LOWER PASSAIC RIVER RESTORATION PROJECT

LOWER PASSAIC RIVER STUDY AREA RI/FS

CURRENT CONDITIONS
ADDENDUM TO THE
QUALITY ASSURANCE PROJECT PLAN

FISH AND CRAB TISSUE COLLECTION FOR CHEMICAL ANALYSIS

FINAL

September 13, 2019
Revision Number: 0
Addendum Number 7

Prepared By:

Windward environmental LLC

200 West Mercer Street, Suite 401
Seattle, Washington 98119

623698

This page intentionally left blank.

TABLE OF CONTENTS

Introduction 1

QAPP Worksheet No. 1. Title and Approval Page 5

QAPP Worksheet No. 3. Distribution List 7

QAPP Worksheet No. 4. Project Personnel Sign-Off Sheet 9

QAPP Worksheet No. 5. Project Organizational Chart 11

QAPP Worksheet No. 6. Communication Pathways 12

QAPP Worksheet No. 7. Personnel Responsibilities and Qualifications Table 14

QAPP Worksheet No. 8. Special Personnel Training Requirements Table 17

QAPP Worksheet No. 9. Project Scoping Session Participants Sheet 19

QAPP Worksheet No. 10. Problem Definition 22

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements 28

QAPP Worksheet No. 12. Measurement Performance Criteria Table 38

QAPP Worksheet No. 13. Secondary Data Criteria and Limitations Table 47

QAPP Worksheet No. 14. Summary of Project Tasks 48

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation 52

QAPP Worksheet No. 16. Project Schedule/Timeline Table 69

QAPP Worksheet No. 17. Sampling Design and Rationale 70

QAPP Worksheet No. 18. Proposed Sampling Locations and Methods/SOP Requirements Table 75

QAPP Worksheet No. 19. Analytical SOP Requirements Table 76

QAPP Worksheet No. 20. Field QC Sample Summary Table 78

QAPP Worksheet No. 21. Project Sampling SOP References Table 79

QAPP Worksheet No. 23. Analytical SOP References Table 81

QAPP Worksheet No. 24. Analytical Instrument Calibration Table 84

QAPP Worksheet No. 25. Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table 87

QAPP Worksheet No. 26. Sample Handling System 89

QAPP Worksheet No. 27. Sample Custody Requirements Table 90

QAPP Worksheet No. 28. QC Samples Table 94

QAPP Worksheet No. 29. Project Documents and Records Table 108

QAPP Worksheet No. 30. Analytical Services Table 111

QAPP Worksheet No. 31. Planned Project Assessments Table 113

QAPP Worksheet No. 32. Assessment Findings and Corrective Action Responses 114

QAPP Worksheet No. 33. QA Management Reports Table 115

QAPP Worksheet No. 34. Sampling and Analysis Verification (Step I) Process Table 116

QAPP Worksheet No. 35. Sampling and Analysis Validation (Steps IIa and IIb) Process Table 117

QAPP Worksheet No. 36. Sampling and Analysis Validation (Steps IIa and IIb) Summary Table 119

QAPP Worksheet No. 37. Usability Assessment 121

References 124

Oversize Figures 127

Attachment B. Location Data Forms
Attachment I. SOP – Procedures to Decontaminate Biological Sampling Equipment
Attachment J. SOP – Fish Collection and Tissue Sampling
Attachment O. SOP – Processing of Fish and Crab Tissue Composites
Attachment R. Health and Safety Plan
Attachment T. Laboratory SOPs
Attachment U. Laboratory Certifications
Attachment W. Field Sampling Flow Charts

Introduction

This is an addendum to the Lower Passaic River (LPR) Restoration Project *Quality Assurance Project Plan: Fish and Decapod Crustacean Tissue Collection for Chemical Analysis and Fish Community Survey* (Windward 2009), hereafter referred to as the Fish/Decapod Quality Assurance Project Plan (QAPP). The Fish/Decapod QAPP was approved by the US Environmental Protection Agency (USEPA) on August 6, 2009. This document is Addendum No. 7 to the Fish/Decapod QAPP, hereafter referred to as Fish/Decapod QAPP Addendum No. 7. Data collected include fish and crab tissue data from the upper portion of the LPR (i.e., from river mile [RM] 8.3 to Dundee Dam). These data will be used to represent current conditions in support of the proposed Interim Remedy (IR) for the upper 9 miles of the LPR.

The data quality objectives (DQOs) for this sampling program are as follows:

1. **DQO 1** – Collect sufficient fish/crab biota data prior to performing the proposed IR so that appropriate comparisons (e.g., statistical, graphical, etc.) of pre- and post-IR data can be made (to the extent practicable based on the successful collection of sufficient fish/crab) for each of the target species (i.e., American eel, bass, blue crab, catfish, common carp, sunfish, and white perch) and chemical of concern (COC). Comparisons may include both short- and long-term monitoring data in order to determine changes in fish and crab tissue concentrations following completion of the IR. Target species of fish/crab from two sampling areas (i.e., RM 8.3 to RM 15 and RM 15 to Dundee Dam; Figure 1) will be collected to the extent practicable after expending a reasonable level of effort.[1]

    - **RM 8.3 to RM 15** – Based on habitat and previous Lower Passaic River Study Area (LPRSA) biota sampling, sufficient fish and crab are reasonably likely to be collected to achieve the calculated sample size goals (i.e., 25 composite samples collected over 2 years as required by USEPA)[2] for most of the target species.
    - **RM 15 to Dundee Dam** – Based on habitat and previous LPRSA biota sampling, the Cooperating Parties Group (CPG) and USEPA acknowledge that sufficient fish and crab sample collection may not achieve the calculated sample size goals in this area. However, sufficient efforts will be made to achieve the goals within the agreed-upon time frame. Appropriate habitat for most target species above approximately RM 15 to RM 16 is limited (i.e., area is shallower, with higher flow rates and coarser bottom), and the overall length of this sampling area is relatively short (i.e., approximately 2.4 river miles as compared with approximately 6.7 river miles from RM 8.3 to RM 15). As such, a reasonable effort—one that considers the length of the reach, limited access, and less suitable habitat above approximately RM 15 to RM 16—will be made to collect biota in this area. If available fish and crab samples are insufficient to achieve the targeted number of composite samples (i.e., 25 composite samples

[1] A reasonable effort is defined as a 3-week field effort (18 field days) conducted by a 6-person field crew (see Worksheet No. 11 for details).
[2] Target numbers of composites were calculated by USEPA using the 2009/2010 LPRSA dataset and based on the ability to detect a 50% reduction in average tissue concentrations assuming 80% power and 95% confidence using a non-parametric evaluation (one-tailed Mann-Whitney U test).

collected over 2 years as required by USEPA), DQO 3 will be used to determine the future data analysis and collection plan.

2. **DQO 2** – Evaluate bioaccumulation model performance using the current condition fish and crab tissue data and refine model as needed post-Record of Decision (ROD).[3]
3. **DQO 3** – Identify and refine specific characteristics (e.g., species, abundance, size, age, range, etc.) to support development of both short-term (i.e., current condition sampling program) and long-term (e.g., post-IR) sampling programs. Adjustments to sample sizes will be made, if warranted, following each current condition sampling event.

As discussed with USEPA (Worksheet No. 9), the dataset used for DQO 1 will be a combination of biota data collected in 2019 and 2020. An evaluation of the data collected in 2019 will be used to inform the design of the 2020 program. This evaluation, which will be similar to the evaluation used to develop the target sample sizes for Year 1, will include calculating the variance in chemical concentrations for each species, and considering how many additional samples are needed to allow for the above-mentioned statistical comparison of the current conditions dataset (i.e., 2019/2020 data) and future the post-remedy datasets. This Fish/Decapod QAPP Addendum No. 7—describes the fish tissue sampling effort planned for late summer/early fall 2019. The 2020 sampling will be described in a separate addendum.

The field activities for the collection of fish in the upper 9 miles of the LPRSA will occur during in late summer/early fall 2019 over a 3-week period. Specifically, fish and crab tissue data will be collected from RM 8.3 to Dundee Dam. The target species selected by USEPA will include: American eel, bass (both largemouth bass and smallmouth bass), blue crab, catfish (both channel catfish and white catfish), common carp, sunfish (e.g., primarily bluegill, pumpkinseed, and redbreast sunfish), and white perch.

As required by USEPA, the tissue samples will be analyzed for COCs identified in the ecological risk assessment (ERA) and/or human health risk assessment (HHRA), consistent with the COCs identified in the ROD for the lower 8 miles of the LPRSA. These COCs include 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins/polychlorinated dibenzofurans (PCDDs/PCDFs) (and homologues), polychlorinated biphenyl (PCB) congeners (and homologues), select metals (methylmercury, mercury, copper, and lead), select organochlorine pesticides (the six DDX components[4] and dieldrin), and polycyclic aromatic hydrocarbons (PAHs), as well as for lipid content and percent moisture.

Separate fillet and carcass samples (or muscle/hepatopancreas and remainder samples for crab) will be analyzed for all species except sunfish, which will be analyzed as whole-body samples. Reconstituted whole-body concentrations will be derived for use in the bioaccumulation model by combining the analytical results for fillet and carcass samples (or muscle/hepatopancreas and reminder samples for crab) and adjusting for the relative weight of each fraction, consistent with the field sampling plan, Vol. II (FSP2) (Malcolm Pirnie et al. 2006). With the exception of sunfish, each composite will include three individuals of the species. For sunfish, five individuals will be included in each composite to help ensure

[3] The evaluation of the bioaccumulation model performance will also require updated Contaminant Fate and Transport (CFT) model results.
[4] Total DDx is defined as the sum of all six DDT isomers (2,4′-dichlorodiphenyldichloroethane [DDD], 4,4′-DDD, 2,4′-DDE [dichlorodiphenyldichloroethylene], 4,4′-DDE, 2,4′-dichlorodiphenyltrichloroethane [DDT], and 4,4′-DDT).

sufficient mass for analysis. A compositing plan will be determined following the completion of sample collection, taking into account the catch location and size of the individual fish or crab.

In addition to chemistry analyses, fish aging will be done to support the evaluation of bioaccumulation model performance. To ensure that fish used for analytical composites are not damaged, non-invasive aging techniques will be utilized whenever possible (i.e., fin rays/spines or scales will be used to age fish). If a non-invasive method is not available (e.g., for American eel), aging will be done using otoliths; care will be taken to retain all tissue during the otolith extraction process for use in the analytical composite. Methods for collecting structures for age analysis are described in Attachment J. Age analysis will follow procedures described by Murphy and Willis (1996) and Zale et al. (2012).

This Fish/Decapod QAPP Addendum No. 7 includes updates to worksheets and attachments relevant to the current conditions tissue sampling. It does not include worksheets or attachments that are unchanged or irrelevant to this effort. Applicable and/or updated worksheets and attachments included in this addendum are presented in Table 1.

Table 1. Overview of QAPP Addendum Updates

Component	Title	Overview of Changes / Updates
Worksheet No. 1	Title and Approval Page	updated personnel
Worksheet No. 3	Distribution List	updated personnel
Worksheet No. 4	Project Personnel Sign-Off Sheet	updated personnel
Worksheet No. 5	Project Organizational Chart	updated personnel
Worksheet No. 6	Communication Pathways	updated personnel
Worksheet No. 7	Personnel Responsibilities and Qualifications Table	updated personnel
Worksheet No. 8	Special Personnel Training Requirements Table	updated personnel
Worksheet No. 9	Project Scoping Session Participants Sheet	fully revised to document process for developing current conditions sampling approach
Worksheet No. 10	Problem Definition	fully revised to describe current conditions sampling approach
Worksheet No. 11	Project Quality Objectives/Systematic Planning Process Statements	fully revised to document objectives for current conditions sampling
Worksheet No. 12	Measurement Performance Criteria Table	updated analytical groups, laboratories, and lab-specific measurement performance criteria
Worksheet No. 13	Secondary Data Criteria and Limitations Table	updated fish tissue chemistry and community data sources and NOAA tide table for 2019
Worksheet No. 14	Summary of Project Tasks	fully revised to document project tasks for current conditions sampling
Worksheet No. 15	Data Quality Levels and Analytical Methods Evaluation	updated laboratories and achievable laboratory limits
Worksheet No. 16	Project Schedule/Timeline Table	fully revised for current conditions sampling
Worksheet No. 17	Sampling Design and Rationale	fully revised to describe sampling design and rationale for current conditions sampling
Worksheet No. 18	Proposed Sampling Locations and Methods/SOP Requirements Table	updated areas/locations for current conditions sampling
Worksheet No. 19	Analytical SOP Requirements Table	updated analytical groups

Component	Title	Overview of Changes / Updates
Worksheet No. 20	Field Quality Control Sample Summary Table	updated sample and QC sample counts
Worksheet No. 21	Project Sampling SOP References Table	updated list of SOPs (revised to include beach seining and age analysis)
Worksheet No. 23	Analytical SOP References Table	updated laboratories, SOP titles, revision numbers, and revision dates
Worksheet No. 24	Analytical Instrument Calibration Table	updated laboratories, instrumentation, and personnel
Worksheet No. 25	Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table	updated laboratories, instrumentation, and personnel
Worksheet No. 26	Sample Handling System	updated personnel
Worksheet No. 27	Sample Custody Requirements Table	updated sample identification procedures
Worksheet No. 28	QC Samples Table	updated analytical groups, laboratories, and personnel
Worksheet No. 29	Project Documents and Records Table	updated EDD specifications
Worksheet No. 30	Analytical Services Table	updated laboratories and contact information
Worksheet No. 31	Planned Project Assessments Table	updated personnel
Worksheet No. 32	Assessment Findings and Corrective Action Responses	updated personnel
Worksheet No. 33	QA Management Reports Table	updated personnel
Worksheet No. 34	Sampling and Analysis Verification (Step I) Process Table	updated personnel
Worksheet No. 35	Sampling and Analysis Validation (Steps IIa and IIb) Process Table	updated personnel
Worksheet No. 36	Sampling and Analysis Validation (Steps IIa and IIb) Summary Table	updated personnel
Worksheet No. 37	Usability Assessment	updated scope
Attachment B	Location Data Forms	updated forms for field use
Attachment I	SOP—Procedures to Decontaminate Biological Sampling Equipment	updated to include beach seine net
Attachment J	SOP—Fish Collection and Tissue Sampling	updated to include beach seining methods and preparation of fish age analysis samples
Attachment O	SOP— Processing of Fish and Crab Tissue Composites	updated processing to reflect target species and tissue types
Attachment R	Health and Safety Plan (HSP).	updated sampling activities, personnel, and hospital routes
Attachment T	Laboratory SOPs	updated SOP titles, revision numbers, and revision dates
Attachment U	Laboratory Certifications	updated laboratories and current certification dates
Attachment W	Field Sampling Flow Charts	updated flow charts for current conditions sampling

HSP – health and safety plan
NOAA – National Oceanic and Atmospheric Administration
QA – quality assurance
QAPP – quality assurance project plan
QC – quality control
SOP – standard operating procedure

QAPP Worksheet No. 1. Title and Approval Page

Quality Assurance Project Plan for Fish and Decapod Crustacean Tissue Collection for Chemical Analysis and Fish Community Survey

Document Title

Windward Environmental LLC (Windward)

Lead Investigative Organization

Thai Do, Windward

Preparer's Name and Organizational Affiliation

200 West Mercer St., Suite 401, Seattle, WA 98119, 206.812.5407, thaid@windwardenv.com

Preparer's Address, Telephone Number, and E-mail Address

09/13/2019

Preparation Date (mm/dd/yy)

Investigative Organization's Project Manager:

Signature

Lisa Saban, Windward, 09/13/2019

Printed Name/Organization/Date

Investigative Organization's Task Quality Assurance (QA)/Quality Control (QC)

Signature

Jennifer Parker, Windward, 09/13/2019

Printed Name/Organization/Date

Project Coordinators:

Signature

Bill Potter, de maximis, inc., 09/13/2019

Printed Name/Organization/Date

QAPP Worksheet No. 1. Title and Approval Page (cont.)

