I agree to indemnify, keep and hold harmless the County of Volusia, Florida, its agents, officials and employees, against all injuries, deaths, losses, damages, claims, liabilities, judgments, costs and expenses, direct, indirect or consequential (including, but not limited to, fees and charges of attorneys and other professionals) arising out of the Agreement with the County of Volusia, whether or not it shall be alleged or determined that the act was caused by intention or through negligence or omission of the County of Volusia or its employees, agents, or subcontractors. I or the above-named business shall pay all charges of attorneys and all costs and other expenses incurred in connection with the indemnity provided herein, and if any judgment shall be rendered against the County of Volusia in any action indemnified hereby, I or the above-named business shall, at my or its own expense, satisfy and discharge the same. The foregoing is not intended nor should it be construed as, a waiver of sovereign immunity of the COUNTY OF VOLUSIA under Section 768.28, Florida Statutes.

Owner: N/A (print name) N/A (signature)
Employee 1: _____ (print name) _____ (signature)
Employee 2: _____ (print name) _____ (signature)
Employee 3: _____ (print name) _____ (signature)

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____, by
_____, who is/are personally known
to me or who has/have produced _____ as identification.

N/A

NOTARY PUBLIC – STATE OF _____

Type or print name: _____

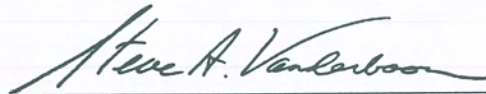
Commission No.: _____

Commission Expires: _____

(Seal)

Memorandum of Authority

Let It Be Known that Robert W. Dempsey, General Manager of all Florida laboratory and service locations of Pace Analytical Services, Inc., has authority to bind Pace Analytical Services, Inc., a Minnesota corporation, to contractual obligations within the State of Florida. Robert (Bob) Dempsey is available by telephone at (386) 672-5668 or by email at bob.dempsey@pacelabs.com.



Steve A. Vanderboom
President and CEO

Section E. Required Submittals

4. References, 3 SWA and 3 Utilities

5.0 REFERENCES SOLID WASTE CONTACTS

Agency #1	Volusia County		
Address	1990 Tomoka Farms Road		
City, State, ZIP	Daytona Beach, FL 32114		
Contact Person	Ms. Jennifer Stirk		
E-mail	jstirk@co.volusia.fl.us	Phone:	386-947-2952
Date(s) of Service	2000 - present		
Type of Service	Field sampling, lab analyses & reporting of surface & groundwater monitoring programs for landfill operations		
Comments:			
Agency #2	Brevard County		
Address	3630 N. Courtenay parkway		
City, State, ZIP	Merritt Island, FL 32753-8103		
Contact Person	Mr. Chris Cole		
E-mail	Christopher.cole@brevardcounty.us	Phone:	321-455-1339
Date(s) of Service	2000 - present		
Type of Service	Field sampling & analytical support for two landfills		
Comments:			
Agency #3	Lake County		
Address	315 West Main Street.		
City, State, ZIP	Tavares, FL 32278		
Contact Person	Ms. Cathie Catusus		
E-mail	ccatusus@co.lake.fl.us	Phone:	352-343-9758
Date(s) of Service	September 2006 - present		
Type of Service	We hold the current contract for the Solid Waste Landfills work.		
Comments:			

5.0 REFERENCES WATER UTILITIES CONTACTS

Agency #1	City of Holly Hill		
Address	453 LPGA BLVD		
City, State, ZIP	Holly Hill, FL 32117		
Contact Person	Mr. Mike Junker		
E-mail	mjunker@hollyhillfl.org	Phone:	386-248-9463
Date(s) of Service	2000 - Present		
Type of Service	We support the City of Holly Hill with their entire daily, weekly, and quarterly analytical needs related to the operation and distribution of water and wastewater.		
Comments:			
Agency #2	City of Port Orange		
Address	1000 City Center Circle		
City, State, ZIP	Port Orange, FL 32129		
Contact Person	Mr. Paul Salerno		
E-mail	psalerno@port-orange.org	Phone:	(386)756-5416
Date(s) of Service	2000 - Present		
Type of Service	We support the City of Port Orange with their entire daily, weekly, and quarterly analytical needs related to the operation and distribution of water and wastewater with the City's control.		
Comments:			
Agency #3	Miami-Dade Water and Sewer Division		
Address	950 SW 232 St.		
City, State, ZIP	Miami, FL 33190		
Contact Person	Clive Powell		
E-mail	cpowe@miamidade.gov	Phone:	786-268-5512
Date(s) of Service	09/02/2011 - Present		
Type of Service	We support the Miami-Dade Water and Sewer Division with all their daily, weekly, quarterly, semi-annual, and annual needs related to the operation and distribution of water and wastewater.		
Comments:			

SOLID WASTE CONTACTS

Firm Name: Volusia County

Address: 1990 Tomoka Farms Road

Address: Daytona Beach, FL 32114

Contact: Ms. Jennifer Stirk

Telephone: 386-947-2952

Fax: 386-947-2955

Email: jstirk@co.volusia.fl.us

Scope of Work: Field sampling, lab analyses & reporting of surface & groundwater monitoring programs for landfill operations

Firm Name: Brevard County

Address: 3630 N. Courtenay Parkway

Address: Merritt Island, FL 32753-8103

Contact: Mr. Chris Cole

Telephone: 321-455-1339

Fax: 321-455-1331

Email: Christopher.cole@brevardcounty.us

Scope of Work: Field sampling & analytical support for two landfills

Firm Name: Lake County

Address: 315 West Main Street.

Address: Tavares, FL 32278

Contact: Ms. Cathie Catasus

Telephone: 352-343-9758

Fax: 352-742-2781

Email: ccatasus@co.lake.fl.us

Scope of Work: We hold the current contract for the Solid Waste Landfills work.

WATER UTILITIES CONTACTS

Organization Name: City of Holly Hill

Address: 453 LPGA BLVD

Address: Holly Hill, FL 32117

Contact: Mr. Mike Junker

Telephone: 386-248-9463

Fax: 386-248-9499

Email: mjunker@hollyhillfl.org

Scope of Work: We support the City of Holly Hill with their entire daily, weekly, and quarterly analytical needs related to the operation and distribution of water and wastewater.

Organization Name: City of Port Orange

Contact: Mr. Paul Salerno

Address: 1000 City Center Circle

Address: Port Orange, FL 32129

Telephone: (386)756-5416

Email: psalerno@port-orange.org

Scope of Work: We support the City of Port Orange with their entire daily, weekly, and quarterly analytical needs related to the operation and distribution of water and wastewater with the City's control.

Organization Name: Miami-Dade Water and Sewer Division

Address: 950 SW 232 St.

Address: Miami, FL 33190

Contact: Clive Powell

Telephone: 786-268-5512

Email: cpowe@miamidade.gov

Scope of Work: We support the Miami-Dade Water and Sewer Division with all their daily, weekly, quarterly, semi-annual, and annual needs related to the operation and distribution of water and wastewater.

Section E. Required Submittals

5. Business Tax Receipt (BTR)

2014/ 2015

Volusia County Business Tax Receipt

Issued pursuant to F.S. 205 and Volusia County Code of Ordinances Chapter 114-1 by:
Volusia County Revenue Division - 123 W Indiana Ave, Room 103, DeLand, FL 32720 – 386-736-5938



Receipt # 199402080007 Expires: September 30, 2015
Business Location: 8 E TOWER CIR

Business Name: PACE ANALYTICAL SERVICES INC
Owner Name: PACE ANALYTICAL SERVICES INC
Mailing Address: 8 E TOWER CIR
ORMOND BEACH, FL 32174

BUSINESS TYPE	CODE	COUNT	TAX
Business Service State Lic Req	472	70	\$150.00
Hazardous Waste Fee	820		\$37.00

- This receipt indicates payment of a tax, which is levied for the privilege of doing the type(s) of business listed above within Volusia County. This receipt is non-regulatory in nature and is not meant to be a certification of the holder's ability to perform the service for which he is registered. This receipt also does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.
- The business must meet all County and/or Municipality planning and zoning requirements or this Business Tax Receipt may be revoked and all taxes paid would be forfeited.
- The information contained on this Business Tax Receipt must be kept up to date. Contact the Volusia County Revenue Division for instructions on making changes to your account.

**THIS PORTION OF THE BUSINESS TAX RECEIPT MUST BE
POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS**

Volusia County Business Tax Receipt

Revenue Division - 123 W Indiana Ave, Room 103, DeLand, FL 32720 – 386-736-5938

DATE PAID: 09/09/2014

PAYMENT Lockbox-13-00096954
RECEIPT #:

Business Name: PACE ANALYTICAL SERVICES INC
Owner Name: PACE ANALYTICAL SERVICES INC
Mailing Address: 8 E TOWER CIR
ORMOND BEACH, FL 32174

TOTAL TAX: 187.00

PENALTY: 0.00

TOTAL PAID: 187.00

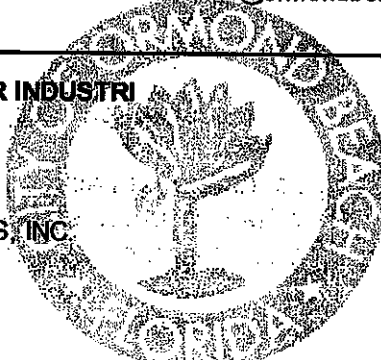
Receipt # 199402080007 Expires: September 30, 2015
Business Location: 8 E TOWER CIR

PLEASE DETACH THIS PORTION OF THE BUSINESS TAX RECEIPT FOR YOUR RECORDS

14-09588

CITY OF ORMOND BEACH
P.O. Box 277
Ormond Beach, FL 32175-0277
386-676-3233 or btonline@ormondbeach.org

Fee: \$72.50
Valid 1/02/14 - 9/30/14

Classification	Comments/Restrictions	Location / Phone
LABORATORIES -SCIENTIFIC &/OR INDUSTRI	 PACE ANALYTICAL SERVICES, INC. 8.EAST TOWER CIRCLE ORMOND BEACH FL 32174	8 E TOWER CIR (386) 676-4902

BUSINESS TAX RECEIPT

Subject to Code of Ordinances Chapter 12 - This receipt must be posted conspicuously in your place of business. Penalty for failure to do so.

Section E. Required Submittals

6. Evidence of Insurance (COI)



CERTIFICATE OF LIABILITY INSURANCE

Page 1 of 1

DATE (MM/DD/YYYY)
09/10/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis of Minnesota, Inc. c/o 26 Century Blvd. P. O. Box 305191 Nashville, TN 37230-5191		CONTACT NAME: PHONE (A/C, NO, EXT): 877-945-7378 FAX (A/C, NO): 888-467-2378 E-MAIL: certificates@willis.com ADDRESS:	
		INSURER(S) AFFORDING COVERAGE	
		INSURER A: Atlantic Specialty Insurance Company	
		INSURER B: Greenwich Insurance Company	
		INSURER C:	
		INSURER D:	
		INSURER E:	
		INSURER F:	

COVERAGES**CERTIFICATE NUMBER: 22004902****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADD'L INSRD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☒ LOC	Y	Y	711014529	8/1/2014	8/1/2015	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☐ HIRED AUTOS ☐ SCHEDULED AUTOS ☐ NON-OWNED AUTOS	Y	Y	711014529	8/1/2014	8/1/2015	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	☒ UMBRELLA LIAB ☒ EXCESS LIAB ☐ DED ☐ RETENTION \$			711014529	8/1/2014	8/1/2015	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☒ N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		Y	406042174	8/1/2014	8/1/2015	☒ WC STATUTORY LIMITS ☐ OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
B	Liability Professional Claims Made			PEC003006304	1/1/2014	1/1/2015	\$1,000,000. Each Claim \$1,000,000. Aggregate \$100,000. Professional SIR

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach Acord 101, Additional Remarks Schedule, if more space is required)

Division/Location: Florida 35

County of Volusia is included as an Additional Insured as respects to General Liability and Auto Liability where required by written contract.

Waiver of Subrogation applies in favor of County of Volusia with respects to General Liability, Auto Liability and Workers Compensation as permitted by law.

CERTIFICATE HOLDER**CANCELLATION**

County of Volusia Attn: Purchasing & Contracts 123 W. Indiana Ave, Room 302 Deland, FL 32720-4608	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

Coll:4510287 Tpl:1846780 Cert:22004902 © 1988-2010 ACORD CORPORATION. All rights reserved.

ACORD 25 (2010/05)

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Section E. Required Submittals

7. Conflict of Interest Form

9.0 CONFLICT OF INTEREST FORM

I HEREBY CERTIFY that

1. I, (printed name) Bob Dempsey, am the
(title) General Manager and the duly authorized representative
of the firm of (Firm Name) Pace Analytical Services, Inc. whose address is
8 East Tower Circle, Ormond Beach, FL 32174, and that I possess the
legal authority to make this affidavit on behalf of myself and the firm for which I am acting; and,
2. Except as listed below, no employee, officer, or agent of the firm have any conflicts of interest,
real or apparent, due to ownership, other clients, contracts, or interests associated with this
project; and,
3. This Bid Submittal is made without prior understanding, agreement, or connection with any
corporation, firm, or person submitting a Bid for the same services, and is in all respects fair and
without collusion or fraud.

EXCEPTIONS to items above (List): _____

Signature: _____

Printed Name: Bob Dempsey

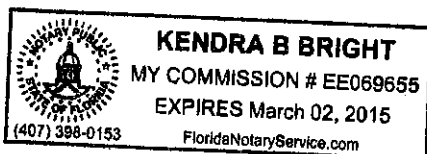
Firm Name: Pace Analytical Services, Inc.

Date: 09/18/14

STATE OF Florida

COUNTY OF Volusia

Sworn to and subscribed before me this 15 day of September, 2014, by
Bob Dempsey, who is/are personally known to me or
who has/have produced is known as identification.



(Seal)

Kendra B. Bright
NOTARY PUBLIC - STATE OF _____

Type or print name: _____

Commission No.: _____

Commission Expires: _____

Section E. Required Submittals

8. Addendums



COUNTY OF VOLUSIA
PURCHASING & CONTRACTS DIVISION
123 West Indiana Avenue, Room 302
DeLand, Florida 32720-4608
(386) 736-5935 ♦ Fax: (386) 736-5972
www.volusia.org

September 3, 2014

ADDENDUM NO. 1
Laboratory Analysis
ITB No. 14-B-148AK

The purpose of this addendum is to provide the following clarifications, changes, modifications and/or additions to the solicitation documents. This addendum is an integral part of the Solicitation/Contract Documents.

The following questions have been received:

Q1: Is the pricing for Hourly Rate for time in field during regular working hours (Attachment B, Page 6, bottom of page) based on Portal to Portal?

A1: No. The hourly rate is based on arrival time and departure time from the required site.

Q2: In reference to §1.1(J), is there an estimate on the number of times per week for pickup?

A2:

Site	Frequency	Comments
1	4 days/week	8:00 a.m. pull time
2	4 days/week	8:00 a.m. pull time
3	4 days/week	8:00 a.m. pull time
4	2x per month	No pick up
5	Please refer to bid	
6	2x per year	
7	As needed/when needed	

Q3: What is the shortest hold time?

A3: The shortest hold time is six (6) hours.

Q4: Do we have to sample in the month listed?

A4: Yes.

Q5: Have you been outsourcing Giardia and Cryptosporidium?

A5: Yes.

Q6: What does Total Organics refer to?

A6: Total Organics Carbon (TOC).

All other terms and conditions remain unchanged.

END OF ADDENDUM NO. 1

Total Pages: 2

If there are any questions, please contact the staff member responsible for this project, Andrew Kokitus, Procurement Analyst I, at (386) 943-7009 or via E-mail: akokitus@volusia.org.


Shaira Resto, MBA, CPPB, FCCM
Procurement-Contracts Manager

Please sign and return Addendum 1 with bid 14-B-148AK

Vendor: Pace Analytical Services, Inc
Signed by (Name/Position): [Signature] Sales Manager
Phone No.: 386-676-4816 Date: 09/18/14

***FAILURE TO RETURN THIS FORM WITH THE QUOTE SUBMITTAL
MAY CAUSE THE PROPOSAL TO BE RENDERED NON-RESPONSIVE***



COUNTY OF VOLUSIA
PURCHASING & CONTRACTS DIVISION
123 West Indiana Avenue, Room 302
DeLand, Florida 32720-4608
(386) 736-5935 ♦ Fax: (386) 736-5972
www.volusia.org

September 8, 2014

ADDENDUM NO. 2
Laboratory Analysis
ITB No. 14-B-148AK

The purpose of this addendum is to provide the following clarifications, changes, modifications and/or additions to the solicitation documents. This addendum is an integral part of the Solicitation/Contract Documents.

The following questions have been received:

- Q1: In regards to §3.15, would the summary reports of the PE study be acceptable?
A1: Yes, the summary report shall be acceptable; however, the County reserves the right to request the full report.
- Q2: Since the summary report is long, is it possible to submit it only on the CD-ROM or UBS drive?
A2: Yes.

All other terms and conditions remain unchanged.

END OF ADDENDUM NO. 2

Total Pages: 1

If there are any questions, please contact the staff member responsible for this project, Andrew Kokitus, Procurement Analyst I, at (386) 943-7009 or via E-mail: akokitus@volusia.org.


Shaira Resto, MBA, CPPB, FCCM
Procurement-Contracts Manager

Please sign and return Addendum No. 2 with bid 14-B-148AK

Vendor: Pace Analytics Services Inc
Signed by (Name/Position): [Signature] Sales Mgr
Phone No.: 386-676-486 Date: 09/18/14

**FAILURE TO RETURN THIS FORM WITH THE QUOTE SUBMITTAL
MAY CAUSE THE PROPOSAL TO BE RENDERED NON-RESPONSIVE**

Section E. Required Submittals

9. Taxpayer Identification Number (TIN) and Cert Form

**Request for Taxpayer
Identification Number and Certification**

**Give Form to the
requester. Do not
send to the IRS.**

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return) Pace Analytical Services, Inc.	
Business name/disregarded entity name, if different from above	
Check appropriate box for federal tax classification: ☐ Individual/sole proprietor ☐ C Corporation ☒ S Corporation ☐ Partnership ☐ Trust/estate ☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ ☐ Other (see instructions) ▶ _____	
☐ Exempt payee	
Address (number, street, and apt. or suite no.) 1800 Elm St SE City, state, and ZIP code Minneapolis, MN 55414	Requester's name and address (optional)
List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number								
			-					

Employer identification number									
4	1	-	1	8	2	1	6	1	7

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶ <i>Jandra Bright</i>	Date ▶ 5/17/13

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

Section E. Required Submittals

10. Certification Affidavit by Local Business

10.0 CERTIFICATION AFFIDAVIT BY PRIME CONTRACTOR AS LOCAL BUSINESS

This form must be signed and sworn to in the presence of a notary public or other official authorized to administer oaths.

A. This sworn statement is submitted to County of Volusia, FL, Purchasing and Contracts;

By: Bob Dempsey, General Manager
(Authorized individuals name and title)

For: Pace Analytical Services, Inc.
(Name of Company/Individual submitting sworn statement)

B. Local Preference Eligibility

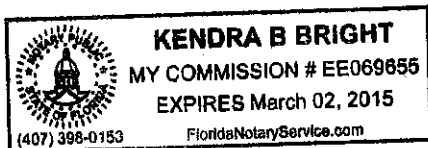
1. Vendor has been in business for a minimum of six (6) months prior to the date of Bids or quote ☒ Yes ☐ No
2. Vendor has proof of local business in the form of a business tax receipt from a local jurisdiction per Volusia County Local Preference ordinance ☒ Yes ☐ No

I understand that the submission of this form to the contracting officer for Volusia County, Florida, is valid through the end of term of the awarded Agreement. I also understand that failure to notify the County of Volusia of a change in address out of the local area may result in breach of Agreement.

Bob Dempsey
(Signature)

STATE OF Florida
COUNTY OF Volusia

Sworn to and subscribed before me this 15 day of September, 2014, by Bob Dempsey, who is/are personally known to me or who has/have produced is known as identification.



(Seal)

Kendra B Bright
NOTARY PUBLIC - STATE OF _____

Type or print name: _____

Commission No.: _____

Commission Expires: _____

11.0 CERTIFICATION AFFIDAVIT BY SUB CONTRACTOR AS LOCAL BUSINESS

This form must be signed and sworn to in the presence of a notary public or other official authorized to administer oaths.

A. This sworn statement is submitted to County of Volusia, FL, Purchasing and Contracts;

By: N/A
(Authorized individuals name and title)

For: N/A
(Name of Company/Individual submitting sworn statement)

B. Local Preference Eligibility

1. Vendor has been in business for a minimum of six (6) months prior to the date of Bids or quote ☐ Yes ☐ No
2. Vendor has proof of local business in the form of a business tax receipt from a local jurisdiction per Volusia County Local Preference ordinance ☐ Yes ☐ No

I understand that the submission of this form to the contracting officer for Volusia County, Florida, is valid through the end of term of the awarded Agreement. I also understand that failure to notify the County of Volusia of a change in address out of the local area may result in breach of Agreement.

N/A
(Signature)

STATE OF _____

COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____, by _____, who is/are personally known to me or who has/have produced _____ as identification.

N/A
NOTARY PUBLIC – STATE OF _____

Type or print name:

Commission No.: _____

Commission Expires: _____

(Seal)

Section E. Required Submittals

11. Drug-Free Workplace Form (form -12)

12.0 DRUG-FREE WORK PLACE

The undersigned firm, in accordance with Florida statute 287.087, hereby certifies that

Pace Analytical Services, Inc does:
(Name of Firm)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are proposed a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will propose by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Bob Dempsey General Manager
Name and Title

09/18/14
Date

Bob Dempsey
Signature

Pace Analytical Services, Inc
Firm

8 East Tower Circle
Street address

Ormond Beach, FL 32174
City, State, Zip

Section E. Required Submittals

12. Certification of Debarment of Prime (form-13)

13.0 CERTIFICATION REGARDING DEBARMENT (PRIME)

**Certification Regarding
Debarment, Suspension,
And Other Responsibility Matters
Primary Covered Transactions**

TO BE COMPLETED BY PRIME CONTRACTOR

- A. The prospective primary participant (contractor) certifies to the best of its knowledge and belief, that it and its principals (subcontractors and suppliers):
1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 2. Have not within a three (3) year period preceding this bid proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
 3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
 4. Have not within a three-year period preceding this bid proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- B. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid proposal.

Bob Dempsey, General Mgr.
Name and Title

09/18/14
Date

Bob Dempsey
Signature

Pace Analytical Services, Inc.
Firm

8 East Tower Circle
Street address

Diamond Beach, FL 32174
City, State, Zip

Section E. Required Submittals

13. Certification of Debarment of Sub (form-14)

14.0 CERTIFICATION REGARDING DEBARMENT (SUB)

**Certification Regarding
Debarment, Suspension, Ineligibility
And Voluntary Exclusion**

TO BE COMPLETED BY ALL SUB-CONTRACTORS

A. The prospective participant (sub-contractor) certifies to the best of its knowledge and belief, that it and its principals (subcontractors and suppliers):

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three (3) year period preceding this bid proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
4. Have not within a three-year period preceding this bid proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

B. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid proposal.

Dalia Alfi

Name and Title

9/15/2014

Date

[Signature]

Signature

Analytical Services, Inc.

Firm

130 Allen Brook Lane

Street address

Williston, VT 05495

City, State, Zip

14.0 CERTIFICATION REGARDING DEBARMENT (SUB)

**Certification Regarding
Debarment, Suspension, Ineligibility
And Voluntary Exclusion**

TO BE COMPLETED BY ALL SUB-CONTRACTORS

- A. The prospective participant (sub-contractor) certifies to the best of its knowledge and belief, that it and its principals (subcontractors and suppliers):
1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 2. Have not within a three (3) year period preceding this bid proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
 3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
 4. Have not within a three-year period preceding this bid proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- B. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid proposal.

Robert DeMalo SVP of Laboratory Services and Bus. Development

Name and Title

Date

9/15/14

Signature

EMSL Analytical, Inc.

Firm

200 Route 130 North

Street address

Cinnaminson, NJ 08077

City, State, Zip

Section E. Required Submittals

14. Copy of NELAP Certification



State of Florida
Department of Health, Bureau of Public Health Laboratories
This is to certify that



E83079

PACE ANALYTICAL SERVICES-FLORIDA
8 EAST TOWER CIRCLE
ORMOND BEACH, FL 32174

has complied with Florida Administrative Code 64E-1,
for the examination of environmental samples in the following categories

DRINKING WATER - GROUP I UNREGULATED CONTAMINANTS, DRINKING WATER - GROUP II UNREGULATED CONTAMINANTS, DRINKING WATER - OTHER REGULATED CONTAMINANTS, DRINKING WATER - GROUP III UNREGULATED CONTAMINANTS, DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, DRINKING WATER - RADIOCHEMISTRY, DRINKING WATER - SYNTHETIC ORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY, SOLID AND CHEMICAL MATERIALS - PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2014 Expiration Date: June 30, 2015



William H. Anderson, DHA, FACHE, Director
Division of Emergency Preparedness and Community Support
DH Form 1697, 7/04

NON-TRANSFERABLE E83079-51-07/01/2014
Supersedes all previously issued certificates

Laboratory Scope of Accreditation

Page 1 of 34

Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Drinking Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,1,1-Trichloroethane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,1,2,2-Tetrachloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,1,2-Trichloroethane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,1-Dichloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,1-Dichloroethylene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,1-Dichloropropene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2,3-Trichlorobenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2,3-Trichloropropane	EPA 504.1	Group II Unregulated Contaminants	NELAP	3/15/2013
1,2,3-Trichloropropane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,2,4-Trimethylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1	Synthetic Organic Contaminants	NELAP	1/8/2002
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 504.1	Synthetic Organic Contaminants	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,2-Dichloroethane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,2-Dichloropropane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,3,5-Trimethylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,3-Dichloropropane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,4-Dioxane (1,4-Diethyleneoxide)	EPA 522	Synthetic Organic Contaminants	NELAP	1/17/2014
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ 201)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2,2',3',4,6-Pentachlorobiphenyl (525.2 typo for 2,2',3,4',6'-Pentachlorobiphenyl)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2,2',4,4'-Tetrachlorobiphenyl (BZ 47)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2,2-Dichloropropane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
2,4,5-T	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
2,4-D	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
2,4-DB	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
2-Chlorobiphenyl (BZ 1)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2-Chlorotoluene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
3-Hydroxycarbofuran	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
4-Chlorotoluene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
4-Isopropyltoluene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Acetone	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/3/2012
Acifluorfen	EPA 515.3	Group I Unregulated Contaminants	NELAP	5/11/2004

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

Laboratory Scope of Accreditation

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Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Drinking Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Alachlor	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Aldicarb (Temik)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Aldicarb sulfone	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Aldicarb sulfoxide	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Aldrin	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Alkalinity as CaCO ₃	SM 2320 B	Primary Inorganic Contaminants	NELAP	1/8/2002
Aluminum	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Aluminum	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004
Ametryn	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Antimony	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Aroclor-1016 (PCB-1016)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1221 (PCB-1221)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1232 (PCB-1232)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1242 (PCB-1242)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1248 (PCB-1248)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1254 (PCB-1254)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1260 (PCB-1260)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Arsenic	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Arsenic	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Atraton	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Atrazine	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Barium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Barium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Bentazon	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
Benzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Benzo(a)pyrene	EPA 525.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Beryllium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Beryllium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 525.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Bromacil	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Bromate	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Bromide	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Bromide	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Bromoacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Bromobenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Bromochloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	9/14/2010

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

Laboratory Scope of Accreditation

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Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Drinking Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Bromochloromethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Bromodichloromethane	EPA 524.2	Group II Unregulated Contaminants, Other Regulated Contaminants	NELAP	1/8/2002
Bromoform	EPA 524.2	Group II Unregulated Contaminants, Other Regulated Contaminants	NELAP	1/8/2002
Butachlor	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Butachlor	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Butyl benzyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Cadmium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Cadmium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Calcium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Carbaryl (Sevin)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Carbofuran (Furadan)	EPA 531.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Carbon tetrachloride	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Carboxin (qualitative only)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Chlorate	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Chlordane (tech.)	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Chloride	EPA 300.0	Secondary Inorganic Contaminants	NELAP	1/8/2002
Chlorine	SM 4500-Cl D	Primary Inorganic Contaminants	NELAP	1/8/2002
Chlorine dioxide, res. disinfectant	SM 4500-ClO2 D	Primary Inorganic Contaminants	NELAP	10/14/2004
Chlorite	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Chloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Chlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Chloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Chloroform	EPA 524.2	Other Regulated Contaminants, Group II Unregulated Contaminants	NELAP	1/8/2002
Chlorpropham	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Chromium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Chromium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Chromium VI	EPA 218.6	Primary Inorganic Contaminants	NELAP	12/12/2012
Chromium VI	EPA 218.7	Primary Inorganic Contaminants	NELAP	12/12/2012
cis-1,2-Dichloroethylene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
cis-1,3-Dichloropropene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Cobalt	EPA 200.8	Primary Inorganic Contaminants	NELAP	12/12/2012
Color	SM 2120 B	Secondary Inorganic Contaminants	NELAP	1/8/2002
Conductivity	SM 2510 B	Primary Inorganic Contaminants	NELAP	1/8/2002

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

Laboratory Scope of Accreditation

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Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Drinking Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Copper	EPA 200.7	Primary Inorganic Contaminants, Secondary Inorganic Contaminants	NELAP	1/8/2002
Copper	EPA 200.8	Primary Inorganic Contaminants, Secondary Inorganic Contaminants	NELAP	5/11/2004
Corrosivity (langlier index)	SM 2330 B	Secondary Inorganic Contaminants	NELAP	1/8/2002
Cyanide	EPA 335.4	Primary Inorganic Contaminants	NELAP	1/8/2002
Cycloate	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Dalapon	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Di(2-ethylhexyl)adipate	EPA 525.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Diazinon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Dibromoacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Dibromochloromethane	EPA 524.2	Other Regulated Contaminants, Group II Unregulated Contaminants	NELAP	1/8/2002
Dibromomethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Dicamba	EPA 515.3	Group I Unregulated Contaminants	NELAP	5/11/2004
Dichloran	PACE SOP S-FL-O-019/GC-MS	Group I Unregulated Contaminants	NELAP	3/15/2013
Dichloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Dichlorodifluoromethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Dichloromethane (DCM, Methylene chloride)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Dichloroprop (Dichlorprop)	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
Dichlorovos (DDVP, Dichlorvos)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Dieldrin	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Dieldrin	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Diethyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Dimethyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Di-n-butyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Diphenamid	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Diquat	EPA 549.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Dissolved organic carbon (DOC)	SM 5310 B	Primary Inorganic Contaminants	NELAP	1/3/2012
Disulfoton	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Disulfoton sulfone	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Disulfoton sulfoxide	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Endothall	EPA 548.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Endrin	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Drinking Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
EPTC (Eptam, s-ethyl-dipropyl thio carbamate)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Escherichia coli	COLISURE	Microbiology	NELAP	11/1/2011
Escherichia coli	SM 9223 B	Microbiology	NELAP	11/1/2011
Ethoprop	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Ethylbenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Fenamiphos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Fenarimol	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Fluorene	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Fluoride	EPA 300.0	Primary Inorganic Contaminants, Secondary Inorganic Contaminants	NELAP	1/8/2002
Fluridone	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Glyphosate	EPA 547	Synthetic Organic Contaminants	NELAP	1/8/2002
Hardness	SM 2340 B	Secondary Inorganic Contaminants	NELAP	8/14/2006
Hardness (calc.)	EPA 200.7	Secondary Inorganic Contaminants	NELAP	8/14/2006
Heptachlor	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Heptachlor epoxide	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Heterotrophic plate count	SIMPLATE	Microbiology	NELAP	3/15/2013
Heterotrophic plate count	SM 9215 B	Microbiology	NELAP	1/8/2002
Hexachlorobenzene	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Hexachlorobutadiene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Hexachlorocyclopentadiene	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Hexazinone (Velpar)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Indeno(1,2,3-cd)pyrene	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Iron	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Isopropylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Lead	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
m/p-Xylenes	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/3/2012
Magnesium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Manganese	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Manganese	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004
Mercury	EPA 245.1	Primary Inorganic Contaminants	NELAP	1/8/2002
Merphos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Methiocarb (Mesurol)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Methomyl (Lannate)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Methoxychlor	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Methyl bromide (Bromomethane)	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Methyl chloride (Chloromethane)	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Methyl paraoxon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Methyl tert-butyl ether (MTBE)	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Metolachlor	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Metolachlor	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Metribuzin	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Metribuzin	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Mevinphos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
MGK-264	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Naphthalene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Napropamide	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
n-Butylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Nickel	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Nickel	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Nitrate	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Nitrate	EPA 353.2	Primary Inorganic Contaminants	NELAP	1/8/2002
Nitrite	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Nitrite	EPA 353.2	Primary Inorganic Contaminants	NELAP	1/8/2002
Norflurazon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
n-Propylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Odor	SM 2150 B	Secondary Inorganic Contaminants	NELAP	1/8/2002
Orthophosphate as P	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Orthophosphate as P	EPA 365.1	Primary Inorganic Contaminants	NELAP	1/8/2002
Oxamyl	EPA 531.1	Synthetic Organic Contaminants	NELAP	1/8/2002
o-Xylene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/3/2012
Paraquat	EPA 549.2	Synthetic Organic Contaminants	NELAP	3/10/2010
PCBs	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Pebulate	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Pentachlorophenol	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Perchlorate	EPA 331.0	Secondary Inorganic Contaminants	NELAP	4/29/2014
pH	SM 4500-H+-B	Secondary Inorganic Contaminants	NELAP	2/19/2008
Picloram	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Potassium	EPA 200.7	Secondary Inorganic Contaminants	NELAP	10/18/2004
Prometon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Prometryn	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Pronamide (Kerb)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Propachlor (Ramrod)	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Propachlor (Ramrod)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Pyrene	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
sec-Butylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Selenium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Silica as SiO ₂	EPA 200.7	Primary Inorganic Contaminants	NELAP	12/12/2012
Silica as SiO ₂	SM 4500-Si D (18th/19th Ed.)/UV-VIS	Primary Inorganic Contaminants	NELAP	1/8/2002
Silver	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Silver	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004
Silvex (2,4,5-TP)	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Simazine	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Simetryn	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Sodium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Stirofos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Strontium	PACE SOP S-FL-M-004/ICP-MS	Secondary Inorganic Contaminants	NELAP	12/12/2012
Styrene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Sulfate	EPA 300.0	Primary Inorganic Contaminants, Secondary Inorganic Contaminants	NELAP	1/8/2002
Surfactants - MBAS	SM 5540 C	Secondary Inorganic Contaminants	NELAP	1/8/2002
Tebuthiuron	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Terbacil	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
tert-Butylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Tetrachloroethylene (Perchloroethylene)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Thallium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Toluene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Total coliforms	COLISURE	Microbiology	NELAP	11/1/2011
Total coliforms	SM 9223 B	Microbiology	NELAP	11/1/2011
Total dissolved solids	SM 2540 C	Secondary Inorganic Contaminants	NELAP	1/8/2002
Total haloacetic acids (HAA5)	EPA 552.2	Synthetic Organic Contaminants	NELAP	8/14/2006
Total nitrate-nitrite	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Total nitrate-nitrite	EPA 353.2	Primary Inorganic Contaminants	NELAP	1/8/2002
Total organic carbon	SM 5310 B	Primary Inorganic Contaminants	NELAP	1/8/2002
Total trihalomethanes	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Toxaphene (Chlorinated camphene)	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
trans-1,2-Dichloroethylene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
trans-1,3-Dichloropropene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Trichloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Trichloroethene (Trichloroethylene)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Trichlorofluoromethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Trifluralin (Treflan)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Turbidity	EPA 180.1	Secondary Inorganic Contaminants	NELAP	1/8/2002
Uranium	EPA 200.8	Radiochemistry	NELAP	12/12/2012
UV 254	SM 5910 B	Primary Inorganic Contaminants	NELAP	1/8/2002
Vinyl chloride	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Xylene (total)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Zinc	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Zinc	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1,1-Trichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1,1-Trichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1,2,2-Tetrachloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1,2,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260	Volatile Organics	NELAP	1/3/2012
1,1,2-Trichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1,2-Trichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1-Dichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1-Dichloroethylene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1-Dichloropropene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,3-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,3-Trichloropropane	EPA 504.1	Volatile Organics	NELAP	3/15/2013
1,2,3-Trichloropropane	EPA 8011	Volatile Organics	NELAP	3/15/2013
1,2,3-Trichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,3-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	3/15/2013
1,2,4,5-Tetrachlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2,4-Trichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2,4-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1	Volatile Organics	NELAP	1/3/2012
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8011	Volatile Organics	NELAP	7/1/2003
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 504.1	Volatile Organics	NELAP	1/3/2012
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8011	Volatile Organics	NELAP	7/1/2003
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2-Dichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,2-Dichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dichloropropane	EPA 624	Volatile Organics	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
1,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dinitrobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2-Diphenylhydrazine	EPA 625	Extractable Organics	NELAP	4/29/2014
1,2-Diphenylhydrazine	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,3,5-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,3,5-Trinitrobenzene (1,3,5-TNB)	EPA 8270	Extractable Organics	NELAP	9/2/2008
1,3-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,3-Dichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270	Extractable Organics	NELAP	9/2/2008
1,4-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,4-Dioxane (1,4-Diethyleneoxide)	EPA 522	Volatile Organics	NELAP	1/17/2014
1,4-Dioxane (1,4-Diethyleneoxide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,4-Naphthoquinone	EPA 8270	Extractable Organics	NELAP	8/14/2006
1,4-Phenylenediamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
1-Methylnaphthalene	EPA 625	Extractable Organics	NELAP	3/15/2013
1-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	1/3/2012
1-Naphthylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
2,3,4,6-Tetrachlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,3-Dichloroaniline	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
2,4,5-T	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4,6-Trichlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-D	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
2,4-DB	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
2,4-Dichlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-Dimethylphenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	7/1/2003

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Analyte	Method/Tech	Category	Certification Type	Effective Date
2,4-Dinitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-Dinitrotoluene (2,4-DNT)	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,6-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,6-Dinitrotoluene (2,6-DNT)	EPA 625	Extractable Organics	NELAP	1/8/2002
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Acetylaminofluorene	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260	Volatile Organics	NELAP	7/1/2003
2-Chloroethyl vinyl ether	EPA 624	Volatile Organics	NELAP	1/8/2002
2-Chloroethyl vinyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
2-Chloronaphthalene	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Chlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
2-Hexanone	EPA 8260	Volatile Organics	NELAP	7/1/2003
2-Methyl-4,6-dinitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Methylnaphthalene	EPA 625	Extractable Organics	NELAP	3/15/2013
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Methylphenol (o-Cresol)	EPA 625	Extractable Organics	NELAP	3/15/2013
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Naphthylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Nitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Picoline (2-Methylpyridine)	EPA 8270	Extractable Organics	NELAP	7/1/2003
3,3'-Dichlorobenzidine	EPA 625	Extractable Organics	NELAP	1/8/2002
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
3,3-Dimethyl-1-butanol	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
3,3'-Dimethylbenzidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
3/4-Methylphenols (m/p-Cresols)	EPA 625	Extractable Organics	NELAP	3/15/2013
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	1/2/2008
3-Methylcholanthrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003

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Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
4,4'-DDD	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
4,4'-DDD	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
4,4'-DDE	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
4,4'-DDE	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
4,4'-DDT	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
4,4'-DDT	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
4-Aminobiphenyl	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Bromophenyl phenyl ether	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chloro-3-methylphenol	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chlorophenyl phenylether	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
4-Dimethyl aminoazobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Methyl-2-pentanone (MIBK)	EPA 8260	Volatile Organics	NELAP	7/1/2003
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Nitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
5-Nitro-o-toluidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
7,12-Dimethylbenz(a) anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
a,a-Dimethylphenethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acenaphthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Acenaphthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acenaphthylene	EPA 625	Extractable Organics	NELAP	1/8/2002
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acetone	EPA 8260	Volatile Organics	NELAP	7/1/2003
Acetonitrile	EPA 8260	Volatile Organics	NELAP	7/1/2003
Acetophenone	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
Acetophenone	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acrolein (Propenal)	EPA 624	Volatile Organics	NELAP	1/8/2002
Acrolein (Propenal)	EPA 8260	Volatile Organics	NELAP	7/1/2003

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Acrylonitrile	EPA 624	Volatile Organics	NELAP	1/8/2002
Acrylonitrile	EPA 8260	Volatile Organics	NELAP	7/1/2003
Aldrin	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aldrin	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Alkalinity as CaCO ₃	SM 2320 B	General Chemistry	NELAP	1/8/2002
Allyl chloride (3-Chloropropene)	EPA 8260	Volatile Organics	NELAP	7/1/2003
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
alpha-BHC (alpha-Hexachlorocyclohexane)	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aluminum	EPA 200.7	Metals	NELAP	1/8/2002
Aluminum	EPA 200.8	Metals	NELAP	5/11/2004
Aluminum	EPA 6010	Metals	NELAP	7/1/2003
Aluminum	EPA 6020	Metals	NELAP	5/11/2004
Ammonia as N	EPA 350.1	General Chemistry	NELAP	1/8/2002
Aniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
Anthracene	EPA 625	Extractable Organics	NELAP	1/8/2002
Anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Antimony	EPA 200.7	Metals	NELAP	1/8/2002
Antimony	EPA 200.8	Metals	NELAP	5/11/2004
Antimony	EPA 6010	Metals	NELAP	7/1/2003
Antimony	EPA 6020	Metals	NELAP	5/11/2004
Aramite	EPA 8270	Extractable Organics	NELAP	7/1/2003
Aroclor-1016 (PCB-1016)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1221 (PCB-1221)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1232 (PCB-1232)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1242 (PCB-1242)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1248 (PCB-1248)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1254 (PCB-1254)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Aroclor-1260 (PCB-1260)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Arsenic	EPA 200.7	Metals	NELAP	1/8/2002
Arsenic	EPA 200.8	Metals	NELAP	5/11/2004
Arsenic	EPA 6010	Metals	NELAP	1/8/2002
Arsenic	EPA 6020	Metals	NELAP	5/11/2004
Atrazine	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Azinphos-methyl (Guthion)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Barium	EPA 200.7	Metals	NELAP	1/8/2002
Barium	EPA 200.8	Metals	NELAP	5/11/2004
Barium	EPA 6010	Metals	NELAP	7/1/2003
Barium	EPA 6020	Metals	NELAP	5/11/2004
Bentazon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Benzaldehyde	EPA 8270	Extractable Organics	NELAP	1/17/2014
Benzene	EPA 624	Volatile Organics	NELAP	1/8/2002
Benzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Benzidine	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(a)anthracene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(a)pyrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(b)fluoranthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(g,h,i)perylene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(k)fluoranthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzoic acid	EPA 8270	Extractable Organics	NELAP	1/3/2012
Benzyl alcohol	EPA 8270	Extractable Organics	NELAP	1/2/2008
Beryllium	EPA 200.7	Metals	NELAP	1/8/2002
Beryllium	EPA 200.8	Metals	NELAP	5/11/2004
Beryllium	EPA 6010	Metals	NELAP	7/1/2003
Beryllium	EPA 6020	Metals	NELAP	5/11/2004
beta-BHC (beta-Hexachlorocyclohexane)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
beta-BHC (beta-Hexachlorocyclohexane)	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Biochemical oxygen demand	SM 5210 B	General Chemistry	NELAP	10/3/2007
Biphenyl	EPA 8270	Extractable Organics	NELAP	1/17/2014
bis(2-Chloroethoxy)methane	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	7/1/2003
bis(2-Chloroethyl) ether	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	7/1/2003
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	7/1/2003
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	7/1/2003
Boron	EPA 200.7	Metals	NELAP	1/8/2002
Boron	EPA 6010	Metals	NELAP	7/1/2003
Bromate	EPA 300.1	General Chemistry	NELAP	12/12/2012
Bromide	EPA 300.0	General Chemistry	NELAP	1/8/2002
Bromide	EPA 9056	General Chemistry	NELAP	7/1/2003
Bromobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Bromochloromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Bromodichloromethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Bromodichloromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Bromoform	EPA 624	Volatile Organics	NELAP	1/8/2002
Bromoform	EPA 8260	Volatile Organics	NELAP	7/1/2003
Butyl benzyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Cadmium	EPA 200.7	Metals	NELAP	1/8/2002
Cadmium	EPA 200.8	Metals	NELAP	5/11/2004
Cadmium	EPA 6010	Metals	NELAP	1/8/2002
Cadmium	EPA 6020	Metals	NELAP	5/11/2004
Calcium	EPA 200.7	Metals	NELAP	1/8/2002
Calcium	EPA 6010	Metals	NELAP	7/1/2003
Carbazole	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
Carbazole	EPA 8270	Extractable Organics	NELAP	1/3/2012
Carbon disulfide	EPA 8260	Volatile Organics	NELAP	7/1/2003
Carbon tetrachloride	EPA 624	Volatile Organics	NELAP	1/8/2002
Carbon tetrachloride	EPA 8260	Volatile Organics	NELAP	7/1/2003

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Carbonaceous BOD (CBOD)	SM 5210 B	General Chemistry	NELAP	1/8/2002
Carbophenothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chemical oxygen demand	EPA 410.4	General Chemistry	NELAP	1/8/2002
Chlorate	EPA 300.1	General Chemistry	NELAP	12/12/2012
Chlordane (tech.)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chloride	EPA 300.0	General Chemistry	NELAP	1/8/2002
Chloride	EPA 9056	General Chemistry	NELAP	7/1/2003
Chlorite	EPA 300.1	General Chemistry	NELAP	12/12/2012
Chlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
Chlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chlorobenzilate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Chloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chloroform	EPA 624	Volatile Organics	NELAP	1/8/2002
Chloroform	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chlorophylls	SM 10200 H	General Chemistry	NELAP	1/8/2002
Chloroprene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chlorpyrifos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chromium	EPA 200.7	Metals	NELAP	1/8/2002
Chromium	EPA 200.8	Metals	NELAP	5/11/2004
Chromium	EPA 6010	Metals	NELAP	7/1/2003
Chromium	EPA 6020	Metals	NELAP	5/11/2004
Chromium VI	EPA 218.6	General Chemistry	NELAP	1/17/2014
Chromium VI	SM 3500-Cr B (20th/21st Ed.)/UV-VIS	General Chemistry	NELAP	3/10/2010
Chrysene	EPA 625	Extractable Organics	NELAP	1/8/2002
Chrysene	EPA 8270	Extractable Organics	NELAP	7/1/2003
cis-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	7/1/2003
cis-1,3-Dichloropropene	EPA 624	Volatile Organics	NELAP	1/8/2002
cis-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	7/1/2003
cis-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Cobalt	EPA 200.7	Metals	NELAP	1/8/2002
Cobalt	EPA 200.8	Metals	NELAP	5/11/2004
Cobalt	EPA 6010	Metals	NELAP	7/1/2003
Cobalt	EPA 6020	Metals	NELAP	5/11/2004
Color	SM 2120 B	General Chemistry	NELAP	10/3/2007

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Conductivity	EPA 120.1	General Chemistry	NELAP	1/8/2002
Conductivity	SM 2510 B	General Chemistry	NELAP	1/3/2012
Copper	EPA 200.7	Metals	NELAP	1/8/2002
Copper	EPA 200.8	Metals	NELAP	5/11/2004
Copper	EPA 6010	Metals	NELAP	1/8/2002
Copper	EPA 6020	Metals	NELAP	5/11/2004
Corrosivity (langlier index)	SM 2330 B	General Chemistry	NELAP	1/8/2002
Coumaphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Cyanide	EPA 335.4	General Chemistry	NELAP	1/8/2002
Cyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dalapon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
delta-BHC	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
delta-BHC	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Demeton-o	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Demeton-s	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Diallate	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	8/14/2006
Diazinon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dibenz(a,h)anthracene	EPA 625	Extractable Organics	NELAP	1/8/2002
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	7/1/2003
Dibromochloromethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Dibromochloromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Dibromomethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Dicamba	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dichlorodifluoromethane	EPA 624	Volatile Organics	NELAP	4/29/2014
Dichlorodifluoromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Dichloroprop (Dichlorprop)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	3/10/2010
Dichlorovos (DDVP, Dichlorvos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dieldrin	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dieldrin	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Diethyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
Diethyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Di-isopropylether (DIPE)	EPA 8260	Volatile Organics	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Dimethoate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dimethyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Di-n-butyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Di-n-octyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Disulfoton	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/2/2008
Endosulfan I	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endosulfan I	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endosulfan II	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endosulfan II	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endosulfan sulfate	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endosulfan sulfate	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endrin	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endrin	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endrin aldehyde	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endrin aldehyde	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Ethanol	EPA 8260	Volatile Organics	NELAP	7/1/2003
Ethion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Ethyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Ethyl methacrylate	EPA 8260	Volatile Organics	NELAP	7/1/2003
Ethyl methanesulfonate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Ethylbenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
Ethylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Ethyl-t-butylether (ETBE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Famphur	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Fecal coliforms	SM 9222 D	Microbiology	NELAP	1/8/2002

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Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Fluoranthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Fluoranthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Fluorene	EPA 625	Extractable Organics	NELAP	1/8/2002
Fluorene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Fluoride	EPA 300.0	General Chemistry	NELAP	1/8/2002
Fluoride	EPA 9056	General Chemistry	NELAP	7/1/2003
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Heptachlor	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Heptachlor	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Heptachlor epoxide	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Heptachlor epoxide	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Hexachlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachlorobutadiene	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachlorobutadiene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachlorocyclopentadiene	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachloroethane	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachloropropene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Ignitability	EPA 1010	General Chemistry	NELAP	7/1/2003
Indeno(1,2,3-cd)pyrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Iodomethane (Methyl iodide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Iron	EPA 200.7	Metals	NELAP	1/8/2002
Iron	EPA 6010	Metals	NELAP	7/1/2003
Iron	EPA 6020	Metals	NELAP	1/3/2012
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Isodrin	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Isophorone	EPA 625	Extractable Organics	NELAP	1/8/2002
Isophorone	EPA 8270	Extractable Organics	NELAP	7/1/2003
Isopropylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Isosafrole	EPA 8270	Extractable Organics	NELAP	7/1/2003
Kjeldahl nitrogen - total	EPA 351.2	General Chemistry	NELAP	1/8/2002
Lead	EPA 200.7	Metals	NELAP	1/8/2002
Lead	EPA 200.8	Metals	NELAP	5/11/2004
Lead	EPA 6010	Metals	NELAP	1/8/2002
Lead	EPA 6020	Metals	NELAP	5/11/2004
m/p-Xylenes	EPA 8260	Volatile Organics	NELAP	1/3/2012
m+p-Xylenes	EPA 624	Volatile Organics	NELAP	1/3/2012
Magnesium	EPA 200.7	Metals	NELAP	1/8/2002
Magnesium	EPA 6010	Metals	NELAP	7/1/2003
Malathion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Manganese	EPA 200.7	Metals	NELAP	1/8/2002
Manganese	EPA 200.8	Metals	NELAP	5/11/2004
Manganese	EPA 6010	Metals	NELAP	7/1/2003
Manganese	EPA 6020	Metals	NELAP	5/11/2004
MCPA	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
MCPP	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Mercury	EPA 245.1	Metals	NELAP	1/8/2002
Mercury	EPA 7470	Metals	NELAP	1/8/2002
Methacrylonitrile	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methapyrilene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Methoxychlor	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Methyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methyl bromide (Bromomethane)	EPA 624	Volatile Organics	NELAP	1/8/2002
Methyl bromide (Bromomethane)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methyl chloride (Chloromethane)	EPA 624	Volatile Organics	NELAP	1/8/2002
Methyl chloride (Chloromethane)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methyl methacrylate	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methyl methanesulfonate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Methyl parathion (Parathion, methyl)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Methyl tert-butyl ether (MTBE)	EPA 624	Volatile Organics	NELAP	1/3/2012
Methyl tert-butyl ether (MTBE)	EPA 8260	Volatile Organics	NELAP	10/21/2003

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Methylcyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methylene chloride	EPA 624	Volatile Organics	NELAP	1/8/2002
Methylene chloride	EPA 8260	Volatile Organics	NELAP	7/1/2003
Mevinphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Mirex	EPA 608	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Molybdenum	EPA 200.7	Metals	NELAP	1/8/2002
Molybdenum	EPA 200.8	Metals	NELAP	5/11/2004
Molybdenum	EPA 6010	Metals	NELAP	1/8/2002
Molybdenum	EPA 6020	Metals	NELAP	1/3/2012
Monocrotophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Naphthalene	EPA 625	Extractable Organics	NELAP	1/8/2002
Naphthalene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Naphthalene	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Butylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
n-Decane	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
n-Hexane	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Nickel	EPA 200.7	Metals	NELAP	1/8/2002
Nickel	EPA 200.8	Metals	NELAP	5/11/2004
Nickel	EPA 6010	Metals	NELAP	1/8/2002
Nickel	EPA 6020	Metals	NELAP	5/11/2004
Nitrate	EPA 9056	General Chemistry	NELAP	7/1/2003
Nitrate as N	EPA 300.0	General Chemistry	NELAP	1/8/2002
Nitrate as N	EPA 353.2	General Chemistry	NELAP	1/8/2002
Nitrate-nitrite	EPA 300.0	General Chemistry	NELAP	1/8/2002
Nitrate-nitrite	EPA 353.2	General Chemistry	NELAP	1/8/2002
Nitrite	EPA 9056	General Chemistry	NELAP	7/1/2003
Nitrite as N	EPA 300.0	General Chemistry	NELAP	1/8/2002
Nitrite as N	EPA 353.2	General Chemistry	NELAP	1/8/2002
Nitrobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Nitroquinoline-1-oxide	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodiethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodimethylamine	EPA 625	Extractable Organics	NELAP	1/8/2002
n-Nitrosodimethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitroso-di-n-butylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003

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Analyte	Method/Tech	Category	Certification Type	Effective Date
n-Nitrosodi-n-propylamine	EPA 625	Extractable Organics	NELAP	1/8/2002
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodiphenylamine	EPA 625	Extractable Organics	NELAP	1/8/2002
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosomethylethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosomorpholine	EPA 8270	Extractable Organics	NELAP	10/14/2004
n-Nitrosopiperidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosopyrrolidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Octadecane	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
n-Propylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
o,o,o-Triethyl phosphorothioate	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Oil & Grease	EPA 1664A	General Chemistry	NELAP	1/8/2002
Organic nitrogen	TKN minus AMMONIA	General Chemistry	NELAP	1/3/2012
Orthophosphate as P	EPA 300.0	General Chemistry	NELAP	1/8/2002
Orthophosphate as P	EPA 365.1	General Chemistry	NELAP	1/8/2002
Orthophosphate as P	EPA 9056	General Chemistry	NELAP	7/1/2003
o-Toluidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
o-Xylene	EPA 624	Volatile Organics	NELAP	1/3/2012
o-Xylene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Parathion, ethyl	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Pentachlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Pentachloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Pentachloronitrobenzene (Quintozene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/2/2008
Pentachlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
Pentachlorophenol	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	9/4/2008
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
pH	EPA 9040	General Chemistry	NELAP	7/1/2003
pH	SM 4500-H+-B	General Chemistry	NELAP	10/3/2007
Phenacetin	EPA 8270	Extractable Organics	NELAP	7/1/2003
Phenanthrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Phenanthrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Phenol	EPA 625	Extractable Organics	NELAP	1/8/2002
Phenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
Phorate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Phosmet (Imidan)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Phosphorus, total	EPA 365.3	General Chemistry	NELAP	12/4/2007

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Phosphorus, total	EPA 365.4	General Chemistry	NELAP	1/8/2002
Picloram	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
p-Isopropyltoluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Potassium	EPA 200.7	Metals	NELAP	1/8/2002
Potassium	EPA 6010	Metals	NELAP	7/1/2003
Pronamide (Kerb)	EPA 8270	Extractable Organics	NELAP	7/1/2003
Propionitrile (Ethyl cyanide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Pyrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Pyrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Pyridine	EPA 8270	Extractable Organics	NELAP	7/1/2003
Residual free chlorine	SM 4500-Cl D	General Chemistry	NELAP	1/8/2002
Residue-filterable (TDS)	SM 2540 C	General Chemistry	NELAP	10/3/2007
Residue-nonfilterable (TSS)	SM 2540 D	General Chemistry	NELAP	10/3/2007
Residue-total	SM 2540 B	General Chemistry	NELAP	10/3/2007
Residue-volatile	EPA 160.4	General Chemistry	NELAP	1/8/2002
Safrole	EPA 8270	Extractable Organics	NELAP	7/1/2003
sec-Butylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Selenium	EPA 200.7	Metals	NELAP	1/8/2002
Selenium	EPA 200.8	Metals	NELAP	5/11/2004
Selenium	EPA 6010	Metals	NELAP	1/8/2002
Selenium	EPA 6020	Metals	NELAP	1/3/2012
Silica as SiO ₂	EPA 200.7	Metals	NELAP	1/3/2012
Silica as SiO ₂	EPA 6010	Metals	NELAP	1/3/2012
Silica-dissolved	SM 4500-Si D (18th/19th Ed.)/UV-VIS	General Chemistry	NELAP	5/11/2004
Silicon	EPA 200.7	Metals	NELAP	1/3/2012
Silicon	EPA 6010	Metals	NELAP	1/3/2012
Silver	EPA 200.7	Metals	NELAP	1/8/2002
Silver	EPA 200.8	Metals	NELAP	5/11/2004
Silver	EPA 6010	Metals	NELAP	7/1/2003
Silver	EPA 6020	Metals	NELAP	5/11/2004
Silvex (2,4,5-TP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Sodium	EPA 200.7	Metals	NELAP	1/8/2002
Sodium	EPA 6010	Metals	NELAP	7/1/2003
Stirofos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Strontium	EPA 200.7	Metals	NELAP	10/14/2004
Strontium	EPA 200.8	Metals	NELAP	12/12/2012

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State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Strontium	EPA 6010	Metals	NELAP	7/1/2003
Styrene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Sulfate	EPA 300.0	General Chemistry	NELAP	1/8/2002
Sulfate	EPA 9056	General Chemistry	NELAP	7/1/2003
Sulfide	EPA 9030/9034	General Chemistry	NELAP	7/1/2003
Sulfide	SM 4500-S F	General Chemistry	NELAP	1/3/2012
Surfactants - MBAS	SM 5540 C	General Chemistry	NELAP	10/3/2007
T-amylmethylether (TAME)	EPA 8260	Volatile Organics	NELAP	1/3/2012
tert-Amyl alcohol (2-methyl-2-butanol)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	1/3/2012
tert-Butyl formate	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Tetrachloroethylene (Perchloroethylene)	EPA 624	Volatile Organics	NELAP	1/8/2002
Tetrachloroethylene (Perchloroethylene)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Tetrahydrofuran (THF)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Thallium	EPA 200.7	Metals	NELAP	1/8/2002
Thallium	EPA 200.8	Metals	NELAP	5/11/2004
Thallium	EPA 6010	Metals	NELAP	7/1/2003
Thallium	EPA 6020	Metals	NELAP	5/11/2004
Thionazin (Zinophos)	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Tin	EPA 200.7	Metals	NELAP	1/8/2002
Tin	EPA 6010	Metals	NELAP	7/1/2003
Titanium	EPA 200.7	Metals	NELAP	1/3/2012
Titanium	EPA 6010	Metals	NELAP	1/3/2012
Tokuthion (Prothiophos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Toluene	EPA 624	Volatile Organics	NELAP	1/8/2002
Toluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Total coliforms	SM 9222 B	Microbiology	NELAP	1/8/2002
Total cyanide	EPA 9012	General Chemistry	NELAP	7/1/2003
Total hardness as CaCO ₃	EPA 200.7	Metals	NELAP	1/8/2002
Total hardness as CaCO ₃	SM 2340 B	Metals	NELAP	1/8/2002
Total nitrate-nitrite	EPA 9056	General Chemistry	NELAP	7/1/2003
Total nitrogen	TKN + Total nitrate-nitrite	General Chemistry	NELAP	1/3/2012
Total organic carbon	SM 5310 B	General Chemistry	NELAP	2/21/2008
Total Petroleum Hydrocarbons (TPH)	EPA 1664A	General Chemistry	NELAP	8/14/2008

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Total Petroleum Hydrocarbons (TPH)	FL-PRO	Extractable Organics	NELAP	7/1/2003
Total phenolics	EPA 420.4	General Chemistry	NELAP	1/8/2002
Total phenolics	EPA 9066	General Chemistry	NELAP	7/1/2003
Toxaphene (Chlorinated camphene)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
trans-1,2-Dichloroethylene	EPA 624	Volatile Organics	NELAP	1/8/2002
trans-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	7/1/2003
trans-1,3-Dichloropropene	EPA 624	Volatile Organics	NELAP	1/8/2002
trans-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	7/1/2003
trans-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Trichloroethene (Trichloroethylene)	EPA 624	Volatile Organics	NELAP	1/8/2002
Trichloroethene (Trichloroethylene)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Trichlorofluoromethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Trichlorofluoromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Turbidity	EPA 180.1	General Chemistry	NELAP	1/8/2002
Un-ionized Ammonia	DEP SOP 10/03/83	General Chemistry	NELAP	1/8/2002
Uranium	EPA 200.8	Metals	NELAP	3/10/2010
Vanadium	EPA 200.7	Metals	NELAP	1/8/2002
Vanadium	EPA 200.8	Metals	NELAP	5/11/2004
Vanadium	EPA 6010	Metals	NELAP	7/1/2003
Vanadium	EPA 6020	Metals	NELAP	1/3/2012
Vinyl acetate	EPA 8260	Volatile Organics	NELAP	7/1/2003
Vinyl chloride	EPA 624	Volatile Organics	NELAP	1/8/2002
Vinyl chloride	EPA 8260	Volatile Organics	NELAP	7/1/2003
Xylene (total)	EPA 624	Volatile Organics	NELAP	1/8/2002
Xylene (total)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Zinc	EPA 200.7	Metals	NELAP	1/8/2002
Zinc	EPA 200.8	Metals	NELAP	5/11/2004
Zinc	EPA 6010	Metals	NELAP	1/8/2002
Zinc	EPA 6020	Metals	NELAP	5/11/2004

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Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1,1-Trichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1,2,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260	Volatile Organics	NELAP	1/3/2012
1,1,2-Trichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1-Dichloropropene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,3-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,3-Trichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,3-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	4/29/2014
1,2,4-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,2,4-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,2-Dichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Diphenylhydrazine	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,3,5-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,3-Dichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	1/3/2012
2,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
2,3,4,6-Tetrachlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4,5-T	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4-D	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
2,4-DB	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260	Volatile Organics	NELAP	1/8/2002
2-Chloroethyl vinyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
2-Hexanone	EPA 8260	Volatile Organics	NELAP	1/8/2002
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Naphthylamine	EPA 8270	Extractable Organics	NELAP	1/2/2008
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	1/8/2002
3,3-Dimethyl-1-butanol	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	1/2/2008
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
4-Methyl-2-pentanone (MIBK)	EPA 8260	Volatile Organics	NELAP	1/8/2002
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
Acenaphthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Acetone	EPA 8260	Volatile Organics	NELAP	1/8/2002
Acetonitrile	EPA 8260	Volatile Organics	NELAP	1/8/2002
Acetophenone	EPA 8270	Extractable Organics	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Acrolein (Propenal)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Acrylonitrile	EPA 8260	Volatile Organics	NELAP	1/8/2002
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Allyl chloride (3-Chloropropene)	EPA 8260	Volatile Organics	NELAP	1/8/2002
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aluminum	EPA 6010	Metals	NELAP	1/8/2002
Ammonia as N	EPA 350.1	General Chemistry	NELAP	8/14/2008
Aniline	EPA 8270	Extractable Organics	NELAP	1/3/2012
Anthracene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Antimony	EPA 6010	Metals	NELAP	1/8/2002
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Arsenic	EPA 6010	Metals	NELAP	1/8/2002
Arsenic	EPA 6020	Metals	NELAP	1/3/2012
Atrazine	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Azinphos-methyl (Guthion)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Barium	EPA 6010	Metals	NELAP	1/8/2002
Barium	EPA 6020	Metals	NELAP	1/3/2012
Bentazon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Benzaldehyde	EPA 8270	Extractable Organics	NELAP	1/17/2014
Benzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Benzidine	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzoic acid	EPA 8270	Extractable Organics	NELAP	1/3/2012
Benzyl alcohol	EPA 8270	Extractable Organics	NELAP	1/3/2012
Beryllium	EPA 6010	Metals	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Beryllium	EPA 6020	Metals	NELAP	1/3/2012
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Biphenyl	EPA 8270	Extractable Organics	NELAP	1/17/2014
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	8/4/2008
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	1/8/2002
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	1/8/2002
Boron	EPA 6010	Metals	NELAP	1/8/2002
Bromide	EPA 9056	General Chemistry	NELAP	8/14/2008
Bromobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Bromochloromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Bromodichloromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Bromoform	EPA 8260	Volatile Organics	NELAP	1/8/2002
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Cadmium	EPA 6010	Metals	NELAP	1/8/2002
Cadmium	EPA 6020	Metals	NELAP	1/3/2012
Calcium	EPA 6010	Metals	NELAP	1/8/2002
Carbazole	EPA 8270	Extractable Organics	NELAP	1/3/2012
Carbon disulfide	EPA 8260	Volatile Organics	NELAP	1/8/2002
Carbon tetrachloride	EPA 8260	Volatile Organics	NELAP	1/8/2002
Carbophenothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chloride	EPA 9056	General Chemistry	NELAP	8/14/2008
Chlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chloroform	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chloroprene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chlorpyrifos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chromium	EPA 6010	Metals	NELAP	1/8/2002
Chromium	EPA 6020	Metals	NELAP	1/3/2012
Chrysene	EPA 8270	Extractable Organics	NELAP	1/8/2002
cis-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	1/8/2002
cis-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	1/8/2002
cis-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Cobalt	EPA 6010	Metals	NELAP	1/8/2002
Cobalt	EPA 6020	Metals	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Copper	EPA 6010	Metals	NELAP	1/8/2002
Copper	EPA 6020	Metals	NELAP	1/3/2012
Coumaphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Cyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dalapon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Demeton-o	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Demeton-s	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Diazinon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	1/8/2002
Dibromochloromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Dibromomethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Dicamba	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dichlorodifluoromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Dichloroprop (Dichlorprop)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	3/10/2010
Dichlorovos (DDVP, Dichlorvos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Diethyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Di-isopropylether (DIPE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dimethoate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Disulfoton	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/2/2008
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Ethanol	EPA 8260	Volatile Organics	NELAP	1/8/2002
Ethion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Ethyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Ethyl methacrylate	EPA 8260	Volatile Organics	NELAP	1/8/2002
Ethylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Ethyl-t-butylether (ETBE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Famphur	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Fecal coliforms	SM 9221 E	Microbiology	NELAP	8/14/2006
Fluoranthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Fluorene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Fluoride	EPA 9056	General Chemistry	NELAP	8/14/2008
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Hexachlorobutadiene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	1/8/2002
Ignitability	EPA 1010	General Chemistry	NELAP	1/8/2002
Ignitability	EPA 1030	General Chemistry	NELAP	1/8/2002
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Iodomethane (Methyl iodide)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Iron	EPA 6010	Metals	NELAP	1/8/2002
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Isophorone	EPA 8270	Extractable Organics	NELAP	1/8/2002
Isopropylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Kjeldahl nitrogen - total	EPA 351.2	General Chemistry	NELAP	8/14/2008
Lead	EPA 6010	Metals	NELAP	1/8/2002
Lead	EPA 6020	Metals	NELAP	1/3/2012
m/p-Xylenes	EPA 8260	Volatile Organics	NELAP	1/3/2012
Magnesium	EPA 6010	Metals	NELAP	1/8/2002
Malathion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Manganese	EPA 6010	Metals	NELAP	1/8/2002
Manganese	EPA 6020	Metals	NELAP	1/3/2012
MCPA	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
MCPP	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Mercury	EPA 7471	Metals	NELAP	1/8/2002

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

Laboratory Scope of Accreditation

Page 32 of 34

Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Methacrylonitrile	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Methyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methyl bromide (Bromomethane)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methyl chloride (Chloromethane)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methyl methacrylate	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methyl parathion (Parathion, methyl)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Methyl tert-butyl ether (MTBE)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methylcyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methylene chloride	EPA 8260	Volatile Organics	NELAP	1/8/2002
Mevinphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Molybdenum	EPA 6010	Metals	NELAP	1/8/2002
Monocrotophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Naphthalene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Naphthalene	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Butylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
n-Hexane	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Nickel	EPA 6010	Metals	NELAP	1/8/2002
Nickel	EPA 6020	Metals	NELAP	1/3/2012
Nitrate	EPA 9056	General Chemistry	NELAP	8/14/2008
Nitrate as N	EPA 353.2	General Chemistry	NELAP	7/1/2003
Nitrite	EPA 9056	General Chemistry	NELAP	1/8/2002
Nitrite as N	EPA 353.2	General Chemistry	NELAP	7/1/2003
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Nitrosodimethylamine	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Propylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Organic nitrogen	TKN minus AMMONIA	General Chemistry	NELAP	1/3/2012
Orthophosphate as P	EPA 9056	General Chemistry	NELAP	8/14/2008
o-Xylene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Paint Filter Liquids Test	EPA 9095	General Chemistry	NELAP	1/8/2002
Parathion, ethyl	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
p-Dioxane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Pentachloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002

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Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

Laboratory Scope of Accreditation

Page 33 of 34

Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Pentachlorophenol	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
pH	EPA 9045	General Chemistry	NELAP	1/8/2002
Phenanthrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Phenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
Phorate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Phosmet (Imidan)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Phosphorus, total	EPA 365.4	General Chemistry	NELAP	8/14/2008
Picloram	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
p-Isopropyltoluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Potassium	EPA 6010	Metals	NELAP	1/8/2002
Propionitrile (Ethyl cyanide)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Pyrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Pyridine	EPA 8270	Extractable Organics	NELAP	1/8/2002
Residue-total	SM 2540 G	General Chemistry	NELAP	5/11/2004
Residue-volatile	SM 2540 G	General Chemistry	NELAP	1/17/2014
sec-Butylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Selenium	EPA 6010	Metals	NELAP	1/8/2002
Selenium	EPA 6020	Metals	NELAP	1/3/2012
Silver	EPA 6010	Metals	NELAP	1/8/2002
Silvex (2,4,5-TP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Sodium	EPA 6010	Metals	NELAP	1/8/2002
Stirofos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Strontium	EPA 6010	Metals	NELAP	1/8/2002
Styrene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Sulfate	EPA 9056	General Chemistry	NELAP	8/14/2008
Sulfide	EPA 9030/9034	General Chemistry	NELAP	1/8/2002
Synthetic Precipitation Leaching Procedure	EPA 1312	General Chemistry	NELAP	1/8/2002
T-amylmethylether (TAME)	EPA 8260	Volatile Organics	NELAP	1/3/2012
tert-Amyl alcohol (2-methyl-2-butanol)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	1/3/2012
tert-Butyl formate	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Tetrachloroethylene (Perchloroethylene)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Tetrahydrofuran (THF)	EPA 8260	Volatile Organics	NELAP	1/3/2012

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Issue Date: 7/1/2014**Expiration Date: 6/30/2015**

Laboratory Scope of Accreditation

Page 34 of 34

Attachment to Certificate #: E83079-51, expiration date June 30, 2015. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079**EPA Lab Code: **FL01264****(386) 672-5668****E83079****Pace Analytical Services-Florida****8 East Tower Circle****Ormond Beach, FL 32174**Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Tetrahydrofuran (THF)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Thallium	EPA 6010	Metals	NELAP	1/8/2002
Thallium	EPA 6020	Metals	NELAP	1/3/2012
Tin	EPA 6010	Metals	NELAP	1/8/2002
Titanium	EPA 6010	Metals	NELAP	3/15/2013
Tokuthion (Prothiophos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Toluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Total cyanide	EPA 9012	General Chemistry	NELAP	1/8/2002
Total nitrate-nitrite	EPA 353.2	General Chemistry	NELAP	7/1/2003
Total nitrate-nitrite	EPA 9056	General Chemistry	NELAP	1/8/2002
Total nitrogen	TKN + Total nitrate-nitrite	General Chemistry	NELAP	1/3/2012
Total Petroleum Hydrocarbons (TPH)	FL-PRO	Extractable Organics	NELAP	1/8/2002
Total phenolics	EPA 9066	General Chemistry	NELAP	1/8/2002
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Toxicity Characteristic Leaching Procedure	EPA 1311	General Chemistry	NELAP	1/8/2002
trans-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	1/8/2002
trans-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	1/8/2002
trans-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Trichloroethene (Trichloroethylene)	EPA 8260	Volatile Organics	NELAP	12/22/2010
Trichlorofluoromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Vanadium	EPA 6010	Metals	NELAP	1/8/2002
Vanadium	EPA 6020	Metals	NELAP	1/3/2012
Vinyl acetate	EPA 8260	Volatile Organics	NELAP	1/8/2002
Vinyl chloride	EPA 8260	Volatile Organics	NELAP	1/8/2002
Xylene (total)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Zinc	EPA 6010	Metals	NELAP	1/8/2002
Zinc	EPA 6020	Metals	NELAP	1/3/2012

Section E. Required Submittals

15. Last Two years of Performance Evaluations



A Waters Company

Lynn Baylor
Pace Analytical Services - Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174

WP-222



Final Report

WatR™ Pollution Proficiency Testing

WatR™ Pollution Study

Open Date: 07/15/13

Close Date: 08/29/13

Report Issued Date: 10/02/13



A Waters Company

October 2, 2013

Lynn Baylor
Pace Analytical Services - Ormond Beach
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Ormond Beach, FL 32174

Per the notification from The NELAC Institute (TNI) that can be found in the anomaly section of this report, the reported results for Total Suspended Solids in the WP-222 Hardness sample, catalog #580, Solids Concentrate sample, catalog #4030 and Solids sample, catalog #241, have been re-evaluated against the TNI regression equation from the 2011 FoPT table. These revised results have been forwarded to your accrediting body (ies).

Thank you for your participation in ERA's WP-222 WatR™ Pollution Proficiency Testing study. If you have any questions, please contact our Proficiency Testing Department at 1-800-372-0122.

Sincerely,

Kristina Sanchez
Quality Officer

attachments



A Waters Company

Report Recipient	Contact/Phone Number	Reporting Type	Evaluation Type
Florida	Steve Arms / 904-791-1502	All Analytes	2009 TNI
Louisiana	Paul Bergeron / 225-219-3247	All Analytes	2009 TNI
South Carolina	Carol Smith / 803-896-0992	All Analytes	2003 NELAC
Virginia	Cathy Westerman / 804-648-4480 x391	All Analytes	2003 NELAC
Palm Beach County Solid Waste Authority	Tom Sirna /	All Analytes	2009 TNI

WP-222 Definitions & Study Discussion

Study Dates: 07/15/13 - 08/29/13

Report Issued: 10/02/13

WP Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values are compliant with the most current TNI Fields of Proficiency Testing (FoPT) tables. A parameter not added to the standard is given an Assigned Value of "< PTRL" per the guidelines contained in the 2009 TNI Standards. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards.

The Acceptance Limits are established per the criteria contained in the most current USEPA/NELAC FoPT tables, or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable.

The Performance Evaluation:

Acceptable	= Reported Value falls within the Acceptance Limits.
Not Acceptable	= Reported Value falls outside the Acceptance Limits.
No Evaluation	= Reported Value cannot be evaluated.
Not Reported	= No Value reported.

The Method Description is the method the laboratory reported to ERA.

WP Study Discussion

ERA's WP-222 WatR™Pollution Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI PT Standard and the criteria contained in the most current TNI Fields of Proficiency Testing (FoPT) tables.

ERA's WP-222 WatR™Pollution study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes met the acceptance criteria contained in the 2009 TNI PT Standard and the criteria contained in the most current TNI FoPT tables.

The data submitted by participating laboratories was also examined for study anomalies. There was one anomaly observed during the statistical review of the data. If your laboratory received the WP-222 Hardness sample, catalog #580, Solids Concentrate sample, catalog #4030 or Solids sample, catalog #241, this anomaly is addressed on the following page.

ERA's WP-222 WatR™Pollution study reports shall not be reproduced except in their entirety and not without the permission of the participating laboratories. The report must not be used by the participating laboratories to claim product endorsement by any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's WatR™Pollution Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.

WP-222 Study Anomalies

Study Dates: 07/15/13 - 08/29/13

Report Issued: 10/02/13

Study Discussion Hardness - Total Suspended Solids

Original anomaly dated 9/3/2013:

During the statistical review of the WP-222 Hardness sample, catalog #580, ERA noted a high failure rate and a low bias for Total Suspended Solids. ERA verified that the manufacturing data was correct and met all verification and homogeneity criteria. Upon further investigation, ERA determined that the elevated failure rate is due to the new regression equation criteria contained in the July 1, 2013, TNI FoPT Table. The acceptance limits using the current equation calculate to 78.8 - 93.8 mg/L (91.3% - 109%), however, in accordance with footnotes 5 and 6 in the most current TNI FoPT Table, the lower acceptance limit is set to 90.0% of the assigned value & the upper acceptance limit is set to 110% of the assigned value, resulting in acceptance limits of 77.7 – 94.9 mg/L and a failure rate of 33.8%. The acceptance limits calculated using the regression equation from the October 3, 2011, TNI FoPT Table would be 70.8 – 95.8 mg/L (82.0% - 111%), resulting in a failure rate of 10.6%. ERA will communicate these findings to the TNI FoPT committee.

TNI Notification dated 9/23/2013:

From:

Stacie Metzler, Proficiency Testing Program Executive Committee Chair (PTPEC)

To:

- TNI Proficiency Testing Provider Accreditors
- TNI Accredited Proficiency Testing (PT) Providers (Absolute Standards, Advanced Analytical Solutions, ERA, NY DOH Environmental Laboratory Approval Program, NSI Solutions, Phenova, and ResourceTechnology Corporation)

September 23, 2013

This letter serves as notification of a change to the Non Potable Water (NPW) Fields of Proficiency Testing (FoPT) Table for Total Suspended Solids (TSS) acceptance limits calculations. The NPW FoPT Table (Effective: July 1, 2013) included an update that resulted in a significant increase in the number of laboratory PT failures for TSS. After re-evaluation of this updated limit, the PTPEC determined there may be an error in the acceptance limits for TSS and a further evaluation is needed. Until such time, the acceptance limits from the 2011 NPW FoPT table should be used. The concentration range will remain the same as currently posted on the 2013 NPW FoPT table.

In order to implement this change, the July 2013 NPW FoPT table has been revised to show the change in the TSS acceptance limits. This revision is color coded as green and will be dated and posted no later than October 3, 2013 (see the attached NPW FoPT Table Effective July 1, 2013 Rev. 1.0) with the effective date remaining July 1, 2013.

The PTPEC requests that PT Providers and PTPAs evaluate all study data and results for TSS in NPW PT studies opening July 1 or after according to the July 1, 2013 rev 1.0 table. The committee also requested that PT Providers send updated reports, at a minimum, to laboratories and Accreditation Bodies (ABs) for which scores changed from "failure" to "pass" as a result of this change.

WP-222 Study Anomalies

Study Dates: 07/15/13 - 08/29/13

Report Issued: 10/02/13

Study Discussion Hardness - Total Suspended Solids (Continued)

In addition, the PTPEC is in the process of reviewing and evaluating SOP 4-101 "Recommendation and Calculation of Acceptance Limits for Chemical, Radiochemical, and Microbiological Components of Proficiency Tests" to determine if any additional review steps are needed when new acceptance limits are put into place.

Thank you for your patience and cooperation in resolving this issue.