Signature

Robert Law, de maximis, inc., 09/13/2019

Printed Name/Organization/Date

Approval Signatures:

USEPA Remedial Project Manager
Approval Authority

Diane Salkie

Signature

Diane Salkie, USEPA, 09/13/2019

Printed Name/Title/Date

USEPA Project QA Officer
Approval Authority

Signature

William Sy, USEPA, 09/13/2019

Printed Name/Title/Date

QAPP Worksheet No. 3. Distribution List

QAPP Recipients	Title	Organization	Telephone Number	E-mail Address
Lisa Saban	Investigative Organization Project Manager	Windward	206.812.5429	lisas@windwardenv.com
Mike Johns	Technical Advisory Team member	Windward	206.812.5418	mikej@windwardenv.com
Jennifer Parker	Investigative Organization Project Chemist and Task QA/QC Manager	Windward	206.812.5442	jenniferp@windwardenv.com
Kimberley Goffman	Investigative Organization Information Manager	Windward	206.812.5414	kimg@windwardenv.com
Amara Vandervort	Investigative Organization Laboratory and Data Validation Coordinator	Windward	206.812.5415	amarav@windwardenv.com
Thai Do	Field Coordinator/Site Safety and Health Officer	Windward	206.812.5407	thaid@windwardenv.com
Suzanne Replinger	Field Coordinator/Site Safety and Health Officer (alternate)	Windward	206.812.5435	suzanner@windwardenv.com
Jenna Rheuben	Field Personnel	Windward	206.812.5447	jennar@windwardenv.com
Mike Yarnes	Field Personnel	Windward	206.812.5430	mikey@windwardenv.com
Brian Church	Field Personnel	Windward	206.812.5416	brianc@windwardenv.com
Abby Hawley	Field Personnel	Windward	206.812.5409	abbyh@windwardenv.com
Kate McPeek	Field Personnel	Windward	206.812.5406	katem@windwardenv.com
Aaron Edgington	Field Personnel	Windward	206.812.5404	aarone@windwardenv.com
Amy Shaw	Field Personnel	Windward	206.812.5428	amys@windwardenv.com
Berit Bergquist	Field Personnel	Windward	206.812.5403	beritb@windwardenv.com
Bill Potter	Project Coordinator	de maximis, inc.	908.735.9315	otto@demaximis.com
Robert Law	Project Coordinator	de maximis, inc.	215.806.7688	rlaw@demaximis.com
William Hyatt	Coordinating Counsel	K&L Gates	973.848.4045	william.hyatt@klgates.com
Matt Shappell	Boat Operator	Aqua Survey, Inc	908.892.1191	shappell@aquasurvey.com

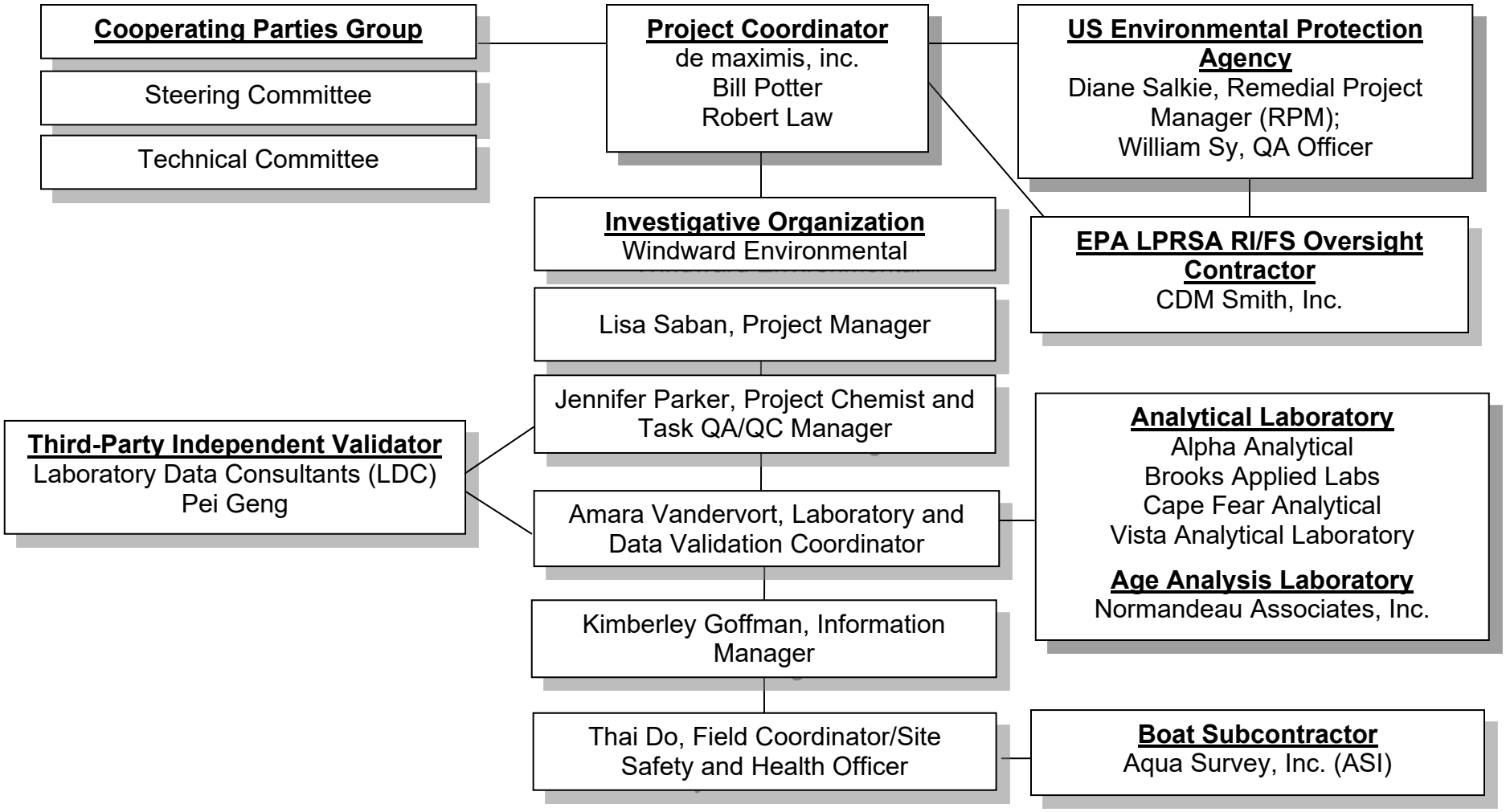
QAPP Recipients	Title	Organization	Telephone Number	E-mail Address
Pei Geng	Data Validation Project Manager	Laboratory Data Consultants, Inc.	760.827.1100 ext. 141	pgeng@lab-data.com
Elizabeth Porta	Laboratory Project Manager	Alpha Analytical	508.844.4124	eporta@alphalab.com
Amanda Royal	Laboratory Project Manager	Brooks Applied Labs	206.753.6111	amanda@brooksrand.com
Cynde Larkins	Laboratory Project Manager	Cape Fear Analytical, LLC	910.795.0421	cynde.larkins@cfanalytical.com
Martha Maier	Laboratory Project Manager	Vista Analytical Laboratory	916.673.1520	mmaier@vista-analytical.com
Sean Stimmell	Senior Scientist (fish aging)	Normandeau Associates, Inc.	603.637.1128	sstimmell@normandeau.com
Diane Salkie	USEPA Remedial Project Manager (RPM)	USEPA Region 2	212.637.4427	salkie.Diane@epa.gov
William Sy	USEPA Project QA Officer	USEPA Region 2	732.321.6648	sy.william@epa.gov
Jay Nickerson	Project Coordinator	NJDEP	609.633.1448	jay.nickerson@dep.nj.gov

QAPP Worksheet No. 4. Project Personnel Sign-Off Sheet

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read E-mail Receipt
Lisa Saban	Investigative Organization Project Manager, Windward	206.812.5429		
Jennifer Parker	Investigative Organization Project Chemist and Task QA/QC Manager, Windward	206.812.5406		
Kimberley Goffman	Investigative Organization Information Manager, Windward	206.812.5414		
Amara Vandervort	Investigative Organization Laboratory and Data Validation Coordinator, Windward	206.812.5442		
Thai Do	Field Coordinator/Site Safety and Health Officer, Windward	206.812.5407		
Suzanne Replinger	Field Coordinator/Site Safety and Health Officer (alternate), Windward	206.812.5435		
Jenna Rheuben	Field Personnel, Windward	206.812.5447		
Mike Yarnes	Field Personnel, Windward	206.812.5430		
Brian Church	Field Personnel, Windward	206.812.5416		
Abby Hawley	Field Personnel, Windward	206.812.5409		
Kate McPeek	Field Personnel, Windward	206.812.5406		
Aaron Edgington	Field Personnel, Windward	206.812.5404		
Amy Shaw	Field Personnel, Windward	206.812.5428		
Berit Bergquist	Field Personnel, Windward	206.812.5403		
Bill Potter/Robert Law	Project Coordinators, de maximis, inc.	908.735.9315		
Matt Shappell	Boat Operator, Aqua Survey, Inc.	908.892.1191		
Elizabeth Porta	Laboratory Project Manager, Alpha Analytical	508.844.4124		

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read E-mail Receipt
Cynde Larkins	Laboratory Project Manager, Cape Fear Analytical	910.795.0421		
Amanda Royal	Laboratory Project Manager, Brooks Applied Labs	206.753.6111		
Martha Maier	Laboratory Project Manager, Vista Analytical Laboratory	916.673.1520		
Sean Stimmell	Senior Scientist (fish aging), Normandeau Associates, Inc.	603.637.1128		
Pei Geng	Data Validation Project Manager, Laboratory Data Consultants, Inc.	760.827.1100 (ext. 141)		

QAPP Worksheet No. 5. Project Organizational Chart



QAPP Worksheet No. 6. Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (timing, pathways, etc.)
Field sampling communications	Field Coordinator	Thai Do	206.812.5407	Communicate daily, or as needed, with field personnel, subcontractors, and Investigative Organization Project Manager and Task QA/QC Manager directly, or via e-mail or phone. Report catch results daily so it can be determined which species will be retained for analysis.
Communications with Investigative Organization Project Manager				
Communications with Investigative Organization Project Chemist and Task QA/QC Manager				
Health and safety briefing	Site Safety and Health Officer			Communicate daily, or as needed, with field personnel directly, or via e-mail or phone, on matters regarding health and safety.
Communications with Project Coordinator	Investigative Organization Project Manager	Lisa Saban	206.812.5427	Communicate as needed with Project Coordinator via e-mail or phone.
	Investigative Organization Laboratory and Data Validation Coordinator	Amara Vandervort	206.812.5415	
	Investigative Organization Project Chemist and Task QA/QC Manager	Jennifer Parker	206.812.5442	

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (timing, pathways, etc.)
Communications with analytical laboratories	Investigative Organization Project Chemist	Jennifer Parker	206.812.5442	Communicate with Field Coordinator, Project Managers, and laboratory Project Manager as needed, via phone or e-mail, regarding laboratory- and chemical analysis-related issues.
	Investigative Organization Laboratory and Data Validation Coordinator	Amara Vandervort	206.812.5415	Communicate with Field Coordinator, Project Managers, and laboratory Project Manager as needed, via phone or e-mail, regarding laboratory- and chemical analysis-related issues.
	Investigative Organization Information Manager	Kimberley Goffman	206.812.5414	Communicate with Field Coordinator, Project Managers, and laboratory Project Manager as needed, via phone or e-mail, regarding chemical data management.
Communications with USEPA	Project Coordinators	Bill Potter/ Robert Law (de maximis, inc.)	215.806.7688	Communicate with USEPA Project Manager as needed via e-mail or phone.
	Investigative Organization Project Manager	Lisa Saban	206.812.5427	Communicate with USEPA Project Manager as needed via e-mail or phone.
Quality status and issues	Investigative Organization Project Chemist and Task QA/QC Manager	Jennifer Parker	206.812.5442	Communicate with CPG Project Coordinator as needed via e-mail or phone.
Sampling vessel operations	Boat subcontractor	Matt Shappell	908.892.1191	Communicate daily, or as needed, with Field Coordinator directly. The sampling vessel captain has the ultimate authority to stop work while working on water. The vessel captain, in consultation with the Site Safety and Health Officer, will follow guidelines documented in the site-specific HSP (Attachment R). In addition, standard safe boating practices related to weather conditions and vessel operations will apply, even if not specifically addressed in the HSP (Attachment R).

CPG – Cooperating Parties Group
HSP – health and safety plan
QA – quality assurance
QAPP – quality assurance project plan
QC – quality control
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 7. Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Lisa Saban	Investigative Organization Project Manager	Windward	Oversight of performance by investigative organization	MS, Aquatic Toxicology and Ecology, 28 yrs. exp.
Mike Johns	Technical Advisory Team member	Windward	Implementation of strategy and guidance	PhD, Oceanography, 40 yrs. exp.
Jennifer Parker	Investigative Organization Project Chemist and Task QA/QC Manager	Windward	Coordination of QAPP production; oversight implementation of QA/QC procedures; senior review of deliverables	MS, Ecology and Environmental Science, 19 yrs. exp.
Amara Vandervort	Investigative Organization Laboratory and Data Validation Coordinator	Windward	Coordination with Field Coordinator and analytical testing laboratories to ensure that QAPP chemistry requirements are followed; management of data validation tasks, ensuring that validation is conducted and documented according to the QAPP; interaction with laboratories to resolve any issue	BS, Biology and Psychology, 24 yrs. exp.
Kimberley Goffman	Investigative Organization Information Manager	Windward	Oversight of import and export of chemistry data to and from project database	BS, Geology, 25 yrs. exp.
Thai Do	Investigative Organization Field Coordinator/Site Safety and Health Officer	Windward	Management of field sampling efforts, daily and site health and safety briefings with field staff, communications with project management, HSP and report preparation	MS, Tropical Biology, 15 yrs. exp.
Suzanne Replinger	Investigative Organization Field Coordinator/Site Safety and Health Officer (alternate)	Windward	Management of field sampling efforts, daily and site health and safety briefings with field staff, communications with project management, HSP and report preparation	BS, Environmental Science, 13 yrs. exp.
Jenna Rheuben	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field laboratory processing, as directed by the Field Coordinator	BS, Environmental Science, 4 yrs. exp.
Mike Yarnes	Investigative Organization Field Personnel and GIS Database Management	Windward	Implementation of QAPP in field laboratory processing, as directed by the Field Coordinator; management of GIS database; verification of field-collected GPS coordinates	MS, GIS, 13 yrs. exp.
Brian Church	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field collection of samples, as directed by the Field Coordinator	BS, Environmental Science, 7 yrs. exp.

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Abby Hawley	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field laboratory processing, as directed by the Field Coordinator	MS, Environmental engineering, 4 yrs. exp.
Kate McPeek	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field collection of samples, as directed by the Field Coordinator	MS, Aquatic and Fishery Sciences, 18 yrs. exp.
Amara Vandervort	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field laboratory processing, as directed by the Field Coordinator	BS, Biology and Psychology, 24 yrs. exp.
Aaron Edgington	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field collection of samples, as directed by the Field Coordinator	PhD, Environmental Toxicology, 15 yrs. exp.
Amy Shaw	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field laboratory processing, as directed by the Field Coordinator	BS, Aquatic and Fisheries Sciences, 4 yrs. exp.
Berit Bergquist	Investigative Organization Field Personnel	Windward	Implementation of QAPP in field laboratory processing, as directed by the Field Coordinator	MS, Environmental Science, 27 yrs. exp.
Bill Potter	CPG Project Coordinator	de maximis, inc.	Coordination of successful delivery of task products to USEPA	BS, Chemical Engineering, 48 yrs. exp.
Robert Law	CPG Project Coordinator	de maximis, inc.	Coordination of successful delivery of task products to USEPA	PhD, Geology, 38 yrs. exp.
Pei Geng	Validator Project Manager	Laboratory Data Consultants, Inc.	Third-party independent validation of chemistry data	MS, Chemistry, 28 yrs. exp.
Matt Shappell	Boat Operator	Aqua Survey, Inc.	Safe vessel operation in accordance with project objectives and site-specific HSP	BS, Anthropology and Geography, 20 yrs. exp.
Elizabeth Porta	Laboratory Project Manager	Alpha Analytical	Execution of sample management and analysis consistent with prescribed analyses	BS in Marine Biology; 30 yrs of laboratory (sample prep, analytical), QA, and Project Management experience
Cynde Larkins	Laboratory Project Manager	Cape Fear Analytical, LLC	Execution of sample management and analysis consistent with prescribed analyses	BA, Environmental Science, 9 yrs. exp.
Amanda Royal	Laboratory Project Manager	Brooks Applied Labs	Execution of sample management and analysis consistent with prescribed analyses	BS Environmental Science 23 yrs. exp.
Martha Maier	Laboratory Project Manager	Vista Analytical Laboratory	Execution of sample management and analysis consistent with prescribed analyses	BS Chemistry, 35 yrs. exp.

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Sean Stimmell	Senior Scientist (fish aging)	Normandeau Associates, Inc.	Execution of sample management and analysis consistent with prescribed analyses	MS Biology, 20 yrs. exp.

CPG – Cooperating Parties Group
GIS – geographic information system
HSP – health and safety plan
QA – quality assurance
QAPP – quality assurance project plan
QC – quality control
USEPA – US Environmental Protection Agency
Windward – Windward Environmental LLC

QAPP Worksheet No. 8. Special Personnel Training Requirements Table

Project Function	Specialized Training by Title or Description of Course	Training Provider	Training Date	Personnel Receiving Training	Personnel Titles/ Organizational Affiliation	Location of Training Records/ Certificates[a]
Field Coordinator/Site Safety and Health Officer	40-hr HAZWOPER	Prezant Associates, Inc.	11/21/03	Thai Do	Sr. Associate Environmental Scientist/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	01/01/19			
	OSHA 8-hr Training for Supervisors	Association of Bay Area Governments	01/06/07			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
	Backpack Electrofishing and Fish Handling Techniques	Northwest Environmental Training Center	05/24/07			
Field Coordinator/Site Safety and Health Officer (alternate)	40-hr HAZWOPER	Prezant Associates, Inc.	01/13/06	Suzanne Replinger	Partner and Risk Assessor/ Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	03/18/19			
	OSHA 8-hr Training for Supervisors	Association of Bay Area Governments	07/11/19			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
Windward Field Personnel	40-hr HAZWOPER	RGA Environmental	02/13/15	Jenna Rheuben	Environmental Scientist/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	03/15/19			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
Windward Field Personnel	40-hr HAZWOPER	RGA Environmental	05/22/09	Mike Yarnes	Associate GIS Analyst/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	12/14/18			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
Windward Field Personnel	40-hr HAZWOPER	RGA Environmental	11/18/11	Brian Church	Associate Environmental Scientist/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	01/18/19			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			

Project Function	Specialized Training by Title or Description of Course	Training Provider	Training Date	Personnel Receiving Training	Personnel Titles/ Organizational Affiliation	Location of Training Records/ Certificates[a]
Windward Field Personnel	40-hr HAZWOPER	Argus Pacific	09/18/15	Abby Hawley	Associate Environmental Engineer/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	10/15/18			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
Windward Field Personnel (alternate)	40-hr HAZWOPER	Argus Pacific	01/29/10	Kate McPeek	Sr. Associate Environmental Scientist/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	02/14/19			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
Windward Field Personnel (alternate)	40-hr HAZWOPER	Argus Pacific	01/12/18	Amara Vandervort	Associate Environmental Scientist/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	01/30/19			
	Adult First Aid/CPR/AED	American Red Cross	04/11/19			
Windward Field Personnel (alternate)	40-hr HAZWOPER	Compliance Solutions	09/22/14	Aaron Edgington	Associate Environmental Scientist/Windward	Windward: certificates available on request
	HAZWOPER 8-hr Refresher	Advance Online	10/09/18			
Windward Field Personnel (alternate)	40-hr HAZWOPER	OSEA, Inc.	07/26/19	Amy Shaw	Environmental Scientist/Windward	Windward: certificates available on request
Windward Field Personnel (alternate)	40-hr HAZWOPER	Advance Online	01/12/19	Berit Bergquist	Environmental Scientist/Windward	Windward: certificates available on request
Boat Operator	40-hr HAZWOPER	Aqua Survey, Inc. (in-house instructor)	01/11/05	Matt Shappell	Boat Captain and Field Operations Specialist/Aqua Survey, Inc.	Aqua Survey, Inc.: certificates available upon request
	HAZWOPER 8-hr Refresher	Aqua Survey, Inc. (in-house instructor)	01/07/19			
	US Coast Guard license	US Coast Guard	02/25/19			

[a] If training records and/or certificates are on file elsewhere, document their location in this column. If training records and/or certificates do not exist or are not available, then this should be noted.

OSHA – Occupational Safety and Health Administration QAPP – quality assurance project plan Windward – Windward Environmental LLC

QAPP Worksheet No. 9. Project Scoping Session Participants Sheet

Project Name:	LPRSA Current Conditions Sampling
Site Name:	LPRSA
Projected Date(s) of Sampling:	September/October 2019
Site Location:	LPRSA
Project Managers:	Bill Potter/Robert Law, de maximis, inc.
Date of Session:	April 11, April 18, May 28, and June 13, 2019, scoping meetings and relevant memorandums and communications (May 6 memorandum from CPG to USEPA, May 9 e-mail from USEPA to CPG, June 5 memorandum from USEPA to CPG, June 7 memorandum from CPG to USEPA, and June 14 USEPA comments on CPG's June 7 memorandum)
Scoping Session Purpose:	To discuss and finalize the approach for current conditions biota sampling in the LPRSA

Participants: Team members from USEPA, NJDEP, and CPG

Name[a]	Affiliation	Phone No.	E-mail Address
USEPA Team:			
Diane Salkie	USEPA	212.637.4427	salkie.diane@epa.gov
Michael Sivak	USEPA	212.637.4310	sivak.michael@epa.gov
Chuck Nace	USEPA	212.637.4164	nace.charles@epa.gov
Beth Franklin	USACE	816.389.3581	elizabeth.a.franklin@usace.army.mil
Jonathan Clough	Warren Pinnacle	802.496.3476	jclough@warrenpinnacle.com
John Kern	Kern Statistical Services	320.281.0676	kernstat@gmail.com
Aaron Frantz	CDM Smith, Inc.	610.263.2617	frantzAR@cdmsmith.com
Andrew Bullard	CDM Smith, Inc.	610.263.2613	bullardak@cdmsmith.com
Dan Cooke	CDM Smith, Inc.	732.590.4675	cookedw@cdmsmith.com
Keegan Roberts	CDM Smith, Inc.	303.383.2352	robertsk@cdmsmith.com
Scott Kirchner	CDM Smith, Inc.	732.590.4677	kirchnerSF@cdm.com
Ed Garland	HDR, Inc.	201.335.9364	edward.garland@hdrinc.com
James Wands	HDR, Inc.	201.335.9442	james.wands@hdrinc.com
NJDEP Team:			
Anne Hayton	NJDEP	609.984.9772	anne.hayton@dep.nj.gov
Jay Nickerson	NJDEP	609.633.1448	jay.nickerson@dep.nj.gov
Myla Ramirez	NJDEP	609.984-4622	myla.ramirez@dep.nj.gov
John Wolfe	LimnoTech	310.939.7293	jwolfe@limno.com
CPG Team:			
Robert Law	de maximis, inc.	908.735.9315	rlaw@demaximis.com
Bill Potter	de maximis, inc.	908.735.9315	otto@demaximis.com
Lisa Saban	Windward Env.	206.812.5429	lisas@windwardenv.com
Mike Johns	Windward Env.	207.812.5418	mikej@windwardenv.com

QAPP Worksheet No. 9. Project Scoping Session Participants Sheet (cont.)

Suzanne Replinger	Windward Env.	206.812.5435	suzanner@windwardenv.com
Thai Do	Windward Env.	206.812.5407	thaid@windwardenv.com
Brian Church	Windward Env.	206.812.5416	brianc@windwardenv.com
Kristen Durocher	AECOM	603.581.6608	kristen.durocher@aecom.com
Doug Reid-Green	BASF	908.806.6472	douglas.reid-green@basf.com
Gary Fisher	Nokia of America Corp.	908.516.3256	gary.fisher@nokia.com
Hank Martin	The Elm Group	973.263.5820	hmartin@elminc.com
James Rhea	Anchor QEA	315.453.9009	jrhea@anchorqea.com
John Connolly	Anchor QEA	201.571.0919	jconnolly@anchorqea.com
Mark LaRue	Anchor QEA	315.453.9009	mlarue@anchorqea.com
Peter Israelsson	Anchor QEA	857.991.1111	pisraelsson@anchorqea.com
Susan Harden	AECOM	973.883.8547	susan.harden@aecom.com
Tal Ijaz	EHS Support	412.365.5224	tal.ijaz@ehs-support.com

[a] Attendees present for one or more of the scoping meetings for current conditions biota sampling.

Comments/ Decisions:	The meetings to discuss current conditions biota sampling in the fall of 2019 occurred on April 11, April 18, May 28, and June 13, 2019. The purpose of these meetings was to develop the approach for the current conditions sampling. E-mail communications and memorandums circulated between USEPA and CPG following these meetings, discussing the relevant components of the field sampling program, are also summarized here.
Action Items: **(Retrospective Summary)**	• During the April and May meetings, USEPA and CPG discussed the details for the current conditions sampling approach. • Both USEPA and CPG performed power analyses in an effort to determine an appropriate number of tissue samples to collect during the first year of the current conditions sampling effort. The number of tissue samples needed to be sufficient to detect a 50% reduction in average concentrations assuming 80% power and 95% confidence using a non-parametric evaluation. • Both USEPA and CPG developed an outline/memorandum to describe key details of the proposed sampling approach based on discussions during the April and May meetings. • During the June 13, 2019, meeting, USEPA and CPG discussed details of the sampling approach and design. • On June 14, 2019, USEPA provided direction on CPG's proposed sampling approach memorandum (sent to USEPA on June 7, 2019) that detailed the required sampling approach.

QAPP Worksheet No. 9. Project Scoping Session Participants Sheet (cont.)

Consensus Decisions:	• **Sampling objectives** – USEPA and CPG discussed DQOs for the current conditions sampling program (see Worksheet No. 10).
	  o USEPA and CPG agreed to use graphical and appropriate statistical methods to examine changes in tissue concentrations.
	  o The sampling will occur over a two-year period and will use an adaptive management framework, meaning that the results of the 2019 sampling will be evaluated and used to inform the 2020 sampling event.
	• **Level of effort** – USEPA and CPG agreed on a maximum field effort of 3 weeks (18 field days) for a 6-person field crew.
	  o To optimize resources and success as sampling proceeds, if all desired samples are collected in fewer than the maximum 18 sampling days, USEPA required that CPG should continue the sampling effort to collect additional samples.
	  o If the maximum effort of 18 sampling days is expended without the collection of sufficient samples, no additional field time is required.
	• **Sampling areas** – USEPA directed CPG to break the upper 9 miles into two sampling areas for the current conditions sampling effort: RM 8.3 to RM 15 and RM 15 to Dundee Dam.
	• **Target species** – USEPA directed CPG to target the following species for collection: American eel, blue crab, carp, sunfish (bluegill, pumpkinseed, etc.), white perch, bass (largemouth and smallmouth bass), and catfish (channel catfish and white catfish). USEPA and CPG agreed upon tissue types and size ranges outlined in Worksheet No. 11.
	• **Target number of samples** – USEPA directed CPG to collect a target sample size of 12 to 13 samples per year for a total of 25 samples per species per area over the 2 years of current conditions sampling. CPG repeatedly expressed its concern that USEPA's sample size goals for both the RM 8.3 to RM 15 and RM 15 to Dundee Dam are optimistic for some species, based on 2009/10 results, and are unlikely to be met (especially above RM 15).
	• **Sample type –** USEPA and CPG agreed that all samples would be composite samples, each consisting of three individuals (or five individuals for sunfish to obtain sufficient mass).
	• **Age analysis** – USEPA requested the inclusion of age analysis of all fish included in analytical composites to support the evaluation of the bioaccumulation model. When possible, non-invasive methods (e.g., scales and fin rays/spines) will be preferred over invasive methods (e.g., otoliths).
	• **Analytes** – USEPA directed CPG to analyze samples for the same list of COCs identified in the ROD for the lower 8 miles of the LPRSA: PCDDs/PCDFs and homologs, PCB congeners and homologs, lipids, percent moisture, total mercury and methylmercury, select metals (copper and lead), select organochlorine pesticides (DDx components and dieldrin), and PAHs. This list is presented in the agreed-upon order of prioritization to be used if sample mass is insufficient.

QAPP Worksheet No. 10. Problem Definition

The problem to be addressed by the project:

Most recent data for the LPRSA were collected as part of sampling conducted in 2009/2010. The main objectives of the current conditions sampling effort are as follows:

DQO 1 – Collect sufficient fish/crab biota data prior to performing the potential IR so that appropriate comparisons (e.g., statistical, graphical, etc.) of pre- and post-IR data can be made (to the extent practicable based on the successful collection of sufficient fish/crab) for each target species (i.e., American eel, bass, blue crab, catfish, common carp, sunfish, and white perch) and COC. Comparisons may include both short- and long-term monitoring data in order to determine changes in fish and crab tissue concentrations following completion of the interim remedial action. Target species of fish/crab from two sampling areas (i.e., river mile [RM] 8.3 to RM 15 and RM 15 to Dundee Dam will be collected to the extent practicable based on a reasonable level of effort.[5]

- **RM 8.3 to RM 15** – Based on habitat and previous LPRSA biota sampling, sufficient fish and crab are reasonably likely to be collected to achieve the calculated sample size goals (i.e., 25 composite samples over 2 years as required by USEPA)[6] for most of the target species.
- **RM 15 to Dundee Dam** – Based on habitat and previous LPRSA biota sampling, CPG and USEPA acknowledge that sufficient fish and crab sample collection may not achieve the calculated sample size goals in this area. However, sufficient efforts will be made to achieve the goals within the agreed-upon time frame. Appropriate habitat for most target species above approximately RM 15 to RM 16 is limited (i.e., area is shallower, with higher flow rates and coarser bottom), and the overall length of this sampling area is relatively short (i.e., approximately 2.4 river miles as compared with approximately 6.7 river miles from RM 8.3 to RM 15). As such, a reasonable effort—one that considers the length of the reach, limited access, and less suitable habitat above approximately RM 15 to RM 16—will be made to collect biota in this area. If available fish and crab samples are insufficient for a minimum number of composite samples (i.e., 25 composite samples collected over 2 years as required by USEPA), DQO 3 will be used to determine the future data analysis and collection plan.

DQO 2 – Evaluate bioaccumulation model performance using the current condition fish and crab tissue data and refine model as needed post-ROD.[7]

[5] A reasonable effort is defined as a 3-week field effort (18 field days) conducted by a 6-person field crew (see Worksheet No. 11 for details).
[6] Target numbers of composites were calculated by USEPA using the 2009/2010 LPRSA dataset and based on the ability to detect a 50% reduction in average tissue concentrations assuming 80% power and 95% confidence using a non-parametric evaluation.
[7] The evaluation of the bioaccumulation model performance will require updated CFT model results.

QAPP Worksheet No. 10. Problem Definition

DQO 3 – Identify and refine specific characteristics (e.g., species, abundance, size, age, range, etc.) to support development of both short-term (i.e., current condition sampling program) and long-term (e.g., post-IR) sampling programs. Adjustments to sample sizes will be made, if warranted, following each current condition sampling event.

As discussed with USEPA, the dataset used for DQO 1 will be a combination of biota data collected in 2019 and 2020. An evaluation of the data collected in 2019 will be used to inform the design of the 2020 program. This evaluation, which will be similar to the evaluation used to develop the target sample sizes for Year 1, will include calculating the variance in chemical concentrations for each species, and considering how many additional samples are needed to allow for the above mentioned statistical comparison of the current conditions dataset (i.e., 2019/2020 data) and future the post-remedy datasets. This addendum to the Fish/Decapod QAPP (Windward 2009) describes the fish tissue sampling effort planned for late summer/early fall 2019. The 2020 sampling will be discussed in a separate addendum based on the 2019 results.

The environmental questions being asked:

The questions defined for this effort, which were used to develop the above DQOs, are as follows:

1. In order to evaluate the effect of the proposed IR on tissue concentrations, what are the current concentrations of COCs in fish/crab tissue from RM 8.3 to Dundee Dam?
2. Are the selected species appropriate for short- and long-term monitoring in the LPRSA?
3. How does the LPRSA bioaccumulation model perform using the updated fish/crab data (along with the updated CFT model results) for RM 8.3 to Dundee Dam?
4. Do the fish ages support the growth and consumption rates used in the LPRSA bioaccumulation model?

Further detail on how the data will be used is presented on Worksheet No. 11.

Observations from any site reconnaissance reports:

Specific reconnaissance reports are not applicable. Field crew has considerable knowledge about the site from past sampling efforts conducted from 2009 through 2012. However, there may be changes to the site as a result of development and weather events (e.g., floods), and thus some field reconnaissance may be performed prior to or at the initiation of sampling. The field crew will evaluate habitat (e.g., substrate composition, depth and flow, and shoreline characteristics) with regard to the deployment of sampling gear and locations of other sampling activities (i.e., electrofishing and beach seining) during the field effort.

QAPP Worksheet No. 10. Problem Definition

A synopsis of secondary data or information from site reports:
Information regarding the fish community and fish and crab tissue chemistry data that were collected as part of the 2009/2010 sampling effort in the LPRSA was used to inform the current condition sampling effort (Windward 2011, 2018a, b). Counts of fish collected during each event for the RM 8.3 to Dundee Dam sampling area are summarized in Table 10-1.
The possible classes of contaminants and the affected matrices:
There are several different classes of organic and inorganic contaminants in the LPRSA, many of which may accumulate in fish and crab. Per USEPA's direction, fish and crab tissue samples will be analyzed for the following analytes, consistent with the COCs identified in the ROD for the lower 8 miles of the LPRSA, which were identified as COCs in the LPRSA HHRA and/or ERA: PCDDs/PCDFs and homologs, PCB congeners and homologs, select metals (methylmercury, mercury, copper, and lead), select organochlorine pesticides (DDDs, DDEs, DDTs, and dieldrin), and PAHs, as well as lipid content and percent moisture. Worksheet No. 15 lists the specific parameters that will be analyzed in each of these chemical classes.
The rationale for inclusion of chemical and non-chemical analyses:
Fish and crab tissue residue concentrations will provide updated information regarding the current chemical concentrations in LPRSA fish and crab tissue to satisfy both DQO 1 (i.e., the collection of pre-interim remedy data) and DQO 2 (i.e., the evaluation of the bioaccumulation model performance). Fish aging will provide information to evaluate (and if needed, refine) the bioaccumulation model for DQO 2.
Information concerning various environmental indicators:
As described in the summary of secondary data section of this worksheet and Table 10-1, a considerable amount of tissue chemistry data were collected in 2009/2010 for the LPRSA to support the baseline ERA and HHRA. The data collected as part of this sampling effort will provide a useful baseline of current conditions for assessing temporal trends in bioaccumulation relative to the implementation of a potential IR.
Project decision conditions:
The conditions for project decisions (i.e., those decisions that may require communication between CPG and USEPA during the field event and prior to laboratory analysis) include changes to the target species and size ranges (if necessary), the planned sampling approach, the development of the compositing plan, and the prioritization of chemical analyses if insufficient tissue is collected.