Stacie Metzler
Chair, TNI PTPEC

Enc: NPW FoPT Table effective July 1, 2013. Rev 1.0



A Waters Company

WP-222 Laboratory Exception Report

Lynn Baylor
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Pace Analytical Services - Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174
(386) 676-4803

EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
10/02/13
07/15/13 - 08/29/13

2009 TNI Evaluation Checks

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WP PCBs in Oil (cat# 835S)							
8880	Aroclor 1016	mg/kg	< 0.17	34.0	5.80 - 46.6	Not Acceptable	EPA 8082 1996

2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WP Trace Metals (cat# 586)							
1075	Lead	µg/L	616	741	630 - 852	Not Acceptable	EPA 6020
WP Mercury (cat# 574)							
1095	Mercury	µg/L	3.01	5.52	3.86 - 7.18	Not Acceptable	EPA 7470 1986
1095	Mercury	µg/L	3.29	5.52	3.86 - 7.18	Not Acceptable	EPA 6020
1095	Mercury	µg/L	3.29	5.52	3.86 - 7.18	Not Acceptable	EPA 200.8 5.5 1998
WP Hexavalent Chromium (cat# 898)							
1045	Hexavalent Chromium	µg/L	120	170	139 - 200	Not Acceptable	EPA 218.6 3.3 1994
WP Tin & Titanium (cat# 573)							
1180	Titanium	µg/L	217	264	224 - 304	Not Acceptable	EPA 6020
WP Color (cat# 882)							
1605	Color	PC units	35	50.0	35.2 - 60.8	Not Acceptable	SM2120B 21st ED
WP Surfactants - MBAS (cat# 892)							
2025	Surfactants (MBAS)	mg/L	0.23	0.397	0.235 - 0.579	Not Acceptable	SM5540C 21st ED 2000



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

16341 Table Mountain Pkwy • Golden, CO 80403 • 800.372.0122 • 303.431.8454 • fax 303.421.0159 • www.eraqc.com





A Waters Company

WP-222 Laboratory Exception Report

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EPA ID:
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Study Dates:

FL01264
E550101
10/02/13
07/15/13 - 08/29/13

2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description

WP Chlorinated Acid Herbicides (cat# 829)

8560	2,4-DB	µg/L	6.72	3.86	0.386 - 6.56	Not Acceptable	EPA 8151A 1998

WP PCBs in Oil (cat# 835S)

8880	Aroclor 1016	mg/kg	< 0.17	34.0	5.80 - 46.6	Not Acceptable	EPA 8082 1996
8895	Aroclor 1242	mg/kg	34.8	< 1.70	0.00 - 1.70	Not Acceptable	EPA 8082 1996

WP Low-Level PAHs (cat# 836)

5590	Benzo(g,h,i)perylene	µg/L	1.14	0.742	0.252 - 1.04	Not Acceptable	EPA 8270C SIM

WP Nitrogen Pesticides (cat# 487)

8125	Simazine	µg/L	8.6	3.17	0.856 - 5.00	Not Acceptable	EPA 8141B 2000

WP Organophosphorous Pesticides (OPP) (cat# 934)

7985	Phorate	µg/L	8.3	6.60	2.56 - 8.28	Not Acceptable	EPA 8141B 2000



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01



Final Report Results For Laboratory Pace Analytical Services - Ormond Beach



2009 TNI Evaluation Report

Study: **WP-222**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results





A Waters Company

WP-222 2009 TNI Evaluation Final Complete Report

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EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
10/02/13
07/15/13 - 08/29/13

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Minerals (cat# 581)

1505	Alkalinity as CaCO ₃	mg/L	57.5	61.0	48.8 - 73.2	Acceptable	SM2320B 21st ED 1997	8/6/2013	-1.13	60.7	2.85	AMD
1575	Chloride	mg/L	44.8	47.5	41.1 - 54.0	Acceptable	EPA 300.0 2.1	7/31/2013	-1.05	46.8	1.90	JNZ
1610	Conductivity at 25°C	µmhos/cm	360	376	338 - 414	Acceptable	SM 2510 B-2011 2011	8/6/2013	-2.46	383	9.24	
1730	Fluoride	mg/L	2.85	2.97	2.39 - 3.43	Acceptable	EPA 300.0 2.1	7/31/2013	-0.203	2.88	0.169	JNZ
1125	Potassium	mg/L	33.1	36.1	28.9 - 43.3	Acceptable	EPA 6010B 2	8/2/2013	-0.901	34.9	1.97	TAP
1155	Sodium	mg/L	55.4	57.2	45.8 - 68.6	Acceptable	EPA 6010B 2	8/2/2013	-0.563	57.3	3.34	TAP
2000	Sulfate	mg/L	33.8	36.9	30.0 - 42.5	Acceptable	EPA 300.0 2.1	7/31/2013	-1.1	35.8	1.84	JNZ
1955	Total Dissolved Solids at 180°C	mg/L	271	282	237 - 327	Acceptable	SM 2540 C-2011 2011	7/31/2013	-0.337	277	16.9	
1950	Total Solids at 105°C	mg/L	278	291	246 - 336	Acceptable	SM2540B 21st ED	8/7/2013	-0.713	288	14.4	WMW

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L	71	86.3	70.8 - 95.8	Acceptable	SM2540D 21st ED 1997	7/31/2013	-1.7	79.9	5.21	WMW
1035	Calcium	mg/L	46	45.5	38.7 - 52.3	Acceptable	EPA 6010B 2 1996	8/2/2013	0.982	44.3	1.70	
1085	Magnesium	mg/L	14	14.2	12.1 - 16.3	Acceptable	EPA 6020	8/5/2013	0.316	13.8	0.647	HEA
1550	Calcium Hardness as CaCO ₃	mg/L	115	114	96.9 - 131	Acceptable	EPA 6010B 2 1996	8/2/2013	1.11	110	4.27	TAP
1755	Total Hardness as CaCO ₃	mg/L	174	172	146 - 198	Acceptable	EPA 6010B 2 1996	8/2/2013	1.22	167	5.76	

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L		86.3	70.8 - 95.8	Not Reported				79.9	5.21	
1035	Calcium	mg/L		45.5	38.7 - 52.3	Not Reported				44.3	1.70	
1085	Magnesium	mg/L	14.2	14.2	12.1 - 16.3	Acceptable	EPA 6010B 2 1996	8/2/2013	0.625	13.8	0.647	
1550	Calcium Hardness as CaCO ₃	mg/L		114	96.9 - 131	Not Reported				110	4.27	
1755	Total Hardness as CaCO ₃	mg/L		172	146 - 198	Not Reported				167	5.76	



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01





A Waters Company

WP-222 2009 TNI Evaluation Final Complete Report

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ERA Customer Number:
Report Issued:
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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP pH (cat# 577)

1900	pH	S.U.	5.63	5.57	5.37 - 5.77	Acceptable	SM4500H+ B 21st ED	7/29/2013	0.129	5.62	0.0466	GMD

WP Volatile Solids (cat# 884)

1970	Volatile Solids, Total	mg/L	286	342	262 - 388	Acceptable	EPA 160.4	8/16/2013	-2.79	332	16.7	WMW

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L	15.8	15.4	12.4 - 18.3	Acceptable	EPA 350.1	8/7/2013	0.358	15.4	1.09	SOA
1820	Nitrate + Nitrite as N	mg/L	16.4	15.1	12.6 - 17.4	Acceptable	EPA 300.0 2.1 1993	8/8/2013	1.38	15.1	0.935	
1810	Nitrate as N	mg/L	14.3	15.1	12.6 - 17.5	Acceptable	EPA 300.0 2.1 1993	8/8/2013	-0.833	15.1	0.965	
1870	ortho-Phosphate as P	mg/L	3.4	3.36	2.86 - 3.86	Acceptable	EPA 300.0 2.1	8/8/2013	0.189	3.36	0.187	KHC

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L		15.4	12.4 - 18.3	Not Reported				15.4	1.09	
1820	Nitrate + Nitrite as N	mg/L	14	15.1	12.6 - 17.4	Acceptable	EPA 353.2 2 1993	8/7/2013	-1.19	15.1	0.935	
1810	Nitrate as N	mg/L	14	15.1	12.6 - 17.5	Acceptable	EPA 353.2 2 1993	8/7/2013	-1.14	15.1	0.965	
1870	ortho-Phosphate as P	mg/L	3.48	3.36	2.86 - 3.86	Acceptable	EPA 365.1 2	8/6/2013	0.616	3.36	0.187	SOA

WP Complex Nutrients (cat# 579)

1795	Total Kjeldahl Nitrogen	mg/L	17.6	18.5	13.8 - 22.5	Acceptable	EPA 351.2 2 1993	8/8/2013	-0.568	18.3	1.28	
1910	Total phosphorus as P	mg/L	6.58	6.69	5.56 - 7.74	Acceptable	EPA 365.4 1974	8/8/2013	-0.236	6.67	0.392	

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	0.983	0.954	0.770 - 1.14	Acceptable	EPA 353.2	8/7/2013	0.519	0.956	0.0524	AMD

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	0.946	0.954	0.770 - 1.14	Acceptable	EPA 300.0 2.1	8/9/2013	-0.188	0.956	0.0524	JNZ



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WP-222 2009 TNI Evaluation Final Complete Report

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WP Demand (cat# 578)

1530	BOD	mg/L	132	122	66.0 - 179	Acceptable	SM5210B 21st ED 2001	8/5/2013	0.476	123	18.7	AGS
1555	CBOD	mg/L	127	111	51.9 - 170	Acceptable	SM 5210 B-2011 2011	8/12/2013	0.590	114	22.6	
1565	COD	mg/L	197	199	161 - 230	Acceptable	EPA 410.4	8/3/2013	-0.153	199	11.9	CRS
2040	TOC	mg/L	78.2	78.7	66.0 - 90.5	Acceptable	SM 5310 B-2011 2011	7/31/2013	-0.0937	78.6	4.55	

WP Oil & Grease (cat# 582)

1860	n-Hexane Extractable Material(O&G)(Grav)	mg/L	126	130	94.3 - 149	Acceptable	EPA 1664A	8/7/2013	0.756	118	10.4	
1860	n-Hexane Extractable Material(O&G)(IR)	mg/L		160	118 - 182	Not Reported				154	0.707	



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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	435	420	329 - 515	Acceptable	EPA 6020	8/5/2013	0.148	432	21.8	HEA
1005	Antimony	µg/L	380	429	343 - 501	Acceptable	EPA 6020	8/5/2013	-1.8	416	20.1	HEA
1010	Arsenic	µg/L	312	342	282 - 399	Acceptable	EPA 6020	8/5/2013	-1.47	333	14.3	HEA
1015	Barium	µg/L	603	702	597 - 807	Acceptable	EPA 6020	8/5/2013	-3.76	698	25.2	HEA
1020	Beryllium	µg/L	191	203	172 - 233	Acceptable	EPA 6020	8/5/2013	-1.04	200	8.74	HEA
1025	Boron	µg/L	829	837	711 - 963	Acceptable	EPA 6020	8/2/2013	-0.317	845	50.7	HEA
1030	Cadmium	µg/L	183	203	173 - 233	Acceptable	EPA 6020	8/5/2013	-1.74	199	9.46	HEA
1040	Chromium	µg/L	224	229	195 - 263	Acceptable	EPA 6020	8/5/2013	-0.442	228	8.98	HEA
1050	Cobalt	µg/L	417	409	348 - 470	Acceptable	EPA 6020	8/5/2013	-0.497	426	17.7	HEA
1055	Copper	µg/L	491	490	416 - 564	Acceptable	EPA 6020	8/5/2013	-0.0805	493	20.8	HEA
1070	Iron	µg/L	800	836	711 - 961	Acceptable	EPA 6020	8/5/2013	-1.32	847	35.5	HEA
1075	Lead	µg/L	616	741	630 - 852	Not Acceptable	EPA 6020	8/5/2013	-4.11	743	30.8	HEA
1090	Manganese	µg/L	484	483	411 - 555	Acceptable	EPA 6020	8/5/2013	-0.644	495	17.6	HEA
1100	Molybdenum	µg/L	250	273	233 - 310	Acceptable	EPA 6020	8/5/2013	-1.86	271	11.1	HEA
1105	Nickel	µg/L	355	360	311 - 413	Acceptable	EPA 6020	8/5/2013	-0.175	357	14.1	HEA
1140	Selenium	µg/L	566	638	542 - 734	Acceptable	EPA 6020	8/5/2013	-1.81	625	32.5	HEA
1150	Silver	µg/L	531	572	486 - 658	Acceptable	EPA 6020	8/5/2013	-1.53	569	25.0	HEA
1160	Strontium	µg/L	319	338	287 - 389	Acceptable	EPA 6020	8/5/2013	-1.58	339	12.5	HEA
1165	Thallium	µg/L	327	342	277 - 401	Acceptable	EPA 6020	8/5/2013	-0.854	341	16.4	HEA
1185	Vanadium	µg/L	200	211	179 - 243	Acceptable	EPA 6020	8/5/2013	-1.02	207	6.85	HEA



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	1660	1690	1440 - 1940	Acceptable	EPA 6020	8/5/2013	-0.108	1670	78.2	HEA



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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	457	420	329 - 515	Acceptable	EPA 6010B 2 1996	8/2/2013	1.16	432	21.8	TAP
1005	Antimony	µg/L	419	429	343 - 501	Acceptable	EPA 6010B 2 1996	8/2/2013	0.150	416	20.1	TAP
1010	Arsenic	µg/L	326	342	282 - 399	Acceptable	EPA 6010B 2 1996	8/2/2013	-0.489	333	14.3	TAP
1015	Barium	µg/L	701	702	597 - 807	Acceptable	EPA 6010B 2 1996	8/2/2013	0.133	698	25.2	TAP
1020	Beryllium	µg/L	203	203	172 - 233	Acceptable	EPA 6010B 2 1996	8/2/2013	0.333	200	8.74	TAP
1025	Boron	µg/L	821	837	711 - 963	Acceptable	EPA 6010B 2 1996	8/2/2013	-0.475	845	50.7	TAP
1030	Cadmium	µg/L	212	203	173 - 233	Acceptable	EPA 6010B 2 1996	8/2/2013	1.33	199	9.46	TAP
1040	Chromium	µg/L	234	229	195 - 263	Acceptable	EPA 6010B 2 1996	8/2/2013	0.671	228	8.98	TAP
1050	Cobalt	µg/L	454	409	348 - 470	Acceptable	EPA 6010B 2 1996	8/2/2013	1.60	426	17.7	TAP
1055	Copper	µg/L	499	490	416 - 564	Acceptable	EPA 6010B 2 1996	8/2/2013	0.304	493	20.8	TAP
1070	Iron	µg/L	871	836	711 - 961	Acceptable	EPA 6010B 2 1996	8/2/2013	0.680	847	35.5	TAP
1075	Lead	µg/L	798	741	630 - 852	Acceptable	EPA 6010B 2 1996	8/2/2013	1.79	743	30.8	TAP
1090	Manganese	µg/L	517	483	411 - 555	Acceptable	EPA 6010B 2 1996	8/2/2013	1.22	495	17.6	TAP
1100	Molybdenum	µg/L	273	273	233 - 310	Acceptable	EPA 6010B 2 1996	8/2/2013	0.212	271	11.1	TAP
1105	Nickel	µg/L	382	360	311 - 413	Acceptable	EPA 6010B 2 1996	8/2/2013	1.74	357	14.1	TAP
1140	Selenium	µg/L	627	638	542 - 734	Acceptable	EPA 6010B 2 1996	8/2/2013	0.0724	625	32.5	TAP
1150	Silver	µg/L	648	572	486 - 658	Acceptable	EPA 6010B 2 1996	8/2/2013	3.14	569	25.0	TAP
1160	Strontium	µg/L	343	338	287 - 389	Acceptable	EPA 6010B 2 1996	8/2/2013	0.334	339	12.5	TAP
1165	Thallium	µg/L	398	342	277 - 401	Acceptable	EPA 6010B 2 1996	8/2/2013	3.48	341	16.4	TAP
1185	Vanadium	µg/L	210	211	179 - 243	Acceptable	EPA 6010B 2 1996	8/2/2013	0.444	207	6.85	TAP



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	1690	1690	1440 - 1940	Acceptable	EPA 6010B 2 1996	8/2/2013	0.276	1670	78.2	TAP

WP Mercury (cat# 574)

1095	Mercury	µg/L	3.01	5.52	3.86 - 7.18	Not Acceptable	EPA 7470 1986	8/5/2013	-3.89	5.44	0.625	HEA

WP Mercury (cat# 574)

1095	Mercury	µg/L	3.29	5.52	3.86 - 7.18	Not Acceptable	EPA 6020	8/2/2013	-3.44	5.44	0.625	

WP Mercury (cat# 574)

1095	Mercury	µg/L	3.29	5.52	3.86 - 7.18	Not Acceptable	EPA 200.8 5.5 1998	8/2/2013	-3.44	5.44	0.625	

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	150	170	139 - 200	Acceptable	SM 3500-Cr B-2011 2011	7/30/2013	-1.7	167	10.2	

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	120	170	139 - 200	Not Acceptable	EPA 218.6 3.3 1994	7/31/2013	-4.64	167	10.2	

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1170	1240	868 - 1610	Acceptable	EPA 6020	8/5/2013	-0.811	1220	61.1	HEA
1180	Titanium	µg/L	217	264	224 - 304	Not Acceptable	EPA 6020	8/5/2013	-4.61	261	9.58	HEA

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1310	1240	868 - 1610	Acceptable	EPA 6010B 2 1996	8/2/2013	1.48	1220	61.1	
1180	Titanium	µg/L	262	264	224 - 304	Acceptable	EPA 6010B 2 1996	8/2/2013	0.0901	261	9.58	

WP Uranium (cat# 4400)

3055	Uranium (Nat) mass	µg/L	86.2	89.8	66.9 - 105	Acceptable	EPA 200.8 5.5	8/5/2013	-0.836	89.9	4.40	HEA

WP Color (cat# 882)

1605	Color	PC units	35	50.0	35.2 - 60.8	Not Acceptable	SM2120B 21st ED	7/29/2013	-2.76	46.6	4.22	AGS



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WP Turbidity (cat# 893)

2055	Turbidity	NTU	6.57	6.58	5.16 - 7.98	Acceptable	EPA 180.1 2	7/31/2013	0.420	6.40	0.405	AGS

WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.442	0.444	0.289 - 0.599	Acceptable	EPA 335.4 1993	8/5/2013	0.212	0.434	0.0353	SOA
1510	Amenable Cyanide	mg/L		0.278	0.181 - 0.375	Not Reported				0.277	0.0546	

WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.448	0.444	0.289 - 0.599	Acceptable	EPA 9012 1986	7/31/2013	0.382	0.434	0.0353	
1510	Amenable Cyanide	mg/L		0.278	0.181 - 0.375	Not Reported				0.277	0.0546	

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.803	0.896	0.448 - 1.34	Acceptable	EPA 420.4 1 1993	8/16/2013	-0.84	0.962	0.189	TK1

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.814	0.896	0.448 - 1.34	Acceptable	EPA 9066 1986	8/16/2013	-0.781	0.962	0.189	

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	90.8	93.2	69.9 - 116	Acceptable	EPA 200.7 5 1998	8/2/2013	-0.274	92.4	5.86	TAP

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	90.8	93.2	69.9 - 116	Acceptable	EPA 6010B 2 1996	8/2/2013	-0.274	92.4	5.86	

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	80	93.2	69.9 - 116	Acceptable	SM4500Si D online	8/8/2013	-2.12	92.4	5.86	

WP Sulfide (cat# 891)

2005	Sulfide	mg/L	3.77	4.79	1.92 - 7.07	Acceptable	SM 4500-S2 F-2011 2011	8/1/2013	-0.702	4.36	0.848	

WP Surfactants - MBAS (cat# 892)

2025	Surfactants (MBAS)	mg/L	0.23	0.397	0.235 - 0.579	Not Acceptable	SM5540C 21st ED 2000	8/1/2013	-2.83	0.417	0.0663	CRS



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WP Bromide (cat# 887)

1540	Bromide	mg/L	5.78	5.68	4.73 - 6.64	Acceptable	EPA 300.0 2.1	8/11/2013	-0.135	5.82	0.332	KHC

WP Total Residual Chlorine (cat# 587)

1940	Total Residual Chlorine	mg/L	2	1.70	1.26 - 2.00	Acceptable	SM 4500-Cl D-2011 2011	8/16/2013	2.57	1.67	0.130	



2009 TNI Evaluation Report

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Microbiology Results



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WP WasteWatTM Coliform MicrobETM (cat# 576)

2500	Total Coliforms (MF)	CFU/100mL	276	707	198 - 1160	Acceptable	SM 9222 B (M-Endo)-1997 1997	7/31/2013	-1.26	478	160	
2530	Fecal Coliforms (MF)	CFU/100mL	360	707	57.0 - 1520	Acceptable	SM9222D m FC 21st ED	7/31/2013	0.270	294	243	AIS
2525	E.coli (MF)	CFU/100mL		707	72.0 - 2150	Not Reported				394	346	
2500	Total Coliforms (MPN)	MPN/100mL		905	142 - 3640	Not Reported				718	582	
2530	Fecal Coliforms (MPN)	MPN/100mL		905	58.0 - 4040	Not Reported				484	664	
2525	E.coli (MPN)	MPN/100mL		905	270 - 2310	Not Reported				789	340	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



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Organic Results





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WP Volatiles (cat# 830)

4315	Acetone	µg/L	< 10	< 3.90	0.00 - 3.90	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4320	Acetonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4325	Acrolein	µg/L	< 20	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4340	Acrylonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4375	Benzene	µg/L	30.4	30.5	21.4 - 39.6	Acceptable	EPA 8260B 2 1996	8/8/2013	0.324	29.5	2.90	SK
4395	Bromodichloromethane	µg/L	44.7	51.4	30.8 - 72.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.487	46.8	4.41	SK
4400	Bromoform	µg/L	33.3	39.0	23.4 - 54.6	Acceptable	EPA 8260B 2 1996	8/8/2013	-1.59	40.2	4.38	SK
4950	Bromomethane	µg/L	20.25	29.8	11.9 - 47.7	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.685	25.5	7.64	SK
4410	2-Butanone (MEK)	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5000	tert-Butyl methyl ether (MTBE)	µg/L	45.3	46.0	30.4 - 63.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.151	46.1	5.09	SK
4450	Carbon disulfide	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4455	Carbon tetrachloride	µg/L	19.1	20.2	10.7 - 28.1	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.118	19.4	2.37	SK
4475	Chlorobenzene	µg/L	17	17.6	12.3 - 22.9	Acceptable	EPA 8260B 2 1996	8/8/2013	0.0744	16.9	1.51	SK
4575	Chlorodibromomethane	µg/L	67.4	72.5	43.5 - 102	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.815	73.9	7.96	SK
4485	Chloroethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4500	2-Chloroethylvinylether	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4505	Chloroform	µg/L	60.1	56.0	39.2 - 72.8	Acceptable	EPA 8260B 2 1996	8/8/2013	0.627	56.2	6.14	SK
4960	Chloromethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK





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WP Volatiles (cat# 830) (Continued)

4570	1,2-Dibromo-3-chloropropane (DBCP)	µg/L	< 2	< 9.00	0.00 - 9.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4585	1,2-Dibromoethane (EDB)	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4595	Dibromomethane	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4610	1,2-Dichlorobenzene	µg/L	16.3	17.6	12.3 - 22.9	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.672	17.2	1.36	SK
4615	1,3-Dichlorobenzene	µg/L	41.2	45.3	31.7 - 58.9	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.849	44.8	4.27	SK
4620	1,4-Dichlorobenzene	µg/L	12.6	13.6	9.52 - 17.7	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.807	13.6	1.25	SK
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4630	1,1-Dichloroethane	µg/L	14	15.9	10.2 - 22.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.494	15.0	1.97	SK
4635	1,2-Dichloroethane	µg/L	21.7	22.3	15.8 - 30.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.285	22.3	2.18	SK
4640	1,1-Dichloroethylene	µg/L	44.5	43.4	25.2 - 63.2	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.164	45.5	6.17	SK
4645	cis-1,2-Dichloroethylene	µg/L	24	23.9	16.3 - 32.1	Acceptable	EPA 8260B 2 1996	8/8/2013	0.102	23.7	2.74	SK
4700	trans-1,2-Dichloroethylene	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4655	1,2-Dichloropropane	µg/L	23.6	24.6	17.2 - 32.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.13	23.9	2.31	SK
4680	cis-1,3-Dichloropropylene	µg/L	17.9	21.9	14.2 - 29.6	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.856	20.2	2.65	SK
4685	trans-1,3-Dichloropropylene	µg/L	55.7	71.0	46.2 - 95.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-1.25	67.8	9.70	SK
4765	Ethylbenzene	µg/L	13	13.2	9.24 - 17.2	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.0318	13.0	1.21	SK
4835	Hexachlorobutadiene	µg/L	< 1	< 4.30	0.00 - 4.30	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4860	2-Hexanone	µg/L	< 10	< 4.40	0.00 - 4.40	Acceptable	EPA 8260B 2 1996	8/8/2013				SK





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WP Volatiles (cat# 830) (Continued)

4975	Methylene chloride	µg/L	< 5	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4995	4-Methyl-2-pentanone (MIBK)	µg/L	12.1	28.3	6.85 - 47.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-3.89	27.4	3.92	SK
5005	Naphthalene	µg/L	15.9	15.7	6.67 - 23.8	Acceptable	EPA 8260B 2 1996	8/8/2013	0.543	15.0	1.62	SK
5100	Styrene	µg/L	40.5	46.2	30.0 - 62.4	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.99	44.7	4.23	SK
5105	1,1,1,2-Tetrachloroethane	µg/L	< 1	< 9.80	0.00 - 9.80	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5110	1,1,2,2-Tetrachloroethane	µg/L	15.8	16.9	11.0 - 22.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.603	16.9	1.82	SK
5115	Tetrachloroethylene	µg/L	46.7	48.7	26.9 - 63.8	Acceptable	EPA 8260B 2 1996	8/8/2013	0.0194	46.6	6.30	SK
5140	Toluene	µg/L	46.2	44.8	31.4 - 58.2	Acceptable	EPA 8260B 2 1996	8/8/2013	0.404	44.5	4.18	SK
5155	1,2,4-Trichlorobenzene	µg/L	47.8	51.5	21.6 - 70.2	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.233	49.4	6.72	SK
5160	1,1,1-Trichloroethane	µg/L	31.8	32.5	19.5 - 45.5	Acceptable	EPA 8260B 2 1996	8/8/2013	0.0960	31.4	3.66	SK
5165	1,1,2-Trichloroethane	µg/L	42.8	45.4	31.8 - 59.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.675	45.6	4.15	SK
5170	Trichloroethylene	µg/L	22.6	23.7	14.9 - 31.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.154	22.9	2.25	SK
5175	Trichlorofluoromethane	µg/L	32.3	36.7	14.7 - 58.7	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.713	37.6	7.52	SK
5180	1,2,3-Trichloropropane (TCP)	µg/L	< 5	< 4.10	0.00 - 4.10	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5210	1,2,4-Trimethylbenzene	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5215	1,3,5-Trimethylbenzene	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5225	Vinyl acetate	µg/L	< 2	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5235	Vinyl chloride	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK



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5240	m&p-Xylene	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5250	o-Xylene	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5260	Xylenes, total	µg/L	< 1	< 12.0	0.00 - 12.0	Acceptable	EPA 8260B 2 1996	8/8/2013				SK





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WP Chlorinated Acid Herbicides (cat# 829)

8505	Acifluorfen	µg/L		6.40	0.896 - 9.42	Not Reported				6.31	2.14	
8530	Bentazon	µg/L	2.04	2.46	0.246 - 4.47	Acceptable	EPA 8151A 1998	8/28/2013	-0.631	2.54	0.791	
8540	Chloramben	µg/L		2.54	0.254 - 3.87	Not Reported				2.04	0.371	
8545	2,4-D	µg/L	1.7	2.16	0.216 - 3.59	Acceptable	EPA 8151A 1998	8/28/2013	-0.304	1.84	0.466	
8560	2,4-DB	µg/L	6.72	3.86	0.386 - 6.56	Not Acceptable	EPA 8151A 1998	8/28/2013	3.80	3.29	0.902	
8550	Dacthal diacid (DCPA)	µg/L		3.28	0.414 - 4.68	Not Reported				2.63	0.418	
8555	Dalapon	µg/L	2.39	3.68	0.368 - 5.81	Acceptable	EPA 8151A 1998	8/28/2013	-0.609	2.89	0.824	
8595	Dicamba	µg/L	2.04	2.58	0.509 - 4.10	Acceptable	EPA 8151A 1998	8/28/2013	-0.0736	2.08	0.524	
8600	3,5-Dichlorobenzoic acid	µg/L		2.60	0.546 - 3.92	Not Reported				2.05	0.638	
8605	Dichlorprop	µg/L	2.31	3.18	0.544 - 4.78	Acceptable	EPA 8151A 1998	8/28/2013	-0.721	2.84	0.738	
8620	Dinoseb	µg/L	1.66	2.38	0.238 - 3.59	Acceptable	EPA 8151A 1998	8/28/2013	0.182	1.60	0.353	
7775	MCPA	µg/L	< 51	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	8/28/2013				
7780	MCPP	µg/L	< 54	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	8/28/2013				
6500	4-Nitrophenol	µg/L		2.52	0.252 - 3.87	Not Reported				1.49	0.659	
6605	Pentachlorophenol	µg/L	1.75	2.37	0.305 - 3.58	Acceptable	EPA 8151A 1998	8/28/2013	-0.572	1.98	0.399	
8645	Picloram	µg/L	1.74	2.86	0.286 - 4.63	Acceptable	EPA 8151A 1998	8/28/2013	-1.46	2.40	0.450	
8655	2,4,5-T	µg/L	3.67	5.04	1.03 - 7.44	Acceptable	EPA 8151A 1998	8/28/2013	-0.363	4.08	1.12	
8650	2,4,5-TP (Silvex)	µg/L	1.46	2.03	0.542 - 3.15	Acceptable	EPA 8151A 1998	8/28/2013	-0.91	1.76	0.335	





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WP PCBs in Water (cat# 832S)

8880	Aroclor 1016	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8885	Aroclor 1221	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8890	Aroclor 1232	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8895	Aroclor 1242	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8900	Aroclor 1248	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8905	Aroclor 1254	µg/L	4.18	5.34	1.98 - 7.30	Acceptable	EPA 8082 1996	8/27/2013	-0.58	4.87	1.18	
8910	Aroclor 1260	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				

WP PCBs in Oil (cat# 835S)

8880	Aroclor 1016	mg/kg	< 0.17	34.0	5.80 - 46.6	Not Acceptable	EPA 8082 1996	8/9/2013		25.2	7.91	JLG
8895	Aroclor 1242	mg/kg	34.8	< 1.70	0.00 - 1.70	Not Acceptable	EPA 8082 1996	8/9/2013				JLG
8905	Aroclor 1254	mg/kg	< 0.17	< 1.60	0.00 - 1.60	Acceptable	EPA 8082 1996	8/9/2013				JLG
8910	Aroclor 1260	mg/kg	< 0.17	< 2.40	0.00 - 2.40	Acceptable	EPA 8082 1996	8/9/2013				JLG



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WP Base/Neutrals (cat# 833)

5500	Acenaphthene	µg/L	13.8	18.4	6.88 - 23.3	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.245	14.5	2.82	EAO
5505	Acenaphthylene	µg/L	< 5	< 2.90	0.00 - 2.90	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5545	Aniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5555	Anthracene	µg/L	< 5	< 3.90	0.00 - 3.90	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5595	Benidine	µg/L	< 25	< 200	0.00 - 200	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5575	Benzo(a)anthracene	µg/L	56.5	72.1	34.0 - 88.0	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.637	61.8	8.26	EAO
5585	Benzo(b)fluoranthene	µg/L	14.7	20.4	7.66 - 26.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.652	16.6	3.00	EAO
5600	Benzo(k)fluoranthene	µg/L	< 4	< 7.70	0.00 - 7.70	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5590	Benzo(g,h,i)perylene	µg/L	< 5	< 5.10	0.00 - 5.10	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5580	Benzo(a)pyrene	µg/L	18.8	24.3	7.76 - 32.0	Acceptable	EPA 8270C 3 1996	8/8/2013	0.175	18.2	3.66	EAO
5630	Benzyl alcohol	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5660	4-Bromophenyl-phenylether	µg/L	< 5	< 8.60	0.00 - 8.60	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5670	Butylbenzylphthalate	µg/L	143	186	56.5 - 255	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.472	158	32.4	EAO
5680	Carbazole	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5745	4-Chloroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5760	bis(2-Chloroethoxy)methane	µg/L	23.7	32.4	8.88 - 41.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.178	24.4	3.93	EAO
5765	bis(2-Chloroethyl)ether	µg/L	16.7	22.8	6.63 - 30.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.267	17.7	3.84	EAO
5780	bis(2-Chloroisopropyl)ether	µg/L	24.8	33.8	4.40 - 48.2	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.27	26.4	5.86	EAO
5790	1-Chloronaphthalene	µg/L		< 10.0	0.00 - 10.0	Not Reported						



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WP Base/Neutrals (cat# 833) (Continued)

5795	2-Chloronaphthalene	µg/L	23.9	32.2	9.56 - 41.1	Acceptable	EPA 8270C 3 1996	8/8/2013	0.000883	23.9	5.55	EAO
5825	4-Chlorophenyl-phenylether	µg/L	115	146	53.0 - 178	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.185	119	22.1	EAO
5855	Chrysene	µg/L	< 5	< 5.80	0.00 - 5.80	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5895	Dibenz(a,h)anthracene	µg/L	< 2	< 6.90	0.00 - 6.90	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5905	Dibenzofuran	µg/L	32.3	41.8	15.9 - 51.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.017	32.4	5.06	EAO
5925	Di-n-butylphthalate	µg/L	98.4	130	45.7 - 167	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.613	112	22.5	EAO
4610	1,2-Dichlorobenzene	µg/L	107	194	29.3 - 219	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.156	114	43.2	EAO
4615	1,3-Dichlorobenzene	µg/L	50	87.5	8.75 - 103	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.0725	51.4	19.9	EAO
4620	1,4-Dichlorobenzene	µg/L	< 5	< 3.70	0.00 - 3.70	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5945	3,3'-Dichlorobenzidine	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6070	Diethylphthalate	µg/L	58.1	72.2	12.3 - 103	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.226	60.3	9.93	EAO
6135	Dimethylphthalate	µg/L	< 5	< 11.5	0.00 - 11.5	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6185	2,4-Dinitrotoluene	µg/L	69.9	95.4	39.7 - 118	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.904	81.1	12.4	EAO
6190	2,6-Dinitrotoluene	µg/L	21.3	30.3	12.3 - 37.1	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.627	24.1	4.54	EAO
6200	Di-n-octylphthalate	µg/L	< 5	< 8.20	0.00 - 8.20	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6065	bis(2-Ethylhexyl)phthalate	µg/L	91.8	123	42.5 - 161	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.776	108	20.2	EAO
6265	Fluoranthene	µg/L	124	162	72.0 - 196	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.509	136	23.4	EAO
6270	Fluorene	µg/L	36.9	43.2	18.5 - 54.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.175	37.9	5.77	EAO
6275	Hexachlorobenzene	µg/L	23.7	28.8	12.8 - 34.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.25	24.7	4.02	EAO
4835	Hexachlorobutadiene	µg/L	48.5	79.4	8.35 - 96.8	Acceptable	EPA 8270C 3 1996	8/8/2013	0.0709	47.1	19.6	EAO





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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Base/Neutrals (cat# 833) (Continued)

6285	Hexachlorocyclopentadiene	µg/L	105	167	16.7 - 215	Acceptable	EPA 8270C 3 1996	8/8/2013	0.154	98.6	41.1	EAO
4840	Hexachloroethane	µg/L	47.1	85.2	8.52 - 93.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.0894	49.0	21.6	EAO
6315	Indeno(1,2,3-cd)pyrene	µg/L	27.7	41.6	12.5 - 56.8	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.46	30.8	6.74	EAO
6320	Isophorone	µg/L	44.4	62.1	22.6 - 77.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.312	46.9	8.05	EAO
6385	2-Methylnaphthalene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5005	Naphthalene	µg/L	117	174	41.9 - 200	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.131	121	32.8	EAO
6460	2-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6465	3-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6470	4-Nitroaniline	µg/L	< 4	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5015	Nitrobenzene	µg/L	77.5	105	34.2 - 124	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.141	79.6	15.1	EAO
6525	N-Nitrosodiethylamine	µg/L	< 4	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6530	N-Nitrosodimethylamine	µg/L	25.6	85.2	8.52 - 101	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.17	43.6	15.3	EAO
6535	N-Nitrosodiphenylamine	µg/L	< 5	< 5.60	0.00 - 5.60	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6545	N-Nitroso-di-n-propylamine	µg/L	< 4	< 9.40	0.00 - 9.40	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6590	Pentachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6615	Phenanthrene	µg/L	29.3	35.2	16.5 - 45.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.181	30.0	4.09	EAO
6665	Pyrene	µg/L	44.4	52.1	21.7 - 68.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.469	47.3	6.28	EAO
5095	Pyridine	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6715	1,2,4,5-Tetrachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5155	1,2,4-Trichlorobenzene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO



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WP Acids (cat# 834)

5610	Benzoic acid	µg/L	< 5	< 30.0	0.00 - 30.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5700	4-Chloro-3-methylphenol	µg/L	31.4	44.2	17.0 - 54.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.883	36.9	6.26	EAO
5800	2-Chlorophenol	µg/L	44.2	74.2	21.7 - 89.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.675	52.9	12.8	EAO
6000	2,4-Dichlorophenol	µg/L	39	54.7	19.4 - 66.8	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.626	43.7	7.57	EAO
6005	2,6-Dichlorophenol	µg/L	88.6	120	37.5 - 150	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.65	100	18.1	EAO
6130	2,4-Dimethylphenol	µg/L	46.3	66.3	19.0 - 83.3	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.451	50.6	9.52	EAO
6360	4,6-Dinitro-2-methylphenol	µg/L	99.6	176	56.8 - 236	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.35	139	29.4	EAO
6175	2,4-Dinitrophenol	µg/L	52.7	104	10.4 - 150	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.04	75.4	21.8	EAO
6400	2-Methylphenol	µg/L	30.6	61.1	14.2 - 73.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.17	42.6	10.3	EAO
6410	4-Methylphenol	µg/L	34.1	78.8	7.88 - 103	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.47	54.0	13.5	EAO
6490	2-Nitrophenol	µg/L	69.9	100	31.9 - 123	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.395	75.5	14.2	EAO
6500	4-Nitrophenol	µg/L	20.6	108	10.8 - 146	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.18	50.4	25.4	EAO
6605	Pentachlorophenol	µg/L	58.6	94.5	30.5 - 128	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.09	76.3	16.3	EAO
6625	Phenol	µg/L	24.2	128	12.8 - 172	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.15	55.5	27.3	EAO
6735	2,3,4,6-Tetrachlorophenol	µg/L	57.6	75.9	26.5 - 100	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.407	63.6	14.8	EAO
6835	2,4,5-Trichlorophenol	µg/L	50.7	63.6	23.4 - 81.3	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.0465	51.1	8.97	EAO
6840	2,4,6-Trichlorophenol	µg/L	43.5	54.7	20.8 - 67.1	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.585	48.1	7.94	EAO



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WP Nitroaromatics & Nitramines (cat# 932)

9306	4-Amino-2,6-dinitrotoluene	µg/L		6.44	3.41 - 9.01	Not Reported				6.52	0.290	
9303	2-Amino-4,6-dinitrotoluene	µg/L		11.1	6.15 - 15.9	Not Reported				10.4	0.995	
6160	1,3-Dinitrobenzene	µg/L	8.85	15.8	7.56 - 22.7	Acceptable	EPA 8270C 3 1996	8/1/2013	-3.45	15.7	1.98	TWB
6185	2,4-Dinitrotoluene	µg/L		15.4	7.87 - 22.5	Not Reported				15.0	1.26	
6190	2,6-Dinitrotoluene	µg/L		8.91	4.46 - 12.9	Not Reported				8.52	0.441	
9522	HMX	µg/L		8.13	4.02 - 11.5	Not Reported				7.75	0.932	
5015	Nitrobenzene	µg/L		18.7	9.09 - 25.8	Not Reported				17.9	1.36	
9507	2-Nitrotoluene	µg/L		12.3	6.22 - 16.9	Not Reported				12.9	1.34	
9510	3-Nitrotoluene	µg/L		13.0	6.48 - 18.3	Not Reported				12.9	0.962	
9513	4-Nitrotoluene	µg/L		16.7	8.96 - 23.5	Not Reported				16.1	1.64	
9432	RDX	µg/L		12.3	6.42 - 16.5	Not Reported				11.6	1.80	
6415	Tetryl	µg/L		< 1.00	0.00 - 1.00	Not Reported						
6885	1,3,5-Trinitrobenzene	µg/L	9.3	19.2	7.84 - 26.2	Acceptable	EPA 8270C 3 1996	8/1/2013	-3.08	16.6	2.35	TWB
9651	2,4,6-Trinitrotoluene	µg/L		5.34	2.84 - 7.08	Not Reported				4.41	0.362	



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WP Low-Level PAHs (cat# 836)

5500	Acenaphthene	µg/L	5.43	7.72	2.64 - 9.39	Acceptable	EPA 8270C SIM	8/2/2013	-0.432	6.01	1.34	TWB
5505	Acenaphthylene	µg/L	2.17	2.97	1.16 - 3.59	Acceptable	EPA 8270C SIM	8/2/2013	-0.338	2.36	0.554	TWB
5555	Anthracene	µg/L	3.46	4.82	1.44 - 6.46	Acceptable	EPA 8270C SIM	8/2/2013	-0.799	4.10	0.808	TWB
5575	Benzo(a)anthracene	µg/L	1.7	2.16	1.39 - 2.46	Acceptable	EPA 8270C SIM	8/2/2013	-0.299	1.79	0.294	TWB
5585	Benzo(b)fluoranthene	µg/L	2.22	2.90	1.38 - 3.50	Acceptable	EPA 8270C SIM	8/2/2013	-0.309	2.36	0.439	TWB
5600	Benzo(k)fluoranthene	µg/L	3.32	4.00	2.04 - 5.10	Acceptable	EPA 8270C SIM	8/2/2013	-0.0969	3.39	0.746	TWB
5590	Benzo(g,h,i)perylene	µg/L	1.14	0.742	0.252 - 1.04	Not Acceptable	EPA 8270C SIM	8/2/2013	3.86	0.618	0.135	TWB
5580	Benzo(a)pyrene	µg/L	2.14	3.17	1.35 - 3.72	Acceptable	EPA 8270C SIM	8/2/2013	-0.79	2.62	0.602	TWB
5855	Chrysene	µg/L	2.21	2.61	1.44 - 3.22	Acceptable	EPA 8270C SIM	8/2/2013	-0.289	2.33	0.420	TWB
5895	Dibenz(a,h)anthracene	µg/L	1.96	1.84	0.604 - 2.44	Acceptable	EPA 8270C SIM	8/2/2013	1.56	1.44	0.333	TWB
6265	Fluoranthene	µg/L	2.66	3.34	1.78 - 3.99	Acceptable	EPA 8270C SIM	8/2/2013	-0.584	2.99	0.561	TWB
6270	Fluorene	µg/L	5.55	7.10	2.98 - 8.28	Acceptable	EPA 8270C SIM	8/2/2013	-0.336	5.97	1.26	TWB
6315	Indeno(1,2,3-cd)pyrene	µg/L	1.88	1.70	0.709 - 2.21	Acceptable	EPA 8270C SIM	8/2/2013	1.62	1.41	0.290	TWB
5005	Naphthalene	µg/L	2.82	4.22	1.34 - 4.99	Acceptable	EPA 8270C SIM	8/2/2013	-0.528	3.25	0.813	TWB
6615	Phenanthrene	µg/L	3.16	4.27	2.14 - 5.03	Acceptable	EPA 8270C SIM	8/2/2013	-0.579	3.52	0.619	TWB
6665	Pyrene	µg/L	3.21	4.17	2.27 - 4.88	Acceptable	EPA 8270C SIM	8/2/2013	-0.671	3.57	0.544	TWB



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WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	1.48	1.68	0.581 - 2.25	Acceptable	EPA 8081A 1 1996	8/3/2013	0.560	1.30	0.329	JLG
7110	alpha-BHC	µg/L	7.17	7.29	3.18 - 9.97	Acceptable	EPA 8081A 1 1996	8/3/2013	0.662	6.42	1.14	JLG
7115	beta-BHC	µg/L	8.14	7.66	3.62 - 10.4	Acceptable	EPA 8081A 1 1996	8/3/2013	0.864	7.01	1.30	JLG
7105	delta-BHC	µg/L	3.68	3.29	1.37 - 4.78	Acceptable	EPA 8081A 1 1996	8/3/2013	1.12	2.96	0.644	JLG
7120	gamma-BHC(Lindane)	µg/L	9.37	9.94	4.40 - 13.6	Acceptable	EPA 8081A 1 1996	8/3/2013	0.00280	9.36	1.67	JLG
7240	alpha-Chlordane	µg/L	4.76	4.21	1.88 - 5.68	Acceptable	EPA 8081A 1 1996	8/3/2013	1.28	3.76	0.779	JLG
7245	gamma-Chlordane	µg/L	5.18	4.80	2.12 - 6.36	Acceptable	EPA 8081A 1 1996	8/3/2013	1.31	4.00	0.898	JLG
7355	4,4'-DDD	µg/L	6.65	5.59	2.63 - 7.81	Acceptable	EPA 8081A 1 1996	8/3/2013	1.55	5.05	1.03	JLG
7360	4,4'-DDE	µg/L	4.82	4.44	1.90 - 6.05	Acceptable	EPA 8081A 1 1996	8/3/2013	1.19	3.77	0.877	JLG
7365	4,4'-DDT	µg/L	4.86	4.08	1.62 - 5.93	Acceptable	EPA 8081A 1 1996	8/3/2013	1.57	3.62	0.789	JLG
7470	Dieldrin	µg/L	2.06	1.74	0.856 - 2.38	Acceptable	EPA 8081A 1 1996	8/3/2013	1.62	1.56	0.308	JLG
7540	Endrin	µg/L	5.89	4.80	2.10 - 6.86	Acceptable	EPA 8081A 1 1996	8/3/2013	1.43	4.58	0.914	JLG
7530	Endrin aldehyde	µg/L	6.59	6.63	2.44 - 9.92	Acceptable	EPA 8081A 1 1996	8/3/2013	0.572	5.89	1.22	JLG
7535	Endrin ketone	µg/L	8.81	11.0	5.90 - 14.5	Acceptable	EPA 8081A 1 1996	8/3/2013	-0.644	10.1	1.97	JLG
7510	Endosulfan I	µg/L	< 0.01	< 1.40	0.00 - 1.40	Acceptable	EPA 8081A 1 1996	8/3/2013				JLG
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	EPA 8081A 1 1996	8/3/2013				JLG
7520	Endosulfan sulfate	µg/L	4.86	4.20	1.88 - 6.53	Acceptable	EPA 8081A 1 1996	8/3/2013	1.31	3.81	0.799	JLG
7685	Heptachlor	µg/L	4.13	4.60	1.62 - 6.26	Acceptable	EPA 8081A 1 1996	8/3/2013	0.414	3.77	0.868	JLG
7690	Heptachlor epoxide (beta)	µg/L	5.63	5.19	2.60 - 6.94	Acceptable	EPA 8081A 1 1996	8/3/2013	1.03	4.63	0.972	JLG
7810	Methoxychlor	µg/L	6.38	9.57	4.10 - 13.9	Acceptable	EPA 8081A 1 1996	8/3/2013	-1.16	8.44	1.77	JLG



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WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	1.48	1.68	0.581 - 2.25	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.560	1.30	0.329	
7110	alpha-BHC	µg/L	7.17	7.29	3.18 - 9.97	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.662	6.42	1.14	
7115	beta-BHC	µg/L	8.18	7.66	3.62 - 10.4	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.895	7.01	1.30	
7105	delta-BHC	µg/L	3.68	3.29	1.37 - 4.78	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.12	2.96	0.644	
7120	gamma-BHC(Lindane)	µg/L	9.37	9.94	4.40 - 13.6	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.00280	9.36	1.67	
7240	alpha-Chlordane	µg/L		4.21	1.88 - 5.68	Not Reported				3.76	0.779	
7245	gamma-Chlordane	µg/L		4.80	2.12 - 6.36	Not Reported				4.00	0.898	
7355	4,4'-DDD	µg/L	6.65	5.59	2.63 - 7.81	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.55	5.05	1.03	
7360	4,4'-DDE	µg/L	4.82	4.44	1.90 - 6.05	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.19	3.77	0.877	
7365	4,4'-DDT	µg/L	4.86	4.08	1.62 - 5.93	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.57	3.62	0.789	
7470	Dieldrin	µg/L	2.06	1.74	0.856 - 2.38	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.62	1.56	0.308	
7540	Endrin	µg/L	5.89	4.80	2.10 - 6.86	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.43	4.58	0.914	
7530	Endrin aldehyde	µg/L	6.59	6.63	2.44 - 9.92	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.572	5.89	1.22	
7535	Endrin ketone	µg/L		11.0	5.90 - 14.5	Not Reported				10.1	1.97	
7510	Endosulfan I	µg/L	< 0.01	< 1.40	0.00 - 1.40	Acceptable	SM 6630 C-2000 2000	8/3/2013				
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	SM 6630 C-2000 2000	8/3/2013				
7520	Endosulfan sulfate	µg/L	4.86	4.20	1.88 - 6.53	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.31	3.81	0.799	
7685	Heptachlor	µg/L	4.13	4.60	1.62 - 6.26	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.414	3.77	0.868	
7690	Heptachlor epoxide (beta)	µg/L	5.63	5.19	2.60 - 6.94	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.03	4.63	0.972	
7810	Methoxychlor	µg/L	6.38	9.57	4.10 - 13.9	Acceptable	SM 6630 C-2000 2000	8/3/2013	-1.16	8.44	1.77	



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WP Chlordane (cat# 837)

7250	Chlordane, technical	µg/L	4.47	8.85	3.73 - 12.1	Acceptable	EPA 8081A 1 1996	8/3/2013	-2.14	7.22	1.29	JLG

WP Chlordane (cat# 837)

7250	Chlordane, technical	µg/L	4.47	8.85	3.73 - 12.1	Acceptable	SM 6630 C-2000 2000	8/2/2013	-2.14	7.22	1.29	

WP Toxaphene (cat# 838)

8250	Toxaphene	µg/L	75.6	64.5	14.0 - 94.1	Acceptable	EPA 8081A 1 1996	8/2/2013	1.32	60.4	11.5	JLG

WP Toxaphene (cat# 838)

8250	Toxaphene	µg/L	75.6	64.5	14.0 - 94.1	Acceptable	SM 6630 C-2000 2000	8/2/2013	1.32	60.4	11.5	



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WP Nitrogen Pesticides (cat# 487)

7005	Alachlor	µg/L		8.12	4.19 - 11.3	Not Reported				7.29	1.18	
7035	Ametryn	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7045	Anilazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7060	Atraton	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7065	Atrazine	µg/L	5.43	8.65	4.24 - 12.2	Acceptable	EPA 8141B 2000	8/1/2013	-1.94	8.00	1.32	
7130	Bromacil	µg/L		16.0	1.60 - 26.3	Not Reported				0.00	0.00	
7160	Butachlor	µg/L		4.37	1.83 - 6.45	Not Reported				3.64	0.00	
7175	Butylate	µg/L		18.7	7.50 - 21.6	Not Reported				12.2	0.00	
7340	Cyanazine	µg/L		14.0	2.40 - 22.9	Not Reported				10.0	1.27	
7066	Deethyl atrazine	µg/L		7.86	0.786 - 11.4	Not Reported				6.46	1.34	
7067	Deisopropyl atrazine	µg/L		9.36	0.936 - 10.3	Not Reported				6.83	0.806	
7068	Diaminoatrazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7555	EPTC (Eptam)	µg/L		11.0	4.75 - 12.1	Not Reported				8.00	0.629	
7705	Hexazinone	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7835	Metolachlor	µg/L		11.6	5.96 - 15.4	Not Reported				9.90	1.84	
7845	Metribuzin	µg/L		6.06	1.52 - 8.86	Not Reported				5.44	1.07	
6440	Napropamide	µg/L		8.61	1.10 - 12.4	Not Reported				0.00	0.00	
8035	Prometon	µg/L		5.99	1.88 - 8.68	Not Reported				6.24	3.12	
8040	Prometryn	µg/L		10.6	6.17 - 14.7	Not Reported				12.3	2.90	
6650	Pronamide	µg/L		< 2.00	0.00 - 2.00	Not Reported						



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WP Nitrogen Pesticides (cat# 487) (Continued)

8045	Propachlor	µg/L		16.2	9.50 - 21.2	Not Reported				12.6	0.488	
8060	Propazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8125	Simazine	µg/L	8.6	3.17	0.856 - 5.00	Not Acceptable	EPA 8141B 2000	8/1/2013	6.34	3.76	0.763	
8180	Terbacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		4.10	1.00 - 5.56	Not Reported				3.74	0.380	



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WP Organophosphorous Pesticides (OPP) (cat# 934)

7075	Azinphos-methyl (Guthion)	µg/L		12.8	1.84 - 21.7	Not Reported				9.89	2.22	
7220	Carbophenothion	µg/L		15.6	7.64 - 21.5	Not Reported				16.7	1.16	
7300	Chlorpyrifos	µg/L		16.0	5.78 - 21.1	Not Reported				12.8	2.98	
7395	Demeton-O	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7385	Demeton-S	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7410	Diazinon	µg/L		8.78	3.26 - 13.0	Not Reported				8.24	1.15	
8610	Dichlorvos (DDVP)	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7475	Dimethoate	µg/L		13.6	2.46 - 18.4	Not Reported				9.86	3.38	
7495	Dioxathion	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8625	Disulfoton	µg/L		13.6	2.24 - 22.1	Not Reported				11.6	2.95	
7565	Ethion	µg/L		7.04	3.33 - 10.8	Not Reported				7.62	0.824	
7570	Ethoprop	µg/L		8.36	3.32 - 11.4	Not Reported				6.90	0.988	
7955	Ethyl Parathion	µg/L	5.02	7.23	3.98 - 10.5	Acceptable	EPA 8270C 3 1996	8/1/2013	-0.914	6.24	1.33	TWB
7580	Famphur	µg/L		9.19	4.32 - 12.4	Not Reported				7.72	1.72	
7640	Fonofos	µg/L		16.1	5.74 - 25.1	Not Reported				10.4	5.90	
7770	Malathion	µg/L		6.69	1.21 - 10.7	Not Reported				4.60	1.10	
7825	Methyl Parathion	µg/L		9.62	3.52 - 12.9	Not Reported				6.86	1.76	
7985	Phorate	µg/L		6.60	2.56 - 8.28	Not Reported				5.71	1.24	
8000	Phosmet	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8110	Ronnel	µg/L		7.88	3.47 - 9.52	Not Reported				6.51	1.50	



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WP Organophosphorous Pesticides (OPP) (cat# 934) (Continued)

8200	Stirophos	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8185	Terbufos	µg/L		11.9	3.20 - 15.6	Not Reported				12.2	0.354	





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WP Organophosphorous Pesticides (OPP) (cat# 934)

7075	Azinphos-methyl (Guthion)	µg/L	11.9	12.8	1.84 - 21.7	Acceptable	EPA 8141B 2000	8/1/2013	0.905	9.89	2.22	
7220	Carbophenothion	µg/L	18.4	15.6	7.64 - 21.5	Acceptable	EPA 8141B 2000	8/1/2013	1.47	16.7	1.16	
7300	Chlorpyrifos	µg/L	16.6	16.0	5.78 - 21.1	Acceptable	EPA 8141B 2000	8/1/2013	1.26	12.8	2.98	
7395	Demeton-O	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
7385	Demeton-S	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
7410	Diazinon	µg/L	8.6	8.78	3.26 - 13.0	Acceptable	EPA 8141B 2000	8/1/2013	0.316	8.24	1.15	
8610	Dichlorvos (DDVP)	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
7475	Dimethoate	µg/L	11.3	13.6	2.46 - 18.4	Acceptable	EPA 8141B 2000	8/1/2013	0.425	9.86	3.38	
7495	Dioxathion	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
8625	Disulfoton	µg/L	16.3	13.6	2.24 - 22.1	Acceptable	EPA 8141B 2000	8/1/2013	1.59	11.6	2.95	
7565	Ethion	µg/L	9.5	7.04	3.33 - 10.8	Acceptable	EPA 8141B 2000	8/1/2013	2.28	7.62	0.824	
7570	Ethoprop	µg/L	9.5	8.36	3.32 - 11.4	Acceptable	EPA 8141B 2000	8/1/2013	2.63	6.90	0.988	
7955	Ethyl Parathion	µg/L	6.2	7.23	3.98 - 10.5	Acceptable	EPA 8141B 2000	8/1/2013	-0.03	6.24	1.33	
7580	Famphur	µg/L	10	9.19	4.32 - 12.4	Acceptable	EPA 8141B 2000	8/1/2013	1.32	7.72	1.72	
7640	Fonofos	µg/L	14.6	16.1	5.74 - 25.1	Acceptable	EPA 8141B 2000	8/1/2013	0.707	10.4	5.90	
7770	Malathion	µg/L	4.73	6.69	1.21 - 10.7	Acceptable	EPA 8141B 2000	8/1/2013	0.122	4.60	1.10	
7825	Methyl Parathion	µg/L	9.2	9.62	3.52 - 12.9	Acceptable	EPA 8141B 2000	8/1/2013	1.32	6.86	1.76	
7985	Phorate	µg/L	8.3	6.60	2.56 - 8.28	Not Acceptable	EPA 8141B 2000	8/1/2013	2.09	5.71	1.24	
8000	Phosmet	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
8110	Ronnel	µg/L	9.4	7.88	3.47 - 9.52	Acceptable	EPA 8141B 2000	8/1/2013	1.93	6.51	1.50	



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WP Organophosphorous Pesticides (OPP) (cat# 934) (Continued)

8200	Stirophos	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
8185	Terbufos	µg/L	11.9	11.9	3.20 - 15.6	Acceptable	EPA 8141B 2000	8/1/2013	-0.707	12.2	0.354	

WP Total Petroleum Hydrocarbons (TPH) in Water (cat# 642)

1935	TPH (Gravimetric)	mg/L	76.9	87.5	40.9 - 126	Acceptable	EPA 1664A	7/30/2013	0.373	73.0	10.5	
1935	TPH (IR)	mg/L		108	51.0 - 156	Not Reported				113	18.8	



Final Report Results For Laboratory Pace Analytical Services - Ormond Beach

2003 NELAC Evaluation Report

Study: **WP-222**

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Inorganic Results





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WP Minerals (cat# 581)

1505	Alkalinity as CaCO ₃	mg/L	57.5	61.0	48.8 - 73.2	Acceptable	SM2320B 21st ED 1997	8/6/2013	-1.13	60.7	2.85	AMD
1575	Chloride	mg/L	44.8	47.5	41.1 - 54.0	Acceptable	EPA 300.0 2.1	7/31/2013	-1.05	46.8	1.90	JNZ
1610	Conductivity at 25°C	µmhos/cm	360	376	338 - 414	Acceptable	SM 2510 B-2011 2011	8/6/2013	-2.46	383	9.24	
1730	Fluoride	mg/L	2.85	2.97	2.39 - 3.43	Acceptable	EPA 300.0 2.1	7/31/2013	-0.203	2.88	0.169	JNZ
1125	Potassium	mg/L	33.1	36.1	28.9 - 43.3	Acceptable	EPA 6010B 2	8/2/2013	-0.901	34.9	1.97	TAP
1155	Sodium	mg/L	55.4	57.2	45.8 - 68.6	Acceptable	EPA 6010B 2	8/2/2013	-0.563	57.3	3.34	TAP
2000	Sulfate	mg/L	33.8	36.9	30.0 - 42.5	Acceptable	EPA 300.0 2.1	7/31/2013	-1.1	35.8	1.84	JNZ
1955	Total Dissolved Solids at 180°C	mg/L	271	282	237 - 327	Acceptable	SM 2540 C-2011 2011	7/31/2013	-0.337	277	16.9	
1950	Total Solids at 105°C	mg/L	278	291	246 - 336	Acceptable	SM2540B 21st ED	8/7/2013	-0.713	288	14.4	WMW

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L	71	86.3	70.8 - 95.8	Acceptable	SM2540D 21st ED 1997	7/31/2013	-1.7	79.9	5.21	WMW
1035	Calcium	mg/L	46	45.5	38.7 - 52.3	Acceptable	EPA 6010B 2 1996	8/2/2013	0.982	44.3	1.70	
1085	Magnesium	mg/L	14	14.2	12.1 - 16.3	Acceptable	EPA 6020	8/5/2013	0.316	13.8	0.647	HEA
1550	Calcium Hardness as CaCO ₃	mg/L	115	114	96.9 - 131	Acceptable	EPA 6010B 2 1996	8/2/2013	1.11	110	4.27	TAP
1755	Total Hardness as CaCO ₃	mg/L	174	172	146 - 198	Acceptable	EPA 6010B 2 1996	8/2/2013	1.22	167	5.76	

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L		86.3	70.8 - 95.8	Not Reported				79.9	5.21	
1035	Calcium	mg/L		45.5	38.7 - 52.3	Not Reported				44.3	1.70	
1085	Magnesium	mg/L	14.2	14.2	12.1 - 16.3	Acceptable	EPA 6010B 2 1996	8/2/2013	0.625	13.8	0.647	
1550	Calcium Hardness as CaCO ₃	mg/L		114	96.9 - 131	Not Reported				110	4.27	
1755	Total Hardness as CaCO ₃	mg/L		172	146 - 198	Not Reported				167	5.76	



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WP pH (cat# 577)

1900	pH	S.U.	5.63	5.57	5.37 - 5.77	Acceptable	SM4500H+ B 21st ED	7/29/2013	0.129	5.62	0.0466	GMD

WP Volatile Solids (cat# 884)

1970	Volatile Solids, Total	mg/L	286	342	262 - 388	Acceptable	EPA 160.4	8/16/2013	-2.79	332	16.7	WMW

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L	15.8	15.4	12.4 - 18.3	Acceptable	EPA 350.1	8/7/2013	0.358	15.4	1.09	SOA
1820	Nitrate + Nitrite as N	mg/L	16.4	15.1	12.6 - 17.4	Acceptable	EPA 300.0 2.1 1993	8/8/2013	1.38	15.1	0.935	
1810	Nitrate as N	mg/L	14.3	15.1	12.6 - 17.5	Acceptable	EPA 300.0 2.1 1993	8/8/2013	-0.833	15.1	0.965	
1870	ortho-Phosphate as P	mg/L	3.4	3.36	2.86 - 3.86	Acceptable	EPA 300.0 2.1	8/8/2013	0.189	3.36	0.187	KHC

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L		15.4	12.4 - 18.3	Not Reported				15.4	1.09	
1820	Nitrate + Nitrite as N	mg/L	14	15.1	12.6 - 17.4	Acceptable	EPA 353.2 2 1993	8/7/2013	-1.19	15.1	0.935	
1810	Nitrate as N	mg/L	14	15.1	12.6 - 17.5	Acceptable	EPA 353.2 2 1993	8/7/2013	-1.14	15.1	0.965	
1870	ortho-Phosphate as P	mg/L	3.48	3.36	2.86 - 3.86	Acceptable	EPA 365.1 2	8/6/2013	0.616	3.36	0.187	SOA

WP Complex Nutrients (cat# 579)

1795	Total Kjeldahl Nitrogen	mg/L	17.6	18.5	13.8 - 22.5	Acceptable	EPA 351.2 2 1993	8/8/2013	-0.568	18.3	1.28	
1910	Total phosphorus as P	mg/L	6.58	6.69	5.56 - 7.74	Acceptable	EPA 365.4 1974	8/8/2013	-0.236	6.67	0.392	

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	0.983	0.954	0.770 - 1.14	Acceptable	EPA 353.2	8/7/2013	0.519	0.956	0.0524	AMD

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	0.946	0.954	0.770 - 1.14	Acceptable	EPA 300.0 2.1	8/9/2013	-0.188	0.956	0.0524	JNZ



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WP Demand (cat# 578)

1530	BOD	mg/L	132	122	66.0 - 179	Acceptable	SM5210B 21st ED 2001	8/5/2013	0.476	123	18.7	AGS
1555	CBOD	mg/L	127	111	51.9 - 170	Acceptable	SM 5210 B-2011 2011	8/12/2013	0.590	114	22.6	
1565	COD	mg/L	197	199	161 - 230	Acceptable	EPA 410.4	8/3/2013	-0.153	199	11.9	CRS
2040	TOC	mg/L	78.2	78.7	66.0 - 90.5	Acceptable	SM 5310 B-2011 2011	7/31/2013	-0.0937	78.6	4.55	

WP Oil & Grease (cat# 582)

1860	n-Hexane Extractable Material(O&G)(Grav)	mg/L	126	130	94.3 - 149	Acceptable	EPA 1664A	8/7/2013	0.756	118	10.4	
1860	n-Hexane Extractable Material(O&G)(IR)	mg/L		160	118 - 182	Not Reported				154	0.707	



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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	435	420	329 - 515	Acceptable	EPA 6020	8/5/2013	0.148	432	21.8	HEA
1005	Antimony	µg/L	380	429	343 - 501	Acceptable	EPA 6020	8/5/2013	-1.8	416	20.1	HEA
1010	Arsenic	µg/L	312	342	282 - 399	Acceptable	EPA 6020	8/5/2013	-1.47	333	14.3	HEA
1015	Barium	µg/L	603	702	597 - 807	Acceptable	EPA 6020	8/5/2013	-3.76	698	25.2	HEA
1020	Beryllium	µg/L	191	203	172 - 233	Acceptable	EPA 6020	8/5/2013	-1.04	200	8.74	HEA
1025	Boron	µg/L	829	837	711 - 963	Acceptable	EPA 6020	8/2/2013	-0.317	845	50.7	HEA
1030	Cadmium	µg/L	183	203	173 - 233	Acceptable	EPA 6020	8/5/2013	-1.74	199	9.46	HEA
1040	Chromium	µg/L	224	229	195 - 263	Acceptable	EPA 6020	8/5/2013	-0.442	228	8.98	HEA
1050	Cobalt	µg/L	417	409	348 - 470	Acceptable	EPA 6020	8/5/2013	-0.497	426	17.7	HEA
1055	Copper	µg/L	491	490	416 - 564	Acceptable	EPA 6020	8/5/2013	-0.0805	493	20.8	HEA
1070	Iron	µg/L	800	836	711 - 961	Acceptable	EPA 6020	8/5/2013	-1.32	847	35.5	HEA
1075	Lead	µg/L	616	741	630 - 852	Not Acceptable	EPA 6020	8/5/2013	-4.11	743	30.8	HEA
1090	Manganese	µg/L	484	483	411 - 555	Acceptable	EPA 6020	8/5/2013	-0.644	495	17.6	HEA
1100	Molybdenum	µg/L	250	273	233 - 310	Acceptable	EPA 6020	8/5/2013	-1.86	271	11.1	HEA
1105	Nickel	µg/L	355	360	311 - 413	Acceptable	EPA 6020	8/5/2013	-0.175	357	14.1	HEA
1140	Selenium	µg/L	566	638	542 - 734	Acceptable	EPA 6020	8/5/2013	-1.81	625	32.5	HEA
1150	Silver	µg/L	531	572	486 - 658	Acceptable	EPA 6020	8/5/2013	-1.53	569	25.0	HEA
1160	Strontium	µg/L	319	338	287 - 389	Acceptable	EPA 6020	8/5/2013	-1.58	339	12.5	HEA
1165	Thallium	µg/L	327	342	277 - 401	Acceptable	EPA 6020	8/5/2013	-0.854	341	16.4	HEA
1185	Vanadium	µg/L	200	211	179 - 243	Acceptable	EPA 6020	8/5/2013	-1.02	207	6.85	HEA



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Study Dates: 07/15/13 - 08/29/13

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	1660	1690	1440 - 1940	Acceptable	EPA 6020	8/5/2013	-0.108	1670	78.2	HEA





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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	457	420	329 - 515	Acceptable	EPA 6010B 2 1996	8/2/2013	1.16	432	21.8	TAP
1005	Antimony	µg/L	419	429	343 - 501	Acceptable	EPA 6010B 2 1996	8/2/2013	0.150	416	20.1	TAP
1010	Arsenic	µg/L	326	342	282 - 399	Acceptable	EPA 6010B 2 1996	8/2/2013	-0.489	333	14.3	TAP
1015	Barium	µg/L	701	702	597 - 807	Acceptable	EPA 6010B 2 1996	8/2/2013	0.133	698	25.2	TAP
1020	Beryllium	µg/L	203	203	172 - 233	Acceptable	EPA 6010B 2 1996	8/2/2013	0.333	200	8.74	TAP
1025	Boron	µg/L	821	837	711 - 963	Acceptable	EPA 6010B 2 1996	8/2/2013	-0.475	845	50.7	TAP
1030	Cadmium	µg/L	212	203	173 - 233	Acceptable	EPA 6010B 2 1996	8/2/2013	1.33	199	9.46	TAP
1040	Chromium	µg/L	234	229	195 - 263	Acceptable	EPA 6010B 2 1996	8/2/2013	0.671	228	8.98	TAP
1050	Cobalt	µg/L	454	409	348 - 470	Acceptable	EPA 6010B 2 1996	8/2/2013	1.60	426	17.7	TAP
1055	Copper	µg/L	499	490	416 - 564	Acceptable	EPA 6010B 2 1996	8/2/2013	0.304	493	20.8	TAP
1070	Iron	µg/L	871	836	711 - 961	Acceptable	EPA 6010B 2 1996	8/2/2013	0.680	847	35.5	TAP
1075	Lead	µg/L	798	741	630 - 852	Acceptable	EPA 6010B 2 1996	8/2/2013	1.79	743	30.8	TAP
1090	Manganese	µg/L	517	483	411 - 555	Acceptable	EPA 6010B 2 1996	8/2/2013	1.22	495	17.6	TAP
1100	Molybdenum	µg/L	273	273	233 - 310	Acceptable	EPA 6010B 2 1996	8/2/2013	0.212	271	11.1	TAP
1105	Nickel	µg/L	382	360	311 - 413	Acceptable	EPA 6010B 2 1996	8/2/2013	1.74	357	14.1	TAP
1140	Selenium	µg/L	627	638	542 - 734	Acceptable	EPA 6010B 2 1996	8/2/2013	0.0724	625	32.5	TAP
1150	Silver	µg/L	648	572	486 - 658	Acceptable	EPA 6010B 2 1996	8/2/2013	3.14	569	25.0	TAP
1160	Strontium	µg/L	343	338	287 - 389	Acceptable	EPA 6010B 2 1996	8/2/2013	0.334	339	12.5	TAP
1165	Thallium	µg/L	398	342	277 - 401	Acceptable	EPA 6010B 2 1996	8/2/2013	3.48	341	16.4	TAP
1185	Vanadium	µg/L	210	211	179 - 243	Acceptable	EPA 6010B 2 1996	8/2/2013	0.444	207	6.85	TAP



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	1690	1690	1440 - 1940	Acceptable	EPA 6010B 2 1996	8/2/2013	0.276	1670	78.2	TAP

WP Mercury (cat# 574)

1095	Mercury	µg/L	3.01	5.52	3.86 - 7.18	Not Acceptable	EPA 7470 1986	8/5/2013	-3.89	5.44	0.625	HEA

WP Mercury (cat# 574)

1095	Mercury	µg/L	3.29	5.52	3.86 - 7.18	Not Acceptable	EPA 6020	8/2/2013	-3.44	5.44	0.625	

WP Mercury (cat# 574)

1095	Mercury	µg/L	3.29	5.52	3.86 - 7.18	Not Acceptable	EPA 200.8 5.5 1998	8/2/2013	-3.44	5.44	0.625	

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	150	170	139 - 200	Acceptable	SM 3500-Cr B-2011 2011	7/30/2013	-1.7	167	10.2	

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	120	170	139 - 200	Not Acceptable	EPA 218.6 3.3 1994	7/31/2013	-4.64	167	10.2	

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1170	1240	868 - 1610	Acceptable	EPA 6020	8/5/2013	-0.811	1220	61.1	HEA
1180	Titanium	µg/L	217	264	224 - 304	Not Acceptable	EPA 6020	8/5/2013	-4.61	261	9.58	HEA

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1310	1240	868 - 1610	Acceptable	EPA 6010B 2 1996	8/2/2013	1.48	1220	61.1	
1180	Titanium	µg/L	262	264	224 - 304	Acceptable	EPA 6010B 2 1996	8/2/2013	0.0901	261	9.58	

WP Uranium (cat# 4400)

3055	Uranium (Nat) mass	µg/L	86.2	89.8	66.9 - 105	Acceptable	EPA 200.8 5.5	8/5/2013	-0.836	89.9	4.40	HEA

WP Color (cat# 882)

1605	Color	PC units	35	50.0	35.2 - 60.8	Not Acceptable	SM2120B 21st ED	7/29/2013	-2.76	46.6	4.22	AGS



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WP Turbidity (cat# 893)

2055	Turbidity	NTU	6.57	6.58	5.16 - 7.98	Acceptable	EPA 180.1 2	7/31/2013	0.420	6.40	0.405	AGS

WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.442	0.444	0.289 - 0.599	Acceptable	EPA 335.4 1993	8/5/2013	0.212	0.434	0.0353	SOA
1510	Amenable Cyanide	mg/L		0.278	0.181 - 0.375	Not Reported				0.277	0.0546	

WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.448	0.444	0.289 - 0.599	Acceptable	EPA 9012 1986	7/31/2013	0.382	0.434	0.0353	
1510	Amenable Cyanide	mg/L		0.278	0.181 - 0.375	Not Reported				0.277	0.0546	

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.803	0.896	0.448 - 1.34	Acceptable	EPA 420.4 1 1993	8/16/2013	-0.84	0.962	0.189	TK1

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.814	0.896	0.448 - 1.34	Acceptable	EPA 9066 1986	8/16/2013	-0.781	0.962	0.189	

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	90.8	93.2	69.9 - 116	Acceptable	EPA 200.7 5 1998	8/2/2013	-0.274	92.4	5.86	TAP

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	90.8	93.2	69.9 - 116	Acceptable	EPA 6010B 2 1996	8/2/2013	-0.274	92.4	5.86	

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	80	93.2	69.9 - 116	Acceptable	SM4500Si D online	8/8/2013	-2.12	92.4	5.86	

WP Sulfide (cat# 891)

2005	Sulfide	mg/L	3.77	4.79	1.92 - 7.07	Acceptable	SM 4500-S2 F-2011 2011	8/1/2013	-0.702	4.36	0.848	



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WP Surfactants - MBAS (cat# 892)

2025	Surfactants (MBAS)	mg/L	0.23	0.397	0.235 - 0.579	Not Acceptable	SM5540C 21st ED 2000	8/1/2013	-2.83	0.417	0.0663	CRS

WP Bromide (cat# 887)

1540	Bromide	mg/L	5.78	5.68	4.73 - 6.64	Acceptable	EPA 300.0 2.1	8/11/2013	-0.135	5.82	0.332	KHC

WP Total Residual Chlorine (cat# 587)

1940	Total Residual Chlorine	mg/L	2	1.70	1.26 - 2.00	Acceptable	SM 4500-Cl D-2011 2011	8/16/2013	2.57	1.67	0.130	



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Microbiology Results





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WP WasteWatTM Coliform MicrobETM (cat# 576)

2500	Total Coliforms (MF)	CFU/100mL	276	707	198 - 1160	Acceptable	SM 9222 B (M-Endo)-1997 1997	7/31/2013	-1.26	478	160	
2530	Fecal Coliforms (MF)	CFU/100mL	360	707	57.0 - 1520	Acceptable	SM9222D m FC 21st ED	7/31/2013	0.270	294	243	AIS
2525	E.coli (MF)	CFU/100mL		707	72.0 - 2150	Not Reported				394	346	
2500	Total Coliforms (MPN)	MPN/100mL		905	142 - 3640	Not Reported				718	582	
2530	Fecal Coliforms (MPN)	MPN/100mL		905	58.0 - 4040	Not Reported				484	664	
2525	E.coli (MPN)	MPN/100mL		905	270 - 2310	Not Reported				789	340	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



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Study: **WP-222**

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Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Organic Results





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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Volatiles (cat# 830)

4315	Acetone	µg/L	< 10	< 3.90	0.00 - 3.90	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4320	Acetonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4325	Acrolein	µg/L	< 20	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4340	Acrylonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4375	Benzene	µg/L	30.4	30.5	21.4 - 39.6	Acceptable	EPA 8260B 2 1996	8/8/2013	0.324	29.5	2.90	SK
4395	Bromodichloromethane	µg/L	44.7	51.4	30.8 - 72.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.487	46.8	4.41	SK
4400	Bromoform	µg/L	33.3	39.0	23.4 - 54.6	Acceptable	EPA 8260B 2 1996	8/8/2013	-1.59	40.2	4.38	SK
4950	Bromomethane	µg/L	20.25	29.8	11.9 - 47.7	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.685	25.5	7.64	SK
4410	2-Butanone (MEK)	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5000	tert-Butyl methyl ether (MTBE)	µg/L	45.3	46.0	30.4 - 63.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.151	46.1	5.09	SK
4450	Carbon disulfide	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4455	Carbon tetrachloride	µg/L	19.1	20.2	10.7 - 28.1	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.118	19.4	2.37	SK
4475	Chlorobenzene	µg/L	17	17.6	12.3 - 22.9	Acceptable	EPA 8260B 2 1996	8/8/2013	0.0744	16.9	1.51	SK
4575	Chlorodibromomethane	µg/L	67.4	72.5	43.5 - 102	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.815	73.9	7.96	SK
4485	Chloroethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4500	2-Chloroethylvinylether	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4505	Chloroform	µg/L	60.1	56.0	39.2 - 72.8	Acceptable	EPA 8260B 2 1996	8/8/2013	0.627	56.2	6.14	SK
4960	Chloromethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK



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WP Volatiles (cat# 830) (Continued)

4570	1,2-Dibromo-3-chloropropane (DBCP)	µg/L	< 2	< 9.00	0.00 - 9.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4585	1,2-Dibromoethane (EDB)	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4595	Dibromomethane	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4610	1,2-Dichlorobenzene	µg/L	16.3	17.6	12.3 - 22.9	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.672	17.2	1.36	SK
4615	1,3-Dichlorobenzene	µg/L	41.2	45.3	31.7 - 58.9	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.849	44.8	4.27	SK
4620	1,4-Dichlorobenzene	µg/L	12.6	13.6	9.52 - 17.7	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.807	13.6	1.25	SK
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4630	1,1-Dichloroethane	µg/L	14	15.9	10.2 - 22.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.494	15.0	1.97	SK
4635	1,2-Dichloroethane	µg/L	21.7	22.3	15.8 - 30.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.285	22.3	2.18	SK
4640	1,1-Dichloroethylene	µg/L	44.5	43.4	25.2 - 63.2	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.164	45.5	6.17	SK
4645	cis-1,2-Dichloroethylene	µg/L	24	23.9	16.3 - 32.1	Acceptable	EPA 8260B 2 1996	8/8/2013	0.102	23.7	2.74	SK
4700	trans-1,2-Dichloroethylene	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4655	1,2-Dichloropropane	µg/L	23.6	24.6	17.2 - 32.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.13	23.9	2.31	SK
4680	cis-1,3-Dichloropropylene	µg/L	17.9	21.9	14.2 - 29.6	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.856	20.2	2.65	SK
4685	trans-1,3-Dichloropropylene	µg/L	55.7	71.0	46.2 - 95.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-1.25	67.8	9.70	SK
4765	Ethylbenzene	µg/L	13	13.2	9.24 - 17.2	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.0318	13.0	1.21	SK
4835	Hexachlorobutadiene	µg/L	< 1	< 4.30	0.00 - 4.30	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4860	2-Hexanone	µg/L	< 10	< 4.40	0.00 - 4.40	Acceptable	EPA 8260B 2 1996	8/8/2013				SK



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WP Volatiles (cat# 830) (Continued)

4975	Methylene chloride	µg/L	< 5	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
4995	4-Methyl-2-pentanone (MIBK)	µg/L	12.1	28.3	6.85 - 47.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-3.89	27.4	3.92	SK
5005	Naphthalene	µg/L	15.9	15.7	6.67 - 23.8	Acceptable	EPA 8260B 2 1996	8/8/2013	0.543	15.0	1.62	SK
5100	Styrene	µg/L	40.5	46.2	30.0 - 62.4	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.99	44.7	4.23	SK
5105	1,1,1,2-Tetrachloroethane	µg/L	< 1	< 9.80	0.00 - 9.80	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5110	1,1,2,2-Tetrachloroethane	µg/L	15.8	16.9	11.0 - 22.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.603	16.9	1.82	SK
5115	Tetrachloroethylene	µg/L	46.7	48.7	26.9 - 63.8	Acceptable	EPA 8260B 2 1996	8/8/2013	0.0194	46.6	6.30	SK
5140	Toluene	µg/L	46.2	44.8	31.4 - 58.2	Acceptable	EPA 8260B 2 1996	8/8/2013	0.404	44.5	4.18	SK
5155	1,2,4-Trichlorobenzene	µg/L	47.8	51.5	21.6 - 70.2	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.233	49.4	6.72	SK
5160	1,1,1-Trichloroethane	µg/L	31.8	32.5	19.5 - 45.5	Acceptable	EPA 8260B 2 1996	8/8/2013	0.0960	31.4	3.66	SK
5165	1,1,2-Trichloroethane	µg/L	42.8	45.4	31.8 - 59.0	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.675	45.6	4.15	SK
5170	Trichloroethylene	µg/L	22.6	23.7	14.9 - 31.8	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.154	22.9	2.25	SK
5175	Trichlorofluoromethane	µg/L	32.3	36.7	14.7 - 58.7	Acceptable	EPA 8260B 2 1996	8/8/2013	-0.713	37.6	7.52	SK
5180	1,2,3-Trichloropropane (TCP)	µg/L	< 5	< 4.10	0.00 - 4.10	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5210	1,2,4-Trimethylbenzene	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5215	1,3,5-Trimethylbenzene	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5225	Vinyl acetate	µg/L	< 2	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5235	Vinyl chloride	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK



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WP Volatiles (cat# 830) (Continued)

5240	m&p-Xylene	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5250	o-Xylene	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	8/8/2013				SK
5260	Xylenes, total	µg/L	< 1	< 12.0	0.00 - 12.0	Acceptable	EPA 8260B 2 1996	8/8/2013				SK





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WP Chlorinated Acid Herbicides (cat# 829)

8505	Acifluorfen	µg/L		6.40	0.896 - 9.42	Not Reported				6.31	2.14	
8530	Bentazon	µg/L	2.04	2.46	0.246 - 4.47	Acceptable	EPA 8151A 1998	8/28/2013	-0.631	2.54	0.791	
8540	Chloramben	µg/L		2.54	0.254 - 3.87	Not Reported				2.04	0.371	
8545	2,4-D	µg/L	1.7	2.16	0.216 - 3.59	Acceptable	EPA 8151A 1998	8/28/2013	-0.304	1.84	0.466	
8560	2,4-DB	µg/L	6.72	3.86	0.386 - 6.56	Not Acceptable	EPA 8151A 1998	8/28/2013	3.80	3.29	0.902	
8550	Dacthal diacid (DCPA)	µg/L		3.28	0.414 - 4.68	Not Reported				2.63	0.418	
8555	Dalapon	µg/L	2.39	3.68	0.368 - 5.81	Acceptable	EPA 8151A 1998	8/28/2013	-0.609	2.89	0.824	
8595	Dicamba	µg/L	2.04	2.58	0.509 - 4.10	Acceptable	EPA 8151A 1998	8/28/2013	-0.0736	2.08	0.524	
8600	3,5-Dichlorobenzoic acid	µg/L		2.60	0.546 - 3.92	Not Reported				2.05	0.638	
8605	Dichlorprop	µg/L	2.31	3.18	0.544 - 4.78	Acceptable	EPA 8151A 1998	8/28/2013	-0.721	2.84	0.738	
8620	Dinoseb	µg/L	1.66	2.38	0.238 - 3.59	Acceptable	EPA 8151A 1998	8/28/2013	0.182	1.60	0.353	
7775	MCPA	µg/L	< 51	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	8/28/2013				
7780	MCPP	µg/L	< 54	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	8/28/2013				
6500	4-Nitrophenol	µg/L		2.52	0.252 - 3.87	Not Reported				1.49	0.659	
6605	Pentachlorophenol	µg/L	1.75	2.37	0.305 - 3.58	Acceptable	EPA 8151A 1998	8/28/2013	-0.572	1.98	0.399	
8645	Picloram	µg/L	1.74	2.86	0.286 - 4.63	Acceptable	EPA 8151A 1998	8/28/2013	-1.46	2.40	0.450	
8655	2,4,5-T	µg/L	3.67	5.04	1.03 - 7.44	Acceptable	EPA 8151A 1998	8/28/2013	-0.363	4.08	1.12	
8650	2,4,5-TP (Silvex)	µg/L	1.46	2.03	0.542 - 3.15	Acceptable	EPA 8151A 1998	8/28/2013	-0.91	1.76	0.335	



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WP PCBs in Water (cat# 832S)

8880	Aroclor 1016	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8885	Aroclor 1221	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8890	Aroclor 1232	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8895	Aroclor 1242	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8900	Aroclor 1248	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				
8905	Aroclor 1254	µg/L	4.18	5.34	1.98 - 7.30	Acceptable	EPA 8082 1996	8/27/2013	-0.58	4.87	1.18	
8910	Aroclor 1260	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	8/27/2013				

WP PCBs in Oil (cat# 835S)

8880	Aroclor 1016	mg/kg	< 0.17	34.0	5.80 - 46.6	Not Acceptable	EPA 8082 1996	8/9/2013		25.2	7.91	JLG
8895	Aroclor 1242	mg/kg	34.8	< 1.70	0.00 - 1.70	Not Acceptable	EPA 8082 1996	8/9/2013				JLG
8905	Aroclor 1254	mg/kg	< 0.17	< 1.60	0.00 - 1.60	Acceptable	EPA 8082 1996	8/9/2013				JLG
8910	Aroclor 1260	mg/kg	< 0.17	< 2.40	0.00 - 2.40	Acceptable	EPA 8082 1996	8/9/2013				JLG



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WP Base/Neutrals (cat# 833)

5500	Acenaphthene	µg/L	13.8	18.4	6.88 - 23.3	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.245	14.5	2.82	EAO
5505	Acenaphthylene	µg/L	< 5	< 2.90	0.00 - 2.90	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5545	Aniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5555	Anthracene	µg/L	< 5	< 3.90	0.00 - 3.90	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5595	Benzidine	µg/L	< 25	< 200	0.00 - 200	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5575	Benzo(a)anthracene	µg/L	56.5	72.1	34.0 - 88.0	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.637	61.8	8.26	EAO
5585	Benzo(b)fluoranthene	µg/L	14.7	20.4	7.66 - 26.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.652	16.6	3.00	EAO
5600	Benzo(k)fluoranthene	µg/L	< 4	< 7.70	0.00 - 7.70	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5590	Benzo(g,h,i)perylene	µg/L	< 5	< 5.10	0.00 - 5.10	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5580	Benzo(a)pyrene	µg/L	18.8	24.3	7.76 - 32.0	Acceptable	EPA 8270C 3 1996	8/8/2013	0.175	18.2	3.66	EAO
5630	Benzyl alcohol	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5660	4-Bromophenyl-phenylether	µg/L	< 5	< 8.60	0.00 - 8.60	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5670	Butylbenzylphthalate	µg/L	143	186	56.5 - 255	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.472	158	32.4	EAO
5680	Carbazole	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5745	4-Chloroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5760	bis(2-Chloroethoxy)methane	µg/L	23.7	32.4	8.88 - 41.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.178	24.4	3.93	EAO
5765	bis(2-Chloroethyl)ether	µg/L	16.7	22.8	6.63 - 30.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.267	17.7	3.84	EAO
5780	bis(2-Chloroisopropyl)ether	µg/L	24.8	33.8	4.40 - 48.2	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.27	26.4	5.86	EAO
5790	1-Chloronaphthalene	µg/L		< 10.0	0.00 - 10.0	Not Reported						



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WP Base/Neutrals (cat# 833) (Continued)

5795	2-Chloronaphthalene	µg/L	23.9	32.2	9.56 - 41.1	Acceptable	EPA 8270C 3 1996	8/8/2013	0.000883	23.9	5.55	EAO
5825	4-Chlorophenyl-phenylether	µg/L	115	146	53.0 - 178	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.185	119	22.1	EAO
5855	Chrysene	µg/L	< 5	< 5.80	0.00 - 5.80	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5895	Dibenz(a,h)anthracene	µg/L	< 2	< 6.90	0.00 - 6.90	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5905	Dibenzofuran	µg/L	32.3	41.8	15.9 - 51.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.017	32.4	5.06	EAO
5925	Di-n-butylphthalate	µg/L	98.4	130	45.7 - 167	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.613	112	22.5	EAO
4610	1,2-Dichlorobenzene	µg/L	107	194	29.3 - 219	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.156	114	43.2	EAO
4615	1,3-Dichlorobenzene	µg/L	50	87.5	8.75 - 103	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.0725	51.4	19.9	EAO
4620	1,4-Dichlorobenzene	µg/L	< 5	< 3.70	0.00 - 3.70	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5945	3,3'-Dichlorobenzidine	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6070	Diethylphthalate	µg/L	58.1	72.2	12.3 - 103	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.226	60.3	9.93	EAO
6135	Dimethylphthalate	µg/L	< 5	< 11.5	0.00 - 11.5	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6185	2,4-Dinitrotoluene	µg/L	69.9	95.4	39.7 - 118	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.904	81.1	12.4	EAO
6190	2,6-Dinitrotoluene	µg/L	21.3	30.3	12.3 - 37.1	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.627	24.1	4.54	EAO
6200	Di-n-octylphthalate	µg/L	< 5	< 8.20	0.00 - 8.20	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6065	bis(2-Ethylhexyl)phthalate	µg/L	91.8	123	42.5 - 161	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.776	108	20.2	EAO
6265	Fluoranthene	µg/L	124	162	72.0 - 196	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.509	136	23.4	EAO
6270	Fluorene	µg/L	36.9	43.2	18.5 - 54.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.175	37.9	5.77	EAO
6275	Hexachlorobenzene	µg/L	23.7	28.8	12.8 - 34.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.25	24.7	4.02	EAO
4835	Hexachlorobutadiene	µg/L	48.5	79.4	8.35 - 96.8	Acceptable	EPA 8270C 3 1996	8/8/2013	0.0709	47.1	19.6	EAO



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6285	Hexachlorocyclopentadiene	µg/L	105	167	16.7 - 215	Acceptable	EPA 8270C 3 1996	8/8/2013	0.154	98.6	41.1	EAO
4840	Hexachloroethane	µg/L	47.1	85.2	8.52 - 93.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.0894	49.0	21.6	EAO
6315	Indeno(1,2,3-cd)pyrene	µg/L	27.7	41.6	12.5 - 56.8	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.46	30.8	6.74	EAO
6320	Isophorone	µg/L	44.4	62.1	22.6 - 77.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.312	46.9	8.05	EAO
6385	2-Methylnaphthalene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5005	Naphthalene	µg/L	117	174	41.9 - 200	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.131	121	32.8	EAO
6460	2-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6465	3-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6470	4-Nitroaniline	µg/L	< 4	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5015	Nitrobenzene	µg/L	77.5	105	34.2 - 124	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.141	79.6	15.1	EAO
6525	N-Nitrosodiethylamine	µg/L	< 4	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6530	N-Nitrosodimethylamine	µg/L	25.6	85.2	8.52 - 101	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.17	43.6	15.3	EAO
6535	N-Nitrosodiphenylamine	µg/L	< 5	< 5.60	0.00 - 5.60	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6545	N-Nitroso-di-n-propylamine	µg/L	< 4	< 9.40	0.00 - 9.40	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6590	Pentachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6615	Phenanthrene	µg/L	29.3	35.2	16.5 - 45.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.181	30.0	4.09	EAO
6665	Pyrene	µg/L	44.4	52.1	21.7 - 68.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.469	47.3	6.28	EAO
5095	Pyridine	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
6715	1,2,4,5-Tetrachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5155	1,2,4-Trichlorobenzene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO



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WP Acids (cat# 834)

5610	Benzoic acid	µg/L	< 5	< 30.0	0.00 - 30.0	Acceptable	EPA 8270C 3 1996	8/8/2013				EAO
5700	4-Chloro-3-methylphenol	µg/L	31.4	44.2	17.0 - 54.9	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.883	36.9	6.26	EAO
5800	2-Chlorophenol	µg/L	44.2	74.2	21.7 - 89.4	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.675	52.9	12.8	EAO
6000	2,4-Dichlorophenol	µg/L	39	54.7	19.4 - 66.8	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.626	43.7	7.57	EAO
6005	2,6-Dichlorophenol	µg/L	88.6	120	37.5 - 150	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.65	100	18.1	EAO
6130	2,4-Dimethylphenol	µg/L	46.3	66.3	19.0 - 83.3	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.451	50.6	9.52	EAO
6360	4,6-Dinitro-2-methylphenol	µg/L	99.6	176	56.8 - 236	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.35	139	29.4	EAO
6175	2,4-Dinitrophenol	µg/L	52.7	104	10.4 - 150	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.04	75.4	21.8	EAO
6400	2-Methylphenol	µg/L	30.6	61.1	14.2 - 73.6	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.17	42.6	10.3	EAO
6410	4-Methylphenol	µg/L	34.1	78.8	7.88 - 103	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.47	54.0	13.5	EAO
6490	2-Nitrophenol	µg/L	69.9	100	31.9 - 123	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.395	75.5	14.2	EAO
6500	4-Nitrophenol	µg/L	20.6	108	10.8 - 146	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.18	50.4	25.4	EAO
6605	Pentachlorophenol	µg/L	58.6	94.5	30.5 - 128	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.09	76.3	16.3	EAO
6625	Phenol	µg/L	24.2	128	12.8 - 172	Acceptable	EPA 8270C 3 1996	8/8/2013	-1.15	55.5	27.3	EAO
6735	2,3,4,6-Tetrachlorophenol	µg/L	57.6	75.9	26.5 - 100	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.407	63.6	14.8	EAO
6835	2,4,5-Trichlorophenol	µg/L	50.7	63.6	23.4 - 81.3	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.0465	51.1	8.97	EAO
6840	2,4,6-Trichlorophenol	µg/L	43.5	54.7	20.8 - 67.1	Acceptable	EPA 8270C 3 1996	8/8/2013	-0.585	48.1	7.94	EAO



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WP Nitroaromatics & Nitramines (cat# 932)

9306	4-Amino-2,6-dinitrotoluene	µg/L		6.44	3.41 - 9.01	Not Reported				6.52	0.290	
9303	2-Amino-4,6-dinitrotoluene	µg/L		11.1	6.15 - 15.9	Not Reported				10.4	0.995	
6160	1,3-Dinitrobenzene	µg/L	8.85	15.8	7.56 - 22.7	Acceptable	EPA 8270C 3 1996	8/1/2013	-3.45	15.7	1.98	TWB
6185	2,4-Dinitrotoluene	µg/L		15.4	7.87 - 22.5	Not Reported				15.0	1.26	
6190	2,6-Dinitrotoluene	µg/L		8.91	4.46 - 12.9	Not Reported				8.52	0.441	
9522	HMX	µg/L		8.13	4.02 - 11.5	Not Reported				7.75	0.932	
5015	Nitrobenzene	µg/L		18.7	9.09 - 25.8	Not Reported				17.9	1.36	
9507	2-Nitrotoluene	µg/L		12.3	6.22 - 16.9	Not Reported				12.9	1.34	
9510	3-Nitrotoluene	µg/L		13.0	6.48 - 18.3	Not Reported				12.9	0.962	
9513	4-Nitrotoluene	µg/L		16.7	8.96 - 23.5	Not Reported				16.1	1.64	
9432	RDX	µg/L		12.3	6.42 - 16.5	Not Reported				11.6	1.80	
6415	Tetryl	µg/L		< 1.00	0.00 - 1.00	Not Reported						
6885	1,3,5-Trinitrobenzene	µg/L	9.3	19.2	7.84 - 26.2	Acceptable	EPA 8270C 3 1996	8/1/2013	-3.08	16.6	2.35	TWB
9651	2,4,6-Trinitrotoluene	µg/L		5.34	2.84 - 7.08	Not Reported				4.41	0.362	



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WP Low-Level PAHs (cat# 836)

5500	Acenaphthene	µg/L	5.43	7.72	2.64 - 9.39	Acceptable	EPA 8270C SIM	8/2/2013	-0.432	6.01	1.34	TWB
5505	Acenaphthylene	µg/L	2.17	2.97	1.16 - 3.59	Acceptable	EPA 8270C SIM	8/2/2013	-0.338	2.36	0.554	TWB
5555	Anthracene	µg/L	3.46	4.82	1.44 - 6.46	Acceptable	EPA 8270C SIM	8/2/2013	-0.799	4.10	0.808	TWB
5575	Benzo(a)anthracene	µg/L	1.7	2.16	1.39 - 2.46	Acceptable	EPA 8270C SIM	8/2/2013	-0.299	1.79	0.294	TWB
5585	Benzo(b)fluoranthene	µg/L	2.22	2.90	1.38 - 3.50	Acceptable	EPA 8270C SIM	8/2/2013	-0.309	2.36	0.439	TWB
5600	Benzo(k)fluoranthene	µg/L	3.32	4.00	2.04 - 5.10	Acceptable	EPA 8270C SIM	8/2/2013	-0.0969	3.39	0.746	TWB
5590	Benzo(g,h,i)perylene	µg/L	1.14	0.742	0.252 - 1.04	Not Acceptable	EPA 8270C SIM	8/2/2013	3.86	0.618	0.135	TWB
5580	Benzo(a)pyrene	µg/L	2.14	3.17	1.35 - 3.72	Acceptable	EPA 8270C SIM	8/2/2013	-0.79	2.62	0.602	TWB
5855	Chrysene	µg/L	2.21	2.61	1.44 - 3.22	Acceptable	EPA 8270C SIM	8/2/2013	-0.289	2.33	0.420	TWB
5895	Dibenz(a,h)anthracene	µg/L	1.96	1.84	0.604 - 2.44	Acceptable	EPA 8270C SIM	8/2/2013	1.56	1.44	0.333	TWB
6265	Fluoranthene	µg/L	2.66	3.34	1.78 - 3.99	Acceptable	EPA 8270C SIM	8/2/2013	-0.584	2.99	0.561	TWB
6270	Fluorene	µg/L	5.55	7.10	2.98 - 8.28	Acceptable	EPA 8270C SIM	8/2/2013	-0.336	5.97	1.26	TWB
6315	Indeno(1,2,3-cd)pyrene	µg/L	1.88	1.70	0.709 - 2.21	Acceptable	EPA 8270C SIM	8/2/2013	1.62	1.41	0.290	TWB
5005	Naphthalene	µg/L	2.82	4.22	1.34 - 4.99	Acceptable	EPA 8270C SIM	8/2/2013	-0.528	3.25	0.813	TWB
6615	Phenanthrene	µg/L	3.16	4.27	2.14 - 5.03	Acceptable	EPA 8270C SIM	8/2/2013	-0.579	3.52	0.619	TWB
6665	Pyrene	µg/L	3.21	4.17	2.27 - 4.88	Acceptable	EPA 8270C SIM	8/2/2013	-0.671	3.57	0.544	TWB



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WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	1.48	1.68	0.581 - 2.25	Acceptable	EPA 8081A 1 1996	8/3/2013	0.560	1.30	0.329	JLG
7110	alpha-BHC	µg/L	7.17	7.29	3.18 - 9.97	Acceptable	EPA 8081A 1 1996	8/3/2013	0.662	6.42	1.14	JLG
7115	beta-BHC	µg/L	8.14	7.66	3.62 - 10.4	Acceptable	EPA 8081A 1 1996	8/3/2013	0.864	7.01	1.30	JLG
7105	delta-BHC	µg/L	3.68	3.29	1.37 - 4.78	Acceptable	EPA 8081A 1 1996	8/3/2013	1.12	2.96	0.644	JLG
7120	gamma-BHC(Lindane)	µg/L	9.37	9.94	4.40 - 13.6	Acceptable	EPA 8081A 1 1996	8/3/2013	0.00280	9.36	1.67	JLG
7240	alpha-Chlordane	µg/L	4.76	4.21	1.88 - 5.68	Acceptable	EPA 8081A 1 1996	8/3/2013	1.28	3.76	0.779	JLG
7245	gamma-Chlordane	µg/L	5.18	4.80	2.12 - 6.36	Acceptable	EPA 8081A 1 1996	8/3/2013	1.31	4.00	0.898	JLG
7355	4,4'-DDD	µg/L	6.65	5.59	2.63 - 7.81	Acceptable	EPA 8081A 1 1996	8/3/2013	1.55	5.05	1.03	JLG
7360	4,4'-DDE	µg/L	4.82	4.44	1.90 - 6.05	Acceptable	EPA 8081A 1 1996	8/3/2013	1.19	3.77	0.877	JLG
7365	4,4'-DDT	µg/L	4.86	4.08	1.62 - 5.93	Acceptable	EPA 8081A 1 1996	8/3/2013	1.57	3.62	0.789	JLG
7470	Dieldrin	µg/L	2.06	1.74	0.856 - 2.38	Acceptable	EPA 8081A 1 1996	8/3/2013	1.62	1.56	0.308	JLG
7540	Endrin	µg/L	5.89	4.80	2.10 - 6.86	Acceptable	EPA 8081A 1 1996	8/3/2013	1.43	4.58	0.914	JLG
7530	Endrin aldehyde	µg/L	6.59	6.63	2.44 - 9.92	Acceptable	EPA 8081A 1 1996	8/3/2013	0.572	5.89	1.22	JLG
7535	Endrin ketone	µg/L	8.81	11.0	5.90 - 14.5	Acceptable	EPA 8081A 1 1996	8/3/2013	-0.644	10.1	1.97	JLG
7510	Endosulfan I	µg/L	< 0.01	< 1.40	0.00 - 1.40	Acceptable	EPA 8081A 1 1996	8/3/2013				JLG
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	EPA 8081A 1 1996	8/3/2013				JLG
7520	Endosulfan sulfate	µg/L	4.86	4.20	1.88 - 6.53	Acceptable	EPA 8081A 1 1996	8/3/2013	1.31	3.81	0.799	JLG
7685	Heptachlor	µg/L	4.13	4.60	1.62 - 6.26	Acceptable	EPA 8081A 1 1996	8/3/2013	0.414	3.77	0.868	JLG
7690	Heptachlor epoxide (beta)	µg/L	5.63	5.19	2.60 - 6.94	Acceptable	EPA 8081A 1 1996	8/3/2013	1.03	4.63	0.972	JLG
7810	Methoxychlor	µg/L	6.38	9.57	4.10 - 13.9	Acceptable	EPA 8081A 1 1996	8/3/2013	-1.16	8.44	1.77	JLG



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WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	1.48	1.68	0.581 - 2.25	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.560	1.30	0.329	
7110	alpha-BHC	µg/L	7.17	7.29	3.18 - 9.97	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.662	6.42	1.14	
7115	beta-BHC	µg/L	8.18	7.66	3.62 - 10.4	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.895	7.01	1.30	
7105	delta-BHC	µg/L	3.68	3.29	1.37 - 4.78	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.12	2.96	0.644	
7120	gamma-BHC(Lindane)	µg/L	9.37	9.94	4.40 - 13.6	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.00280	9.36	1.67	
7240	alpha-Chlordane	µg/L		4.21	1.88 - 5.68	Not Reported				3.76	0.779	
7245	gamma-Chlordane	µg/L		4.80	2.12 - 6.36	Not Reported				4.00	0.898	
7355	4,4'-DDD	µg/L	6.65	5.59	2.63 - 7.81	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.55	5.05	1.03	
7360	4,4'-DDE	µg/L	4.82	4.44	1.90 - 6.05	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.19	3.77	0.877	
7365	4,4'-DDT	µg/L	4.86	4.08	1.62 - 5.93	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.57	3.62	0.789	
7470	Dieldrin	µg/L	2.06	1.74	0.856 - 2.38	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.62	1.56	0.308	
7540	Endrin	µg/L	5.89	4.80	2.10 - 6.86	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.43	4.58	0.914	
7530	Endrin aldehyde	µg/L	6.59	6.63	2.44 - 9.92	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.572	5.89	1.22	
7535	Endrin ketone	µg/L		11.0	5.90 - 14.5	Not Reported				10.1	1.97	
7510	Endosulfan I	µg/L	< 0.01	< 1.40	0.00 - 1.40	Acceptable	SM 6630 C-2000 2000	8/3/2013				
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	SM 6630 C-2000 2000	8/3/2013				
7520	Endosulfan sulfate	µg/L	4.86	4.20	1.88 - 6.53	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.31	3.81	0.799	
7685	Heptachlor	µg/L	4.13	4.60	1.62 - 6.26	Acceptable	SM 6630 C-2000 2000	8/3/2013	0.414	3.77	0.868	
7690	Heptachlor epoxide (beta)	µg/L	5.63	5.19	2.60 - 6.94	Acceptable	SM 6630 C-2000 2000	8/3/2013	1.03	4.63	0.972	
7810	Methoxychlor	µg/L	6.38	9.57	4.10 - 13.9	Acceptable	SM 6630 C-2000 2000	8/3/2013	-1.16	8.44	1.77	



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WP Chlordane (cat# 837)

7250	Chlordane, technical	µg/L	4.47	8.85	3.73 - 12.1	Acceptable	EPA 8081A 1 1996	8/3/2013	-2.14	7.22	1.29	JLG

WP Chlordane (cat# 837)

7250	Chlordane, technical	µg/L	4.47	8.85	3.73 - 12.1	Acceptable	SM 6630 C-2000 2000	8/2/2013	-2.14	7.22	1.29	

WP Toxaphene (cat# 838)

8250	Toxaphene	µg/L	75.6	64.5	14.0 - 94.1	Acceptable	EPA 8081A 1 1996	8/2/2013	1.32	60.4	11.5	JLG

WP Toxaphene (cat# 838)

8250	Toxaphene	µg/L	75.6	64.5	14.0 - 94.1	Acceptable	SM 6630 C-2000 2000	8/2/2013	1.32	60.4	11.5	



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WP Nitrogen Pesticides (cat# 487)

7005	Alachlor	µg/L		8.12	4.19 - 11.3	Not Reported				7.29	1.18	
7035	Ametryn	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7045	Anilazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7060	Atraton	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7065	Atrazine	µg/L	5.43	8.65	4.24 - 12.2	Acceptable	EPA 8141B 2000	8/1/2013	-1.94	8.00	1.32	
7130	Bromacil	µg/L		16.0	1.60 - 26.3	Not Reported				0.00	0.00	
7160	Butachlor	µg/L		4.37	1.83 - 6.45	Not Reported				3.64	0.00	
7175	Butylate	µg/L		18.7	7.50 - 21.6	Not Reported				12.2	0.00	
7340	Cyanazine	µg/L		14.0	2.40 - 22.9	Not Reported				10.0	1.27	
7066	Deethyl atrazine	µg/L		7.86	0.786 - 11.4	Not Reported				6.46	1.34	
7067	Deisopropyl atrazine	µg/L		9.36	0.936 - 10.3	Not Reported				6.83	0.806	
7068	Diaminoatrazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7555	EPTC (Eptam)	µg/L		11.0	4.75 - 12.1	Not Reported				8.00	0.629	
7705	Hexazinone	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7835	Metolachlor	µg/L		11.6	5.96 - 15.4	Not Reported				9.90	1.84	
7845	Metribuzin	µg/L		6.06	1.52 - 8.86	Not Reported				5.44	1.07	
6440	Napropamide	µg/L		8.61	1.10 - 12.4	Not Reported				0.00	0.00	
8035	Prometon	µg/L		5.99	1.88 - 8.68	Not Reported				6.24	3.12	
8040	Prometryn	µg/L		10.6	6.17 - 14.7	Not Reported				12.3	2.90	
6650	Pronamide	µg/L		< 2.00	0.00 - 2.00	Not Reported						



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WP Nitrogen Pesticides (cat# 487) (Continued)

8045	Propachlor	µg/L		16.2	9.50 - 21.2	Not Reported				12.6	0.488	
8060	Propazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8125	Simazine	µg/L	8.6	3.17	0.856 - 5.00	Not Acceptable	EPA 8141B 2000	8/1/2013	6.34	3.76	0.763	
8180	Terbacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		4.10	1.00 - 5.56	Not Reported				3.74	0.380	



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WP Organophosphorous Pesticides (OPP) (cat# 934)

7075	Azinphos-methyl (Guthion)	µg/L		12.8	1.84 - 21.7	Not Reported				9.89	2.22	
7220	Carbophenothion	µg/L		15.6	7.64 - 21.5	Not Reported				16.7	1.16	
7300	Chlorpyrifos	µg/L		16.0	5.78 - 21.1	Not Reported				12.8	2.98	
7395	Demeton-O	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7385	Demeton-S	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7410	Diazinon	µg/L		8.78	3.26 - 13.0	Not Reported				8.24	1.15	
8610	Dichlorvos (DDVP)	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7475	Dimethoate	µg/L		13.6	2.46 - 18.4	Not Reported				9.86	3.38	
7495	Dioxathion	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8625	Disulfoton	µg/L		13.6	2.24 - 22.1	Not Reported				11.6	2.95	
7565	Ethion	µg/L		7.04	3.33 - 10.8	Not Reported				7.62	0.824	
7570	Ethoprop	µg/L		8.36	3.32 - 11.4	Not Reported				6.90	0.988	
7955	Ethyl Parathion	µg/L	5.02	7.23	3.98 - 10.5	Acceptable	EPA 8270C 3 1996	8/1/2013	-0.914	6.24	1.33	TWB
7580	Famphur	µg/L		9.19	4.32 - 12.4	Not Reported				7.72	1.72	
7640	Fonofos	µg/L		16.1	5.74 - 25.1	Not Reported				10.4	5.90	
7770	Malathion	µg/L		6.69	1.21 - 10.7	Not Reported				4.60	1.10	
7825	Methyl Parathion	µg/L		9.62	3.52 - 12.9	Not Reported				6.86	1.76	
7985	Phorate	µg/L		6.60	2.56 - 8.28	Not Reported				5.71	1.24	
8000	Phosmet	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8110	Ronnel	µg/L		7.88	3.47 - 9.52	Not Reported				6.51	1.50	



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01



WP-222 2003 NELAC Evaluation Final Complete Report

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EPA ID: FL01264
ERA Customer Number: E550101
Report Issued: 10/02/13
Study Dates: 07/15/13 - 08/29/13

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name
WP Organophosphorous Pesticides (OPP) (cat# 934) (Continued)												
8200	Stirophos	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8185	Terbufos	µg/L		11.9	3.20 - 15.6	Not Reported				12.2	0.354	





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WP-222 2003 NELAC Evaluation Final Complete Report

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E550101
10/02/13
07/15/13 - 08/29/13

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Organophosphorous Pesticides (OPP) (cat# 934)

7075	Azinphos-methyl (Guthion)	µg/L	11.9	12.8	1.84 - 21.7	Acceptable	EPA 8141B 2000	8/1/2013	0.905	9.89	2.22	
7220	Carbophenothion	µg/L	18.4	15.6	7.64 - 21.5	Acceptable	EPA 8141B 2000	8/1/2013	1.47	16.7	1.16	
7300	Chlorpyrifos	µg/L	16.6	16.0	5.78 - 21.1	Acceptable	EPA 8141B 2000	8/1/2013	1.26	12.8	2.98	
7395	Demeton-O	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
7385	Demeton-S	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
7410	Diazinon	µg/L	8.6	8.78	3.26 - 13.0	Acceptable	EPA 8141B 2000	8/1/2013	0.316	8.24	1.15	
8610	Dichlorvos (DDVP)	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
7475	Dimethoate	µg/L	11.3	13.6	2.46 - 18.4	Acceptable	EPA 8141B 2000	8/1/2013	0.425	9.86	3.38	
7495	Dioxathion	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
8625	Disulfoton	µg/L	16.3	13.6	2.24 - 22.1	Acceptable	EPA 8141B 2000	8/1/2013	1.59	11.6	2.95	
7565	Ethion	µg/L	9.5	7.04	3.33 - 10.8	Acceptable	EPA 8141B 2000	8/1/2013	2.28	7.62	0.824	
7570	Ethoprop	µg/L	9.5	8.36	3.32 - 11.4	Acceptable	EPA 8141B 2000	8/1/2013	2.63	6.90	0.988	
7955	Ethyl Parathion	µg/L	6.2	7.23	3.98 - 10.5	Acceptable	EPA 8141B 2000	8/1/2013	-0.03	6.24	1.33	
7580	Famphur	µg/L	10	9.19	4.32 - 12.4	Acceptable	EPA 8141B 2000	8/1/2013	1.32	7.72	1.72	
7640	Fonofos	µg/L	14.6	16.1	5.74 - 25.1	Acceptable	EPA 8141B 2000	8/1/2013	0.707	10.4	5.90	
7770	Malathion	µg/L	4.73	6.69	1.21 - 10.7	Acceptable	EPA 8141B 2000	8/1/2013	0.122	4.60	1.10	
7825	Methyl Parathion	µg/L	9.2	9.62	3.52 - 12.9	Acceptable	EPA 8141B 2000	8/1/2013	1.32	6.86	1.76	
7985	Phorate	µg/L	8.3	6.60	2.56 - 8.28	Not Acceptable	EPA 8141B 2000	8/1/2013	2.09	5.71	1.24	
8000	Phosmet	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
8110	Ronnel	µg/L	9.4	7.88	3.47 - 9.52	Acceptable	EPA 8141B 2000	8/1/2013	1.93	6.51	1.50	





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WP-222 2003 NELAC Evaluation Final Complete Report

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E550101
10/02/13
07/15/13 - 08/29/13

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Organophosphorous Pesticides (OPP) (cat# 934) (Continued)

8200	Stiropfos	µg/L	< 0.5	< 2.00	0.00 - 2.00	Acceptable	EPA 8141B 2000	8/1/2013				
8185	Terbufos	µg/L	11.9	11.9	3.20 - 15.6	Acceptable	EPA 8141B 2000	8/1/2013	-0.707	12.2	0.354	

WP Total Petroleum Hydrocarbons (TPH) in Water (cat# 642)

1935	TPH (Gravimetric)	mg/L	76.9	87.5	40.9 - 126	Acceptable	EPA 1664A	7/30/2013	0.373	73.0	10.5	
1935	TPH (IR)	mg/L		108	51.0 - 156	Not Reported				113	18.8	



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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A Waters Company

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WP-228



Final Report

WatR™ Pollution Proficiency Testing

WatR™ Pollution Study

Open Date: 01/13/14

Close Date: 02/27/14

Report Issued Date: 03/03/14



A Waters Company

March 3, 2014

Lynn Baylor
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Enclosed is your final report for ERA's WP-228 WatR™Pollution Proficiency Testing (PT) study. Your final report includes an evaluation of all results submitted by your laboratory to ERA.

Data Evaluation Protocols: All analytes in ERA's WP-228 WatR™Pollution Proficiency Testing study have been evaluated using the following tiered approach. If the analyte is listed in the current TNI Fields of Proficiency Testing (FoPT) tables, the evaluation was completed by comparing the reported result to the acceptance limits generated using the criteria contained in the current TNI FoPT tables. If the analyte is not included in the TNI FoPT tables, the reported result has been evaluated using the procedures outlined in ERA's Standard Operating Procedure for the Generation of Performance Acceptance Limits (SOP 0260).

Corrective Action Help: As part of your accreditation(s), you may be required to identify the root cause of any "Not Acceptable" results, implement the necessary corrective actions, and then satisfy your PT requirements by participating in a Supplemental (QuiK™Response) or future ERA PT study. ERA's technical staff is available to help your laboratory resolve any technical issues that may be impairing your PT performance and possibly affecting your routine data quality. Our laboratory and technical staff have many years of collective experience in performing the full range of environmental analyses. As part of our technical support, ERA offers QC samples that can be useful in helping you work through your technical issues.

Please note the following changes to our final reports:

- At the request of the TNI Accreditation Council, we have included a Laboratory Exception Report that includes a list of all analytes reported with less than qualifiers when the assigned value was greater than "0." In addition, because we have received many requests from laboratories, this report also includes a list of all analytes with "Not Acceptable" evaluations.
- Some states have elected not to convert to the 2009 TNI Standards at this time. If you have released your results to a state that has retained the 2003 NELAC Evaluation Criteria, your final report will include a section that evaluates the results according to the 2003 Standard in addition to the 2009 TNI Standards.

Thank you for your participation in ERA's WP-228 WatR™Pollution Proficiency Testing study. If you have any questions, please contact our Proficiency Testing Department at 1-800-372-0122.

Sincerely,

Kristina Sanchez
Quality Officer

attachments



A Waters Company

Report Recipient	Contact/Phone Number	Reporting Type	Evaluation Type
Florida	Steve Arms / 904-791-1502	All Analytes	2009 TNI
Louisiana	Paul Bergeron / 225-219-3247	All Analytes	2009 TNI
New York	Dan Dickinson / 518-485-5570	All Analytes	2003 NELAC
North Carolina (WP)	Dana Satterwhite / 919-733-3908 x 243	All Analytes	2009 TNI
South Carolina	Carol Smith / 803-896-0992	All Analytes	2003 NELAC



A Waters Company

WP-228 Definitions & Study Discussion

Study Dates: 01/13/14 - 02/27/14

Report Issued: 03/03/14

WP Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values are compliant with the most current TNI Fields of Proficiency Testing (FoPT) tables. A parameter not added to the standard is given an Assigned Value of "< PTRL" per the guidelines contained in the 2009 TNI Standards. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards.

The Acceptance Limits are established per the criteria contained in the most current USEPA/NELAC FoPT tables, or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable.

The Performance Evaluation:

Acceptable	= Reported Value falls within the Acceptance Limits.
Not Acceptable	= Reported Value falls outside the Acceptance Limits.
No Evaluation	= Reported Value cannot be evaluated.
Not Reported	= No Value reported.

The Method Description is the method the laboratory reported to ERA.

WP Study Discussion

ERA's WP-228 WatR™Pollution Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI PT Standard and the criteria contained in the most current TNI Fields of Proficiency Testing (FoPT) tables.

ERA's WP-228 WatR™Pollution study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes met the acceptance criteria contained in the 2009 TNI PT Standard and the criteria contained in the most current TNI FoPT tables.

The data submitted by participating laboratories was also examined for study anomalies. There was one anomaly observed during the statistical review of the data. If your laboratory received the WP-228 Waste Water Coliform MicrobE™ sample, catalog #576, this anomaly is addressed on the following page.

ERA's WP-228 WatR™Pollution study reports shall not be reproduced except in their entirety and not without the permission of the participating laboratories. The report must not be used by the participating laboratories to claim product endorsement by any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's WatR™Pollution Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.





A Waters Company

WP-228 Study Anomalies

Study Dates: 01/13/14 - 02/27/14

Report Issued: 03/03/14

Study Discussion WasteWatR™ Coliform MicrobE™ - E.coli (MPN)

During the statistical review of the WP-228 WasteWatR™ Coliform MicrobE™ data, ERA observed a bimodal distribution of data for E.coli (MPN) when laboratories reported SM 9221. Based on ERA's criteria for testing for bimodal or multimodal distributions, and the 2003 NELAC Standards Chapter 2 Appendix C section C.4, the laboratories reporting SM 9221 were evaluated separately for this analyte.

- E.coli (MPN) entire population study mean = 498 MPN/100mL, 117 data points
- E.coli (MPN) SM 9221 study mean = 334 MPN/100mL, 15 data points
- E.coli (MPN) remaining data study mean = 521 MPN/100mL, 102 data points

ISO/IEC 17043:2010





A Waters Company

WP-228 Laboratory Exception Report

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2009 TNI Evaluation Checks

There are no values reported with < where the assigned value was greater than 0.

2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WP Total Cyanide (cat# 588)							
1645	Cyanide, total	mg/L	0.353	0.674	0.438 - 0.910	Not Acceptable	EPA 9012A
1645	Cyanide, total	mg/L	0.349	0.674	0.438 - 0.910	Not Acceptable	EPA 335.4
WP Base/Neutrals (cat# 833)							
5745	4-Chloroaniline	µg/L	18.1	< 10.0	0.00 - 10.0	Not Acceptable	EPA 8270C 3 1996
WP Low-Level PAHs (cat# 836)							
5575	Benzo(a)anthracene	µg/L	2.51	4.03	2.73 - 4.49	Not Acceptable	EPA 8270C SIM



Final Report Results For Laboratory Pace Analytical Services - Ormond Beach

2009 TNI Evaluation Report

Study: **WP-228**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results



A Waters Company

WP-228 2009 TNI Evaluation Final Complete Report

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Report Issued:
Study Dates:

FL01264
E550101
03/03/14
01/13/14 - 02/27/14

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Minerals (cat# 581)

1505	Alkalinity as CaCO ₃	mg/L	81.2	81.1	68.9 - 93.3	Acceptable	SM2320B online	2/11/2014	-0.195	81.8	2.89	LJJ
1575	Chloride	mg/L	42.50	46.5	40.2 - 52.9	Acceptable	EPA 300.0 2.1 1993	2/14/2014	-1.83	46.1	1.98	
1610	Conductivity at 25°C	µmhos/cm	358	357	321 - 393	Acceptable	SM2510B online	2/10/2014	-1.08	371	12.0	WMW
1730	Fluoride	mg/L	1.84	2.02	1.61 - 2.36	Acceptable	EPA 300.0 2.1 1993	2/14/2014	-0.904	1.94	0.113	JNZ
1125	Potassium	mg/L	23.8	23.2	18.6 - 27.8	Acceptable	EPA 6010C 2000	2/11/2014	0.890	22.7	1.22	CRT
1155	Sodium	mg/L	74.60	66.4	53.1 - 79.7	Acceptable	EPA 6010C 2000	2/11/2014	2.08	66.9	3.69	
2000	Sulfate	mg/L	20.40	23.4	18.6 - 27.2	Acceptable	EPA 300.0 2.1 1993	2/14/2014	-1.45	22.3	1.34	
1955	Total Dissolved Solids at 180°C	mg/L	300	314	269 - 359	Acceptable	SM 2540 C-2011 2011	2/5/2014	0.520	291	18.1	
1950	Total Solids at 105°C	mg/L	311	313	268 - 358	Acceptable	SM2540B online	1/28/2014	0.378	304	17.6	WMW

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L	34	39.1	29.1 - 45.7	Acceptable	SM 2540 D-2011 2011	2/5/2014	-0.632	35.6	2.56	
1035	Calcium	mg/L	100	94.6	80.4 - 109	Acceptable	EPA 6010C 2000	2/11/2014	1.94	93.3	3.45	
1085	Magnesium	mg/L	27.2	26.5	22.5 - 30.5	Acceptable	EPA 6020A 1 2007	2/11/2014	0.964	26.1	1.19	DRS
1550	Calcium Hardness as CaCO ₃	mg/L	250	236	201 - 271	Acceptable	EPA 6010C 2000	2/11/2014	1.94	233	8.89	CRT
1755	Total Hardness as CaCO ₃	mg/L	360	345	293 - 397	Acceptable	EPA 6010C 2000	2/11/2014	1.98	338	11.3	

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L		39.1	29.1 - 45.7	Not Reported				35.6	2.56	
1035	Calcium	mg/L		94.6	80.4 - 109	Not Reported				93.3	3.45	
1085	Magnesium	mg/L	26.7	26.5	22.5 - 30.5	Acceptable	EPA 6010C 2000	2/11/2014	0.545	26.1	1.19	
1550	Calcium Hardness as CaCO ₃	mg/L		236	201 - 271	Not Reported				233	8.89	
1755	Total Hardness as CaCO ₃	mg/L		345	293 - 397	Not Reported				338	11.3	



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01





A Waters Company

WP-228 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP pH (cat# 577)

1900	pH	S.U.	5.75	5.74	5.54 - 5.94	Acceptable	SM4500H+ B online	1/28/2014	0.356	5.73	0.0471	KEK

WP Volatile Solids (cat# 884)

1970	Volatile Solids, Total	mg/L	215	226	156 - 270	Acceptable	EPA 160.4	2/17/2014	-0.0446	216	20.5	WMW

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L		5.11	3.96 - 6.30	Not Reported				5.16	0.434	
1820	Nitrate + Nitrite as N	mg/L	3.80	3.97	3.23 - 4.68	Acceptable	EPA 300.0 2.1 1993	2/8/2014	-0.673	3.97	0.251	
1810	Nitrate as N	mg/L	3.80	3.97	3.16 - 4.75	Acceptable	EPA 300.0 2.1 1993	2/8/2014	-0.715	3.97	0.237	
1870	ortho-Phosphate as P	mg/L	4.84	4.95	4.21 - 5.69	Acceptable	EPA 300.0 2.1	2/8/2014	-0.558	4.97	0.235	JNZ

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L	5.04	5.11	3.96 - 6.30	Acceptable	EPA 350.1 2 1993	2/7/2014	-0.279	5.16	0.434	
1820	Nitrate + Nitrite as N	mg/L	4.11	3.97	3.23 - 4.68	Acceptable	EPA 353.2 2 1993	2/11/2014	0.563	3.97	0.251	
1810	Nitrate as N	mg/L	4.11	3.97	3.16 - 4.75	Acceptable	EPA 353.2 2 1993	2/11/2014	0.593	3.97	0.237	
1870	ortho-Phosphate as P	mg/L	4.98	4.95	4.21 - 5.69	Acceptable	EPA 365.1 2	2/11/2014	0.0377	4.97	0.235	KHC

WP Complex Nutrients (cat# 579)

1795	Total Kjeldahl Nitrogen	mg/L	17.1	18.4	13.8 - 22.4	Acceptable	EPA 351.2 2 1993	2/10/2014	-1.00	18.4	1.25	
1910	Total phosphorus as P	mg/L	3.67	3.68	3.03 - 4.30	Acceptable	EPA 365.4 1974	2/10/2014	-0.104	3.69	0.197	

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	2.36	2.27	1.94 - 2.60	Acceptable	EPA 353.2	2/7/2014	0.536	2.29	0.121	CLS

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	2.35	2.27	1.94 - 2.60	Acceptable	EPA 300.0 2.1 1993	2/8/2014	0.453	2.29	0.121	JNZ



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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WP-228 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Demand (cat# 578)

1530	BOD	mg/L	36.4	40.6	20.8 - 60.4	Acceptable	SM 5210 B-2011 2011	2/16/2014	-0.638	40.7	6.67	
1555	CBOD	mg/L	33.10	36.8	15.8 - 57.8	Acceptable	SM 5210 B-2011 2011	2/16/2014	-0.730	38.0	6.71	
1565	COD	mg/L	69.5	65.4	46.5 - 81.6	Acceptable	EPA 410.4	2/11/2014	0.686	64.8	6.86	CRS
2040	TOC	mg/L	25.80	25.9	21.1 - 30.6	Acceptable	SM 5310 B-2011 2011	2/7/2014	-0.237	26.2	1.73	

WP Oil & Grease (cat# 582)

1860	n-Hexane Extractable Material(O&G)(Grav)	mg/L	65.6	85.0	59.4 - 99.6	Acceptable	EPA 1664A 1999	1/28/2014	-2.83	79.9	5.05	
1860	n-Hexane Extractable Material(O&G)(IR)	mg/L		104	74.1 - 121	Not Reported				109	17.3	





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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	1500	1510	1250 - 1740	Acceptable	EPA 6010C 2000	2/8/2014	0.213	1480	83.2	CRT
1005	Antimony	µg/L	690	717	586 - 826	Acceptable	EPA 6010C 2000	2/8/2014	-0.222	698	35.4	CRT
1010	Arsenic	µg/L	311	338	278 - 395	Acceptable	EPA 6010C 2000	2/8/2014	-1.09	327	14.7	CRT
1015	Barium	µg/L	867	850	722 - 978	Acceptable	EPA 6010C 2000	2/8/2014	1.05	832	33.3	CRT
1020	Beryllium	µg/L	105	101	85.8 - 116	Acceptable	EPA 6010C 2000	2/8/2014	0.350	103	5.36	CRT
1025	Boron	µg/L	1280	1340	1140 - 1540	Acceptable	EPA 6010C 2000	2/8/2014	-0.477	1320	80.4	CRT
1030	Cadmium	µg/L	469	462	393 - 531	Acceptable	EPA 6010C 2000	2/8/2014	1.15	449	17.8	CRT
1040	Chromium	µg/L	792	759	645 - 873	Acceptable	EPA 6010C 2000	2/8/2014	1.55	744	31.1	CRT
1050	Cobalt	µg/L	677	610	518 - 702	Acceptable	EPA 6010C 2000	2/8/2014	1.96	626	26.2	CRT
1055	Copper	µg/L	430	418	355 - 481	Acceptable	EPA 6010C 2000	2/8/2014	0.980	413	17.5	CRT
1070	Iron	µg/L	1720	1650	1400 - 1900	Acceptable	EPA 6010C 2000	2/8/2014	0.984	1640	79.1	CRT
1075	Lead	µg/L	978	908	772 - 1040	Acceptable	EPA 6010C 2000	2/8/2014	1.83	899	43.5	CRT
1090	Manganese	µg/L	1610	1500	1280 - 1720	Acceptable	EPA 6010C 2000	2/8/2014	1.72	1500	64.1	CRT
1100	Molybdenum	µg/L	225	224	190 - 255	Acceptable	EPA 6010C 2000	2/8/2014	0.767	218	9.71	CRT
1105	Nickel	µg/L	1580	1500	1330 - 1680	Acceptable	EPA 6010C 2000	2/8/2014	1.75	1460	66.8	CRT
1140	Selenium	µg/L	389	415	353 - 477	Acceptable	EPA 6010C 2000	2/8/2014	-0.572	401	21.3	CRT
1150	Silver	µg/L	320	310	264 - 356	Acceptable	EPA 6010C 2000	2/8/2014	1.05	305	14.7	CRT
1160	Strontium	µg/L	245	240	204 - 276	Acceptable	EPA 6010C 2000	2/8/2014	0.858	237	9.63	CRT
1165	Thallium	µg/L	533	476	391 - 553	Acceptable	EPA 6010C 2000	2/8/2014	2.68	466	25.2	CRT
1185	Vanadium	µg/L	896	897	762 - 1030	Acceptable	EPA 6010C 2000	2/8/2014	0.863	870	29.7	CRT



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EPA ID: FL01264
 ERA Customer Number: E550101
 Report Issued: 03/03/14
 Study Dates: 01/13/14 - 02/27/14

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	962	987	839 - 1140	Acceptable	EPA 6010C 2000	2/8/2014	-0.00522	962	47.9	CRT





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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	1540	1510	1250 - 1740	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.694	1480	83.2	HEA
1005	Antimony	µg/L	694	717	586 - 826	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.109	698	35.4	HEA
1010	Arsenic	µg/L	315	338	278 - 395	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.823	327	14.7	HEA
1015	Barium	µg/L	846	850	722 - 978	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.423	832	33.3	HEA
1020	Beryllium	µg/L	109	101	85.8 - 116	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.10	103	5.36	HEA
1025	Boron	µg/L		1340	1140 - 1540	Not Reported				1320	80.4	
1030	Cadmium	µg/L	479	462	393 - 531	Acceptable	EPA 200.8 5.5 1998	2/26/2014	1.71	449	17.8	HEA
1040	Chromium	µg/L	776	759	645 - 873	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.04	744	31.1	HEA
1050	Cobalt	µg/L	666	610	518 - 702	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.53	626	26.2	HEA
1055	Copper	µg/L	442	418	355 - 481	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.66	413	17.5	HEA
1070	Iron	µg/L		1650	1400 - 1900	Not Reported				1640	79.1	
1075	Lead	µg/L	898	908	772 - 1040	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.0116	899	43.5	HEA
1090	Manganese	µg/L	1610	1500	1280 - 1720	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.72	1500	64.1	HEA
1100	Molybdenum	µg/L	219	224	190 - 255	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.149	218	9.71	HEA
1105	Nickel	µg/L	1550	1500	1330 - 1680	Acceptable	EPA 200.8 5.5 1998	2/10/2014	1.30	1460	66.8	HEA
1140	Selenium	µg/L	373	415	353 - 477	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-1.32	401	21.3	HEA
1150	Silver	µg/L	330	310	264 - 356	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.73	305	14.7	HEA
1160	Strontium	µg/L		240	204 - 276	Not Reported				237	9.63	
1165	Thallium	µg/L	433	476	391 - 553	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-1.29	466	25.2	HEA
1185	Vanadium	µg/L	862	897	762 - 1030	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.283	870	29.7	HEA



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	947	987	839 - 1140	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.318	962	47.9	HEA



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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	1540	1510	1250 - 1740	Acceptable	EPA 6020A 1 2007	2/7/2014	0.694	1480	83.2	HEA
1005	Antimony	µg/L	694	717	586 - 826	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.109	698	35.4	HEA
1010	Arsenic	µg/L	315	338	278 - 395	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.823	327	14.7	HEA
1015	Barium	µg/L	846	850	722 - 978	Acceptable	EPA 6020A 1 2007	2/7/2014	0.423	832	33.3	HEA
1020	Beryllium	µg/L	109	101	85.8 - 116	Acceptable	EPA 6020A 1 2007	2/7/2014	1.10	103	5.36	HEA
1025	Boron	µg/L		1340	1140 - 1540	Not Reported				1320	80.4	
1030	Cadmium	µg/L	479	462	393 - 531	Acceptable	EPA 6020A 1 2007	2/7/2014	1.71	449	17.8	HEA
1040	Chromium	µg/L	776	759	645 - 873	Acceptable	EPA 6020A 1 2007	2/7/2014	1.04	744	31.1	HEA
1050	Cobalt	µg/L	666	610	518 - 702	Acceptable	EPA 6020A 1 2007	2/7/2014	1.53	626	26.2	HEA
1055	Copper	µg/L	442	418	355 - 481	Acceptable	EPA 6020A 1 2007	2/7/2014	1.66	413	17.5	HEA
1070	Iron	µg/L	1690	1650	1400 - 1900	Acceptable	EPA 6020A 1 2007	2/7/2014	0.604	1640	79.1	HEA
1075	Lead	µg/L	898	908	772 - 1040	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.0116	899	43.5	HEA
1090	Manganese	µg/L	1610	1500	1280 - 1720	Acceptable	EPA 6020A 1 2007	2/7/2014	1.72	1500	64.1	HEA
1100	Molybdenum	µg/L	219	224	190 - 255	Acceptable	EPA 6020A 1 2007	2/7/2014	0.149	218	9.71	HEA
1105	Nickel	µg/L	1550	1500	1330 - 1680	Acceptable	EPA 6020A 1 2007	2/7/2014	1.30	1460	66.8	HEA
1140	Selenium	µg/L	373	415	353 - 477	Acceptable	EPA 6020A 1 2007	2/7/2014	-1.32	401	21.3	HEA
1150	Silver	µg/L	330	310	264 - 356	Acceptable	EPA 6020A 1 2007	2/7/2014	1.73	305	14.7	HEA
1160	Strontium	µg/L	243	240	204 - 276	Acceptable	EPA 6020A 1 2007	2/7/2014	0.650	237	9.63	HEA
1165	Thallium	µg/L	433	476	391 - 553	Acceptable	EPA 6020A 1 2007	2/7/2014	-1.29	466	25.2	HEA
1185	Vanadium	µg/L	862	897	762 - 1030	Acceptable	EPA 6020A 1 2007	2/10/2014	-0.283	870	29.7	HEA



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	947	987	839 - 1140	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.318	962	47.9	HEA

WP Mercury (cat# 574)

1095	Mercury	µg/L	8.43	8.17	5.72 - 10.6	Acceptable	EPA 7470	2/11/2014	0.378	8.15	0.738	HEA

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	736	673	566 - 771	Acceptable	SM 3500-Cr B-2011 2011	2/7/2014	2.09	667	33.1	

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	701	673	566 - 771	Acceptable	EPA 218.6 3.3 1994	2/7/2014	1.03	667	33.1	

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1790	1690	1180 - 2200	Acceptable	EPA 6010C 2000	2/8/2014	0.956	1700	97.2	CRT
1180	Titanium	µg/L	116	114	96.9 - 131	Acceptable	EPA 6010C 2000	2/8/2014	0.283	114	6.74	CRT

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1690	1690	1180 - 2200	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.0731	1700	97.2	
1180	Titanium	µg/L	101	114	96.9 - 131	Acceptable	EPA 6020A 1 2007	2/7/2014	-1.94	114	6.74	

WP Uranium (cat# 4400)

3055	Uranium (Nat) mass	µg/L	64.4	66.8	49.5 - 78.5	Acceptable	EPA 200.8 5.5	2/7/2014	-1.32	67.3	2.19	HEA

WP Color (cat# 882)

1605	Color	PC units	45	50.0	35.2 - 60.8	Acceptable	SM2120B online	2/11/2014	-0.756	48.5	4.67	CRS

WP Turbidity (cat# 893)

2055	Turbidity	NTU	4.05	3.99	2.93 - 5.01	Acceptable	EPA 180.1 2	2/4/2014	0.219	3.99	0.265	KEK



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WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.353	0.674	0.438 - 0.910	Not Acceptable	EPA 9012A	2/4/2014	-4.59	0.665	0.0680	ADC
1510	Amenable Cyanide	mg/L		0.359	0.233 - 0.485	Not Reported				0.398	0.0616	

WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.349	0.674	0.438 - 0.910	Not Acceptable	EPA 335.4	2/6/2014	-4.65	0.665	0.0680	ADC
1510	Amenable Cyanide	mg/L		0.359	0.233 - 0.485	Not Reported				0.398	0.0616	

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.672	0.653	0.323 - 0.983	Acceptable	EPA 420.4 1 1993	2/13/2014	-0.0683	0.680	0.111	TK1

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.665	0.653	0.323 - 0.983	Acceptable	EPA 9066 1986	2/13/2014	-0.131	0.680	0.111	

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	227	209	157 - 261	Acceptable	EPA 6010C 2000	2/8/2014	1.40	208	13.9	CRT

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	222	209	157 - 261	Acceptable	EPA 200.7 5 1998	2/8/2014	1.04	208	13.9	CRT

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	198	209	157 - 261	Acceptable	SM4500Si D 18/19thED	2/7/2014	-0.692	208	13.9	

WP Sulfide (cat# 891)

2005	Sulfide	mg/L	2.39	3.96	1.42 - 5.97	Acceptable	SM 4500-S2 F-2011 2011	2/5/2014	-0.667	2.93	0.816	

WP Surfactants - MBAS (cat# 892)

2025	Surfactants (MBAS)	mg/L	0.5	0.505	0.305 - 0.734	Acceptable	SM5540C online	2/18/2014	-0.383	0.530	0.0779	CRS

WP Bromide (cat# 887)

1540	Bromide	mg/L	4.72	4.99	4.11 - 5.86	Acceptable	EPA 300.0 2.1	2/14/2014	-1.04	5.03	0.299	JNZ



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WP Total Residual Chlorine (cat# 587)

1940	Total Residual Chlorine	mg/L	1.15	1.11	0.825 - 1.33	Acceptable	SM 4500-Cl D-2011 2011	2/17/2014	0.652	1.10	0.0837	



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2009 TNI Evaluation Report

Study: **WP-228**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Microbiology Results



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WP WasteWatR™ Coliform MicrobE™ (cat# 576)

2500	Total Coliforms (MF)	CFU/100mL	287	554	159 - 880	Acceptable	SM9222B M endo online	2/13/2014	-0.729	375	120	CJF
2530	Fecal Coliforms (MF)	CFU/100mL	211	554	15.0 - 1340	Acceptable	SM 9222 D (m-FC)-1997 1997	2/12/2014	0.306	143	222	
2525	E.coli (MF)	CFU/100mL		554	56.0 - 1120	Not Reported				251	177	
2500	Total Coliforms (MPN)	MPN/100mL		801	117 - 1890	Not Reported				471	296	
2530	Fecal Coliforms (MPN)	MPN/100mL		801	40.7 - 3390	Not Reported				372	559	
2525	E.coli (MPN)	MPN/100mL		801	217 - 1250	Not Reported				521	172	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



2009 TNI Evaluation Report

Study: **WP-228**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Organic Results





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WP Volatiles (cat# 830)

4315	Acetone	µg/L	< 20	< 3.90	0.00 - 3.90	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4320	Acetonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4325	Acrolein	µg/L	< 20	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4340	Acrylonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4375	Benzene	µg/L	27.8	29.8	20.9 - 38.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.860	29.9	2.40	SK
4385	Bromobenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4390	Bromochloromethane	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4395	Bromodichloromethane	µg/L	76	76.0	45.6 - 106	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.487	79.3	6.88	SK
4400	Bromoform	µg/L	54.6	59.7	35.8 - 83.6	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.815	60.6	7.38	SK
4950	Bromomethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4410	2-Butanone (MEK)	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4435	n-Butylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4440	sec-Butylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4445	tert-Butylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5000	tert-Butyl methyl ether (MTBE)	µg/L	72.1	72.5	48.7 - 98.9	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.567	75.5	6.03	SK
4450	Carbon disulfide	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4455	Carbon tetrachloride	µg/L	108	124	70.6 - 167	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.532	118	19.1	SK
4475	Chlorobenzene	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK





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WP Volatiles (cat# 830) (Continued)

4575	Chlorodibromomethane	µg/L	< 0.5	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4485	Chloroethane	µg/L	22.9	26.7	10.7 - 42.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.56	31.1	5.23	SK
4500	2-Chloroethylvinylether	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4505	Chloroform	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4960	Chloromethane	µg/L	23.5	24.4	9.76 - 39.0	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.01	28.5	4.98	SK
4535	2-Chlorotoluene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4540	4-Chlorotoluene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4570	1,2-Dibromo-3-chloropropane (DBCP)	µg/L	< 2	< 9.00	0.00 - 9.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4585	1,2-Dibromoethane (EDB)	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4595	Dibromomethane	µg/L	88.3	100	65.0 - 135	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.95	104	7.95	SK
4610	1,2-Dichlorobenzene	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4615	1,3-Dichlorobenzene	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4620	1,4-Dichlorobenzene	µg/L	72.90	90.3	63.2 - 117	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.22	84.5	9.50	SK
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4630	1,1-Dichloroethane	µg/L	< 1	< 6.40	0.00 - 6.40	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4635	1,2-Dichloroethane	µg/L	103	104	73.9 - 134	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.380	107	9.43	SK
4640	1,1-Dichloroethylene	µg/L	< 1	< 6.20	0.00 - 6.20	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4645	cis-1,2-Dichloroethylene	µg/L	16.8	16.5	11.4 - 22.3	Acceptable	EPA 8260B 2 1996	2/13/2014	0.0754	16.7	1.72	SK





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WP Volatiles (cat# 830) (Continued)

4700	trans-1,2-Dichloroethylene	µg/L	48.6	54.8	32.9 - 76.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.59	57.9	5.84	SK
4655	1,2-Dichloropropane	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4660	1,3-Dichloropropane	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4665	2,2-Dichloropropane	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4670	1,1-Dichloropropene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4680	cis-1,3-Dichloropropylene	µg/L	27.6	30.7	20.0 - 41.4	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.437	28.7	2.58	SK
4685	trans-1,3-Dichloropropylene	µg/L	40.8	43.6	28.3 - 58.9	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.253	41.9	4.29	SK
4765	Ethylbenzene	µg/L	64.5	73.2	51.2 - 95.2	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.32	77.1	9.50	SK
4835	Hexachlorobutadiene	µg/L	58.7	102	11.6 - 122	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.631	77.6	30.0	SK
4840	Hexachloroethane	µg/L		< 3.30	0.00 - 3.30	Not Reported						
4860	2-Hexanone	µg/L	< 10	< 4.40	0.00 - 4.40	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4900	Isopropylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4910	4-Isopropyltoluene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4975	Methylene chloride	µg/L	49.3	58.0	34.8 - 81.2	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.92	61.2	6.19	SK
4995	4-Methyl-2-pentanone (MIBK)	µg/L	< 1	< 2.00	0.00 - 2.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5005	Naphthalene	µg/L	14.7	17.6	7.58 - 26.2	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.639	16.8	3.33	SK
5015	Nitrobenzene	µg/L		< 6.20	0.00 - 6.20	Not Reported						
5090	n-Propylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK



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WP Volatiles (cat# 830) (Continued)

5100	Styrene	µg/L	83.9	103	67.0 - 139	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.33	98.9	11.3	SK
5105	1,1,1,2-Tetrachloroethane	µg/L	86.6	94.8	61.6 - 128	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.770	95.0	10.9	SK
5110	1,1,2,2-Tetrachloroethane	µg/L	50.9	52.5	34.1 - 70.9	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.714	54.7	5.30	SK
5115	Tetrachloroethylene	µg/L	< 1	< 4.30	0.00 - 4.30	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5140	Toluene	µg/L	49.8	56.5	39.6 - 73.4	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.53	56.8	4.62	SK
5150	1,2,3-Trichlorobenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5155	1,2,4-Trichlorobenzene	µg/L	67.8	93.1	41.3 - 127	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.786	82.4	18.5	SK
5160	1,1,1-Trichloroethane	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5165	1,1,2-Trichloroethane	µg/L	57	62.6	43.8 - 81.4	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.54	65.2	5.36	SK
5170	Trichloroethylene	µg/L	59.8	74.3	47.2 - 96.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-2.04	73.9	6.94	SK
5175	Trichlorofluoromethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5180	1,2,3-Trichloropropane (TCP)	µg/L	95.8	94.6	43.7 - 142	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.254	99.4	14.1	SK
5210	1,2,4-Trimethylbenzene	µg/L	81.1	101	65.6 - 136	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.891	95.6	16.3	SK
5215	1,3,5-Trimethylbenzene	µg/L	80.3	104	67.6 - 140	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.772	93.6	17.2	SK
5225	Vinyl acetate	µg/L	< 2	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5235	Vinyl chloride	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5240	m&p-Xylene	µg/L	12.2	12.7	7.62 - 17.8	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.217	12.5	1.61	SK
5250	o-Xylene	µg/L	9.88	10.5	6.30 - 14.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.461	10.5	1.27	SK

WP Volatiles (cat# 830) (Continued)

5260	Xylenes, total	µg/L	22	23.2	13.9 - 32.5	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.405	23.1	2.66	SK



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WP Chlorinated Acid Herbicides (cat# 829)

8505	Acifluorfen	µg/L		9.30	1.30 - 13.7	Not Reported				6.73	2.28	
8530	Bentazon	µg/L	5.05	5.39	0.539 - 9.80	Acceptable	EPA 8151A 1998	2/6/2014	0.418	4.69	0.864	LJM
8540	Chloramben	µg/L		7.36	0.736 - 11.2	Not Reported				4.46	2.21	
8545	2,4-D	µg/L	5.59	5.99	0.599 - 9.27	Acceptable	EPA 8151A 1998	1/31/2014	0.192	5.25	1.78	LJM
8560	2,4-DB	µg/L	6.61	5.70	0.570 - 9.69	Acceptable	EPA 8151A 1998	2/5/2014	1.54	4.54	1.34	LJM
8550	Dacthal diacid (DCPA)	µg/L		4.86	0.614 - 6.93	Not Reported				3.16	0.941	
8555	Dalapon	µg/L	5.54	6.19	0.619 - 9.77	Acceptable	EPA 8151A 1998	1/31/2014	0.310	4.77	2.47	LJM
8595	Dicamba	µg/L	4.73	5.19	1.18 - 7.52	Acceptable	EPA 8151A 1998	2/6/2014	0.505	4.28	0.893	LJM
8600	3,5-Dichlorobenzoic acid	µg/L		4.16	0.874 - 6.26	Not Reported				3.12	1.14	
8605	Dichlorprop	µg/L	2.47	2.43	0.416 - 3.65	Acceptable	EPA 8151A 1998	1/31/2014	0.725	2.22	0.344	LJM
8620	Dinoseb	µg/L	4.85	3.93	0.393 - 5.93	Acceptable	EPA 8151A 1998	2/6/2014	1.42	2.74	1.48	LJM
7775	MCPA	µg/L	< 100	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	1/31/2014				LJM
7780	MCPP	µg/L	< 100	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	1/31/2014				LJM
6500	4-Nitrophenol	µg/L		7.76	0.776 - 11.9	Not Reported				5.98	2.45	
6605	Pentachlorophenol	µg/L	2.72	2.53	0.326 - 3.82	Acceptable	EPA 8151A 1998	2/6/2014	1.11	1.96	0.684	LJM
8645	Picloram	µg/L	3.48	4.10	0.410 - 6.64	Acceptable	EPA 8151A 1998	2/5/2014	0.316	3.12	1.13	LJM
8655	2,4,5-T	µg/L	4.77	4.97	1.02 - 7.34	Acceptable	EPA 8151A 1998	2/6/2014	0.669	4.04	1.09	LJM
8650	2,4,5-TP (Silvex)	µg/L	3.02	2.95	0.745 - 4.48	Acceptable	EPA 8151A 1998	2/5/2014	1.08	2.57	0.417	LJM



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WP PCBs in Water (cat# 832S)

8880	Aroclor 1016	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8885	Aroclor 1221	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8890	Aroclor 1232	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8895	Aroclor 1242	µg/L	8.34	9.66	3.51 - 13.0	Acceptable	EPA 8082 1996	2/1/2014	-0.311	8.90	1.80	JLG
8900	Aroclor 1248	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8905	Aroclor 1254	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8910	Aroclor 1260	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG

WP PCBs in Oil (cat# 835S)

8880	Aroclor 1016	mg/kg	< 0.17	< 1.70	0.00 - 1.70	Acceptable	EPA 8082 1996	1/31/2014				JLG
8895	Aroclor 1242	mg/kg	29	34.7	5.97 - 47.4	Acceptable	EPA 8082 1996	1/31/2014	-0.114	29.9	7.90	JLG
8905	Aroclor 1254	mg/kg	< 0.17	< 1.60	0.00 - 1.60	Acceptable	EPA 8082 1996	1/31/2014				JLG
8910	Aroclor 1260	mg/kg	< 0.17	< 2.40	0.00 - 2.40	Acceptable	EPA 8082 1996	1/31/2014				JLG





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WP Base/Neutrals (cat# 833)

5500	Acenaphthene	µg/L	39	57.1	20.3 - 69.9	Acceptable	EPA 8270C 3 1996	2/24/2014	-1.15	47.4	7.31	TWB
5505	Acenaphthylene	µg/L	61.1	77.9	27.2 - 97.3	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.474	66.4	11.1	TWB
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5545	Aniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5555	Anthracene	µg/L	< 5	< 3.90	0.00 - 3.90	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5595	Benidine	µg/L	< 25	< 200	0.00 - 200	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5575	Benzo(a)anthracene	µg/L	24.4	31.9	14.4 - 40.2	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.872	27.7	3.83	TWB
5585	Benzo(b)fluoranthene	µg/L	< 2	< 7.50	0.00 - 7.50	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5600	Benzo(k)fluoranthene	µg/L	< 4	< 7.70	0.00 - 7.70	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5590	Benzo(g,h,i)perylene	µg/L	< 5	< 5.10	0.00 - 5.10	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5580	Benzo(a)pyrene	µg/L	18.3	24.7	7.92 - 32.5	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.745	20.7	3.20	TWB
5630	Benzyl alcohol	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5660	4-Bromophenyl-phenylether	µg/L	41	52.2	21.8 - 68.7	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.444	43.9	6.54	TWB
5670	Butylbenzylphthalate	µg/L	< 5	< 13.4	0.00 - 13.4	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5680	Carbazole	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5745	4-Chloroaniline	µg/L	18.1	< 10.0	0.00 - 10.0	Not Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5760	bis(2-Chloroethoxy)methane	µg/L	24	39.3	11.7 - 49.2	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.878	28.9	5.54	TWB
5765	bis(2-Chloroethyl)ether	µg/L	< 4	< 5.90	0.00 - 5.90	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5780	bis(2-Chloroisopropyl)ether	µg/L	53.8	86.8	22.3 - 108	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.596	62.8	15.1	TWB
5790	1-Chloronaphthalene	µg/L		< 10.0	0.00 - 10.0	Not Reported						



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WP Base/Neutrals (cat# 833) (Continued)

5795	2-Chloronaphthalene	µg/L	88.1	116	31.9 - 138	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.159	90.8	17.2	TWB
5825	4-Chlorophenyl-phenylether	µg/L	150	186	66.6 - 226	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.401	163	31.7	TWB
5855	Chrysene	µg/L	< 5	< 5.80	0.00 - 5.80	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5895	Dibenz(a,h)anthracene	µg/L	28.7	35.9	12.7 - 50.1	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.525	32.1	6.54	TWB
5905	Dibenzofuran	µg/L	140	194	75.8 - 217	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.448	153	28.8	TWB
5925	Di-n-butylphthalate	µg/L	77.7	95.0	34.1 - 124	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.215	80.3	11.9	TWB
4610	1,2-Dichlorobenzene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
4615	1,3-Dichlorobenzene	µg/L	< 5	< 3.10	0.00 - 3.10	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
4620	1,4-Dichlorobenzene	µg/L	75.6	170	17.0 - 187	Acceptable	EPA 8270C 3 1996	2/24/2014	-1.01	106	29.9	TWB
5945	3,3'-Dichlorobenzidine	µg/L	< 5	< 5.00	0.00 - 5.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6070	Diethylphthalate	µg/L	94.3	118	21.8 - 162	Acceptable	EPA 8270C 3 1996	2/24/2014	0.0423	93.5	18.6	TWB
6135	Dimethylphthalate	µg/L	89.3	117	11.7 - 170	Acceptable	EPA 8270C 3 1996	2/24/2014	0.0731	87.5	24.8	TWB
6185	2,4-Dinitrotoluene	µg/L	102	152	66.2 - 185	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.880	122	22.6	TWB
6190	2,6-Dinitrotoluene	µg/L	< 2	< 8.20	0.00 - 8.20	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6200	Di-n-octylphthalate	µg/L	96	104	30.5 - 146	Acceptable	EPA 8270C 3 1996	2/24/2014	0.431	89.3	15.5	TWB
6065	bis(2-Ethylhexyl)phthalate	µg/L	84.7	100	34.2 - 132	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.0659	85.6	14.0	TWB
6265	Fluoranthene	µg/L	< 5	< 15.6	0.00 - 15.6	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6270	Fluorene	µg/L	103	144	60.0 - 167	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.745	119	21.8	TWB
6275	Hexachlorobenzene	µg/L	36.4	47.0	20.9 - 56.6	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.500	39.5	6.15	TWB
4835	Hexachlorobutadiene	µg/L	59.2	107	12.3 - 128	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.657	72.5	20.2	TWB



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WP Base/Neutrals (cat# 833) (Continued)

6285	Hexachlorocyclopentadiene	µg/L	< 5	< 5.00	0.00 - 5.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
4840	Hexachloroethane	µg/L	40.9	97.4	9.74 - 107	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.977	59.3	18.9	TWB
6315	Indeno(1,2,3-cd)pyrene	µg/L	33.7	42.8	12.8 - 58.1	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.584	37.9	7.16	TWB
6320	Isophorone	µg/L	< 5	< 7.10	0.00 - 7.10	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6385	2-Methylnaphthalene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5005	Naphthalene	µg/L	72.2	118	28.3 - 138	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.898	88.5	18.2	TWB
6460	2-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6465	3-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6470	4-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5015	Nitrobenzene	µg/L	27.5	37.7	12.0 - 46.2	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.373	29.7	5.90	TWB
6525	N-Nitrosodiethylamine	µg/L	< 4	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6530	N-Nitrosodimethylamine	µg/L	22.9	93.4	9.34 - 109	Acceptable	EPA 8270C 3 1996	2/24/2014	-1.35	48.0	18.6	TWB
6535	N-Nitrosodiphenylamine	µg/L	< 5	< 5.60	0.00 - 5.60	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6545	N-Nitroso-di-n-propylamine	µg/L	85.1	136	44.3 - 171	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.912	104	20.8	TWB
6590	Pentachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6615	Phenanthrene	µg/L	138	188	87.8 - 219	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.688	156	25.9	TWB
6665	Pyrene	µg/L	< 5	< 4.90	0.00 - 4.90	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5095	Pyridine	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6715	1,2,4,5-Tetrachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5155	1,2,4-Trichlorobenzene	µg/L	19.75	30.6	3.06 - 41.0	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.706	23.4	5.12	TWB



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WP Acids (cat# 834)

5610	Benzoic acid	µg/L	< 5	< 30.0	0.00 - 30.0	Acceptable	EPA 8270C 3 1996	2/6/2014				TWB
5700	4-Chloro-3-methylphenol	µg/L	86.1	94.5	35.8 - 117	Acceptable	EPA 8270C 3 1996	2/6/2014	0.314	81.8	13.6	TWB
5800	2-Chlorophenol	µg/L	37.1	55.9	16.7 - 67.7	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.462	41.8	10.1	TWB
6000	2,4-Dichlorophenol	µg/L	65.9	86.8	29.2 - 104	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.298	70.1	14.2	TWB
6005	2,6-Dichlorophenol	µg/L	51.3	63.8	21.6 - 81.7	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.503	57.1	11.6	TWB
6130	2,4-Dimethylphenol	µg/L	33.1	47.9	14.1 - 60.6	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.315	35.6	7.90	TWB
6360	4,6-Dinitro-2-methylphenol	µg/L	54.8	58.4	16.9 - 85.0	Acceptable	EPA 8270C 3 1996	2/6/2014	0.749	47.5	9.80	TWB
6175	2,4-Dinitrophenol	µg/L	99.7	107	10.7 - 154	Acceptable	EPA 8270C 3 1996	2/6/2014	1.31	75.1	18.8	TWB
6400	2-Methylphenol	µg/L	93.8	150	34.1 - 175	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.446	106	26.6	TWB
6410	4-Methylphenol	µg/L	31	54.6	5.46 - 73.1	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.696	37.1	8.72	TWB
6490	2-Nitrophenol	µg/L	45.9	60.4	16.8 - 77.6	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.161	47.6	10.6	TWB
6500	4-Nitrophenol	µg/L	35.5	110	11.0 - 149	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.518	49.7	27.5	TWB
6605	Pentachlorophenol	µg/L	55.6	48.7	13.2 - 67.9	Acceptable	EPA 8270C 3 1996	2/6/2014	2.26	37.2	8.14	TWB
6625	Phenol	µg/L	36.6	141	14.1 - 189	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.808	63.1	32.8	TWB
6735	2,3,4,6-Tetrachlorophenol	µg/L	< 5	< 30.0	0.00 - 30.0	Acceptable	EPA 8270C 3 1996	2/6/2014				TWB
6835	2,4,5-Trichlorophenol	µg/L	48.8	57.1	21.0 - 73.6	Acceptable	EPA 8270C 3 1996	2/6/2014	0.161	47.4	8.93	TWB
6840	2,4,6-Trichlorophenol	µg/L	68.2	74.5	28.0 - 91.0	Acceptable	EPA 8270C 3 1996	2/6/2014	0.246	65.2	12.4	TWB



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WP Nitroaromatics & Nitramines (cat# 932)

9306	4-Amino-2,6-dinitrotoluene	µg/L		12.4	6.56 - 17.3	Not Reported				11.8	1.89	
9303	2-Amino-4,6-dinitrotoluene	µg/L		14.5	8.04 - 20.8	Not Reported				14.1	1.21	
6160	1,3-Dinitrobenzene	µg/L	8.14	12.1	5.79 - 17.4	Acceptable	EPA 8270C 3 1996	2/6/2014	-1.98	11.6	1.74	EAO
6185	2,4-Dinitrotoluene	µg/L		6.47	3.31 - 9.45	Not Reported				6.56	0.332	
6190	2,6-Dinitrotoluene	µg/L		6.80	3.40 - 9.87	Not Reported				7.32	1.79	
9522	HMX	µg/L		5.60	2.77 - 7.94	Not Reported				5.17	0.966	
5015	Nitrobenzene	µg/L		18.3	8.90 - 25.3	Not Reported				17.7	2.04	
9507	2-Nitrotoluene	µg/L		< 1.00	0.00 - 1.00	Not Reported						
9510	3-Nitrotoluene	µg/L		16.6	8.28 - 23.3	Not Reported				17.0	1.22	
9513	4-Nitrotoluene	µg/L		14.4	7.72 - 20.3	Not Reported				14.3	0.949	
9432	RDX	µg/L		3.87	2.02 - 5.20	Not Reported				3.65	0.583	
6415	Tetryl	µg/L		< 1.00	0.00 - 1.00	Not Reported						
6885	1,3,5-Trinitrobenzene	µg/L	8.84	9.37	3.82 - 12.8	Acceptable	EPA 8270C 3 1996	2/6/2014	0.468	8.27	1.22	EAO
9651	2,4,6-Trinitrotoluene	µg/L		17.3	9.20 - 22.9	Not Reported				15.8	1.39	



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WP Low-Level PAHs (cat# 836)

5500	Acenaphthene	µg/L	2.86	5.26	1.84 - 6.45	Acceptable	EPA 8270C SIM	1/30/2014	-2.06	4.28	0.689	EAO
5505	Acenaphthylene	µg/L	10.5	19.1	8.35 - 21.7	Acceptable	EPA 8270C SIM	1/30/2014	-1.77	15.3	2.70	EAO
5555	Anthracene	µg/L	2.03	3.46	1.03 - 4.65	Acceptable	EPA 8270C SIM	1/30/2014	-1.85	2.90	0.470	EAO
5575	Benzo(a)anthracene	µg/L	2.51	4.03	2.73 - 4.49	Not Acceptable	EPA 8270C SIM	1/30/2014	-1.26	3.21	0.558	EAO
5585	Benzo(b)fluoranthene	µg/L	1.47	2.76	1.31 - 3.33	Acceptable	EPA 8270C SIM	1/30/2014	-2.02	2.32	0.421	EAO
5600	Benzo(k)fluoranthene	µg/L	1.35	1.51	0.747 - 1.94	Acceptable	EPA 8270C SIM	1/30/2014	0.387	1.25	0.257	EAO
5590	Benzo(g,h,i)perylene	µg/L	0.93	2.00	0.599 - 2.62	Acceptable	EPA 8270C SIM	1/30/2014	-1.88	1.65	0.380	EAO
5580	Benzo(a)pyrene	µg/L	2.21	4.12	1.76 - 4.79	Acceptable	EPA 8270C SIM	1/30/2014	-1.41	3.20	0.703	EAO
5855	Chrysene	µg/L	3.34	4.56	2.56 - 5.56	Acceptable	EPA 8270C SIM	1/30/2014	-0.956	3.95	0.637	EAO
5895	Dibenz(a,h)anthracene	µg/L	1.18	2.51	0.858 - 3.24	Acceptable	EPA 8270C SIM	1/30/2014	-1.99	2.07	0.449	EAO
6265	Fluoranthene	µg/L	3.28	4.80	2.56 - 5.70	Acceptable	EPA 8270C SIM	1/30/2014	-1.64	4.22	0.575	EAO
6270	Fluorene	µg/L	4.11	6.34	2.65 - 7.41	Acceptable	EPA 8270C SIM	1/30/2014	-2.08	5.61	0.719	EAO
6315	Indeno(1,2,3-cd)pyrene	µg/L	0.927	1.77	0.739 - 2.30	Acceptable	EPA 8270C SIM	1/30/2014	-1.60	1.50	0.361	EAO
5005	Naphthalene	µg/L	4.46	8.97	3.02 - 10.2	Acceptable	EPA 8270C SIM	1/30/2014	-2.01	6.69	1.11	EAO
6615	Phenanthrene	µg/L	2.47	4.51	2.26 - 5.30	Acceptable	EPA 8270C SIM	1/30/2014	-2.08	3.69	0.587	EAO
6665	Pyrene	µg/L	2.66	3.91	2.13 - 4.58	Acceptable	EPA 8270C SIM	1/30/2014	-1.57	3.39	0.463	EAO