QAPP Worksheet No. 10. Problem Definition

Pursuant to USEPA's direction, CPG has identified target species and size ranges for the sampling area (as presented in Worksheet No. 11). Frequent communication with USEPA will be maintained during the sampling effort to discuss the species and sizes of individuals that are collected. If, based on field crew observations, a change in the target size of a species is needed, USEPA will be contacted immediately.

A pre-homogenization minimum tissue mass of 90 g and a post-homogenization mass of 70 g will be needed, per sample, for analysis of all proposed chemical groups.[8] A mass of 20 g has been added to the minimum mass requirement for chemical analyses to account for tissue lost during processing and homogenization, for a total pre-homogenization minimum mass of 90 g. The minimum mass requirements per chemical group are provided in the priority list below. Mass requirements have been optimized with each analytical laboratory such that they are the lowest required to achieve the detection limits presented in Worksheet 15. The minimum mass does not include sufficient mass for re-extractions or matrix-specific QC samples. If a post-homogenization minimum mass of 90 g is not obtained, the following priority list for the chemical analyses of tissue samples will be considered:

1. PCDDs/PCDFs (10-g minimum mass)
2. PCB congeners (10-g minimum mass)
3. Lipids (5-g minimum mass)
4. Percent moisture (5-g minimum mass)
5. Total mercury and methylmercury (10-g minimum mass)
6. Select metals (copper and lead; 10-g minimum mass)
7. Select organochlorine pesticides (six DDX components [2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT] and dieldrin; 10-g minimum mass)
8. PAHs (10-g minimum mass)

As discussed with USEPA, all samples will be analyzed as composites, each consisting of three individuals, with the exception of sunfish, each composite of which will consist of five individuals. Composites will be determined following the conclusion of sample collection and will consider the size of the individuals and the catch location; compositing is further described in Worksheet No. 11. Once sampling efforts are complete, a compositing plan memorandum will be prepared for discussion with and approval by USEPA.

Pursuant to USEPA's direction, CPG has prepared flow charts documenting the general decision process that will be implemented during the collection of samples in the field have been prepared and are provided in Attachment W.

[8] It should be noted additional mass will be required to include the analysis of matrix-specific QC samples and to accommodate USEPA split sample objectives.

QAPP Worksheet No. 10. Problem Definition

Table 10-1. Fish community survey results for the Lower Passaic River (RM 8.3 to Dundee Dam)

		2009		2010								Total (2009/2010 Combined)	
		Late Summer/ Early Fall 2009		Winter 2010		May 2010 (Small Forage Fish)		Late Spring/ Early Summer 2010		Late Summer 2010 (Small Forage Fish)			
Common Name	Scientific Name	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]
American eel	*Anguilla rostrata*	608	37	-	-	22	46	80	11	-	-	710	21
Atlantic menhaden	*Brevoortia tyrannus*	-	-	-	-	-	-	40	5	-	-	40	1
Atlantic silverside	*Menidia menidia*	-	-	-	-	-	-	-	-	12	1	12	<1
Banded killifish	*Fundulus diaphanus*	40	2	1	13	-	-	-	-	23	3	64	2
Black crappie	*Pomoxis nigromaculatus*	1	<1	-	-	-	-	-	-	-	-	1	<1
Blue crab	*Callinectes sapidus*	240	15	-	-	-	-	64	9	3	<1	307	9
Bluegill	*Lepomis macrochirus*	67	4	-	-	7	15	40	5	23	3	137	4
Brown bullhead	*Ameiurus nebulosus*	5	<1	-	-	1	2	2	-	-	-	8	<1
Catfish (unspecified)	na	1	<1	-	-	-	-	-	-	-	-	1	<1
Channel catfish	*Ictalurus punctatus*	15	1	1	13	-	-	1	-	-	-	17	<1
Common carp	*Cyprinus carpio*	171	10	3	38	3	6	16	2	-	-	193	6
Gizzard shad	*Dorosoma cepedianum*	5	<1	-	-	-	-	1	-	111	12	117	4
Green sunfish	*Lepomis cyanellus*	-	-	-	-	2	4	-	-	-	-	2	<1
Inland silverside	*Menidia beryllina*	-	-	-	-	-	-	-	-	21	2	21	<1
Largemouth bass	*Micropterus salmoides*	15	1	-	-	-	-	2	-	1	<1	18	<1
Longnose gar	*Lepisosteus osseus*	-	-	-	-	-	-	-	-	1	<1	1	<1
Mottled sculpin	*Cottus bairdii*	3	<1	-	-	-	-	-	-	-	-	3	<1
Mummichog	*Fundulus heteroclitus*	1	<1	-	-	-	-	-	-	311	35	312	9
Northern pike	*Esox lucius*	2	<1	-	-	-	-	-	-	-	-	2	<1
Pumpkinseed	*Lepomis gibbosus*	100	6	-	-	4	8	5	1	5	1	114	3
Redbreast sunfish	*Lepomis auritus*	105	6	-	-	5	10	2	0			112	3
Redfin pickerel	*Esox americanus americanus*	-	-	-	-	-	-	1	<1	-	-	1	<1
Rock bass	*Ambloplites rupestris*	9	1	-	-	-	-	4	1	-	-	13	<1

QAPP Worksheet No. 10. Problem Definition

Common Name	Scientific Name	2009		2010								Total (2009/2010 Combined)	
		Late Summer/ Early Fall 2009		Winter 2010		May 2010 (Small Forage Fish)		Late Spring/ Early Summer 2010		Late Summer 2010 (Small Forage Fish)			
		N	% of Total[a]	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]	N	% of Total[a]
Satinfin shiner	*Notropis analostanus*	3	<1	-	-	-	-	-	-	-	-	3	<1
Shiner (unspecified)	na	-	-	-	-	-	-	34	5	-	-	34	1
Silver shiner	*Notropis photogenis*	-	-	-	-	-	-	-	-	62	7	62	2
Smallmouth bass	*Micropterus dolomieu*	19	1	-	-	-	-	14	2	4	<1	37	1
Spottail shiner	*Notropis hudsonius*	19	1	1	13	-	-	139	19	26	3	185	6
Striped bass	*Morone saxatilis*	13	1	-	-	-	-	3	<1	10	1	26	<1
Striped killifish	*Fundulus majalis*	-	-	-	-	1	2	1	<1	9	1	11	<1
Striped mullet	*Mugil cephalus*	1	<1	-	-	-	-	-	-	7	1	8	<1
Sucker (unspecified)	na	-	-	-	-	-	-	15	2	-	-	15	<1
Tessellated darter	*Etheostoma olmstedi*	16	1	1	13	-	-	29	4	1	<1	47	1
White catfish	*Ameiurus catus*	18	1	1	13	-	-	2	<1	-	-	21	<1
White perch	*Morone americana*	127	8	-	-	3	6	233	32	259	29	622	19
White sucker	*Catastomus commersoni*	37	2	-	-	-	-	-	-	1	<1	38	1
Total Number of Species[b]		**26**		**6**		**9**		**22**		**19**		**36**	
Total Count of Individuals Collected		**1,641**		**8**		**48**		**728**		**890**		**3,315**	

Source: Windward (2010, 2011). Target species for this Fish/Decapod QAPP Addendum No. 7 are indicated with yellow shading.

[a] Percent of total number of fish caught during a given sampling effort (or overall).

[b] Total number of species identified.

na – not applicable

QAPP – quality assurance project plan

RM – river mile

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements

Who will use the data?
The data collected under this QAPP will be used by CPG and USEPA to characterize current concentrations of COCs in fish and crab tissue prior to a potential IR. In addition, these data (along with updated CFT model inputs) will be used by CPG and USEPA to evaluate the LPRSA bioaccumulation model. These data will also be used to inform future sampling activities, including the 2020 event, and to identify potential species for long-term monitoring following remedial action. These data will also be used by the New Jersey Department of Environmental Protection (NJDEP) to evaluate contaminant levels relative to current state fish consumption advisories.
What will the data be used for?
The data collected during this sampling effort will be used to establish current COC conditions in fish/crab tissue and evaluate the performance of the bioaccumulation model for the LPRSA. These data will also support planning for future short- and long-term sampling programs. **Assessment endpoint – Establishing current conditions for evaluation of trends** The tissue chemistry data will be used to support the evaluation of trends (e.g., using statistical and graphical methods) for the target species (i.e., American eel, bass, blue crab, catfish, common carp, sunfish, and white perch) and COCs (DQO 1) following the implementation of the IR. **Assessment endpoint – Bioaccumulation model performance** The tissue chemistry data (along with updated CFT model runs that will serve as bioaccumulation model inputs) will be used to support the evaluation (and if needed, refinement) of the LPRSA bioaccumulation model. This evaluation will also use the fish aging information to evaluate the growth and consumption rate equations used in the model. **Assessment endpoint – Support Short- and Long-term Monitoring Programs** Catch records and concentration data from the current conditions sampling will be used to evaluate the appropriateness of the target species for short- and long-term monitoring in the LPRSA (DQO 3).
What types of data are needed (matrix, target analytes, analytical groups, field screening, on-site analytical or off-site laboratory techniques, sampling techniques)?
The following types of data will be collected as part of this effort to address the assessment endpoints described above:

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

1. Fish and crab tissue samples will be collected from RM 8.3 to Dundee Dam and analyzed for PCDDs/PCDFs, PCB congeners, lipid content, percent moisture, select metals (methylmercury, mercury, copper, and lead), select organochlorine pesticides (DDDs, DDEs, DDTs, and dieldrin), and PAHs.
2. Fish and crab will be collected using a variety of sampling methods, including gillnets, trotlines, eel traps, minnow traps, crab traps, beach seines, and backpack and boat electrofishing units (Worksheet No. 17). The sampling gear used will be determined at the time of sampling based on an assessment of which gear would be most appropriate and potentially effective for that particular location in the LPRSA. Some factors to be considered when selecting appropriate sampling gear and locations include site accessibility, target species and sizes, substrate, water depth, and habitat structure.
3. For fish submitted for chemistry analysis, fish aging will be done to support the evaluation of bioaccumulation model performance. To ensure that fish used for analytical composites are not damaged, non-invasive aging techniques will be utilized whenever possible (i.e., fin rays/spines or scales will be used to age fish). If a non-invasive method is not available (e.g., for American eel), aging will be done using otoliths; care will be taken to retain all tissue during the otolith extraction process for use in the analytical composite.

Matrix

The types of tissue samples to be collected for chemical analyses for each species are described below and presented in Table 11-1.

Target species and tissue types

The target species identified for collection as part of the current condition sampling effort include American eel (*Anguilla rostrata*), bass (largemouth bass [*Micropterus salmoides*] and smallmouth bass [*Micropterus dolomieu*]), blue crab (*Callinectes sapidus*), catfish (channel catfish [*Ictalurus punctatus*]) and white catfish [*Ameiurus catus*]), common carp (*Cyprinus carpio*), sunfish (primarily bluegill [*Lepomis macrochirus*], pumpkinseed [*Lepomis gibbosus*], redbreast sunfish [*Lepomis auritus*]), and white perch (*Morone americana*). The selection of these species as target species considered their importance in the risk assessments completed as part of the RI/FS for the LPRSA, their inclusion in the bioaccumulation model, their site fidelity (i.e., typical foraging area), and their salinity tolerance (i.e., species with low salinity tolerances are restricted to the upper portion of the LPRSA). To allow for the evaluation of tissue types relevant to the IR performance and the bioaccumulation model, tissue samples for the target species will include the following:

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

1. **American eel, bass, catfish, common carp, and white perch** – These fish were selected as target species because 1) they are relevant to the evaluation of trends following implementation of the IR (they were collected to support the evaluation of risk associated with human consumption in the baseline HHRA and ecological receptors in the baseline ERA), and 2) they are included in the bioaccumulation model. Thus, tissue will be analyzed as both fillet and carcass samples, and reconstituted whole-body concentrations will be derived by combining the analytical results for fillet and carcass samples and adjusting for the relative weight of each fraction, consistent with FSP2 (Malcolm Pirnie et al. 2006) and the 2009/2010 sampling efforts (Windward 2011, 2018a, b).
2. **Blue crab** – Blue crab were selected as a target species because 1) they are relevant to the evaluation of trends following implementation of the IR (crab were collected to support the evaluation of risk associated with human consumption in the baseline HHRA and ecological receptors in the baseline ERA), and 2) they are included in the bioaccumulation model. Thus, blue crab tissue will be analyzed separately as muscle/hepatopancreas and carcass samples; reconstituted whole-body concentrations will be calculated.
3. **Sunfish** – Sunfish were selected as a target species because 1) they are relevant to the evaluation of trends following implementation of the IR (sunfish were collected to support the evaluation of risk to ecological receptors in the baseline ERA), and 2) they are included in the bioaccumulation model. Thus, samples of these species will be analyzed as whole-body samples.

Target sizes

The target sizes for each of the species identified for collection as part of the current conditions sampling effort are presented in Table 11-1. In addition to the target size range, minimum size for retention is presented to help ensure that sufficient numbers of fish/crab are collected. The target size range and minimum retention size were developed using the 2009/2010 fish community data in an attempt to ensure that fish/crab in the specified ranges would be present in sufficient numbers between RM 8.3 and the Dundee Dam during sampling. In addition, these ranges consider the minimum legal catch size (as available for a given species). Target size ranges are:

1. American eel: 400 to 600 mm (15.7 to 23.6 in.)
2. Bass species: 200 to 300 mm (7.9 to 11.8 in.)
3. Blue crab: 125 to 145 mm (4.9 to 5.7 in.)
4. Catfish species: 400 to 500 mm (15.7 to 19.7 in.)
5. Common carp: 500 to 600 mm (19.7 to 23.6 in.)
6. Sunfish species: 100 to 140 mm (3.9 to 5.5 in.)

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

7. White perch: 150 to 200 mm (5.9 to 7.9 in.)

Total body lengths for fish and carapace widths for blue crab will be measured as specified in USEPA guidance (2000).

The sizes of fish and crab to be included in each composite will be considered as part of the development of the compositing plan, which will be developed in collaboration with USEPA. Ideally, all individuals included in a given composite will be of similar size so that the smallest individual in a composite is no less than 75% of the length of the largest individual (USEPA 2000). However, this target size requirement will be evaluated in conjunction with USEPA to determine whether this guideline can realistically be applied for some species that are less abundant during sampling.

Individuals per composite

As was discussed and agreed to with USEPA (Worksheet No. 9), composites consisting of three fish/crab each (or five fish per composite for sunfish) was determined to be a reasonable approach for the current conditions sampling effort. This approach was selected because: 1) as described in USEPA guidance (USEPA 1989, 2000, 2002), composite samples provide the best estimate of the mean concentration; and 2) composite samples help ensure that sufficient mass is available for all analytical samples (even when separate fillet and carcass [or for crab, muscle/hepatopancreas and carcass] samples are analyzed). An evaluation of the 2009/2010 weight data was conducted for the target species, and with the exception of sunfish, three fish per composite should be sufficient to achieve the minimum target mass of 90 g of tissue per sample.[9] For sunfish, five fish will be included in each composite to achieve the desired tissue mass.

How "good" do the data need to be in order to support the environmental decision?

The data will be used to support the evaluation of trends following implementation of the IR, and to evaluate and (if needed) refine the bioaccumulation model for the LPRSA. Consequently, the data need to be collected using a design that specifically addresses the DQOs developed for this study and the questions that are being posed (see Worksheet No. 10).

It is inevitable that the variability in tissue concentrations will differ across species as a result of differing life histories (e.g., home ranges) and within species over time (e.g., due to natural variability). The target number of samples is intended to provide a statistically defensible estimate of the mean COC concentration in fish/crab tissue, and to allow for the evaluation of trends (i.e., statistically and graphically) following implementation of the IR.

How much data are needed (number of samples for each analytical group, matrix, and concentration)?

[9] Additional tissue mass will be needed for certain samples to accommodate USEPA split sample objectives. Once the compositing memorandum is approved, USEPA may select target samples for splits. If the mass of a target sample is insufficient to provide splits, USEPA will be notified and an alternative sample may be selected.

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

As discussed with USEPA (see Worksheet No. 9), the dataset used for DQO 1 will be a combination of biota data collected in 2019 and 2020. The overall approach to estimate the number of samples to be used to represent tissue types for target receptors in the two sampling areas was based on the following steps:

1. Existing fish and crab tissue data from the 2009/2010 sampling effort were evaluated for key contaminants (i.e., PCBs and 2,3,7,8-tetrachlorodibenzo-*p*-dioxin [TCDD]) to help determine statistical characteristics (e.g., mean, variability, and skewness) of tissue residues in target receptors.
2. Non-parametric statistical methods were used to calculate target numbers of composites needed to detect a 50% reduction in average tissue concentrations, assuming 80% power and 95% confidence. Non-parametric sample size calculations were based on Monte Carlo simulations of lognormal distributions fit to 2009/2010 fish tissue COC concentrations. To simulate a post-remedy reduction in tissue concentrations, one of two distribution means was shifted down by 50% prior to randomly sampling data by the Monte Carlo method. Each of the two distributions was randomly sampled 2,000 times at sample sizes between n = 5 and n = 50; the random samples from the two distributions were then compared 2,000 times using a one-tailed Mann-Whitney U test (alpha = 0.05) to estimate statistical power. Target sample sizes were identified as those satisfying the desired levels of power and confidence noted above (at the desired level of 50% chemical reduction).