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WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	6	8.84	3.13 - 11.9	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.825	7.07	1.30	JTJ
7110	alpha-BHC	µg/L	2.83	3.17	1.33 - 4.40	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.392	3.04	0.539	JTJ
7115	beta-BHC	µg/L	8.3	10.1	4.78 - 13.6	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.444	8.90	1.36	JTJ
7105	delta-BHC	µg/L	2.38	3.27	1.36 - 4.75	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.459	2.57	0.422	JTJ
7120	gamma-BHC(Lindane)	µg/L	4.15	4.67	2.10 - 6.49	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.266	4.32	0.631	JTJ
7240	alpha-Chlordane	µg/L	5.86	7.98	3.60 - 10.6	Acceptable	EPA 8081A 1 1996	2/1/2014	-1.30	7.20	1.03	JTJ
7245	gamma-Chlordane	µg/L	3.29	4.40	1.93 - 5.86	Acceptable	EPA 8081A 1 1996	2/1/2014	-1.10	3.82	0.485	JTJ
7355	4,4'-DDD	µg/L	3.65	4.24	1.88 - 6.06	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.506	3.98	0.651	JTJ
7360	4,4'-DDE	µg/L	7.16	8.87	3.85 - 11.9	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.495	7.77	1.24	JTJ
7365	4,4'-DDT	µg/L	2.41	2.69	1.07 - 3.98	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.412	2.58	0.402	JTJ
7470	Dieldrin	µg/L	8.82	9.77	4.99 - 12.9	Acceptable	EPA 8081A 1 1996	2/1/2014	0.00805	8.81	1.22	JTJ
7540	Endrin	µg/L	3.39	3.77	1.65 - 5.42	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.373	3.61	0.584	JTJ
7530	Endrin aldehyde	µg/L	5.64	5.89	2.15 - 8.93	Acceptable	EPA 8081A 1 1996	2/1/2014	0.396	5.24	1.01	JTJ
7535	Endrin ketone	µg/L	5.81	6.94	3.65 - 9.52	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.115	5.92	0.923	JTJ
7510	Endosulfan I	µg/L	< 0.1	< 1.40	0.00 - 1.40	Acceptable	EPA 8081A 1 1996	2/1/2014				JTJ
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	EPA 8081A 1 1996	2/1/2014				JTJ
7520	Endosulfan sulfate	µg/L	8.43	10.9	5.04 - 15.1	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.822	9.66	1.50	JTJ
7685	Heptachlor	µg/L	6.86	9.20	3.31 - 12.4	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.650	7.74	1.35	JTJ
7690	Heptachlor epoxide (beta)	µg/L	7.24	8.59	4.35 - 11.4	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.579	7.85	1.05	JTJ
7810	Methoxychlor	µg/L	2.31	2.45	0.748 - 4.28	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.0772	2.34	0.401	JTJ



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WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	6	8.84	3.13 - 11.9	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.825	7.07	1.30	
7110	alpha-BHC	µg/L	2.83	3.17	1.33 - 4.40	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.392	3.04	0.539	
7115	beta-BHC	µg/L	8.3	10.1	4.78 - 13.6	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.444	8.90	1.36	
7105	delta-BHC	µg/L	2.38	3.27	1.36 - 4.75	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.459	2.57	0.422	
7120	gamma-BHC(Lindane)	µg/L	4.15	4.67	2.10 - 6.49	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.266	4.32	0.631	
7240	alpha-Chlordane	µg/L		7.98	3.60 - 10.6	Not Reported				7.20	1.03	
7245	gamma-Chlordane	µg/L		4.40	1.93 - 5.86	Not Reported				3.82	0.485	
7355	4,4'-DDD	µg/L	3.65	4.24	1.88 - 6.06	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.506	3.98	0.651	
7360	4,4'-DDE	µg/L	7.16	8.87	3.85 - 11.9	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.495	7.77	1.24	
7365	4,4'-DDT	µg/L	2.41	2.69	1.07 - 3.98	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.412	2.58	0.402	
7470	Dieldrin	µg/L	8.82	9.77	4.99 - 12.9	Acceptable	SM 6630 C-2000 2000	2/1/2014	0.00805	8.81	1.22	
7540	Endrin	µg/L	3.39	3.77	1.65 - 5.42	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.373	3.61	0.584	
7530	Endrin aldehyde	µg/L	5.64	5.89	2.15 - 8.93	Acceptable	SM 6630 C-2000 2000	2/1/2014	0.396	5.24	1.01	
7535	Endrin ketone	µg/L		6.94	3.65 - 9.52	Not Reported				5.92	0.923	
7510	Endosulfan I	µg/L	< 0.01	< 1.40	0.00 - 1.40	Acceptable	SM 6630 C-2000 2000	2/1/2014				
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	SM 6630 C-2000 2000	2/1/2014				
7520	Endosulfan sulfate	µg/L	8.43	10.9	5.04 - 15.1	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.822	9.66	1.50	
7685	Heptachlor	µg/L	6.86	9.20	3.31 - 12.4	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.650	7.74	1.35	
7690	Heptachlor epoxide (beta)	µg/L	7.24	8.59	4.35 - 11.4	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.579	7.85	1.05	
7810	Methoxychlor	µg/L	2.31	2.45	0.748 - 4.28	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.0772	2.34	0.401	



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WP Chlordane (cat# 837)

7250	Chlordane, technical	µg/L	2.59	5.00	2.24 - 7.09	Acceptable	EPA 8081A 1	2/1/2014	-2.10	4.31	0.817	JLG

WP Toxaphene (cat# 838)

8250	Toxaphene	µg/L	26.9	28.6	6.41 - 43.6	Acceptable	EPA 8081A 1	2/1/2014	0.784	22.1	6.13	JLG



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WP Nitrogen Pesticides (cat# 487)

7005	Alachlor	µg/L		14.8	7.64 - 20.7	Not Reported				14.1	2.17	
7035	Ametryn	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7045	Anilazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7060	Atraton	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7065	Atrazine	µg/L	16.1	11.8	5.78 - 16.7	Acceptable	EPA 8141A 1 1994	2/1/2014	4.50	10.9	1.17	
7130	Bromacil	µg/L		13.3	1.33 - 21.8	Not Reported				0.00	0.00	
7160	Butachlor	µg/L		15.0	6.28 - 22.1	Not Reported				0.00	0.00	
7175	Butylate	µg/L		8.16	3.27 - 9.43	Not Reported				5.65	0.00	
7340	Cyanazine	µg/L		11.6	1.99 - 19.0	Not Reported				10.9	0.632	
7066	Deethyl atrazine	µg/L		12.3	1.23 - 17.9	Not Reported				9.60	0.00	
7067	Deisopropyl atrazine	µg/L		7.17	0.717 - 7.89	Not Reported				5.20	0.00	
7068	Diaminoatrazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7555	EPTC (Eptam)	µg/L		10.6	4.58 - 11.7	Not Reported				8.59	1.54	
7705	Hexazinone	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7835	Metolachlor	µg/L		14.6	7.50 - 19.3	Not Reported				14.4	3.29	
7845	Metribuzin	µg/L		2.81	0.702 - 4.11	Not Reported				2.86	0.223	
6440	Napropamide	µg/L		9.41	1.20 - 13.5	Not Reported				8.98	0.00	
8035	Prometon	µg/L		9.44	2.96 - 13.7	Not Reported				8.30	0.00	
8040	Prometryn	µg/L		8.29	4.83 - 11.5	Not Reported				7.57	0.00	
6650	Pronamide	µg/L		< 2.00	0.00 - 2.00	Not Reported						



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WP-228 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Nitrogen Pesticides (cat# 487) (Continued)

8045	Propachlor	µg/L		8.64	5.06 - 11.3	Not Reported				7.79	0.0141	
8060	Propazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8125	Simazine	µg/L		13.1	3.54 - 20.7	Not Reported				13.3	1.83	
8180	Terbacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		3.74	0.916 - 5.07	Not Reported				3.16	0.113	

WP Total Petroleum Hydrocarbons (TPH) in Water (cat# 642)

1935	TPH (Gravimetric)	mg/L	63.1	97.5	45.8 - 141	Acceptable	EPA 1664A	1/28/2014	-1.27	79.0	12.5	
1935	TPH (IR)	mg/L		120	56.9 - 173	Not Reported				111	24.6	



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Final Report Results For Laboratory Pace Analytical Services - Ormond Beach

2003 NELAC Evaluation Report

Study: **WP-228**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results





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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Minerals (cat# 581)

1505	Alkalinity as CaCO ₃	mg/L	81.2	81.1	68.9 - 93.3	Acceptable	SM2320B online	2/11/2014	-0.195	81.8	2.89	LJJ
1575	Chloride	mg/L	42.50	46.5	40.2 - 52.9	Acceptable	EPA 300.0 2.1 1993	2/14/2014	-1.83	46.1	1.98	
1610	Conductivity at 25°C	µmhos/cm	358	357	321 - 393	Acceptable	SM2510B online	2/10/2014	-1.08	371	12.0	WMW
1730	Fluoride	mg/L	1.84	2.02	1.61 - 2.36	Acceptable	EPA 300.0 2.1 1993	2/14/2014	-0.904	1.94	0.113	JNZ
1125	Potassium	mg/L	23.8	23.2	18.6 - 27.8	Acceptable	EPA 6010C 2000	2/11/2014	0.890	22.7	1.22	CRT
1155	Sodium	mg/L	74.60	66.4	53.1 - 79.7	Acceptable	EPA 6010C 2000	2/11/2014	2.08	66.9	3.69	
2000	Sulfate	mg/L	20.40	23.4	18.6 - 27.2	Acceptable	EPA 300.0 2.1 1993	2/14/2014	-1.45	22.3	1.34	
1955	Total Dissolved Solids at 180°C	mg/L	300	314	269 - 359	Acceptable	SM 2540 C-2011 2011	2/5/2014	0.520	291	18.1	
1950	Total Solids at 105°C	mg/L	311	313	268 - 358	Acceptable	SM2540B online	1/28/2014	0.378	304	17.6	WMW

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L	34	39.1	29.1 - 45.7	Acceptable	SM 2540 D-2011 2011	2/5/2014	-0.632	35.6	2.56	
1035	Calcium	mg/L	100	94.6	80.4 - 109	Acceptable	EPA 6010C 2000	2/11/2014	1.94	93.3	3.45	
1085	Magnesium	mg/L	27.2	26.5	22.5 - 30.5	Acceptable	EPA 6020A 1 2007	2/11/2014	0.964	26.1	1.19	DRS
1550	Calcium Hardness as CaCO ₃	mg/L	250	236	201 - 271	Acceptable	EPA 6010C 2000	2/11/2014	1.94	233	8.89	CRT
1755	Total Hardness as CaCO ₃	mg/L	360	345	293 - 397	Acceptable	EPA 6010C 2000	2/11/2014	1.98	338	11.3	

WP Hardness (cat# 580)

1960	Total Suspended Solids	mg/L		39.1	29.1 - 45.7	Not Reported				35.6	2.56	
1035	Calcium	mg/L		94.6	80.4 - 109	Not Reported				93.3	3.45	
1085	Magnesium	mg/L	26.7	26.5	22.5 - 30.5	Acceptable	EPA 6010C 2000	2/11/2014	0.545	26.1	1.19	
1550	Calcium Hardness as CaCO ₃	mg/L		236	201 - 271	Not Reported				233	8.89	
1755	Total Hardness as CaCO ₃	mg/L		345	293 - 397	Not Reported				338	11.3	



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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP pH (cat# 577)

1900	pH	S.U.	5.75	5.74	5.54 - 5.94	Acceptable	SM4500H+ B online	1/28/2014	0.356	5.73	0.0471	KEK

WP Volatile Solids (cat# 884)

1970	Volatile Solids, Total	mg/L	215	226	156 - 270	Acceptable	EPA 160.4	2/17/2014	-0.0446	216	20.5	WMW

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L		5.11	3.96 - 6.30	Not Reported				5.16	0.434	
1820	Nitrate + Nitrite as N	mg/L	3.80	3.97	3.23 - 4.68	Acceptable	EPA 300.0 2.1 1993	2/8/2014	-0.673	3.97	0.251	
1810	Nitrate as N	mg/L	3.80	3.97	3.16 - 4.75	Acceptable	EPA 300.0 2.1 1993	2/8/2014	-0.715	3.97	0.237	
1870	ortho-Phosphate as P	mg/L	4.84	4.95	4.21 - 5.69	Acceptable	EPA 300.0 2.1	2/8/2014	-0.558	4.97	0.235	JNZ

WP Simple Nutrients (cat# 584)

1515	Ammonia as N	mg/L	5.04	5.11	3.96 - 6.30	Acceptable	EPA 350.1 2 1993	2/7/2014	-0.279	5.16	0.434	
1820	Nitrate + Nitrite as N	mg/L	4.11	3.97	3.23 - 4.68	Acceptable	EPA 353.2 2 1993	2/11/2014	0.563	3.97	0.251	
1810	Nitrate as N	mg/L	4.11	3.97	3.16 - 4.75	Acceptable	EPA 353.2 2 1993	2/11/2014	0.593	3.97	0.237	
1870	ortho-Phosphate as P	mg/L	4.98	4.95	4.21 - 5.69	Acceptable	EPA 365.1 2	2/11/2014	0.0377	4.97	0.235	KHC

WP Complex Nutrients (cat# 579)

1795	Total Kjeldahl Nitrogen	mg/L	17.1	18.4	13.8 - 22.4	Acceptable	EPA 351.2 2 1993	2/10/2014	-1.00	18.4	1.25	
1910	Total phosphorus as P	mg/L	3.67	3.68	3.03 - 4.30	Acceptable	EPA 365.4 1974	2/10/2014	-0.104	3.69	0.197	

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	2.36	2.27	1.94 - 2.60	Acceptable	EPA 353.2	2/7/2014	0.536	2.29	0.121	CLS

WP Nitrite (cat# 888)

1840	Nitrite as N	mg/L	2.35	2.27	1.94 - 2.60	Acceptable	EPA 300.0 2.1 1993	2/8/2014	0.453	2.29	0.121	JNZ



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WP Demand (cat# 578)

1530	BOD	mg/L	36.4	40.6	20.8 - 60.4	Acceptable	SM 5210 B-2011 2011	2/16/2014	-0.638	40.7	6.67	
1555	CBOD	mg/L	33.10	36.8	15.8 - 57.8	Acceptable	SM 5210 B-2011 2011	2/16/2014	-0.730	38.0	6.71	
1565	COD	mg/L	69.5	65.4	46.5 - 81.6	Acceptable	EPA 410.4	2/11/2014	0.686	64.8	6.86	CRS
2040	TOC	mg/L	25.80	25.9	21.1 - 30.6	Acceptable	SM 5310 B-2011 2011	2/7/2014	-0.237	26.2	1.73	

WP Oil & Grease (cat# 582)

1860	n-Hexane Extractable Material(O&G)(Grav)	mg/L	65.6	85.0	59.4 - 99.6	Acceptable	EPA 1664A 1999	1/28/2014	-2.83	79.9	5.05	
1860	n-Hexane Extractable Material(O&G)(IR)	mg/L		104	74.1 - 121	Not Reported				109	17.3	



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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	1500	1510	1250 - 1740	Acceptable	EPA 6010C 2000	2/8/2014	0.213	1480	83.2	CRT
1005	Antimony	µg/L	690	717	586 - 826	Acceptable	EPA 6010C 2000	2/8/2014	-0.222	698	35.4	CRT
1010	Arsenic	µg/L	311	338	278 - 395	Acceptable	EPA 6010C 2000	2/8/2014	-1.09	327	14.7	CRT
1015	Barium	µg/L	867	850	722 - 978	Acceptable	EPA 6010C 2000	2/8/2014	1.05	832	33.3	CRT
1020	Beryllium	µg/L	105	101	85.8 - 116	Acceptable	EPA 6010C 2000	2/8/2014	0.350	103	5.36	CRT
1025	Boron	µg/L	1280	1340	1140 - 1540	Acceptable	EPA 6010C 2000	2/8/2014	-0.477	1320	80.4	CRT
1030	Cadmium	µg/L	469	462	393 - 531	Acceptable	EPA 6010C 2000	2/8/2014	1.15	449	17.8	CRT
1040	Chromium	µg/L	792	759	645 - 873	Acceptable	EPA 6010C 2000	2/8/2014	1.55	744	31.1	CRT
1050	Cobalt	µg/L	677	610	518 - 702	Acceptable	EPA 6010C 2000	2/8/2014	1.96	626	26.2	CRT
1055	Copper	µg/L	430	418	355 - 481	Acceptable	EPA 6010C 2000	2/8/2014	0.980	413	17.5	CRT
1070	Iron	µg/L	1720	1650	1400 - 1900	Acceptable	EPA 6010C 2000	2/8/2014	0.984	1640	79.1	CRT
1075	Lead	µg/L	978	908	772 - 1040	Acceptable	EPA 6010C 2000	2/8/2014	1.83	899	43.5	CRT
1090	Manganese	µg/L	1610	1500	1280 - 1720	Acceptable	EPA 6010C 2000	2/8/2014	1.72	1500	64.1	CRT
1100	Molybdenum	µg/L	225	224	190 - 255	Acceptable	EPA 6010C 2000	2/8/2014	0.767	218	9.71	CRT
1105	Nickel	µg/L	1580	1500	1330 - 1680	Acceptable	EPA 6010C 2000	2/8/2014	1.75	1460	66.8	CRT
1140	Selenium	µg/L	389	415	353 - 477	Acceptable	EPA 6010C 2000	2/8/2014	-0.572	401	21.3	CRT
1150	Silver	µg/L	320	310	264 - 356	Acceptable	EPA 6010C 2000	2/8/2014	1.05	305	14.7	CRT
1160	Strontium	µg/L	245	240	204 - 276	Acceptable	EPA 6010C 2000	2/8/2014	0.858	237	9.63	CRT
1165	Thallium	µg/L	533	476	391 - 553	Acceptable	EPA 6010C 2000	2/8/2014	2.68	466	25.2	CRT
1185	Vanadium	µg/L	896	897	762 - 1030	Acceptable	EPA 6010C 2000	2/8/2014	0.863	870	29.7	CRT



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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	962	987	839 - 1140	Acceptable	EPA 6010C 2000	2/8/2014	-0.00522	962	47.9	CRT



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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	1540	1510	1250 - 1740	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.694	1480	83.2	HEA
1005	Antimony	µg/L	694	717	586 - 826	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.109	698	35.4	HEA
1010	Arsenic	µg/L	315	338	278 - 395	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.823	327	14.7	HEA
1015	Barium	µg/L	846	850	722 - 978	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.423	832	33.3	HEA
1020	Beryllium	µg/L	109	101	85.8 - 116	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.10	103	5.36	HEA
1025	Boron	µg/L		1340	1140 - 1540	Not Reported				1320	80.4	
1030	Cadmium	µg/L	479	462	393 - 531	Acceptable	EPA 200.8 5.5 1998	2/26/2014	1.71	449	17.8	HEA
1040	Chromium	µg/L	776	759	645 - 873	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.04	744	31.1	HEA
1050	Cobalt	µg/L	666	610	518 - 702	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.53	626	26.2	HEA
1055	Copper	µg/L	442	418	355 - 481	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.66	413	17.5	HEA
1070	Iron	µg/L		1650	1400 - 1900	Not Reported				1640	79.1	
1075	Lead	µg/L	898	908	772 - 1040	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.0116	899	43.5	HEA
1090	Manganese	µg/L	1610	1500	1280 - 1720	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.72	1500	64.1	HEA
1100	Molybdenum	µg/L	219	224	190 - 255	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.149	218	9.71	HEA
1105	Nickel	µg/L	1550	1500	1330 - 1680	Acceptable	EPA 200.8 5.5 1998	2/10/2014	1.30	1460	66.8	HEA
1140	Selenium	µg/L	373	415	353 - 477	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-1.32	401	21.3	HEA
1150	Silver	µg/L	330	310	264 - 356	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.73	305	14.7	HEA
1160	Strontium	µg/L		240	204 - 276	Not Reported				237	9.63	
1165	Thallium	µg/L	433	476	391 - 553	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-1.29	466	25.2	HEA
1185	Vanadium	µg/L	862	897	762 - 1030	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.283	870	29.7	HEA



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	947	987	839 - 1140	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.318	962	47.9	HEA





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WP Trace Metals (cat# 586)

1000	Aluminum	µg/L	1540	1510	1250 - 1740	Acceptable	EPA 6020A 1 2007	2/7/2014	0.694	1480	83.2	HEA
1005	Antimony	µg/L	694	717	586 - 826	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.109	698	35.4	HEA
1010	Arsenic	µg/L	315	338	278 - 395	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.823	327	14.7	HEA
1015	Barium	µg/L	846	850	722 - 978	Acceptable	EPA 6020A 1 2007	2/7/2014	0.423	832	33.3	HEA
1020	Beryllium	µg/L	109	101	85.8 - 116	Acceptable	EPA 6020A 1 2007	2/7/2014	1.10	103	5.36	HEA
1025	Boron	µg/L		1340	1140 - 1540	Not Reported				1320	80.4	
1030	Cadmium	µg/L	479	462	393 - 531	Acceptable	EPA 6020A 1 2007	2/7/2014	1.71	449	17.8	HEA
1040	Chromium	µg/L	776	759	645 - 873	Acceptable	EPA 6020A 1 2007	2/7/2014	1.04	744	31.1	HEA
1050	Cobalt	µg/L	666	610	518 - 702	Acceptable	EPA 6020A 1 2007	2/7/2014	1.53	626	26.2	HEA
1055	Copper	µg/L	442	418	355 - 481	Acceptable	EPA 6020A 1 2007	2/7/2014	1.66	413	17.5	HEA
1070	Iron	µg/L	1690	1650	1400 - 1900	Acceptable	EPA 6020A 1 2007	2/7/2014	0.604	1640	79.1	HEA
1075	Lead	µg/L	898	908	772 - 1040	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.0116	899	43.5	HEA
1090	Manganese	µg/L	1610	1500	1280 - 1720	Acceptable	EPA 6020A 1 2007	2/7/2014	1.72	1500	64.1	HEA
1100	Molybdenum	µg/L	219	224	190 - 255	Acceptable	EPA 6020A 1 2007	2/7/2014	0.149	218	9.71	HEA
1105	Nickel	µg/L	1550	1500	1330 - 1680	Acceptable	EPA 6020A 1 2007	2/7/2014	1.30	1460	66.8	HEA
1140	Selenium	µg/L	373	415	353 - 477	Acceptable	EPA 6020A 1 2007	2/7/2014	-1.32	401	21.3	HEA
1150	Silver	µg/L	330	310	264 - 356	Acceptable	EPA 6020A 1 2007	2/7/2014	1.73	305	14.7	HEA
1160	Strontium	µg/L	243	240	204 - 276	Acceptable	EPA 6020A 1 2007	2/7/2014	0.650	237	9.63	HEA
1165	Thallium	µg/L	433	476	391 - 553	Acceptable	EPA 6020A 1 2007	2/7/2014	-1.29	466	25.2	HEA
1185	Vanadium	µg/L	862	897	762 - 1030	Acceptable	EPA 6020A 1 2007	2/10/2014	-0.283	870	29.7	HEA



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WP Trace Metals (cat# 586) (Continued)

1190	Zinc	µg/L	947	987	839 - 1140	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.318	962	47.9	HEA

WP Mercury (cat# 574)

1095	Mercury	µg/L	8.43	8.17	5.72 - 10.6	Acceptable	EPA 7470	2/11/2014	0.378	8.15	0.738	HEA

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	736	673	566 - 771	Acceptable	SM 3500-Cr B-2011 2011	2/7/2014	2.09	667	33.1	

WP Hexavalent Chromium (cat# 898)

1045	Hexavalent Chromium	µg/L	701	673	566 - 771	Acceptable	EPA 218.6 3.3 1994	2/7/2014	1.03	667	33.1	

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1790	1690	1180 - 2200	Acceptable	EPA 6010C 2000	2/8/2014	0.956	1700	97.2	CRT
1180	Titanium	µg/L	116	114	96.9 - 131	Acceptable	EPA 6010C 2000	2/8/2014	0.283	114	6.74	CRT

WP Tin & Titanium (cat# 573)

1175	Tin	µg/L	1690	1690	1180 - 2200	Acceptable	EPA 6020A 1 2007	2/7/2014	-0.0731	1700	97.2	
1180	Titanium	µg/L	101	114	96.9 - 131	Acceptable	EPA 6020A 1 2007	2/7/2014	-1.94	114	6.74	

WP Uranium (cat# 4400)

3055	Uranium (Nat) mass	µg/L	64.4	66.8	49.5 - 78.5	Acceptable	EPA 200.8 5.5	2/7/2014	-1.32	67.3	2.19	HEA

WP Color (cat# 882)

1605	Color	PC units	45	50.0	35.2 - 60.8	Acceptable	SM2120B online	2/11/2014	-0.756	48.5	4.67	CRS

WP Turbidity (cat# 893)

2055	Turbidity	NTU	4.05	3.99	2.93 - 5.01	Acceptable	EPA 180.1 2	2/4/2014	0.219	3.99	0.265	KEK



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WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.353	0.674	0.438 - 0.910	Not Acceptable	EPA 9012A	2/4/2014	-4.59	0.665	0.0680	ADC
1510	Amenable Cyanide	mg/L		0.359	0.233 - 0.485	Not Reported				0.398	0.0616	

WP Total Cyanide (cat# 588)

1645	Cyanide, total	mg/L	0.349	0.674	0.438 - 0.910	Not Acceptable	EPA 335.4	2/6/2014	-4.65	0.665	0.0680	ADC
1510	Amenable Cyanide	mg/L		0.359	0.233 - 0.485	Not Reported				0.398	0.0616	

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.672	0.653	0.323 - 0.983	Acceptable	EPA 420.4 1 1993	2/13/2014	-0.0683	0.680	0.111	TK1

WP Total Phenolics (4-AAP) (cat# 589)

1905	Phenolics, total	mg/L	0.665	0.653	0.323 - 0.983	Acceptable	EPA 9066 1986	2/13/2014	-0.131	0.680	0.111	

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	227	209	157 - 261	Acceptable	EPA 6010C 2000	2/8/2014	1.40	208	13.9	CRT

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	222	209	157 - 261	Acceptable	EPA 200.7 5 1998	2/8/2014	1.04	208	13.9	CRT

WP Silica (cat# 890)

1990	Silica as SiO ₂	mg/L	198	209	157 - 261	Acceptable	SM4500Si D 18/19thED 2011	2/7/2014	-0.692	208	13.9	

WP Sulfide (cat# 891)

2005	Sulfide	mg/L	2.39	3.96	1.42 - 5.97	Acceptable	SM 4500-S2 F-2011 2011	2/5/2014	-0.667	2.93	0.816	

WP Surfactants - MBAS (cat# 892)

2025	Surfactants (MBAS)	mg/L	0.5	0.505	0.305 - 0.734	Acceptable	SM5540C online	2/18/2014	-0.383	0.530	0.0779	CRS

WP Bromide (cat# 887)

1540	Bromide	mg/L	4.72	4.99	4.11 - 5.86	Acceptable	EPA 300.0 2.1	2/14/2014	-1.04	5.03	0.299	JNZ



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WP Total Residual Chlorine (cat# 587)

1940	Total Residual Chlorine	mg/L	1.15	1.11	0.825 - 1.33	Acceptable	SM 4500-Cl D-2011 2011	2/17/2014	0.652	1.10	0.0837	



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Microbiology Results





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WP WasteWatTM Coliform MicrobETM (cat# 576)

2500	Total Coliforms (MF)	CFU/100mL	287	554	159 - 880	Acceptable	SM9222B M endo online	2/13/2014	-0.729	375	120	CJF
2530	Fecal Coliforms (MF)	CFU/100mL	211	554	15.0 - 1340	Acceptable	SM 9222 D (m-FC)-1997 1997	2/12/2014	0.306	143	222	
2525	E.coli (MF)	CFU/100mL		554	56.0 - 1120	Not Reported				251	177	
2500	Total Coliforms (MPN)	MPN/100mL		801	117 - 1890	Not Reported				471	296	
2530	Fecal Coliforms (MPN)	MPN/100mL		801	40.7 - 3390	Not Reported				372	559	
2525	E.coli (MPN)	MPN/100mL		801	217 - 1250	Not Reported				521	172	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



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- Ormond Beach**

Organic Results





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WP Volatiles (cat# 830)

4315	Acetone	µg/L	< 20	< 3.90	0.00 - 3.90	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4320	Acetonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4325	Acrolein	µg/L	< 20	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4340	Acrylonitrile	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4375	Benzene	µg/L	27.8	29.8	20.9 - 38.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.860	29.9	2.40	SK
4385	Bromobenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4390	Bromochloromethane	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4395	Bromodichloromethane	µg/L	76	76.0	45.6 - 106	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.487	79.3	6.88	SK
4400	Bromoform	µg/L	54.6	59.7	35.8 - 83.6	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.815	60.6	7.38	SK
4950	Bromomethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4410	2-Butanone (MEK)	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4435	n-Butylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4440	sec-Butylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4445	tert-Butylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5000	tert-Butyl methyl ether (MTBE)	µg/L	72.1	72.5	48.7 - 98.9	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.567	75.5	6.03	SK
4450	Carbon disulfide	µg/L	< 10	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4455	Carbon tetrachloride	µg/L	108	124	70.6 - 167	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.532	118	19.1	SK
4475	Chlorobenzene	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK





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WP Volatiles (cat# 830) (Continued)

4575	Chlorodibromomethane	µg/L	< 0.5	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4485	Chloroethane	µg/L	22.9	26.7	10.7 - 42.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.56	31.1	5.23	SK
4500	2-Chloroethylvinylether	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4505	Chloroform	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4960	Chloromethane	µg/L	23.5	24.4	9.76 - 39.0	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.01	28.5	4.98	SK
4535	2-Chlorotoluene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4540	4-Chlorotoluene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4570	1,2-Dibromo-3-chloropropane (DBCP)	µg/L	< 2	< 9.00	0.00 - 9.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4585	1,2-Dibromoethane (EDB)	µg/L	< 1	< 6.50	0.00 - 6.50	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4595	Dibromomethane	µg/L	88.3	100	65.0 - 135	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.95	104	7.95	SK
4610	1,2-Dichlorobenzene	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4615	1,3-Dichlorobenzene	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4620	1,4-Dichlorobenzene	µg/L	72.90	90.3	63.2 - 117	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.22	84.5	9.50	SK
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4630	1,1-Dichloroethane	µg/L	< 1	< 6.40	0.00 - 6.40	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4635	1,2-Dichloroethane	µg/L	103	104	73.9 - 134	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.380	107	9.43	SK
4640	1,1-Dichloroethylene	µg/L	< 1	< 6.20	0.00 - 6.20	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4645	cis-1,2-Dichloroethylene	µg/L	16.8	16.5	11.4 - 22.3	Acceptable	EPA 8260B 2 1996	2/13/2014	0.0754	16.7	1.72	SK





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WP Volatiles (cat# 830) (Continued)

4700	trans-1,2-Dichloroethylene	µg/L	48.6	54.8	32.9 - 76.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.59	57.9	5.84	SK
4655	1,2-Dichloropropane	µg/L	< 1	< 7.00	0.00 - 7.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4660	1,3-Dichloropropane	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4665	2,2-Dichloropropane	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4670	1,1-Dichloropropene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4680	cis-1,3-Dichloropropylene	µg/L	27.6	30.7	20.0 - 41.4	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.437	28.7	2.58	SK
4685	trans-1,3-Dichloropropylene	µg/L	40.8	43.6	28.3 - 58.9	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.253	41.9	4.29	SK
4765	Ethylbenzene	µg/L	64.5	73.2	51.2 - 95.2	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.32	77.1	9.50	SK
4835	Hexachlorobutadiene	µg/L	58.7	102	11.6 - 122	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.631	77.6	30.0	SK
4840	Hexachloroethane	µg/L		< 3.30	0.00 - 3.30	Not Reported						
4860	2-Hexanone	µg/L	< 10	< 4.40	0.00 - 4.40	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4900	Isopropylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4910	4-Isopropyltoluene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
4975	Methylene chloride	µg/L	49.3	58.0	34.8 - 81.2	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.92	61.2	6.19	SK
4995	4-Methyl-2-pentanone (MIBK)	µg/L	< 1	< 2.00	0.00 - 2.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5005	Naphthalene	µg/L	14.7	17.6	7.58 - 26.2	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.639	16.8	3.33	SK
5015	Nitrobenzene	µg/L		< 6.20	0.00 - 6.20	Not Reported						
5090	n-Propylbenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK



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5100	Styrene	µg/L	83.9	103	67.0 - 139	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.33	98.9	11.3	SK
5105	1,1,1,2-Tetrachloroethane	µg/L	86.6	94.8	61.6 - 128	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.770	95.0	10.9	SK
5110	1,1,2,2-Tetrachloroethane	µg/L	50.9	52.5	34.1 - 70.9	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.714	54.7	5.30	SK
5115	Tetrachloroethylene	µg/L	< 1	< 4.30	0.00 - 4.30	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5140	Toluene	µg/L	49.8	56.5	39.6 - 73.4	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.53	56.8	4.62	SK
5150	1,2,3-Trichlorobenzene	µg/L	< 1	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5155	1,2,4-Trichlorobenzene	µg/L	67.8	93.1	41.3 - 127	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.786	82.4	18.5	SK
5160	1,1,1-Trichloroethane	µg/L	< 1	< 6.00	0.00 - 6.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5165	1,1,2-Trichloroethane	µg/L	57	62.6	43.8 - 81.4	Acceptable	EPA 8260B 2 1996	2/13/2014	-1.54	65.2	5.36	SK
5170	Trichloroethylene	µg/L	59.8	74.3	47.2 - 96.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-2.04	73.9	6.94	SK
5175	Trichlorofluoromethane	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5180	1,2,3-Trichloropropane (TCP)	µg/L	95.8	94.6	43.7 - 142	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.254	99.4	14.1	SK
5210	1,2,4-Trimethylbenzene	µg/L	81.1	101	65.6 - 136	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.891	95.6	16.3	SK
5215	1,3,5-Trimethylbenzene	µg/L	80.3	104	67.6 - 140	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.772	93.6	17.2	SK
5225	Vinyl acetate	µg/L	< 2	< 5.00	0.00 - 5.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5235	Vinyl chloride	µg/L	< 1	< 8.00	0.00 - 8.00	Acceptable	EPA 8260B 2 1996	2/13/2014				SK
5240	m&p-Xylene	µg/L	12.2	12.7	7.62 - 17.8	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.217	12.5	1.61	SK
5250	o-Xylene	µg/L	9.88	10.5	6.30 - 14.7	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.461	10.5	1.27	SK

WP Volatiles (cat# 830) (Continued)

5260	Xylenes, total	µg/L	22	23.2	13.9 - 32.5	Acceptable	EPA 8260B 2 1996	2/13/2014	-0.405	23.1	2.66	SK



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WP Chlorinated Acid Herbicides (cat# 829)

8505	Acifluorfen	µg/L		9.30	1.30 - 13.7	Not Reported				6.73	2.28	
8530	Bentazon	µg/L	5.05	5.39	0.539 - 9.80	Acceptable	EPA 8151A 1998	2/6/2014	0.418	4.69	0.864	LJM
8540	Chloramben	µg/L		7.36	0.736 - 11.2	Not Reported				4.46	2.21	
8545	2,4-D	µg/L	5.59	5.99	0.599 - 9.27	Acceptable	EPA 8151A 1998	1/31/2014	0.192	5.25	1.78	LJM
8560	2,4-DB	µg/L	6.61	5.70	0.570 - 9.69	Acceptable	EPA 8151A 1998	2/5/2014	1.54	4.54	1.34	LJM
8550	Dacthal diacid (DCPA)	µg/L		4.86	0.614 - 6.93	Not Reported				3.16	0.941	
8555	Dalapon	µg/L	5.54	6.19	0.619 - 9.77	Acceptable	EPA 8151A 1998	1/31/2014	0.310	4.77	2.47	LJM
8595	Dicamba	µg/L	4.73	5.19	1.18 - 7.52	Acceptable	EPA 8151A 1998	2/6/2014	0.505	4.28	0.893	LJM
8600	3,5-Dichlorobenzoic acid	µg/L		4.16	0.874 - 6.26	Not Reported				3.12	1.14	
8605	Dichlorprop	µg/L	2.47	2.43	0.416 - 3.65	Acceptable	EPA 8151A 1998	1/31/2014	0.725	2.22	0.344	LJM
8620	Dinoseb	µg/L	4.85	3.93	0.393 - 5.93	Acceptable	EPA 8151A 1998	2/6/2014	1.42	2.74	1.48	LJM
7775	MCPA	µg/L	< 100	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	1/31/2014				LJM
7780	MCPP	µg/L	< 100	< 10.0	0.00 - 10.0	Acceptable	EPA 8151A 1998	1/31/2014				LJM
6500	4-Nitrophenol	µg/L		7.76	0.776 - 11.9	Not Reported				5.98	2.45	
6605	Pentachlorophenol	µg/L	2.72	2.53	0.326 - 3.82	Acceptable	EPA 8151A 1998	2/6/2014	1.11	1.96	0.684	LJM
8645	Picloram	µg/L	3.48	4.10	0.410 - 6.64	Acceptable	EPA 8151A 1998	2/5/2014	0.316	3.12	1.13	LJM
8655	2,4,5-T	µg/L	4.77	4.97	1.02 - 7.34	Acceptable	EPA 8151A 1998	2/6/2014	0.669	4.04	1.09	LJM
8650	2,4,5-TP (Silvex)	µg/L	3.02	2.95	0.745 - 4.48	Acceptable	EPA 8151A 1998	2/5/2014	1.08	2.57	0.417	LJM





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WP PCBs in Water (cat# 832S)

8880	Aroclor 1016	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8885	Aroclor 1221	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8890	Aroclor 1232	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8895	Aroclor 1242	µg/L	8.34	9.66	3.51 - 13.0	Acceptable	EPA 8082 1996	2/1/2014	-0.311	8.90	1.80	JLG
8900	Aroclor 1248	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8905	Aroclor 1254	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG
8910	Aroclor 1260	µg/L	< 0.5	< 0.800	0.00 - 0.800	Acceptable	EPA 8082 1996	2/1/2014				JLG

WP PCBs in Oil (cat# 835S)

8880	Aroclor 1016	mg/kg	< 0.17	< 1.70	0.00 - 1.70	Acceptable	EPA 8082 1996	1/31/2014				JLG
8895	Aroclor 1242	mg/kg	29	34.7	5.97 - 47.4	Acceptable	EPA 8082 1996	1/31/2014	-0.114	29.9	7.90	JLG
8905	Aroclor 1254	mg/kg	< 0.17	< 1.60	0.00 - 1.60	Acceptable	EPA 8082 1996	1/31/2014				JLG
8910	Aroclor 1260	mg/kg	< 0.17	< 2.40	0.00 - 2.40	Acceptable	EPA 8082 1996	1/31/2014				JLG



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WP Base/Neutrals (cat# 833)

5500	Acenaphthene	µg/L	39	57.1	20.3 - 69.9	Acceptable	EPA 8270C 3 1996	2/24/2014	-1.15	47.4	7.31	TWB
5505	Acenaphthylene	µg/L	61.1	77.9	27.2 - 97.3	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.474	66.4	11.1	TWB
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5545	Aniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5555	Anthracene	µg/L	< 5	< 3.90	0.00 - 3.90	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5595	Benzidine	µg/L	< 25	< 200	0.00 - 200	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5575	Benzo(a)anthracene	µg/L	24.4	31.9	14.4 - 40.2	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.872	27.7	3.83	TWB
5585	Benzo(b)fluoranthene	µg/L	< 2	< 7.50	0.00 - 7.50	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5600	Benzo(k)fluoranthene	µg/L	< 4	< 7.70	0.00 - 7.70	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5590	Benzo(g,h,i)perylene	µg/L	< 5	< 5.10	0.00 - 5.10	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5580	Benzo(a)pyrene	µg/L	18.3	24.7	7.92 - 32.5	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.745	20.7	3.20	TWB
5630	Benzyl alcohol	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5660	4-Bromophenyl-phenylether	µg/L	41	52.2	21.8 - 68.7	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.444	43.9	6.54	TWB
5670	Butylbenzylphthalate	µg/L	< 5	< 13.4	0.00 - 13.4	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5680	Carbazole	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5745	4-Chloroaniline	µg/L	18.1	< 10.0	0.00 - 10.0	Not Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5760	bis(2-Chloroethoxy)methane	µg/L	24	39.3	11.7 - 49.2	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.878	28.9	5.54	TWB
5765	bis(2-Chloroethyl)ether	µg/L	< 4	< 5.90	0.00 - 5.90	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5780	bis(2-Chloroisopropyl)ether	µg/L	53.8	86.8	22.3 - 108	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.596	62.8	15.1	TWB
5790	1-Chloronaphthalene	µg/L		< 10.0	0.00 - 10.0	Not Reported						



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WP Base/Neutrals (cat# 833) (Continued)

5795	2-Chloronaphthalene	µg/L	88.1	116	31.9 - 138	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.159	90.8	17.2	TWB
5825	4-Chlorophenyl-phenylether	µg/L	150	186	66.6 - 226	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.401	163	31.7	TWB
5855	Chrysene	µg/L	< 5	< 5.80	0.00 - 5.80	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5895	Dibenz(a,h)anthracene	µg/L	28.7	35.9	12.7 - 50.1	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.525	32.1	6.54	TWB
5905	Dibenzofuran	µg/L	140	194	75.8 - 217	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.448	153	28.8	TWB
5925	Di-n-butylphthalate	µg/L	77.7	95.0	34.1 - 124	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.215	80.3	11.9	TWB
4610	1,2-Dichlorobenzene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
4615	1,3-Dichlorobenzene	µg/L	< 5	< 3.10	0.00 - 3.10	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
4620	1,4-Dichlorobenzene	µg/L	75.6	170	17.0 - 187	Acceptable	EPA 8270C 3 1996	2/24/2014	-1.01	106	29.9	TWB
5945	3,3'-Dichlorobenzidine	µg/L	< 5	< 5.00	0.00 - 5.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6070	Diethylphthalate	µg/L	94.3	118	21.8 - 162	Acceptable	EPA 8270C 3 1996	2/24/2014	0.0423	93.5	18.6	TWB
6135	Dimethylphthalate	µg/L	89.3	117	11.7 - 170	Acceptable	EPA 8270C 3 1996	2/24/2014	0.0731	87.5	24.8	TWB
6185	2,4-Dinitrotoluene	µg/L	102	152	66.2 - 185	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.880	122	22.6	TWB
6190	2,6-Dinitrotoluene	µg/L	< 2	< 8.20	0.00 - 8.20	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6200	Di-n-octylphthalate	µg/L	96	104	30.5 - 146	Acceptable	EPA 8270C 3 1996	2/24/2014	0.431	89.3	15.5	TWB
6065	bis(2-Ethylhexyl)phthalate	µg/L	84.7	100	34.2 - 132	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.0659	85.6	14.0	TWB
6265	Fluoranthene	µg/L	< 5	< 15.6	0.00 - 15.6	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6270	Fluorene	µg/L	103	144	60.0 - 167	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.745	119	21.8	TWB
6275	Hexachlorobenzene	µg/L	36.4	47.0	20.9 - 56.6	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.500	39.5	6.15	TWB
4835	Hexachlorobutadiene	µg/L	59.2	107	12.3 - 128	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.657	72.5	20.2	TWB



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6285	Hexachlorocyclopentadiene	µg/L	< 5	< 5.00	0.00 - 5.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
4840	Hexachloroethane	µg/L	40.9	97.4	9.74 - 107	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.977	59.3	18.9	TWB
6315	Indeno(1,2,3-cd)pyrene	µg/L	33.7	42.8	12.8 - 58.1	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.584	37.9	7.16	TWB
6320	Isophorone	µg/L	< 5	< 7.10	0.00 - 7.10	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6385	2-Methylnaphthalene	µg/L	< 5	< 2.00	0.00 - 2.00	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5005	Naphthalene	µg/L	72.2	118	28.3 - 138	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.898	88.5	18.2	TWB
6460	2-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6465	3-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6470	4-Nitroaniline	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5015	Nitrobenzene	µg/L	27.5	37.7	12.0 - 46.2	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.373	29.7	5.90	TWB
6525	N-Nitrosodiethylamine	µg/L	< 4	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6530	N-Nitrosodimethylamine	µg/L	22.9	93.4	9.34 - 109	Acceptable	EPA 8270C 3 1996	2/24/2014	-1.35	48.0	18.6	TWB
6535	N-Nitrosodiphenylamine	µg/L	< 5	< 5.60	0.00 - 5.60	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6545	N-Nitroso-di-n-propylamine	µg/L	85.1	136	44.3 - 171	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.912	104	20.8	TWB
6590	Pentachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6615	Phenanthrene	µg/L	138	188	87.8 - 219	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.688	156	25.9	TWB
6665	Pyrene	µg/L	< 5	< 4.90	0.00 - 4.90	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5095	Pyridine	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
6715	1,2,4,5-Tetrachlorobenzene	µg/L	< 5	< 10.0	0.00 - 10.0	Acceptable	EPA 8270C 3 1996	2/24/2014				TWB
5155	1,2,4-Trichlorobenzene	µg/L	19.75	30.6	3.06 - 41.0	Acceptable	EPA 8270C 3 1996	2/24/2014	-0.706	23.4	5.12	TWB



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WP Acids (cat# 834)

5610	Benzoic acid	µg/L	< 5	< 30.0	0.00 - 30.0	Acceptable	EPA 8270C 3 1996	2/6/2014				TWB
5700	4-Chloro-3-methylphenol	µg/L	86.1	94.5	35.8 - 117	Acceptable	EPA 8270C 3 1996	2/6/2014	0.314	81.8	13.6	TWB
5800	2-Chlorophenol	µg/L	37.1	55.9	16.7 - 67.7	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.462	41.8	10.1	TWB
6000	2,4-Dichlorophenol	µg/L	65.9	86.8	29.2 - 104	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.298	70.1	14.2	TWB
6005	2,6-Dichlorophenol	µg/L	51.3	63.8	21.6 - 81.7	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.503	57.1	11.6	TWB
6130	2,4-Dimethylphenol	µg/L	33.1	47.9	14.1 - 60.6	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.315	35.6	7.90	TWB
6360	4,6-Dinitro-2-methylphenol	µg/L	54.8	58.4	16.9 - 85.0	Acceptable	EPA 8270C 3 1996	2/6/2014	0.749	47.5	9.80	TWB
6175	2,4-Dinitrophenol	µg/L	99.7	107	10.7 - 154	Acceptable	EPA 8270C 3 1996	2/6/2014	1.31	75.1	18.8	TWB
6400	2-Methylphenol	µg/L	93.8	150	34.1 - 175	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.446	106	26.6	TWB
6410	4-Methylphenol	µg/L	31	54.6	5.46 - 73.1	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.696	37.1	8.72	TWB
6490	2-Nitrophenol	µg/L	45.9	60.4	16.8 - 77.6	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.161	47.6	10.6	TWB
6500	4-Nitrophenol	µg/L	35.5	110	11.0 - 149	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.518	49.7	27.5	TWB
6605	Pentachlorophenol	µg/L	55.6	48.7	13.2 - 67.9	Acceptable	EPA 8270C 3 1996	2/6/2014	2.26	37.2	8.14	TWB
6625	Phenol	µg/L	36.6	141	14.1 - 189	Acceptable	EPA 8270C 3 1996	2/6/2014	-0.808	63.1	32.8	TWB
6735	2,3,4,6-Tetrachlorophenol	µg/L	< 5	< 30.0	0.00 - 30.0	Acceptable	EPA 8270C 3 1996	2/6/2014				TWB
6835	2,4,5-Trichlorophenol	µg/L	48.8	57.1	21.0 - 73.6	Acceptable	EPA 8270C 3 1996	2/6/2014	0.161	47.4	8.93	TWB
6840	2,4,6-Trichlorophenol	µg/L	68.2	74.5	28.0 - 91.0	Acceptable	EPA 8270C 3 1996	2/6/2014	0.246	65.2	12.4	TWB



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WP Nitroaromatics & Nitramines (cat# 932)

9306	4-Amino-2,6-dinitrotoluene	µg/L		12.4	6.56 - 17.3	Not Reported				11.8	1.89	
9303	2-Amino-4,6-dinitrotoluene	µg/L		14.5	8.04 - 20.8	Not Reported				14.1	1.21	
6160	1,3-Dinitrobenzene	µg/L	8.14	12.1	5.79 - 17.4	Acceptable	EPA 8270C 3 1996	2/6/2014	-1.98	11.6	1.74	EAO
6185	2,4-Dinitrotoluene	µg/L		6.47	3.31 - 9.45	Not Reported				6.56	0.332	
6190	2,6-Dinitrotoluene	µg/L		6.80	3.40 - 9.87	Not Reported				7.32	1.79	
9522	HMX	µg/L		5.60	2.77 - 7.94	Not Reported				5.17	0.966	
5015	Nitrobenzene	µg/L		18.3	8.90 - 25.3	Not Reported				17.7	2.04	
9507	2-Nitrotoluene	µg/L		< 1.00	0.00 - 1.00	Not Reported						
9510	3-Nitrotoluene	µg/L		16.6	8.28 - 23.3	Not Reported				17.0	1.22	
9513	4-Nitrotoluene	µg/L		14.4	7.72 - 20.3	Not Reported				14.3	0.949	
9432	RDX	µg/L		3.87	2.02 - 5.20	Not Reported				3.65	0.583	
6415	Tetryl	µg/L		< 1.00	0.00 - 1.00	Not Reported						
6885	1,3,5-Trinitrobenzene	µg/L	8.84	9.37	3.82 - 12.8	Acceptable	EPA 8270C 3 1996	2/6/2014	0.468	8.27	1.22	EAO
9651	2,4,6-Trinitrotoluene	µg/L		17.3	9.20 - 22.9	Not Reported				15.8	1.39	



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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WP-228 2003 NELAC Evaluation Final Complete Report

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(386) 676-4803

EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
03/03/14
01/13/14 - 02/27/14

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Low-Level PAHs (cat# 836)

5500	Acenaphthene	µg/L	2.86	5.26	1.84 - 6.45	Acceptable	EPA 8270C SIM	1/30/2014	-2.06	4.28	0.689	EAO
5505	Acenaphthylene	µg/L	10.5	19.1	8.35 - 21.7	Acceptable	EPA 8270C SIM	1/30/2014	-1.77	15.3	2.70	EAO
5555	Anthracene	µg/L	2.03	3.46	1.03 - 4.65	Acceptable	EPA 8270C SIM	1/30/2014	-1.85	2.90	0.470	EAO
5575	Benzo(a)anthracene	µg/L	2.51	4.03	2.73 - 4.49	Not Acceptable	EPA 8270C SIM	1/30/2014	-1.26	3.21	0.558	EAO
5585	Benzo(b)fluoranthene	µg/L	1.47	2.76	1.31 - 3.33	Acceptable	EPA 8270C SIM	1/30/2014	-2.02	2.32	0.421	EAO
5600	Benzo(k)fluoranthene	µg/L	1.35	1.51	0.747 - 1.94	Acceptable	EPA 8270C SIM	1/30/2014	0.387	1.25	0.257	EAO
5590	Benzo(g,h,i)perylene	µg/L	0.93	2.00	0.599 - 2.62	Acceptable	EPA 8270C SIM	1/30/2014	-1.88	1.65	0.380	EAO
5580	Benzo(a)pyrene	µg/L	2.21	4.12	1.76 - 4.79	Acceptable	EPA 8270C SIM	1/30/2014	-1.41	3.20	0.703	EAO
5855	Chrysene	µg/L	3.34	4.56	2.56 - 5.56	Acceptable	EPA 8270C SIM	1/30/2014	-0.956	3.95	0.637	EAO
5895	Dibenz(a,h)anthracene	µg/L	1.18	2.51	0.858 - 3.24	Acceptable	EPA 8270C SIM	1/30/2014	-1.99	2.07	0.449	EAO
6265	Fluoranthene	µg/L	3.28	4.80	2.56 - 5.70	Acceptable	EPA 8270C SIM	1/30/2014	-1.64	4.22	0.575	EAO
6270	Fluorene	µg/L	4.11	6.34	2.65 - 7.41	Acceptable	EPA 8270C SIM	1/30/2014	-2.08	5.61	0.719	EAO
6315	Indeno(1,2,3-cd)pyrene	µg/L	0.927	1.77	0.739 - 2.30	Acceptable	EPA 8270C SIM	1/30/2014	-1.60	1.50	0.361	EAO
5005	Naphthalene	µg/L	4.46	8.97	3.02 - 10.2	Acceptable	EPA 8270C SIM	1/30/2014	-2.01	6.69	1.11	EAO
6615	Phenanthrene	µg/L	2.47	4.51	2.26 - 5.30	Acceptable	EPA 8270C SIM	1/30/2014	-2.08	3.69	0.587	EAO
6665	Pyrene	µg/L	2.66	3.91	2.13 - 4.58	Acceptable	EPA 8270C SIM	1/30/2014	-1.57	3.39	0.463	EAO





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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	6	8.84	3.13 - 11.9	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.825	7.07	1.30	JTJ
7110	alpha-BHC	µg/L	2.83	3.17	1.33 - 4.40	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.392	3.04	0.539	JTJ
7115	beta-BHC	µg/L	8.3	10.1	4.78 - 13.6	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.444	8.90	1.36	JTJ
7105	delta-BHC	µg/L	2.38	3.27	1.36 - 4.75	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.459	2.57	0.422	JTJ
7120	gamma-BHC(Lindane)	µg/L	4.15	4.67	2.10 - 6.49	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.266	4.32	0.631	JTJ
7240	alpha-Chlordane	µg/L	5.86	7.98	3.60 - 10.6	Acceptable	EPA 8081A 1 1996	2/1/2014	-1.30	7.20	1.03	JTJ
7245	gamma-Chlordane	µg/L	3.29	4.40	1.93 - 5.86	Acceptable	EPA 8081A 1 1996	2/1/2014	-1.10	3.82	0.485	JTJ
7355	4,4'-DDD	µg/L	3.65	4.24	1.88 - 6.06	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.506	3.98	0.651	JTJ
7360	4,4'-DDE	µg/L	7.16	8.87	3.85 - 11.9	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.495	7.77	1.24	JTJ
7365	4,4'-DDT	µg/L	2.41	2.69	1.07 - 3.98	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.412	2.58	0.402	JTJ
7470	Dieldrin	µg/L	8.82	9.77	4.99 - 12.9	Acceptable	EPA 8081A 1 1996	2/1/2014	0.00805	8.81	1.22	JTJ
7540	Endrin	µg/L	3.39	3.77	1.65 - 5.42	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.373	3.61	0.584	JTJ
7530	Endrin aldehyde	µg/L	5.64	5.89	2.15 - 8.93	Acceptable	EPA 8081A 1 1996	2/1/2014	0.396	5.24	1.01	JTJ
7535	Endrin ketone	µg/L	5.81	6.94	3.65 - 9.52	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.115	5.92	0.923	JTJ
7510	Endosulfan I	µg/L	< 0.1	< 1.40	0.00 - 1.40	Acceptable	EPA 8081A 1 1996	2/1/2014				JTJ
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	EPA 8081A 1 1996	2/1/2014				JTJ
7520	Endosulfan sulfate	µg/L	8.43	10.9	5.04 - 15.1	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.822	9.66	1.50	JTJ
7685	Heptachlor	µg/L	6.86	9.20	3.31 - 12.4	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.650	7.74	1.35	JTJ
7690	Heptachlor epoxide (beta)	µg/L	7.24	8.59	4.35 - 11.4	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.579	7.85	1.05	JTJ
7810	Methoxychlor	µg/L	2.31	2.45	0.748 - 4.28	Acceptable	EPA 8081A 1 1996	2/1/2014	-0.0772	2.34	0.401	JTJ



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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WP-228 2003 NELAC Evaluation Final Complete Report

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03/03/14
01/13/14 - 02/27/14

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Organochlorine Pesticides (cat# 831)

7025	Aldrin	µg/L	6	8.84	3.13 - 11.9	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.825	7.07	1.30	
7110	alpha-BHC	µg/L	2.83	3.17	1.33 - 4.40	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.392	3.04	0.539	
7115	beta-BHC	µg/L	8.3	10.1	4.78 - 13.6	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.444	8.90	1.36	
7105	delta-BHC	µg/L	2.38	3.27	1.36 - 4.75	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.459	2.57	0.422	
7120	gamma-BHC(Lindane)	µg/L	4.15	4.67	2.10 - 6.49	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.266	4.32	0.631	
7240	alpha-Chlordane	µg/L		7.98	3.60 - 10.6	Not Reported				7.20	1.03	
7245	gamma-Chlordane	µg/L		4.40	1.93 - 5.86	Not Reported				3.82	0.485	
7355	4,4'-DDD	µg/L	3.65	4.24	1.88 - 6.06	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.506	3.98	0.651	
7360	4,4'-DDE	µg/L	7.16	8.87	3.85 - 11.9	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.495	7.77	1.24	
7365	4,4'-DDT	µg/L	2.41	2.69	1.07 - 3.98	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.412	2.58	0.402	
7470	Dieldrin	µg/L	8.82	9.77	4.99 - 12.9	Acceptable	SM 6630 C-2000 2000	2/1/2014	0.00805	8.81	1.22	
7540	Endrin	µg/L	3.39	3.77	1.65 - 5.42	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.373	3.61	0.584	
7530	Endrin aldehyde	µg/L	5.64	5.89	2.15 - 8.93	Acceptable	SM 6630 C-2000 2000	2/1/2014	0.396	5.24	1.01	
7535	Endrin ketone	µg/L		6.94	3.65 - 9.52	Not Reported				5.92	0.923	
7510	Endosulfan I	µg/L	< 0.01	< 1.40	0.00 - 1.40	Acceptable	SM 6630 C-2000 2000	2/1/2014				
7515	Endosulfan II	µg/L	< 0.01	< 1.54	0.00 - 1.54	Acceptable	SM 6630 C-2000 2000	2/1/2014				
7520	Endosulfan sulfate	µg/L	8.43	10.9	5.04 - 15.1	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.822	9.66	1.50	
7685	Heptachlor	µg/L	6.86	9.20	3.31 - 12.4	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.650	7.74	1.35	
7690	Heptachlor epoxide (beta)	µg/L	7.24	8.59	4.35 - 11.4	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.579	7.85	1.05	
7810	Methoxychlor	µg/L	2.31	2.45	0.748 - 4.28	Acceptable	SM 6630 C-2000 2000	2/1/2014	-0.0772	2.34	0.401	



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Study Dates: 01/13/14 - 02/27/14

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name
WP Chlordane (cat# 837)												
7250	Chlordane, technical	µg/L	2.59	5.00	2.24 - 7.09	Acceptable	EPA 8081A 1	2/1/2014	-2.10	4.31	0.817	JLG
WP Toxaphene (cat# 838)												
8250	Toxaphene	µg/L	26.9	28.6	6.41 - 43.6	Acceptable	EPA 8081A 1	2/1/2014	0.784	22.1	6.13	JLG





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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WP Nitrogen Pesticides (cat# 487)

7005	Alachlor	µg/L		14.8	7.64 - 20.7	Not Reported				14.1	2.17	
7035	Ametryn	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7045	Anilazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7060	Atraton	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7065	Atrazine	µg/L	16.1	11.8	5.78 - 16.7	Acceptable	EPA 8141A 1 1994	2/1/2014	4.50	10.9	1.17	
7130	Bromacil	µg/L		13.3	1.33 - 21.8	Not Reported				0.00	0.00	
7160	Butachlor	µg/L		15.0	6.28 - 22.1	Not Reported				0.00	0.00	
7175	Butylate	µg/L		8.16	3.27 - 9.43	Not Reported				5.65	0.00	
7340	Cyanazine	µg/L		11.6	1.99 - 19.0	Not Reported				10.9	0.632	
7066	Deethyl atrazine	µg/L		12.3	1.23 - 17.9	Not Reported				9.60	0.00	
7067	Deisopropyl atrazine	µg/L		7.17	0.717 - 7.89	Not Reported				5.20	0.00	
7068	Diaminoatrazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7555	EPTC (Eptam)	µg/L		10.6	4.58 - 11.7	Not Reported				8.59	1.54	
7705	Hexazinone	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7835	Metolachlor	µg/L		14.6	7.50 - 19.3	Not Reported				14.4	3.29	
7845	Metribuzin	µg/L		2.81	0.702 - 4.11	Not Reported				2.86	0.223	
6440	Napropamide	µg/L		9.41	1.20 - 13.5	Not Reported				8.98	0.00	
8035	Prometon	µg/L		9.44	2.96 - 13.7	Not Reported				8.30	0.00	
8040	Prometryn	µg/L		8.29	4.83 - 11.5	Not Reported				7.57	0.00	
6650	Pronamide	µg/L		< 2.00	0.00 - 2.00	Not Reported						



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WP Nitrogen Pesticides (cat# 487) (Continued)

8045	Propachlor	µg/L		8.64	5.06 - 11.3	Not Reported				7.79	0.0141	
8060	Propazine	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8125	Simazine	µg/L		13.1	3.54 - 20.7	Not Reported				13.3	1.83	
8180	Terbacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		3.74	0.916 - 5.07	Not Reported				3.16	0.113	

WP Total Petroleum Hydrocarbons (TPH) in Water (cat# 642)

1935	TPH (Gravimetric)	mg/L	63.1	97.5	45.8 - 141	Acceptable	EPA 1664A	1/28/2014	-1.27	79.0	12.5	
1935	TPH (IR)	mg/L		120	56.9 - 173	Not Reported				111	24.6	



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A Waters Company

Lynn Baylor
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Ormond Beach, FL 32174

WS-204



Final Report

WatR™ Supply Proficiency Testing

WatR™ Supply Study

Open Date: 07/08/13

Close Date: 08/22/13

Report Issued Date: 08/26/13



A Waters Company

August 26, 2013

Lynn Baylor
Pace Analytical Services - Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174

Enclosed is your final report for ERA's WS-204 WatR™ Supply Proficiency Testing (PT) study. Your final report includes an evaluation of all results submitted by your laboratory to ERA.

Data Evaluation Protocols: All analytes in ERA's WS-204 WatR™ Supply Proficiency Testing (PT) study have been evaluated using the following tiered approach. If the analyte is listed in the current TNI Fields of Proficiency Testing (FoPT) tables, the evaluation was completed by comparing the reported result to the acceptance limits generated using the criteria contained in the TNI FoPT tables. If the analyte is not included in the TNI FoPT tables, the reported result has been evaluated using the procedures outlined in ERA's Standard Operating Procedure for the Generation of Performance Acceptance Limits (SOP 0260).

Corrective Action Help: As part of your accreditation(s), you may be required to identify the root cause of any "Not Acceptable" results, implement the necessary corrective actions, and then satisfy your PT requirements by participating in a Supplemental (Quik™ Response) or future ERA PT study. ERA's technical staff is available to help your laboratory resolve any technical issues that may be impairing your PT performance and possibly affecting your routine data quality. Our laboratory and technical staff have many years of collective experience in performing the full range of environmental analyses. As part of our technical support, ERA offers QC samples that can be useful in helping you work through your technical issues.

Please note the following changes to our final reports:

- At the request of the TNI Accreditation Council, we have included a Laboratory Exception Report that includes a list of all analytes reported with less than qualifiers when the assigned value was greater than "0." In addition, because we have received many requests from laboratories, this report also includes a list of all analytes with "Not Acceptable" evaluations.
- Some states have elected not to convert to the 2009 TNI Standards at this time. If you have released your results to a state that has retained the 2003 NELAC Evaluation Criteria, your final report will include a section that evaluates the results according to the 2003 Standard in addition to the 2009 TNI Standards.

Thank you for your participation in ERA's WS-204 WatR™ Supply Proficiency Testing study. If you have any questions, please contact our Proficiency Testing Department at 1-800-372-0122.

Sincerely,

Kristina Sanchez
Quality Officer

attachments



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Report Recipient	Contact/Phone Number	Reporting Type	Evaluation Type
Alabama	Tom DeLoach / 334-271-7791	All Analytes	2009 TNI
Alabama (Micro)	Angelica Webb / 334-260-3461	All Analytes	2009 TNI
Arizona	Ali Mayfield / (602) 364-0728	All Analytes	2009 TNI
Colorado	Ben Chouaf / 303-692-3045	All Analytes	2009 TNI
EPA Region 8	Marcie Tidd / (303) 312-7764	All Analytes	2009 TNI
Florida	Steve Arms / 904-791-1502	All Analytes	2009 TNI
Georgia	Lynne Grubb / 404-657-3189	All Analytes	2009 TNI
Guam	Rodolfo Paulino / 671-475-1655	All Analytes	2009 TNI
Hawaii	Richard Kiyokane / 808-453-6679	All Analytes	2009 TNI
Hawaii (Micro)	Michael Kihara / 808-453-6609	All Analytes	2009 TNI
Illinois	John South / 217-558-7142	All Analytes	2009 TNI
Illinois (Micro)	Ruth Bottrell / 217-782-6562	All Analytes	2009 TNI
Indiana	Phil Zillinger / 317-921-5571	All Analytes	2009 TNI
Kansas	Lyndi Stout / 785-296-3811	All Analytes	2009 TNI
Kentucky	Patrick Garrity / 502-564-3410 ext 4968	All Analytes	2009 TNI
Louisiana (Micro)	Ginger Hutto / 985-748-2011	All Analytes	2009 TNI
Louisiana (WS)	Donnell L. Ward / 504-219-4667	All Analytes	2009 TNI
Maine	Jennifer Jamison / 207-287-1929	All Analytes	2009 TNI
Maryland	Linda Ames / 410-537-3712	All Analytes	2009 TNI
Michigan (WS)	Greg Lundy / 517-335-9219	All Analytes	2009 TNI
Mississippi	Phyllis Givens / 601-576-7582	All Analytes	2009 TNI
Missouri	Lori Dunmire / 573-526-3326	All Analytes	2009 TNI
Missouri (Micro)	Patrick Shannon / 573-751-3334	All Analytes	2009 TNI
Montana	Russell Leu / 406-444-5259	All Analytes	2009 TNI
Nevada	Sara Rairick / 775-687-9490	All Analytes	2003 NELAC
New Hampshire	Bill Hall / (603) 271-2998	All Analytes	2009 TNI
New Jersey	Rachel Ellis / 609-777-1749	All Analytes	2009 TNI
New York	Dan Dickinson / 518-485-5570	All Analytes	2003 NELAC
North Carolina (WS)	Chris Goforth / 919-807-8871	All Analytes	2009 TNI
Pennsylvania	Aaren Alger / 717-346-8212	All Analytes	2009 TNI
Puerto Rico	Melba Aviles / 787-274-7711	All Analytes	2009 TNI
South Carolina	Carol Smith / 803-896-0992	All Analytes	2003 NELAC
Tennessee	Craig LaFever / 615-532-0181	All Analytes	2009 TNI



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Virgin Islands	Nadalie Joseph / 340-773-1082 x 2288	All Analytes	2009 TNI
Virginia	Cathy Westerman / 804-648-4480 x391	All Analytes	2003 NELAC
Washington	Alan Rue / (360) 871-8844	All Analytes	2009 TNI
West Virginia (Micro)	Tom Ong / 304-558-3530	All Analytes	2003 NELAC
West Virginia (WS)	Greg Young / 304-965-2694 X2222	All Analytes	2003 NELAC
Wisconsin	Rick Mealy / 608-264-6006	All Analytes	2009 TNI
Wisconsin (Micro)	Laura Traas / 414-760-1364	All Analytes	2009 TNI
Palm Beach County Solid Waste Authority	Tom Sirna /	All Analytes	2009 TNI

WS-204 Definitions & Study Discussion

Study Dates: 07/08/13 - 08/22/13

Report Issued: 08/26/13

WS Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values are compliant with the current TNI Fields of Proficiency Testing (FoPT) tables. A parameter not added to the standard is given an Assigned Value of "< PTRL" per the guidelines contained in the 2009 TNI Standards. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards.

The Acceptance Limits are established per the criteria contained in the most current TNI FoPT tables, or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable.

The Performance Evaluation:

Acceptable	= Reported Value falls within the Acceptance Limits.
Not Acceptable	= Reported Value falls outside the Acceptance Limits.
No Evaluation	= Reported Value cannot be evaluated.
Not Reported	= No Value reported.

The Method Description is the method the laboratory reported to ERA.

WS Study Discussion

ERA's WS-204 WatR™Supply Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI PT Standards and the criteria contained in the most current TNI Fields of Proficiency Testing (FoPT) tables.

ERA's WS-204 WatR™Supply study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes in the standards met the acceptance criteria contained in the 2009 TNI PT Standard and the criteria contained in the most current TNI FoPT tables.

The data submitted by participating laboratories was also examined for study anomalies. There were no anomalies observed during the statistical review of the data.

ERA's WS-204 WatR™Supply study reports shall not be reproduced except in their entirety and not without the permission of the participating laboratories. The report must not be used by the participating laboratories to claim product endorsement by any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's WatR™Supply Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.





A Waters Company

WS-204 Laboratory Exception Report

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EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
08/26/13
07/08/13 - 08/22/13

2009 TNI Evaluation Checks

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description

WS Metals (cat# 590)

1165	Thallium	µg/L	< 15	8.27	5.79 - 10.8	Acceptable	EPA 200.7 5 1998

WS Unregulated Volatiles (cat# 841)

5175	Fluorotrichloromethane	µg/L	< 0.5	38.2	22.9 - 53.5	Not Acceptable	EPA 524.2 4.1 1995

WS PCBs as Decachlorobiphenyl (cat# 839)

8900	Aroclor 1248	µg/L	< 0.5	2.38	1.36 - 2.90	Not Acceptable	EPA 508.1 2 1995

2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description

WS Inorganics (cat# 591)

1610	Conductivity at 25°C	µmhos/cm	810	909	818 - 1000	Not Acceptable	SM2510B online

WS Inorganic Disinfection #2 (cat# 5260)

1540	Bromide	µg/L	126	106	90.1 - 122	Not Acceptable	EPA 300.0 2.1 1993

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	22.00	26.0	22.1 - 29.9	Not Acceptable	SM4500Si D online

WS Gasoline Additives (GAD) (cat# 905)

5185	Trichlorotrifluoroethane (Freon 113)	µg/L	55	39.6	26.4 - 52.7	Not Acceptable	EPA 524.2 4.1 1995

WS Halomethanes (THMs) (cat# 842)

4400	Bromoform	µg/L	10.8	8.98	7.18 - 10.8	Not Acceptable	EPA 524.2 4.1 1995



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2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description

WS Halomethanes (THMs) (cat# 842)

4575	Chlorodibromomethane	µg/L	23.8	19.4	15.5 - 23.3	Not Acceptable	EPA 524.2 4.1 1995

WS Regulated Volatiles (cat# 840)

4620	1,4-Dichlorobenzene	µg/L	15.9	12.8	10.2 - 15.4	Not Acceptable	EPA 524.2 4.1 1995
5100	Styrene	µg/L	14.5	11.7	9.36 - 14.0	Not Acceptable	EPA 524.2 4.1 1995
5115	Tetrachloroethylene	µg/L	14.9	11.2	8.96 - 13.4	Not Acceptable	EPA 524.2 4.1 1995
5140	Toluene	µg/L	17.5	13.9	11.1 - 16.7	Not Acceptable	EPA 524.2 4.1 1995
5165	1,1,2-Trichloroethane	µg/L	20	14.1	11.3 - 16.9	Not Acceptable	EPA 524.2 4.1 1995

WS Unregulated Volatiles (cat# 841)

4385	Bromobenzene	µg/L	7.78	10.3	8.24 - 12.4	Not Acceptable	EPA 524.2 4.1 1995
4535	2-Chlorotoluene	µg/L	2.75	4.81	2.89 - 6.73	Not Acceptable	EPA 524.2 4.1 1995
4685	trans-1,3-Dichloropropene	µg/L	23.3	6.17	3.70 - 8.64	Not Acceptable	EPA 524.2 4.1 1995
5175	Fluorotrichloromethane	µg/L	< 0.5	38.2	22.9 - 53.5	Not Acceptable	EPA 524.2 4.1 1995

WS Pesticides (cat# 850)

7065	Atrazine	µg/L	6.22	2.69	1.48 - 3.90	Not Acceptable	EPA 508.1 2 1995
7540	Endrin	µg/L	0.819	1.27	0.889 - 1.65	Not Acceptable	EPA 508.1 2 1995

WS Carbamate/Carbamoxylloxime Pesticides (cat# 846)

7710	3-Hydroxycarbofuran	µg/L	23.7	35.4	28.3 - 42.5	Not Acceptable	EPA 531.1 3.1 1995
7800	Methiocarb	µg/L	36.2	47.5	37.1 - 56.7	Not Acceptable	EPA 531.1 3.1 1995



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2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description

WS Carbamate/Carbamoxylxime Pesticides (cat# 846)

7805	Methomyl	µg/L	29.8	38.4	30.7 - 46.1	Not Acceptable	EPA 531.1 3.1 1995

WS PCBs as Decachlorobiphenyl (cat# 839)

8895	Aroclor 1242	µg/L	1.33	< 0.260	0.00 - 0.260	Not Acceptable	EPA 508.1 2 1995
8900	Aroclor 1248	µg/L	< 0.5	2.38	1.36 - 2.90	Not Acceptable	EPA 508.1 2 1995
8872	PCB Aroclor Identity	Identity	1242	1248		Not Acceptable	EPA 508.1 2 1995



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01



Final Report Results For Laboratory Pace Analytical Services - Ormond Beach



2009 TNI Evaluation Report

Study: **WS-204**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results





A Waters Company

WS-204 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Hardness (cat# 555)

1035	Calcium	mg/L	34.9	35.8	30.4 - 41.2	Acceptable	EPA 200.7 5 1998	7/30/2013	-0.453	35.7	1.75	TAP
1085	Magnesium	mg/L	9	9.33	7.93 - 10.7	Acceptable	EPA 200.7 5	7/30/2013	-0.505	9.29	0.584	TAP
1155	Sodium	mg/L	32.5	33.0	28.0 - 38.0	Acceptable	EPA 200.7 5	7/30/2013	-0.345	33.2	1.90	TAP
1550	Calcium Hardness as CaCO3	mg/L	87.2	89.5	76.1 - 103	Acceptable	EPA 200.7 5 1998	7/30/2013	-0.615	89.9	4.37	
1755	Total Hardness as CaCO3	mg/L	124	128	109 - 147	Acceptable	EPA 200.7 5	7/30/2013	-0.838	128	4.66	TAP

WS Hardness (cat# 555)

1035	Calcium	mg/L		35.8	30.4 - 41.2	Not Reported				35.7	1.75	
1085	Magnesium	mg/L		9.33	7.93 - 10.7	Not Reported				9.29	0.584	
1155	Sodium	mg/L		33.0	28.0 - 38.0	Not Reported				33.2	1.90	
1550	Calcium Hardness as CaCO3	mg/L	87.2	89.5	76.1 - 103	Acceptable	SM 2340 B-2011 2011	7/30/2013	-0.615	89.9	4.37	
1755	Total Hardness as CaCO3	mg/L	124	128	109 - 147	Acceptable	SM 2340 B-2011 2011	7/30/2013	-0.838	128	4.66	

WS Inorganics (cat# 591)

1505	Alkalinity as CaCO3	mg/L	57.4	57.7	51.9 - 63.5	Acceptable	SM2320B 21st ED 1997	7/25/2013	0.0168	57.4	2.95	EMR
1575	Chloride	mg/L	91	107	91.0 - 123	Acceptable	EPA 300.0 2.1	7/31/2013	-3.45	105	3.96	JNZ
1610	Conductivity at 25°C	µmhos/cm	810	909	818 - 1000	Not Acceptable	SM2510B online	7/24/2013	-6.11	926	19.0	
1730	Fluoride	mg/L	5.94	6.48	5.83 - 7.13	Acceptable	EPA 300.0 2.1	7/31/2013	-1.54	6.30	0.236	JNZ
1820	Nitrate + Nitrite as N	mg/L	8.25	8.74	7.43 - 10.0	Acceptable	EPA 300.0 2.1 1993	7/29/2013	-0.776	8.50	0.316	
1810	Nitrate as N	mg/L	8.25	8.74	7.87 - 9.61	Acceptable	EPA 300.0 2.1	7/29/2013	-0.824	8.52	0.329	AIS
1125	Potassium	mg/L	34.7	37.7	32.0 - 43.4	Acceptable	EPA 200.7 5 1998	7/30/2013	-1.2	37.1	2.04	
2000	Sulfate	mg/L	140	158	134 - 182	Acceptable	EPA 300.0 2.1 1993	7/24/2013	-2.5	154	5.76	
1955	Total Dissolved Solids at 180°C	mg/L	596	614	491 - 737	Acceptable	SM2540C online	7/13/2013	0.0890	594	23.0	



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Inorganics (cat# 591)

1505	Alkalinity as CaCO ₃	mg/L		57.7	51.9 - 63.5	Not Reported				57.4	2.95	
1575	Chloride	mg/L		107	91.0 - 123	Not Reported				105	3.96	
1610	Conductivity at 25°C	µmhos/cm		909	818 - 1000	Not Reported				926	19.0	
1730	Fluoride	mg/L		6.48	5.83 - 7.13	Not Reported				6.30	0.236	
1820	Nitrate + Nitrite as N	mg/L	9.28	8.74	7.43 - 10.0	Acceptable	EPA 353.2 2 1993	7/24/2013	2.48	8.50	0.316	
1810	Nitrate as N	mg/L	9.28	8.74	7.87 - 9.61	Acceptable	EPA 353.2 2 1993	7/24/2013	2.31	8.52	0.329	
1125	Potassium	mg/L		37.7	32.0 - 43.4	Not Reported				37.1	2.04	
2000	Sulfate	mg/L		158	134 - 182	Not Reported				154	5.76	
1955	Total Dissolved Solids at 180°C	mg/L		614	491 - 737	Not Reported				594	23.0	

WS pH (cat# 552)

1900	pH	S.U.	6.3	6.19	5.99 - 6.39	Acceptable	SM4500H+ B 21st ED	7/18/2013	2.41	6.20	0.0394	CRS



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WS Metals (cat# 590)

1000	Aluminum	µg/L	314	316	253 - 379	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.362	320	17.8	HEA
1005	Antimony	µg/L	35	36.6	25.6 - 47.6	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.524	36.2	2.31	HEA
1010	Arsenic	µg/L	11	11.8	8.26 - 15.3	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.766	11.7	0.910	HEA
1015	Barium	µg/L	830	855	727 - 983	Acceptable	EPA 200.8 5.5 1998	8/6/2013	-0.443	846	35.1	HEA
1020	Beryllium	µg/L	9.2	10.2	8.67 - 11.7	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.87	10.1	0.472	HEA
1025	Boron	µg/L		1320	1120 - 1520	Not Reported				1300	60.2	
1030	Cadmium	µg/L	30.6	33.9	27.1 - 40.7	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.82	33.2	1.46	HEA
1040	Chromium	µg/L	165	163	138 - 187	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.376	162	6.95	HEA
1055	Copper	µg/L	1410	1350	1220 - 1480	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.989	1340	68.2	HEA
1070	Iron	µg/L		1290	1100 - 1480	Not Reported				1290	58.9	
1075	Lead	µg/L	14.3	14.0	9.80 - 18.2	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.271	14.0	1.02	HEA
1090	Manganese	µg/L	475	445	378 - 512	Acceptable	EPA 200.8 5.5 1998	7/29/2013	1.11	454	19.1	HEA
1100	Molybdenum	µg/L	94.1	102	86.7 - 117	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.21	99.1	4.13	HEA
1105	Nickel	µg/L	253	253	215 - 291	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.181	251	12.1	HEA
1140	Selenium	µg/L	19.5	21.2	17.0 - 25.4	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.859	20.8	1.54	HEA
1150	Silver	µg/L	44.6	47.3	33.1 - 61.5	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.802	46.5	2.41	HEA
1165	Thallium	µg/L	8.1	8.27	5.79 - 10.8	Acceptable	EPA 200.8 5.5 1998	7/30/2013	0.120	8.03	0.569	HEA
1185	Vanadium	µg/L	476	466	396 - 536	Acceptable	EPA 200.8 5.5 1998	7/29/2013	1.12	457	16.8	HEA
1190	Zinc	µg/L	290	306	260 - 352	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.04	307	16.2	HEA



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WS Metals (cat# 590)

1000	Aluminum	µg/L	333	316	253 - 379	Acceptable	EPA 200.7 5 1998	7/27/2013	0.706	320	17.8	JTJ
1005	Antimony	µg/L	33.2	36.6	25.6 - 47.6	Acceptable	EPA 200.7 5 1998	7/27/2013	-1.3	36.2	2.31	JTJ
1010	Arsenic	µg/L	10.8	11.8	8.26 - 15.3	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.986	11.7	0.910	JTJ
1015	Barium	µg/L	841	855	727 - 983	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.13	846	35.1	JTJ
1020	Beryllium	µg/L	9.4	10.2	8.67 - 11.7	Acceptable	EPA 200.7 5 1998	7/27/2013	-1.45	10.1	0.472	JTJ
1025	Boron	µg/L	1150	1320	1120 - 1520	Acceptable	EPA 200.7 5 1998	7/27/2013	-2.51	1300	60.2	JTJ
1030	Cadmium	µg/L	33.3	33.9	27.1 - 40.7	Acceptable	EPA 200.7 5 1998	7/27/2013	0.0296	33.2	1.46	JTJ
1040	Chromium	µg/L	159	163	138 - 187	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.487	162	6.95	JTJ
1055	Copper	µg/L	1340	1350	1220 - 1480	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.0368	1340	68.2	JTJ
1070	Iron	µg/L	1260	1290	1100 - 1480	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.555	1290	58.9	JTJ
1075	Lead	µg/L	16.8	14.0	9.80 - 18.2	Acceptable	EPA 200.7 5 1998	7/27/2013	2.73	14.0	1.02	JTJ
1090	Manganese	µg/L	452	445	378 - 512	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.0941	454	19.1	JTJ
1100	Molybdenum	µg/L	96.4	102	86.7 - 117	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.649	99.1	4.13	JTJ
1105	Nickel	µg/L	258	253	215 - 291	Acceptable	EPA 200.7 5 1998	7/27/2013	0.594	251	12.1	JTJ
1140	Selenium	µg/L	21.10	21.2	17.0 - 25.4	Acceptable	EPA 200.7 5 1998	7/27/2013	0.179	20.8	1.54	JTJ
1150	Silver	µg/L	46.8	47.3	33.1 - 61.5	Acceptable	EPA 200.7 5 1998	7/27/2013	0.110	46.5	2.41	JTJ
1165	Thallium	µg/L	< 15	8.27	5.79 - 10.8	Acceptable	EPA 200.7 5 1998	7/27/2013		8.03	0.569	JTJ
1185	Vanadium	µg/L	441	466	396 - 536	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.966	457	16.8	JTJ
1190	Zinc	µg/L	288	306	260 - 352	Acceptable	EPA 200.7 5 1998	7/27/2013	-1.16	307	16.2	JTJ

WS Mercury (cat# 551)

1095	Mercury	µg/L	3.72	3.75	2.62 - 4.88	Acceptable	EPA 200.8 5.5 1998	7/26/2013	0.0877	3.69	0.317	HEA



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WS Mercury (cat# 551)

1095	Mercury	µg/L	3.74	3.75	2.62 - 4.88	Acceptable	EPA 245.1 4.1	7/26/2013	0.151	3.69	0.317	HEA

WS Hexavalent Chromium (cat# 854)

1045	Hexavalent Chromium	µg/L	12.4	15.1	12.1 - 18.1	Acceptable	EPA 218.6 3.3 1994	7/31/2013	-2.07	14.7	1.14	

WS Uranium (cat# 858)

3055	Uranium (Nat)	µg/L	68.7	68.8	55.8 - 76.5	Acceptable	EPA 200.8 5.5	7/29/2013	-0.0378	68.8	2.91	HEA

WS Inorganic Disinfection #1 (cat# 5270)

1570	Chlorate	µg/L	124	146	102 - 190	Acceptable	EPA 300.1 1 2000	7/18/2013	-1.69	138	8.04	
1595	Chlorite	µg/L	221	231	162 - 300	Acceptable	EPA 300.1 1 2000	7/18/2013	-0.845	237	18.7	

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L		37.4	26.2 - 48.6	Not Reported				36.4	2.22	
1540	Bromide	µg/L	126	106	90.1 - 122	Not Acceptable	EPA 300.0 2.1 1993	7/25/2013	3.32	103	7.03	JNZ

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L	38.1	37.4	26.2 - 48.6	Acceptable	EPA 300.1 1 2000	7/18/2013	0.761	36.4	2.22	
1540	Bromide	µg/L	99.4	106	90.1 - 122	Acceptable	EPA 300.1 1 2000	7/18/2013	-0.467	103	7.03	

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.83	1.74	1.48 - 2.00	Acceptable	EPA 353.2	7/24/2013	0.828	1.76	0.0834	AMD

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.98	1.74	1.48 - 2.00	Acceptable	EPA 300.0 2.1	7/22/2013	2.62	1.76	0.0834	LAJ

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	1.17	1.16	0.986 - 1.33	Acceptable	EPA 365.1 2 1993	7/16/2013	0.180	1.16	0.0738	SOA



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	1.29	1.16	0.986 - 1.33	Acceptable	EPA 300.0 2.1 1993	7/22/2013	1.81	1.16	0.0738	

WS Residual Chlorine (cat# 593)

1945	Free Residual Chlorine	mg/L	0.710	0.694	0.537 - 0.851	Acceptable	SM4500Cl D online	8/16/2013	0.731	0.661	0.0668	
1940	Total Residual Chlorine	mg/L	0.710	0.694	0.576 - 0.802	Acceptable	SM4500Cl D online	8/16/2013	0.676	0.684	0.0388	

WS Cyanide (cat# 556)

1645	Cyanide, total	mg/L	0.367	0.356	0.267 - 0.445	Acceptable	EPA 335.4	7/31/2013	1.00	0.339	0.0275	SOA

WS Organic Carbon (cat# 557)

1710	Dissolved Organic Carbon (DOC)	mg/L	11	11.6	10.3 - 12.8	Acceptable	SM5310B 21st ED 2000	7/30/2013	-2.0	11.8	0.409	AGS
2040	Total Organic Carbon (TOC)	mg/L	12.60	11.6	9.28 - 13.9	Acceptable	SM5310B 21st ED 2000	7/30/2013	1.65	11.8	0.492	AGS

WS Perchlorate (cat# 903)

1895	Perchlorate	µg/L	7.74	8.37	6.70 - 10.0	Acceptable	EPA 331.0 1.0 2005	7/22/2013	-0.565	8.17	0.760	

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	26.1	26.0	22.1 - 29.9	Acceptable	EPA 200.7 5 1998	7/31/2013	-0.413	26.8	1.67	JTJ

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	22.00	26.0	22.1 - 29.9	Not Acceptable	SM4500Si D online	7/24/2013	-2.86	26.8	1.67	

WS Surfactants - MBAS (cat# 901)

2025	Surfactants - MBAS	mg/L	0.36	0.355	0.236 - 0.471	Acceptable	SM5540C 21st ED	7/18/2013	-0.0608	0.364	0.0620	EMR

WS Corrosivity (cat# 900)

1620	Corrosivity	S.I. @ 20°C	1.76	1.82	1.42 - 2.22	Acceptable	SM2330B 18th ED 1989	8/6/2013	-0.395	1.81	0.139	

WS Turbidity (cat# 592)

2055	Turbidity	NTU	6.02	6.00	5.10 - 6.72	Acceptable	EPA 180.1 2	7/12/2013	0.347	5.89	0.367	AGS



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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EPA ID: FL01264
 ERA Customer Number: E550101
 Report Issued: 08/26/13
 Study Dates: 07/08/13 - 08/22/13

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS UV 254 Absorbance (cat# 904)

2060	UV 254 Absorbance	cm-1	0.253	0.208	0.168 - 0.254	Acceptable	SM5910B online	7/20/2013	2.01	0.210	0.0213	



2009 TNI Evaluation Report

Study: **WS-204**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Microbiology Results



WS-204 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS MicrobE™ (Coliforms) (cat# 080A)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 2, 5 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 1, 3 and 6

Negative (1) Coliform Organism - Proteus mirabilis, Sample 10

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 4

Blank - No Organism, Samples 8 and 9





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WS MicrobE™ (Coliforms) (cat# 080A) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 2, 5 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 1, 3 and 6

Negative (1) Coliform Organism - Proteus mirabilis, Sample 10

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 4

Blank - No Organism, Samples 8 and 9



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WS MicrobE™ (Coliforms) (cat# 080A) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 3	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 2, 5 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 1, 3 and 6

Negative (1) Coliform Organism - Proteus mirabilis, Sample 10

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 4

Blank - No Organism, Samples 8 and 9



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WS MicrobE™ (Coliforms) (cat# 080B)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 3, 5 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 1, 4 and 7

Negative (1) Coliform Organism - Proteus mirabilis, Sample 2

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 9

Blank - No Organism, Samples 6 and 10





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WS MicrobE™ (Coliforms) (cat# 080B) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 3, 5 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 1, 4 and 7

Negative (1) Coliform Organism - Proteus mirabilis, Sample 2

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 9

Blank - No Organism, Samples 6 and 10



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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WS MicrobE™ (Coliforms) (cat# 080B) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 3, 5 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 1, 4 and 7

Negative (1) Coliform Organism - Proteus mirabilis, Sample 2

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 9

Blank - No Organism, Samples 6 and 10





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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS WS SourceWatR™ MicrobE™ (cat# 595)

2500	Total Coliforms (MF)	CFU/100mL		108	56.7 - 116	Not Reported				80.9	14.7	
2530	Fecal Coliforms (MF)	CFU/100mL		108	30.8 - 126	Not Reported				62.2	23.7	
2525	E.coli (MF)	CFU/100mL		108	37.1 - 135	Not Reported				70.8	24.5	
2500	Total Coliforms (MPN)	MPN/100mL		101	61.1 - 166	Not Reported				101	26.2	
2530	Fecal Coliforms (MPN)	MPN/100mL		101	63.2 - 177	Not Reported				106	28.4	
2525	E.coli (MPN)	MPN/100mL		101	61.0 - 162	Not Reported				99.5	25.2	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.