Target sample sizes for fish and crab tissue are summarized in Table 11-1 and are based on direction from USEPA, as presented in Worksheet No. 9.

Where, when, and how should the data be collected/generated?

Pursuant to USEPA's direction (as summarized in Worksheet No. 9), the general sampling design is described below. Inasmuch as it may not be possible to collect adequate tissue mass to constitute a full analytical sample, the following sampling design considerations will be implemented in coordination with USEPA during sampling to either ensure that QAPP elements are satisfied, or to determine whether they need to be adjusted.

Sampling Areas

The general sampling design divides the upper portion of the LPRSA, from RM 8.3 to Dundee Dam, into two sampling areas: RM 8.3 to RM 15 and RM 15 to Dundee Dam.

Sampling Locations

Bank-specific sampling locations will be targeted in likely habitat areas in each river mile. Target sampling locations will be identified during the field sampling effort based on *in situ* habitat conditions and observations, suitability for the deployment of the appropriate sampling gear or method, and site accessibility. Target sampling locations will not be identified in areas near a combined sewer overflow or other potential point sources. On-site USEPA oversight personnel will be consulted to identify target sampling locations.

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

Collection Methods

For each 1-river mile segment, a minimum of one set of crab traps, one set of eel traps, one set of minnow traps, one set of trotlines, and one gillnet will be deployed. A gear set is composed of three traps or trotlines. Traps, trotlines, and gillnets will be left to soak overnight for five nights and checked daily.

Electrofishing will be conducted opportunistically for a minimum of approximately 1.5 hours each day (9 hours/week), wherever habitat and site conditions are suitable and accessibility permits. Similarly, beach seining will be conducted for a minimum of approximately 1.5 hours each day (minimum of 9 hours/week) to collect sunfish where shallow, wadeable areas are present with suitable habitat for the target species, and where it is safe to do so.

Timing

This tissue sampling effort is targeted for late summer/early fall (September/October) 2019, consistent with the timing of the prior sampling efforts in 2009 (in the LPRSA below Dundee Dam) and 2012 (above Dundee Dam). The current conditions sampling is planned as a 3-week effort (total of 18 field days) by a 6-person field crew. The planned approach is that one team will focus efforts on traps/trotlines and beach seining, while the other team will focus on gillnetting and electrofishing. However, the specifics of the daily sampling activities will be determined by the field coordinator to maximize endeavors during the three-week sampling effort.

Each week will consist of 6 sampling days (i.e., a maximum of 18 days of sampling) to accommodate 5 overnight soaks for the selected gear sets. Based on field crew knowledge of the site from past sampling efforts, the area from RM 8.3 to approximately RM 16 is accessible by boat; areas above this boundary were previously sampled from land where access to the LPRSA shoreline was possible. The NJDEP Scientific Collection Permit (19-046, dated July 24, 2019) precludes the use of gillnets prior to September 15, 2019.

Thus, the three-week sampling event will be organized as follows. Like the organization of the field crew, the field coordinator may modify this schedule as needed to maximize catch success.

- **Week 1** – Sampling by boat from RM 8.3 to RM 12 (six field days)
- **Week 2** – Sampling by boat from RM 12 to approximately RM 16 (or farthest upstream area accessible by boat) (six field days)
- **Week 3** – Sampling by land from approximately RM 16 to Dundee Dam (where access is possible) and additional sampling by boat to fill in gaps for RM 8.3 to RM 16 (six field days)

Table 11-2 presents the level of effort for each sampling segment and gear type.

All changes to the proposed plan necessitated by field conditions, sampling optimization, or lack of species availability will be communicated between USEPA and CPG technical coordinators or project managers (PMs).

Who will collect and generate the data?

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

As described in Worksheet No. 7, Windward will provide the field sampling coordination and most of the field personnel required to conduct the tissue collection efforts, as well as laboratory coordination and support.

How will the data be reported?

Daily catch results will be communicated (e.g., by telephone conversation or e-mail) to CPG Project Managers and Project Coordinators.

An electronic database that includes details for each individual fish/crab sampling location will be provided. The database will include type and time of trap/gear deployment and retrieval (or start/stop time for each beach seine and electrofishing effort); global positioning system (GPS) coordinates; water depth at trap/gear location; time of fish/crab collection; and species, length, weight, and gender (if determinable) of all individuals collected and retained for analysis. The electronic database will be updated daily and available for USEPA on a daily basis.

Once sampling efforts are complete, Windward will prepare a compositing plan memorandum. This memorandum will summarize the results of the sampling effort (i.e., number of fish per species, abundance by area, as well as length, weight, and gender [when possible] for all organisms). The compositing scheme will consider the following:

- Fish size – Ideally, all individuals included in a given composite will be of similar size so that the smallest individual in a composite is no less than 75% of the length of the largest individual (USEPA 2000). However, this target size requirement will be evaluated in conjunction with USEPA to determine whether this guideline can realistically be applied for some species that are less abundant during sampling.
- Collection location – Fish collected from the same location or from nearby locations will be preferentially grouped together to help evaluate spatial patterns.
- Species – For species groups for which multiple species are targeted (i.e., bass, catfish, and sunfish), composites will be composed of a single species when possible, although it will also be necessary to consider size and catch location when determining composites.

A data report summarizing the tissue collection and analytical results will be provided to USEPA 90 days after receipt of validated chemical data. In addition, this report will include a map that presents the tissue collection locations and a summary of all fish collected during the effort. The data report will summarize any modifications to the proposed sampling plan as outlined in this QAPP addendum.

How will the data be archived?

Data records, forms, and notes will be scanned and stored electronically in a project file. Hard copies will be archived at Windward's main office in Seattle, Washington. Similarly, the data reports will be issued and then archived electronically. The analytical results

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

will also be provided, as electronic data deliverables (EDDs), to the project database. Multimedia electronic data deliverables (MEDDs) will be provided to USEPA by Windward in the required format.

Table 11-1. Summary of sample design for Year 1 fish and crab tissue collection

Species	No. of Fish/Crab per Composite	Target No. of Composite Samples		Tissue Types[a]	Target No. of Analytical Samples	Size Range (mm)	
		RM 8.3 to RM 15	RM 15 to Dundee Dam			Target Range	Minimum Retention Size
American eel	3	12 (36 fish)	12 (36 fish)	skinless fillet and carcass with skin	48	400–600	≥ 350
Bass[b]	3	12 (36 fish)	12 (36 fish)	skin-on fillet and carcass	48	200–300	≥ 150
Blue crab	3	12 (36 crab)	12 (36 crab)	muscle/hepatopancreas and carcass	48	125–145	≥ 115
Catfish[c]	3	12 (36 fish)	12 (36 fish)	skinless fillet and carcass	48	400–500	≥300
Common carp	3	12 (36 fish)	12 (36 fish)	skin-on fillet and carcass	48	500–600	≥ 500
Sunfish[d]	5	12 (60 fish)	12 (60 fish)	whole body	24	100–140	≥ 80
White perch	3	12 (36 fish)	12 (36 fish)	skin-on fillet and carcass	48	150–200	≥ 125
Total number of analytical samples					**312**	-	-

[a] Carcass tissue will be composed of the remaining (non-fillet) portion. Tissue type concentrations will be combined mathematically (proportionally to their average weights in each species) to calculate whole-body concentrations.

[b] Bass species include largemouth bass (*Micropterus salmoides*) and smallmouth bass (*Micropterus dolomieu)*.

[c] Catfish species include channel catfish (*Ictalurus punctatus*) and white catfish (*Ameiurus catus)*.

[d] Based on the 2009/2010 sampling efforts, sunfish species primarily include bluegill (*Lepomis macrochirus*), pumpkinseed (*Lepomis gibbosus*), and redbreast sunfish (*Lepomis auritus*). Other species may also be retained for compositing and analysis.

RM – river mile

QAPP Worksheet No. 11. Project Quality Objectives/Systematic Planning Process Statements (cont.)

Table 11-2. Overview of sampling types and level of effort

Sampling Method	Sampling Method Details[a]	Week 1	Week 2	Week 3
		RM 8.3 to RM 12	RM 12 to RM 16	RM 16 to Dundee Dam
Crab trap	trap sizes of 24×12×12 in. and 24×24×12 in.	4 sets (of 3 traps) for 5 overnight soaks (i.e., 1 set per river mile)	4 sets (of 3 traps) for 5 overnight soaks (i.e., 1 set per river mile)	2 sets (of 3 traps) for 5 overnight soaks
Commercial eel traps	trap size of 12×12×24 in.	4 sets (of 3 traps) for 5 overnight soaks (i.e., 1 set per river mile)	4 sets (of 3 traps) for 5 overnight soaks (i.e., 1 set per river mile)	2 sets (of 3 traps) for 5 overnight soaks
Minnow traps	mix of flat-bottom semi-oval traps (28×20×13 in. with 4.75-in. opening) and cylindrical traps (2.5-in. opening)	4 sets (of 3 traps) for 5 overnight soaks (i.e., 1 set per river mile)	4 sets (of 3 traps) for 5 overnight soaks (i.e., 1 set per river mile)	2 sets (of 3 traps) for 5 overnight soaks
Trotline sets	50–100-ft length with hooks approximately every 5 ft (hook sizes 4 and 6)	4 sets (of 3 trotlines) for 5 overnight soaks (i.e., 1 set per river mile)	4 sets (of 3 trotlines) for 5 overnight soaks (i.e., 1 set per river mile)	not applicable; habitat not appropriate for trotlines
Gillnets	various lengths and mesh sizes (50- to 150-ft length; some with single mesh size (1.5 in.) and others with variable mesh sizes (1–3 in.)	4 gillnets for 5 overnight soaks (i.e., one per river mile)	4 gillnets for 5 overnight soaks (i.e., one per river mile)	not applicable; habitat not appropriate for gillnets
Beach seining	20-ft seine with 0.25-in. mesh	Minimum of an average of 1.5 hours per day (9 hours per week) at appropriate locations. Locations will depend of habitat suitability and presence of shallow, wadeable waters where safe to seine.		
Electrofishing	boat and backpack electrofishing units	Minimum of an average of 1.5 hours per day (9 hours per week) at appropriate locations (by boat from RM 8.3 to RM 16; backpack above RM 16). Locations will depend on habitat suitability and site access.		

[a] General details are provided herein; additional gear may be used during the sampling effort.

RM – river mile

QAPP Worksheet No. 12. Measurement Performance Criteria Table

Matrix	Tissue
Analytical Group[a]	PCDDs/PCDFs
Concentration Level	Low

Sampling Procedure[b]	Analytical Method/SOP[c]	DQIs	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)
Attachments J, L, N and O	USEPA 1613B/ T3	Accuracy/bias – contamination	No target compounds above minimum level; compound specific (refer to laboratory SOP)	MB	A
	USEPA 1613B/ T3	Accuracy/ bias/precision	Recoveries of spiked analytes within compound-specific limits (refer to laboratory SOP)	LCS/LCSD	A
	USEPA 1613B/T3	Accuracy/ bias – contamination	No target compound > QL	Equipment rinsate blanks[d]	S & A
	USEPA 1613B/T3	Accuracy/bias	Compound specific (refer to laboratory SOP)	Extraction standard	A
	USEPA 1613B/T3	Accuracy/bias	Percent difference of certified target analytes should be within 25% of consensus values or recovery within limits set by CRM manufacturer (whichever is greater) when within the ICAL	CRM	A
	USEPA 1613B/T3	Precision	RPD ≤ 35% when within the calibration curve and the sample is a true laboratory duplicate	MD[e]	S & A
	USEPA 1613B/T3	Completeness	≥ 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No. 15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
ICAL – initial calibration
LCS – laboratory control sample
LCSD – laboratory control sample duplicate
MB – method blank
MD – matrix duplicate
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue				
Analytical Group[a]	PCB – Congeners				
Concentration Level	Low				
Sampling Procedure[b]	**Analytical Method/SOP[c]**	**DQIs**	**Measurement Performance Criteria**	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)**
Attachments J, L, N, and O	USEPA 1668A/T2	Accuracy/bias – contamination	No target compounds above minimum level; compound specific (refer to laboratory SOP)	MB	A
	USEPA 1668A/T2	Accuracy/bias/precision	Recoveries of spiked analytes within compound-specific limits (refer to laboratory SOP)	LCS/LCSD	A
	USEPA 1668A/T2	Accuracy/bias – contamination	No target compound > QL	Equipment rinsate blanks[d]	S & A
	USEPA 1668A/T2	Accuracy/bias	Compound specific (see laboratory SOP)	Extraction standard	A
	USEPA 1668A/T2	Accuracy/bias	Percent difference of certified target analytes should be within 25% of consensus values or recovery within limits set by CRM manufacturer (whichever is greater) when within the ICAL.	CRM	A
	USEPA 1668A/T2	Precision	RPD should be ≤ 35% when within the curve and the sample is a true laboratory duplicate	MD[e]	S & A
	USEPA 1668A/T2	Completeness	≥ 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No. 15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
ICAL – initial calibration
LCS – laboratory control sample
LCSD – laboratory control sample duplicate
MD – matrix duplicate
PCB – polychlorinated biphenyl
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue
Analytical Group[a]	Lipids
Concentration Level	Low

Sampling Procedure[b]	Analytical Method/SOP[c]	DQIs	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)
Attachments J, L, N and O	NOAA Technical Memorandum NOS ORCA 130/T23	Precision	RPD ≤ 20%	MD[d]	S & A
	NOAA Technical Memorandum NOS ORCA 130/T23	Contamination	≤ MRL	MB	A
	NOAA Technical Memorandum NOS ORCA 130/T23	Accuracy	Recovery within +/- 20% of limits set by CRM manufacturer	CRM	A
	NOAA Technical Memorandum NOS ORCA 130/T23	Completeness	> 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
MB – method blank
MD – matrix duplicate
MRL – method reporting limit
NOAA – National Oceanic and Atmospheric Administration
NOS – National Ocean Service
ORCA – Ocean Resources Conservation and Assessment
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue				
Analytical Group[a]	Percent Moisture				
Concentration Level	Not Applicable				
Sampling Procedure[b]	**Analytical Method/SOP[c]**	**DQIs**	**Measurement Performance Criteria**	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)**
Attachments J, L, N and O	SM 2540G Mod./T24	Precision	RPD ≤ 20%	MD[d]	S & A
	SM 2540G Mod./T24	Completeness	> 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] May be omitted if sample mass is limited.

DQI – data quality indicator
MD – matrix duplicate
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SM – standard method
SOP – standard operating procedure

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue				
Analytical Group[a]	Total Mercury				
Concentration Level	Low				
Sampling Procedure[b]	**Analytical Method/SOP[c]**	**DQIs**	**Measurement Performance Criteria**	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)**
Attachments J, L, N and O	USEPA 1631/ T14, T15	Accuracy/bias – contamination	Average MB < 2 × MRL and standard deviation < MDL or < 0.1 × the concentration of project samples	MB	A
	USEPA 1631/ T14, T15	Accuracy/bias – contamination	No target compound > QL	Equipment rinsate blanks[d]	S & A
	USEPA 1631/ T14, T15	Accuracy/bias	Percent recovery = 75–125% or recovery within limits set by CRM manufacturer (whichever is greater)	CRM	A
	USEPA 1631/ T14, T15	Accuracy/bias, precision	Percent recovery = 70–130%, RPD ≤ 30%	MS[e]/MSD[e]	S & A
	USEPA 1631/ T14, T15	Precision	RPD ≤ 30% or 2x MRL if results ≤ 5x MRL	MD[e]	S & A
	USEPA 1631/ T14, T15	Completeness	≥ 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
MB – method blank
MD – matrix duplicate
MDL – method detection limit
MRL – method reporting limit
MS – matrix spike
MSD – matrix spike duplicate
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue
Analytical Group[a]	Methylmercury
Concentration Level	Low

Sampling Procedure[b]	Analytical Method/SOP[c]	DQIs	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)
Attachments J, L, N and O	USEPA 1630/T16	Accuracy/bias – contamination	MB ≤ 2 × MDL, standard deviation ≤ 2/3 MDL or 1/10 of associated samples	MB	A
	USEPA 1630/T16	Accuracy/bias – contamination	No target compound > QL	Equipment rinsate blanks[d]	S & A
	USEPA 1630/T16	Accuracy/bias	Within 35% of certified value	CRM	A
	USEPA 1630/T16	Accuracy/bias, precision	Percent recovery = 65–135%, RPD ≤ 35%	MS[e]/MSD[e]	S & A
	USEPA 1630/T16	Precision	RPD ≤ 35% or ±2 × MRL if samples < 5 × MRL	MD[e]	S & A
	USEPA 1630/T16	Completeness	≥ 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
MB – method blank
MD – matrix duplicate
MDL – method detection limit
MRL – method reporting limit
MS – matrix spike
MSD – matrix spike duplicate
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue				
Analytical Group[a]	Metals (ICP/MS)				
Concentration Level	Low				
Sampling Procedure[b]	**Analytical Method/SOP[c]**	**DQIs**	**Measurement Performance Criteria**	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)**
Attachments J, L, N and O	USEPA SW-846 6020B/T10	Accuracy/bias – contamination	No target compound > QL	MB	A
	USEPA SW-846 6020B/T10	Accuracy/bias – contamination	No target compound > QL	Equipment rinsate blanks[d]	S & A
	USEPA SW-846 6020B/T10	Accuracy/bias	Percent recovery = 75–125%	LCS	A
	USEPA SW-846 6020B/T10	Accuracy/bias	Percent recovery = 75–125%	MS[e]	S & A
	USEPA SW-846 6020B/T10	Precision	RPD ≤ 30%	MD[e]	S & A
	USEPA SW-846 6020B/T10	Accuracy/bias	Vendor-provided limits	CRM	A
	USEPA SW-846 6020B/T10	Completeness	≥ 90%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
ICP/MS – inductively coupled plasma/mass spectrometry
LCS – laboratory control sample
MD – matrix duplicate
MS – matrix spike
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
SW – solid waste
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue				
Analytical Group[a]	Organochlorine Pesticides				
Concentration Level	Low				
Sampling Procedure[b]	**Analytical Method/SOP[c]**	**DQIs**	**Measurement Performance Criteria**	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analysis (A) or Both (S & A)**
Attachments J, L, N and O	USEPA 1699 Mod./T7	Accuracy/bias – contamination	No target compound > QL	MB	A
	USEPA 1699 Mod./T7	Accuracy/bias – contamination	No target compound > QL	Equipment rinsate blanks[d]	S & A
	USEPA 1699 Mod./T7	Accuracy/bias	Compound specific (see SOP)	Ongoing precision and recovery sample (or LCS)	A
	USEPA 1699 Mod./T7	Accuracy/bias	Recovery within limits set by CRM manufacturer	CRM	A
	USEPA 1699 Mod./T7	Accuracy/bias	Compound specific (refer to laboratory SOP)	Extraction surrogates	A
	USEPA 1699 Mod./T7	Precision	RPD < 40% if both samples are > 5 × QL	MD[e]	S & A
	USEPA 1699 Mod./T7	Completeness	100%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
LCS – laboratory control sample
HRMS – high-resolution mass spectrometry
MD – matrix duplicate
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 12. Measurement Performance Criteria Table (cont.)

Matrix	Tissue				
Analytical Group[a]	PAHs				
Concentration Level	Low				
Sampling Procedure[b]	**Analytical Method/SOP[c]**	**DQIs**	**Measurement Performance Criteria**	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S & A)**
Attachments J, L, N and O	USEPA 1625 Mod./T4	Accuracy/bias – contamination	No target compound > RL	MB/instrument blank	A
	USEPA 1625 Mod./T4	Accuracy/bias – contamination	No target compound > RL	Equipment rinsate blanks[d]	S & A
	USEPA 1625 Mod./T4	Accuracy/bias	50-150%	LCS	A
	USEPA 1625 Mod./T4	Accuracy/bias	Recovery within limits set by CRM manufacturer	CRM	A
	USEPA 1625 Mod./T4	Accuracy/bias	50–150%	Pre-extraction internal standards	A
	USEPA 1625 Mod./T4	Precision	RPD ≤ 50% if both samples are > 5 × QL	MD[e]	S & A
	USEPA 1625 Mod./T4	Completeness	100%	Data completeness check	S & A

[a] Refer to QAPP Worksheet No.15 for a complete list of analytes for each analytical group.
[b] Reference number from QAPP Worksheet No. 21.
[c] Reference number from QAPP Worksheet No. 23.
[d] Rinsate blank will be created from the tissue homogenization equipment.
[e] May be omitted if sample mass is limited.

CRM – certified reference material
DQI – data quality indicator
LCS – laboratory control sample
MB – method blank
MD – matrix duplicate
PAH – polycyclic aromatic hydrocarbon
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
RL – reporting limit
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 13. Secondary Data Criteria and Limitations Table

Secondary Data	Data Source (originating organization, report title and date)	Data Generator(s) (originating organization, data types, data generation/collection dates)	How Data Will Be Used	Limitations on Data Use
Fish community survey data	Windward, *Fish and Decapod Field Report for the Late Summer/Early Fall 2009 Field Effort*, September 14, 2010 (Windward 2010) and *Fish Community Survey and Tissue Collection Data Report for the Lower Passaic River Study Area 2010 Field Efforts*, July 20, 2011 (Windward 2011)	Windward, LPRSA fish community data. Data collected in late summer/early fall 2009, winter 2010, May 2010, late spring/early summer 2010, and late summer 2010	Fish community survey data used to inventory fish populations in the upper (i.e., freshwater) portion of the LPRSA and to select appropriate species for tissue residue analysis	None
Fish Tissue Data	Windward, *2009 Fish and Blue Crab Tissue Chemistry Data for the Lower Passaic River Study Area* (Windward 2018a) and 2010 *Small Forage Fish Tissue Chemistry Data for the Lower Passaic River Study Area* (Windward 2018b)	Windward, LPRSA fish tissue chemistry data. Data collected in late summer/early fall 2009, winter 2010, May 2010, late spring/early summer 2010, and late summer 2010	Fish/crab tissue chemistry data used to select appropriate species for tissue residue analysis and estimate appropriate target sample sizes; fish/crab catch data (e.g., species collected, size range, methods of collection) were used to inform sampling design	None
	2012 Background Fish Chemistry Data (Windward 2019)	Windward Environmental, background fish tissue chemistry data above Dundee Dam; data collected fall 2012	Fish catch data (species collected, size range, method of collection, and timing) used to inform sampling design	None
Predicted tide tables	NOAA online tide data available at (https://tidesandcurrents.noaa.gov/)	NOAA, tide predictions, 2019	To determine how much line slack will be needed for placement of fishing gear, and to identify possible areas that may be exposed for beach seining efforts	Raw tidal elevation data obtained from the NOAA website have not been subjected to the NOS's QC or QA procedures and do not meet the criteria and standards of official NOS data. They have been released for limited public use as preliminary data to be used only with appropriate caution.

LPRSA – Lower Passaic River Study Area
NOAA – National Oceanic and Atmospheric Administration
NOS – National Ocean Service
QA – quality assurance
QAPP – quality assurance project plan
QC – quality control

QAPP Worksheet No. 14. Summary of Project Tasks

Project Area: Upper Portion of LPRSA (RM 8.3 to Dundee Dam)	
Sampling Tasks:	In late summer/early fall 2019, fish and crab will be collected using gillnets, electrofishing, and beach seining, as well as baited trotlines, eel/minnow traps, and crab traps (see Worksheet No. 17), in the upper region of the LPRSA from RM 8.3 to Dundee Dam (Figure 1). This sampling effort is scheduled for a maximum of 3 weeks (18 field days). The target fish species for tissue collection are American eel, bass (i.e., largemouth bass and smallmouth bass), catfish (i.e., channel catfish and white catfish), common carp, sunfish (e.g., primarily bluegill, pumpkinseed, and redbreast sunfish), and white perch. Tissue types per species are outlined in Worksheet No. 11, Table 11-1. Sampling locations are described in Worksheet No. 18. SOPs applicable to the field sampling effort are presented in Attachments G through P.
Analysis Tasks:	At each sampling site, location measurements (e.g., coordinates, depth, and any other relevant observations such as habitat type) will be recorded on the Location Data Form (Attachment B). Fish lengths and crab carapace widths and weights will be also measured, and species and gender (if possible) will be documented. Gross external abnormalities (i.e., missing/deformed fins or legs) will be noted. Following tissue collection, fin rays/spines, scales, or otoliths from fish collected and selected for inclusion in analytical composites will be submitted for age analysis. Fin rays/spines and scales will be removed from fish during processing at the field facility; otoliths will be removed at the analytical laboratory prior to processing for analysis. Individual fish and crabs will be shipped to the analytical laboratory for filleting, otolith removal (eel only), compositing (if necessary), homogenization, and analysis. Details on the compositing process and tissue sample preparation are presented in Attachment O. Tissue samples will be analyzed for the chemicals listed in Worksheet No. 10.
QC Tasks:	All field notes and forms completed during the field sampling task will be checked daily by the Field Coordinator. The Field Coordinator will also communicate daily with the Task QA/QC Manager to confirm that project quality objectives (PQOs) are being met. Lengths and weights will be compiled in a table and reviewed as a QC step. Any lengths and weights that appear to be anomalous will be re-measured and verified by a second team member. Sample identifications will be similarly verified.

QAPP Worksheet No. 14. Summary of Project Tasks (cont.)

Project Area: Upper Portion of LPRSA (RM 8.3 to Dundee Dam)	
	Electronic sampling equipment (e.g., scale, GPS units) will be calibrated, maintained, tested, and inspected according to manufacturers' specifications as necessary to ensure that they are functioning properly (refer to Worksheet No. 22). The analytical laboratories will follow the QC procedures outlined in this QAPP (see Worksheet Nos. 20, 24, and 25), their SOPs for the analytical methods being conducted (see Worksheet No. 23), and their quality management plans. The age analysis laboratory will follow its QC procedures described in Attachment J. Chemical data will be validated according to procedures outlined in this QAPP (see Worksheet Nos. 35 and 36).
Secondary Data:	Other chemistry data that are summarized in Worksheet Nos. 10 and 13 will also be reviewed and potentially used to accomplish project objectives.
Data Management Tasks:	The data management tasks will include keeping accurate records of field activities and observations so that project team members using the data will have accurate and appropriate documentation. Data management activities will be conducted in accordance with Technical Committee data rules. Field data will be stored in their native formats and in the project sampling database. GPS data will also be downloaded and stored electronically in a project file. Laboratory analytical data will be loaded into the project sampling database, verified against the laboratory reports, merged with corresponding field data, and updated based on validation. Subsequently, the spatial data will be mapped for the data report.

QAPP Worksheet No. 14. Summary of Project Tasks (cont.)

Documentation and Records:	It is important that field activities be documented in an organized, chronologically accurate manner. All field activities will be recorded in a field logbook maintained by the Field Coordinator. The field logbook is intended to provide sufficient data and observations to enable participants to reconstruct events that occurred during the sampling period. Procedures for documentation are presented in Attachment P. All relevant forms and records are presented in Worksheet No. 29. In general, the following information must be recorded: • The identities and affiliations of the personnel conducting field activities • Model numbers and serial numbers of instruments and/or equipment being used, to the extent available • A description of the type of field work being conducted and the equipment used • The date and time the field activities were initiated and completed, with specific temporal information for each task (e.g., the time activities commenced at each individual location, if applicable) • The site where the field activities were conducted and any locations within that site where work was performed (e.g., specific sampling sites, coordinates, and depths) • The general methodology used to conduct the activities • Communications with project managers and personnel regarding field activities • Field-collected data (e.g., GPS measurements, catch totals) • Daily health and safety briefings • Deviations from the QAPP, SOP, or project HSP (Attachment R), reason for change, and any corrective actions taken, which will be electronically documented on the Protocol Modification Form (Attachment A) • The date, time, photographer, and brief description of any photos taken associated with sampling locations, field activities, or samples All entries must be made in language that is objective, factual, and free of personal feelings or other terminology that might prove inappropriate. The Location Data Form (Attachment B) will also be filled out by field personnel to document sampling location information. A daily tally of all species caught will also be recorded on the Specimen Tally Form (Attachment D) and Non-Target Species Tally Form (Attachment E). All fish and crab tissue samples to be analyzed will be recorded on the Composite Sample Form (Attachment F) by field laboratory personnel or the project chemist.

QAPP Worksheet No. 14. Summary of Project Tasks (cont.)

Project Area: Upper Portion of LPRSA (RM 8.3 to Dundee Dam)	
	A record of all personnel briefed on the HSP will be maintained by the Field Coordinator, Site Safety and Health Officer, or designee. The record will be archived at Windward's Seattle office upon completion of the sampling efforts.
Assessment/ Audit Tasks:	The Field Coordinator will also communicate frequently with the Task QA/QC Manager to confirm that PQOs are being met. Assessment/audit tasks will be conducted, as summarized in Worksheet No. 31. Reviews of field activities/sampling method compliance and laboratory method compliance will be conducted periodically.
Data Review Tasks:	All field records will be reviewed by the Field Coordinator for completeness and accuracy and verified by the Task QA/QC Manager or a designee. As part of data report preparation, chemical data will be reviewed to determine if differences related to species and/or location are evident. In addition, the data report will undergo a senior and peer review process before the final draft is submitted to USEPA (see Worksheet Nos. 34 through 37 for relevant procedures).
Deliverables:	A tissue chemistry data report will be prepared once the chemistry results have been validated. A map illustrating the actual sampling locations will also be prepared. This data report will be provided to USEPA 90 days after receipt of validated data and will include validation results.

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation

Matrix	Tissue
Analytical Group, Method, and Laboratory	PCDDs/PCDFs, USEPA 1613B, Cape Fear Analytical, Wilmington, North Carolina
SOP from Worksheet 23	T3
Concentration Level	Low

Analyte	CAS Number	DQL (ng/kg ww)[a]	Project Quantitation Limit Goal (ng/kg ww)	Analytical Method[b]		Achievable Laboratory Limits (10 g Sample)[c]	
				MDL (ng/kg ww)	Method QL (ng/kg ww)	MDL (ng/kg ww)	QL (ng/kg ww)
1,2,3,4,6,7,8-HpCDD	35822-46-9	2.43[d]	2.43	NA	5	1.7	**5**
1,2,3,4,6,7,8-HpCDF	67562-39-4	2.43[d]	2.43	NA	5	1.7	**5**
1,2,3,4,7,8-HxCDD	39227-28-6	0.243[d]	0.243	NA	5	**1.7**	**5**
1,2,3,4,7,8-HxCDF	70648-26-9	0.243[d]	0.243	NA	5	**1.7**	**5**
1,2,3,4,7,8,9-HpCDF	55673-89-7	2.43[d]	2.43	NA	5	1.7	**5**
1,2,3,6,7,8-HxCDD	57653-85-7	0.243[d]	0.243	NA	5	**1.7**	**5**
1,2,3,6,7,8-HxCDF	57117-44-9	0.243[d]	0.243	NA	5	**1.7**	**5**
1,2,3,7,8,9-HxCDD	19408-74-3	0.243[d]	0.243	NA	5	**1.7**	**5**
1,2,3,7,8,9-HxCDF	72918-21-9	0.243[d]	0.243	NA	5	**1.7**	**5**
1,2,3,7,8-PeCDD	40321-76-4	0.0243[d]	0.0243	NA	5	**1.7**	**5**
1,2,3,7,8-PeCDF	57117-41-6	0.809[d]	0.809	NA	5	**1.7**	**5**
2,3,4,6,7,8-HxCDF	60851-34-5	0.243[d]	0.243	NA	5	**1.7**	**5**
2,3,4,7,8-PeCDF	57117-31-4	0.0809[d]	0.0809	NA	5	**1.7**	**5**
2,3,7,8-TCDD	1746-01-6	0.0243[d]	0.0243	NA	1	**0.33**	**1**
2,3,7,8-TCDF	51207-31-9	0.243[d]	0.243	NA	1	**0.33**	**1**
OCDD	3268-87-9	80.9[d]	80.9	NA	10	3.3	10
OCDF	39001-02-0	80.9[d]	80.9	NA	10	3.3	10

Bold indicates chemicals for which the achievable laboratory limits exceed the project QL goal.

[a] DQLs were not changed from previous LPRSA sampling efforts. As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project.

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

[b] Analytical MDLs and QLs are those documented by validated methods. When the method did not publish a value for either the MDL or QL, the value was determined to be not available.

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs vary based on sample-specific factors. For PCDDs/PCDFs, the MDL and QL are based on the extraction of 10 g/sample. The laboratory detection limit will be based on the sample-specific EDL. Actual EDLs will vary based on sample-specific factors, including sample mass.

[d] DQLs for individual PCDDs and PCDFs were calculated by dividing the 2,3,7,8-TCDD DQL by its respective mammal toxic equivalence factor (Van den Berg et al. 2006).