WS Heterotrophic Plate Count (cat# 079)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL	42	59.0	33.5 - 74.3	Acceptable	SM9215B 18/19thED	8/9/2013	-0.777	49.9	10.2	AIS
2555	Heterotrophic Plate Count (MPN)	MPN/mL		54.0	27.3 - 99.7	Not Reported				54.2	18.9	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.

WS Heterotrophic Plate Count (cat# 079)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL		59.0	33.5 - 74.3	Not Reported				49.9	10.2	
2555	Heterotrophic Plate Count (MPN)	MPN/mL	40	54.0	27.3 - 99.7	Acceptable	Simplate 2000	8/9/2013	-0.75	54.2	18.9	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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2009 TNI Evaluation Report

Study: **WS-204**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Organic Results





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WS-204 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Haloacetic Acids (HAA) (cat# 852)

9312	Bromoacetic acid	µg/L	26.3	25.2	15.1 - 35.3	Acceptable	EPA 552.2 1 1995	7/23/2013	0.619	24.8	2.50	JLR
9315	Bromochloroacetic acid	µg/L	18.2	16.8	10.1 - 23.5	Acceptable	EPA 552.2 1 1995	7/23/2013	0.492	17.3	1.81	JLR
9336	Chloroacetic acid	µg/L	39.1	42.9	25.7 - 60.1	Acceptable	EPA 552.2 1 1995	7/23/2013	-0.272	40.4	4.63	JLR
9357	Dibromoacetic acid	µg/L	19.6	19.9	11.9 - 27.9	Acceptable	EPA 552.2 1 1995	7/23/2013	0.416	18.5	2.64	JLR
9360	Dichloroacetic acid	µg/L	30.4	47.0	28.2 - 65.8	Acceptable	EPA 552.2 1 1995	7/23/2013	-2.66	44.3	5.21	JLR
9642	Trichloroacetic acid	µg/L	33.6	34.9	20.9 - 48.9	Acceptable	EPA 552.2 1 1995	7/23/2013	0.0302	33.5	2.91	JLR

WS Gasoline Additives (GAD) (cat# 905)

4370	T-amylmethylether (TAME)	µg/L		28.9	21.6 - 36.8	Not Reported				30.0	2.35	
4420	Tert-Butyl Alcohol	µg/L		48.5	28.9 - 67.5	Not Reported				45.7	8.95	
5000	tert-Butyl methyl ether (MTBE)	µg/L		39.3	31.4 - 47.2	Not Reported				41.8	4.19	
9375	Di-isopropylether (DIPE)	µg/L		36.6	29.7 - 45.7	Not Reported				39.1	3.48	
4770	Ethyl-t-butylether (ETBE)	µg/L		39.5	31.2 - 51.0	Not Reported				42.9	2.95	
5175	Trichlorofluoromethane (Freon 11)	µg/L		23.1	13.9 - 32.3	Not Reported				25.3	3.36	
5185	Trichlorotrifluoroethane (Freon 113)	µg/L	55	39.6	26.4 - 52.7	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	1.42	44.9	7.13	

WS Halomethanes (THMs) (cat# 842)

4395	Bromodichloromethane	µg/L	43.2	42.4	33.9 - 50.9	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.338	44.6	4.30	
4400	Bromoform	µg/L	10.8	8.98	7.18 - 10.8	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	1.62	9.04	1.09	
4575	Chlorodibromomethane	µg/L	23.8	19.4	15.5 - 23.3	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	1.86	20.0	2.05	
4505	Chloroform	µg/L	25.7	24.7	19.8 - 29.6	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.122	26.0	2.49	



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Volatiles (cat# 840)

4375	Benzene	µg/L	14	13.7	11.0 - 16.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.324	13.7	0.903	JBH
4455	Carbon tetrachloride	µg/L	4.19	5.10	3.06 - 7.14	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.4	5.05	0.611	JBH
4475	Chlorobenzene	µg/L	6.54	6.13	3.68 - 8.58	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.576	6.26	0.491	JBH
4610	1,2-Dichlorobenzene	µg/L	8.73	8.58	5.15 - 12.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.111	8.64	0.812	JBH
4620	1,4-Dichlorobenzene	µg/L	15.9	12.8	10.2 - 15.4	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	2.43	12.9	1.24	JBH
4635	1,2-Dichloroethane	µg/L	20.4	19.1	15.3 - 22.9	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.878	19.3	1.22	JBH
4640	1,1-Dichloroethylene	µg/L	3.28	3.14	1.88 - 4.40	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.421	3.45	0.411	JBH
4645	cis-1,2-Dichloroethylene	µg/L	12.6	12.3	9.84 - 14.8	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.201	12.4	0.998	JBH
4700	trans-1,2-Dichloroethylene	µg/L	16.7	15.7	12.6 - 18.8	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.280	16.3	1.52	JBH
4655	1,2-Dichloropropane	µg/L	7.79	9.28	5.57 - 13.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.94	9.33	0.524	JBH
4765	Ethylbenzene	µg/L	7.24	6.98	4.19 - 9.77	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.408	7.04	0.489	JBH
4975	Methylene chloride (Dichloromethane)	µg/L	7.65	8.16	4.90 - 11.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.804	8.35	0.871	JBH
5100	Styrene	µg/L	14.5	11.7	9.36 - 14.0	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	2.61	11.7	1.05	JBH
5115	Tetrachloroethylene	µg/L	14.9	11.2	8.96 - 13.4	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	3.70	10.6	1.15	JBH
5140	Toluene	µg/L	17.5	13.9	11.1 - 16.7	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	3.84	14.0	0.920	JBH
5155	1,2,4-Trichlorobenzene	µg/L	11.6	10.8	8.64 - 13.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.870	10.4	1.40	JBH
5160	1,1,1-Trichloroethane	µg/L	9.66	11.2	8.96 - 13.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.62	11.1	0.871	JBH
5165	1,1,2-Trichloroethane	µg/L	20	14.1	11.3 - 16.9	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	7.33	14.1	0.806	JBH
5170	Trichloroethylene	µg/L	15.4	16.0	12.8 - 19.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.0369	15.4	1.30	JBH
5235	Vinyl chloride	µg/L	9.28	9.80	5.88 - 13.7	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.902	10.7	1.53	JBH



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Volatiles (cat# 840) (Continued)

5260	Xylenes, total	µg/L	19.4	17.7	14.2 - 21.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.881	18.2	1.40	JBH





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WS Unregulated Volatiles (cat# 841)

4385	Bromobenzene	µg/L	7.78	10.3	8.24 - 12.4	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.94	10.5	0.926	JBH
4390	Bromochloromethane	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4950	Bromomethane	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5000	tert-Butyl methyl ether (MTBE)	µg/L	17.5	16.2	13.0 - 19.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.163	17.2	1.68	JBH
4435	n-Butylbenzene	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4440	sec-Butylbenzene	µg/L	5.7	6.68	4.01 - 9.35	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.53	6.91	0.789	JBH
4445	tert-Butylbenzene	µg/L	13.3	16.2	13.0 - 19.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.54	16.4	2.04	JBH
4485	Chloroethane	µg/L	13.7	12.2	7.32 - 17.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.217	13.3	1.82	JBH
4960	Chloromethane	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4535	2-Chlorotoluene	µg/L	2.75	4.81	2.89 - 6.73	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	-3.77	4.97	0.588	JBH
4540	4-Chlorotoluene	µg/L	4.36	5.70	3.42 - 7.98	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.34	5.98	0.693	JBH
4595	Dibromomethane	µg/L	18.5	18.4	14.7 - 22.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.407	19.1	1.44	JBH
4615	1,3-Dichlorobenzene	µg/L	10	10.7	8.56 - 12.8	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.853	11.0	1.18	JBH
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4630	1,1-Dichloroethane	µg/L	8.05	8.18	4.91 - 11.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.55	8.52	0.864	JBH
4660	1,3-Dichloropropane	µg/L	9.55	9.41	5.65 - 13.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.116	9.46	0.762	JBH
4665	2,2-Dichloropropane	µg/L	15.3	15.0	12.0 - 18.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.0204	15.3	1.97	JBH
4670	1,1-Dichloropropene	µg/L	13.3	14.3	11.4 - 17.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.427	14.0	1.62	JBH
4680	cis-1,3-Dichloropropene	µg/L	13.3	16.6	13.3 - 19.9	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.64	15.8	1.56	JBH
4685	trans-1,3-Dichloropropene	µg/L	23.3	6.17	3.70 - 8.64	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	26.1	5.89	0.666	JBH





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WS Unregulated Volatiles (cat# 841) (Continued)

5175	Fluorotrichloromethane	µg/L	< 0.5	38.2	22.9 - 53.5	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013		42.9	7.17	JBH
4835	Hexachlorobutadiene	µg/L	7.16	7.96	4.78 - 11.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.00817	7.17	0.964	JBH
4900	Isopropylbenzene	µg/L	3.03	4.66	2.80 - 6.52	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.5	4.64	0.644	JBH
4910	4-Isopropyltoluene	µg/L	7.12	8.66	5.20 - 12.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.7	8.66	0.911	JBH
5005	Naphthalene	µg/L	35.3	35.9	25.1 - 46.7	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.225	36.4	4.76	JBH
5090	n-Propylbenzene	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5105	1,1,1,2-Tetrachloroethane	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5110	1,1,2,2-Tetrachloroethane	µg/L	4.02	4.07	2.44 - 5.70	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.229	4.13	0.500	JBH
5150	1,2,3-Trichlorobenzene	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5180	1,2,3-Trichloropropane (TCP)	µg/L	15.1	15.3	12.2 - 18.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.385	15.8	1.76	JBH
5210	1,2,4-Trimethylbenzene	µg/L	1.66	2.28	1.37 - 3.19	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.36	2.40	0.313	JBH
5215	1,3,5-Trimethylbenzene	µg/L	5.8	6.88	4.13 - 9.63	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.4	6.93	0.806	JBH





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WS Pesticides (cat# 850)

7005	Alachlor	µg/L	11.7	14.5	7.98 - 21.0	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.948	13.9	2.36	SMB
7025	Aldrin	µg/L		2.08	0.938 - 2.64	Not Reported				1.66	0.427	
7065	Atrazine	µg/L	6.22	2.69	1.48 - 3.90	Not Acceptable	EPA 508.1 2 1995	7/30/2013	4.59	3.09	0.682	SMB
7120	gamma-BHC (Lindane)	µg/L	0.832	0.994	0.547 - 1.44	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.916	1.02	0.206	SMB
7130	Bromacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7160	Butachlor	µg/L	9.05	10.5	5.78 - 15.2	Acceptable	EPA 508.1 2 1995	7/30/2013	-1.43	11.4	1.68	SMB
7410	Diazinon	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7470	Dieldrin	µg/L	1.79	1.90	1.04 - 2.76	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.476	1.89	0.211	SMB
7540	Endrin	µg/L	0.819	1.27	0.889 - 1.65	Not Acceptable	EPA 508.1 2 1995	7/30/2013	-2.26	1.34	0.228	SMB
7685	Heptachlor	µg/L	0.939	0.950	0.522 - 1.38	Acceptable	EPA 508.1 2 1995	7/30/2013	0.279	0.896	0.153	SMB
7690	Heptachlor epoxide (beta)	µg/L	1.31	1.58	0.869 - 2.29	Acceptable	EPA 508.1 2 1995	7/30/2013	-1.23	1.59	0.227	SMB
6275	Hexachlorobenzene	µg/L	0.953	0.924	0.440 - 1.18	Acceptable	EPA 508.1 2 1995	7/30/2013	0.761	0.817	0.179	SMB
6285	Hexachlorocyclopentadiene	µg/L	7.32	6.94	2.01 - 9.98	Acceptable	EPA 508.1 2 1995	7/30/2013	0.515	6.18	2.21	SMB
7810	Methoxychlor	µg/L	10.4	11.7	6.44 - 17.0	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.814	11.5	1.41	SMB
7835	Metolachlor	µg/L	10.8	12.8	7.04 - 18.6	Acceptable	EPA 508.1 2 1995	7/30/2013	-1.04	14.5	3.53	SMB
7845	Metribuzin	µg/L	7.56	7.41	3.70 - 11.1	Acceptable	EPA 508.1 2 1995	7/30/2013	0.839	6.44	1.34	SMB
7875	Molinate (Ordram)	µg/L		6.54	3.77 - 9.00	Not Reported				6.29	0.854	
8035	Prometon	µg/L		2.86	0.872 - 3.98	Not Reported				2.59	0.908	
8045	Propachlor	µg/L	3.10	2.84	1.56 - 4.12	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.086	3.13	0.403	SMB
8125	Simazine	µg/L	7.88	8.10	4.46 - 11.7	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.0643	8.04	2.46	SMB



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		1.82	1.00 - 2.64	Not Reported				1.89	0.549	





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WS Pesticides (cat# 850)

7005	Alachlor	µg/L		14.5	7.98 - 21.0	Not Reported				13.9	2.36	
7025	Aldrin	µg/L	1.96	2.08	0.938 - 2.64	Acceptable	EPA 525.2 2 1995	7/15/2013	0.695	1.66	0.427	WFH
7065	Atrazine	µg/L		2.69	1.48 - 3.90	Not Reported				3.09	0.682	
7120	gamma-BHC (Lindane)	µg/L		0.994	0.547 - 1.44	Not Reported				1.02	0.206	
7130	Bromacil	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	7/15/2013				WFH
7160	Butachlor	µg/L	14.5	10.5	5.78 - 15.2	Acceptable	EPA 525.2 2 1995	7/16/2013	1.82	11.4	1.68	WFH
7410	Diazinon	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	7/15/2013				WFH
7470	Dieldrin	µg/L	2.41	1.90	1.04 - 2.76	Acceptable	EPA 525.2 2 1995	7/16/2013	2.46	1.89	0.211	WFH
7540	Endrin	µg/L		1.27	0.889 - 1.65	Not Reported				1.34	0.228	
7685	Heptachlor	µg/L		0.950	0.522 - 1.38	Not Reported				0.896	0.153	
7690	Heptachlor epoxide (beta)	µg/L		1.58	0.869 - 2.29	Not Reported				1.59	0.227	
6275	Hexachlorobenzene	µg/L		0.924	0.440 - 1.18	Not Reported				0.817	0.179	
6285	Hexachlorocyclopentadiene	µg/L		6.94	2.01 - 9.98	Not Reported				6.18	2.21	
7810	Methoxychlor	µg/L		11.7	6.44 - 17.0	Not Reported				11.5	1.41	
7835	Metolachlor	µg/L	17.9	12.8	7.04 - 18.6	Acceptable	EPA 525.2 2 1995	7/15/2013	0.970	14.5	3.53	WFH
7845	Metribuzin	µg/L	8.53	7.41	3.70 - 11.1	Acceptable	EPA 525.2 2 1995	7/15/2013	1.56	6.44	1.34	WFH
7875	Molinate (Ordram)	µg/L	7.2	6.54	3.77 - 9.00	Acceptable	EPA 525.2 2 1995	7/15/2013	1.07	6.29	0.854	WFH
8035	Prometon	µg/L	3.2	2.86	0.872 - 3.98	Acceptable	EPA 525.2 2 1995	7/15/2013	0.673	2.59	0.908	WFH
8045	Propachlor	µg/L	3.33	2.84	1.56 - 4.12	Acceptable	EPA 525.2 2 1995	7/15/2013	0.485	3.13	0.403	WFH
8125	Simazine	µg/L		8.10	4.46 - 11.7	Not Reported				8.04	2.46	



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	7/15/2013				WFH
8295	Trifluralin	µg/L	1.9	1.82	1.00 - 2.64	Acceptable	EPA 525.2 2 1995	7/15/2013	0.0148	1.89	0.549	WFH

WS Carbamate/Carbamoxylxime Pesticides (cat# 846)

7010	Aldicarb	µg/L	23.4	28.0	21.0 - 35.0	Acceptable	EPA 531.1 3.1 1995	7/17/2013	-1.66	27.6	2.54	WFH
7015	Aldicarb sulfone	µg/L	16.2	16.2	12.2 - 20.2	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-0.459	16.7	1.10	WFH
7020	Aldicarb sulfoxide	µg/L	23.9	29.6	22.2 - 37.0	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-1.22	27.1	2.63	WFH
8080	Baygon	µg/L		70.1	57.0 - 83.2	Not Reported				69.9	4.16	
7195	Carbaryl	µg/L	23.8	26.4	19.8 - 33.0	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-0.252	24.2	1.50	WFH
7205	Carbofuran	µg/L	76.1	85.8	47.2 - 124	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-0.928	83.6	8.05	WFH
7710	3-Hydroxycarbofuran	µg/L	23.7	35.4	28.3 - 42.5	Not Acceptable	EPA 531.1 3.1 1995	7/12/2013	-4.23	35.0	2.68	WFH
7800	Methiocarb	µg/L	36.2	47.5	37.1 - 56.7	Not Acceptable	EPA 531.1 3.1 1995	7/17/2013	-2.6	44.8	3.33	WFH
7805	Methomyl	µg/L	29.8	38.4	30.7 - 46.1	Not Acceptable	EPA 531.1 3.1 1995	7/12/2013	-2.5	37.4	3.04	WFH
7940	Oxamyl (vydate)	µg/L	51.5	61.0	45.8 - 76.2	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-1.6	56.4	3.05	WFH

WS Toxaphene (cat# 844)

8250	Toxaphene	µg/L	9.45	8.66	4.76 - 12.6	Acceptable	EPA 508.1 2	7/17/2013	-0.126	9.78	2.62	SMB

WS EDB/DBCP/TCP (cat# 847)

4570	Dibromochloropropane (DBCP)	µg/L	0.787	0.812	0.487 - 1.14	Acceptable	EPA 504.1 1.1	7/12/2013	-0.261	0.824	0.142	JLR
4585	Ethylene Dibromide (EDB)	µg/L	1.83	1.72	1.03 - 2.41	Acceptable	EPA 504.1 1.1	7/12/2013	0.818	1.61	0.263	JLR
5180	1,2,3-Trichloropropane (TCP)	µg/L	0.875	0.854	0.512 - 1.20	Acceptable	EPA 504.1 1.1	7/12/2013	0.0184	0.873	0.100	JLR



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WS-204 2009 TNI Evaluation Final Complete Report

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EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
08/26/13
07/08/13 - 08/22/13

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS PCBs as Decachlorobiphenyl (cat# 839)

8880	Aroclor 1016	µg/L	< 0.5	< 0.260	0.00 - 0.260	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8885	Aroclor 1221	µg/L	< 0.5	< 0.190	0.00 - 0.190	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8890	Aroclor 1232	µg/L	< 0.5	< 0.230	0.00 - 0.230	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8895	Aroclor 1242	µg/L	1.33	< 0.260	0.00 - 0.260	Not Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8900	Aroclor 1248	µg/L	< 0.5	2.38	1.36 - 2.90	Not Acceptable	EPA 508.1 2 1995	7/26/2013		2.46	0.289	SMB
8905	Aroclor 1254	µg/L	< 0.5	< 0.330	0.00 - 0.330	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8910	Aroclor 1260	µg/L	< 0.5	< 0.360	0.00 - 0.360	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8872	PCB Aroclor Identity	Identity	1242	1248		Not Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
9105	PCB as Decachlorobiphenyl	µg/L	0.992	3.98	0.398 - 7.96	Acceptable	EPA 508.1 2 1995	7/26/2013	-2.36	3.52	1.07	SMB



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WS Regulated Semivolatiles Ampule #1 (cat# 848)

5500	Acenaphthene	µg/L		3.60	1.79 - 4.51	Not Reported				3.31	0.200	
5505	Acenaphthylene	µg/L		9.17	4.32 - 12.3	Not Reported				8.93	0.885	
5555	Anthracene	µg/L		6.75	2.93 - 8.76	Not Reported				6.24	0.298	
5575	Benzo(a)anthracene	µg/L		6.71	3.70 - 8.50	Not Reported				6.58	0.910	
5585	Benzo(b)fluoranthene	µg/L		4.88	2.60 - 6.72	Not Reported				4.94	0.632	
5600	Benzo(k)fluoranthene	µg/L		1.88	1.02 - 2.54	Not Reported				2.04	0.329	
5590	Benzo(g,h,i)perylene	µg/L		4.01	1.81 - 5.73	Not Reported				4.40	0.451	
5580	Benzo(a)pyrene	µg/L	1.9	1.80	0.744 - 2.30	Acceptable	EPA 525.2 2 1995	7/19/2013	1.23	1.50	0.321	WFH
5670	Butylbenzylphthalate	µg/L	50.6	47.1	25.6 - 68.4	Acceptable	EPA 525.2 2 1995	7/19/2013	0.164	49.0	9.77	WFH
5855	Chrysene	µg/L		2.53	1.45 - 3.25	Not Reported				2.48	0.311	
5895	Dibenz(a,h)anthracene	µg/L		1.19	0.552 - 1.71	Not Reported				1.27	0.131	
6070	Diethylphthalate	µg/L	43.5	47.2	25.4 - 66.7	Acceptable	EPA 525.2 2 1995	7/19/2013	-0.533	47.0	6.66	WFH
6135	Dimethylphthalate	µg/L	25.5	27.5	13.2 - 37.8	Acceptable	EPA 525.2 2 1995	7/19/2013	-0.577	27.5	3.42	WFH
5925	Di-n-butylphthalate	µg/L	37.5	32.2	17.6 - 46.3	Acceptable	EPA 525.2 2 1995	7/19/2013	0.256	35.4	8.04	WFH
6200	Di-n-octylphthalate	µg/L		36.9	18.3 - 51.5	Not Reported				32.6	10.1	
6062	bis(2-Ethylhexyl)adipate	µg/L	29.1	29.0	17.9 - 38.2	Acceptable	EPA 525.2 2 1995	7/19/2013	0.247	27.7	5.49	WFH
6065	bis(2-Ethylhexyl)phthalate	µg/L	31.3	28.4	14.4 - 40.6	Acceptable	EPA 525.2 2 1995	7/19/2013	0.284	29.2	7.21	WFH
6265	Fluoranthene	µg/L		5.22	2.52 - 7.05	Not Reported				4.99	0.384	
6270	Fluorene	µg/L	2.93	2.88	1.68 - 3.68	Acceptable	EPA 525.2 2 1995	7/19/2013	-0.343	3.03	0.287	WFH
6315	Indeno(1,2,3-cd)pyrene	µg/L	5.08	4.69	2.04 - 6.71	Acceptable	EPA 525.2 2 1995	7/19/2013	0.414	4.84	0.574	WFH



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WS Regulated Semivolatiles Ampule #1 (cat# 848) (Continued)

5005	Naphthalene	µg/L		3.48	1.41 - 4.44	Not Reported				3.25	0.248	
6615	Phenanthrene	µg/L	1.68	2.00	1.27 - 2.52	Acceptable	EPA 525.2 2 1995	7/19/2013	-1.37	1.90	0.164	WFH
6665	Pyrene	µg/L	3.27	3.19	1.90 - 4.12	Acceptable	EPA 525.2 2 1995	7/19/2013	0.322	3.18	0.295	WFH

WS Chlorinated Acid Herbicides (cat# 851)

8505	Acifluorfen	µg/L	67.7	58.9	29.4 - 88.4	Acceptable	EPA 515.3 1 1996	7/23/2013	0.647	63.5	6.42	LJM
8530	Bentazon	µg/L	16	17.4	9.01 - 23.7	Acceptable	EPA 515.3 1 1996	7/18/2013	-1.03	17.6	1.56	LJM
8540	Chloramben	µg/L		37.3	9.99 - 50.6	Not Reported				30.4	5.86	
8545	2,4-D	µg/L	13	13.8	6.90 - 20.7	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.388	13.8	2.08	LJM
8550	Dacthal diacid (DCPA)	µg/L		40.5	15.1 - 65.7	Not Reported				39.5	7.34	
8555	Dalapon	µg/L	35.3	28.7	14.4 - 43.0	Acceptable	EPA 515.3 1 1996	7/18/2013	1.18	29.2	5.15	LJM
8560	2,4-DB	µg/L	45.9	47.5	23.8 - 71.2	Acceptable	EPA 515.3 1 1996	7/18/2013	0.414	43.3	6.27	LJM
8595	Dicamba	µg/L	25.3	27.9	14.0 - 41.8	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.345	26.0	2.16	LJM
8600	3,5-Dichlorobenzoic acid	µg/L		17.4	8.29 - 23.0	Not Reported				16.7	3.01	
8605	Dichlorprop	µg/L	19.7	20.4	9.34 - 28.1	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.578	22.8	5.31	LJM
8620	Dinoseb	µg/L	14.4	16.3	6.09 - 23.2	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.704	15.8	1.97	LJM
6500	4-Nitrophenol	µg/L		21.6	2.16 - 29.2	Not Reported				14.6	3.18	
6605	Pentachlorophenol	µg/L	13	14.1	7.05 - 21.2	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.863	14.9	2.20	LJM
8645	Picloram	µg/L	22.5	23.6	11.8 - 35.4	Acceptable	EPA 515.3 1 1996	7/18/2013	0.205	21.8	3.22	LJM
8655	2,4,5-T	µg/L	30.1	34.5	17.2 - 51.8	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.492	31.3	2.47	LJM
8650	2,4,5-TP (Silvex)	µg/L	23.4	24.6	12.3 - 36.9	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.0548	23.6	3.58	LJM



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WS Chlorinated Acid Herbicides (cat# 851)

8505	Acifluorfen	µg/L		58.9	29.4 - 88.4	Not Reported				63.5	6.42	
8530	Bentazon	µg/L		17.4	9.01 - 23.7	Not Reported				17.6	1.56	
8540	Chloramben	µg/L		37.3	9.99 - 50.6	Not Reported				30.4	5.86	
8545	2,4-D	µg/L		13.8	6.90 - 20.7	Not Reported				13.8	2.08	
8550	Dacthal diacid (DCPA)	µg/L		40.5	15.1 - 65.7	Not Reported				39.5	7.34	
8555	Dalapon	µg/L	41	28.7	14.4 - 43.0	Acceptable	EPA 552.2 11995	7/23/2013	2.29	29.2	5.15	
8560	2,4-DB	µg/L		47.5	23.8 - 71.2	Not Reported				43.3	6.27	
8595	Dicamba	µg/L		27.9	14.0 - 41.8	Not Reported				26.0	2.16	
8600	3,5-Dichlorobenzoic acid	µg/L		17.4	8.29 - 23.0	Not Reported				16.7	3.01	
8605	Dichlorprop	µg/L		20.4	9.34 - 28.1	Not Reported				22.8	5.31	
8620	Dinoseb	µg/L		16.3	6.09 - 23.2	Not Reported				15.8	1.97	
6500	4-Nitrophenol	µg/L		21.6	2.16 - 29.2	Not Reported				14.6	3.18	
6605	Pentachlorophenol	µg/L		14.1	7.05 - 21.2	Not Reported				14.9	2.20	
8645	Picloram	µg/L		23.6	11.8 - 35.4	Not Reported				21.8	3.22	
8655	2,4,5-T	µg/L		34.5	17.2 - 51.8	Not Reported				31.3	2.47	
8650	2,4,5-TP (Silvex)	µg/L		24.6	12.3 - 36.9	Not Reported				23.6	3.58	

WS Regulated Semivolatiles #2 Herbicides (cat# 849)

9390	Diquat	µg/L	13.8	13.2	6.60 - 19.8	Acceptable	EPA 549.2 1 1997	7/19/2013	1.63	10.7	1.91	WFH
7525	Endothall	µg/L	124	168	84.0 - 252	Acceptable	EPA 548.1 1 1992	7/22/2013	-0.772	150	33.8	
9411	Glyphosate	µg/L	398	387	310 - 464	Acceptable	EPA 547 1990	7/15/2013	0.452	386	26.4	
9528	Paraquat	µg/L	30.1	30.6	13.4 - 38.4	Acceptable	EPA 549.2 1	7/19/2013	2.19	21.3	4.00	WFH



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Final Report Results For Laboratory Pace Analytical Services - Ormond Beach



2003 NELAC Evaluation Report

Study: **WS-204**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results





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WS Hardness (cat# 555)

1035	Calcium	mg/L	34.9	35.8	30.4 - 41.2	Acceptable	EPA 200.7 5 1998	7/30/2013	-0.453	35.7	1.75	TAP
1085	Magnesium	mg/L	9	9.33	7.93 - 10.7	Acceptable	EPA 200.7 5	7/30/2013	-0.505	9.29	0.584	TAP
1155	Sodium	mg/L	32.5	33.0	28.0 - 38.0	Acceptable	EPA 200.7 5	7/30/2013	-0.345	33.2	1.90	TAP
1550	Calcium Hardness as CaCO ₃	mg/L	87.2	89.5	76.1 - 103	Acceptable	EPA 200.7 5 1998	7/30/2013	-0.615	89.9	4.37	
1755	Total Hardness as CaCO ₃	mg/L	124	128	109 - 147	Acceptable	EPA 200.7 5	7/30/2013	-0.838	128	4.66	TAP

WS Hardness (cat# 555)

1035	Calcium	mg/L		35.8	30.4 - 41.2	Not Reported				35.7	1.75	
1085	Magnesium	mg/L		9.33	7.93 - 10.7	Not Reported				9.29	0.584	
1155	Sodium	mg/L		33.0	28.0 - 38.0	Not Reported				33.2	1.90	
1550	Calcium Hardness as CaCO ₃	mg/L	87.2	89.5	76.1 - 103	Acceptable	SM 2340 B-2011 2011	7/30/2013	-0.615	89.9	4.37	
1755	Total Hardness as CaCO ₃	mg/L	124	128	109 - 147	Acceptable	SM 2340 B-2011 2011	7/30/2013	-0.838	128	4.66	

WS Inorganics (cat# 591)

1505	Alkalinity as CaCO ₃	mg/L	57.4	57.7	51.9 - 63.5	Acceptable	SM2320B 21st ED 1997	7/25/2013	0.0168	57.4	2.95	EMR
1575	Chloride	mg/L	91	107	91.0 - 123	Acceptable	EPA 300.0 2.1	7/31/2013	-3.45	105	3.96	JNZ
1610	Conductivity at 25°C	µmhos/cm	810	909	818 - 1000	Not Acceptable	SM2510B online	7/24/2013	-6.11	926	19.0	
1730	Fluoride	mg/L	5.94	6.48	5.83 - 7.13	Acceptable	EPA 300.0 2.1	7/31/2013	-1.54	6.30	0.236	JNZ
1820	Nitrate + Nitrite as N	mg/L	8.25	8.74	7.43 - 10.0	Acceptable	EPA 300.0 2.1 1993	7/29/2013	-0.776	8.50	0.316	
1810	Nitrate as N	mg/L	8.25	8.74	7.87 - 9.61	Acceptable	EPA 300.0 2.1	7/29/2013	-0.824	8.52	0.329	AIS
1125	Potassium	mg/L	34.7	37.7	32.0 - 43.4	Acceptable	EPA 200.7 5 1998	7/30/2013	-1.2	37.1	2.04	
2000	Sulfate	mg/L	140	158	134 - 182	Acceptable	EPA 300.0 2.1 1993	7/24/2013	-2.5	154	5.76	
1955	Total Dissolved Solids at 180°C	mg/L	596	614	491 - 737	Acceptable	SM2540C online	7/13/2013	0.0890	594	23.0	



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WS Inorganics (cat# 591)

1505	Alkalinity as CaCO ₃	mg/L		57.7	51.9 - 63.5	Not Reported				57.4	2.95	
1575	Chloride	mg/L		107	91.0 - 123	Not Reported				105	3.96	
1610	Conductivity at 25°C	µmhos/cm		909	818 - 1000	Not Reported				926	19.0	
1730	Fluoride	mg/L		6.48	5.83 - 7.13	Not Reported				6.30	0.236	
1820	Nitrate + Nitrite as N	mg/L	9.28	8.74	7.43 - 10.0	Acceptable	EPA 353.2 2 1993	7/24/2013	2.48	8.50	0.316	
1810	Nitrate as N	mg/L	9.28	8.74	7.87 - 9.61	Acceptable	EPA 353.2 2 1993	7/24/2013	2.31	8.52	0.329	
1125	Potassium	mg/L		37.7	32.0 - 43.4	Not Reported				37.1	2.04	
2000	Sulfate	mg/L		158	134 - 182	Not Reported				154	5.76	
1955	Total Dissolved Solids at 180°C	mg/L		614	491 - 737	Not Reported				594	23.0	

WS pH (cat# 552)

1900	pH	S.U.	6.3	6.19	5.99 - 6.39	Acceptable	SM4500H+ B 21st ED	7/18/2013	2.41	6.20	0.0394	CRS



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WS Metals (cat# 590)

1000	Aluminum	µg/L	314	316	253 - 379	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.362	320	17.8	HEA
1005	Antimony	µg/L	35	36.6	25.6 - 47.6	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.524	36.2	2.31	HEA
1010	Arsenic	µg/L	11	11.8	8.26 - 15.3	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.766	11.7	0.910	HEA
1015	Barium	µg/L	830	855	727 - 983	Acceptable	EPA 200.8 5.5 1998	8/6/2013	-0.443	846	35.1	HEA
1020	Beryllium	µg/L	9.2	10.2	8.67 - 11.7	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.87	10.1	0.472	HEA
1025	Boron	µg/L		1320	1120 - 1520	Not Reported				1300	60.2	
1030	Cadmium	µg/L	30.6	33.9	27.1 - 40.7	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.82	33.2	1.46	HEA
1040	Chromium	µg/L	165	163	138 - 187	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.376	162	6.95	HEA
1055	Copper	µg/L	1410	1350	1220 - 1480	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.989	1340	68.2	HEA
1070	Iron	µg/L		1290	1100 - 1480	Not Reported				1290	58.9	
1075	Lead	µg/L	14.3	14.0	9.80 - 18.2	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.271	14.0	1.02	HEA
1090	Manganese	µg/L	475	445	378 - 512	Acceptable	EPA 200.8 5.5 1998	7/29/2013	1.11	454	19.1	HEA
1100	Molybdenum	µg/L	94.1	102	86.7 - 117	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.21	99.1	4.13	HEA
1105	Nickel	µg/L	253	253	215 - 291	Acceptable	EPA 200.8 5.5 1998	7/29/2013	0.181	251	12.1	HEA
1140	Selenium	µg/L	19.5	21.2	17.0 - 25.4	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.859	20.8	1.54	HEA
1150	Silver	µg/L	44.6	47.3	33.1 - 61.5	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-0.802	46.5	2.41	HEA
1165	Thallium	µg/L	8.1	8.27	5.79 - 10.8	Acceptable	EPA 200.8 5.5 1998	7/30/2013	0.120	8.03	0.569	HEA
1185	Vanadium	µg/L	476	466	396 - 536	Acceptable	EPA 200.8 5.5 1998	7/29/2013	1.12	457	16.8	HEA
1190	Zinc	µg/L	290	306	260 - 352	Acceptable	EPA 200.8 5.5 1998	7/29/2013	-1.04	307	16.2	HEA



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WS Metals (cat# 590)

1000	Aluminum	µg/L	333	316	253 - 379	Acceptable	EPA 200.7 5 1998	7/27/2013	0.706	320	17.8	JTJ
1005	Antimony	µg/L	33.2	36.6	25.6 - 47.6	Acceptable	EPA 200.7 5 1998	7/27/2013	-1.3	36.2	2.31	JTJ
1010	Arsenic	µg/L	10.8	11.8	8.26 - 15.3	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.986	11.7	0.910	JTJ
1015	Barium	µg/L	841	855	727 - 983	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.13	846	35.1	JTJ
1020	Beryllium	µg/L	9.4	10.2	8.67 - 11.7	Acceptable	EPA 200.7 5 1998	7/27/2013	-1.45	10.1	0.472	JTJ
1025	Boron	µg/L	1150	1320	1120 - 1520	Acceptable	EPA 200.7 5 1998	7/27/2013	-2.51	1300	60.2	JTJ
1030	Cadmium	µg/L	33.3	33.9	27.1 - 40.7	Acceptable	EPA 200.7 5 1998	7/27/2013	0.0296	33.2	1.46	JTJ
1040	Chromium	µg/L	159	163	138 - 187	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.487	162	6.95	JTJ
1055	Copper	µg/L	1340	1350	1220 - 1480	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.0368	1340	68.2	JTJ
1070	Iron	µg/L	1260	1290	1100 - 1480	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.555	1290	58.9	JTJ
1075	Lead	µg/L	16.8	14.0	9.80 - 18.2	Acceptable	EPA 200.7 5 1998	7/27/2013	2.73	14.0	1.02	JTJ
1090	Manganese	µg/L	452	445	378 - 512	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.0941	454	19.1	JTJ
1100	Molybdenum	µg/L	96.4	102	86.7 - 117	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.649	99.1	4.13	JTJ
1105	Nickel	µg/L	258	253	215 - 291	Acceptable	EPA 200.7 5 1998	7/27/2013	0.594	251	12.1	JTJ
1140	Selenium	µg/L	21.10	21.2	17.0 - 25.4	Acceptable	EPA 200.7 5 1998	7/27/2013	0.179	20.8	1.54	JTJ
1150	Silver	µg/L	46.8	47.3	33.1 - 61.5	Acceptable	EPA 200.7 5 1998	7/27/2013	0.110	46.5	2.41	JTJ
1165	Thallium	µg/L	< 15	8.27	5.79 - 10.8	Not Acceptable	EPA 200.7 5 1998	7/27/2013		8.03	0.569	JTJ
1185	Vanadium	µg/L	441	466	396 - 536	Acceptable	EPA 200.7 5 1998	7/27/2013	-0.966	457	16.8	JTJ
1190	Zinc	µg/L	288	306	260 - 352	Acceptable	EPA 200.7 5 1998	7/27/2013	-1.16	307	16.2	JTJ

WS Mercury (cat# 551)

1095	Mercury	µg/L	3.72	3.75	2.62 - 4.88	Acceptable	EPA 200.8 5.5 1998	7/26/2013	0.0877	3.69	0.317	HEA



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WS Mercury (cat# 551)

1095	Mercury	µg/L	3.74	3.75	2.62 - 4.88	Acceptable	EPA 245.1 4.1	7/26/2013	0.151	3.69	0.317	HEA

WS Hexavalent Chromium (cat# 854)

1045	Hexavalent Chromium	µg/L	12.4	15.1	12.1 - 18.1	Acceptable	EPA 218.6 3.3 1994	7/31/2013	-2.07	14.7	1.14	

WS Uranium (cat# 858)

3055	Uranium (Nat)	µg/L	68.7	68.8	55.8 - 76.5	Acceptable	EPA 200.8 5.5	7/29/2013	-0.0378	68.8	2.91	HEA

WS Inorganic Disinfection #1 (cat# 5270)

1570	Chlorate	µg/L	124	146	102 - 190	Acceptable	EPA 300.1 1 2000	7/18/2013	-1.69	138	8.04	
1595	Chlorite	µg/L	221	231	162 - 300	Acceptable	EPA 300.1 1 2000	7/18/2013	-0.845	237	18.7	

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L		37.4	26.2 - 48.6	Not Reported				36.4	2.22	
1540	Bromide	µg/L	126	106	90.1 - 122	Not Acceptable	EPA 300.0 2.1 1993	7/25/2013	3.32	103	7.03	JNZ

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L	38.1	37.4	26.2 - 48.6	Acceptable	EPA 300.1 1 2000	7/18/2013	0.761	36.4	2.22	
1540	Bromide	µg/L	99.4	106	90.1 - 122	Acceptable	EPA 300.1 1 2000	7/18/2013	-0.467	103	7.03	

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.83	1.74	1.48 - 2.00	Acceptable	EPA 353.2	7/24/2013	0.828	1.76	0.0834	AMD

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.98	1.74	1.48 - 2.00	Acceptable	EPA 300.0 2.1	7/22/2013	2.62	1.76	0.0834	LAJ

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	1.17	1.16	0.986 - 1.33	Acceptable	EPA 365.1 2 1993	7/16/2013	0.180	1.16	0.0738	SOA



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WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	1.29	1.16	0.986 - 1.33	Acceptable	EPA 300.0 2.1 1993	7/22/2013	1.81	1.16	0.0738	

WS Residual Chlorine (cat# 593)

1945	Free Residual Chlorine	mg/L	0.710	0.694	0.537 - 0.851	Acceptable	SM4500Cl D online	8/16/2013	0.731	0.661	0.0668	
1940	Total Residual Chlorine	mg/L	0.710	0.694	0.576 - 0.802	Acceptable	SM4500Cl D online	8/16/2013	0.676	0.684	0.0388	

WS Cyanide (cat# 556)

1645	Cyanide, total	mg/L	0.367	0.356	0.267 - 0.445	Acceptable	EPA 335.4	7/31/2013	1.00	0.339	0.0275	SOA

WS Organic Carbon (cat# 557)

1710	Dissolved Organic Carbon (DOC)	mg/L	11	11.6	10.3 - 12.8	Acceptable	SM5310B 21st ED 2000	7/30/2013	-2.0	11.8	0.409	AGS
2040	Total Organic Carbon (TOC)	mg/L	12.60	11.6	9.28 - 13.9	Acceptable	SM5310B 21st ED 2000	7/30/2013	1.65	11.8	0.492	AGS

WS Perchlorate (cat# 903)

1895	Perchlorate	µg/L	7.74	8.37	6.70 - 10.0	Acceptable	EPA 331.0 1.0 2005	7/22/2013	-0.565	8.17	0.760	

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	26.1	26.0	22.1 - 29.9	Acceptable	EPA 200.7 5 1998	7/31/2013	-0.413	26.8	1.67	JTJ

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	22.00	26.0	22.1 - 29.9	Not Acceptable	SM4500Si D online	7/24/2013	-2.86	26.8	1.67	

WS Surfactants - MBAS (cat# 901)

2025	Surfactants - MBAS	mg/L	0.36	0.355	0.236 - 0.471	Acceptable	SM5540C 21st ED	7/18/2013	-0.0608	0.364	0.0620	EMR

WS Corrosivity (cat# 900)

1620	Corrosivity	S.I. @ 20°C	1.76	1.82	1.42 - 2.22	Acceptable	SM2330B 18th ED 1989	8/6/2013	-0.395	1.81	0.139	

WS Turbidity (cat# 592)

2055	Turbidity	NTU	6.02	6.00	5.10 - 6.72	Acceptable	EPA 180.1 2	7/12/2013	0.347	5.89	0.367	AGS



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WS UV 254 Absorbance (cat# 904)

2060	UV 254 Absorbance	cm-1	0.253	0.208	0.168 - 0.254	Acceptable	SM5910B online	7/20/2013	2.01	0.210	0.0213	



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Microbiology Results





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WS Microbe™ (Coliforms) (cat# 080A)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 2, 5 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 1, 3 and 6

Negative (1) Coliform Organism - Proteus mirabilis, Sample 10

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 4

Blank - No Organism, Samples 8 and 9

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WS MicroBE™ (Coliforms) (cat# 080A) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 2, 5 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 1, 3 and 6

Negative (1) Coliform Organism - Proteus mirabilis, Sample 10

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 4

Blank - No Organism, Samples 8 and 9



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WS MicroBE™ (Coliforms) (cat# 080A) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 3	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 2, 5 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 1, 3 and 6

Negative (1) Coliform Organism - Proteus mirabilis, Sample 10

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 4

Blank - No Organism, Samples 8 and 9



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WS MicrobE™ (Coliforms) (cat# 080B)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 3, 5 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 1, 4 and 7

Negative (1) Coliform Organism - Proteus mirabilis, Sample 2

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 9

Blank - No Organism, Samples 6 and 10



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WS MicroBE™ (Coliforms) (cat# 080B) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 3, 5 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 1, 4 and 7

Negative (1) Coliform Organism - Proteus mirabilis, Sample 2

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 9

Blank - No Organism, Samples 6 and 10



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WS MicroBE™ (Coliforms) (cat# 080B) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	8/7/2013	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 3, 5 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 1, 4 and 7

Negative (1) Coliform Organism - Proteus mirabilis, Sample 2

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 9

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Study Dates:

FL01264
E550101
08/26/13
07/08/13 - 08/22/13

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS WS SourceWatR™ MicrobE™ (cat# 595)

2500	Total Coliforms (MF)	CFU/100mL		108	56.7 - 116	Not Reported				80.9	14.7	
2530	Fecal Coliforms (MF)	CFU/100mL		108	30.8 - 126	Not Reported				62.2	23.7	
2525	E.coli (MF)	CFU/100mL		108	37.1 - 135	Not Reported				70.8	24.5	
2500	Total Coliforms (MPN)	MPN/100mL		101	61.1 - 166	Not Reported				101	26.2	
2530	Fecal Coliforms (MPN)	MPN/100mL		101	63.2 - 177	Not Reported				106	28.4	
2525	E.coli (MPN)	MPN/100mL		101	61.0 - 162	Not Reported				99.5	25.2	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.

WS Heterotrophic Plate Count (cat# 079)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL	42	59.0	33.5 - 74.3	Acceptable	SM9215B 18/19thED	8/9/2013	-0.777	49.9	10.2	AIS
2555	Heterotrophic Plate Count (MPN)	MPN/mL		54.0	27.3 - 99.7	Not Reported				54.2	18.9	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.

WS Heterotrophic Plate Count (cat# 079)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL		59.0	33.5 - 74.3	Not Reported				49.9	10.2	
2555	Heterotrophic Plate Count (MPN)	MPN/mL	40	54.0	27.3 - 99.7	Acceptable	Simplate 2000	8/9/2013	-0.75	54.2	18.9	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



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2003 NELAC Evaluation Report

Study: **WS-204**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Organic Results





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WS Haloacetic Acids (HAA) (cat# 852)

9312	Bromoacetic acid	µg/L	26.3	25.2	15.1 - 35.3	Acceptable	EPA 552.2 1 1995	7/23/2013	0.619	24.8	2.50	JLR
9315	Bromochloroacetic acid	µg/L	18.2	16.8	10.1 - 23.5	Acceptable	EPA 552.2 1 1995	7/23/2013	0.492	17.3	1.81	JLR
9336	Chloroacetic acid	µg/L	39.1	42.9	25.7 - 60.1	Acceptable	EPA 552.2 1 1995	7/23/2013	-0.272	40.4	4.63	JLR
9357	Dibromoacetic acid	µg/L	19.6	19.9	11.9 - 27.9	Acceptable	EPA 552.2 1 1995	7/23/2013	0.416	18.5	2.64	JLR
9360	Dichloroacetic acid	µg/L	30.4	47.0	28.2 - 65.8	Acceptable	EPA 552.2 1 1995	7/23/2013	-2.66	44.3	5.21	JLR
9642	Trichloroacetic acid	µg/L	33.6	34.9	20.9 - 48.9	Acceptable	EPA 552.2 1 1995	7/23/2013	0.0302	33.5	2.91	JLR

WS Gasoline Additives (GAD) (cat# 905)

4370	T-amylmethylether (TAME)	µg/L		28.9	21.6 - 36.8	Not Reported				30.0	2.35	
4420	Tert-Butyl Alcohol	µg/L		48.5	28.9 - 67.5	Not Reported				45.7	8.95	
5000	tert-Butyl methyl ether (MTBE)	µg/L		39.3	31.4 - 47.2	Not Reported				41.8	4.19	
9375	Di-isopropylether (DIPE)	µg/L		36.6	29.7 - 45.7	Not Reported				39.1	3.48	
4770	Ethyl-t-butylether (ETBE)	µg/L		39.5	31.2 - 51.0	Not Reported				42.9	2.95	
5175	Trichlorofluoromethane (Freon 11)	µg/L		23.1	13.9 - 32.3	Not Reported				25.3	3.36	
5185	Trichlorotrifluoroethane (Freon 113)	µg/L	55	39.6	26.4 - 52.7	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	1.42	44.9	7.13	

WS Halomethanes (THMs) (cat# 842)

4395	Bromodichloromethane	µg/L	43.2	42.4	33.9 - 50.9	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.338	44.6	4.30	
4400	Bromoform	µg/L	10.8	8.98	7.18 - 10.8	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	1.62	9.04	1.09	
4575	Chlorodibromomethane	µg/L	23.8	19.4	15.5 - 23.3	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	1.86	20.0	2.05	
4505	Chloroform	µg/L	25.7	24.7	19.8 - 29.6	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.122	26.0	2.49	



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WS Regulated Volatiles (cat# 840)

4375	Benzene	µg/L	14	13.7	11.0 - 16.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.324	13.7	0.903	JBH
4455	Carbon tetrachloride	µg/L	4.19	5.10	3.06 - 7.14	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.4	5.05	0.611	JBH
4475	Chlorobenzene	µg/L	6.54	6.13	3.68 - 8.58	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.576	6.26	0.491	JBH
4610	1,2-Dichlorobenzene	µg/L	8.73	8.58	5.15 - 12.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.111	8.64	0.812	JBH
4620	1,4-Dichlorobenzene	µg/L	15.9	12.8	10.2 - 15.4	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	2.43	12.9	1.24	JBH
4635	1,2-Dichloroethane	µg/L	20.4	19.1	15.3 - 22.9	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.878	19.3	1.22	JBH
4640	1,1-Dichloroethylene	µg/L	3.28	3.14	1.88 - 4.40	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.421	3.45	0.411	JBH
4645	cis-1,2-Dichloroethylene	µg/L	12.6	12.3	9.84 - 14.8	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.201	12.4	0.998	JBH
4700	trans-1,2-Dichloroethylene	µg/L	16.7	15.7	12.6 - 18.8	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.280	16.3	1.52	JBH
4655	1,2-Dichloropropane	µg/L	7.79	9.28	5.57 - 13.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.94	9.33	0.524	JBH
4765	Ethylbenzene	µg/L	7.24	6.98	4.19 - 9.77	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.408	7.04	0.489	JBH
4975	Methylene chloride (Dichloromethane)	µg/L	7.65	8.16	4.90 - 11.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.804	8.35	0.871	JBH
5100	Styrene	µg/L	14.5	11.7	9.36 - 14.0	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	2.61	11.7	1.05	JBH
5115	Tetrachloroethylene	µg/L	14.9	11.2	8.96 - 13.4	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	3.70	10.6	1.15	JBH
5140	Toluene	µg/L	17.5	13.9	11.1 - 16.7	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	3.84	14.0	0.920	JBH
5155	1,2,4-Trichlorobenzene	µg/L	11.6	10.8	8.64 - 13.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.870	10.4	1.40	JBH
5160	1,1,1-Trichloroethane	µg/L	9.66	11.2	8.96 - 13.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.62	11.1	0.871	JBH
5165	1,1,2-Trichloroethane	µg/L	20	14.1	11.3 - 16.9	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	7.33	14.1	0.806	JBH
5170	Trichloroethylene	µg/L	15.4	16.0	12.8 - 19.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.0369	15.4	1.30	JBH
5235	Vinyl chloride	µg/L	9.28	9.80	5.88 - 13.7	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.902	10.7	1.53	JBH



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WS Regulated Volatiles (cat# 840) (Continued)												
5260	Xylenes, total	µg/L	19.4	17.7	14.2 - 21.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.881	18.2	1.40	JBH





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WS Unregulated Volatiles (cat# 841)

4385	Bromobenzene	µg/L	7.78	10.3	8.24 - 12.4	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.94	10.5	0.926	JBH
4390	Bromochloromethane	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4950	Bromomethane	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5000	tert-Butyl methyl ether (MTBE)	µg/L	17.5	16.2	13.0 - 19.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.163	17.2	1.68	JBH
4435	n-Butylbenzene	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4440	sec-Butylbenzene	µg/L	5.7	6.68	4.01 - 9.35	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.53	6.91	0.789	JBH
4445	tert-Butylbenzene	µg/L	13.3	16.2	13.0 - 19.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.54	16.4	2.04	JBH
4485	Chloroethane	µg/L	13.7	12.2	7.32 - 17.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.217	13.3	1.82	JBH
4960	Chloromethane	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4535	2-Chlorotoluene	µg/L	2.75	4.81	2.89 - 6.73	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	-3.77	4.97	0.588	JBH
4540	4-Chlorotoluene	µg/L	4.36	5.70	3.42 - 7.98	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.34	5.98	0.693	JBH
4595	Dibromomethane	µg/L	18.5	18.4	14.7 - 22.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.407	19.1	1.44	JBH
4615	1,3-Dichlorobenzene	µg/L	10	10.7	8.56 - 12.8	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.853	11.0	1.18	JBH
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
4630	1,1-Dichloroethane	µg/L	8.05	8.18	4.91 - 11.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.55	8.52	0.864	JBH
4660	1,3-Dichloropropane	µg/L	9.55	9.41	5.65 - 13.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	0.116	9.46	0.762	JBH
4665	2,2-Dichloropropane	µg/L	15.3	15.0	12.0 - 18.0	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.0204	15.3	1.97	JBH
4670	1,1-Dichloropropene	µg/L	13.3	14.3	11.4 - 17.2	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.427	14.0	1.62	JBH
4680	cis-1,3-Dichloropropene	µg/L	13.3	16.6	13.3 - 19.9	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.64	15.8	1.56	JBH
4685	trans-1,3-Dichloropropene	µg/L	23.3	6.17	3.70 - 8.64	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013	26.1	5.89	0.666	JBH



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WS Unregulated Volatiles (cat# 841) (Continued)

5175	Fluorotrichloromethane	µg/L	< 0.5	38.2	22.9 - 53.5	Not Acceptable	EPA 524.2 4.1 1995	7/25/2013		42.9	7.17	JBH
4835	Hexachlorobutadiene	µg/L	7.16	7.96	4.78 - 11.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.00817	7.17	0.964	JBH
4900	Isopropylbenzene	µg/L	3.03	4.66	2.80 - 6.52	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.5	4.64	0.644	JBH
4910	4-Isopropyltoluene	µg/L	7.12	8.66	5.20 - 12.1	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.7	8.66	0.911	JBH
5005	Naphthalene	µg/L	35.3	35.9	25.1 - 46.7	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.225	36.4	4.76	JBH
5090	n-Propylbenzene	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5105	1,1,1,2-Tetrachloroethane	µg/L	< 0.5	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5110	1,1,2,2-Tetrachloroethane	µg/L	4.02	4.07	2.44 - 5.70	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.229	4.13	0.500	JBH
5150	1,2,3-Trichlorobenzene	µg/L	< 0.5	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	7/25/2013				JBH
5180	1,2,3-Trichloropropane (TCP)	µg/L	15.1	15.3	12.2 - 18.4	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-0.385	15.8	1.76	JBH
5210	1,2,4-Trimethylbenzene	µg/L	1.66	2.28	1.37 - 3.19	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-2.36	2.40	0.313	JBH
5215	1,3,5-Trimethylbenzene	µg/L	5.8	6.88	4.13 - 9.63	Acceptable	EPA 524.2 4.1 1995	7/25/2013	-1.4	6.93	0.806	JBH



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WS Pesticides (cat# 850)

7005	Alachlor	µg/L	11.7	14.5	7.98 - 21.0	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.948	13.9	2.36	SMB
7025	Aldrin	µg/L		2.08	0.938 - 2.64	Not Reported				1.66	0.427	
7065	Atrazine	µg/L	6.22	2.69	1.48 - 3.90	Not Acceptable	EPA 508.1 2 1995	7/30/2013	4.59	3.09	0.682	SMB
7120	gamma-BHC (Lindane)	µg/L	0.832	0.994	0.547 - 1.44	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.916	1.02	0.206	SMB
7130	Bromacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7160	Butachlor	µg/L	9.05	10.5	5.78 - 15.2	Acceptable	EPA 508.1 2 1995	7/30/2013	-1.43	11.4	1.68	SMB
7410	Diazinon	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7470	Dieldrin	µg/L	1.79	1.90	1.04 - 2.76	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.476	1.89	0.211	SMB
7540	Endrin	µg/L	0.819	1.27	0.889 - 1.65	Not Acceptable	EPA 508.1 2 1995	7/30/2013	-2.26	1.34	0.228	SMB
7685	Heptachlor	µg/L	0.939	0.950	0.522 - 1.38	Acceptable	EPA 508.1 2 1995	7/30/2013	0.279	0.896	0.153	SMB
7690	Heptachlor epoxide (beta)	µg/L	1.31	1.58	0.869 - 2.29	Acceptable	EPA 508.1 2 1995	7/30/2013	-1.23	1.59	0.227	SMB
6275	Hexachlorobenzene	µg/L	0.953	0.924	0.440 - 1.18	Acceptable	EPA 508.1 2 1995	7/30/2013	0.761	0.817	0.179	SMB
6285	Hexachlorocyclopentadiene	µg/L	7.32	6.94	2.01 - 9.98	Acceptable	EPA 508.1 2 1995	7/30/2013	0.515	6.18	2.21	SMB
7810	Methoxychlor	µg/L	10.4	11.7	6.44 - 17.0	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.814	11.5	1.41	SMB
7835	Metolachlor	µg/L	10.8	12.8	7.04 - 18.6	Acceptable	EPA 508.1 2 1995	7/30/2013	-1.04	14.5	3.53	SMB
7845	Metribuzin	µg/L	7.56	7.41	3.70 - 11.1	Acceptable	EPA 508.1 2 1995	7/30/2013	0.839	6.44	1.34	SMB
7875	Molinate (Ordram)	µg/L		6.54	3.77 - 9.00	Not Reported				6.29	0.854	
8035	Prometon	µg/L		2.86	0.872 - 3.98	Not Reported				2.59	0.908	
8045	Propachlor	µg/L	3.10	2.84	1.56 - 4.12	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.086	3.13	0.403	SMB
8125	Simazine	µg/L	7.88	8.10	4.46 - 11.7	Acceptable	EPA 508.1 2 1995	7/30/2013	-0.0643	8.04	2.46	SMB





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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		1.82	1.00 - 2.64	Not Reported				1.89	0.549	



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A Waters Company

WS-204 2003 NELAC Evaluation Final Complete Report

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EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Pesticides (cat# 850)

7005	Alachlor	µg/L		14.5	7.98 - 21.0	Not Reported				13.9	2.36	
7025	Aldrin	µg/L	1.96	2.08	0.938 - 2.64	Acceptable	EPA 525.2 2 1995	7/15/2013	0.695	1.66	0.427	WFH
7065	Atrazine	µg/L		2.69	1.48 - 3.90	Not Reported				3.09	0.682	
7120	gamma-BHC (Lindane)	µg/L		0.994	0.547 - 1.44	Not Reported				1.02	0.206	
7130	Bromacil	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	7/15/2013				WFH
7160	Butachlor	µg/L	14.5	10.5	5.78 - 15.2	Acceptable	EPA 525.2 2 1995	7/16/2013	1.82	11.4	1.68	WFH
7410	Diazinon	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	7/15/2013				WFH
7470	Dieldrin	µg/L	2.41	1.90	1.04 - 2.76	Acceptable	EPA 525.2 2 1995	7/16/2013	2.46	1.89	0.211	WFH
7540	Endrin	µg/L		1.27	0.889 - 1.65	Not Reported				1.34	0.228	
7685	Heptachlor	µg/L		0.950	0.522 - 1.38	Not Reported				0.896	0.153	
7690	Heptachlor epoxide (beta)	µg/L		1.58	0.869 - 2.29	Not Reported				1.59	0.227	
6275	Hexachlorobenzene	µg/L		0.924	0.440 - 1.18	Not Reported				0.817	0.179	
6285	Hexachlorocyclopentadiene	µg/L		6.94	2.01 - 9.98	Not Reported				6.18	2.21	
7810	Methoxychlor	µg/L		11.7	6.44 - 17.0	Not Reported				11.5	1.41	
7835	Metolachlor	µg/L	17.9	12.8	7.04 - 18.6	Acceptable	EPA 525.2 2 1995	7/15/2013	0.970	14.5	3.53	WFH
7845	Metribuzin	µg/L	8.53	7.41	3.70 - 11.1	Acceptable	EPA 525.2 2 1995	7/15/2013	1.56	6.44	1.34	WFH
7875	Molinate (Ordram)	µg/L	7.2	6.54	3.77 - 9.00	Acceptable	EPA 525.2 2 1995	7/15/2013	1.07	6.29	0.854	WFH
8035	Prometon	µg/L	3.2	2.86	0.872 - 3.98	Acceptable	EPA 525.2 2 1995	7/15/2013	0.673	2.59	0.908	WFH
8045	Propachlor	µg/L	3.33	2.84	1.56 - 4.12	Acceptable	EPA 525.2 2 1995	7/15/2013	0.485	3.13	0.403	WFH
8125	Simazine	µg/L		8.10	4.46 - 11.7	Not Reported				8.04	2.46	



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	7/15/2013				WFH
8295	Trifluralin	µg/L	1.9	1.82	1.00 - 2.64	Acceptable	EPA 525.2 2 1995	7/15/2013	0.0148	1.89	0.549	WFH

WS Carbamate/Carbamoxylxime Pesticides (cat# 846)

7010	Aldicarb	µg/L	23.4	28.0	21.0 - 35.0	Acceptable	EPA 531.1 3.1 1995	7/17/2013	-1.66	27.6	2.54	WFH
7015	Aldicarb sulfone	µg/L	16.2	16.2	12.2 - 20.2	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-0.459	16.7	1.10	WFH
7020	Aldicarb sulfoxide	µg/L	23.9	29.6	22.2 - 37.0	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-1.22	27.1	2.63	WFH
8080	Baygon	µg/L		70.1	57.0 - 83.2	Not Reported				69.9	4.16	
7195	Carbaryl	µg/L	23.8	26.4	19.8 - 33.0	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-0.252	24.2	1.50	WFH
7205	Carbofuran	µg/L	76.1	85.8	47.2 - 124	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-0.928	83.6	8.05	WFH
7710	3-Hydroxycarbofuran	µg/L	23.7	35.4	28.3 - 42.5	Not Acceptable	EPA 531.1 3.1 1995	7/12/2013	-4.23	35.0	2.68	WFH
7800	Methiocarb	µg/L	36.2	47.5	37.1 - 56.7	Not Acceptable	EPA 531.1 3.1 1995	7/17/2013	-2.6	44.8	3.33	WFH
7805	Methomyl	µg/L	29.8	38.4	30.7 - 46.1	Not Acceptable	EPA 531.1 3.1 1995	7/12/2013	-2.5	37.4	3.04	WFH
7940	Oxamyl (vydate)	µg/L	51.5	61.0	45.8 - 76.2	Acceptable	EPA 531.1 3.1 1995	7/12/2013	-1.6	56.4	3.05	WFH

WS Toxaphene (cat# 844)

8250	Toxaphene	µg/L	9.45	8.66	4.76 - 12.6	Acceptable	EPA 508.1 2	7/17/2013	-0.126	9.78	2.62	SMB

WS EDB/DBCP/TCP (cat# 847)

4570	Dibromochloropropane (DBCP)	µg/L	0.787	0.812	0.487 - 1.14	Acceptable	EPA 504.1 1.1	7/12/2013	-0.261	0.824	0.142	JLR
4585	Ethylene Dibromide (EDB)	µg/L	1.83	1.72	1.03 - 2.41	Acceptable	EPA 504.1 1.1	7/12/2013	0.818	1.61	0.263	JLR
5180	1,2,3-Trichloropropane (TCP)	µg/L	0.875	0.854	0.512 - 1.20	Acceptable	EPA 504.1 1.1	7/12/2013	0.0184	0.873	0.100	JLR



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A Waters Company

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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS PCBs as Decachlorobiphenyl (cat# 839)

8880	Aroclor 1016	µg/L	< 0.5	< 0.260	0.00 - 0.260	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8885	Aroclor 1221	µg/L	< 0.5	< 0.190	0.00 - 0.190	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8890	Aroclor 1232	µg/L	< 0.5	< 0.230	0.00 - 0.230	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8895	Aroclor 1242	µg/L	1.33	< 0.260	0.00 - 0.260	Not Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8900	Aroclor 1248	µg/L	< 0.5	2.38	1.36 - 2.90	Not Acceptable	EPA 508.1 2 1995	7/26/2013		2.46	0.289	SMB
8905	Aroclor 1254	µg/L	< 0.5	< 0.330	0.00 - 0.330	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8910	Aroclor 1260	µg/L	< 0.5	< 0.360	0.00 - 0.360	Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
8872	PCB Aroclor Identity	Identity	1242	1248		Not Acceptable	EPA 508.1 2 1995	7/26/2013				SMB
9105	PCB as Decachlorobiphenyl	µg/L	0.992	3.98	0.398 - 7.96	Acceptable	EPA 508.1 2 1995	7/26/2013	-2.36	3.52	1.07	SMB



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WS Regulated Semivolatiles Ampule #1 (cat# 848)

5500	Acenaphthene	µg/L		3.60	1.79 - 4.51	Not Reported				3.31	0.200	
5505	Acenaphthylene	µg/L		9.17	4.32 - 12.3	Not Reported				8.93	0.885	
5555	Anthracene	µg/L		6.75	2.93 - 8.76	Not Reported				6.24	0.298	
5575	Benzo(a)anthracene	µg/L		6.71	3.70 - 8.50	Not Reported				6.58	0.910	
5585	Benzo(b)fluoranthene	µg/L		4.88	2.60 - 6.72	Not Reported				4.94	0.632	
5600	Benzo(k)fluoranthene	µg/L		1.88	1.02 - 2.54	Not Reported				2.04	0.329	
5590	Benzo(g,h,i)perylene	µg/L		4.01	1.81 - 5.73	Not Reported				4.40	0.451	
5580	Benzo(a)pyrene	µg/L	1.9	1.80	0.744 - 2.30	Acceptable	EPA 525.2 2 1995	7/19/2013	1.23	1.50	0.321	WFH
5670	Butylbenzylphthalate	µg/L	50.6	47.1	25.6 - 68.4	Acceptable	EPA 525.2 2 1995	7/19/2013	0.164	49.0	9.77	WFH
5855	Chrysene	µg/L		2.53	1.45 - 3.25	Not Reported				2.48	0.311	
5895	Dibenz(a,h)anthracene	µg/L		1.19	0.552 - 1.71	Not Reported				1.27	0.131	
6070	Diethylphthalate	µg/L	43.5	47.2	25.4 - 66.7	Acceptable	EPA 525.2 2 1995	7/19/2013	-0.533	47.0	6.66	WFH
6135	Dimethylphthalate	µg/L	25.5	27.5	13.2 - 37.8	Acceptable	EPA 525.2 2 1995	7/19/2013	-0.577	27.5	3.42	WFH
5925	Di-n-butylphthalate	µg/L	37.5	32.2	17.6 - 46.3	Acceptable	EPA 525.2 2 1995	7/19/2013	0.256	35.4	8.04	WFH
6200	Di-n-octylphthalate	µg/L		36.9	18.3 - 51.5	Not Reported				32.6	10.1	
6062	bis(2-Ethylhexyl)adipate	µg/L	29.1	29.0	17.9 - 38.2	Acceptable	EPA 525.2 2 1995	7/19/2013	0.247	27.7	5.49	WFH
6065	bis(2-Ethylhexyl)phthalate	µg/L	31.3	28.4	14.4 - 40.6	Acceptable	EPA 525.2 2 1995	7/19/2013	0.284	29.2	7.21	WFH
6265	Fluoranthene	µg/L		5.22	2.52 - 7.05	Not Reported				4.99	0.384	
6270	Fluorene	µg/L	2.93	2.88	1.68 - 3.68	Acceptable	EPA 525.2 2 1995	7/19/2013	-0.343	3.03	0.287	WFH
6315	Indeno(1,2,3-cd)pyrene	µg/L	5.08	4.69	2.04 - 6.71	Acceptable	EPA 525.2 2 1995	7/19/2013	0.414	4.84	0.574	WFH



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WS Regulated Semivolatiles Ampule #1 (cat# 848) (Continued)

5005	Naphthalene	µg/L		3.48	1.41 - 4.44	Not Reported				3.25	0.248	
6615	Phenanthrene	µg/L	1.68	2.00	1.27 - 2.52	Acceptable	EPA 525.2 2 1995	7/19/2013	-1.37	1.90	0.164	WFH
6665	Pyrene	µg/L	3.27	3.19	1.90 - 4.12	Acceptable	EPA 525.2 2 1995	7/19/2013	0.322	3.18	0.295	WFH

WS Chlorinated Acid Herbicides (cat# 851)

8505	Acifluorfen	µg/L	67.7	58.9	29.4 - 88.4	Acceptable	EPA 515.3 1 1996	7/23/2013	0.647	63.5	6.42	LJM
8530	Bentazon	µg/L	16	17.4	9.01 - 23.7	Acceptable	EPA 515.3 1 1996	7/18/2013	-1.03	17.6	1.56	LJM
8540	Chloramben	µg/L		37.3	9.99 - 50.6	Not Reported				30.4	5.86	
8545	2,4-D	µg/L	13	13.8	6.90 - 20.7	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.388	13.8	2.08	LJM
8550	Dacthal diacid (DCPA)	µg/L		40.5	15.1 - 65.7	Not Reported				39.5	7.34	
8555	Dalapon	µg/L	35.3	28.7	14.4 - 43.0	Acceptable	EPA 515.3 1 1996	7/18/2013	1.18	29.2	5.15	LJM
8560	2,4-DB	µg/L	45.9	47.5	23.8 - 71.2	Acceptable	EPA 515.3 1 1996	7/18/2013	0.414	43.3	6.27	LJM
8595	Dicamba	µg/L	25.3	27.9	14.0 - 41.8	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.345	26.0	2.16	LJM
8600	3,5-Dichlorobenzoic acid	µg/L		17.4	8.29 - 23.0	Not Reported				16.7	3.01	
8605	Dichlorprop	µg/L	19.7	20.4	9.34 - 28.1	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.578	22.8	5.31	LJM
8620	Dinoseb	µg/L	14.4	16.3	6.09 - 23.2	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.704	15.8	1.97	LJM
6500	4-Nitrophenol	µg/L		21.6	2.16 - 29.2	Not Reported				14.6	3.18	
6605	Pentachlorophenol	µg/L	13	14.1	7.05 - 21.2	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.863	14.9	2.20	LJM
8645	Picloram	µg/L	22.5	23.6	11.8 - 35.4	Acceptable	EPA 515.3 1 1996	7/18/2013	0.205	21.8	3.22	LJM
8655	2,4,5-T	µg/L	30.1	34.5	17.2 - 51.8	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.492	31.3	2.47	LJM
8650	2,4,5-TP (Silvex)	µg/L	23.4	24.6	12.3 - 36.9	Acceptable	EPA 515.3 1 1996	7/18/2013	-0.0548	23.6	3.58	LJM



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WS Chlorinated Acid Herbicides (cat# 851)

8505	Acifluorfen	µg/L		58.9	29.4 - 88.4	Not Reported				63.5	6.42	
8530	Bentazon	µg/L		17.4	9.01 - 23.7	Not Reported				17.6	1.56	
8540	Chloramben	µg/L		37.3	9.99 - 50.6	Not Reported				30.4	5.86	
8545	2,4-D	µg/L		13.8	6.90 - 20.7	Not Reported				13.8	2.08	
8550	Dacthal diacid (DCPA)	µg/L		40.5	15.1 - 65.7	Not Reported				39.5	7.34	
8555	Dalapon	µg/L	41	28.7	14.4 - 43.0	Acceptable	EPA 552.2 11995	7/23/2013	2.29	29.2	5.15	
8560	2,4-DB	µg/L		47.5	23.8 - 71.2	Not Reported				43.3	6.27	
8595	Dicamba	µg/L		27.9	14.0 - 41.8	Not Reported				26.0	2.16	
8600	3,5-Dichlorobenzoic acid	µg/L		17.4	8.29 - 23.0	Not Reported				16.7	3.01	
8605	Dichlorprop	µg/L		20.4	9.34 - 28.1	Not Reported				22.8	5.31	
8620	Dinoseb	µg/L		16.3	6.09 - 23.2	Not Reported				15.8	1.97	
6500	4-Nitrophenol	µg/L		21.6	2.16 - 29.2	Not Reported				14.6	3.18	
6605	Pentachlorophenol	µg/L		14.1	7.05 - 21.2	Not Reported				14.9	2.20	
8645	Picloram	µg/L		23.6	11.8 - 35.4	Not Reported				21.8	3.22	
8655	2,4,5-T	µg/L		34.5	17.2 - 51.8	Not Reported				31.3	2.47	
8650	2,4,5-TP (Silvex)	µg/L		24.6	12.3 - 36.9	Not Reported				23.6	3.58	

WS Regulated Semivolatiles #2 Herbicides (cat# 849)

9390	Diquat	µg/L	13.8	13.2	6.60 - 19.8	Acceptable	EPA 549.2 1 1997	7/19/2013	1.63	10.7	1.91	WFH
7525	Endothall	µg/L	124	168	84.0 - 252	Acceptable	EPA 548.1 1 1992	7/22/2013	-0.772	150	33.8	
9411	Glyphosate	µg/L	398	387	310 - 464	Acceptable	EPA 547 1990	7/15/2013	0.452	386	26.4	
9528	Paraquat	µg/L	30.1	30.6	13.4 - 38.4	Acceptable	EPA 549.2 1	7/19/2013	2.19	21.3	4.00	WFH



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A Waters Company

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WS-210



Final Report

WatR™ Supply Proficiency Testing

WatR™ Supply Study

Open Date: 01/06/14

Close Date: 02/20/14

Report Issued Date: 02/24/14



A Waters Company

February 24, 2014

Lynn Baylor
Pace Analytical Services - Ormond Beach
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Enclosed is your final report for ERA's WS-210 WatR™ Supply Proficiency Testing (PT) study. Your final report includes an evaluation of all results submitted by your laboratory to ERA.