CAS – Chemical Abstract Service
DQL – data quality level
EDL – estimated detection limit
HpCDD – heptachlorodibenzo-*p*-dioxin
HpCDF – heptachlorodibenzofuran
HxCDD – hexachlorodibenzo-*p*-dioxin
HxCDF – hexachlorodibenzofuran
LPRSA – Lower Passaic River Study Area
MDL – method detection limit
NA – not available
OCDD – octachlorodibenzo-*p*-dioxin
OCDF – octachlorodibenzofuran
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan
PeCDD – pentachlorodibenzo-*p*-dioxin
PeCDF – pentachlorodibenzofuran
QL – quantitation limit
SOP – standard operating procedure
TCDD – tetrachlorodibenzo-*p*-dioxin
TCDF – tetrachlorodibenzofuran
TRV – toxicity reference value
USEPA – US Environmental Protection Agency
ww – wet weight

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: PCBs – Congeners, USEPA1668A, Cape Fear Analytical, Wilmington, North Carolina

SOP from Worksheet 23: T2

Concentration Level: Low

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCBs by Congener							
PCB 1	2051-60-7	1.58[d]	1.58	0.008	0.02	0.0033	0.01
PCB 2	2051-61-8	1.58[d]	1.58	0.0004	0.001	0.0033	0.01
PCB 3	2051-62-9	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 4	13029-08-8	1.58[d]	1.58	0.017	0.05	0.0033	0.01
PCB 5	16605-91-7	1.58[d]	1.58	0.001	0.005	0.0033	0.01
PCB 6	25569-80-6	1.58[d]	1.58	0.001	0.005	0.0033	0.01
PCB 7	33284-50-3	1.58[d]	1.58	0.002	0.005	0.0033	0.01
PCB 8	34883-43-7	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 9	34883-39-1	1.58[d]	1.58	0.002	0.005	0.0033	0.01
PCB 10	33146-45-1	1.58[d]	1.58	0.002	0.005	0.0033	0.01
PCB 11	2050-67-1	1.58[d]	1.58	0.01	0.02	0.0033	0.01
PCB 12	2974-92-7	1.58[d]	1.58	0.003	0.01	0.0067	0.02
PCB 13	2974-90-5	1.58[d]	1.58	0.003	0.01	0.0067	0.02
PCB 14	34883-41-5	1.58[d]	1.58	0.003	0.01	0.0033	0.01
PCB 15	2050-68-2	1.58[d]	1.58	0.018	0.05	0.0033	0.01
PCB 16	38444-78-9	1.58[d]	1.58	0.004	0.01	0.0033	0.01
PCB 17	37680-66-3	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 18	37680-65-2	1.58[d]	1.58	0.017	0.05	0.0067	0.02
PCB 19	38444-73-4	1.58[d]	1.58	0.004	0.01	0.0033	0.01
PCB 20	38444-84-7	1.58[d]	1.58	0.019	0.05	0.0067	0.02
PCB 21	55702-46-0	1.58[d]	1.58	0.005	0.02	0.0067	0.02
PCB 22	38444-85-8	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 23	55720-44-0	1.58[d]	1.58	0.005	0.02	0.0033	0.01
PCB 24	55702-45-9	1.58[d]	1.58	0.005	0.02	0.0033	0.01
PCB 25	55712-37-3	1.58[d]	1.58	0.005	0.02	0.0033	0.01
PCB 26	38444-81-4	1.58[d]	1.58	0.008	0.02	0.0067	0.02

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCB 27	38444-76-7	1.58[d]	1.58	0.006	0.02	0.0033	0.01
PCB 28	7012-37-5	1.58[d]	1.58	0.019	0.05	0.0067	0.02
PCB 29	15862-07-4	1.58[d]	1.58	0.008	0.02	0.0067	0.02
PCB 30	35693-92-6	1.58[d]	1.58	0.017	0.05	0.0067	0.02
PCB 31	16606-02-3	1.58[d]	1.58	0.015	0.05	0.0033	0.01
PCB 32	38444-77-8	1.58[d]	1.58	0.008	0.02	0.0033	0.01
PCB 33	38444-86-9	1.58[d]	1.58	0.005	0.02	0.0067	0.02
PCB 34	37680-68-5	1.58[d]	1.58	0.007	0.02	0.0033	0.01
PCB 35	37680-69-6	1.58[d]	1.58	0.008	0.02	0.0033	0.01
PCB 36	38444-87-0	1.58[d]	1.58	0.008	0.02	0.0033	0.01
PCB 37	38444-90-5	1.58[d]	1.58	0.013	0.05	0.0033	0.01
PCB 38	53555-66-1	1.58[d]	1.58	0.008	0.02	0.0033	0.01
PCB 39	38444-88-1	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 40	38444-93-8	1.58[d]	1.58	0.012	0.05	0.0067	0.02
PCB 41	52663-59-9	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 42	36559-22-5	1.58[d]	1.58	0.006	0.02	0.0033	0.01
PCB 43	70362-46-8	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 44	41464-39-5	1.58[d]	1.58	0.019	0.05	0.01	0.03
PCB 45	70362-45-7	1.58[d]	1.58	0.005	0.02	0.0067	0.02
PCB 46	41464-47-5	1.58[d]	1.58	0.01	0.02	0.0033	0.01
PCB 47	2437-79-8	1.58[d]	1.58	0.019	0.05	0.01	0.03
PCB 48	70362-47-9	1.58[d]	1.58	0.008	0.02	0.0033	0.01
PCB 49	41464-40-8	1.58[d]	1.58	0.011	0.05	0.0067	0.02
PCB 50	62796-65-0	1.58[d]	1.58	0.006	0.02	0.0067	0.02
PCB 51	68194-04-7	1.58[d]	1.58	0.005	0.02	0.0067	0.02
PCB 52	35693-99-3	1.58[d]	1.58	0.019	0.05	0.0033	0.01
PCB 53	41464-41-9	1.58[d]	1.58	0.006	0.02	0.0067	0.02
PCB 54	15968-05-5	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 55	74338-24-2	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 56	41464-43-1	1.58[d]	1.58	0.01	0.02	0.0033	0.01
PCB 57	70424-67-8	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 58	41464-49-7	1.58[d]	1.58	0.013	0.05	0.0033	0.01

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCB 59	74472-33-6	1.58[d]	1.58	0.006	0.02	0.01	0.03
PCB 60	33025-41-1	1.58[d]	1.58	0.013	0.05	0.0033	0.01
PCB 61	33284-53-6	1.58[d]	1.58	0.017	0.05	0.013	0.04
PCB 62	54230-22-7	1.58[d]	1.58	0.006	0.02	0.01	0.03
PCB 63	74472-34-7	1.58[d]	1.58	0.014	0.05	0.0033	0.01
PCB 64	52663-58-8	1.58[d]	1.58	0.007	0.02	0.0033	0.01
PCB 65	33284-54-7	1.58[d]	1.58	0.019	0.05	0.01	0.03
PCB 66	32598-10-0	1.58[d]	1.58	0.016	0.05	0.0033	0.01
PCB 67	73575-53-8	1.58[d]	1.58	0.015	0.05	0.0033	0.01
PCB 68	73575-52-7	1.58[d]	1.58	0.015	0.05	0.0033	0.01
PCB 69	60233-24-1	1.58[d]	1.58	0.011	0.05	0.0067	0.02
PCB 70	32598-11-1	1.58[d]	1.58	0.017	0.05	0.013	0.04
PCB 71	41464-46-4	1.58[d]	1.58	0.012	0.05	0.0067	0.02
PCB 72	41464-42-0	1.58[d]	1.58	0.016	0.05	0.0033	0.01
PCB 73	74338-23-1	1.58[d]	1.58	0.016	0.05	0.0033	0.01
PCB 74	32690-93-0	1.58[d]	1.58	0.017	0.05	0.013	0.04
PCB 75	32598-12-2	1.58[d]	1.58	0.006	0.02	0.01	0.03
PCB 76	70362-48-0	1.58[d]	1.58	0.017	0.05	0.013	0.04
PCB 77	32598-13-3	0.24[e]	0.24	0.017	0.05	0.0033	0.01
PCB 78	70362-49-1	1.58[d]	1.58	0.017	0.05	0.0033	0.01
PCB 79	41464-48-6	1.58[d]	1.58	0.017	0.05	0.0033	0.01
PCB 80	33284-52-5	1.58[d]	1.58	0.018	0.05	0.0033	0.01
PCB 81	70362-50-4	0.0809[e]	0.0809	0.018	0.05	0.0033	0.01
PCB 82	52663-62-4	1.58[d]	1.58	0.013	0.05	0.0033	0.01
PCB 83	60145-20-2	1.58[d]	1.58	0.022	0.05	0.0033	0.01
PCB 84	52663-60-2	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 85	65510-45-4	1.58[d]	1.58	0.01	0.02	0.01	0.03
PCB 86	55312-69-1	1.58[d]	1.58	0.015	0.05	0.02	0.06
PCB 87	38380-02-8	1.58[d]	1.58	0.015	0.05	0.02	0.06
PCB 88	55215-17-3	1.58[d]	1.58	0.012	0.05	0.0067	0.02
PCB 89	73575-57-2	1.58[d]	1.58	0.019	0.05	0.0033	0.01
PCB 90	68194-07-0	1.58[d]	1.58	0.024	0.1	0.01	0.03

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCB 91	68194-05-8	1.58[d]	1.58	0.012	0.05	0.0067	0.02
PCB 92	52663-61-3	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 93	73575-56-1	1.58[d]	1.58	0.022	0.05	0.0067	0.02
PCB 94	73575-55-0	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 95	38379-99-6	1.58[d]	1.58	0.022	0.05	0.0033	0.01
PCB 96	73575-54-9	1.58[d]	1.58	0.021	0.05	0.0033	0.01
PCB 97	41464-51-1	1.58[d]	1.58	0.015	0.05	0.02	0.06
PCB 98	60233-25-2	1.58[d]	1.58	0.022	0.05	0.0067	0.02
PCB 99	38380-01-7	1.58[d]	1.58	0.022	0.05	0.0033	0.01
PCB 100	39485-83-1	1.58[d]	1.58	0.022	0.05	0.0067	0.02
PCB 101	37680-73-2	1.58[d]	1.58	0.024	0.1	0.01	0.03
PCB 102	68194-06-9	1.58[d]	1.58	0.022	0.05	0.0067	0.02
PCB 103	60145-21-3	1.58[d]	1.58	0.023	0.05	0.0033	0.01
PCB 104	56558-16-8	1.58[d]	1.58	0.023	0.05	0.0033	0.01
PCB 105	32598-14-4	0.809[e]	0.809	0.011	0.002	0.0033	0.01
PCB 106	70424-69-0	1.58[d]	1.58	0.014	0.05	0.0033	0.01
PCB 107	70424-68-9	1.58[d]	1.58	0.027	0.1	0.0033	0.01
PCB 108	70362-41-3	1.58[d]	1.58	0.015	0.05	0.0067	0.02
PCB 109	74472-35-8	1.58[d]	1.58	0.01	0.02	0.02	0.06
PCB 110	38380-03-9	1.58[d]	1.58	0.024	0.1	0.0067	0.02
PCB 111	39635-32-0	1.58[d]	1.58	0.024	0.1	0.0033	0.01
PCB 112	74472-36-9	1.58[d]	1.58	0.025	0.1	0.0033	0.01
PCB 113	68194-10-5	1.58[d]	1.58	0.024	0.1	0.01	0.03
PCB 114	74472-37-0	0.809[e]	0.809	0.012	0.05	0.0033	0.01
PCB 115	74472-38-1	1.58[d]	1.58	0.024	0.1	0.0067	0.02
PCB 116	18259-05-7	1.58[d]	1.58	0.01	0.02	0.01	0.03
PCB 117	68194-11-6	1.58[d]	1.58	0.01	0.02	0.01	0.03
PCB 118	31508-00-6	0.809[e]	0.809	0.019	0.05	0.0033	0.01
PCB 119	56558-17-9	1.58[d]	1.58	0.015	0.05	0.02	0.06
PCB 120	68194-12-7	1.58[d]	1.58	0.015	0.05	0.0033	0.01
PCB 121	56558-18-0	1.58[d]	1.58	0.021	0.05	0.0033	0.01
PCB 122	76842-07-4	1.58[d]	1.58	0.012	0.05	0.0033	0.01

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCB 123	65510-44-3	0.809[e]	0.809	0.015	0.05	0.0033	0.01
PCB 124	70424-70-3	1.58[d]	1.58	0.027	0.1	0.0067	0.02
PCB 125	74472-39-2	1.58[d]	1.58	0.015	0.05	0.02	0.06
PCB 126	57465-28-8	0.000243[e]	0.000243	0.014	0.05	0.0033	0.01
PCB 127	39635-33-1	1.58[d]	1.58	0.028	0.1	0.0033	0.01
PCB 128	38380-07-3	1.58[d]	1.58	0.012	0.05	0.0067	0.02
PCB 129	55215-18-4	1.58[d]	1.58	0.021	0.05	0.01	0.03
PCB 130	52663-66-8	1.58[d]	1.58	0.014	0.05	0.0033	0.01
PCB 131	61798-70-7	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 132	38380-05-1	1.58[d]	1.58	0.012	0.05	0.0033	0.01
PCB 133	35694-04-3	1.58[d]	1.58	0.017	0.05	0.0033	0.01
PCB 134	52704-70-8	1.58[d]	1.58	0.013	0.05	0.0033	0.01
PCB 135	52744-13-5	1.58[d]	1.58	0.011	0.05	0.0067	0.02
PCB 136	38411-22-2	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 137	35694-06-5	1.58[d]	1.58	0.03	0.1	0.0033	0.01
PCB 138	35065-28-2	1.58[d]	1.58	0.021	0.05	0.01	0.03
PCB 139	56030-56-9	1.58[d]	1.58	0.02	0.05	0.0067	0.02
PCB 140	59291-64-4	1.58[d]	1.58	0.02	0.05	0.0067	0.02
PCB 141	52712-04-6	1.58[d]	1.58	0.009	0.02	0.0033	0.01
PCB 142	41411-61-4	1.58[d]	1.58	0.031	0.1	0.0033	0.01
PCB 143	68194-15-0	1.58[d]	1.58	0.013	0.05	0.0033	0.01
PCB 144	68194-14-9	1.58[d]	1.58	0.017	0.05	0.0033	0.01
PCB 145	74472-40-5	1.58[d]	1.58	0.032	0.1	0.0033	0.01
PCB 146	51908-16-8	1.58[d]	1.58	0.018	0.05	0.0033	0.01
PCB 147	68194-13-8	1.58[d]	1.58	0.018	0.05	0.0067	0.02
PCB 148	74472-41-6	1.58[d]	1.58	0.032	0.1	0.0033	0.01
PCB 149	38380-04-0	1.58[d]	1.58	0.018	0.05	0.0067	0.02
PCB 150	68194-08-1	1.58[d]	1.58	0.033	0.1	0.0033	0.01
PCB 151	52663-63-5	1.58[d]	1.58	0.011	0.05	0.0067	0.02
PCB 152	68194-09-2	1.58[d]	1.58	0.024	0.1	0.0033	0.01
PCB 153	35065-27-1	1.58[d]	1.58	0.013	0.05	0.0067	0.02
PCB 154	60145-22-4	1.58[d]	1.58	0.011	0.05	0.0033	0.01

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCB 155	33979-03-2	1.58[d]	1.58	0.034	0.1	0.0033	0.01
PCB 156	38380-08-4	0.809[e]	0.809	0.013	0.05	0.0067	0.02
PCB 157	69782-90-7	0.809[e]	0.809	0.013	0.05	0.0067	0.02
PCB 158	74472-42-7	1.58[d]	1.58	0.011	0.02	0.0033	0.01
PCB 159	39635-35-3	1.58[d]	1.58	0.035	0.1	0.0033	0.01
PCB 160	41411-62-5	1.58[d]	1.58	0.021	0.05	0.0033	0.01
PCB 161	74472-43-8	1.58[d]	1.58	0.035	0.1	0.0033	0.01
PCB 162	39635-34-2	1.58[d]	1.58	0.035	0.1	0.0033	0.01
PCB 163	74472-44-9	1.58[d]	1.58	0.021	0.05	0.01	0.03
PCB 164	74472-45-0	1.58[d]	1.58	0.014	0.05	0.0033	0.01
PCB 165	74472-46-1	1.58[d]	1.58	0.036	0.1	0.0033	0.01
PCB 166	41411-63-6	1.58[d]	1.58	0.012	0.05	0.0067	0.02
PCB 167	52663-72-6	0.809[e]	0.000809	0.011	0.05	0.0033	0.01
PCB 168	59291-65-5	0.00158[d]	0.00158	0.013	0.05	0.0067	0.02
PCB 169	32774-16-6	0.000809[e]	0.000809	0.016	0.05	0.0033	0.01
PCB 170	35065-30-6	1.58[d]	1.58	0.016	0.05	0.0033	0.01
PCB 171	52663-71-5	1.58[d]	1.58	0.037	0.1	0.0067	0.02
PCB 172	52663-74-8	1.58[d]	1.58	0.038	0.1	0.0033	0.01
PCB 173	68194-16-1	1.58[d]	1.58	0.037	0.1	0.0067	0.02
PCB 174	38411-25-5	1.58[d]	1.58	0.019	0.05	0.0033	0.01
PCB 175	40186-70-7	1.58[d]	1.58	0.038	0.1	0.0033	0.01
PCB 176	52663-65-7	1.58[d]	1.58	0.039	0.1	0.0033	0.01
PCB 177	52663-70-4	1.58[d]	1.58	0.014	0.05	0.0033	0.01
PCB 178	52663-67-9	1.58[d]	1.58	0.022	0.05	0.0033	0.01
PCB 179	52663-64-6	1.58[d]	1.58	0.023	0.05	0.0033	0.01
PCB 180	35065-29-3	1.58[d]	1.58	0.014	0.05	0.0067	0.02
PCB 181	74472-47-2	1.58[d]	1.58	0.04	0.1	0.0033	0.01
PCB 182	60145-23-5	1.58[d]	1.58	0.04	0.1	0.0033	0.01
PCB 183	52663-69-1	1.58[d]	1.58	0.04	0.1	0.0067	0.02
PCB 184	74472-48-3	1.58[d]	1.58	0.04	0.1	0.0033	0.01
PCB 185	52712-05-7	1.58[d]	1.58	0.04	0.1	0.0067	0.02
PCB 186	74472-49-4	1.58[d]	1.58	0.041	0.1	0.0033	0.01