Data Evaluation Protocols: All analytes in ERA's WS-210 WatR™ Supply Proficiency Testing (PT) study have been evaluated using the following tiered approach. If the analyte is listed in the current TNI Fields of Proficiency Testing (FoPT) tables, the evaluation was completed by comparing the reported result to the acceptance limits generated using the criteria contained in the TNI FoPT tables. If the analyte is not included in the TNI FoPT tables, the reported result has been evaluated using the procedures outlined in ERA's Standard Operating Procedure for the Generation of Performance Acceptance Limits (SOP 0260).

Corrective Action Help: As part of your accreditation(s), you may be required to identify the root cause of any "Not Acceptable" results, implement the necessary corrective actions, and then satisfy your PT requirements by participating in a Supplemental (Quik™ Response) or future ERA PT study. ERA's technical staff is available to help your laboratory resolve any technical issues that may be impairing your PT performance and possibly affecting your routine data quality. Our laboratory and technical staff have many years of collective experience in performing the full range of environmental analyses. As part of our technical support, ERA offers QC samples that can be useful in helping you work through your technical issues.

Please note the following changes to our final reports:

- At the request of the TNI Accreditation Council, we have included a Laboratory Exception Report that includes a list of all analytes reported with less than qualifiers when the assigned value was greater than "0." In addition, because we have received many requests from laboratories, this report also includes a list of all analytes with "Not Acceptable" evaluations.
- Some states have elected not to convert to the 2009 TNI Standards at this time. If you have released your results to a state that has retained the 2003 NELAC Evaluation Criteria, your final report will include a section that evaluates the results according to the 2003 Standard in addition to the 2009 TNI Standards.

Thank you for your participation in ERA's WS-210 WatR™ Supply Proficiency Testing study. If you have any questions, please contact our Proficiency Testing Department at 1-800-372-0122.

Sincerely,

Kristina Sanchez
Quality Officer

attachments



A Waters Company

Report Recipient	Contact/Phone Number	Reporting Type	Evaluation Type
Alabama	Tom DeLoach / 334-271-7791	All Analytes	2009 TNI
Alabama (Micro)	Angelica Webb / 334-260-3461	All Analytes	2009 TNI
Arizona	Ali Mayfield / (602) 364-0728	All Analytes	2009 TNI
Colorado	Ben Chouaf / 303-692-3045	All Analytes	2009 TNI
Connecticut	Environmental Lab Certification / 860-509-7388	All Analytes	2009 TNI
EPA Region 8	Marcie Tidd / (303) 312-7764	All Analytes	2009 TNI
Florida	Steve Arms / 904-791-1502	All Analytes	2009 TNI
Georgia	Lynne Grubb / 404-657-3189	All Analytes	2009 TNI
Guam	Rodolfo Paulino / 671-475-1655	All Analytes	2009 TNI
Hawaii	Robert Pineda / 808-453-6679	All Analytes	2009 TNI
Hawaii (Micro)	Michael Kihara / 808-453-6609	All Analytes	2009 TNI
Illinois	John South / 217-558-7142	All Analytes	2009 TNI
Illinois (Micro)	Ruth Bottrell / 217-782-6562	All Analytes	2009 TNI
Indiana	Phil Zillinger / 317-921-5571	All Analytes	2009 TNI
Kansas	Lyndi Stout / 785-296-3811	All Analytes	2009 TNI
Kentucky	Patrick Garrity / 502-564-3410 ext 4968	All Analytes	2009 TNI
Louisiana (Micro)	Ginger Hutto / 985-748-2011	All Analytes	2009 TNI
Louisiana (WS)	Donnell L. Ward / 504-219-4667	All Analytes	2009 TNI
Maine	Jennifer Jamison / 207-287-1929	All Analytes	2009 TNI
Maryland	Linda Ames / 410-537-3712	All Analytes	2009 TNI
Massachusetts	Ann Marie Allen / 978-682-5237 x 51333	All Analytes	2009 TNI
Michigan (WS)	Greg Lundy / 517-335-9219	All Analytes	2009 TNI
Mississippi	Phyllis Givens / 601-576-7582	All Analytes	2009 TNI
Missouri	Lori Dunmire / 573-526-3326	All Analytes	2009 TNI
Missouri (Micro)	Ashley Mehmert / 573-751-3334	All Analytes	2009 TNI
Montana	Russell Leu / 406-444-5259	All Analytes	2009 TNI
Nebraska	Laurie Wieting / 402-471-8407	All Analytes	2009 TNI
Nevada	Sara Rairick / 775-687-9490	All Analytes	2003 NELAC
New Hampshire	Donna Jones / (603) 271-0655	All Analytes	2009 TNI
New Jersey	Rachel Ellis / 609-777-1749	All Analytes	2009 TNI
New York	Dan Dickinson / 518-485-5570	All Analytes	2003 NELAC
North Carolina (WP)	Dana Satterwhite / 919-733-3908 x 243	All Analytes	2009 TNI
North Carolina (WS)	Chris Goforth / 919-807-8871	All Analytes	2009 TNI



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Pennsylvania	Aaren Alger / 717-346-8212	All Analytes	2009 TNI
Puerto Rico	Melba Aviles / 787-274-7711	All Analytes	2009 TNI
South Carolina	Carol Smith / 803-896-0992	All Analytes	2003 NELAC
Tennessee	Craig LaFever / 615-532-0181	All Analytes	2009 TNI
Virgin Islands	Nadalie Joseph / 340-773-1082 x 2288	All Analytes	2009 TNI
Washington	Alan Rue / (360) 871-8844	All Analytes	2009 TNI
West Virginia (Micro)	Tom Ong / 304-558-3530	All Analytes	2003 NELAC
West Virginia (WS)	Greg Young / 304-965-2694 X2222	All Analytes	2003 NELAC
Wisconsin	Rick Mealy / 608-264-6006	All Analytes	2009 TNI
Wisconsin (Micro)	Laura Traas / 414-760-1364	All Analytes	2009 TNI



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WS-210 Definitions & Study Discussion

Study Dates: 01/06/14 - 02/20/14

Report Issued: 02/24/14

WS Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values are compliant with the current TNI Fields of Proficiency Testing (FoPT) tables. A parameter not added to the standard is given an Assigned Value of "< PTRL" per the guidelines contained in the 2009 TNI Standards. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards.

The Acceptance Limits are established per the criteria contained in the most current TNI FoPT tables, or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable.

The Performance Evaluation:

Acceptable	= Reported Value falls within the Acceptance Limits.
Not Acceptable	= Reported Value falls outside the Acceptance Limits.
No Evaluation	= Reported Value cannot be evaluated.
Not Reported	= No Value reported.

The Method Description is the method the laboratory reported to ERA.

WS Study Discussion

ERA's WS-210 WatR™Supply Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI PT Standards and the criteria contained in the most current TNI Fields of Proficiency Testing (FoPT) tables.

ERA's WS-210 WatR™Supply study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes in the standards met the acceptance criteria contained in the 2009 TNI PT Standard and the criteria contained in the most current TNI FoPT tables.

The data submitted by participating laboratories was also examined for study anomalies. There were no anomalies observed during the statistical review of the data.

ERA's WS-210 WatR™Supply study reports shall not be reproduced except in their entirety and not without the permission of the participating laboratories. The report must not be used by the participating laboratories to claim product endorsement by any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's WatR™Supply Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.





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WS-210 Laboratory Exception Report

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2009 TNI Evaluation Checks

There are no values reported with < where the assigned value was greater than 0.

2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description

WS Residual Chlorine (cat# 593)

1945	Free Residual Chlorine	mg/L	0.590	0.818	0.642 - 0.995	Not Acceptable	SM4500Cl D online
1940	Total Residual Chlorine	mg/L	0.610	0.818	0.682 - 0.944	Not Acceptable	SM4500Cl D online

WS Regulated Volatiles (cat# 840)

4640	1,1-Dichloroethylene	µg/L	14.80	11.1	8.88 - 13.3	Not Acceptable	EPA 524.2 4.1 1995
4700	trans-1,2-Dichloroethylene	µg/L	11.20	7.69	4.61 - 10.8	Not Acceptable	EPA 524.2 4.1 1995
4975	Methylene chloride (Dichloromethane)	µg/L	13.7	19.0	15.2 - 22.8	Not Acceptable	EPA 524.2 4.1 1995
5235	Vinyl chloride	µg/L	15.5	9.67	5.80 - 13.5	Not Acceptable	EPA 524.2 4.1 1995

WS Unregulated Volatiles (cat# 841)

4385	Bromobenzene	µg/L	15.50	11.8	9.44 - 14.2	Not Acceptable	EPA 524.2 4.1 1995
4485	Chloroethane	µg/L	22.30	14.0	8.40 - 19.6	Not Acceptable	EPA 524.2 4.1 1995
4680	cis-1,3-Dichloropropene	µg/L	8.84	12.4	9.92 - 14.9	Not Acceptable	EPA 524.2 4.1 1995
4685	trans-1,3-Dichloropropene	µg/L	11.60	15.3	12.2 - 18.4	Not Acceptable	EPA 524.2 4.1 1995
5175	Fluorotrichloromethane	µg/L	26.10	17.7	10.6 - 24.8	Not Acceptable	EPA 524.2 4.1 1995
4910	4-Isopropyltoluene	µg/L	10.30	< 1.20	0.00 - 1.20	Not Acceptable	EPA 524.2 4.1 1995

WS Pesticides (cat# 850)

6285	Hexachlorocyclopentadiene	µg/L	12.50	8.57	2.51 - 12.2	Not Acceptable	EPA 508.1 2 1995



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01





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2009 TNI Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WS Carbamate/Carbamoxylxime Pesticides (cat# 846)							
7805	Methomyl	µg/L	32.30	55.9	44.7 - 67.1	Not Acceptable	EPA 531.1 3.1 1995
WS Regulated Semivolatiles Ampule #1 (cat# 848)							
6315	Indeno(1,2,3-cd)pyrene	µg/L	2.63	1.61	0.700 - 2.30	Not Acceptable	EPA 525.2 2 1995
WS Regulated Semivolatiles #2 Herbicides (cat# 849)							
9411	Glyphosate	µg/L	604.00	382	306 - 458	Not Acceptable	EPA 547 1990



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Final Report Results For Laboratory Pace Analytical Services - Ormond Beach



2009 TNI Evaluation Report

Study: **WS-210**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results





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WS-210 2009 TNI Evaluation Final Complete Report

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Hardness (cat# 555)

1035	Calcium	mg/L	70.5	64.5	54.8 - 74.2	Acceptable	EPA 200.7 5 1998	2/14/2014	1.87	65.1	2.88	CRT
1085	Magnesium	mg/L	18.70	17.7	15.0 - 20.4	Acceptable	EPA 200.7 5 1998	2/14/2014	1.17	17.7	0.845	
1155	Sodium	mg/L	28.70	26.1	22.2 - 30.0	Acceptable	EPA 200.7 5 1998	2/14/2014	1.59	26.5	1.37	
1550	Calcium Hardness as CaCO3	mg/L	176.00	161	137 - 185	Acceptable	EPA 200.7 5 1998	2/14/2014	2.09	162	6.81	
1755	Total Hardness as CaCO3	mg/L	253.00	234	199 - 269	Acceptable	EPA 200.7 5 1998	2/14/2014	2.43	234	7.90	

WS Hardness (cat# 555)

1035	Calcium	mg/L		64.5	54.8 - 74.2	Not Reported				65.1	2.88	
1085	Magnesium	mg/L		17.7	15.0 - 20.4	Not Reported				17.7	0.845	
1155	Sodium	mg/L		26.1	22.2 - 30.0	Not Reported				26.5	1.37	
1550	Calcium Hardness as CaCO3	mg/L	176.00	161	137 - 185	Acceptable	SM 2340 B-2011 2011	2/14/2014	2.09	162	6.81	
1755	Total Hardness as CaCO3	mg/L	253.00	234	199 - 269	Acceptable	SM 2340 B-2011 2011	2/14/2014	2.43	234	7.90	

WS Inorganics (cat# 591)

1505	Alkalinity as CaCO3	mg/L	70.40	69.9	62.9 - 76.9	Acceptable	SM2320B online	1/24/2014	0.0205	70.3	2.69	
1575	Chloride	mg/L	44.80	45.9	39.0 - 52.8	Acceptable	EPA 300.0 2.1 1993	1/21/2014	-0.219	45.2	1.76	
1610	Conductivity at 25°C	µmhos/cm	439	437	393 - 481	Acceptable	SM2510B 21st ED	1/28/2014	-1.40	452	9.40	WMW
1730	Fluoride	mg/L	2.06	2.00	1.80 - 2.20	Acceptable	EPA 300.0 2.1	1/21/2014	1.10	1.93	0.116	JNZ
1820	Nitrate + Nitrite as N	mg/L	4.60	4.54	3.86 - 5.22	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.571	4.46	0.250	
1810	Nitrate as N	mg/L	4.55	4.54	4.09 - 4.99	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.470	4.43	0.248	
1125	Potassium	mg/L	16.6	16.8	14.3 - 19.3	Acceptable	EPA 200.7 5	2/14/2014	-0.154	16.8	1.20	CRT
2000	Sulfate	mg/L	52.90	53.3	45.3 - 61.3	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.144	52.6	2.18	
1955	Total Dissolved Solids at 180°C	mg/L	346.00	330	264 - 396	Acceptable	SM2540C online	1/20/2014	0.759	332	18.8	



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Inorganics (cat# 591)

1505	Alkalinity as CaCO ₃	mg/L		69.9	62.9 - 76.9	Not Reported				70.3	2.69	
1575	Chloride	mg/L		45.9	39.0 - 52.8	Not Reported				45.2	1.76	
1610	Conductivity at 25°C	µmhos/cm		437	393 - 481	Not Reported				452	9.40	
1730	Fluoride	mg/L		2.00	1.80 - 2.20	Not Reported				1.93	0.116	
1820	Nitrate + Nitrite as N	mg/L	4.60	4.54	3.86 - 5.22	Acceptable	EPA 353.2 2 1993	1/21/2014	0.571	4.46	0.250	
1810	Nitrate as N	mg/L	4.60	4.54	4.09 - 4.99	Acceptable	EPA 353.2 2 1993	1/21/2014	0.672	4.43	0.248	
1125	Potassium	mg/L		16.8	14.3 - 19.3	Not Reported				16.8	1.20	
2000	Sulfate	mg/L		53.3	45.3 - 61.3	Not Reported				52.6	2.18	
1955	Total Dissolved Solids at 180°C	mg/L		330	264 - 396	Not Reported				332	18.8	

WS pH (cat# 552)

1900	pH	S.U.	5.67	5.75	5.55 - 5.95	Acceptable	SM4500H+ B 21st ED	1/23/2014	-1.18	5.72	0.0457	KEK



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Metals (cat# 590)

1000	Aluminum	µg/L	616.00	611	519 - 703	Acceptable	EPA 200.7 5 1998	2/8/2014	0.0656	614	37.8	CRT
1005	Antimony	µg/L		30.8	21.6 - 40.0	Not Reported				30.6	2.15	
1010	Arsenic	µg/L		31.4	22.0 - 40.8	Not Reported				31.1	1.81	
1015	Barium	µg/L	2460	2460	2090 - 2830	Acceptable	EPA 200.7 5 1998	2/8/2014	0.00870	2460	115	CRT
1020	Beryllium	µg/L	14	13.2	11.2 - 15.2	Acceptable	EPA 200.7 5 1998	2/8/2014	0.415	13.6	0.880	CRT
1025	Boron	µg/L	785	801	681 - 921	Acceptable	EPA 200.7 5 1998	2/8/2014	-0.515	808	44.5	CRT
1030	Cadmium	µg/L	5.62	5.16	4.13 - 6.19	Acceptable	EPA 200.7 5 1998	2/8/2014	0.746	5.34	0.374	CRT
1040	Chromium	µg/L	54.70	51.5	43.8 - 59.2	Acceptable	EPA 200.7 5 1998	2/8/2014	1.20	51.4	2.77	CRT
1055	Copper	µg/L	202.00	190	171 - 209	Acceptable	EPA 200.7 5 1998	2/8/2014	1.24	191	8.79	CRT
1070	Iron	µg/L	586	545	463 - 627	Acceptable	EPA 200.7 5 1998	2/8/2014	1.33	549	27.8	CRT
1075	Lead	µg/L		32.4	22.7 - 42.1	Not Reported				32.3	2.17	
1090	Manganese	µg/L	438.00	395	336 - 454	Acceptable	EPA 200.7 5 1998	2/8/2014	1.80	406	18.0	CRT
1100	Molybdenum	µg/L	27.90	26.9	22.9 - 30.9	Acceptable	EPA 200.7 5 1998	2/8/2014	0.754	26.7	1.63	CRT
1105	Nickel	µg/L	443	410	348 - 472	Acceptable	EPA 200.7 5 1998	2/8/2014	1.68	408	20.8	CRT
1140	Selenium	µg/L	44.4	46.2	37.0 - 55.4	Acceptable	EPA 200.7 5 1998	2/8/2014	-0.282	45.5	3.94	CRT
1150	Silver	µg/L	24.70	23.5	16.4 - 30.6	Acceptable	EPA 200.7 5 1998	2/8/2014	0.864	23.4	1.56	CRT
1165	Thallium	µg/L		5.10	3.57 - 6.63	Not Reported				5.02	0.372	
1185	Vanadium	µg/L	710.00	693	589 - 797	Acceptable	EPA 200.7 5 1998	2/8/2014	0.604	691	31.6	CRT
1190	Zinc	µg/L	1030	1040	884 - 1200	Acceptable	EPA 200.7 5 1998	2/8/2014	-0.127	1040	56.9	CRT



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Metals (cat# 590)

1000	Aluminum	µg/L	629.00	611	519 - 703	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.410	614	37.8	HEA
1005	Antimony	µg/L	28	30.8	21.6 - 40.0	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-1.23	30.6	2.15	HEA
1010	Arsenic	µg/L	29.4	31.4	22.0 - 40.8	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.923	31.1	1.81	HEA
1015	Barium	µg/L	2500	2460	2090 - 2830	Acceptable	EPA 200.8 5.5 1998	2/10/2014	0.357	2460	115	HEA
1020	Beryllium	µg/L	13.50	13.2	11.2 - 15.2	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.153	13.6	0.880	HEA
1025	Boron	µg/L		801	681 - 921	Not Reported				808	44.5	
1030	Cadmium	µg/L	5.02	5.16	4.13 - 6.19	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.857	5.34	0.374	HEA
1040	Chromium	µg/L	52.40	51.5	43.8 - 59.2	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.367	51.4	2.77	HEA
1055	Copper	µg/L	207.00	190	171 - 209	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.81	191	8.79	HEA
1070	Iron	µg/L		545	463 - 627	Not Reported				549	27.8	
1075	Lead	µg/L	32.60	32.4	22.7 - 42.1	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.128	32.3	2.17	HEA
1090	Manganese	µg/L	423.00	395	336 - 454	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.964	406	18.0	HEA
1100	Molybdenum	µg/L	26.10	26.9	22.9 - 30.9	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.353	26.7	1.63	HEA
1105	Nickel	µg/L	426.00	410	348 - 472	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.862	408	20.8	HEA
1140	Selenium	µg/L	42.00	46.2	37.0 - 55.4	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.892	45.5	3.94	HEA
1150	Silver	µg/L	24.80	23.5	16.4 - 30.6	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.928	23.4	1.56	HEA
1165	Thallium	µg/L	5.07	5.10	3.57 - 6.63	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.132	5.02	0.372	HEA
1185	Vanadium	µg/L	682	693	589 - 797	Acceptable	EPA 200.8 5.5 1998	2/10/2014	-0.282	691	31.6	HEA
1190	Zinc	µg/L	1010.00	1040	884 - 1200	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.478	1040	56.9	HEA

WS Mercury (cat# 551)

1095	Mercury	µg/L	2.55	2.43	1.70 - 3.16	Acceptable	EPA 245.1 4.1	2/11/2014	0.660	2.41	0.213	HEA



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Hexavalent Chromium (cat# 854)

1045	Hexavalent Chromium	µg/L	14.70	14.8	11.8 - 17.8	Acceptable	EPA 218.6 3.3 1994	1/30/2014	0.525	14.1	1.10	

WS Uranium (cat# 858)

3055	Uranium (Nat)	µg/L	58.8	64.1	51.9 - 71.4	Acceptable	EPA 200.8 5.5	2/7/2014	-1.23	62.9	3.29	HEA

WS Inorganic Disinfection #1 (cat# 5270)

1570	Chlorate	µg/L	167.00	172	120 - 224	Acceptable	EPA 300.1 1 2000	1/22/2014	-0.466	170	5.89	
1595	Chlorite	µg/L	616.00	614	430 - 798	Acceptable	EPA 300.1 1 2000	1/22/2014	-0.450	635	43.2	

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L		47.0	32.9 - 61.1	Not Reported				46.6	2.50	
1540	Bromide	µg/L	301	270	230 - 310	Acceptable	EPA 300.0 2.1 1993	2/14/2014	1.53	273	18.3	JNZ

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L		47.0	32.9 - 61.1	Not Reported				46.6	2.50	
1540	Bromide	µg/L	309.00	270	230 - 310	Acceptable	EPA 300.1 1 2000	2/19/2014	1.96	273	18.3	

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.85	1.87	1.59 - 2.15	Acceptable	EPA 353.2	1/21/2014	-0.320	1.88	0.0857	CLS

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.9	1.87	1.59 - 2.15	Acceptable	EPA 300.0 2.1	1/21/2014	0.263	1.88	0.0857	JNZ

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	2.16	2.11	1.79 - 2.43	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.248	2.13	0.113	JNZ

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	2.16	2.11	1.79 - 2.43	Acceptable	EPA 365.1 2	2/4/2014	0.248	2.13	0.113	TK1



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WS-210 2009 TNI Evaluation Final Complete Report

Lynn Baylor
QA Analyst
Pace Analytical Services - Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174
(386) 676-4803

EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
02/24/14
01/06/14 - 02/20/14

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Residual Chlorine (cat# 593)

1945	Free Residual Chlorine	mg/L	0.590	0.818	0.642 - 0.995	Not Acceptable	SM4500Cl D online	1/29/2014	-2.88	0.790	0.0693	
1940	Total Residual Chlorine	mg/L	0.610	0.818	0.682 - 0.944	Not Acceptable	SM4500Cl D online	1/29/2014	-3.89	0.816	0.0529	

WS Cyanide (cat# 556)

1645	Cyanide, total	mg/L	0.242	0.251	0.188 - 0.314	Acceptable	EPA 335.4	1/24/2014	-0.225	0.247	0.0239	ADC

WS Organic Carbon (cat# 557)

1710	Dissolved Organic Carbon (DOC)	mg/L	10.9	10.4	9.25 - 11.4	Acceptable	SM5310B 21st ED 2000	1/17/2014	1.01	10.4	0.485	AGS
2040	Total Organic Carbon (TOC)	mg/L	10.50	10.4	8.32 - 12.5	Acceptable	SM5310B 21st ED 2000	2/3/2014	-0.0000717	10.5	0.504	AGS

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	16.6	17.3	14.7 - 19.9	Acceptable	EPA 200.7 5 1998	2/7/2014	-0.999	17.5	0.906	CRT

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	16.30	17.3	14.7 - 19.9	Acceptable	SM4500Si D online	2/13/2014	-1.33	17.5	0.906	

WS Surfactants - MBAS (cat# 901)

2025	Surfactants - MBAS	mg/L	0.36	0.408	0.281 - 0.530	Acceptable	SM5540C 21st ED	2/18/2014	-0.869	0.415	0.0634	CRS

WS Corrosivity (cat# 900)

1620	Corrosivity	S.I. @ 20°C	2.08	2.03	1.63 - 2.43	Acceptable	SM2330B 18th ED 1989	2/17/2014	0.257	2.03	0.197	

WS Turbidity (cat# 592)

2055	Turbidity	NTU	3.33	3.35	2.82 - 3.84	Acceptable	EPA 180.1 2	1/15/2014	-0.162	3.36	0.203	CRS

WS Color (cat# 859)

1605	Color	PC units	30	30.0	20.0 - 40.0	Acceptable	SM2120B 21st ED	1/15/2014	0.453	28.3	3.84	CRS

WS UV 254 Absorbance (cat# 904)

2060	UV 254 Absorbance	cm-1	0.0755	0.0874	0.0689 - 0.113	Acceptable	SM5910B online	1/16/2014	-1.38	0.0899	0.0104	



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2009 TNI Evaluation Report

Study: **WS-210**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Microbiology Results



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WS MicrobE™ (Coliforms) (cat# 080C)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 4 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 2, 3 and 8

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 9





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WS MicrobE™ (Coliforms) (cat# 080C) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 4 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 2, 3 and 8

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 9



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WS MicrobE™ (Coliforms) (cat# 080C) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 3	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 4 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 2, 3 and 8

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 9



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WS MicrobE™ (Coliforms) (cat# 080D)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 3 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 2, 4 and 9

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 7



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS MicrobE™ (Coliforms) (cat# 080D) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 3 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 2, 4 and 9

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 7





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WS MicrobE™ (Coliforms) (cat# 080D) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 3 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 2, 4 and 9

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 7

WS Heterotrophic Plate Count (cat# 079)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL	117	155	84.0 - 155	Acceptable	SM9215B 18/19thED	2/20/2014	0.160	114	17.5	LJJ
2555	Heterotrophic Plate Count (MPN)	MPN/mL	108.00	152	55.2 - 193	Acceptable	SM9215B 18/19thED	2/20/2014	0.137	103	34.5	

Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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2009 TNI Evaluation Report

Study: **WS-210**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Organic Results





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WS-210 2009 TNI Evaluation Final Complete Report

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WS Haloacetic Acids (HAA) (cat# 852)

9312	Bromoacetic acid	µg/L	12.30	13.0	7.80 - 18.2	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.597	13.0	1.23	IRL
9315	Bromochloroacetic acid	µg/L	6.62	7.19	4.31 - 10.1	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.617	7.06	0.707	IRL
9336	Chloroacetic acid	µg/L	34.20	39.0	23.4 - 54.6	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.507	36.7	4.83	IRL
9357	Dibromoacetic acid	µg/L	28.50	28.9	17.3 - 40.5	Acceptable	EPA 552.2 1 1995	1/28/2014	0.254	27.5	4.07	IRL
9360	Dichloroacetic acid	µg/L	24.4	30.1	18.1 - 42.1	Acceptable	EPA 552.2 1 1995	1/28/2014	-1.20	28.0	2.97	IRL
9642	Trichloroacetic acid	µg/L	13.60	14.7	8.82 - 20.6	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.393	14.4	1.94	IRL

WS Halomethanes (THMs) (cat# 842)

4395	Bromodichloromethane	µg/L	30.30	25.9	20.7 - 31.1	Acceptable	EPA 524.2 4.1 1995	2/20/2014	2.13	25.8	2.12	JLR
4400	Bromoform	µg/L	20.00	18.3	14.6 - 22.0	Acceptable	EPA 524.2 4.1 1995	2/20/2014	1.13	18.0	1.79	JLR
4575	Chlorodibromomethane	µg/L	45.80	39.1	31.3 - 46.9	Acceptable	EPA 524.2 4.1 1995	2/20/2014	1.85	38.4	4.01	JLR
4505	Chloroform	µg/L	21.00	22.7	18.2 - 27.2	Acceptable	EPA 524.2 4.1 1995	2/20/2014	-0.717	22.4	1.90	JLR



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WS Regulated Volatiles (cat# 840)

4375	Benzene	µg/L	9.96	9.73	5.84 - 13.6	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.417	9.65	0.741	
4455	Carbon tetrachloride	µg/L	5.27	4.46	2.68 - 6.24	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.74	4.39	0.507	
4475	Chlorobenzene	µg/L	9.01	7.95	4.77 - 11.1	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.60	8.02	0.618	
4610	1,2-Dichlorobenzene	µg/L	19.10	18.2	14.6 - 21.8	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.820	17.8	1.58	
4620	1,4-Dichlorobenzene	µg/L	13.30	11.4	9.12 - 13.7	Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.23	11.1	0.966	
4635	1,2-Dichloroethane	µg/L	6.75	5.87	3.52 - 8.22	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.42	5.98	0.544	
4640	1,1-Dichloroethylene	µg/L	14.80	11.1	8.88 - 13.3	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.28	11.5	1.43	
4645	cis-1,2-Dichloroethylene	µg/L	8.31	7.07	4.24 - 9.90	Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.20	7.03	0.581	
4700	trans-1,2-Dichloroethylene	µg/L	11.20	7.69	4.61 - 10.8	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	4.55	7.92	0.721	
4655	1,2-Dichloropropane	µg/L	14.20	12.9	10.3 - 15.5	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.61	12.8	0.897	
4765	Ethylbenzene	µg/L	9.43	9.19	5.51 - 12.9	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.240	9.21	0.926	
4975	Methylene chloride (Dichloromethane)	µg/L	13.7	19.0	15.2 - 22.8	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	-2.94	18.5	1.62	
5100	Styrene	µg/L	8.70	9.47	5.68 - 13.3	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.647	9.28	0.904	
5115	Tetrachloroethylene	µg/L	9.28	9.74	5.84 - 13.6	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.0676	9.35	1.03	
5140	Toluene	µg/L	17.8	17.6	14.1 - 21.1	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.407	17.2	1.40	
5155	1,2,4-Trichlorobenzene	µg/L	9.94	12.0	9.60 - 14.4	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.01	11.4	1.46	
5160	1,1,1-Trichloroethane	µg/L	2.54	2.28	1.37 - 3.19	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.51	2.18	0.240	
5165	1,1,2-Trichloroethane	µg/L	7.20	6.66	4.00 - 9.32	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.12	6.56	0.571	
5170	Trichloroethylene	µg/L	7.58	7.53	4.52 - 10.5	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.331	7.37	0.621	
5235	Vinyl chloride	µg/L	15.5	9.67	5.80 - 13.5	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.41	11.1	1.81	



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Volatiles (cat# 840) (Continued)

5260	Xylenes, total	µg/L	25.50	22.8	18.2 - 27.4	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.16	23.0	2.16	



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WS Unregulated Volatiles (cat# 841)

4385	Bromobenzene	µg/L	15.50	11.8	9.44 - 14.2	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.78	11.8	1.34	
4390	Bromochloromethane	µg/L	11.40	9.61	5.77 - 13.5	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.86	9.66	0.934	
4950	Bromomethane	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
5000	tert-Butyl methyl ether (MTBE)	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4435	n-Butylbenzene	µg/L	5.40	6.14	3.68 - 8.60	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.775	5.84	0.562	
4440	sec-Butylbenzene	µg/L	< 0.50	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4445	tert-Butylbenzene	µg/L	10.30	10.8	8.64 - 13.0	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.379	10.7	1.14	
4485	Chloroethane	µg/L	22.30	14.0	8.40 - 19.6	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.73	15.5	2.48	
4960	Chloromethane	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4535	2-Chlorotoluene	µg/L	4.79	4.68	2.81 - 6.55	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.308	4.65	0.445	
4540	4-Chlorotoluene	µg/L	4.15	4.54	2.72 - 6.36	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.589	4.41	0.437	
4595	Dibromomethane	µg/L	5.91	5.98	3.59 - 8.37	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.176	5.82	0.508	
4615	1,3-Dichlorobenzene	µg/L	11.60	12.4	9.92 - 14.9	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.570	12.3	1.17	
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4630	1,1-Dichloroethane	µg/L	12.00	8.58	5.15 - 12.0	Acceptable	EPA 524.2 4.1 1995	2/19/2014	3.91	8.80	0.817	
4660	1,3-Dichloropropane	µg/L	15.30	13.9	11.1 - 16.7	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.05	13.9	1.31	
4665	2,2-Dichloropropane	µg/L	< 0.50	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4670	1,1-Dichloropropene	µg/L	4.92	5.38	3.23 - 7.53	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.19	5.55	0.528	
4680	cis-1,3-Dichloropropene	µg/L	8.84	12.4	9.92 - 14.9	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	-2.68	11.5	0.984	
4685	trans-1,3-Dichloropropene	µg/L	11.60	15.3	12.2 - 18.4	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.83	14.2	1.43	



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WS Unregulated Volatiles (cat# 841) (Continued)

5175	Fluorotrichloromethane	µg/L	26.10	17.7	10.6 - 24.8	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.20	19.6	2.95	
4835	Hexachlorobutadiene	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4900	Isopropylbenzene	µg/L	14.40	16.0	12.8 - 19.2	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.24	16.8	1.97	
4910	4-Isopropyltoluene	µg/L	10.30	< 1.20	0.00 - 1.20	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014				
5005	Naphthalene	µg/L	6.45	5.94	3.56 - 8.32	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.05	5.61	0.801	
5090	n-Propylbenzene	µg/L	9.37	9.23	5.54 - 12.9	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.142	9.26	0.743	
5105	1,1,1,2-Tetrachloroethane	µg/L	3.38	3.19	1.91 - 4.47	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.817	3.16	0.274	
5110	1,1,2,2-Tetrachloroethane	µg/L	3.66	3.08	1.85 - 4.31	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.49	3.08	0.387	
5150	1,2,3-Trichlorobenzene	µg/L	9.36	11.7	9.36 - 14.0	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.35	11.3	1.46	
5180	1,2,3-Trichloropropane (TCP)	µg/L	11.00	10.3	8.24 - 12.4	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.443	10.3	1.50	
5210	1,2,4-Trimethylbenzene	µg/L	4.01	4.12	2.47 - 5.77	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.250	4.10	0.368	
5215	1,3,5-Trimethylbenzene	µg/L	3.11	4.02	2.41 - 5.63	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-2.18	3.99	0.402	



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WS Pesticides (cat# 850)

7005	Alachlor	µg/L		2.96	1.63 - 4.29	Not Reported				2.97	0.400	
7025	Aldrin	µg/L	1.35	1.26	0.564 - 1.61	Acceptable	EPA 525.2 2 1995	1/15/2014	1.15	1.08	0.235	TWB
7065	Atrazine	µg/L		9.68	5.32 - 14.0	Not Reported				9.42	1.61	
7120	gamma-BHC (Lindane)	µg/L		1.53	0.842 - 2.22	Not Reported				1.45	0.192	
7130	Bromacil	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
7160	Butachlor	µg/L	3.66	3.77	2.07 - 5.47	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.543	3.94	0.523	TWB
7410	Diazinon	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
7470	Dieldrin	µg/L	2.23	2.13	1.17 - 3.09	Acceptable	EPA 525.2 2 1995	1/15/2014	0.488	2.10	0.276	TWB
7540	Endrin	µg/L		1.81	1.27 - 2.35	Not Reported				1.75	0.318	
7685	Heptachlor	µg/L		1.17	0.644 - 1.70	Not Reported				1.06	0.225	
7690	Heptachlor epoxide (beta)	µg/L		1.90	1.04 - 2.76	Not Reported				1.80	0.273	
6275	Hexachlorobenzene	µg/L		1.77	0.875 - 2.22	Not Reported				1.67	0.232	
6285	Hexachlorocyclopentadiene	µg/L		8.57	2.51 - 12.2	Not Reported				7.84	3.00	
7810	Methoxychlor	µg/L		3.77	2.07 - 5.47	Not Reported				3.73	0.645	
7835	Metolachlor	µg/L	9.24	9.16	5.04 - 13.3	Acceptable	EPA 525.2 2 1995	1/15/2014	0.106	9.12	1.10	TWB
7845	Metribuzin	µg/L	3.18	3.23	1.62 - 4.84	Acceptable	EPA 525.2 2 1995	1/15/2014	0.763	2.60	0.763	TWB
7875	Molinate (Ordram)	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
8035	Prometon	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
8045	Propachlor	µg/L	1.79	1.94	1.07 - 2.81	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.549	1.94	0.268	TWB
8125	Simazine	µg/L		5.25	2.89 - 7.61	Not Reported				5.00	1.26	



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
8295	Trifluralin	µg/L	1.30	1.69	0.930 - 2.45	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.706	1.60	0.419	TWB





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WS Pesticides (cat# 850)

7005	Alachlor	µg/L	3.04	2.96	1.63 - 4.29	Acceptable	EPA 508.1 2 1995	2/20/2014	0.166	2.97	0.400	
7025	Aldrin	µg/L		1.26	0.564 - 1.61	Not Reported				1.08	0.235	
7065	Atrazine	µg/L	8.97	9.68	5.32 - 14.0	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.277	9.42	1.61	
7120	gamma-BHC (Lindane)	µg/L	1.41	1.53	0.842 - 2.22	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.198	1.45	0.192	
7130	Bromacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7160	Butachlor	µg/L	3.97	3.77	2.07 - 5.47	Acceptable	EPA 508.1 2 1995	2/20/2014	0.0500	3.94	0.523	
7410	Diazinon	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7470	Dieldrin	µg/L	2.34	2.13	1.17 - 3.09	Acceptable	EPA 508.1 2 1995	2/20/2014	0.886	2.10	0.276	
7540	Endrin	µg/L	1.36	1.81	1.27 - 2.35	Acceptable	EPA 508.1 2 1995	2/20/2014	-1.22	1.75	0.318	
7685	Heptachlor	µg/L	0.925	1.17	0.644 - 1.70	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.585	1.06	0.225	
7690	Heptachlor epoxide (beta)	µg/L	1.57	1.90	1.04 - 2.76	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.829	1.80	0.273	
6275	Hexachlorobenzene	µg/L	1.71	1.77	0.875 - 2.22	Acceptable	EPA 508.1 2 1995	2/20/2014	0.186	1.67	0.232	
6285	Hexachlorocyclopentadiene	µg/L	12.50	8.57	2.51 - 12.2	Not Acceptable	EPA 508.1 2 1995	2/20/2014	1.55	7.84	3.00	
7810	Methoxychlor	µg/L	3.96	3.77	2.07 - 5.47	Acceptable	EPA 508.1 2 1995	2/20/2014	0.356	3.73	0.645	
7835	Metolachlor	µg/L	8.75	9.16	5.04 - 13.3	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.341	9.12	1.10	
7845	Metribuzin	µg/L	4.07	3.23	1.62 - 4.84	Acceptable	EPA 508.1 2 1995	2/20/2014	1.93	2.60	0.763	
7875	Molinate (Ordram)	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8035	Prometon	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8045	Propachlor	µg/L	2.19	1.94	1.07 - 2.81	Acceptable	EPA 508.1 2 1995	2/20/2014	0.943	1.94	0.268	
8125	Simazine	µg/L	4.53	5.25	2.89 - 7.61	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.370	5.00	1.26	



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		1.69	0.930 - 2.45	Not Reported				1.60	0.419	

WS Carbamate/Carbamoxoylone Pesticides (cat# 846)

7010	Aldicarb	µg/L	20.30	21.5	16.1 - 26.9	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.524	21.5	2.20	LAJ
7015	Aldicarb sulfone	µg/L	33.90	28.4	21.3 - 35.5	Acceptable	EPA 531.1 3.1 1995	1/27/2014	0.910	31.1	3.07	LAJ
7020	Aldicarb sulfoxide	µg/L	26.70	26.4	19.8 - 33.0	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.0358	26.8	2.71	LAJ
8080	Baygon	µg/L		105	85.4 - 124	Not Reported				105	5.13	
7195	Carbaryl	µg/L	47	47.1	35.3 - 58.9	Acceptable	EPA 531.1 3.1 1995	1/27/2014	0.552	45.7	2.33	LAJ
7205	Carbofuran	µg/L	101	103	56.6 - 149	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.00712	101	6.39	LAJ
7710	3-Hydroxycarbofuran	µg/L	17.4	21.1	16.9 - 25.3	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-1.52	20.8	2.26	LAJ
7800	Methiocarb	µg/L	71.10	76.2	59.5 - 90.9	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.440	74.0	6.67	LAJ
7805	Methomyl	µg/L	32.30	55.9	44.7 - 67.1	Not Acceptable	EPA 531.1 3.1 1995	1/27/2014	-6.78	57.0	3.64	LAJ
7940	Oxamyl (vydate)	µg/L	49.10	49.6	37.2 - 62.0	Acceptable	EPA 531.1 3.1 1995	1/27/2014	0.162	48.5	3.89	LAJ

WS Toxaphene (cat# 844)

8250	Toxaphene	µg/L	4.91	4.96	2.73 - 7.19	Acceptable	EPA 508.1 2	1/29/2014	0.713	4.18	1.03	SMB

WS EDB/DBCP/TCP (cat# 847)

4570	Dibromochloropropane (DBCP)	µg/L	1.65	1.51	0.906 - 2.11	Acceptable	EPA 504.1 1.1 1995	1/21/2014	0.836	1.48	0.199	IRL
4585	Ethylene Dibromide (EDB)	µg/L	1.31	1.23	0.738 - 1.72	Acceptable	EPA 504.1 1.1 1995	1/21/2014	0.831	1.19	0.147	IRL
5180	1,2,3-Trichloropropane (TCP)	µg/L	1.25	1.34	0.804 - 1.88	Acceptable	EPA 504.1 1.1 1995	1/21/2014	-0.387	1.34	0.245	IRL



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WS EDB/DBCP/TCP (cat# 847)

4570	Dibromochloropropane (DBCP)	µg/L	1.60	1.51	0.906 - 2.11	Acceptable	EPA 8011 1994	1/22/2014	0.584	1.48	0.199	
4585	Ethylene Dibromide (EDB)	µg/L	1.31	1.23	0.738 - 1.72	Acceptable	EPA 8011 1994	1/22/2014	0.831	1.19	0.147	
5180	1,2,3-Trichloropropane (TCP)	µg/L	1.25	1.34	0.804 - 1.88	Acceptable	EPA 8011 1994	1/22/2014	-0.387	1.34	0.245	





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WS Regulated Semivolatiles Ampule #1 (cat# 848)

5500	Acenaphthene	µg/L		8.77	4.37 - 11.0	Not Reported				7.87	0.590	
5505	Acenaphthylene	µg/L		3.47	1.63 - 4.66	Not Reported				3.25	0.676	
5555	Anthracene	µg/L		2.41	1.04 - 3.13	Not Reported				2.14	0.732	
5575	Benzo(a)anthracene	µg/L		4.70	2.59 - 5.95	Not Reported				4.16	0.954	
5585	Benzo(b)fluoranthene	µg/L		7.42	3.95 - 10.2	Not Reported				6.78	0.953	
5600	Benzo(k)fluoranthene	µg/L		6.72	3.64 - 9.10	Not Reported				6.16	0.833	
5590	Benzo(g,h,i)perylene	µg/L		2.78	1.26 - 3.97	Not Reported				2.61	0.564	
5580	Benzo(a)pyrene	µg/L	1.29	1.27	0.492 - 1.65	Acceptable	EPA 525.2 2 1995	1/15/2014	0.929	1.05	0.253	TWB
5670	Butylbenzylphthalate	µg/L	35.20	33.5	18.2 - 48.6	Acceptable	EPA 525.2 2 1995	1/15/2014	0.256	33.3	7.27	TWB
5855	Chrysene	µg/L		4.42	2.53 - 5.68	Not Reported				4.27	0.547	
5895	Dibenz(a,h)anthracene	µg/L		4.77	2.21 - 6.85	Not Reported				4.68	1.69	
6070	Diethylphthalate	µg/L	42.90	43.3	23.3 - 61.2	Acceptable	EPA 525.2 2 1995	1/15/2014	0.476	41.1	3.75	TWB
6135	Dimethylphthalate	µg/L	30.90	30.7	14.7 - 42.2	Acceptable	EPA 525.2 2 1995	1/15/2014	0.424	29.2	4.12	TWB
5925	Di-n-butylphthalate	µg/L	33.30	32.2	17.6 - 46.3	Acceptable	EPA 525.2 2 1995	1/15/2014	0.00948	33.2	6.15	TWB
6200	Di-n-octylphthalate	µg/L		10.2	5.06 - 14.2	Not Reported				11.9	4.15	
6062	bis(2-Ethylhexyl)adipate	µg/L	28.50	29.0	17.9 - 38.2	Acceptable	EPA 525.2 2 1995	1/15/2014	0.598	25.9	4.39	TWB
6065	bis(2-Ethylhexyl)phthalate	µg/L	26.1	26.2	13.2 - 37.7	Acceptable	EPA 525.2 2 1995	1/15/2014	0.512	23.7	4.68	TWB
6265	Fluoranthene	µg/L		4.65	2.24 - 6.28	Not Reported				4.53	0.664	
6270	Fluorene	µg/L	3.17	3.22	1.88 - 4.12	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.488	3.29	0.240	TWB
6315	Indeno(1,2,3-cd)pyrene	µg/L	2.63	1.61	0.700 - 2.30	Not Acceptable	EPA 525.2 2 1995	1/15/2014	1.40	1.92	0.510	TWB



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Semivolatiles Ampule #1 (cat# 848) (Continued)

5005	Naphthalene	µg/L		4.27	1.73 - 5.45	Not Reported				3.91	0.597	
6615	Phenanthrene	µg/L	3.93	5.13	3.26 - 6.46	Acceptable	EPA 525.2 2 1995	1/15/2014	-1.40	4.74	0.579	TWB
6665	Pyrene	µg/L	3.59	3.26	1.95 - 4.22	Acceptable	EPA 525.2 2 1995	1/15/2014	0.457	3.38	0.461	TWB

WS Chlorinated Acid Herbicides (cat# 851)

8505	Acifluorfen	µg/L	21.70	28.4	14.2 - 42.6	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.993	26.1	4.41	LJM
8530	Bentazon	µg/L	12.8	15.6	8.08 - 21.2	Acceptable	EPA 515.3 1 1996	1/28/2014	-1.09	14.9	1.93	LJM
8540	Chloramben	µg/L		58.2	15.6 - 78.9	Not Reported				52.5	7.44	
8545	2,4-D	µg/L	17.40	20.5	10.2 - 30.8	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.894	19.5	2.32	LJM
8550	Dacthal diacid (DCPA)	µg/L		25.0	9.30 - 40.5	Not Reported				27.2	5.72	
8555	Dalapon	µg/L	12.7	14.5	7.25 - 21.8	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.485	14.0	2.63	LJM
8560	2,4-DB	µg/L	28.40	30.2	15.1 - 45.3	Acceptable	EPA 515.3 1 1996	1/28/2014	0.158	27.9	3.22	LJM
8595	Dicamba	µg/L	33.4	41.4	20.7 - 62.1	Acceptable	EPA 515.3 1 1996	1/28/2014	-1.65	40.1	4.05	LJM
8600	3,5-Dichlorobenzoic acid	µg/L		50.6	24.1 - 67.0	Not Reported				45.4	6.82	
8605	Dichlorprop	µg/L	18.10	21.2	9.71 - 29.2	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.860	20.2	2.44	LJM
8620	Dinoseb	µg/L	10.10	11.8	4.64 - 17.1	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.806	11.7	1.98	LJM
6500	4-Nitrophenol	µg/L		56.8	5.68 - 76.7	Not Reported				53.6	0.00	
6605	Pentachlorophenol	µg/L	18.3	22.7	11.4 - 34.0	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.913	20.7	2.63	LJM
8645	Picloram	µg/L	16.3	15.7	7.85 - 23.6	Acceptable	EPA 515.3 1 1996	1/28/2014	0.359	15.6	2.06	LJM
8655	2,4,5-T	µg/L	23.3	24.1	12.0 - 36.2	Acceptable	EPA 515.3 1 1996	1/28/2014	0.166	22.9	2.47	LJM
8650	2,4,5-TP (Silvex)	µg/L	13.20	15.4	7.70 - 23.1	Acceptable	EPA 515.3 1 1996	1/28/2014	-1.09	14.6	1.26	LJM



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WS Regulated Semivolatiles #2 Herbicides (cat# 849)

9390	Diquat	µg/L	25.70	26.4	13.2 - 39.6	Acceptable	EPA 549.2 1 1997	1/27/2014	0.716	22.8	4.07	
7525	Endothall	µg/L	151.00	166	83.0 - 249	Acceptable	EPA 548.1 1 1992	1/17/2014	-0.177	155	19.8	
9411	Glyphosate	µg/L	604.00	382	306 - 458	Not Acceptable	EPA 547 1990	1/17/2014	6.04	392	35.2	
9528	Paraquat	µg/L	30.3	41.2	18.1 - 51.7	Acceptable	EPA 549.2 1	1/27/2014	-0.130	31.0	5.25	LAJ



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Final Report Results For Laboratory Pace Analytical Services - Ormond Beach



2003 NELAC Evaluation Report

Study: **WS-210**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Inorganic Results





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WS Hardness (cat# 555)

1035	Calcium	mg/L	70.5	64.5	54.8 - 74.2	Acceptable	EPA 200.7 5 1998	2/14/2014	1.87	65.1	2.88	CRT
1085	Magnesium	mg/L	18.70	17.7	15.0 - 20.4	Acceptable	EPA 200.7 5 1998	2/14/2014	1.17	17.7	0.845	
1155	Sodium	mg/L	28.70	26.1	22.2 - 30.0	Acceptable	EPA 200.7 5 1998	2/14/2014	1.59	26.5	1.37	
1550	Calcium Hardness as CaCO ₃	mg/L	176.00	161	137 - 185	Acceptable	EPA 200.7 5 1998	2/14/2014	2.09	162	6.81	
1755	Total Hardness as CaCO ₃	mg/L	253.00	234	199 - 269	Acceptable	EPA 200.7 5 1998	2/14/2014	2.43	234	7.90	

WS Hardness (cat# 555)

1035	Calcium	mg/L		64.5	54.8 - 74.2	Not Reported				65.1	2.88	
1085	Magnesium	mg/L		17.7	15.0 - 20.4	Not Reported				17.7	0.845	
1155	Sodium	mg/L		26.1	22.2 - 30.0	Not Reported				26.5	1.37	
1550	Calcium Hardness as CaCO ₃	mg/L	176.00	161	137 - 185	Acceptable	SM 2340 B-2011 2011	2/14/2014	2.09	162	6.81	
1755	Total Hardness as CaCO ₃	mg/L	253.00	234	199 - 269	Acceptable	SM 2340 B-2011 2011	2/14/2014	2.43	234	7.90	

WS Inorganics (cat# 591)

1505	Alkalinity as CaCO ₃	mg/L	70.40	69.9	62.9 - 76.9	Acceptable	SM2320B online	1/24/2014	0.0205	70.3	2.69	
1575	Chloride	mg/L	44.80	45.9	39.0 - 52.8	Acceptable	EPA 300.0 2.1 1993	1/21/2014	-0.219	45.2	1.76	
1610	Conductivity at 25°C	µmhos/cm	439	437	393 - 481	Acceptable	SM2510B 21st ED	1/28/2014	-1.40	452	9.40	WMW
1730	Fluoride	mg/L	2.06	2.00	1.80 - 2.20	Acceptable	EPA 300.0 2.1	1/21/2014	1.10	1.93	0.116	JNZ
1820	Nitrate + Nitrite as N	mg/L	4.60	4.54	3.86 - 5.22	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.571	4.46	0.250	
1810	Nitrate as N	mg/L	4.55	4.54	4.09 - 4.99	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.470	4.43	0.248	
1125	Potassium	mg/L	16.6	16.8	14.3 - 19.3	Acceptable	EPA 200.7 5	2/14/2014	-0.154	16.8	1.20	CRT
2000	Sulfate	mg/L	52.90	53.3	45.3 - 61.3	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.144	52.6	2.18	
1955	Total Dissolved Solids at 180°C	mg/L	346.00	330	264 - 396	Acceptable	SM2540C online	1/20/2014	0.759	332	18.8	



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WS Inorganics (cat# 591)

1505	Alkalinity as CaCO ₃	mg/L		69.9	62.9 - 76.9	Not Reported				70.3	2.69	
1575	Chloride	mg/L		45.9	39.0 - 52.8	Not Reported				45.2	1.76	
1610	Conductivity at 25°C	µmhos/cm		437	393 - 481	Not Reported				452	9.40	
1730	Fluoride	mg/L		2.00	1.80 - 2.20	Not Reported				1.93	0.116	
1820	Nitrate + Nitrite as N	mg/L	4.60	4.54	3.86 - 5.22	Acceptable	EPA 353.2 2 1993	1/21/2014	0.571	4.46	0.250	
1810	Nitrate as N	mg/L	4.60	4.54	4.09 - 4.99	Acceptable	EPA 353.2 2 1993	1/21/2014	0.672	4.43	0.248	
1125	Potassium	mg/L		16.8	14.3 - 19.3	Not Reported				16.8	1.20	
2000	Sulfate	mg/L		53.3	45.3 - 61.3	Not Reported				52.6	2.18	
1955	Total Dissolved Solids at 180°C	mg/L		330	264 - 396	Not Reported				332	18.8	

WS pH (cat# 552)

1900	pH	S.U.	5.67	5.75	5.55 - 5.95	Acceptable	SM4500H+ B 21st ED	1/23/2014	-1.18	5.72	0.0457	KEK



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WS Metals (cat# 590)

1000	Aluminum	µg/L	616.00	611	519 - 703	Acceptable	EPA 200.7 5 1998	2/8/2014	0.0656	614	37.8	CRT
1005	Antimony	µg/L		30.8	21.6 - 40.0	Not Reported				30.6	2.15	
1010	Arsenic	µg/L		31.4	22.0 - 40.8	Not Reported				31.1	1.81	
1015	Barium	µg/L	2460	2460	2090 - 2830	Acceptable	EPA 200.7 5 1998	2/8/2014	0.00870	2460	115	CRT
1020	Beryllium	µg/L	14	13.2	11.2 - 15.2	Acceptable	EPA 200.7 5 1998	2/8/2014	0.415	13.6	0.880	CRT
1025	Boron	µg/L	785	801	681 - 921	Acceptable	EPA 200.7 5 1998	2/8/2014	-0.515	808	44.5	CRT
1030	Cadmium	µg/L	5.62	5.16	4.13 - 6.19	Acceptable	EPA 200.7 5 1998	2/8/2014	0.746	5.34	0.374	CRT
1040	Chromium	µg/L	54.70	51.5	43.8 - 59.2	Acceptable	EPA 200.7 5 1998	2/8/2014	1.20	51.4	2.77	CRT
1055	Copper	µg/L	202.00	190	171 - 209	Acceptable	EPA 200.7 5 1998	2/8/2014	1.24	191	8.79	CRT
1070	Iron	µg/L	586	545	463 - 627	Acceptable	EPA 200.7 5 1998	2/8/2014	1.33	549	27.8	CRT
1075	Lead	µg/L		32.4	22.7 - 42.1	Not Reported				32.3	2.17	
1090	Manganese	µg/L	438.00	395	336 - 454	Acceptable	EPA 200.7 5 1998	2/8/2014	1.80	406	18.0	CRT
1100	Molybdenum	µg/L	27.90	26.9	22.9 - 30.9	Acceptable	EPA 200.7 5 1998	2/8/2014	0.754	26.7	1.63	CRT
1105	Nickel	µg/L	443	410	348 - 472	Acceptable	EPA 200.7 5 1998	2/8/2014	1.68	408	20.8	CRT
1140	Selenium	µg/L	44.4	46.2	37.0 - 55.4	Acceptable	EPA 200.7 5 1998	2/8/2014	-0.282	45.5	3.94	CRT
1150	Silver	µg/L	24.70	23.5	16.4 - 30.6	Acceptable	EPA 200.7 5 1998	2/8/2014	0.864	23.4	1.56	CRT
1165	Thallium	µg/L		5.10	3.57 - 6.63	Not Reported				5.02	0.372	
1185	Vanadium	µg/L	710.00	693	589 - 797	Acceptable	EPA 200.7 5 1998	2/8/2014	0.604	691	31.6	CRT
1190	Zinc	µg/L	1030	1040	884 - 1200	Acceptable	EPA 200.7 5 1998	2/8/2014	-0.127	1040	56.9	CRT



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WS Metals (cat# 590)

1000	Aluminum	µg/L	629.00	611	519 - 703	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.410	614	37.8	HEA
1005	Antimony	µg/L	28	30.8	21.6 - 40.0	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-1.23	30.6	2.15	HEA
1010	Arsenic	µg/L	29.4	31.4	22.0 - 40.8	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.923	31.1	1.81	HEA
1015	Barium	µg/L	2500	2460	2090 - 2830	Acceptable	EPA 200.8 5.5 1998	2/10/2014	0.357	2460	115	HEA
1020	Beryllium	µg/L	13.50	13.2	11.2 - 15.2	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.153	13.6	0.880	HEA
1025	Boron	µg/L		801	681 - 921	Not Reported				808	44.5	
1030	Cadmium	µg/L	5.02	5.16	4.13 - 6.19	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.857	5.34	0.374	HEA
1040	Chromium	µg/L	52.40	51.5	43.8 - 59.2	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.367	51.4	2.77	HEA
1055	Copper	µg/L	207.00	190	171 - 209	Acceptable	EPA 200.8 5.5 1998	2/7/2014	1.81	191	8.79	HEA
1070	Iron	µg/L		545	463 - 627	Not Reported				549	27.8	
1075	Lead	µg/L	32.60	32.4	22.7 - 42.1	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.128	32.3	2.17	HEA
1090	Manganese	µg/L	423.00	395	336 - 454	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.964	406	18.0	HEA
1100	Molybdenum	µg/L	26.10	26.9	22.9 - 30.9	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.353	26.7	1.63	HEA
1105	Nickel	µg/L	426.00	410	348 - 472	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.862	408	20.8	HEA
1140	Selenium	µg/L	42.00	46.2	37.0 - 55.4	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.892	45.5	3.94	HEA
1150	Silver	µg/L	24.80	23.5	16.4 - 30.6	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.928	23.4	1.56	HEA
1165	Thallium	µg/L	5.07	5.10	3.57 - 6.63	Acceptable	EPA 200.8 5.5 1998	2/7/2014	0.132	5.02	0.372	HEA
1185	Vanadium	µg/L	682	693	589 - 797	Acceptable	EPA 200.8 5.5 1998	2/10/2014	-0.282	691	31.6	HEA
1190	Zinc	µg/L	1010.00	1040	884 - 1200	Acceptable	EPA 200.8 5.5 1998	2/7/2014	-0.478	1040	56.9	HEA

WS Mercury (cat# 551)

1095	Mercury	µg/L	2.55	2.43	1.70 - 3.16	Acceptable	EPA 245.1 4.1	2/11/2014	0.660	2.41	0.213	HEA



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WS Hexavalent Chromium (cat# 854)

1045	Hexavalent Chromium	µg/L	14.70	14.8	11.8 - 17.8	Acceptable	EPA 218.6 3.3 1994	1/30/2014	0.525	14.1	1.10	

WS Uranium (cat# 858)

3055	Uranium (Nat)	µg/L	58.8	64.1	51.9 - 71.4	Acceptable	EPA 200.8 5.5	2/7/2014	-1.23	62.9	3.29	HEA

WS Inorganic Disinfection #1 (cat# 5270)

1570	Chlorate	µg/L	167.00	172	120 - 224	Acceptable	EPA 300.1 1 2000	1/22/2014	-0.466	170	5.89	
1595	Chlorite	µg/L	616.00	614	430 - 798	Acceptable	EPA 300.1 1 2000	1/22/2014	-0.450	635	43.2	

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L		47.0	32.9 - 61.1	Not Reported				46.6	2.50	
1540	Bromide	µg/L	301	270	230 - 310	Acceptable	EPA 300.0 2.1 1993	2/14/2014	1.53	273	18.3	JNZ

WS Inorganic Disinfection #2 (cat# 5260)

1535	Bromate	µg/L		47.0	32.9 - 61.1	Not Reported				46.6	2.50	
1540	Bromide	µg/L	309.00	270	230 - 310	Acceptable	EPA 300.1 1 2000	2/19/2014	1.96	273	18.3	

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.85	1.87	1.59 - 2.15	Acceptable	EPA 353.2	1/21/2014	-0.320	1.88	0.0857	CLS

WS Nitrite (cat# 594)

1840	Nitrite as N	mg/L	1.9	1.87	1.59 - 2.15	Acceptable	EPA 300.0 2.1	1/21/2014	0.263	1.88	0.0857	JNZ

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	2.16	2.11	1.79 - 2.43	Acceptable	EPA 300.0 2.1 1993	1/21/2014	0.248	2.13	0.113	JNZ

WS o-Phosphate Nutrients (cat# 558)

1870	ortho-Phosphate as P	mg/L	2.16	2.11	1.79 - 2.43	Acceptable	EPA 365.1 2	2/4/2014	0.248	2.13	0.113	TK1



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WS-210 2003 NELAC Evaluation Final Complete Report

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ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
02/24/14
01/06/14 - 02/20/14

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Residual Chlorine (cat# 593)

1945	Free Residual Chlorine	mg/L	0.590	0.818	0.642 - 0.995	Not Acceptable	SM4500Cl D online	1/29/2014	-2.88	0.790	0.0693	
1940	Total Residual Chlorine	mg/L	0.610	0.818	0.682 - 0.944	Not Acceptable	SM4500Cl D online	1/29/2014	-3.89	0.816	0.0529	

WS Cyanide (cat# 556)

1645	Cyanide, total	mg/L	0.242	0.251	0.188 - 0.314	Acceptable	EPA 335.4	1/24/2014	-0.225	0.247	0.0239	ADC

WS Organic Carbon (cat# 557)

1710	Dissolved Organic Carbon (DOC)	mg/L	10.9	10.4	9.25 - 11.4	Acceptable	SM5310B 21st ED 2000	1/17/2014	1.01	10.4	0.485	AGS
2040	Total Organic Carbon (TOC)	mg/L	10.50	10.4	8.32 - 12.5	Acceptable	SM5310B 21st ED 2000	2/3/2014	0.0000717	10.5	0.504	AGS

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	16.6	17.3	14.7 - 19.9	Acceptable	EPA 200.7 5 1998	2/7/2014	-0.999	17.5	0.906	CRT

WS Silica (cat# 902)

1990	Silica as SiO ₂	mg/L	16.30	17.3	14.7 - 19.9	Acceptable	SM4500Si D online	2/13/2014	-1.33	17.5	0.906	

WS Surfactants - MBAS (cat# 901)

2025	Surfactants - MBAS	mg/L	0.36	0.408	0.281 - 0.530	Acceptable	SM5540C 21st ED	2/18/2014	-0.869	0.415	0.0634	CRS

WS Corrosivity (cat# 900)

1620	Corrosivity	S.I. @ 20°C	2.08	2.03	1.63 - 2.43	Acceptable	SM2330B 18th ED 1989	2/17/2014	0.257	2.03	0.197	

WS Turbidity (cat# 592)

2055	Turbidity	NTU	3.33	3.35	2.82 - 3.84	Acceptable	EPA 180.1 2	1/15/2014	-0.162	3.36	0.203	CRS

WS Color (cat# 859)

1605	Color	PC units	30	30.0	20.0 - 40.0	Acceptable	SM2120B 21st ED	1/15/2014	0.453	28.3	3.84	CRS



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WS UV 254 Absorbance (cat# 904)

2060	UV 254 Absorbance	cm-1	0.0755	0.0874	0.0689 - 0.113	Acceptable	SM5910B online	1/16/2014	-1.38	0.0899	0.0104	



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Study: **WS-210**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Microbiology Results



WS-210 2003 NELAC Evaluation Final Complete Report

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WS MicrobE™ (Coliforms) (cat# 080C)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 4 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 2, 3 and 8

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 9





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WS MicroBE™ (Coliforms) (cat# 080C) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 4 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 2, 3 and 8

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 9



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WS MicroBE™ (Coliforms) (cat# 080C) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 3	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLISURE online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 4 and 7

Total Coliform Organism - Enterobacter cloacae, Samples 2, 3 and 8

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 9



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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS MicrobE™ (Coliforms) (cat# 080D)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 9	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2500	Total Coliforms - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 3 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 2, 4 and 9

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 7





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WS MicroBE™ (Coliforms) (cat# 080D) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 3 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 2, 4 and 9

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 7

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WS MicroBE™ (Coliforms) (cat# 080D) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT online	2/5/2014	0			

Total Coliforms Evaluation : Acceptable

Fecal Coliforms Evaluation : Not Reported

E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli, Samples 1, 3 and 8

Total Coliform Organism - Enterobacter cloacae, Samples 2, 4 and 9

Negative (1) Coliform Organism - Proteus mirabilis, Sample 5

Negative (2) Coliform Organism - Pseudomonas aeruginosa, Sample 10

Blank - No Organism, Samples 6 and 7

WS Heterotrophic Plate Count (cat# 079)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL	117	155	84.0 - 155	Acceptable	SM9215B 18/19thED	2/20/2014	0.160	114	17.5	LJJ
2555	Heterotrophic Plate Count (MPN)	MPN/mL	108.00	152	55.2 - 193	Acceptable	SM9215B 18/19thED	2/20/2014	0.137	103	34.5	



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Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



2003 NELAC Evaluation Report

Study: **WS-210**

ERA Customer Number: **E550101**

Laboratory Name: **Pace Analytical Services
- Ormond Beach**

Organic Results





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WS Haloacetic Acids (HAA) (cat# 852)

9312	Bromoacetic acid	µg/L	12.30	13.0	7.80 - 18.2	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.597	13.0	1.23	IRL
9315	Bromochloroacetic acid	µg/L	6.62	7.19	4.31 - 10.1	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.617	7.06	0.707	IRL
9336	Chloroacetic acid	µg/L	34.20	39.0	23.4 - 54.6	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.507	36.7	4.83	IRL
9357	Dibromoacetic acid	µg/L	28.50	28.9	17.3 - 40.5	Acceptable	EPA 552.2 1 1995	1/28/2014	0.254	27.5	4.07	IRL
9360	Dichloroacetic acid	µg/L	24.4	30.1	18.1 - 42.1	Acceptable	EPA 552.2 1 1995	1/28/2014	-1.20	28.0	2.97	IRL
9642	Trichloroacetic acid	µg/L	13.60	14.7	8.82 - 20.6	Acceptable	EPA 552.2 1 1995	1/28/2014	-0.393	14.4	1.94	IRL

WS Halomethanes (THMs) (cat# 842)

4395	Bromodichloromethane	µg/L	30.30	25.9	20.7 - 31.1	Acceptable	EPA 524.2 4.1 1995	2/20/2014	2.13	25.8	2.12	JLR
4400	Bromoform	µg/L	20.00	18.3	14.6 - 22.0	Acceptable	EPA 524.2 4.1 1995	2/20/2014	1.13	18.0	1.79	JLR
4575	Chlorodibromomethane	µg/L	45.80	39.1	31.3 - 46.9	Acceptable	EPA 524.2 4.1 1995	2/20/2014	1.85	38.4	4.01	JLR
4505	Chloroform	µg/L	21.00	22.7	18.2 - 27.2	Acceptable	EPA 524.2 4.1 1995	2/20/2014	-0.717	22.4	1.90	JLR



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WS Regulated Volatiles (cat# 840)

4375	Benzene	µg/L	9.96	9.73	5.84 - 13.6	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.417	9.65	0.741	
4455	Carbon tetrachloride	µg/L	5.27	4.46	2.68 - 6.24	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.74	4.39	0.507	
4475	Chlorobenzene	µg/L	9.01	7.95	4.77 - 11.1	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.60	8.02	0.618	
4610	1,2-Dichlorobenzene	µg/L	19.10	18.2	14.6 - 21.8	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.820	17.8	1.58	
4620	1,4-Dichlorobenzene	µg/L	13.30	11.4	9.12 - 13.7	Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.23	11.1	0.966	
4635	1,2-Dichloroethane	µg/L	6.75	5.87	3.52 - 8.22	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.42	5.98	0.544	
4640	1,1-Dichloroethylene	µg/L	14.80	11.1	8.88 - 13.3	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.28	11.5	1.43	
4645	cis-1,2-Dichloroethylene	µg/L	8.31	7.07	4.24 - 9.90	Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.20	7.03	0.581	
4700	trans-1,2-Dichloroethylene	µg/L	11.20	7.69	4.61 - 10.8	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	4.55	7.92	0.721	
4655	1,2-Dichloropropane	µg/L	14.20	12.9	10.3 - 15.5	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.61	12.8	0.897	
4765	Ethylbenzene	µg/L	9.43	9.19	5.51 - 12.9	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.240	9.21	0.926	
4975	Methylene chloride (Dichloromethane)	µg/L	13.7	19.0	15.2 - 22.8	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	-2.94	18.5	1.62	
5100	Styrene	µg/L	8.70	9.47	5.68 - 13.3	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.647	9.28	0.904	
5115	Tetrachloroethylene	µg/L	9.28	9.74	5.84 - 13.6	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.0676	9.35	1.03	
5140	Toluene	µg/L	17.8	17.6	14.1 - 21.1	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.407	17.2	1.40	
5155	1,2,4-Trichlorobenzene	µg/L	9.94	12.0	9.60 - 14.4	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.01	11.4	1.46	
5160	1,1,1-Trichloroethane	µg/L	2.54	2.28	1.37 - 3.19	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.51	2.18	0.240	
5165	1,1,2-Trichloroethane	µg/L	7.20	6.66	4.00 - 9.32	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.12	6.56	0.571	
5170	Trichloroethylene	µg/L	7.58	7.53	4.52 - 10.5	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.331	7.37	0.621	
5235	Vinyl chloride	µg/L	15.5	9.67	5.80 - 13.5	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.41	11.1	1.81	



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WS Regulated Volatiles (cat# 840) (Continued)

5260	Xylenes, total	µg/L	25.50	22.8	18.2 - 27.4	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.16	23.0	2.16	





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WS Unregulated Volatiles (cat# 841)

4385	Bromobenzene	µg/L	15.50	11.8	9.44 - 14.2	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.78	11.8	1.34	
4390	Bromochloromethane	µg/L	11.40	9.61	5.77 - 13.5	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.86	9.66	0.934	
4950	Bromomethane	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
5000	tert-Butyl methyl ether (MTBE)	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4435	n-Butylbenzene	µg/L	5.40	6.14	3.68 - 8.60	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.775	5.84	0.562	
4440	sec-Butylbenzene	µg/L	< 0.50	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4445	tert-Butylbenzene	µg/L	10.30	10.8	8.64 - 13.0	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.379	10.7	1.14	
4485	Chloroethane	µg/L	22.30	14.0	8.40 - 19.6	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.73	15.5	2.48	
4960	Chloromethane	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4535	2-Chlorotoluene	µg/L	4.79	4.68	2.81 - 6.55	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.308	4.65	0.445	
4540	4-Chlorotoluene	µg/L	4.15	4.54	2.72 - 6.36	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.589	4.41	0.437	
4595	Dibromomethane	µg/L	5.91	5.98	3.59 - 8.37	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.176	5.82	0.508	
4615	1,3-Dichlorobenzene	µg/L	11.60	12.4	9.92 - 14.9	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.570	12.3	1.17	
4625	Dichlorodifluoromethane (Freon 12)	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4630	1,1-Dichloroethane	µg/L	12.00	8.58	5.15 - 12.0	Acceptable	EPA 524.2 4.1 1995	2/19/2014	3.91	8.80	0.817	
4660	1,3-Dichloropropane	µg/L	15.30	13.9	11.1 - 16.7	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.05	13.9	1.31	
4665	2,2-Dichloropropane	µg/L	< 0.50	< 1.20	0.00 - 1.20	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4670	1,1-Dichloropropene	µg/L	4.92	5.38	3.23 - 7.53	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.19	5.55	0.528	
4680	cis-1,3-Dichloropropene	µg/L	8.84	12.4	9.92 - 14.9	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	-2.68	11.5	0.984	
4685	trans-1,3-Dichloropropene	µg/L	11.60	15.3	12.2 - 18.4	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.83	14.2	1.43	



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WS Unregulated Volatiles (cat# 841) (Continued)

5175	Fluorotrichloromethane	µg/L	26.10	17.7	10.6 - 24.8	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014	2.20	19.6	2.95	
4835	Hexachlorobutadiene	µg/L	< 0.50	< 3.00	0.00 - 3.00	Acceptable	EPA 524.2 4.1 1995	2/19/2014				
4900	Isopropylbenzene	µg/L	14.40	16.0	12.8 - 19.2	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.24	16.8	1.97	
4910	4-Isopropyltoluene	µg/L	10.30	< 1.20	0.00 - 1.20	Not Acceptable	EPA 524.2 4.1 1995	2/19/2014				
5005	Naphthalene	µg/L	6.45	5.94	3.56 - 8.32	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.05	5.61	0.801	
5090	n-Propylbenzene	µg/L	9.37	9.23	5.54 - 12.9	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.142	9.26	0.743	
5105	1,1,1,2-Tetrachloroethane	µg/L	3.38	3.19	1.91 - 4.47	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.817	3.16	0.274	
5110	1,1,2,2-Tetrachloroethane	µg/L	3.66	3.08	1.85 - 4.31	Acceptable	EPA 524.2 4.1 1995	2/19/2014	1.49	3.08	0.387	
5150	1,2,3-Trichlorobenzene	µg/L	9.36	11.7	9.36 - 14.0	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-1.35	11.3	1.46	
5180	1,2,3-Trichloropropane (TCP)	µg/L	11.00	10.3	8.24 - 12.4	Acceptable	EPA 524.2 4.1 1995	2/19/2014	0.443	10.3	1.50	
5210	1,2,4-Trimethylbenzene	µg/L	4.01	4.12	2.47 - 5.77	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-0.250	4.10	0.368	
5215	1,3,5-Trimethylbenzene	µg/L	3.11	4.02	2.41 - 5.63	Acceptable	EPA 524.2 4.1 1995	2/19/2014	-2.18	3.99	0.402	



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WS Pesticides (cat# 850)

7005	Alachlor	µg/L		2.96	1.63 - 4.29	Not Reported				2.97	0.400	
7025	Aldrin	µg/L	1.35	1.26	0.564 - 1.61	Acceptable	EPA 525.2 2 1995	1/15/2014	1.15	1.08	0.235	TWB
7065	Atrazine	µg/L		9.68	5.32 - 14.0	Not Reported				9.42	1.61	
7120	gamma-BHC (Lindane)	µg/L		1.53	0.842 - 2.22	Not Reported				1.45	0.192	
7130	Bromacil	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
7160	Butachlor	µg/L	3.66	3.77	2.07 - 5.47	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.543	3.94	0.523	TWB
7410	Diazinon	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
7470	Dieldrin	µg/L	2.23	2.13	1.17 - 3.09	Acceptable	EPA 525.2 2 1995	1/15/2014	0.488	2.10	0.276	TWB
7540	Endrin	µg/L		1.81	1.27 - 2.35	Not Reported				1.75	0.318	
7685	Heptachlor	µg/L		1.17	0.644 - 1.70	Not Reported				1.06	0.225	
7690	Heptachlor epoxide (beta)	µg/L		1.90	1.04 - 2.76	Not Reported				1.80	0.273	
6275	Hexachlorobenzene	µg/L		1.77	0.875 - 2.22	Not Reported				1.67	0.232	
6285	Hexachlorocyclopentadiene	µg/L		8.57	2.51 - 12.2	Not Reported				7.84	3.00	
7810	Methoxychlor	µg/L		3.77	2.07 - 5.47	Not Reported				3.73	0.645	
7835	Metolachlor	µg/L	9.24	9.16	5.04 - 13.3	Acceptable	EPA 525.2 2 1995	1/15/2014	0.106	9.12	1.10	TWB
7845	Metribuzin	µg/L	3.18	3.23	1.62 - 4.84	Acceptable	EPA 525.2 2 1995	1/15/2014	0.763	2.60	0.763	TWB
7875	Molinate (Ordram)	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
8035	Prometon	µg/L	< 2	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
8045	Propachlor	µg/L	1.79	1.94	1.07 - 2.81	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.549	1.94	0.268	TWB
8125	Simazine	µg/L		5.25	2.89 - 7.61	Not Reported				5.00	1.26	



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L	< 2.00	< 2.00	0.00 - 2.00	Acceptable	EPA 525.2 2 1995	1/15/2014				TWB
8295	Trifluralin	µg/L	1.30	1.69	0.930 - 2.45	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.706	1.60	0.419	TWB





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WS Pesticides (cat# 850)

7005	Alachlor	µg/L	3.04	2.96	1.63 - 4.29	Acceptable	EPA 508.1 2 1995	2/20/2014	0.166	2.97	0.400	
7025	Aldrin	µg/L		1.26	0.564 - 1.61	Not Reported				1.08	0.235	
7065	Atrazine	µg/L	8.97	9.68	5.32 - 14.0	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.277	9.42	1.61	
7120	gamma-BHC (Lindane)	µg/L	1.41	1.53	0.842 - 2.22	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.198	1.45	0.192	
7130	Bromacil	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7160	Butachlor	µg/L	3.97	3.77	2.07 - 5.47	Acceptable	EPA 508.1 2 1995	2/20/2014	0.0500	3.94	0.523	
7410	Diazinon	µg/L		< 2.00	0.00 - 2.00	Not Reported						
7470	Dieldrin	µg/L	2.34	2.13	1.17 - 3.09	Acceptable	EPA 508.1 2 1995	2/20/2014	0.886	2.10	0.276	
7540	Endrin	µg/L	1.36	1.81	1.27 - 2.35	Acceptable	EPA 508.1 2 1995	2/20/2014	-1.22	1.75	0.318	
7685	Heptachlor	µg/L	0.925	1.17	0.644 - 1.70	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.585	1.06	0.225	
7690	Heptachlor epoxide (beta)	µg/L	1.57	1.90	1.04 - 2.76	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.829	1.80	0.273	
6275	Hexachlorobenzene	µg/L	1.71	1.77	0.875 - 2.22	Acceptable	EPA 508.1 2 1995	2/20/2014	0.186	1.67	0.232	
6285	Hexachlorocyclopentadiene	µg/L	12.50	8.57	2.51 - 12.2	Not Acceptable	EPA 508.1 2 1995	2/20/2014	1.55	7.84	3.00	
7810	Methoxychlor	µg/L	3.96	3.77	2.07 - 5.47	Acceptable	EPA 508.1 2 1995	2/20/2014	0.356	3.73	0.645	
7835	Metolachlor	µg/L	8.75	9.16	5.04 - 13.3	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.341	9.12	1.10	
7845	Metribuzin	µg/L	4.07	3.23	1.62 - 4.84	Acceptable	EPA 508.1 2 1995	2/20/2014	1.93	2.60	0.763	
7875	Molinate (Ordram)	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8035	Prometon	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8045	Propachlor	µg/L	2.19	1.94	1.07 - 2.81	Acceptable	EPA 508.1 2 1995	2/20/2014	0.943	1.94	0.268	
8125	Simazine	µg/L	4.53	5.25	2.89 - 7.61	Acceptable	EPA 508.1 2 1995	2/20/2014	-0.370	5.00	1.26	



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WS Pesticides (cat# 850) (Continued)

8220	Thiobencarb	µg/L		< 2.00	0.00 - 2.00	Not Reported						
8295	Trifluralin	µg/L		1.69	0.930 - 2.45	Not Reported				1.60	0.419	

WS Carbamate/Carbamoxylloxime Pesticides (cat# 846)

7010	Aldicarb	µg/L	20.30	21.5	16.1 - 26.9	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.524	21.5	2.20	LAJ
7015	Aldicarb sulfone	µg/L	33.90	28.4	21.3 - 35.5	Acceptable	EPA 531.1 3.1 1995	1/27/2014	0.910	31.1	3.07	LAJ
7020	Aldicarb sulfoxide	µg/L	26.70	26.4	19.8 - 33.0	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.0358	26.8	2.71	LAJ
8080	Baygon	µg/L		105	85.4 - 124	Not Reported				105	5.13	
7195	Carbaryl	µg/L	47	47.1	35.3 - 58.9	Acceptable	EPA 531.1 3.1 1995	1/27/2014	0.552	45.7	2.33	LAJ
7205	Carbofuran	µg/L	101	103	56.6 - 149	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.00712	101	6.39	LAJ
7710	3-Hydroxycarbofuran	µg/L	17.4	21.1	16.9 - 25.3	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-1.52	20.8	2.26	LAJ
7800	Methiocarb	µg/L	71.10	76.2	59.5 - 90.9	Acceptable	EPA 531.1 3.1 1995	1/27/2014	-0.440	74.0	6.67	LAJ
7805	Methomyl	µg/L	32.30	55.9	44.7 - 67.1	Not Acceptable	EPA 531.1 3.1 1995	1/27/2014	-6.78	57.0	3.64	LAJ
7940	Oxamyl (vydate)	µg/L	49.10	49.6	37.2 - 62.0	Acceptable	EPA 531.1 3.1 1995	1/27/2014	0.162	48.5	3.89	LAJ

WS Toxaphene (cat# 844)

8250	Toxaphene	µg/L	4.91	4.96	2.73 - 7.19	Acceptable	EPA 508.1 2	1/29/2014	0.713	4.18	1.03	SMB

WS EDB/DBCP/TCP (cat# 847)

4570	Dibromochloropropane (DBCP)	µg/L	1.65	1.51	0.906 - 2.11	Acceptable	EPA 504.1 1.1 1995	1/21/2014	0.836	1.48	0.199	IRL
4585	Ethylene Dibromide (EDB)	µg/L	1.31	1.23	0.738 - 1.72	Acceptable	EPA 504.1 1.1 1995	1/21/2014	0.831	1.19	0.147	IRL
5180	1,2,3-Trichloropropane (TCP)	µg/L	1.25	1.34	0.804 - 1.88	Acceptable	EPA 504.1 1.1 1995	1/21/2014	-0.387	1.34	0.245	IRL



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WS EDB/DBCP/TCP (cat# 847)

4570	Dibromochloropropane (DBCP)	µg/L	1.60	1.51	0.906 - 2.11	Acceptable	EPA 8011 1994	1/22/2014	0.584	1.48	0.199	
4585	Ethylene Dibromide (EDB)	µg/L	1.31	1.23	0.738 - 1.72	Acceptable	EPA 8011 1994	1/22/2014	0.831	1.19	0.147	
5180	1,2,3-Trichloropropane (TCP)	µg/L	1.25	1.34	0.804 - 1.88	Acceptable	EPA 8011 1994	1/22/2014	-0.387	1.34	0.245	





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NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Semivolatiles Ampule #1 (cat# 848)

5500	Acenaphthene	µg/L		8.77	4.37 - 11.0	Not Reported				7.87	0.590	
5505	Acenaphthylene	µg/L		3.47	1.63 - 4.66	Not Reported				3.25	0.676	
5555	Anthracene	µg/L		2.41	1.04 - 3.13	Not Reported				2.14	0.732	
5575	Benzo(a)anthracene	µg/L		4.70	2.59 - 5.95	Not Reported				4.16	0.954	
5585	Benzo(b)fluoranthene	µg/L		7.42	3.95 - 10.2	Not Reported				6.78	0.953	
5600	Benzo(k)fluoranthene	µg/L		6.72	3.64 - 9.10	Not Reported				6.16	0.833	
5590	Benzo(g,h,i)perylene	µg/L		2.78	1.26 - 3.97	Not Reported				2.61	0.564	
5580	Benzo(a)pyrene	µg/L	1.29	1.27	0.492 - 1.65	Acceptable	EPA 525.2 2 1995	1/15/2014	0.929	1.05	0.253	TWB
5670	Butylbenzylphthalate	µg/L	35.20	33.5	18.2 - 48.6	Acceptable	EPA 525.2 2 1995	1/15/2014	0.256	33.3	7.27	TWB
5855	Chrysene	µg/L		4.42	2.53 - 5.68	Not Reported				4.27	0.547	
5895	Dibenz(a,h)anthracene	µg/L		4.77	2.21 - 6.85	Not Reported				4.68	1.69	
6070	Diethylphthalate	µg/L	42.90	43.3	23.3 - 61.2	Acceptable	EPA 525.2 2 1995	1/15/2014	0.476	41.1	3.75	TWB
6135	Dimethylphthalate	µg/L	30.90	30.7	14.7 - 42.2	Acceptable	EPA 525.2 2 1995	1/15/2014	0.424	29.2	4.12	TWB
5925	Di-n-butylphthalate	µg/L	33.30	32.2	17.6 - 46.3	Acceptable	EPA 525.2 2 1995	1/15/2014	0.00948	33.2	6.15	TWB
6200	Di-n-octylphthalate	µg/L		10.2	5.06 - 14.2	Not Reported				11.9	4.15	
6062	bis(2-Ethylhexyl)adipate	µg/L	28.50	29.0	17.9 - 38.2	Acceptable	EPA 525.2 2 1995	1/15/2014	0.598	25.9	4.39	TWB
6065	bis(2-Ethylhexyl)phthalate	µg/L	26.1	26.2	13.2 - 37.7	Acceptable	EPA 525.2 2 1995	1/15/2014	0.512	23.7	4.68	TWB
6265	Fluoranthene	µg/L		4.65	2.24 - 6.28	Not Reported				4.53	0.664	
6270	Fluorene	µg/L	3.17	3.22	1.88 - 4.12	Acceptable	EPA 525.2 2 1995	1/15/2014	-0.488	3.29	0.240	TWB
6315	Indeno(1,2,3-cd)pyrene	µg/L	2.63	1.61	0.700 - 2.30	Not Acceptable	EPA 525.2 2 1995	1/15/2014	1.40	1.92	0.510	TWB





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WS-210 2003 NELAC Evaluation Final Complete Report

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EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

FL01264
E550101
02/24/14
01/06/14 - 02/20/14

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Semivolatiles Ampule #1 (cat# 848) (Continued)

5005	Naphthalene	µg/L		4.27	1.73 - 5.45	Not Reported				3.91	0.597	
6615	Phenanthrene	µg/L	3.93	5.13	3.26 - 6.46	Acceptable	EPA 525.2 2 1995	1/15/2014	-1.40	4.74	0.579	TWB
6665	Pyrene	µg/L	3.59	3.26	1.95 - 4.22	Acceptable	EPA 525.2 2 1995	1/15/2014	0.457	3.38	0.461	TWB

WS Chlorinated Acid Herbicides (cat# 851)

8505	Acifluorfen	µg/L	21.70	28.4	14.2 - 42.6	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.993	26.1	4.41	LJM
8530	Bentazon	µg/L	12.8	15.6	8.08 - 21.2	Acceptable	EPA 515.3 1 1996	1/28/2014	-1.09	14.9	1.93	LJM
8540	Chloramben	µg/L		58.2	15.6 - 78.9	Not Reported				52.5	7.44	
8545	2,4-D	µg/L	17.40	20.5	10.2 - 30.8	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.894	19.5	2.32	LJM
8550	Dacthal diacid (DCPA)	µg/L		25.0	9.30 - 40.5	Not Reported				27.2	5.72	
8555	Dalapon	µg/L	12.7	14.5	7.25 - 21.8	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.485	14.0	2.63	LJM
8560	2,4-DB	µg/L	28.40	30.2	15.1 - 45.3	Acceptable	EPA 515.3 1 1996	1/28/2014	0.158	27.9	3.22	LJM
8595	Dicamba	µg/L	33.4	41.4	20.7 - 62.1	Acceptable	EPA 515.3 1 1996	1/28/2014	-1.65	40.1	4.05	LJM
8600	3,5-Dichlorobenzoic acid	µg/L		50.6	24.1 - 67.0	Not Reported				45.4	6.82	
8605	Dichlorprop	µg/L	18.10	21.2	9.71 - 29.2	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.860	20.2	2.44	LJM
8620	Dinoseb	µg/L	10.10	11.8	4.64 - 17.1	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.806	11.7	1.98	LJM
6500	4-Nitrophenol	µg/L		56.8	5.68 - 76.7	Not Reported				53.6	0.00	
6605	Pentachlorophenol	µg/L	18.3	22.7	11.4 - 34.0	Acceptable	EPA 515.3 1 1996	1/28/2014	-0.913	20.7	2.63	LJM
8645	Picloram	µg/L	16.3	15.7	7.85 - 23.6	Acceptable	EPA 515.3 1 1996	1/28/2014	0.359	15.6	2.06	LJM
8655	2,4,5-T	µg/L	23.3	24.1	12.0 - 36.2	Acceptable	EPA 515.3 1 1996	1/28/2014	0.166	22.9	2.47	LJM
8650	2,4,5-TP (Silvex)	µg/L	13.20	15.4	7.70 - 23.1	Acceptable	EPA 515.3 1 1996	1/28/2014	-1.09	14.6	1.26	LJM



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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WS-210 2003 NELAC Evaluation Final Complete Report

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EPA ID:
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Study Dates:

FL01264
E550101
02/24/14
01/06/14 - 02/20/14

NELAC Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name

WS Regulated Semivolatiles #2 Herbicides (cat# 849)

9390	Diquat	µg/L	25.70	26.4	13.2 - 39.6	Acceptable	EPA 549.2 1 1997	1/27/2014	0.716	22.8	4.07	
7525	Endothall	µg/L	151.00	166	83.0 - 249	Acceptable	EPA 548.1 1 1992	1/17/2014	-0.177	155	19.8	
9411	Glyphosate	µg/L	604.00	382	306 - 458	Not Acceptable	EPA 547 1990	1/17/2014	6.04	392	35.2	
9528	Paraquat	µg/L	30.3	41.2	18.1 - 51.7	Acceptable	EPA 549.2 1	1/27/2014	-0.130	31.0	5.25	LAJ



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01



Section E. Required Submittals

16. FDEP Performance Audit Inspections

STATE OF FLORIDA DEPARTMENT OF HEALTH

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

READ INSTRUCTIONS ON BACK CAREFULLY BEFORE COMPLETING

LABORATORY:	LAB I.D. NO.:	DATE SURVEY COMPLETED:	SURVEYOR:
Pace Analytical Services-Florida	E83079	October 3-7, 2011	Carl C. Kircher, Michael R. Antoine, Habib Nejad (Observer), Ronald E. Brown (Observer)
PARAMETERS SURVEYED: Drinking Water - Microbiology, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Synthetic Organic Contaminants, Other Regulated Contaminants, Group I Unregulated Contaminants, Group II Unregulated Contaminants; Non-Potable Water - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's; Solid and Chemical Materials - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's			

(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
1.	NELAC 5.1.1 [TNI V1M4, 1.2] – The laboratory has not demonstrated compliance with additional Chemistry quality control requirements specified in a mandated test method or regulation (Chemistry):	(a) EPA 365.3: Bisulfite digestion is not performed prior to UV-VIS analysis of Total Phosphorus. (b) EPA 608: 3-standard initial instrument calibration is not available for each target analyte Aroclor. (c) FL-PRO: GC/FID response is not integrated exclusively between the retention times corresponding to n-C8 and n-C40 to quantitate Petroleum Range Organics. (d) 40 CFR Part 141.131: Minimum Reporting Level standard recoveries are not within 50-150% for each EPA 552.2 haloacetic acid compound.	
2.	NELAC 5.0 [TNI V1M2, 1.1] – The laboratory does not have all items identified in NELAC Quality Systems available for on-site inspection or data audit (results not documented for the volume accuracy check of 10-mL marks made to extract tubes to determine final volume of Organics extracts).		
3.	Appendix D.1.1.2(c) to NELAC Chapter 5 [TNI V1M4, 1.7.3.2.3] – Components spiked into Laboratory Control Samples are not as specified by the mandated test method, regulatory requirements, or as requested by the client (Chlorine Dioxide is not used as the spike for SM 4500CIO2 D; SM 2520 B Salinity meter is not calibrated with synthetic seawater standards of known Salinity).		
4.	Appendices D.1.1.2.1(c) and D.1.1.3.1(c) to NELAC Chapter 5 [TNI V1M4, 1.7.3.2.3(b) and 1.7.3.3.1(c)] – The laboratory does not include all target analytes in Laboratory Control Samples and Matrix Spikes over a two-year period (technical Chlordane; Toxaphene; Aroclors 1221, 1232, 1242, 1248, and 1254).		
5.	NELAC 5.5.2.6(c)(3) [TNI V1M4, 1.6.3] – Laboratory analysts have not performed ongoing demonstrations of capability for each certified Field of Accreditation (see Comment 4).		

SIGNATURE: _____ Responsible Official _____ DATE _____ Page 1 of 4

STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

READ INSTRUCTIONS ON BACK CAREFULLY BEFORE COMPLETING

LABORATORY: Pace Analytical Services-Florida	LAB I.D. NO.: E83079	DATE SURVEY COMPLETED: October 3-7, 2011	SURVEYOR: Carl C. Kircher, Michael R. Antoine, Habib Nejad (Observer), Ronald E. Brown (Observer)
PARAMETERS SURVEYED: Drinking Water - Microbiology, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Synthetic Organic Contaminants, Other Regulated Contaminants, Group I Unregulated Contaminants, Group II Unregulated Contaminants; Non-Potable Water - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's; Solid and Chemical Materials - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's			

(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
6.	Appendix D.1.1.3.1(b) to NELAC Chapter 5 [TNI V1M4, 1.7.3.3.1(b)] – Matrix spikes are not analyzed at a frequency specified by the required mandated test method (each non-potable water batch for EPA 8081, 8082, 8141).		
7.	Appendix D.1.1.3.2(b) to NELAC Chapter 5 [TNI V1M4, 1.7.3.3.2(b)] – Matrix duplicates (sample duplicates or matrix spike duplicates) are not analyzed at a frequency specified by the required mandated test method (each non-potable water batch for EPA 8081, 8082, 8141).		
8.	NELAC 5.5.4.1.2(b) [TNI V1M2, 4.2.8.5(f)] – In-house test method manuals do not include or reference the following, where applicable (FL-PRO): (15)[xv] - Calculations (20)[xx] - Contingencies for Handling Unacceptable Data		
9.	Appendix D.1.2.1(d) to NELAC Chapter 5 [TNI V1M4, 1.5.2.1(f)] – Limits of Detection have not been verified annually for each quality system matrix, method, and analyte (EPA 531.1, 547).		
10.	NELAC 5.4.12.2.5.2(b) [TNI V1M2, 4.13.3(f)(ii)] – Sample analysis records do not include a written description or reference to the test methods used (benchsheets do not include SM 2130 B).		
11.	NELAC 5.4.12.2.5.3(i) [TNI V1M2, 4.13.3(f)(xi)] – The laboratory does not maintain records for specific standard and reagent origin, preparation, and use during sample analysis (nitrification inhibitor used for CBOD; some EPA 8260 standards; diazomethane solution used for EPA 515.3; acidified sodium sulfate used for EPA 515.3 and 8151; wrong ID number for Diazald solution on EPA 515.3 benchsheet; methanol, MTBE, and 10% H2SO4/methanol used for EPA 552.2).		

SIGNATURE: _____ Page 2 of 4
 Responsible Official DATE

STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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LABORATORY: Pace Analytical Services-Florida	LAB I.D. NO.: E83079	DATE SURVEY COMPLETED: October 3-7, 2011	SURVEYOR: Carl C. Kircher, Michael R. Antoine, Habib Nejad (Observer), Ronald E. Brown (Observer)
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(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
12.	NELAC 5.4.12.2.5.3(k) [TNI V1M2, 4.13.3(f)(xiii)] – The laboratory does not maintain records on data and statistical calculations, review, confirmation, interpretation, assessment, and proper reporting conventions (Surfactants units not documented "mg/L LAS" with molecular weight included).		
13.	NELAC 5.5.5.2.1(e) [TNI V1M2, 5.5.13.1(e)] – Mechanical volumetric dispensing devices (except Class A glassware and glass microliter syringes) are not checked for accuracy on a quarterly use basis (Eppendorf pipet #11I in the Organics extractions area).		
14.	NELAC 5.5.6.4(c) [TNI V1M2, 5.6.4.2(c)] – The laboratory does not maintain records for preparation of all reagents and standards used in the laboratory (no preparation log entries for preparing diazomethane solution from diazald solution for EPA 515.3).		
15.	NELAC 5.5.6.4(c) [TNI V1M2, 5.6.4.2(c)] – Laboratory records on reagent and standard preparation do not include traceability to purchased stocks or neat compounds (wrong BN surrogate ID in preparation log entry).		
16.	NELAC 5.5.6.4(e) [TNI V1M2, 5.6.4.2(e)] – Procedures are not in place to ensure that prepared reagents meet the requirements of the test method (EPA 515.3 diazomethane solution kept for 3 weeks rather than discarded within 48 hours of preparation; acidified sodium sulfate and silica gel not stored at 100-130 degrees Celsius prior to use in EPA 515.3 and 8151).		
17.	NELAC 5.5.10.3.1(a) [TNI V1M2, 5.10.3.1(a)] – Laboratory reports to outside clients do not document any deviations from, additions to, or exclusions from the test method where this information is necessary for the interpretation of the test results (e.g., lack of matrix spike and matrix spike duplicate on reports of EPA 8270 test results for all samples associated with batch #OEXT/5778).		

SIGNATURE: _____ DATE _____ Page 3 of 4
 Responsible Official

STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

READ INSTRUCTIONS ON BACK CAREFULLY BEFORE COMPLETING

LABORATORY: Pace Analytical Services-Florida	LAB I.D. NO.: E83079	DATE SURVEY COMPLETED: October 3-7, 2011	SURVEYOR: Carl C. Kircher, Michael R. Antoine, Habib Nejad (Observer), Ronald E. Brown (Observer)

PARAMETERS SURVEYED:
 Drinking Water - Microbiology, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Synthetic Organic Contaminants, Other Regulated Contaminants, Group I Unregulated Contaminants, Group II Unregulated Contaminants; Non-Potable Water - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's; Solid and Chemical Materials - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's

(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
18.	NELAC 5.5.10.3.1(b) [TNI V1M2, 5.10.3.1(b)] – Where necessary for the interpretation of test results, test reports do not contain a statement of compliance or non-compliance with requirements and/or specifications (no data qualifiers on test reports when samples are improperly preserved on receipt, e.g., residual chlorine was found in samples #3536577001, 3536577002, 3536469001, 3534965008, 3534288001, and 20907486).		

SIGNATURE: _____ Responsible Official _____ DATE _____ Page 4 of 4



Deficiencies and Laboratory Plan of Correction

Finding #1: NELAC 5.1.1 – The laboratory has not demonstrated compliance with additional Chemistry quality control requirements specified in a mandated test method or regulation (Chemistry)

Finding #1(a): EPA 365.3: Bisulfite digestion is not performed prior to UV-VIS analysis of Total Phosphorus

Corrective Action Plan: The bisulfite digestion is discussed in the laboratory SOP as a requirement if samples have high levels of iron and/or arsenic. The level that is normally seen of these interferents is below what would affect the overall accuracy of the analysis. We have included this specific discussion in our standard operating procedure (see Section 4.0). (Attachment, Finding #1(a))

Completion Date: 10/7/11

Finding #1 (b): EPA 608: 3-standard initial instrument calibration is not available for each target analyte Aroclor.

Corrective Action Plan: Initial calibration curves for each analyte of interest in the 608 method, including the multiple peak analytes such as Aroclors. (Attachment, Finding # 1(b))

Completion Date: 11/21/11

Finding #1 (c): FL-PRO: GC/FID response is not integrated exclusively between the retention times corresponding to n-C8 and n-C40 to quantitate Petroleum Range Organics.

Corrective Action Plan: The laboratory SOP contains the specific instructions for integration and quantitation that defines starting the quantitation just before n-C8 peak to just after the n-C40 peak. The analyst has also been trained to this criteria. Section 10.10 provides the specific instructions. A copy is attached (Attachment, Finding #1(c))

Completion Date: 10/7/11

Finding #1 (d): 40 CFR Part 141.131: Minimum Reporting Level standard recoveries are not within 50-150% for each EPA 552.2 haloacetic acid compound.

Corrective Action Plan: The laboratory does monitor the recovery of each analyte in the MRL standard to ensure that they meet method criteria. If any compound does not meet criteria, the laboratory evaluates their system and reanalyzes if necessary. If the recovery is still outside criteria, the laboratory notifies the client that this quality control parameter did not meet criteria and the data should be interpreted accordingly.



Completion Date: 10/7/11

Finding #2: NELAC 5.0 – The laboratory does not have all items identified in NELAC Quality Systems available for on-site inspection or data audit (results not documented for the volume accuracy check of 10-mL marks made to extract tubes to determine final volume of Organics extracts).

Corrective Action Plan: The laboratory has established a measurement protocol for verifying that the 10 mL mark that is placed on the extract tubes is consistent and accurate. This verification will be repeated with each new lot of extraction tubes received by the laboratory. If any lot does not meet acceptance criteria, the lot will be rejected or a new measurement block will be created to ensure that the 10 mL mark is consistent and accurate.

Completion Date: 10/10/11

Finding #3: Appendix D.1.1.2.1(c) to NELAC Chapter 5 – Components spiked into Laboratory control Samples are not as specified by the mandated test method, regulatory requirements, or as requested by the client (Chlorine Dioxide is not used as the spike for SM4500CIO2 D; SM 2520 B Salinity meter is not calibrated with synthetic seawater standards of known Salinity).

Corrective Action Plan: The laboratory has investigated the use of Chlorine Dioxide for a spiking solution. The manufacturer recommendation for evaluating the accuracy and performance of the method is through the use of the same standard that is used for residual chlorine analysis. This is specified in the laboratory SOP. The laboratory also maintains in their SOP that they utilize a conductivity standard for the verification and standardization when performing salinity measurements.

Completion Date:

Finding #4: Appendices D.1.1.2.1(c) and D.1.1.3.1(c) to NELAC Chapter 5 – The laboratory does not include all target analytes in Laboratory Control Samples and Matrix Spikes over a two-year period (technical Chlordane; Toxaphene; Aroclors 1221, 1232, 1242, 1248, and 1254).

Corrective Action Plan: The laboratory is in the process of completing spiking studies for each of these analytes now. In addition, the laboratory has initiated a protocol whereby each of these analytes will be spiked and evaluated at least every 2 years.

Completion Date: 11/21/11



Finding #5: NELAC 5.5.2.6(c)(3) – Laboratory analysts have not performed ongoing demonstrations of capability for each certified Field of Accreditation.

Corrective Action Plan: The laboratory will perform ongoing DOCs for each parameter in their certification. Specific responses to those missing during the assessment are as follows:

EPA 508.1 Aroclors:	Completion Date:	12/2/11
EPA 8270/625 various:	Completion Date:	12/2/11
EPA 8081, various:	Completion Date:	12/2/11
EPA 8141, various:	Completion Date:	12/2/11

Finding #6: Appendix D.1.1.3.1(b) to NELAC Chapter 5 – Matrix spikes are not analyzed at a frequency specified by the required mandated test method (each non-potable water batch for EPA 8081, 8082, 8141).

Corrective Action Plan: The laboratory will continue to work with their clients, providing additional sampling containers and instructions to make sure that adequate sample volume is provided for the preparation of a matrix spike and/or duplicates. In addition the laboratory has instructed their field crew to bring in additional sample volumes so that there is always at least one sample that has adequate volume available for spike/duplicate analysis. The laboratory will periodically review the batches to ensure that these are being performed at the correct frequency.

Completion Date: 10/10/11

Finding #7: Appendix D.1.1.3.2(b) to NELAC Chapter 5 – Matrix duplicates (sample duplicates or matrix spike duplicates) are not analyzed at a frequency specified by the required mandated test method (each non-potable water batch for EPA 8081, 8082, 8141).

Corrective Action Plan: The laboratory will continue to work with their clients, providing additional sampling containers and instructions to make sure that adequate sample volume is provided for the preparation of a matrix spike and/or duplicates. In addition the laboratory has instructed their field crew to bring in additional sample volumes so that there is always at least one sample that has adequate volume available for spike/duplicate analysis.

Completion Date: 10/10/11



Finding #8: NELAC 5.5.4.1.2(b)- In-house test method manuals do not include or reference the following, where applicable (FL-PRO: Calculations and Contingencies for handling out of control data)

Corrective Action Plan: The FLPRO SOP was updated immediately to include the calculations necessary and the out of control sections. The SOP is attached (Attachment, Finding# 1 (c) above) and this information is referenced in sections 11.21-11.22 and Table 1 respectively.

Completion Date: 10/7/11

Finding #9: Appendix D.1.2.1(d) to NELAC Chapter 5 – Limits of Detection have not been verified annually for each quality system matrix, method, and analyte (EPA 531.1, 547).

Corrective Action Plan: New method detection limit studies have been completed for both of these analyses and their analytes. Summary of these studies are attached. (Attachment Finding #9 531.1 and Finding #9 547).

Completion Date: 11/2/11 and 11/7/11

Finding #10: NELAC 5.4.12.2.5.2(b)-Sample analysis records do not include a written description or reference to the test methods used (benchsheets do not include SM2130 B).

Corrective Action Plan: Benchsheets were updated to reflect the additional method reference. (Attachment Finding #10)

Completion Date: 10/7/11

Finding #11: NELAC 5.4.12.2.5.3(i)-The laboratory does not maintain records for specific standard and reagent origin, preparation, and use during sample analysis (nitrification inhibitor used for CBOD; some EPA 8260 standards; diazomethane solution used for EPA 515.3; acidified sodium sulfate used for EPA 515.3 and 8151; wrong ID number Diazald solution on EPA 515.3 benchsheet; methanol, MTBE, and 10% H₂SO₄/methanol used for EPA 552.2).

Corrective Action Plan: All of the laboratories are being retrained to ensure that all reagents and standards are tracked using the standards and reagent logs and these numbers are included on the benchsheets. Most of the specific findings were resolved immediately. In addition, the benchsheets and logbooks are being updated to reflect any reagents or standards not already documented there.

Completion Date: 12/16/11



Finding #12: NELAC 5.4.12.2.5.3(k)-The laboratory does not maintain records on data and statistical calculations, review, confirmation, interpretation, assessment, and proper reporting conventions (Surfactants units not document "mg/L LAS" with molecular weight included.)

Corrective Action Plan: This will be updated on the laboratory benchsheet to reflect the specific molecular weight of the standard. (Attachment, Finding #12)

Completion Date: 11/21/11

Finding #13: NELAC 5.5.5.2.1(e)-Mechanical volumetric dispensing devices (except Class A glassware and glass microliter syringes) are not checked for accuracy on a quarterly use basis (Eppendorf pipet #11I in the Organics extractions area.)

Corrective Action Plan: The organic extractions laboratory has initiated a quarterly task list to incorporate the verification/calibration of all non-class A glassware. This includes the evaluation of each eppendorf style pipet to be evaluated at the ranges of use.

Completion Date: 10/7/11

Finding #14: NELAC 5.5.6.4(c)-The laboratory does not maintain records for preparation of all reagents and standards used in the laboratory (no preparation log entries for preparing diazomethane solution from diazald solution for EPA 515.3).

Corrective Action Plan: The Diazomethane solution is utilized on the same day it is made and discarded. The tracking records will include the source material or diazald solution in the tracking log and on the benchsheets.

Completion Date: 10/10/11

Finding #15: NELAC 5.5.6.4(c)-Laboratory records on reagent and standard preparation do not include traceability to purchased stocks or neat compounds (wrong BN surrogate ID in preparation log entry).

Corrective Action Plan: This was an error between the tracking numbers and the certificate of analysis directory. There was also the possibility that a system 'save' routine was not ensuring that each entry was unique and could not be overwritten or discarded. This error was corrected and the laboratory will be instructed to periodically verify their standards against the CofA and tracking numbers.

Completion Date: 11/21/11



Finding #16: NELAC 5.5.6.4(e)-Procedures are not in place to ensure that prepared reagents meet the requirements of the test method (EPA 515.3 diazomethane solution kept for 3 weeks rather than discarded within 48 hours of preparation; acidified sodium sulfate and silica gel not stored at 100-130 degrees Celsius prior to use in EPA 515.3 and 8151).

Corrective Action Plan: The laboratory personnel have confirmed that they do not keep diazomethane solution for more than the day of use. The laboratory is establishing 2 additional ovens so that they can maintain the acidified sodium sulfate and the silica gel at the method required temperatures between use.

Completion Date: 11/28/11

Finding #17: NELAC 5.5.10.3.1(a)-Laboratory reports to outside clients do not document any deviations from, additions to, or exclusions from the test method where this information is necessary for the interpretation of the test results (e.g., lack of matrix spike and matrix spike duplicate on reports of EPA 8270 test results for all samples associated with batch #OEXT/5778).

Corrective Action Plan: The laboratory is continuing to train staff on the proper use of notification tools to alert the project management staff and clients of any data that does not meet method required criteria. Furthermore, for the issue of matrix spikes specifically, the laboratory is working with field crews and clients to ensure that adequate sample volume is available for the preparation of matrix spikes and duplicates (see Finding #6 and 7 above).

Completion Date: 11/22/11

Finding #18: NELAC 5.5.10.3.1(b)-Where necessary for the interpretation of test results, test reports do not contain a statement of compliance or non-compliance with requirements and/or specifications (no data qualifiers on test reports when samples are improperly preserved on receipt, e.g., residual chlorine was found in samples #3536577001, 3536577002, 3536469001, 3534965008, 3534288001, and 20907486).

Corrective Action Plan: The laboratory will add qualifiers to the laboratory data reports to notify the client whenever improper or inadequate preservation protocols are utilized. The staff will be trained and the SOP will be updated to reflect this requirement.

Completion Date: 12/9/11

STATE OF FLORIDA DEPARTMENT OF HEALTH

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

READ INSTRUCTIONS ON BACK CAREFULLY BEFORE COMPLETING

LABORATORY:	LAB I.D. NO.:	DATE SURVEY COMPLETED:	SURVEYOR:
Pace Analytical Services-Florida	E83079	February 24-27, 2014	Mitzi Miller

PARAMETERS SURVEYED:
 Drinking Water - Microbiology, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Synthetic Organic Contaminants, Other Regulated Contaminants, Group I Unregulated Contaminants, Group II Unregulated Contaminants; Non-Potable Water - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's; Solid and Chemical Materials - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's

(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
1.	NELAC 5.4.13.1 [TNI V1M2, 4.14.1] –All elements of the standard are to undergo internal audit. This is shown by performing internal audits of each technology. The FY 2013 records of the internal audit in wet chemistry did not show that all technologies were assessed. See Attached Response		4/18/14
2.	NELAC 5.5.8.3.1.a.3.I-III [TNI V1M5 1.7.5 b) iii.] – One container from each batch of laboratory prepared containers or lot of purchased ready-to-use containers is not checked to ensure efficacy of the sodium thiosulfate to 5 mg/l chlorine or 15 mg/l chlorine as appropriate and the check is documented; See Attached Response		5/31/14
3.	NELAC 5.5.4.2.2.a-[TNI V1M5 1.6.3.2 b] No ongoing DOC was present for SM 9221E for solids. See Attached Response		4/29/14
4.	NELAC Appendix D.3.8.b.3.I-III-[TNIV1M5 1.7.3.7.b.iii.2]—equipment such as containers with volumetric markings (including sample analysis vessels) shall be verified once per lot prior to first use. This verification may be volumetric or gravimetric. No verification of volume was performed by lot number for microbiological testing. See Attached Response		5/31/14
5.	NELAC 5.5.4.7.2.b-[TNI V1M2 5.4.7.2.b]—Data and calculations were not protected. A. When calculations are performed in electronic systems, the calculations must be protected to prevent erroneous calculation errors. No protection was present for organic extraction and wet chemistry volumetric verifications. B. No backup of instrument run conditions and method details for GC, many GC/MSs, ICP, ICP/MS, LC/MS/MS were performed. See Attached Response		5/2/14

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STATE OF FLORIDA DEPARTMENT OF HEALTH

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6.	NELAC 5.4.3.2.2.1a-[TNI V1M2 4.3.2.2.a] -The laboratory has a specific document control process when training analysts. HAA, SO4/8011 training did not maintain control of procedures and notes on procedures during training. See Attached Response		4/24/14
7.	NELAC 5.5.4.1-[TNI V1M2 5.4.1]—SOPs must be up to date and reflect actual practice. The SOP FFL024 and other organic SOPS for semivolatiles by GC describe use of a statistical approach for setting retention time windows. IT was confirmed by interviews with appropriate analysts that statistical approaches are not used. See Attached Response		5/31/14
8.	NELAC 5.4.12.2.1 – TNI[V1M2 4.13.2.1] –Records did not establish a clear audit trail of the results. See Attached Response		4/29/14
	A. pH record verifications for EPA 8260/624 water samples, run logs state acceptable but the computer says >2, thus the records were inconsistent. B. The IC sample loop volume/size used for EPA 300 and 9056 was documented either in SOPs or test records. C. The documented identity of the 1g and 2 mg weights used to check balances for EPA 1664A were not accurate.		
9.	NELAC 5.5.4.1-[TNI V1M2 5.4.1]—The SOPS must reflect the published method unless there is approved deviation. The following did not reflect EPA Method 331: See Attached Response		5/31/14
	A. Perchlorate Sop does not discuss 1) filtration of the sample, 2) the requirement for 1+/- 2% for retention time windows per Method 331, 9.3.6 B. Sample management SOP does not discuss the perchlorate presentation/container requirements		

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10.	NELAC 5.5.4.1-[TNI V1M2 5.4.1]—Implementation of the following methods are not per the published method, EPA 1311, TCLP and deviations are not approved: See Attached Response	A. room temperature was 20 deg C which does not meet the 23+/-2deg C. B. RPM of the rotator speed is not measured and documented. C. When cloth was size reduced for ZHE, no documentation of size reduction or surface area was made or documented. D. EPA 1664A section 11.2.1.3 requires that pipette used for pH check be rinsed into the extraction system and this was not done per interviews with the analyst. E. Non-potable waters analyzed for ammonia were not distilled.	5/14/14
11.	NELAC 5.5.10.3.1.a-[TNI V1M2 5.10.3.1.a]—Deviations from the test method must be documented in the reports. The following were not qualified in reports: See Attached Response	A. Not distilling ammonia for non-potable water B. Not having 100g for TCLP, EPA 1311.	5/2/14
12.	NELAC 5.5.5.2-[TNI V1M2 5.5.2]—The new instrument used to analyze oxyhalides by EPA 300.1 was not running. Before being placed on the scope, MDL, DOC and updated SOPs to reflect the new equipment must be in place. See Attached Response		5/2/14
13.	NELAC 2.5 -[TNI V1M1 5.1.1]—PTs must be analyzed in the same manner as normal samples. Report 35102103025 for a PT was analyzed alongside a previously reported PT 93580741025. Normal samples are not run with a QC that is not part of Batch QC. See Attached Response		3/24/14
14.	NELAC 5.5.10.3.1.b-[TNI V1M2 5.6.4.1.b]— Standards were not traceable to their origin (example TKN/PO4 ICV PWC 10099). See Attached Response		11/26/13

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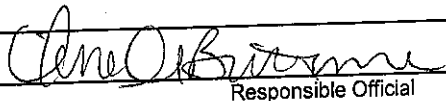
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Pace Analytical Services-Florida	E83079	February 24-27, 2014	Mitzi Miller

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15.	NELAC Appendix D 1.21. -[TNI V1M4 1.5.2.1]-- The laboratory did not have LODs for the following methods: PACE SOP S-FL-M-004/ICP-MS ,PACE SOP S-FL-O-019/GC-MS PACE SOP S-FL-O-037/GC-MS ,SM 10200 H ;or for the following analytes in method 624/8260: 1,4-Dioxane (1,4-Diethyleneoxide) , Cyclohexane , Hexachlorobutadiene , Iodomethane (Methyl iodide) , Naphthalene . See Attached Response		5/24/14
16.	NELAC 5.5.2.6.c.3.ii. -[TNI V1M4 1.6.3.1]—No ongoing DOCs were available for the following methods See Attached Response DEP SOP 10/03/83 EPA 160.4 EPA 1664A EPA 9040 EPA 9050 PACE SOP S-FL-M-004/ICP-MS PACE SOP S-FL-O-019/GC-MS PACE SOP S-FL-O-037/GC-MS SM 10200 H SM 2130 B SM 2150 B SM 2330 B SM 2340 B SM 2540 G SM 4500-CI D SM 4500-CIO2 D SM 4500CN-E SM 4500-H+-B SM 4500-SiO2 F (20th/21st Ed.) SM 6630 C SM 9221 E TKN + Total nitrate-nitrite TKN minus AMMONIA		5/31/14

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4/28/14

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Report of Findings and Plans of Correction

1. *NELAC 5.4.13.1 [TNI VIM2, 4.14.1] –All elements of the standard are to undergo internal audit. This is shown by performing internal audits of each technology. The FY 2013 records of the internal audit in wet chemistry did not show that all technologies were assessed.*

Root Cause: The laboratory policy is to conduct two internal audits per year, one by the local quality department and a second by the corporate quality department. Between both audits, all wet chemistry methods were evaluated in the 2013 internal audit; however, individual wet chemistry methods were not listed on the formal internal audit report for neither the local nor the corporate reports. Therefore, for methods that had no findings it was not evident that they were evaluated. However, the corporate report did include an evaluation of SOPs which indicated that all method SOPs were reviewed (See Attachment 1).

Corrective Action Plan: The audit report template was updated to include an area for documentation of methods reviewed instead of just departments reviewed (See Attachment 1). This finding was also brought to the corporate quality office so that the appropriate changes could be made to their reports.

Completion Date: 4/18/14

Monitoring and Follow-up: The quality department will review future internal audit reports from both the local and corporate audit to ensure the methods reviewed are listed on the report.

2. *NELAC 5.5.8.3.1.a.3.I-III [TNI VIM5 1.7.5 b) iii.] – One container from each batch of laboratory prepared containers or lot of purchased ready-to-use containers is not checked to ensure efficacy of the sodium thiosulfate to 5 mg/L chlorine or 15 mg/L chlorine as appropriate and the check is documented.*

Root Cause: The residual chlorine check of the microbiology sampling cups (ColiCups) was not part of the Microbiology Quality Control SOP. As a result, the analyst was unaware of the requirement.

Corrective Action Plan: The laboratory performed the residual chlorine check on the current container lots at the time of the audit (see Attachment 2). The Quality department will update the Microbiology Quality Control SOP to reflect the details of this requirement to prevent future recurrence.

Completion Date: The current lots were checked on 2/25/14, the Microbiology Quality Control SOP will be updated by 5/31/14.

Monitoring and Follow-up: The Quality department will follow up in 60-90 days to ensure future lots of sample containers are checked for neutralization of chlorine.

3. *NELAC 5.5.4.2.2.a-[TNI VIM5 1.6.3.2 b] No ongoing DOC was present for SM 9221E for solids.*



Root Cause: The DOC was updated and available prior to the audit (see Attachment 3). When electronic files were generated and copied to external disk for the auditor, the file was missed. Prior to this audit, the quality department only maintained an organizational structure for the hard-copy of DOCs and not the electronic formats. This made it overly tedious to compile all DOCs in electronic format before the audit.

Corrective Action Plan: This appears to be an isolated incident due to human error. However, after experience with some of the third party assessors, the Quality Department is working to develop a standard file saving and naming convention to be used by the laboratory. This will improve efficiency and reduce errors when collecting the electronic files regardless of the file format requested by the assessor.

Completion Date: The DOC for SM9221E was completed for both current analysts on 2/20/14. The Quality Department created a new file saving/naming structure on 4/4/14 and began training the laboratory on the new process on 4/17/14. Training on the new system will be completed with the remaining lab staff on 4/29/14.

Monitoring and Follow-up: The Quality Department will continue to provide DOC status updates to supervisors every two weeks. The Quality Department will also confirm the file naming/saving conventions are being properly used during review of the DOC packet.

4. *NELAC Appendix D.3.8.b.3.I-III-[TNIVIM5 1.7.3.7.b.iii.2]--equipment such as containers with volumetric markings (including sample analysis vessels) shall be verified once per lot prior to first use. This verification may be volumetric or gravimetric. No verification of volume was performed by lot number for microbiological testing.*

Root Cause: The previous logbook for documentation of microbiology lot checks did not have a space to complete the volume check for sample containers (ColiCups). As a result the volume check was not being documented anywhere in the old logbook. The assessor reviewed this logbook on site. A new logbook was issued January 2014 that contained an area to document volume and residual chlorine checks (finding 2 above). On January 28, 2014, the analysts began recording the volume checks (see Attachment 4).

Corrective Action Plan: The laboratory began implementation of this procedure prior to the audit however, the procedure needs added to the Microbiology Quality Control SOP.

Completion Date: The practice began 1/28/14 and the Microbiology Quality Control SOP will be updated by 5/31/14.

Monitoring and Follow-up: The Quality department will follow up in 60-90 days to ensure the laboratory continues to verify 100 mL volume mark on future lots of ColiCups.

5. *NELAC 5.5.4.7.2.b-[TNI VIM2 5.4.7.2.b]—Data and calculations were not protected.*



- A. When calculations are performed in electronic systems, the calculations must be protected to prevent erroneous calculation errors. No protection was present for organic extraction and wet chemistry volumetric verifications.*
- B. No backup of instrument run conditions and method details for GC, many GC/MSs, ICP, ICP/MS, LC/MS/MS were performed.*

Root Cause: The laboratory was unaware that these items were not protected.

Corrective Action Plan: The Quality Department is working to compile all spreadsheets, documents, and forms utilized by the laboratory into a central location on the network. This will make the control of these documents easier and more efficient. In addition, the Quality Department reviewed document control procedures with the lab staff and will continue to do so annually. The calculations for the pipette calibration spreadsheets were locked and password protected during the on-site assessment. The password is known only to the Quality Department.

Regarding the backup of instrument run conditions, the backup procedures vary based on the instrument software. For GCMS software, the instrument run conditions are exported with the sample files into the network drive. This is already being done for all GCMS instruments. For GC instruments, the method change tables are copied into the network drive along with the sample files. This change is also already in process.

For the LCMSMS, ICP, and ICPMS instruments, all sample and method files are in the process of being copied to the network drive. The laboratory is evaluating options to automate this process in the future.

Completion Date: Protection of pipette calibration sheets and GCMS and GC run conditions are completed. LCMSMS, ICP, and ICPMS backup of run conditions is expected to complete by 5/2/14 due to the amount of files that need to be copied.

Monitoring and Follow-up: The Quality Department will follow up with the laboratory in 60-90 days to ensure excel files are still protected and the data backup process is effective and with IT to determine the status of creating an automated backup scheme.

- 6. NELAC 5.4.3.2.2.1a-[TNI VIM2 4.3.2.2.a] –The laboratory has a specific document control process when training analysts. HAA, 504/8011 training did not maintain control of procedures and notes on procedures during training.*

Root Cause: The laboratory training program is overseen by the Human Resources Manager. The HR Manager is responsible for creating the controlled training binders for analysts to take notes during their training. At the time the analyst began her new position, the HR manager was on an extended leave of absence and therefore she did not receive the new training binder.

Corrective Action Plan: The laboratory designated the Quality Analyst to oversee the laboratory training program in the absence of the HR Manager. This will ensure the training binders are provided even during the HR Manager's absence. For this particular instance, the issue was brought to the attention of the department supervisor and the analyst was retrained on the proper documentation required for training notes (see Attachment 5).



Completion Date: All corrective and preventive actions completed by April 24, 2014.

Monitoring and Follow-up: The Quality Department will follow up in 60-90 days to ensure training notes are properly documented and the training binders continue to be created. In addition, the control of training notes will be addressed during the interview with the Quality Manager when every new employee begins work.

7. *NELAC 5.5.4.1-[TNI VIM2 5.4.1]—SOPs must be up to date and reflect actual practice. The SOP FFL024 and other organic SOPs for semivolatiles by GC describe use of a statistical approach for setting retention time windows. It was confirmed by interviews with appropriate analysts that statistical approaches are not used.*

Root Cause: Historically, the semivolatiles department generated statistical retention time windows for GC analysis as outlined in the SOPs. The laboratory switch to a non-statistical approach and missed updating the SOP.

Corrective Action Plan: The laboratory will update the SOPs to reflect actual lab practice. In addition, the GC SOPs will be sent for full review by the analyst and department supervisor to ensure no other changes are necessary.

Completion Date: All GC SOPs will be reviewed by 5/31/14.

Monitoring and Follow-up: The Quality Department will follow up in 60-90 days to ensure the SOP is updated and is in agreement with actual practice by the analysts.

8. *NELAC 5.4.12.2.1 – TNI[VIM2 4.13.2.1] –Records did not establish a clear audit trail of the results.*
- A. *pH record verifications for EPA 8260/624 water samples, run logs state acceptable but the computer says >2, thus the records were inconsistent.*
 - B. *The IC sample loop volume/size used for EPA 300 and 9056 was documented either in SOPs or test records.*
 - C. *The documented identity of the 1g and 2 mg weights used to check balances for EPA 1664A were not accurate.*

Root Cause: Regarding 8A, this was a single analyst error. Historically the analyst updated the computer to match the run log but stopped when the department began experiencing a higher workload. Regarding 8B, the analysts believed the loop size was on the sticker that came on the sample loop. Regarding 8C, the laboratory balance check logbooks had a list of weight sets in the front and the analysts were not aware they needed to change this information if a different weight set was used.



Corrective Action Plan: For 8A, the pH documentation requirements were addressed with all volatiles analysts (see Attachment 6). For 8B, the laboratory added a sticker to the sample loop to indicate the size of the loop and has also added it to the maintenance log (see Attachment 7). For 8C, the Quality Department created new balance check logbooks that now require the analyst to record the laboratory weight set ID (see Attachment 8) which is traceable to the weight set serial number. The Quality Department began training and implementing this new procedure across the lab on 4/16/14 and will complete training in remaining departments on 4/29/14.

Completion Date: 4/29/14

Monitoring and Follow-up: The Quality Department will follow up in 60-90 days to ensure this documentation is still being performed.

9. *NELAC 5.5.4.1-[TNI VIM2 5.4.1]—The SOPS must reflect the published method unless there is approved deviation. The following did not reflect EPA Method 331:*

- A. Perchlorate Sop does not discuss 1) filtration of the sample, 2) the requirement for 1 +/- 2% for retention time windows per Method 331, 9.3.6*
- B. Sample management SOP does not discuss the perchlorate presentation/container requirements*

Root Cause: The analyst inadvertently left these items out of the SOP when it was initially written even though these requirements were being followed despite exclusion from the SOP.

Corrective Action Plan: The perchlorate SOP was updated on 4/18/14 to reflect the filtration requirement and is pending QA review. The changes to the Sample Management SOP were submitted to the corporate quality office so that the corporate Sample Management SOP could be updated with the new methodology.

Completion Date: Both SOPs will be implemented by 5/31/14.

Monitoring and Follow-up: The Quality Department will follow up in 60-90 to ensure the updated SOPs still reflect actual lab practice.

10. *NELAC 5.5.4.1-[TNI VIM2 5.4.1]—Implementation of the following methods are not per the published method, EPA 1311, TCLP and deviations are not approved:*

- A. room temperature was 20 deg C which does not meet the 23 +/- 2 deg C.*
- B. RPM of the rotator speed is not measured and documented.*
- C. When cloth was size reduced for ZHE, no documentation of size reduction or surface area was made or documented.*



D. EPA 1664A section 11.2.1.3 requires that pipette used for pH check be rinsed into the extraction system and this was not done per interviews with the analyst.

E. Non-potable waters analyzed for ammonia were not distilled.

Root Cause: For item A, the analyst was aware of the requirement however ZHE preparation occurs in the volatiles instrument room and the temperature fluctuates due to the other equipment that is running in that room at the same time. For items B and C, the analyst was unaware of how to document the RPM and the particle size reduction. For item D, the analyst was not aware of the requirement to rinse the pipette back into the sample matrix.

For item E, the laboratory previously performed a distillation study that was acceptable until the 2012 EPA Method Update Rule (MUR). The requirements for the distillation study in the 2012 MUR are more detailed than previous versions therefore the previous study no longer met the requirements of the MUR. In lieu of distillation, the laboratory opted to develop the gas diffusion method as allowed by the 2012 MUR in response to a 2013 internal audit finding. This method development was in process during the on-site audit but the laboratory was still working with the manufacturer to troubleshoot the new method.

Corrective Action Plan: For item A, as an immediate action the laboratory will qualify data when the temperature is outside the method limits. The analysts were retrained on this procedure (see Attachment 6). A permanent long-term solution is to move the ZHE setup to the TCLP room where non-ZHE TCLPs are prepared in a more stable environment. The laboratory is investigating what additional resources will be necessary to relocate the ZHE preparation.

For items B-D, the analysts were retrained (see Attachment 6 and 9) on the proper practices and the SOPs will be updated if needed to clarify these procedures.

For item E, the laboratory continues to troubleshoot the method with the manufacturer after replacement of a faulty part originally sent by the manufacturer. In the meantime, the laboratory is qualifying all ammonia data as undistilled.

Completion Date: We anticipate all corrective actions listed above to be complete by 5/14/14.

Monitoring and Follow-up: The quality department will follow up with all analysts in 60-90 days to ensure all corrective actions mentioned above are effective and to follow the status of the long term solution to relocate the ZHE extraction.

11. NELAC 5.5.10.3.1.a-[TNI VIM2 5.10.3.1.a]—Deviations from the test method must be documented in the reports. The following were not qualified in reports:

- A. Not distilling ammonia for non-potable water*
- B. Not having 100g for TCLP, EPA 1311.*

Root Cause: See response to 10 E for 11 A. For 11 B, the laboratory often does not receive sufficient sample from the client to extract 100g for TCLP and was not aware the data needed to be qualified.

Corrective Action Plan: See response to 10 E and Attachment 10 for 11 A. For 11 B, the laboratory began qualifying data on 4/1/14, upon follow-up by QA it was discovered that the comment on the TCLP



extraction batch in the laboratory's LIMS system was not translating to the final report. The QA Department is working with IT to resolve the issue.

Completion Date: The data is currently qualified for ammonia until the development of the gas diffusion method is complete. We anticipate a resolution as to why the TCLP qualifier is not translating to the final report by 5/2/14.

Monitoring and Follow-up: The Quality Department will continue to follow up with the wet chemistry department on the progress of the gas diffusion method. The Quality Department will also continue to follow up with IT to resolve the reporting issue for the TCLP qualifier or evaluate alternative options to get the qualifier to show on the final report.

12. NELAC 5.5.5.2-[TNI VIM2 5.5.2]—The new instrument used to analyze oxyhalides by EPA 300.1 was not running. Before being placed on the scope, MDL, DOC and updated SOPs to reflect the new equipment must be in place.

Root Cause: The laboratory purchased a new IC (35WTAI) for EPA 300.1 in January 2014. Successful DOCs and MDLs ran in early February 2014 and the laboratory has been successful in running PTs on that instrument. Shortly after the laboratory began analyzing samples, the analysts began to see frequent surrogate failures leading to multiple reruns. The instrument was not efficient enough to meet the demands of the laboratory. As a result of the frequent reruns, the instrument was unable to keep up with the backlog of samples and many samples were being subbed out to prevent hold time violations. Unfortunately, the manufacturer was unresponsive in providing technical support to resolve the issue before the on-site assessment, an issue that has since been addressed by their company.

Corrective Action Plan: After the on-site assessment, the laboratory continued to work with the manufacturer to resolve the frequent surrogate failures. After much troubleshooting, it was identified that an interference with other anions in the samples caused suppression of the DCA surrogate. It was later learned that the instrument was unable to resolve the matrix because the analytical column went bad quickly and was replaced with the same type of column. The MDL and DOC studies were provided during the on-site assessment (see Attachment 11). The SOP was written with detail as to the operation of the software for the previous instrument making that portion of the SOP not applicable to the current instrument. The laboratory removed the detail for the old instrument and is now pending QA review.

Completion Date: The SOP will be finalized by 5/2/14.

Monitoring and Follow-up: The laboratory will continue to monitor the performance of the instrument and the frequency as to which the columns need replaced. The laboratory may investigate alternative equipment if the current instrument is not meeting laboratory expectations for quality and sample throughput. The Quality Department will follow up with the laboratory within 30 days to obtain feedback on instrument performance and, at a minimum, review raw data quarterly.

13. NELAC 2.5 -[TNI VIM1 5.1.1]—PTs must be analyzed in the same manner as normal samples. Report 35102103025 for a PT was analyzed alongside a previously reported PT 93580741025. Normal samples are not run with a QC that is not part of Batch QC.



Root Cause: This was an old practice that the laboratory was not aware was unacceptable. This was discovered in the last quarter of 2013 by the Quality Department. After clarification with the Corporate Quality Office, supervisors were instructed that previous PT samples may not run along with unknown PT studies as this process is not followed for normal samples.

Corrective Action Plan: The Quality Department provided additional training to all laboratory staff to clarify the treatment of unknown PT samples and what acceptable use of a previous PT sample or third party QC known. Attachment 12 is an example of the training provided and signed by all staff.

Completion Date: 3/24/14

Monitoring and Follow-up: The Quality Department will review documentation after the next PT study to ensure the procedure is followed and no further control by QA is necessary. The Quality Department will also follow up with the analysts are still following the proper practice.

14. NELAC 5.5.10.3.1.b-[TNI VIM2 5.6.4.1.b]— Standards were not traceable to their origin (example TKN/PO4 ICV PWC 10099).

Root Cause: This appears to be an isolated incident related to a single analyst.

Corrective Action Plan: This analyst is no longer with the company for unrelated reasons. After the analyst left and before this on-site assessment, the Quality Department provided lab-wide training on various Quality SOPs including documentation. This action was taken in response to other unrelated corrective actions and as a preventive action for common laboratory mistakes. The Quality Department will continue to perform this training annually with all staff to continuously improve our quality system.

Completion Date: The first training session was completed 11/26/13. Training for 2014 will be completed in the fourth quarter quality meetings with each department.

Monitoring and Follow-up: The Quality Department will follow up in 60-90 days to ensure the TKN/TP standards continue to be traceable by the new analyst.

15. NELAC Appendix D 1.21. -[TNI VIM4 1.5.2.1]-- The laboratory did not have LODs for the following methods: PACE SOP S-FL-M-004/ICP-MS ,PACE SOP S-FL-O-019/GC-MS PACE SOP S-FL-O-037/GC-MS ,SM 10200 H ;or for the following analytes in method 624/8260: 1,4-Dioxane (1,4-Diethyleneoxide), Cyclohexane, Hexachlorobutadiene, Iodomethane (Methyl iodide), Naphthalene.

Root Cause: The laboratory has LOD/MDL studies for all analytes for which the laboratory is certified by SOP (PACE SOP S-FL-M-004/ICP-MS ,PACE SOP S-FL-O-019/GC-MS PACE SOP S-FL-O-037/GC-MS). The MDL/LOD study listed the EPA methods for which the SOP references instead of the SOP itself. For example, PACE SOP S-FL-M-004/ICP-MS refers to the EPA 200.8 method which was listed on the MDL study for strontium in drinking water. For the PACE SOP S-FL-M-004 method reference, this SOP was listed on the MDL study as "SOP#: S-FL-M-004".

The MDL/LOD for SM10200H was not performed because the laboratory was unable to obtain a sufficient standard for chlorophyll A.



The 624/8260 MDL/LOD study provided included all analytes but 1,4-dioxane. The excel sheet provided (35MSV3 8260_624 W.xls, see Attachment 13) included multiple tabs as the MDL studies ran 4 times to accommodate the full list of compounds. Cyclohexane was included on the tab labelled "Final (3)"; hexachlorobutadiene was included on the tab labelled "Final (4)" and listed as hexachloro-1.3-butadiene; iodomethane and naphthalene were listed on the tab labelled "Final (2)". This may have made these compounds difficult to locate in the large excel file.

The 1,4-dioxane was incomplete on this particular instrument as the laboratory was struggling with trying to reach a lower detection limit.

Corrective Action Plan: After several attempts, the laboratory spiked a higher concentration for the 1,4-dioxane MDL/LOD study and completed a passing run on 4/19/14 (see Attachment 14). The MDL/LOD study for SM10200H will be completed by 5/24/14 after receipt of the new chlorophyll A standard. The reference to the Pace SOPs will be added to the MDL/LOD templates where applicable by 5/24/14.

Completion Date: 5/24/14

Monitoring and Follow-up: The Quality Department will continue to routinely monitor the status of the MDL/LOD studies and provide updates to the laboratory supervisors every two weeks. The templates for MDL/LOD studies are method specific, locked sheets under the control of the quality department. Part of the QA review checklist for MDL/LOD studies is to ensure all analytes are present in the study and that the most recent version of the template is used. If this criteria is not met, the study is rejected by the Quality Department until the error is corrected.

16. NELAC 5.5.2.6.c.3.ii. -[TNI VIM4 1.6.3.1]—No ongoing DOCs were available for the following methods

DEP SOP 10/03/83

EPA 160.4

EPA 1664A

EPA 9040

EPA 9050

PACE SOP S-FL-M-004/ICP-MS

PACE SOP S-FL-O-019/GC-MS

PACE SOP S-FL-O-037/GC-MS

SM 10200 H

SM 2130 B

SM 2150 B

SM 2330 B

SM 2340 B

SM 2540 G

SM 4500-Cl D

SM 4500-ClO2 D

SM 4500CN-E

SM 4500-H+-B

SM 4500-SiO2 F (20th/21st Ed.)



SM 6630 C
SM 9221 E
TKN + Total nitrate-nitrite
TKN minus AMMONIA

Root Cause: See Attachment 15

Corrective Action Plan: See Attachment 15

Completion Date: See Attachment 15

Monitoring and Follow-up: The Quality Department will follow up in 60-90 days to ensure the proposed actions are completed. The Quality Department will continue to provide a DOC status to the department supervisors every two weeks.

ATTACHMENT 1

RE: TNI Audit Finding 1

SOP Number	Proposed revisions	Other comments
S-FL-M-002-rev.05 Hexavalent Chromium	1) Section 9.3: some of the text has been superscripted and subscripted inappropriately; 2) Section 11.2.4: this section cites section 11.13 to be done for all samples; this appears to be an incorrect reference and might be 11.2.3; 3) Section 11.4.6: formatting error- the '>' sign appears as a square; 4) Section 13.3: suggest adding some language to this section that details the fact that the instrument actually does 5 replicates of each standard, sample, and QC sample and only the average absorbance is used in the final calculation. Check instrument manual to see if there is any requirement for replicates.	
S-FL-M-003-rev.03: ICP- Metals	1) Section 13.4.1: the modifications must be clearly marked as such within the SOP or must be clearly listed in section 13.4; 2) Sections 13.4.2-13.4.4 are not necessary as they do not list method modifications.	
S-FL-M-004-rev.05: ICPMS Metals	1) Section 12.2: The acceptance criteria listed for Method 6020 does not match the information listed in Method 6020 or Method 6020A. Method 6020 requires internal standards to be 30-120%; Method 6020A requires a corrective action for any internal standard <70% including rerunning a 5X dilution of the sample.	
S-FL-M-005-rev.01: Mercury	1) SOP >2 years old; 2) Section 2: there is no listing or reference to the LODs (MDLs).	
S-FL-M-006-rev.00: Solid and Sludge Prep for ICP Metals (3050B)	1) SOP >2 years old; 2) Section 11.6: need to specify solid matrix used for blank and LCS.	
S-FL-M-007-rev.01: ICP	1) SOP >2 years old; 2) Section 12 and Tables: there is no mention of the method 1311 requirement that an MS be run on the extract for each applicable analytical method at a frequency of 1 per 20 samples per waste type. This should be mentioned in this SOP and it is suggested that it be mentioned in the analytical SOPs as well. Analysts running instruments must be aware of what original sample matrix was tumbled so they know how many MSs to run.	
S-FL-M-008-rev.03: SPLP	1) Section 12 and Attachment 1: there is no mention of the method 1312 requirement that an MS be run on the extract for each applicable analytical method at a frequency of 1 per 20 samples per waste type. This should be mentioned in this SOP and it is suggested that it be mentioned in the analytical SOPs as well. Analysts running instruments must be aware of what original sample matrix was tumbled so they know how many MSs to run.	
S-FL-M-009-rev.00: Metals prep 200.2	1) SOP >2 years old; 2) Section 2.3: fix reference to method 200.7; 3) Section 11.2.6: methods 200.7 and 200.8 require an MS on 10% of samples so this criteria should be applied here as well; an MS/MSD per 20 samples does not comply with these methods; 4) Section 11.4.3: it should be noted here that if samples are filtered, the associated MB and LCS must also be filtered.	This SOP may not be necessary because of S-FL-M-011.
S-FL-M-010-rev.00: Metals prep (3005)	1) SOP >2 years old; 2) Section 6.2: change 200.7 and 200.8 to 6010 and 6020; 3) Section 11.4.3: it should be noted here that if samples are filtered, the associated MB and LCS must also be filtered.	This SOP may not be necessary because of S-FL-M-011.
S-FL-M-011-rev.03: Metals prep (200.2/200.7/200.8/3010/ 3050)	No issues found.	

S-FL-M-012-rev.00-200-B UCMR3	No issues found.	
S-FL-L-001-rev.00 Housekeeping and Glassware Cleaning	1) SOP >2 years old.	
S-FL-L-002-rev.01- Sodium Sulfate prep	1) SOP >2 years old; 2) Section 8: should list all equipment used in this process (e.g., oven, pans, aluminum foil, etc.); 3) Section 9: should list all standards and reagents used (e.g., sodium sulfate, acid, solvents, etc.); 4) Section 11: it should be mentioned for the non-acidified and the acidified that each batch must be given a "reagent" number that is used for traceability purposes (not just the lot # for the actual sodium sulfate).	
S-FL-MB-001-rev.03- Prep of Micro Media	1) SOP not in standard Pace format.	
S-FL-MB-002-rev.01- Fecal Coliform MPN	1) Section 12 references Table 3; QC is actually in Table 2.	
S-FL-MB-003-rev.03- Total Coliform MMO-MUG	No issues found.	
S-FL-MB-004-rev.02- HPC	No issues found.	
S-FL-MB-005-rev.05- Total Coliform MF	No issues found.	
S-FL-MB-006-rev.04- Fecal Coliform MF	No issues found.	
S-FL-MB-007-rev.03- QC and Maintenance for Micro	1) SOP not in standard Pace format.	
S-FL-MB-008-rev.02- Use Test	No issues found.	
S-FL-MB-009-rev.01- HPC by Simplate	No issues found.	
S-FL-MB-010-rev.00- Fecal Strep MPN	No issues found.	
S-FL-MB-011-rev.00- Total and Fecal coliform by MPN	No issues found.	
S-FL-MB-012-rev.00- Enterococci	No issues found.	
S-FL-O-006-rev.02 Herbicide prep	1) Section 11.2.1: unsure why the lab would only need to use these in groups of 8 at a time. Suggest removing this restriction for the possibility of larger batches; 2) There is no mention in the SOP of adding NaCl to each sample as described in section 7.3.2 of Method 8151A.	
S-FL-O-018-rev.01- General Principles of Aqueous Extractions	1) Section 2.1: the sentence technically does not make sense, since these are analytical methods, not 3510 extraction procedures (and 608 and 625 do not apply to 3510).	

S-FL-O-022-rev.01: Florisil Cleanup	1) SOP >2 years old; 2) Section 3.2: SOP is still non-compliant with method 3620B. Each batch of florisil and the materials involved need to be verified on a batch level (or at the very least, a lot # level) that they are not contaminated and that the LCS works. The study results in Attachment IV of SOP O-024 do not show verification that an extracted LCS put through florisil recovers all analytes within LCS limits and it does not show that the MB put through florisil is clean <RL; 3) Section 11.1: 'lot' instead of 'lost'; 4) Method references in section 15.1 and the cover page are in conflict (B vs. C).	
S-FL-O-024-rev.03: Pest/PCB	1) Attachment 1: reword MS acceptance criteria for 8081/8082 and 608 (MS/MSD do not have to pass acceptance criteria); 2) Attachment 1: it needs to be stated more clearly that if LCSD is used, the LCS and LCSD must pass acceptance criteria for the batch to be acceptable; 3) Attachment 2: need to add soil RLs; 4) Attachment 4: this study does not prove that QC samples do not need to be put through the florisil cleanup procedure at a batch level. The study does not prove that an extracted LCS put through the florisil cleanup process still recovers within LCS acceptance limits and it does not prove that the method blank is free of contaminants. This study should be removed from the SOP and the parenthetical phrase in section 13.3 should be removed; 5) Attachment 5 should also be removed. Same reasoning as Attachment 4 comments.	
S-FL-O-027-rev.01: 1664A	1) SOP >2 years old; 2) Sections 12.3 and 12.4: the LCS and MS limits must match those listed in method 1664A or be tighter than those limits. This is not stated in the SOP.	
S-FL-O-028-rev.04: 3510 Sep Funnel	1) Section 11.6, Table 1: the basic pH for method 8270 should be >11 to match method 3510C (Section 11.8.2 is correct).	
S-FL-O-031-rev.02: Acid Cleanup	1) Section 9.1: Method 3665A calls for 1:1 sulfuric acid. This SOP implies the use of concentrated sulfuric acid. This should be listed as a method modification or switch to 1:1 sulfuric acid.	
S-FL-O-032-rev.01: Waste Dilution 3580A	1) SOP >2 years old; 2) Section 11.4: There is no mention of a method blank. There should be a method blank to prove that the materials in the process are clean below the reporting limits.	
S-FL-O-036-rev.01: Copper Cleanup	1) SOP >2 years old; 2) Section 11.1: 'aliquot' instead of 'aliquate'; 3) Section 12.0 should be titled 'Quality Control'. Suggest reiterating that the method QC samples must also be taken through the cleanup procedure.	
S-FL-O-043-rev.00: Pest/PCBs by Microwave 3546	1) SOP >2 years old; 2) SOP needs format fixes for subsection numbering; 3) Section 10: suggest adding corrective actions if the power test does not produce the required levels.	
S-FL-O-001-rev.09: HAA 552.2	1) Sections 10.9.1, 10.9.4, 10.9.5, and Table 1: quadratic curves are not allowed by this method (Method 552.2, sections 10.1.4 and 10.1.5); 2) Section 11.8.2: suggest adding language about color change (important training step).	
S-FL-O-003-rev.05: Herbicides 515.3	1) SOP >2 years old; 2) Sections 10.1.4, 10.4.1, 10.4.4, 10.4.5: quadratic curves are not allowed by this method (Method 515.3, sections 10.1.4 and 10.1.5); 3) Table 12.1: corrective actions for surrogate failures do not match the method requirements (Method 515.3, section 9.8) for re-analysis of extracts, etc.	

S-FL-O-005-rev.02 Herbicides 8151	No issues found.	
S-FL-O-007-rev.09 EDB/DBCP	1) Section 2.1: RLs listed appear to be reversed from what appeared in FR reviewed (at least for DBCP and EDB).	
S-FL-O-010-rev.03 Diquat/Paraquat	1) SOP >2 years old; 2) Section 10.1.12: ICV acceptance is listed as + 20%; however, in Table 12 the ICV acceptance limit is listed as $\pm$ 30%; 3) Section 11.2.1: Suggest stating that method blank and LCS must be filtered if any sample is filtered; 4) Table 12.1: LCS and MS limits listed as 70-130% with max RSD of 30; FR reviewed listed both limits as 80-120% with a max RPD of 40.	
S-FL-O-012-rev.04 Carbamates	No issues found.	
S-FL-O-013-rev.05 Clyphosate	1) Section 2.1: there is still no listing or reference to the LOD/MDL (there is a reference to the RL/LOQ and the calibration range, but no reference to the LOD/MDL- TNI requirement); 2) Table 12.1: LCS and MS limits are listed as 70-130% (even states "per method"); however, FR reviewed showed limits as 80-120% for both LCS and MS.	
S-FL-O-014-rev.04 Pesticides 508.1	1) Section 2: there is still no listing or reference to the LODs as required by the TNI standard (LOQs/PQLs are listed in the table in section 10.3).	
S-FL-O-018-rev.04 Endothall	1) Section 2: there is no listing or reference to the LOQ (RL).	
S-FL-O-019-rev.05: SVOA 525.2	No issues found.	
S-FL-O-021-rev.03: FL-PRO	1) Table 1: suggest removing language "must pass established limits" from Acceptance Criteria column for LCS, MS, Surrogate. This implies that they have to pass, when in actuality there are corrective actions listed for out of control QC; 2) Sections 3.1 and 11.12.12: if lab is using 10mL final volume, this needs to be listed as a Method Modification. FL PRO method states a final volume of 2mL; 3) Table 1: ICAL acceptance criteria listed (>0.990) does not match method acceptance criteria (>0.995).	
S-FL-O-023-rev.02: OP Pesticides 8141	1) Section 2.2: there is still no listing or reference to the solid LOQs/RLs (there is only a reference to the LOD/MDL). The water LOQ (listed as PQLs) are listed in Attachment III.	
S-FL-O-025-rev.05: SVOA 8270/625	1) Section 12.2 and Attachment I: there is nothing specifically noting that the LCS and LCSD must both pass acceptance criteria for the batch to be acceptable; 2) Section 12.5 is not clear enough on corrective actions due to surrogate failures. It does not address high surrogates in samples with hits above the RL (which would require re-extraction and re-analysis); 3) Section 12.6: corrective action should state that re-extraction must be performed unless there is insufficient sample for re-extraction; 4) Section 10.3: ICAL acceptance criteria (0.990) still does not match that listed in Attachment I (0.995); 5) Section 2.1 and Attachment IV: there is no listing or reference to the soil LOQs/RLs (only list those for water samples); 6) Section 2.2: needs to reference Attachment IV not V.	

S-FL-O-044-rev.00-1.4 Dioxane by SPE	No issues found.	
S-FL-O-045-rev.00 Perfluorinated Alkyl Acids	1) Section 2: there is no listing or reference to the LOQs (RLs) or LODs (MDLs); 2) Section 9.2.2: Table header should be changed to 'Surrogates'.	
S-FL-O-046-rev.00 Hormones by SPE	1) Section 2: there is no listing or reference to the LOQs (RLs) or LODs (MDLs).	
S-FL-O-033-rev.05 VOA 524.2	1) Section 10.6.5: according to Method 8000C, changing the GC column would constitute a change in sensitivity and therefore a new ICAL would be required.	
S-FL-O-034-rev.01 TCLP/SPLP ZHE	1) SOP >2 years old; 2) SPLP Method 1312 should be referenced in section 15.	
S-FL-O-037-rev.06 VOA 8260/624	1) Section 7.3: replace 4 +/- 2oC with <6oC per TNI.	
S-FL-O-038-rev.03 VOA Soil Prep	No issues found.	
S-FL-I-001-rev.03 Phenolics	1) Section 2.3: there is still no listing or reference to the LOQs/RLs (there is only a reference to the LODs/MDLs).	
S-FL-I-003-rev.00 Silica FIA	1) SOP >2 years old; 2) Section 11.1: should be clarified that QC is also filtered with the associated samples; 3) Table 1: references S-FL-Q-001 which does not exist.	
S-FL-I-004-rev.02 Silica colorimetric	1) Section 2: there is no listing or reference to the LOQ or LOD.	
S-FL-I-005-rev.04 Cyanide	No issues found.	
S-FL-I-006-rev.01 Ion Balance	No issues found.	
S-FL-I-007-rev.03 Alkalinity	1) Section 2.2: there is no listing or reference to the LOD.	
S-FL-I-008-rev.03 BOD/cBOD	No issues found.	
S-FL-I-009-rev.03 Ammonia	1) Section 2.2: there is no listing or reference to the LOD.	
S-FL-I-010-rev.03 Chlorine Dioxide	1) Attachment I: there is no acceptance criteria listed for MB or LCS.	
S-FL-I-011-rev.03 Residual Chlorine	1) Attachment I: there is no line item and information for the LCS (listed as different from the ICV in Attachment II).	

S-FL-I-012-rev.02 Chlorophyll	No issues found.	
S-FL-I-013-rev.04- COD	1) Section 13.1: suggest noting that MDLs are due every 6 months for this method; 2) Table I: change MDL frequency from every year to every 6 months.	
S-FL-I-014-rev.04- Color	No issues found.	
S-FL-I-015-rev.02 Conductivity and Salinity	No issues found.	
S-FL-I-016-rev.02 Corrosivity	No issues found.	
S-FL-I-018-rev.02 Ignitability	No issues found.	
S-FL-I-019-rev.06 MBAS	1) Table 1: MS limits listed as 90-110%; however, FR reviewed listed MS limits as 80-120%.	
S-FL-I-020-rev.04 NO3/NO2	1) Section 2.2: the RLs (LOQs) are not listed, only the applicable ranges.	
S-FL-I-021-rev.05- Odor	No issues found.	
S-FL-I-023-rev.05- pH	1) Section 7.1: SOP reference needs corrected.	
S-FL-I-024-rev.01 Ignitability of solids	1) SOP >2 years old.	
S-FL-I-025-rev.03- Sulfide	1) Section 2.2: there is no listing or reference to the LOD.	
S-FL-I-026-rev.03- TKN	No issues found.	
S-FL-I-027-rev.06- TDS	No issues found.	
S-FL-I-028-rev.03- TS	No issues found.	
S-FL-I-029-rev.05- TSS	No issues found.	
S-FL-I-030-rev.06- Turbidity	No issues found.	
S-FL-I-031-rev.04 TOC/DOC	1) Section 2: there is no listing or reference to the LODs.	
S-FL-I-032-rev.01- UV254	1) SOP >2 years old.	

S-FL-I-034-rev.00-Nutrient Prep	1) SOP >2 years old; 2) Section 11.3: fix references to old LIMS; 3) Section 12.1: Should be removed; there is no Table 1.	
S-FL-I-035-rev.02-IC	1) SOP >2 years old; 2) Section 2.2: there is still no listing of soil RLs.	
S-FL-I-039-rev.04-300.1	1) Section 2.3: these appear to be minimum RLs, not MDLs as stated.	
S-FL-I-040-rev.02-Low TP	No issues found.	
S-FL-I-041-rev.04-Low OP	No issues found.	
S-FL-I-042-rev.01-Paint Filter	No issues found.	
S-FL-I-043-rev.03-Percent Solids, etc.	No issues found.	
S-FL-I-044-rev.02-Solid Sulfides	No issues found.	
S-FL-I-048-rev.00-Sediment Concentration	1) SOP >2 years old.	
S-FL-I-049-rev.00-Acidity	1) SOP >2 years old; 2) Table 1: under IDOC, suggest putting "None" or entering some form of acceptance criteria other than question marks.	
S-FL-I-050-rev.03-Hexavalent Chromium 218.6	No issues found.	
S-FL-I-051-rev.00-REDOX	No issues found.	
S-FL-I-052-rev.00-Salinity	No issues found.	
S-FL-I-053-rev.00-Ferrous Iron	1) Section 1 needs text added; 2) Section 2: there is no listing or reference to the LOD or LOQ (as applicable).	
S-FL-I-058-rev.01-Hexavalent Chromium 7196A	No issues found.	

Corrective Action
 Response Due to QA By:
 Audit Report Due:

Number of Tickets: 0
 Number of Tickets Requiring CAs: 0
 Tickets w/ Approved CA plans: 0
 Number of Verified CAs: 1
 % Verified Effective: #DIV/0!
 Completed: 1

CORRECTIVE ACTIONS
 SHOULD BE COMPLETE IN
 NO LONGER THAN 6
 MONTHS.

Audit:
 Date:
 Auditor:
 Personnel
 Present:

Departments:

Methods:

Audit Finding	Dept	Method or Process	TNI Reference	Finding/Issue	Assigned To	Root Cause	Approved Corrective Action Plan	Date To Be Completed	Date Completed	Comments	60-90 days Verified Effective

ATTACHMENT 2

RE: TNI Audit Finding 2

 Pace Analytical Florida Laboratory 8 East Tower Circle, Orlando Beach, FL 32174	Document Name: QC Sterility Log	Date Revised: June 6, 2013
	Document No.: F-FL-MB-037 rev.00	Issuing Authority: Pace Florida Quality Office

QC STERILITY AND LOT NUMBER CHECKS

Material Tested: Coli Cups Trace #: N/A Lot #: 95007
 Set Up By: CJF Start Date/Time: 2/25/14 1552
 Incubator ID: MB-1 TSB Trace #: Rm 2244
 Read By: CJF Read Date/Time: 2/26/14 1649
 Growth (circle): Y / (N)

Volume Check (disposable pipettes, Colicup)

Volume (mL)	Final Weight (g)	% Difference (acceptance limits <2.5%)	Balance ID: <u>WC-86</u>
100	99.4	0.6%	

Colicup Chlorine Check

Chlorine Standard (15mg/L): IWC-2272 DPD reagent: IWC 2876 Pass (circle): (Y) / N
 Material Tested: Coli Cups Trace #: N/A Lot #: MJ010

Set Up By: CJF Start Date/Time: 2/25/14 1749
 Incubator ID: MB-1 TSB Trace #: Rm 2244
 Read By: CJF Read Date/Time: 2/26/14 1759
 Growth (circle): Y / (N)

Volume Check (disposable pipettes, Colicup)

Volume (mL)	Final Weight (g)	% Difference (acceptance limits <2.5%)	Balance ID: <u>WC-86</u>
100	99.8	0.2%	

Colicup Chlorine Check

Chlorine Standard (15mg/L): IWC 2272 DPD reagent: IWC 2876 Pass (circle): (Y) / N
 Material Tested: Petri Dishes (HPC) Trace #: N/A Lot #: 3221876

Set Up By: CJF Start Date/Time: 3/11/14 1443
 Incubator ID: MB-1 TSB Trace #: Rm 2244
 Read By: CJF Read Date/Time: 3/12/14 1600
 Growth (circle): Y / (N)

Volume Check (disposable pipettes, Colicup)

Volume (mL)	Final Weight (g)	% Difference (acceptance limits <2.5%)	Balance ID: _____

Colicup Chlorine Check

Chlorine Standard (15mg/L): _____ DPD reagent: _____ Pass (circle): Y / N
 PADS (from TC & FC plates)/MEMBRANE FILTERS: Submerge pad/filter in 1X TSB. Incubate 24HR at 35oC. Check for growth.
 COLI-CUPS: Add a minimum 20mls of 1X TSB to container, incubate for 24HR at 35oC +/- 0.5oC. Check for growth.
 SPC & TC/FC PLATES: Add sufficient TSB to cover bottom of plate. Incubate for 24HR at 35oC +/- 0.5oC. Check for growth.

ATTACHMENT 3

RE: TNI Audit Finding 3

DEC 10 11

	Document Name: Non-LCS Demonstration of Capability Form	Document Revised: February 11, 2014 Page 1 of 1
	Document No.: F-FL-Q-032 rev.00	Issuing Authority: Pace Florida Quality Office

Demonstration of Capability Certification Statement

Date: 2/20/14
 Method: SM 9221 E Matrix: Soil
 SOP: S-FL-NB-002-REV.01 SOP Acknowledged Date: _____

This method does not include laboratory control spike samples that can be used in replicate to demonstrate proficiency. The trainer has conducted on the job training, observed the trainee to certify that the trainee has demonstrated that he or she can perform the procedure per the SOP.

Date of Observation: 11/13/13
 Trainer Signature: _____
 Trainee Signature: Carla Figueroa

Where applicable, compare the results of two analysts for this method.

Date of Comparison: _____
 Trainer Results: _____
 Trainee Results: _____
 Comparison Meets Acceptance: (Yes or No) _____

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited method, which is in use at this facility for the analyses of samples under TNI and other state or federal agencies, have met the Demonstration of Capability.
2. The test method was performed by the analyst identified on this certification.
3. A copy of the test method and the laboratory specific SOPs are available for all personnel on-site.
4. The data associated with the demonstration of capability are true, accurate, complete and self explanatory.
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized assessors.

TERESA L KENN
 Laboratory Manager (print)

TERESA L KENN
 Signature

2/21/14
 Date

Lynn Bayler
 Quality Assurance Manager

Lynn Bayler
 Signature

2-23-14
 Date

**FECAL COLIFORM MPN METHOD
FOR SLUDGE / SOIL**

Buffer Trace #: Rm2270F LTB Trace #: Rm2225 (SM 9221 E) E.C. Trace #: Rm2233

LTB Setup Date / Time: <u>11-13-13</u> <u>1000</u>	Analyst: <u>LJS/CJF</u>	Queue/Batch #: <u>MBIO / 12420</u>
LTB 24hr Read Date / Time: <u>11-14-13</u> <u>920</u>	Analyst: <u>LJS/CJF</u>	Incubator #: <u>1</u>
LTB 48hr Read Date / Time: <u>11-15-13</u> <u>845</u>	Analyst: <u>LJS/CJF</u>	
24hr EC Setup Date / Time: <u>11-14-13</u> <u>935</u>	Analyst: <u>LJS/CJF</u>	Water Bath #: <u>1</u>
24hr EC Read Date / Time: <u>11-15-13</u> <u>900</u>	Analyst: <u>LJS/CJF</u>	
48hr EC Setup Date / Time: <u>11-15-13</u> <u>905</u>	Analyst: <u>LJS/CJF</u>	Water Bath #: <u>1</u>
48hr EC Read Date / Time: <u>11-16-13</u> <u>900</u>	Analyst: <u>LJS</u>	Approval: <u>TUE 11/19/13</u>

PACE # / Comments / Client Notes	Dilution	Tube #	24 hr.	LTB at 48hr.	EC at 48hr.	72 hr.	# of + EC Tubes	MPN Index *	LIMS DF ** (see note below)
PACE #: <u>35115593-1</u> JEABUC #10	10^{-1}	A	+	-	-	-	0		
		B	+	-	-	-			
		C	+	+	-	-			
		D	+	-	-	-			
		E	-	+	-	-			
	10^{-2}	A	-	-	-	-	0	22	1
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
	10^{-3}	A	-	-	-	-	0		
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
PACE #: <u>35115593-1</u> JEABUC DUP	10^{-1}	A	-	+	-	-	0		
		B	+	-	-	-			
		C	-	-	-	-			
		D	-	+	5*	-			
		E	+	-	-	-			
	10^{-2}	A	-	-	-	-	0	22	1
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
	10^{-3}	A	-	-	-	-	0		
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
PACE #: _____ ~~JEABUC~~		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			

** LIMS DF = (1 / Lowest Dilution Used) / 10 Ex: If 10^{-3} is lowest dilution used then LIMS DF=100
 + : positive gas forming tube - : negative gas forming tube * MPN result from MPN index table
 * CJF 11-15-13

Demonstration of Capability Certification Statement

Date: 2-20-14Method: SM9221EMatrix: SoilSOP: S-FL-MB-002-rev.01

SOP Acknowledged Date: _____

This method does not include laboratory control spike samples that can be used in replicate to demonstrate proficiency. The trainer has conducted on the job training, observed the trainee to certify that the trainee has demonstrated that he or she can perform the procedure per the SOP.

Date of Observation: 1-13-13Trainer Signature: [Signature]Trainee Signature: [Signature]

Where applicable, compare the results of two analysts for this method.

Date of Comparison: _____

Trainer Results: _____

Trainee Results: _____

Comparison Meets Acceptance: (Yes or No) _____

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited method, which is in use at this facility for the analyses of samples under TNI and other state or federal agencies, have met the Demonstration of Capability.
2. The test method was performed by the analyst identified on this certification.
3. A copy of the test method and the laboratory specific SOPs are available for all personnel on-site.
4. The data associated with the demonstration of capability are true, accurate, complete and self explanatory.
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized assessors.

TERESA L KENNY
Laboratory Manager (print)

[Signature]
Signature

2/21/14
Date

Lynn Bayler
Quality Assurance Manager

[Signature]
Signature

2-23-14
Date

Buffer Trace #: Rm2220F LTB Trace #: Rm2225 (SM 9221 E) E.C. Trace #: RM2233
 LTB Setup Date / Time: 11-13-13 1000 Analyst: LJS/CSF
 LTB 24hr Read Date / Time: 11-14-13 920 Analyst: LJS/CSF
 LTB 48hr Read Date / Time: 11-15-13 845 Analyst: LJS/CSF
 24hr EC Setup Date / Time: 11-14-13 935 Analyst: LJS/CSF
 24hr EC Read Date / Time: 11-15-13 900 Analyst: LJS/CSF
 48hr EC Setup Date / Time: 11-15-13 905 Analyst: LJS/CSF
 48hr EC Read Date / Time: 11-16-13 900 Analyst: LJS

Queue/Batch #: MBIO/12420
 Incubator #: 1
 Water Bath #: 1
 Water Bath #: 1
 Approval: TUE 11/19/13

PAGE # / Comments / Client Notes	Dilution	Tube #	24 hr.	LTB at 48hr.	EC at 48hr.	72 hr.	# of + EC Tubes	MPN Index *	LIMS DF ** (see note below)
PAGE #: <u>35115593-1</u> <u>JEABUC</u> <u>#10</u>	<u>10⁻¹</u>	A	+	-	-	-	0		
		B	+	-	-	-			
		C	+	+	-	-			
		D	+	-	-	-			
		E	+	+	-	-			
	<u>10⁻²</u>	A	-	-	-	-	0	22	1
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
	<u>10⁻³</u>	A	-	-	-	-	0		
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
PAGE #: <u>35115593-1</u> <u>JEABUC</u> <u>DUP</u>	<u>10⁻¹</u>	A	-	+	-	-	0		
		B	+	-	-	-			
		C	-	-	-	-			
		D	-	+	-	-			
		E	+	-	-	-			
	<u>10⁻²</u>	A	-	-	-	-	0	22	1
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
	<u>10⁻³</u>	A	-	-	-	-	0		
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
PAGE #: <u> </u>		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			
		A	-	-	-	-			
		B	-	-	-	-			
		C	-	-	-	-			
		D	-	-	-	-			
		E	-	-	-	-			

LJS
11-16-13

ATTACHMENT 4

RE: TNI Audit Finding 4

 8 East Tower Circle, Oxnard Beach, FL 32974	Document Name:	Date Revised:
	QC Sterility Log	June 6, 2013
	Document No.: F-FL-MB-037 rev.00	Issuing Authority: Pace Florida Quality Office

QC STERILITY AND LOT NUMBER CHECKS

Material Tested: Membrane Filters Trace #: IWC 2819 Lot #: 30805252
Sterility Check

Set Up By: CJF Start Date/Time: 1/18/14 840
 Incubator ID: MB-1 TSB Trace #: Rm 2244
 Read By: AS Read Date/Time: 1-19-14 905
 Growth (circle): Y / (N)

Volume Check (disposable pipettes, Colicup)

Volume (mL)	Final Weight (g)	% Difference (acceptance limits <2.5%)	Balance ID:

Colicup Chlorine Check

Chlorine Standard (15mg/L): _____ DPD reagent: _____ Pass (circle): Y / N

Material Tested: Coli Cups Trace #: N/A Lot #: LS009
Sterility Check

Set Up By: CJF Start Date/Time: 1/28/14 1000
 Incubator ID: 1 TSB Trace #: Rm 2244
 Read By: CJF Read Date/Time: 1/29/14 1005
 Growth (circle): Y / (N)

Volume Check (disposable pipettes, Colicup)

Volume (mL)	Final Weight (g)	% Difference (acceptance limits <2.5%)	Balance ID:
100	99.17	0.83%	<u>WC-86</u>

Colicup Chlorine Check

Chlorine Standard (15mg/L): _____ DPD reagent: _____ Pass (circle): Y / N

Material Tested: Membrane Filters Trace #: IWC 2924 Lot #: 30722152
Sterility Check

Set Up By: CJF Start Date/Time: 2/7/14 1236
 Incubator ID: 1 TSB Trace #: Rm 2244
 Read By: CJF Read Date/Time: 2/8/14 1300
 Growth (circle): Y / (N)

Volume Check (disposable pipettes, Colicup)

Volume (mL)	Final Weight (g)	% Difference (acceptance limits <2.5%)	Balance ID:

Colicup Chlorine Check

Chlorine Standard (15mg/L): _____ DPD reagent: _____ Pass (circle): Y / N

PADS (from TC & FC plates)/MEMBRANE FILTERS: Submerge pad/filter in 1X TSB. Incubate 24HR at 35oC. Check for growth.

COLI-CUPS: Add a minimum 20mls of 1X TSB to container, incubate for 24HR at 35oC + / - 0.5oC. Check for growth.

SPC & TC/FC PLATES: Add sufficient TSB to cover bottom of plate. Incubate for 24HR at 35oC + / - 0.5oC. Check for growth.

E. faecalis
 E. aerogenes

ATTACHMENT 5

RE: TNI Audit Finding 6

	Document Name: Training Worksheet Miscellaneous Topic	Document Revised: July 12, 2012 Page 1 of 1
	Document No.: WS-ALL-T-001-rev.00	Issuing Authority: Pace Corporate Training Office

Training Worksheet – Miscellaneous Topic

Topic of Training: 504/8011 Training / HAA **Page #:** N/A

Instructions: As your trainer discusses and demonstrates each step involved with this process, list each step and take notes on this blank worksheet on the specifics that will help you learn and remember how to perform this process. At the end of the training, the trainer will review your notes for accuracy and discuss them with you. You and the trainer must sign and date this document in the designated area and list any SOPs or other documents used for the training. Use another blank worksheet for additional pages on this topic. This worksheet will then be stored by your supervisor in your training files in the LMS.

- Training notes are used during (and up to) training of methods. Demonstration of capability (IDOC/CDOCs) requirements do not allow for the use of free notes.
- Analyst should be able to perform the method without the use of notes or aids.
- If analyst requires the use of notes (especially uncontrolled documents), the analyst should be retrained on the method until the use of notes/aids are no longer required.

Exceptions:

- Reference the SOP
- Refer to notes in training binder
- "Free notes" can be used as long as the current SOP revision number is documented on page(s).
(i.e. legal pad notes.)

Analyst Signature and Completion Date: S. Huston 4/24/14

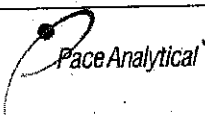
Trainer Signature and Approval Date: Brandon Horvath 4/24/14

Documents referenced during training for this worksheet (e.g. SOPs, etc.):

N/A

ATTACHMENT 6

RE: TNI Audit Findings 8A, 10A, 10B, and 10C

	Document Name: Training Worksheet Miscellaneous Topic	Document Revised: July 12, 2012 Page 1 of 1
	Document No.: WS-ALL-T-001-rev.00	Issuing Authority: Pace Corporate Training Office

Training Worksheet – Miscellaneous Topic

Topic of Training: 2014 TNI Findings Page #: 1 of 1

Instructions: As your trainer discusses and demonstrates each step involved with this process, list each step and take notes on this blank worksheet on the specifics that will help you learn and remember how to perform this process. At the end of the training, the trainer will review your notes for accuracy and discuss them with you. You and the trainer must sign and date this document in the designated area and list any SOPs or other documents used for the training. Use another blank worksheet for additional pages on this topic. This worksheet will then be stored by your supervisor in your training files in the LMS.

(A) TCLP Retraining:

- ① Rotations per minute - count tumbler rotation per minute and document in TCLP prep log.
- ② TCLP particle size reduction - document particle size reduction performed on TCLP samples in TCLP prep log.
- ③ Room Temperature requirement for TCLP prep - document in TCLP log and Flag corresponding data when ^{4/24/14}room temperature is out of range, i.e. ~~$\pm 23^{\circ}\text{C}$~~ $\pm 23^{\circ}\text{C}$ $23^{\circ}\text{C}, \pm 2^{\circ}$
_{4/24/14}

- (B) pH documentation on sequence log and in LIMS - pH of samples greater than 2 needs to be Flagged in data in LIMS and documented on sequence log of affected sample in data packet.

Analyst Signature and Completion Date:

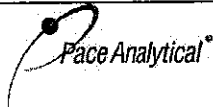
Kenneth A. Reed

4-24-14

Trainer Signature and Approval Date:

[Signature] 4/24/14

Documents referenced during training for this worksheet (e.g. SOPs, etc.):

	Document Name: Training Worksheet Miscellaneous Topic	Document Revised: July 12, 2012 Page 1 of 1
	Document No.: WS-ALL-T-001-rev.00	Issuing Authority: Pace Corporate Training Office

Training Worksheet – Miscellaneous Topic

Topic of Training: 2014 TNI Endcap **Page #:** 1 of 1

Instructions: As your trainer discusses and demonstrates each step involved with this process, list each step and take notes on this blank worksheet on the specifics that will help you learn and remember how to perform this process. At the end of the training, the trainer will review your notes for accuracy and discuss them with you. You and the trainer must sign and date this document in the designated area and list any SOPs or other documents used for the training. Use another blank worksheet for additional pages on this topic. This worksheet will then be stored by your supervisor in your training files in the LMS.

(A) TCLP Retraining:

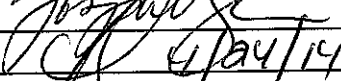
- ① Rotations per minute - count tumbler rotation per minute and document in TCLP prep log.
- ② TCLP particle size reduction - document particle size reduction performed on TCLP samples in TCLP prep log.
- ③ Room Temperature requirement for TCLP prep - document in TCLP log and Flag corresponding data when ^{4/24/14} room temperature is out of range, i.e. ~~$\pm 23^{\circ}\text{C}$~~ $\pm 23^{\circ}\text{C}$ 23°C , $\pm 2^{\circ}\text{C}$ _{4/24/14}

- (B) pH documentation on sequence log and in LIMS - pH of samples greater than 2 needs to be Flagged in data in LIMS and documented on sequence log of affected sample in data packet.**

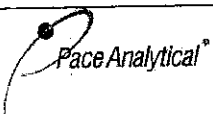
Analyst Signature and Completion Date:

 4/24/14

Trainer Signature and Approval Date:

 4/24/14

Documents referenced during training for this worksheet (e.g. SOPs, etc.):

	Document Name: Training Worksheet Miscellaneous Topic	Document Revised: July 12, 2012 Page 1 of 1
	Document No.: WS-ALL-T-001-rev.00	Issuing Authority: Pace Corporate Training Office

Training Worksheet – Miscellaneous Topic

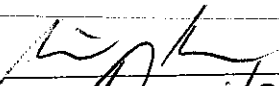
Topic of Training: 2014 TNI Ending Page #: 1081

Instructions: As your trainer discusses and demonstrates each step involved with this process, list each step and take notes on this blank worksheet on the specifics that will help you learn and remember how to perform this process. At the end of the training, the trainer will review your notes for accuracy and discuss them with you. You and the trainer must sign and date this document in the designated area and list any SOPs or other documents used for the training. Use another blank worksheet for additional pages on this topic. This worksheet will then be stored by your supervisor in your training files in the LMS.

(A) TCLP Retraining:

- ① Rotations per minute - count tumbler rotation per minute and document in TCLP prep log.
- ② TCLP particle size reduction - document particle size reduction performed on TCLP samples in TCLP prep log.
- ③ Room Temperature requirement for TCLP prep - document in TCLP log and Flag corresponding data when ^{4/24/14}room temperature is out of range, i.e. ~~$\pm 23^{\circ}\text{C}$~~ $\pm 23^{\circ}\text{C}$ $23^{\circ}\text{C}, \pm 2^{\circ}$ _{4/24/14}

- (B) pH documentation on sequence log and in LIMS - pH of samples greater than 2 needs to be Flagged in data in LIMS and documented on sequence log of affected sample in data packet.

Analyst Signature and Completion Date:  4/24/14

Trainer Signature and Approval Date:  4/24/14

Documents referenced during training for this worksheet (e.g. SOPs, etc.):

ATTACHMENT 7

RE: TNI Audit Finding 8B

 Pace Analytical Florida Laboratory 8 East Tower Circle, Ormond Beach, FL 32174	Document Name: General Instrument Maintenance Log	Document Revised: February 11, 2011
	Document No.: New Instrument Checklist F-FL-I-044 rev. 01	Issuing Authorities: Pace Florida Quality Office

Date: 3-18-14 Analyst: AIS Method: 300.0

Problem: noisy baseline

Solution: changed suppressor, removed 082540, installed

Result (Document that solution corrected problem. Include reference to run/data file if applicable, i.e. CCV recovery, column efficiency, etc):

fixed baseline noise

Date: 4-1-14 Analyst: AIS, SDA, LJS Method: 300.0

Problem: Retention time shift.

Solution: Changed column S.N. 005734 with column S.N. 006379.
Changed guard S.N. 006360 with guard S.N. 006518.
Changed rheodyne Sample loop was measured with a result of 11cm.

Result (Document that solution corrected problem. Include reference to run/data file if applicable, i.e. CCV recovery, column efficiency, etc):

Date: 4-15-14 Analyst: LJ Method: 300.0

Problem: General maintenance

Solution: Cleaned rheodyne; changed in-flow frit on guard

Result (Document that solution corrected problem. Include reference to run/data file if applicable, i.e. CCV recovery, column efficiency, etc):

ATTACHMENT 8

RE: TNI Audit Finding 8C

Book ID#: 2364

Model: Sartorius Praxum
Serial #: 28812458
Pace ID: 35BAL10

Daily Balance Checks
Location: O-Prep

Date	Initials	Weight Set ID(s)	Check Weight (g)	Balance Reading (g)	Acceptance Limits	Comments or Maintenance Performed
4-21-14	P	WS-2	1.00	1.00	1.01-0.99	
		↓	100.00	100.00	101.0 - 99.0	
		WS-3	1000.00	999.95	1010.0 - 990.0	
		WS-4	2000.00	1999.83	2020.0-1980.0	
4-22-14	P	WS-2	1.00	1.00	1.01-0.99	
		↓	100.00	100.00	101.0 - 99.0	
		WS-3	1000.00	999.95	1010.0 - 990.0	
		WS-4	2000.00	1999.82	2020.0-1980.0	
4-23-14	P	WS-2	1.00	1.00	1.01-0.99	
		↓	100.00	100.00	101.0 - 99.0	
		WS-3	1000.00	999.94	1010.0 - 990.0	
		WS-4	2000.00	1999.84	2020.0-1980.0	
4-24-14	P	WS-2	1.00	1.00	1.01-0.99	
		↓	100.00	100.00	101.0 - 99.0	
		WS-3	1000.00	999.95	1010.0 - 990.0	
		WS-4	2000.00	1999.90	2020.0-1980.0	
			1.00		1.01-0.99	
			100.00		101.0 - 99.0	
			1000.00		1010.0 - 990.0	
			2000.00		2020.0-1980.0	
			1.00		1.01-0.99	
			100.00		101.0 - 99.0	
			1000.00		1010.0 - 990.0	
			2000.00		2020.0-1980.0	

 Pace Analytical Florida Laboratory 8 East Tower Circle, Ormond Beach, FL 32174	Document Name: Daily Balance Checks	Date Revised: April 16, 2014
	Document Number: F-FL-L-005 rev.02	Issuing Authority: Pace Florida Quality Office

Book ID#: 2363

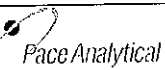
Model: Sartorius AZ002 (35BAL3)
Serial #: 40030309
Pace ID: 35BAL3

Daily Balance Checks
Location: O-Prep

Date	Initials	Weight Set ID(s)	Check Weight (g)	Balance Reading (g)	Acceptance Limits	Comments or Maintenance Performed
4-16-14	mm	WS, 2, 5	0.002	0.0020	0.00198-0.00202	
			0.50	0.5000	0.505-0.495	
			10.00	9.9994	10.1-9.9	
			100.00	99.9980	101.0-99.0	
4-17-14	mm	WS, 2, 5	0.002	0.0020	0.00198-0.00202	
			0.50	0.4992	0.505-0.495	
			10.00	9.9992	10.1-9.9	
			100.00	99.9980	101.0-99.0	
4-18-14	mm	WS, 2, 5	0.002	0.0020	0.00198-0.00202	
			0.50	0.5000	0.505-0.495	
			10.00	9.9992	10.1-9.9	
			100.00	99.9990	101.0-99.0	
4-22-14	mm	WS, 5, 2	0.002	0.0020	0.00198-0.00202	
			0.50	0.5000	0.505-0.495	
			10.00	9.9992	10.1-9.9	
			100.00	99.9988	101.0-99.0	
4-23-14	mm	WS, 2, 5	0.002	0.0020	0.00198-0.00202	
			0.50	0.4996	0.505-0.495	
			10.00	9.9990	10.1-9.9	
			100.00	99.9996	101.0-99.0	
			0.002		0.00198-0.00202	
			0.50		0.505-0.495	
			10.00		10.1-9.9	
			100.00		101.0-99.0	
			0.002		0.00198-0.00202	
			0.50		0.505-0.495	
			10.00		10.1-9.9	
			100.00		101.0-99.0	
			0.002		0.00198-0.00202	
			0.50		0.505-0.495	
			10.00		10.1-9.9	
			100.00		101.0-99.0	

ATTACHMENT 9

RE: TNI Audit Finding 10D

	Document Name: Training Worksheet Miscellaneous Topic	Document Revised: July 12, 2012 Page 1 of 1
	Document No.: WS-ALL-T-001-rev.00	Issuing Authority: Pace Corporate Training Office

Training Worksheet – Miscellaneous Topic

Topic of Training: EPA NORMA Sec. 11.2.1.3 Page #: N/A

Instructions: As your trainer discusses and demonstrates each step involved with this process, list each step and take notes on this blank worksheet on the specifics that will help you learn and remember how to perform this process. At the end of the training, the trainer will review your notes for accuracy and discuss them with you. You and the trainer must sign and date this document in the designated area and list any SOPs or other documents used for the training. Use another blank worksheet for additional pages on this topic. This worksheet will then be stored by your supervisor in your training files in the LMS.

- Pipettes are to be used to check pH for Oil/Grease samples.
- When using the pipettes, dip the pipette into the aqueous sample, and rinse the pipette with Hexane back into the sample. There could be a chance that you pull some oil onto the testing pipette during your pH check. The Solvent will effectively rinse it off the pipette and back into the sample.

Analyst Signature and Completion Date: [Signature]

Trainer Signature and Approval Date: [Signature]

Documents referenced during training for this worksheet (e.g. SOPs, etc.):

N/A

4-29-14

4/29/14

ATTACHMENT 10

RE: TNI Audit Finding 11A

QUALIFIERS

Project: Bi-Weekly
Pace Project No.: 35134662

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

PASI-SF Pace Analytical Services - South Florida

BATCH QUALIFIERS

Batch: WETA/35272

[1] Samples were not distilled

ANALYTE QUALIFIERS

I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J(M1)	Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
L	Off-scale high. Actual value is known to be greater than value given.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
Q	Sample held beyond the accepted holding time.
Q	Sample held beyond the accepted holding time. Analysis initiated more than 15 minutes after sample collection.
Q	Sample held beyond the accepted holding time. Sample was received outside EPA method holding time.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ATTACHMENT 11

RE: TNI Audit Finding 12



Method Detection Limit Determination - Anions by 300.1

Matrix: Water

Analytical Method: EPA 300.1
 Instrument: 35WITAI
 Analyst: AIS/JNZ
 Date(s) of Study: 2/4/14, 2/5/14, 2/6/14
 Units: mg/L

ANALYTE	FILENAME	TRUE VALUE	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7	MDL 8	MDL 9	MDL Mean	Std Dev.	MDL (mg/L)	PRL (ug/L)	MDL > Spiker/10	MDL < PRL	MDL < True Value
Chlorite		5	4.868	4.701	4.82	4.994	4.851	4.804	3.486	4.127	4.738	4.5966	0.4898	1.418	5	Pass	Pass	Pass
Bromate		2.5	2.414	2.521	2.463	2.364	2.615	2.789	2.54	2.386	2.385	2.4974	0.1379	0.399	2.5	Pass	Pass	Pass
Chlorate		5	4.554	3.73	5.149	4.816	4.618	4.873	4.892	4.186	4.418	4.5817	0.4286	1.241	5	Pass	Pass	Pass
Bromide		1.25	0.991	1.979	1.455	1.503	1.616	1.64	1.666	1.378	1.478	1.5229	0.2650	0.767	1.25	Pass	Pass	Pass

MRL Validation for UCMR3: Half Range Prediction Intervals

	HR _{PIR}	Upper PIR	Lower PIR	Upper % Recovery (≤150%)	Lower % Recovery (≥50%)
Chlorate	1.52	6.10	3.07	121.94%	61.32%



Pace Analytical Services, Inc.
3610 Park Central Blvd N
Pompano Beach, FL 33064

Pace Analytical Services, Inc.
8 E. Tower Circle
Ormond Beach, FL 32174

Demonstration of Capability

Certification Statement

PACE Analytical Services-Florida

Joelle Zambrano
Analyst's Name

2/13/14
Date

Circle: IDOC CDOC PT

Method: 300.1

Matrix: Water

Parameters: Oxihalides

SOP# & Revision: S-FL-I-039-rev. 04

I have read and understand the above listed Method(s), SOP(s), have submitted the attached documents as true, accurate and complete.

Joelle Zambrano
Analyst Signature

2/13/14
Date

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited test method(s), which is in use at this facility for the analysis of samples under the National Environmental Laboratory Accreditation Program, has met the Demonstration of Capability.
2. The test method(s) was performed by the analyst identified on the certification.
3. A copy of the test method(s) and the laboratory-specific SOP are available for all personnel on-site. The procedure as outlined in the above listed SOP was utilized in the completion of this DOC.
4. The data associated with the DOC are true, accurate, complete and self-explanatory.
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized assessors.

Supervisor's DOC Completion Checklist	Check
Copy of Prep Log Included (if applicable)	✓
Analytical Batch Cover Sheet Included (if applicable)	✓
Analytical Data Included (chromats, data, data summary sheets)	✓
Excel Summary / Calculation Sheet Included	✓
SOP Signed in LMS	✓

TERESA L. KERRY
Supervisor's Name

TERESA L. KERRY
Signature

2/13/14
Date

Lynn Baylor
QA Officer's Name

Lynn Baylor
Signature

2-23-14
Date

Demonstration of Capability - Anions by EPA 300.1

Matrix: Water

Analytical Method:
Instrument:
Analyst:
Date(s) of Study:
Units:

EPA 300.1
35WETA
JNZ
2/6/2014
ug/L

Date(s) of Study:		2/9/2014											
Units:		ug/L											
ANALYTE	TRUE VALUE	DOC1	DOC2	DOC3	DOC4	Percent Recovery				Mean Percent Recovery	RSD	Accuracy 90-110%	Precision <10%
	CHROMAT FILENAME					DOC1	DOC2	DOC3	DOC4				
	40	40.398	40.269	40.129	40.453	101%	101%	100%	101%	101%	0.36%	PASS	PASS
	20	19.757	20.228	20.052	19.962	99%	101%	100%	100%	100%	0.98%	PASS	PASS
	40	39.073	40.415	39.888	41.772	98%	104%	100%	104%	101%	3.14%	PASS	PASS
Chlorate	10	9.952	10.572	9.725	10.637	100%	106%	97%	106%	102%	4.43%	PASS	PASS
Bromide													

ATTACHMENT 12

RE: TNI Audit Finding 13

	Document Name: Training Worksheet Miscellaneous Topic	Document Revised: July 12, 2012 Page 1 of 1
	Document No.: WS-ALL-T-001-rev.00	Issuing Authority: Pace Corporate Training Office

Training Worksheet – Miscellaneous Topic

Topic of Training: Analysis of PT Samples **Page #:** 1 of 1

Instructions: As your trainer discusses and demonstrates each step involved with this process, list each step and take notes on this blank worksheet on the specifics that will help you learn and remember how to perform this process. At the end of the training, the trainer will review your notes for accuracy and discuss them with you. You and the trainer must sign and date this document in the designated area and list any SOPs or other documents used for the training. Use another blank worksheet for additional pages on this topic. This worksheet will then be stored by your supervisor in your training files in the LMS.

This training is to clarify the analysis of PT samples and the use of the "known" PT samples. The "known" PT sample may refer to any third party QC sample (often provided with corrective action PTs) or a previously reported PT sample for which the laboratory has received a final report. The "unknown" PT sample refers to any third-party single-blind study that is used to evaluate the lab's performance against a given set of criteria.

Acceptable use of known PT sample:

1. For routine analysis, a QC known or a previously analyzed PT sample may be used for troubleshooting purposes or as a check of the analytical system. However, it may not be analyzed with an unknown PT sample.
2. For corrective action PT studies, the laboratory may use a QC known or previous PT sample to confirm that the corrective action is effective and appropriate before analyzing the unknown PT.
3. A known PT or QC sample may be used for analyst demonstration of capability.

Unacceptable use:

1. The known may not be extracted, digested, or analyzed for any reason in the same batch as an unknown PT.

Please refer to the Proficiency Testing Program SOP S-ALL-Q-010 (available in the LMS library) for additional information on the analysis of PT samples.

Analyst Signature and Completion Date:

Trainer Signature and Approval Date:

Documents referenced during training for this worksheet (e.g. SOPs, etc.):

S-ALL-Q-010 current revision or replacement

ATTACHMENT 13

RE: TNI Audit Finding 15

Method Detection Limit Determination - 8260/624 Water

Extraction Method:

Date Extracted: N/A
Extraction Analyst: N/A

Analytical Method:

Analyst: EPA 824/8260
Date(s) of Study: SK
Units: 1/10/2014
ug/L

Matrix:

Purged Volume: 5 mL
Instrument: 35MSV3
Purge Method: SW846-8260B
Column: RTXVMS
Conc/Autosampler: ENCON Evolution/ Centurion
Detector: 5973

Water

ANALYTE	FILENAME	TRUE VALUE (ug/L)	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7	MDL 8	MDL 9	MDL Mean	Std Dev.	MDL (ug/L)	PRL (ug/L)	MDL > Spike/10	MDL < PRL	MDL < True Value
cis-1,4-dichloro-2-butene	0110036.D	1	1.2233	1.0425	1.1056	1.082	1.0987	0.8717	1.8338			1.1797	0.3069	0.965		Pass	FAIL	Pass
2-Chlorotoluene	1	1.3024	1.18	1.2421	1.1888	1.1888	1.1586	0.9905	1.0242			1.1552	0.1120	0.352	1	Pass	Pass	Pass
1,3,5-Trimethylbenzene	1	1.1862	1.0787	1.0627	1.0349	1.0477	1.0477	0.944	0.8683			1.0318	0.1014	0.319	1	Pass	Pass	Pass
4-Chlorotoluene	1	1.3685	1.2033	1.109	1.1827	1.1791	1.004	1.004	0.862			1.1475	0.1306	0.410	1	Pass	Pass	Pass
tert-Butylbenzene	1	1.1487	1.0428	1.0361	1.0361	0.9509	0.9819	0.8786	0.861			0.9854	0.1000	0.314	1	Pass	Pass	Pass
1,2,4-Trimethylbenzene	1	1.1367	1.0545	1.0099	1.0152	1.0426	0.8787	0.8787	0.9057			1.0059	0.0891	0.280	1	Pass	Pass	Pass
Pentachloroethane	1	5.5842	5.4494	5.2846	5.1683	5.2805	5.1342	5.1342	5.2624			5.3091	0.1578	0.496	5	Pass	Pass	Pass
sec-Butylbenzene	1	1.1584	1.0648	1.0632	1.0314	1.0357	0.8934	0.8934	0.9266			1.0248	0.0894	0.281	1	Pass	Pass	Pass
p-Isopropyltoluene	1	1.1072	1.038	0.9984	0.9841	1.0201	0.855	0.855	0.8296			0.9762	0.0997	0.313	1	Pass	Pass	Pass
1,3-Dichlorobenzene	1	1.4144	1.2447	1.2447	1.1946	1.1789	1.2193	1.0295	1.0355			1.1881	0.1316	0.414	1	Pass	Pass	Pass
1,4-Dichlorobenzene	1	1.4115	1.3114	1.2119	1.2498	1.2041	1.1	1.1	1.0979			1.2267	0.1120	0.352	1	Pass	Pass	Pass
1,2,3-Trimethylbenzene	1	1.15	1.1444	0.8919	0.9187	1.148	1.1208	0.9071	0.866			1.0569	0.1184	0.372	1	Pass	Pass	Pass
n-Butylbenzene	1	1.0143	0.8919	1.2158	1.2	1.1725	1.1819	0.7885	0.7896			0.8867	0.0784	0.246	1	Pass	Pass	Pass
1,2-Dichlorobenzene	1	1.3115	3.7814	3.5087	3.5087	3.3991	3.5592	3.4702	3.4721			1.1776	0.0832	0.262	1	Pass	Pass	Pass
1,2-Dibromo-3-Chloropropane	1	3.8022	3.7814	3.5087	3.5087	3.3991	3.5592	3.4702	3.4721			3.5418	0.1244	0.391	2	Pass	Pass	Pass
1,2,4-Trichlorobenzene	1	3.931	3.9969	3.8664	3.8664	3.9131	3.937	3.8859	3.8162			3.9066	0.0576	0.181	1	Pass	Pass	Pass
1,2,4-Trichlorobenzene	1	1.4934	1.6485	1.4062	1.504	1.504	1.5524	1.2603	1.2467			1.4445	0.1493	0.469	1	Pass	Pass	Pass
Hexachloro-1,3-butadiene	1	9.1112	9.0924	9.0691	9.0691	9.0478	9.0572	9.0312	9.0424			9.0645	0.0286	0.090	1	FAIL	FAIL	Pass
Naphthalene	1	3.9038	3.8699	3.843	3.843	3.7727	3.8973	3.712	3.7539			3.8218	0.0756	0.238	1	Pass	Pass	Pass
1,2,3-Trichlorobenzene	1																	



Method Detection Limit Determination - 8260/624 Water

Extraction Method:

Date Extracted: N/A
Extraction Analyst: N/A

Analytical Method:

EPA 624/8260
Analyst: JBH
Date(s) of Study: 2/23/2014

Matrix:

Purged Volume: N/A
Purge Method: N/A
Column: RTXMS
Conc/Autosampler: ENCON Evolution/Genturion
Detector: 5973

Water

5 mL
35MSV3
SW846-8260B
RTXMS
ENCON Evolution/Genturion
5973

ANALYTE	TRUE VALUE (µg/L)	MDL 1 0223014.D	MDL 2 0223015.D	MDL 3 0223016.D	MDL 4 0223017.D	MDL 5 0223018.D	MDL 6 0223019.D	MDL 7 0223020.D	MDL 8	MDL 9	MDL Mean	Std Dev.	MDL (µg/L)	PRL (µg/L)	MDL > Spike/10	MDL < PRL	MDL < True Value
Dichlorodifluoromethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Chloromethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Vinyl Chloride											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Bromomethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Chloroethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Trichlorofluoromethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethanol											#DIV/0!	#DIV/0!	#DIV/0!	80	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl Ether											#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
1,1,2-Trichlorotrifluoroethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Acrolein											#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
1,1-Dichloroethene											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Acetone											#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
Iodomethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Carbon Disulfide											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Allyl chloride											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Acetonitrile											#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Methylene Chloride											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
2-Methyl-2-propanol											#DIV/0!	#DIV/0!	#DIV/0!	5	#DIV/0!	#DIV/0!	#DIV/0!
Methyl-tert-butyl Ether											#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
trans-1,2-Dichloroethene											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
methyl Acetate											#DIV/0!	#DIV/0!	#DIV/0!	2	#DIV/0!	#DIV/0!	#DIV/0!
Acrylonitrile											#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
n-hexane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Diisopropyl Ether											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1-Dichloroethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Vinyl Acetate											#DIV/0!	#DIV/0!	#DIV/0!	2	#DIV/0!	#DIV/0!	#DIV/0!
Chloroprene											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl t-butyl Ether											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
2,2-Dichloropropane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
cis-1,2-Dichloroethene											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl Acetate											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
2-Butanone											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Propionitrile											#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Bromochloromethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Tetrahydrofuran											#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Methacrylonitrile											#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Chloroform											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
t-butyl Formate											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
cyclohexane		0.8034	0.5635	0.5725	0.5546	0.804	0.8606	0.8178			0.6823	0.1376	0.433	1	Pass	Pass	Pass
1,1,1-Trichloroethane											#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!



8 East Tower Circle, Ormond Beach, FL 32174

Method Detection Limit Determination - 8260/624 Water

Extraction Method:

Date Extracted: N/A

Extraction Analyst: N/A

Analytical Method:

EPA 624/8260

Analyst: SK

Date(s) of Study: 2/21/2014

Units: ug/L

Matrix:

Purged Volume: N/A

Purge Method: N/A

Column: N/A

Conc/Autosampler: N/A

Detector: N/A

Water

5 mL

35MSV3

SW846-8260B

RTXVMS

ENCON Evolution/ Centurion

5873

ANALYTE	FILENAME	TRUE VALUE (ug/L)	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7	MDL 8	MDL 9	MDL Mean	Std Dev.	MDL (ug/L)	PRL (ug/L)	MDL > Spike/10	MDL < PRL	MDL < True Value
Dichlorodifluoromethane												5.1387	0.7475	2.349	20	Pass	Pass	Pass
Chloromethane												15.4477	0.2231	0.701	1	Pass	Pass	Pass
Vinyl Chloride												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Bromomethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Chloroethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Trichlorofluoromethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethanol												#DIV/0!	#DIV/0!	#DIV/0!	80	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl Ether												#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
1,1,2-Trichlorotrifluoroethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Acrolein												#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
1,1-Dichloroethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Acetone		5	4.3447	4.147	5.8956	6.0378	5.6515	5.049	4.845			5.1387	0.7475	2.349	20	Pass	Pass	Pass
Iodomethane		5	15.5226	15.787	15.5184	15.3591	15.5554	15.0781	15.3143			15.4477	0.2231	0.701	1	Pass	Pass	Pass
Carbon Disulfide												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Allyl chloride												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Acetonitrile												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Methylene Chloride												#DIV/0!	#DIV/0!	#DIV/0!	5	#DIV/0!	#DIV/0!	#DIV/0!
2-Methyl-2-propanol												#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
Methyl-tert-butyl Ether												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
trans-1,2-Dichloroethene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
methyl Acetate												#DIV/0!	#DIV/0!	#DIV/0!	2	#DIV/0!	#DIV/0!	#DIV/0!
Acrylonitrile												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
n-hexane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Diisopropyl Ether												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1-Dichloroethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Vinyl Acetate												#DIV/0!	#DIV/0!	#DIV/0!	2	#DIV/0!	#DIV/0!	#DIV/0!
Chloroprene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl t-butyl Ether												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
2,2-Dichloropropane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
cis-1,2-Dichloroethene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl Acetate												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
2-Butanone												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Propionitrile												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Bromochloromethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Tetrahydrofuran												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Methacrylonitrile												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Chloroform												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
t-butyl Formate												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
cyclohexane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1,1-Trichloroethane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!



Method Detection Limit Determination - 8260/624 Water

Extraction Method:

Date Extracted: N/A
Extraction Analyst: N/A

Analytical Method:

EPA 624/8260
Analyst: SK
Date(s) of Study: 2/21/2014

Units: ug/L

Matrix:

Purged Volume: Water
Instrument: 3-SMSV3
Purge Method: SW846-8260B
Column: RTXVMS
Conc/Autosampler: ENCON Evolution/Centrifuge
Detector: 5873

ANALYTE	FILENAME	TRUE VALUE (ug/L)	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7	MDL 8	MDL 9	MDL Mean	Std Dev.	MDL (ug/L)	PRL (ug/L)	MDL > Spike/10	MDL < PRL	MDL < True Value
cis-1,4-dichloro-2-butene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
2-Chlorotoluene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,3,5-Trimethylbenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
4-Chlorotoluene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
tert-Butylbenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2,4-Trimethylbenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Pentachloroethane												#DIV/0!	#DIV/0!	#DIV/0!	5	#DIV/0!	#DIV/0!	#DIV/0!
sec-Butylbenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
p-Isopropyltoluene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,3-Dichlorobenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,4-Dichlorobenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2,3-Trimethylbenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
n-Butylbenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2-Dichlorobenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2-Dibromo-3-Chloropropane												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2,4-Trichlorobenzene												#DIV/0!	#DIV/0!	#DIV/0!	2	#DIV/0!	#DIV/0!	#DIV/0!
Hexachloro-1,3-butadiene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Naphthalene		2.5	6.0109	6.0508	5.9343	5.9263	5.8457	5.8349	6.0024			5.9436	0.0829	0.261	1	Pass	Pass	Pass
1,2,3-Trichlorobenzene												#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!

ATTACHMENT 14

RE: TNI Audit Finding 15

Method Detection Limit Determination - 8260/624 Water

Extraction Method: N/A
Date Extracted: N/A
Extraction Analyst: N/A
Analytical Method: EPA 624/8260
Analyst: JBH
Date(s) of Study: 4/19/2014
Units: ug/L

Matrix: Water
Purged Volume: 5 mL
Instrument: 35MSV3
Purge Method: SW846-8260B
Column: RTXVMS
Conc/Autosampler: ENCON Evolution/ Centurion
Detector: 5973

ANALYTE	FILENAME	TRUE VALUE (ug/L)	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7	MDL 8	MDL 9	MDL Mean	Std Dev.	MDL (ug/L)	PRL (ug/L)	MDL > Spike/10	MDL < PRL	MDL < True Value
Carbon Tetrachloride		1	0419042.D	0419043.D	0419044.D	0419045.D	0419046.D	0419047.D	0419048.D			#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1-Dichloropropene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Isobutyl Alcohol		20										#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
Benzene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
tert-amyl Alcohol		20										#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
tert-amyl Methyl Ether		2										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2-Dichloroethane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Trichloroethene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Methyl Cyclohexane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2-Dichloropropane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Methyl methacrylate		1										#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
1,4-Dioxane		200	221.1292	219.9979	256.5812	296.159	243.7001	267.0776	255.1529			251.3997	26.6201	83.667	100	Pass	Pass	Pass
Dibromomethane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Bromodichloromethane		1										#DIV/0!	#DIV/0!	#DIV/0!	0.6	#DIV/0!	#DIV/0!	#DIV/0!
2-Chloroethyl Vinyl Ether		2										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
cis-1,3-Dichloropropene		1										#DIV/0!	#DIV/0!	#DIV/0!	0.5	#DIV/0!	#DIV/0!	#DIV/0!
4-Methyl-2-Pentanone		2										#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
Toluene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
trans-1,3-Dichloropropene		1										#DIV/0!	#DIV/0!	#DIV/0!	0.5	#DIV/0!	#DIV/0!	#DIV/0!
Ethyl methacrylate		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1,2-Trichloroethane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Tetrachloroethene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,3-Dichloropropane		1										#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!
2-Hexanone		2										#DIV/0!	#DIV/0!	#DIV/0!	0.5	#DIV/0!	#DIV/0!	#DIV/0!
Dibromochloromethane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
3,3-dimethyl-1-butanol		20										#DIV/0!	#DIV/0!	#DIV/0!	20	#DIV/0!	#DIV/0!	#DIV/0!
1,2-Dibromoethane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Chlorobenzene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Ethylbenzene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1,1,2-Tetrachloroethane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
m&p-xylene		2										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
o-xylene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Styrene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Bromoform		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Isopropylbenzene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
Bromobenzene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,1,2,2-Tetrachloroethane		1										#DIV/0!	#DIV/0!	#DIV/0!	0.5	#DIV/0!	#DIV/0!	#DIV/0!
n-Propylbenzene		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
1,2,3-Trichloropropane		1										#DIV/0!	#DIV/0!	#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!
trans-1,4-Dichloro-2-butene		1										#DIV/0!	#DIV/0!	#DIV/0!	0.5	#DIV/0!	#DIV/0!	#DIV/0!
												#DIV/0!	#DIV/0!	#DIV/0!	10	#DIV/0!	#DIV/0!	#DIV/0!

ATTACHMENT 15

RE: TNI Audit Finding 16

DOC	Root Cause	Corrective Action	Completion Date
DEP SOP 10/03/83	Calculation not performed by the analyst.	Although calculation is not performed by the analyst, the analyst will perform a manual calculation to show knowledge of how the calculation is performed for data review purposes.	5/31/2014
EPA 160.4	Submitted soil not NPW	Refer to Finding 3, DOC was performed see Attachment 16	DOC completed on 9/27/2013
EPA 1664A	Typo - DOC calculation sheet said 1664, DOC signature page said 1664A	DOC sheet was fixed for the current analyst (see Attachment 17). Since this DOC was completed, the Quality Department implemented a DOC review checklist. Part of the review checklist reminds the department and the QA reviewer to check the method references (see Attachment 18 for copy of the DOC checklist).	4/14/2014
EPA 9040	Submitted 9040 DOC for water but not soil. Laboratory does not perform soil pH by 9040.	Drop 9040 soil from certification	4/25/2014
EPA 9050	Laboratory does not perform this method.	Drop from certification	4/14/2014
PACE SOP S-FL-M-004/ICP-MS	On DOC sheet as EPA method that the Pace SOP references	The DOC template will be updated to include reference to the Pace SOP where laboratory certification is by SOP.	5/31/2014
PACE SOP S-FL-O-019/GC-MS	On DOC sheet as EPA method that the Pace SOP references	The DOC template will be updated to include reference to the Pace SOP where laboratory certification is by SOP.	5/31/2014
PACE SOP S-FL-O-037/GC-MS	On DOC sheet as EPA method that the Pace SOP references	The DOC template will be updated to include reference to the Pace SOP where laboratory certification is by SOP.	5/31/2014
SM 10200 H	DOC was not extracted, refer to Finding 15 for chlorophyll-A LOD	The DOC will be reanalyzed after the new chlorophyll-A standard is received.	5/24/2014
SM 2130 B	Laboratory does not perform this method.	Drop from certification	4/25/2014
SM 2150 B	Submitted as "Rebecca Selph 2150B Water 041213.pdf"	N/A	4/12/2013
SM 2330 B	Calculation not performed by the analyst.	Although calculation is not performed by the analyst, the analyst will perform a manual calculation to show knowledge of how the calculation is performed for data review purposes.	5/31/2014

DOC	Root Cause	Corrective Action	Completion Date
SM 2340 B	Calculation not performed by the analyst. Submitted TS solid not TVS solid. Refer to Finding 3.	Although calculation is not performed by the analyst, the analyst will perform a manual calculation to show knowledge of how the calculation is performed for data review purposes.	5/31/2014 DOC completed on 6/24/13.
SM 2540 G		Refer to Finding 3. See Attachment 19.	
SM 4500-Cl D	The DOC was performed for all chlorine species however each analyte was not listed on the DOC calculation sheet. Submitted as "SM4500ClO2 D Chlorine Dioxide.pdf"	DOC sheet was fixed for the current analyst (see Attachment 20). Since this DOC was completed, the Quality Department implemented a DOC review checklist. Part of the review checklist reminds the department and the QA reviewer to check the certified analyte list (see Attachment 18 for copy of the DOC checklist).	
SM 4500-ClO2 D	Laboratory does not perform this method.	N/A	9/6/2013
SM 4500CN-E	Submitted as "Kerry Kwiatkowski 4500HB_9040C W 011714.pdf"	Drop from certification	4/25/2014
SM 4500-H+-B	Laboratory does not perform this method.	N/A	1/17/2014
SM 4500-SiO2 F (20th/21st Ed.)		Drop from certification	4/14/2014
SM 6630 C		Since this DOC was completed, the Quality Department implemented a DOC review checklist. Part of the review checklist reminds the department and the QA reviewer to check the certified analyte list (see Attachment 18 for copy of the DOC checklist). The analyst completed new DOC studies prior to the on-site assessment but they were not submitted because they were still pending QA review (see Attachment 21).	2/20/2014
SM 9221 E	Typo - method not listed on DOC sheet Refer to Finding 3	Refer to Finding 3	Refer to Finding 3
TKN + Total nitrate-nitrite	Calculation not performed by the analyst.	Although calculation is not performed by the analyst, the analyst performed a manual calculation to show knowledge of how the calculation is performed for data review purposes. See Attachment 22	4/25/2014

DOC	Root Cause	Corrective Action	Completion Date
TKN minus AMMONIA	Calculation not performed by the analyst.	Although calculation is not performed by the analyst, the analyst performed a manual calculation to show knowledge of how the calculation is performed for data review purposes. See Attachment 22	4/25/2014



ATTACHMENT 16

RE: TNI Audit Finding 16

DEMONSTRATION OF CAPABILITY (DOC) STUDY

Analytical Analyst: WMW
Laboratory Name: Pace Analytical Services
Laboratory Address: 8 E Tower Circle, Ormond Beach, FL 32174
Parameter: Total Volatile Solids (TVS)
Analytical Method Number: EPA 160.4
Instrument ID: TSS Oven - Serial #93844
WC-31 Muffle Furnace
Balance - SN# B027039
Matrix: Water

Date Analyzed:	9/27/13	9/27/13	9/27/13	9/27/13
True Value	Rep 1	Rep 2	Rep 3	Rep 4
%	%	%	%	%
1.00	0.18	0.09	0.09	0.05

Rep 1	Rep 2	Rep 3	Rep 4	Average	Average	SD
% Rec	% Rec	% Rec	% Rec	Conc.	% Rec.	
0.18	0.09	0.09	0.05	0.1025	102.5	0.04763
Pass	Pass	Pass	Pass			

Accuracy

Criteria: 80% - 120% **PASS**

Precision

Criteria: $\pm 20\%$ **PASS**

ATTACHMENT 17

RE: TNI Audit Finding 16



Laboratory Name: Pace Analytical Services - Florida
 Laboratory Address: 8 E Tower Circle, Ormond Beach, FL 32174

Demonstration of Capability - 1664A Water

Extraction Method:	EPA 1664A
Date Extracted:	8/29/2013
Extraction Analyst	BLT
Logbook Number and Page	N/A
Analytical Method:	EPA 1664A
Analyst:	N/A
Date of Study:	N/A
Units:	mg/L

Matrix: Water
 Initial Volume: 1000 mL
 Final Volume: NA

ANALYTE	TRUE VALUE (µg/L)	DOC1	DOC2	DOC3	DOC4	Std Dev.	RSD	RSD Limit	RSD Pass/Fail	Avg Recovery	% Recovery	Low Limit	High Limit	Recovery Pass/Fail
Oil and Grease	40	35.90	34.20	34.10	33.50	1.030776	3%	30%	Pass	34.425	86%	78%	114%	Pass
TRPH	20	14.80	14.00	13.50	13.40	0.639661	5%	30%	Pass	13.925	70%	64%	132%	Pass

ATTACHMENT 18

RE: TNI Audit Finding 16

DOC REVIEW CHECKLIST



Method: _____
 Matrix: _____
 Analyst: _____
 Study Date(s): _____
 Filename [initials_method_matrix_date]: _____

For QA Use Only
Number: _____

SOP: S-ALL-Q-020	Y	N	N/A	QA REVIEW
For DOCs Using a Spike Standard				
Most recent template used (P:\QC\MDL and DOC Templates)?				
Excel sheet saved as P:\IDOC\year\department\method				
Correct units?				
All certified analytes present?				
GC Analysis: Both columns included?				
Minimum of 4 replicates?				
Recovery meets method or LCS criteria?				
Precision meets RSD criteria?				
References current SOP version?				
Data Package Includes:				
Signature page				
Data coversheets with traceability to spike standards				
Prep sheets				
Mass Spec Tune				
Calibration curve/ICV/CCV				
Method blank				
Sample raw data				
Excel sheet				
For DOCs Using a PT Standard or Third Party Known				
All certified analytes present?				
All analytes are "Acceptable"?				
References current SOP version?				
Data Package Includes:				
Signature page				
Data coversheets				
Prep sheets				
Mass Spec Tune				
Calibration curve/ICV/CCV				
Method blank				
Sample raw data				
PT results from provider				
For DOCs by Supervisor Review				
References current SOP version?				
Data Package Includes:				
Signature page				
Prep sheets				
Method blank				
Sample raw data				
WS-ALL-T-001 form				
Entered into tracking sheet?				

Comments: _____

Lab review by: _____ Date: _____
 QA review by: _____ Date: _____

ATTACHMENT 19

RE: TNI Audit Finding 16

DEMONSTRATION OF CAPABILITY (DOC) STUDY

Analytical Analyst: GMD
Laboratory Name: Pace Analytical Services
Laboratory Address: 8 E Tower Circle, Ormond Beach, FL 32174
Parameter: Total Volatile Solids (TVS)
Analytical Method Number: 2540G
Instrument ID: TSS Oven - Serial #93844
WC-31 Muffle Furnace
Balance - SN# B027039
Matrix: Soil

Date Analyzed:	6/24/13	6/24/13	6/24/13	6/24/13
True Value	Rep 1	Rep 2	Rep 3	Rep 4
%	%	%	%	%
0.10	0.10	0.09	0.09	0.09

Rep 1	Rep 2	Rep 3	Rep 4	Average	Average	SD
% Rec	% Rec	% Rec	% Rec	Conc.	% Rec.	
100	90	90	90	0	93	0.004
PASS	PASS	PASS	PASS			

Accuracy

Criteria: 80% - 120% **PASS**

Precision

Criteria: $\pm 20\%$ **PASS**

ATTACHMENT 20

RE: TNI Audit Finding 16

DEMONSTRATION OF CAPABILITY (DOC) STUDY

Analytical Analyst: LAJ
 Laboratory Name: Pace Analytical Services
 Laboratory Address: 8 E Tower Circle, Ormond Beach, FL 32174
 Parameter: Free Chlorine
 Analytical Method Number: SM4500Cl D
 Instrument ID: WC 4
 Matrix: Water

Date Analyzed:	9/4/13	9/4/13	9/4/13	9/4/13
True Value mg/L	Rep 1 mg/L	Rep 2 mg/L	Rep 3 mg/L	Rep 4 mg/L
0.50	0.450	0.480	0.460	0.470

Rep 1 % Rec	Rep 2 % Rec	Rep 3 % Rec	Rep 4 % Rec	Average Conc.	Average % Rec.	SD
90	96	92	94	0.465	93	0.011
PASS	PASS	PASS	PASS			

Accuracy

Criteria: 80% - 120% **PASS**

Precision

Criteria: $\pm 10\%$ **PASS**

DEMONSTRATION OF CAPABILITY (DOC) STUDY

Analytical Analyst: LAJ
 Laboratory Name: Pace Analytical Services
 Laboratory Address: 8 E Tower Circle, Ormond Beach, FL 32174
 Parameter: Total Chlorine
 Analytical Method Number: SM4500Cl D
 Instrument ID: WC 4
 Matrix: Water

Date Analyzed:	9/4/13	9/4/13	9/4/13	9/4/13
True Value mg/L	Rep 1 mg/L	Rep 2 mg/L	Rep 3 mg/L	Rep 4 mg/L
0.50	0.450	0.480	0.460	0.470

Rep 1 % Rec	Rep 2 % Rec	Rep 3 % Rec	Rep 4 % Rec	Average Conc.	Average % Rec.	SD
90	96	92	94	0.465	93	0.011
PASS	PASS	PASS	PASS			

Accuracy

Criteria: 80% - 120% **PASS**

Precision

Criteria: $\pm 10\%$ **PASS**



ATTACHMENT 21
 RE: TNI Audit Finding 16

Aldrin	0.05	0.0359	0.03395	0.03572	0.038	72%	68%	71%	76%	72%	22%	107%	Pass	4.62%	PASS

ATTACHMENT 22

RE: TNI Audit Finding 16

Demonstration of Capability

Certification Statement PACE Analytical Services-Florida

DOC-1373 

Cheri Shaw 4-2-14
Analyst's Name Date

Circle: IDOC CDOC/PT

Method: TN

Matrix: 4/3/2014
NA Soil

Parameters: 351.2 + 353.2 (TKN + Total nitrate-nitrite)

SOP# & Revision: S-FL-1-026 Rev. 03

I have read and understand the above listed Method(s), SOP(s), have submitted the attached documents as true, accurate and complete.

Cheri Shaw 4-2-14
Analyst Signature Date

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited test method(s), which is in use at this facility for the analysis of samples under the National Environmental Laboratory Accreditation Program, has met the Demonstration of Capability.
2. The test method(s) was performed by the analyst identified on the certification.
3. A copy of the test method(s) and the laboratory-specific SOP are available for all personnel on-site. The procedure as outlined in the above listed SOP was utilized in the completion of this DOC.
4. The data associated with the DOC are true, accurate, complete and self-explanatory.
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized assessors.

Supervisor's DOC Completion Checklist		Check
Copy of Prep Log Included (if applicable)		☒
Analytical Batch Cover Sheet Included (if applicable)		☒
Analytical Data Included (chromats, data, data summary sheets)		☒
Excel Summary / Calculation Sheet Included		☒
SOP Signed in LMS		☒

TERESA L KENN [Signature] 4/3/14
Supervisor's Name Signature Date

Lynn Baylor [Signature] [Blank]
QA Officer's Name Signature Date

Demonstration of Capability

DOC-1374

Certification Statement PACE Analytical Services-Florida

Cheri Shaw
Analyst's Name

4-2-14
Date

Circle: (IDOC) CDOC/PT

Method: TON

Matrix: NA SOI

Parameters: 351.2 - 350.1 (TKN-Ammonia)

SOP# & Revision: S-PL-1-026 Rev. 03

I have read and understand the above listed Method(s), SOP(s), have submitted the attached documents as true, accurate and complete.

Cheri Shaw 4-2-14
Analyst Signature Date

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited test method(s), which is in use at this facility for the analysis of samples under the National Environmental Laboratory Accreditation Program, has met the Demonstration of Capability.
2. The test method(s) was performed by the analyst identified on the certification.
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Supervisor's DOC Completion Checklist		Check
Copy of Prep Log Included (if applicable)		✓
Analytical Batch Cover Sheet Included (if applicable)		✓
Analytical Data Included (chromats, data, data summary sheets)		✓
Excel Summary / Calculation Sheet Included		✓
SOP Signed in LMS		✓

TERESA L KERRY
Supervisor's Name

TERESA L KERRY
Signature

4/3/14
Date

Lynn Baylor
QA Officer's Name

Lynn Baylor
Signature

Date

	Document Name: TN and TON Calc	Document Revised: February 14, 2014
	Document Number: F-FL-I-097 rev.01	Issuing Authority: Pace Florida Quality Office

Total Nitrogen (TN) and Total Organic Nitrogen (TON) Calculation

Analyst: _____	CLS	Batch ID: _____	WET 24261
Date: _____	4/2/2014	Reviewed by: _____	<i>me</i>
Calc Time: _____	12:30	Review Date: _____	4/2/14
Units: _____	mg/kg		

Sample #	Test Code	TKN Result	NH3 Result	NOX Result	Organic Nitrogen Result	Total Nitrogen Result
35130749001	SN2	16700		2.6		16702.6
IDOC 1 CLS		10,000	20	5.5	9980	10,005.5
IDOC 2 CLS		10,000	20	5.5	9980	10,005.5
IDOC 3 CLS		10,000	20	5.5	9980	10,005.5
IDOC 4 CLS		10,000	20	5.5	9980	10,005.5
			<i>20</i>			
			<i>20</i>			



Pace Analytical Services, Inc.
3610 Park Central Blvd N
Pompano Beach, FL 33064

Pace Analytical Services, Inc.
8 E. Tower Circle
Ormond Beach, FL 32174

Demonstration of Capability

Certification Statement
PACE Analytical Services-Florida

TERESA L KELL
Analyst's Name

4/25/14
Date

Circle: IDOC CDOC/ PT

Method: 351.2 + 353.2

Matrix: W

Parameters: 351.2 + 353.2 TOTAL NITROGEN

SOP# & Revision: S-FL-1-026 - rev.03

I have read and understand the above listed Method(s), SOP(s), have submitted the attached documents as true, accurate and complete.

TERESA L KELL 4/25/14
Analyst Signature Date

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited test method(s), which is in use at this facility for the analysis of samples under the National Environmental Laboratory Accreditation Program, has met the Demonstration of Capability.
2. The test method(s) was performed by the analyst identified on the certification.
3. A copy of the test method(s) and the laboratory-specific SOP are available for all personnel on-site. The procedure as outlined in the above listed SOP was utilized in the completion of this DOC.
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Supervisor's DOC Completion Checklist	Check
Copy of Prep Log Included (if applicable)	
Analytical Batch Cover Sheet Included (if applicable)	
Analytical Data Included (chromats, data, data summary sheets)	
Excel Summary / Calculation Sheet Included	✓
SOP Signed in LMS	✓

_____ Supervisor's Name	_____ Signature	_____ Date
_____ Lynn Baylor QA Officer's Name	_____ Signature	_____ Date



Pace Analytical Services, Inc.
3610 Park Central Blvd N
Pompano Beach, FL 33064

Pace Analytical Services, Inc.
8 E. Tower Circle
Ormond Beach, FL 32174

Demonstration of Capability

Certification Statement

PACE Analytical Services-Florida

TRISHA L KELLY 4/25/14
Analyst's Name Date

Circle: DOC / CDOC / PT

Method: 357.2 - 350.1

Matrix: W

Parameters: ORGANIC NITROGEN

SOP# & Revision: S-FL-1-026 rev.03

I have read and understand the above listed Method(s), SOP(s), have submitted the attached documents as true, accurate and complete.

TRISHA L KELLY 4/25/14
Analyst Signature Date

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited test method(s), which is in use at this facility for the analysis of samples under the National Environmental Laboratory Accreditation Program, has met the Demonstration of Capability.
2. The test method(s) was performed by the analyst identified on the certification.
3. A copy of the test method(s) and the laboratory-specific SOP are available for all personnel on-site. The procedure as outlined in the above listed SOP was utilized in the completion of this DOC.
4. The data associated with the DOC are true, accurate, complete and self-explanatory.
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized assessors.

Supervisor's DOC Completion Checklist	Check
Copy of Prep Log Included (if applicable)	
Analytical Batch Cover Sheet Included (if applicable)	
Analytical Data Included (chromats, data, data summary sheets)	
Excel Summary / Calculation Sheet Included	✓
SOP Signed in LMS	✓

_____ Supervisor's Name	_____ Signature	_____ Date
_____ Lynn Baylor QA Officer's Name	_____ Signature	_____ Date

Section E. Required Submittals

17. Resume of Pace Project Manager as per 1.2 (G)



JEFF BAYLOR
PROJECT MANAGER / CLIENT SERVICES MANAGER

EDUCATION

B.S., Biology (Pennsylvania State University, 1996)

REGISTRATIONS

American Chemical Society

EXPERIENCE

Mr. Baylor has been a project manager for the laboratory since 2001 specializing in landfills, NPDES, drinking water, solid waste, and other State programs. His many years of service with the laboratory have given him a background that allows him to help clients with their site- specific work plans, applicable methodologies, turnaround time requirements, and project data quality objectives. In the capacity as Project Manager, Mr. Baylor provides his Clients as the one point of contact for all their production and technical needs. He serves as a liaison between the Client and the laboratory operations and currently serves a diverse group of Clients, including many cities, counties, utilities, and consultants.

Prior to assuming the position of Project Manager, Mr. Baylor was the Supervisor of the laboratory's Biology Laboratory. He oversaw all areas of the department including the Microbiology and Toxicity sections. For the Microbiology section, he was in charge of the following: media preparation; quality control; detection and enumeration of densities of Fecal and total Coliforms, *Fecal Streptococcus*, *Enterococcus*, and heterotrophic bacteria. In 2002, he led the effort for ELAB to become EPA certified for testing for *Aeromonas* bacteria in drinking water under the Unregulated Contaminant Monitoring Rule (UCMR) program. For the toxicity section, he was responsible for organism breeding, quality control, freshwater and saltwater bioassays using EPA certified methods for both Acute and Chronic tests, and statistical evaluation of toxicity tests performed for client's NPDES permits.

Prior to this, Mr. Baylor supervised the Inorganic Department for several years after working as an analyst in the Metals and General Chemistry departments for six years. While in the General Chemistry department, he utilized gravimetric, potentiometric, titrimetric, and colormetric approved methodologies to test samples of varied matrices including drinking water, ground water, surface water, waste water, solids, and sludges. He used a wide variety of instrumentation including manual and automated colorimetric analyzers, Ion Chromatograph, IR Chromatograph, and digestion/distillation apparatus. In the Metals department, he was responsible for all aspects of testing including digestion, analytical, and quality control. He is proficient with the instrumentation used for the quantification of metallic elements such as flame and graphite furnace AA and cold vapor analysis of mercury.



During his tenure, Mr. Baylor help set up the Toxicity Characteristic Leaching Procedure methods now used by the laboratory for testing materials for clients under the RCRA program. He also supervised and conducted the setup and incubation of samples for Simulated Distribution Systems (SDS) and Biodegradable Organic Carbon (BDOC) analysis, which is related to the Information Collection Rule program.

Section E. Required Submittals

18. State and NELAP Inspections as per 1.2(I)

(See Section E.16)



Section E. Required Submittals

19. Printouts of completed Attachments A & B

ATTACHMENT A-Pricing
LABORATORY ANALYSIS AND SAMPLING



Please complete this price sheet in its entirety. This pricing sheet will be used for comparison purposes between vendors.

Company Name:

Pace Analytical Services

UTILITIES DIVISION

DRINKING WATER:	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Nitrate	20	\$ 7.00	\$ 140.00
Nitrite	20	\$ 7.00	\$ 140.00
Lead	400	\$ 5.00	\$ 2,000.00
Copper	400	\$ 5.00	\$ 2,000.00
Total coliform	475	\$ 10.00	\$ 4,750.00
RADIOLOGICAL	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Gross Alpa (including Uranium)	10	\$ 35.00	\$ 350.00
Radium 228	10	\$ 58.00	\$ 580.00
Radium 226	10	\$ 58.00	\$ 580.00
SECONDARY	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Chloride	160	\$ 7.00	\$ 1,120.00
Sulfate	45	\$ 7.00	\$ 315.00
pH	200	\$ 4.00	\$ 800.00
UNREGULATED CONTAMINANTS LIST I	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Unregulated Contaminants LIST I	2	\$ 450.00	\$ 900.00
	Estimated Number of Tests Per Year	Price Per Test	Total Cost
TSS	1260	\$ 8.00	\$ 10,080.00
CBOD 5	400	\$ 15.00	\$ 6,000.00
Fecal Coliform	1145	\$ 10.00	\$ 11,450.00
Nitrate	200	\$ 7.00	\$ 1,400.00
TDS	188	\$ 8.00	\$ 1,504.00
Chloride	200	\$ 7.00	\$ 1,400.00
Sodium	84	\$ 5.00	\$ 420.00
Sulfate	84	\$ 7.00	\$ 588.00
Turbidity	200	\$ 4.00	\$ 800.00

ATTACHMENT A-Pricing
LABORATORY ANALYSIS AND SAMPLING



OTHER CONTAMINANTS	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Trihalomethane Analysis	31	\$ 28.00	\$ 868.00
Total Haloacetic Acids	31	\$ 65.00	\$ 2,015.00
Calcium	15	\$ 5.00	\$ 75.00
Magnesium	15	\$ 5.00	\$ 75.00
Potassium	15	\$ 5.00	\$ 75.00
Total Iron	15	\$ 5.00	\$ 75.00
Total Hardness	15	\$ 10.00	\$ 150.00
Specific Conductance	18	\$ 6.00	\$ 108.00
pH	15	\$ 4.00	\$ 60.00
Boron	4	\$ 5.00	\$ 20.00
Total Nitrogen	20	\$ 24.00	\$ 480.00
Orthophosphate, as P	4	\$ 7.00	\$ 28.00
Total for Utilities Division			\$ 51,346.00

ATTACHMENT A-Pricing
LABORATORY ANALYSIS AND SAMPLING



SOLID WASTE DIVISION

Organics	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Ethane/Ethene	24	\$ 85.00	\$ 2,040.00
2- Butanone	2	\$ 45.00	\$ 90.00
Ethylene Dibromide (GCS EDB)	156	\$ 28.00	\$ 4,368.00
Total Recovery Hydrocarbon/FLPRO	6	\$ 60.00	\$ 360.00
Nutrients	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Ammonia Nitrogen	210	\$ 12.00	\$ 2,520.00
Nitrate Nitrogen (IC Anions)	262	\$ 7.00	\$ 1,834.00
Nitrogen, Total	100	\$ 24.00	\$ 2,400.00
Mircobiological	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Fecal Coliform	15	\$ 10.00	\$ 150.00
Total Coliform	15	\$ 10.00	\$ 150.00
Residue/Solids	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Total Dissolved Solids	230	\$ 8.00	\$ 1,840.00
Total Suspended Solids	30	\$ 8.00	\$ 240.00
Field Test	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Total Well Depth **	305	\$ 0.00 -	\$ 0.00 -
Specific Conductance **	305	\$ 0.00 -	\$ 0.00 -
Turbidity **	305	\$ 0.00 -	\$ 0.00 -
Miscellaneous	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Chloride (IC Anions)	230	\$ 7.00	\$ 1,610.00
Color	305	\$ 5.00	\$ 1,525.00
pH	305	\$ 4.00	\$ 1,220.00
Metals	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Iron	30	\$ 5.00	\$ 150.00
Mercury	210	\$ 12.00	\$ 2,520.00
Sodium	226	\$ 5.00	\$ 1,130.00
Orangic & Demands	Estimated Number of Tests Per Year	Price Per Test	Total Cost
Biochemical Oxygen Demand	14	\$ 15.00	\$ 210.00

** Field Test are No Charges and are included in Field sampling charges on page 5of6 in Attachment B

ATTACHMENT A-Pricing
LABORATORY ANALYSIS AND SAMPLING



Chemical Oxygen Demand	14	\$ 12.00	\$ 168.00
Total Organic Carbon	32	\$ 15.00	\$ 480.00
Toxicity Characteristic Leaching Procedure (TCLP)	Estimated Number of Tests Per Year	Price Per Test	Total Cost
SPLP Extraction	2	\$ 35.00	\$ 70.00
Miscellaneous	Estimated Number of Tests Per Year	Price Per Test	Total Cost
40 CFR Part 258 Appendix I	210	\$ 155.00	\$ 32,550.00
Field Parameters	305	\$ 0.00 -	\$ 0.00 -
Field Parameters are no Charge and included in Field Sampling charges on page 5 of 6 of Attachment B pricing			Total for Solid Waste \$ 57,625.00

ATTACHMENT A-Pricing
LABORATORY ANALYSIS AND SAMPLING



Definitions			
BNA = Base, Neutral, Acid extractable organics			
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes			
CFR = Code of Federal Regulations			
MTBE = Methyl Tert-Butyl Ether			
PAHs = Polynuclear Aromatic Hydrocarbons			
PCBs = Polychlorinated Biphenyls			
RCRA = Resource Conservation and Recovery Act			
SPLP = Synthetic Precipitation Leaching Procedure			
TAL = Target Analyte List			
TCLP = Toxicity Characteristic Leaching Procedure			
TRPH = Total Recoverable Petroleum Hydrocarbons			
VOAs = Volatile Organic Aromatics			
VOCs = Volatile Organic Compunds			
VOHs - Volatile Organic Halogens			



Company Name:		Pace Analytical Services Inc.	
UTILITIES DIVISION			
DRINKING WATER:	Price Per Test	VOLATILE ORGANICS	Price Per Test
Primary Inorganic Compounds without Asbestos	110.00	Volatile Organics Contaminants (VOCs)	60.00
Nitrate	7.00	1,2,4-Trichlorobenzene (120-82-1)	30.00
Nitrite	7.00	cis-1,2-Dichloroethylene (156-59-2)	30.00
Arsenic	7.00	Total Xylenes	30.00
Barium	5.00	Methylene chloride	30.00
Cadmium	5.00	1,2-Dichlorobenzene	30.00
Chromium	5.00	1,4-Dichlorobenzene	30.00
Cyanide	20.00	Vinyl chloride (75-01-4)	30.00
Fluoride	7.00	1,1-Dichlorethene	30.00
Lead	5.00	trans-1,2-Dichloroethene	30.00
Mercury	12.00	1,2-Dichloroethane	30.00
Nickel	5.00	1,1,1-Trichlorethane	30.00
Selenium	5.00	Carbon tetrachloride	30.00
Sodium	5.00	1,2-Dichloropropone	30.00
Antimony	5.00	Trichloroethene	30.00
Beryllium	5.00	1,1,2-Trichloroethane	30.00
Thallium	5.00	Tetrachlorethene	30.00
Copper	5.00	Chlorobenzene	30.00
Total coliform	10.00	Benzene	30.00
Asbestos	110.00	Toulene	30.00
		Ethylbenzene	30.00
		Styrene	30.00
PESTICIDES AND PCBs			
	Price Per Test		Price Per Test
Synthetic Organics Contaminants (SOCs) without			
Dioxin	450.00	Atazine	45.00
Endrin	45.00	Alachlor	45.00
gama-BHC(Lindane)	45.00	Heptachlor	45.00
Methoxychlor	45.00	Heptachlor epoxide	45.00
Toxaphene	45.00	2,4-D	45.00
Dalapon	45.00	2,4,5-TP	45.00
Diquat	45.00	Hexachlorobenzene	45.00
Endothall	45.00	Benso(a)pyrene	45.00
Glyphosate	45.00	Pentachlorophenol	45.00
Di(2-ethylhexyl) adipate	45.00	PCB	45.00
Oxamyl	45.00	1,2-Dibromo-3-chloropropane	45.00
Simazine	45.00	1,2-Dibromoethane	45.00
bis (2-ethylhexyl) phthalate	45.00	Chlordane	45.00
Picloram	45.00	Dioxin	195.00
Dinoseb	45.00		
Hexachlorocyclopentadiene (77-47-4)	45.00		
Carbofuran	45.00		

ATTACHMENT B-Pricing
LABORATORY ANALYSIS AND SAMPLING



RADIOLOGICAL	Price Per Test	OTHER CONTAMINANTS	Price Per Test
Gross Alpha (including Uranium)	35.00	Trihalomethane Analysis	28.00
Radium 228	58.00	Total Haloacetic Acids	65.00
Radium 226	58.00	Calcium	5.00
SECONDARY	Price Per Test	Magnesium	5.00
Secondary Drinking Water Standards	110.00	Potassium	5.00
Aluminum	5.00	Total Iron	5.00
Chloride	5.00	Total Hardness	10.00
Copper	5.00	Calcium Hardness	6.00
Fluoride	5.00	Specific Conductance	6.00
Iron	5.00	pH	4.00
Manganese	5.00	Silica	5.00
Silver	5.00	Total Cyanide	20.00
Sulfate	5.00	Free Cyanide	20.00
Zinc	5.00	Total Alkalinity	8.00
Color	5.00	Boron	5.00
Odor	5.00	Turbidity	4.00
pH	4.00	Ammonia	12.00
Total Dissolved Solids	8.00	Unionized Ammonia	12.00
Foaming Agents	15.00	Acrylamide & Epichlorohydrin	120.00
		Total Nitrogen	24.00
		Total Phosphorus, as P	12.00
		Orthophosphate, as P	7.00
UNREGULATED CONTAMINANTS LIST I	Price Per Test	EXPLOSIVES	Price Per Test
Unregulated Contaminants LIST I	450.00	1,3-dinitrobenzene	100.00
Selected Pesticides & Flame Retardants:		2,4,6-trinitrotoluene	100.00
2,2',4,4',5,5'-hexabromobiphenyl	55.00	Hexahydro-1,3,5-trinitro-1,3,5-triazine	100.00
2,2',4,4',5,5'-hexabromobiphenyl ether	55.00		
2,2',4,4',5-pentabromodiphenyl ether	55.00		
2,2',4,4',6-pentabromodiphenyl ether	55.00		
2,2',4,4-tetrabromodiphenyl ether	55.00		
Dimethoate	55.00		
Terbufos sulfone	55.00		

ATTACHMENT B-Pricing
LABORATORY ANALYSIS AND SAMPLING



WASTEWATER:	Price Per Test	RECLAIMED WATER ANALYSIS:	Price Per Test
Copper	5.00	Primary and Secondary Contaminants (Reclaimed Water)	550.00
Zinc	5.00	Arsenic	5.00
Total Cyanide	20.00	Barium	5.00
CBOD 5	15.00	Cadmium	5.00
TSS	8.00	Chromium	5.00
Fecal Coliform	10.00	Fluoride	7.00
Nitrate	7.00	Lead	5.00
TDS	8.00	Mercury	12.00
Chloride	7.00	Nitrate (as N)	7.00
Sodium	5.00	Selenium	5.00
Sulfate	7.00	Silver	5.00
Giardia	200.00	Sodium	5.00
Cryptosporidium	200.00	Ethylene dibromide	25.00
Heavy Metals	49.00	Para-dichlorobenzene	25.00
Bactericidal quality	225.00	Vinyl chloride	5.00
% Solids	5.00	1,1-dichloroethane	5.00
Ammonia	12.00	1,2-dichloroethane	5.00
Fecal MPN	70.00	1,1,1-trichloroethane	5.00
Fluoride	7.00	Carbon tetrachloride	5.00
Manganese	5.00	Trichloroethene	5.00
Org-N: Organic N (TKN minus NH ₃ -N)	26.00	Tetrachloroethene	5.00
TKN: Kjeldahl N, Total	16.00	Benzene	5.00
Sludge analysis, 503.18	125.00	Total THM	28.00
Specific Conductivity	5.00	Endrin	25.00
Total Phosphate	12.00	Lindane	25.00
Total Phosphorus	12.00	Methoxychlor	25.00
TRPH	12.00	Toxaphene	25.00
pH	4.00	2,4-D	25.00
Turbidity	4.00	2,4,5-TP (Silvex)	25.00
OTHER COSTS:	Price Per Visit	Gross alpha excl.	35.00
Sample Pickup at County Facilities		radon and uranium	50.00
Southwest Regional WWTP (DeBary)	12.00	Radium-226 and	58.00
Deltona North WWTP (Deltona)	12.00	Radium-228	58.00
Southeast Regional WWTP (OakHill)	12.00	Chloride	7.00
Halifax Planatation WWTP (Ormond Beach)	12.00	Copper	5.00
Tomoka Landfill (Daytona Beach)	12.00	Iron	5.00
West Volusia Transfer Station (Deland)	12.00	Manganese	5.00
		Sulfate	7.00
		Zinc	5.00
		pH (units)	4.00
		TDS	8.00
		Foaming Agents	15.00
		Emergency Sampling	Price Per Event
		Sample Collection within one (1) Hour	100.00
		Sample Collection within six (6) Hours	50.00
		Regulatory compliance meetings	25.00



SOLID WASTE DIVISION			
Organics	Price Per Test	Metals	Price Per Test
Ethane/Ethene	85.00	Aluminum	6.00
2- Butanone	45.00	Antimony	6.00
Lindane	25.00	Arsenic	6.00
Endrin	25.00	Barium	6.00
Methoxychlor	25.00	Beryllium	6.00
Toxaphene	25.00	Cadmium	6.00
2, 4-D	25.00	Calcium	6.00
2, 4, 5-TP (silvex)	25.00	Chromium	6.00
Ethylene Dibromide (GCS EDB)	25.00	Copper	6.00
Vinyl Chloride	5.00	Cobalt	6.00
1, 2-Dichloroethane	5.00	Iron	6.00
1, 1, 1-Trichloroethane	5.00	Lead	6.00
Trichloroethene	5.00	Magnesium	6.00
Tetrachloroethene	5.00	Manganese	6.00
Benzene	5.00	Mercury	14.00
Carbon Tetrachloride	5.00	Low Level Mercury	70.00
1,3-Dichlorobenzene	5.00	Molybdenum	6.00
Toluene	5.00	Nickel	6.00
Xylenes (total)	5.00	Potassium	6.00
1,2,4-Trichlorobenzene	5.00	Selenium	6.00
1,4-Dichlorobenzene	5.00	Silver	6.00
1,2-Dichlorobenzene	5.00	Sodium	6.00
Chlorobenzene	5.00	Thallium	6.00
1,1-Dichloroethylene	5.00	Tin	6.00
cis-1,2-Dichloroethylene	5.00	Vanadium	6.00
1,2-Dichloropropane	5.00	Zinc	6.00
Ethylbenzene	5.00	Toxicity Characteristic Leaching Procedure (TCLP)	35.00
Styrene	5.00	Arsenic	6.00
Trans-1,2-Dichloroethylene	5.00	Barium	6.00
Dichloromethane	5.00	Cadmium	6.00
1,1,2-Trichloroethane	5.00	Chromium	6.00
Trihalomethane	5.00	Lead	6.00
Chlorinated Phenols	130.00	Mercury	14.00
Purgable Halocarbons 601/8260	45.00	Selenium	6.00
Purgable Volatiles	60.00	Silver	6.00
Purgable Aromatics 602/8260	40.00	TCPL Organics – Price includes extraction plus methods 8260,8270,8151,8081	380.00
Total Organic Halogens	100.00	Organic & Demands	Price Per Test
Total Recovery Hydrocarbon/FLPRO	60.00	Biochemical Oxygen Demand	15.00
Polynuclear Aromatic Hydrocarbs	75.00	Chemical Oxygen Demand	12.00
Organic Toxic Pollutants – VOC	60.00	Oil & Grease (1664 HEM & TPH)	32.00
Organic Toxic Pollutants – BNA	125.00	Phenols, Total	20.00



Organic Toxic Pollutants – Pesticides	95.00	Total Organic Carbon	15.00
Organic Toxic Pollutants – VOC	60.00	Total Inorganic Carbon	15.00
Total Volatile Solids	12.00		
Nutrients	Price Per Test	Groups	Price Per Test
Ammonia Nitrogen	12.00	Hazardous Waste Characterization	
Ammonium	12.00	Reactive Cyanide	50.00
Kjeldahl Nitrogen, Total	16.00	Reactive Sulfide	50.00
Nitrate Nitrogen (IC Anions)	7.00	Metals	Price Per Test
Nitrite Nitrogen (IC Anions)	7.00	RCRA Metals (8)	49.00
Nitrogen, Total	23.00	Priortiy Pollutant Metals (13)	79.00
Organic Nitrogen	26.00	TAL Metals	110.00
Mircobiological	Price Per Test	Semi-Volatile Organics	
Fecal Coliform	10.00	PAH's by EPA 625 or 8270C	75.00
Total Coliform	10.00	Base/Neutrals by EPA 625 or 8270C, PP or TCL list	100.00
		Base/Neutrals and Acid Extractables by EPA 625 or 8270C, PP or TCL List (MSSV)	130.00
Residue/Solids	Price Per Test	BNA RCRA List with TCLP extraction (EPA 1311 & 8270C)	160.00
Total Dissolved Solids	8.00		
Total Suspended Solids	8.00	STARS PAH's by EPA 8270C	75.00
Percent Solids	4.00	PCB's by EPA 8082	55.00
Field Test ***	Price Per Test	Pesticides by EPA 8081	90.00
Total Well Depth	0.00	Pesticides & PCB's by EPA 8081/8082	130.00
Water Elevation	0.00	Pesticides by EPA 8141 (Orhanophosphorus)	100.00
Temperature	0.00	Herbicides-WATER by EPA 8151 or 515.1	105.00
Specific Conductance	0.00	Herbicides-SOIL by EPA 8151	115.00
Dissolved Oxygen	0.00	Toxicity Characteristic Leaching Procedure (TCLP)	Price Per Test
pH	0.00	TCLP Metals	79.00
Turbidity	0.00	TCLP Volatile Organics	90.00
Miscellaneous	Price Per Test	TCLP Pesticides	120.00
Alkalinity/Bicarbonates as HCO ₃	8.00	TCLP Herbicides	120.00
Calcium Hardness as CaCO ₃	6.00	Full TCLP	450.00
Chloride (IC Anions)	7.00	AHE Extraction	35.00
Color	5.00	SPLP Extraction	35.00
Cyanide	20.00	Volitile Organics	Price Per Test
Corrosivity	20.00	BTEX + MTBE by EPA 624 or 8260B	35.00
Flouride	7.00	VOHs by EPA 624 or 8260B	60.00
Sulfides	20.00	VOC's by EPA 624 or 8260B (chlorinated and aromatic compounds), 8260 MSV	60.00
Odor	5.00	VOC's by EPA 8021 (chlorinated and aromatic compounds)	80.00
pH	4.00	VOC's by GC/MS EPA 624 or 8260B	60.00
Sulfate	7.00	NYSDEC STARS List VOC's by EPA 8260B	60.00
Total Alkalinity	8.00	Miscellaneous	Price Per Test
Total Hardness as CaCO ₃	10.00	40 CFR Part 258 Appendix I	155.00
Total Phosphorus	12.00	40 CFR Part 258 Appendix II	650.00
Total Phosphate	12.00	Primary Metals 62-550.310(1)(a)	90.00
Chlorophyll A	28.00	Primary VOC 62-550.310(2)(C)	60.00
Surfactants (foaming agents)	15.00	Full Primary Drinking Water Scan 62-550.310	850.00
		Secondary Drinking Water Scan 62-550.320(1)	110.00
		Field Parameters	0.00
Hourly Rate for time in field during regular working hours (8:00 a.m. to 5:00 p.m. Monday through Friday)			40.00
Hourly Rate for time in field after regular working hours (nights, weekends and county recognized holidays)			75.00

*** Field Test are included in Hourly Rates in the field

ATTACHMENT B-Pricing
LABORATORY ANALYSIS AND SAMPLING



Definitions			
BNA = Base, Neutral, Acid extractable organics			
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes			
CFR = Code of Federal Regulations			
MTBE = Methyl Tert-Butyl Ether			
PAHs = Polynuclear Aromatic Hydrocarbons			
PCBs = Polychlorinated Biphenyls			
RCRA = Resource Conservation and Recovery Act			
SPLP = Synthetic Precipitation Leaching Procedure			
TAL = Target Analyte List			
TCLP = Toxicity Characteristic Leaching Procedure			
TRPH = Total Recoverable Petroleum Hydrocarbons			
VOAs = Volatile Organic Aromatics			
VOCs = Volatile Organic Compounds			
VOHs - Volatile Organic Halogens			