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
PCB 187	52663-68-0	1.58[d]	1.58	0.019	0.05	0.0033	0.01
PCB 188	74487-85-7	1.58[d]	1.58	0.023	0.05	0.0033	0.01
PCB 189	39635-31-9	0.809[e]	0.809	0.018	0.05	0.0033	0.01
PCB 190	41411-64-7	1.58[d]	1.58	0.023	0.05	0.0033	0.01
PCB 191	74472-50-7	1.58[d]	1.58	0.042	0.1	0.0033	0.01
PCB 192	74472-51-8	1.58[d]	1.58	0.042	0.1	0.0033	0.01
PCB 193	69782-91-8	1.58[d]	1.58	0.014	0.05	0.0067	0.02
PCB 194	35694-08-7	1.58[d]	1.58	0.017	0.05	0.0033	0.01
PCB 195	52663-78-2	1.58[d]	1.58	0.043	0.1	0.0033	0.01
PCB 196	42740-50-1	1.58[d]	1.58	0.043	0.1	0.0033	0.01
PCB 197	33091-17-7	1.58[d]	1.58	0.025	0.1	0.0067	0.02
PCB 198	68194-17-2	1.58[d]	1.58	0.02	0.1	0.0067	0.02
PCB 199	52663-75-9	1.58[d]	1.58	0.02	0.1	0.0067	0.02
PCB 200	52663-73-7	1.58[d]	1.58	0.025	0.1	0.0067	0.02
PCB 201	40186-71-8	1.58[d]	1.58	0.044	0.1	0.0033	0.01
PCB 202	2136-99-4	1.58[d]	1.58	0.044	0.1	0.0033	0.01
PCB 203	52663-76-0	1.58[d]	1.58	0.044	0.1	0.0033	0.01
PCB 204	74472-52-9	1.58[d]	1.58	0.045	0.1	0.0033	0.01
PCB 205	74472-53-0	1.58[d]	1.58	0.045	0.1	0.0033	0.01
PCB 206	40186-72-9	1.58[d]	1.58	0.045	0.1	0.0033	0.01
PCB 207	52663-79-3	1.58[d]	1.58	0.045	0.1	0.0033	0.01
PCB 208	52663-77-1	1.58[d]	1.58	0.046	0.1	0.0033	0.01
PCB 209	2051-24-3	1.58[d]	1.58	0.015	0.05	0.0033	0.01

[a] As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project.

[b] Analytical MDLs and QLs are those documented by validated methods.

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs vary based on sample-specific factors. For PCBs, the MDL and QL are based on the extraction of 10 g per sample. The laboratory detection limit will be based on the sample-specific EDL. Actual EDLs will vary based on sample-specific factors, including sample mass.

[d] Based on risk for total PCBs (high risk).

[e] Identified as 1 of the 12 PCDD-like PCB congeners in the WHO 2005 (Van den Berg et al. 2006).

CAS – Chemical Abstract Service
DQL – data quality level
EDL – estimated detection limit
MDL – method detection limit
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
QAPP – quality assurance project plan
QL – quantitation limit
SOP – standard operating procedure
TRV – toxicity reference value
USEPA – US Environmental Protection Agency
WHO – World Health Organization
ww – wet weight

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: Lipids, NOAA Technical Memorandum NOS ORCA 130, Alpha Analytical, Mansfield, Massachusetts

SOP from Worksheet 23: T23

Concentration Level: NA

Analyte	CAS Number	DQL (%)	Project QL Goal (%)	Analytical Method		Achievable Laboratory Limit	
				MDL (%)	Method QL (%)	MDL (%)	QL (%)
Lipids	NA	NA	NA	NA	NA	NA	NA

CAS – Chemical Abstract Service
DQL – data quality level
MDL – method detection limit
NA – not available
NOAA – National Oceanic and Atmospheric Administration
NOS – National Ocean Service
ORCA – Ocean Resources Conservation and Assessment
QL – quantitation limit
SOP – standard operating procedure

Matrix: Tissue

Analytical Group, Method, and Laboratory: Percent moisture, SM 2540G Mod., Alpha Analytical, Mansfield, Massachusetts

SOP from Worksheet 23: T24

Concentration Level: NA

Analyte	CAS Number	DQL (%)	Project QL Goal (%)	Analytical Method		Achievable Laboratory Limit	
				MDL (%)	Method QL (%)	MDL (%)	QL (%)
Percent moisture	NA	NA	NA	NA	NA	NA	NA

CAS – Chemical Abstract Service
DQL – data quality level
MDL – method detection limit
NA – not available
QL – quantitation limit
SM – standard method
SOP – standard operating procedure

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: Total mercury, USEPA 1631, Brooks Applied Labs, LLC, Bothell, Washington

SOP from Worksheet 23: T14, T15

Concentration Level: Low

Analyte	CAS Number	DQL (mg/kg ww)[a]	Project QL Goal (mg/kg ww)	Analytical Method[b]	Achievable Laboratory Limits[c]		
				MDL (mg/kg ww)	Method QL (mg/kg ww)	MDL (mg/kg ww)	QL (mg/kg ww)
Mercury	7439-97-6	0.0086	0.0086	NA	NA	0.00016	0.0004

[a] As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project.

[b] Analytical MDLs and QLs are those documented by validated methods. When the method did not publish a value for either the MDL or QL, the value was determined to be not available.

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs will vary based on sample-specific factors.

CAS – Chemical Abstract Service
DQL – data quality level
MDL – method detection limit
NA – not available
QAPP – quality assurance project plan
QL – quantitation limit
SOP – standard operating procedure
TRV – toxicity reference value
USEPA – US Environmental Protection Agency
ww – wet weight

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: Methylmercury, USEPA 1630, Brooks Applied Labs, LLC, Bothell, Washington

SOP from Worksheet 23: T16

Concentration Level: Low

Analyte	CAS Number	DQL (mg/kg ww)[a]	Project QL Goal (mg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (mg/kg ww)	Method QL (mg/kg ww)	MDL (mg/kg ww)	QL (mg/kg ww)
Methylmercury	22967-92-6	0.0086	0.0086	NA	NA	0.0015	0.003

[a] As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project.

[b] Analytical MDLs and QLs are those documented by validated methods. When the method did not publish a value for either the MDL or QL, the value was determined to be not available.

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs will vary based on sample-specific factors.

CAS – Chemical Abstract Service
DQL – data quality level
MDL – method detection limit
NA – not available
QAPP – quality assurance project plan
QL – quantitation limit
SOP – standard operating procedure
TRV – toxicity reference value
USEPA – US Environmental Protection Agency
ww – wet weight

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: Metals (ICP/MS), USEPA SW-846 6020, Alpha Analytical, Mansfield, Massachusetts

SOP from Worksheet 23: T10

Concentration Level: Low

Analyte	CAS Number	DQL (mg/kg ww)[a]	Project QL Goal (mg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (mg/kg ww)	Method QL (mg/kg ww)	MDL (mg/kg ww)	QL (mg/kg ww)
Copper	7440-50-8	5.41	5.41	NA	NA	0.0334	0.01
Lead	7439-92-1	1.5	1.5	NA	NA	0.00582	0.04

Bold indicates chemicals for which the achievable laboratory limits exceed the project quantitation limit goal.

[a] As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project.

[b] Analytical MDLs and QLs are those documented by validated methods. When the method did not publish a value for either the MDL or QL, the value was determined to be not available.

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs will vary based on sample-specific factors.

[d] The DQL for this analyte was based on the inorganic arsenic DQL.

CAS – Chemical Abstract Service
DQL – data quality level
ICP/MS – inductively coupled plasma/mass spectrometry
MDL – method detection limit
NA – not available
QAPP – quality assurance project plan
QL – quantitation limit
SOP – standard operating procedure
SW – solid waste
TRV – toxicity reference value
USEPA – US Environmental Protection Agency
ww – wet weight

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: Organochlorine pesticides, USEPA 1699 Mod. El Dorado Hills, California

SOP from Worksheet 23: T7

Concentration Level: Low

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
2,4′-DDD	53-19-0	13.1[d]	13.1	NA	NA	0.0050	0.040
2,4′-DDE	3424-82-6	9.28[d]	9.28	NA	NA	0.0100	0.040
2,4′-DDT	789-02-6	9.28[d]	9.28	NA	NA	0.0110	0.040
4,4′-DDD	72-54-8	13.1	13.1	NA	NA	0.0074	0.040
4,4′-DDE	72-55-9	9.28	9.28	NA	NA	0.0076	0.040
4,4′-DDT	50-29-3	9.28	9.28	NA	NA	0.0094	0.040
Dieldrin	60-57-1	0.197	0.197	NA	NA	0.0154	0.040

Bold indicates chemicals for which the achievable laboratory limits exceed the project quantitation limit goal.

[a] As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project.

[b] Analytical MDLs and QLs are those documented by validated methods. When the method did not publish a value for either the MDL or QL, the value was determined to be not available.

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs will vary based on sample-specific factors.

[d] The DQL for this analyte was based on the 4,4′-DDD, 4,4′-DDE or 4,4′-DDT DQL.

CAS – Chemical Abstract Service
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
DQL – data quality level
MDL – method detection limit
QAPP – quality assurance project plan
QL – quantitation limit
SOP – standard operating procedure
TRV – toxicity reference value
USEPA – US Environmental Protection Agency
ww – wet weight

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

Matrix: Tissue

Analytical Group, Method, and Laboratory: PAHs, USEPA 1625 Mod., Vista Analytical Laboratory, El Dorado Hills, California

SOP from Worksheet 23: T4

Concentration Level: Low

Analyte	CAS Number	DQL (µg/kg ww)[a]	Project QL Goal (µg/kg ww)	Analytical Method[b]		Achievable Laboratory Limits[c]	
				MDL (µg/kg ww)	Method QL (µg/kg ww)	MDL (µg/kg ww)	QL (µg/kg ww)
2-Methylnaphthalene	91-57-6	541	541	NA	NA	0.663	2.5
Acenaphthene	83-32-9	240	240	NA	NA	0.524	2.5
Acenaphthylene	208-96-8	240[d]	240	NA	NA	1.02	2.5
Anthracene	120-12-7	240	240	NA	NA	1.44	2.5
Fluorene	86-73-7	240	240	NA	NA	0.276	2.5
Naphthalene	91-20-3	240	240	NA	NA	0.974	6.25
Phenanthrene	85-01-8	240[e]	240	NA	NA	1.75	6.25
Benzo[a]anthracene	56-55-3	4.32	4.32	NA	NA	0.373	2.5
Benzo[a]pyrene	50-32-8	0.432	0.432	NA	NA	**1.28**	**2.5**
Benzo[b/j]fluoranthene	205-99-2	4.32	4.32	NA	NA	0.634	2.5
Benzo[e]pyrene	192-97-2	240[f]	240	NA	NA	0.536	2.5
Benzo[g,h,i]perylene	191-24-2	240[f]	240	NA	NA	0.636	2.5
Benzo[k]fluoranthene	207-08-9	43.2	43.2	NA	NA	0.675	2.5
Chrysene	218-01-9	432	432	NA	NA	0.426	2.5
Dibenzo[a,h]anthracene	53-70-3	0.432	0.432	NA	NA	**0.567**	**2.5**
Fluoranthene	206-44-0	240	240	NA	NA	0.555	2.5
Indeno-[1,2,3c,d]pyrene	193-39-5	4.32	4.32	NA	NA	0.514	2.5
Perylene	198-55-0	240[f]	240	NA	NA	1.1	2.5
Pyrene	129-00-0	240	240	NA	NA	0.369	2.5
1-Methylnaphthalene	90-12-0	110	110	NA	NA	TBD[g]	TBD[g]
1-Methylphenanthrene	832-69-9	40600	40600	NA	NA	TBD[g]	TBD[g]
2,3,5-Trimethylnaphthalene	2245-38-7	NA	NA	NA	NA	TBD[g]	TBD[g]
2,6-Dimethylnaphthalene	581-42-0	NA	NA	NA	NA	TBD[g]	TBD[g]
Dibenzothiophene	132-65-0	NA	NA	NA	NA	TBD[g]	TBD[g]

Bold indicates chemicals for which the achievable laboratory limits exceed the project quantitation limit goal.

QAPP Worksheet No. 15. Data Quality Levels and Analytical Methods Evaluation (cont.)

[a] As developed for the Fish/Decapod QAPP, DQLs were based on the lowest of 1) USEPA Region 3 fish tissue screening levels, May 2008 (USEPA 2008), 2) ecological wildlife thresholds back-calculated from dietary TRVs, or 3) ecological fish or crab decapod thresholds based on tissue residue TRVs. See Attachment S for human health consumption- or ecological-based (for benthos, fish, and wildlife) thresholds (and methods) used to derive DQLs. The Region 3 fish tissue screening levels were derived using a fish consumption rate of 54 g per day and are based on a target risk level of 1E-06 for potential carcinogens; the fish tissue screening levels for non-carcinogenic compounds were divided by 10 (hazard quotient of 0.1) to account for potential additive effects. DQLs (including human health and ecological thresholds presented in Attachment S) are very conservative, generic analytical goals used solely for the purpose of evaluating laboratory analytical methods and achievable laboratory limits; these are not project-specific screening levels or preliminary remediation goals, which will be developed in subsequent phases of the project. If no toxicity thresholds were available, the DQL and/or project QL goal was determined to be not available.

[b] Analytical MDLs and QLs are those documented by validated methods. When the method did not publish a value for either the MDL or QL, the value was determined to be not available.

[c] Achievable MDLs and QLs are limits that an individual laboratory can achieve when performing a specific analytical method. Actual MDLs and QLs will vary based on sample-specific factors. Tissue RL and MDL are based on sediment RL and MDL.

[d] The DQL for this analyte was based on the acenaphthene DQL.

[e] The DQL for this analyte was based on the anthracene DQL.

[f] The DQL for this analyte was based on the pyrene DQL.

[g] Analytical MDL and QL study to be performed by Vista Analytical prior to sample analysis (Fall 2019).

CAS – Chemical Abstract Service
DQL – data quality level
MDL – method detection limit
NA – not available
PAH – polycyclic aromatic hydrocarbon
QL – quantitation limit
SOP – standard operating procedure
TBD – to be determined
TRV – toxicity reference value
USEPA - US Environmental Protection Agency
ww – wet weight

QAPP Worksheet No. 16. Project Schedule/Timeline Table

Activities	Organization	Date (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date of Initiation	Anticipated Date of Completion		
QAPP preparation and delivery to USEPA	Windward	05/01/2019	08/02/2019 (draft)	QAPP	Date for final QAPP deliverable is TBD
Fish and crab tissue collection	Windward	09/09/2019	09/28/2019	None (see data report deliverable below)	See data report deliverable below
Tissue chemistry data report preparation and delivery to USEPA	Windward	Upon completion of sampling event	90 days after receipt of validated data	Tissue chemistry data report	90 days after receipt of validated data

Note: The projected tissue chemistry data report date is based on the assumption that an individual and composite sample analysis memorandum is approved shortly after completion of the sampling event, and that the analytical data will be available for validation 40 days after the memorandum is approved.

QAPP – quality assurance project plan

TBD – to be determined

USEPA – US Environmental Protection Agency

Windward – Windward Environmental LLC

QAPP Worksheet No. 17. Sampling Design and Rationale

Describe and provide a rationale for choosing the sampling approach (e.g., grid system, biased statistical approach):

The data generated from the proposed current conditions fish and crab sampling effort will be used to support the evaluation of trends following implementation of the IR for the upper 9 miles of the LPRSA, and to evaluate and (if needed) refine the bioaccumulation model for the LPRSA. Specifically, these data will address the assessment endpoints described in Worksheet No. 11. Specific tasks and goals of this effort will include the following:

1. Collect target fish and crab from the RM 8.3 to Dundee Dam portion of the LPRSA for chemical analysis.
2. Determine fish ages for fish included in composite samples (i.e., using fin rays/spines, scales, or otoliths). When possible, use non-invasive aging techniques (i.e., fin rays/spines or scales) to minimize impact on fish included in analytical composites.

The general sampling design uses two sampling areas: RM 8.3 to RM 15 and RM 15 to Dundee Dam. Sampling locations will be distributed throughout these areas to ensure good spatial coverage of the sampling areas; specific locations will be determined by the field crew based on habitat conditions (Worksheet No. 18). The selection of sampling locations will also be informed by the accessibility of an area (i.e., site access above approximately RM 16 [where boat access is not possible] may be limited). For sunfish, available shallow-water habitats (e.g., mud/sand flats or vegetated shallows) will be targeted.

The target numbers of samples per species (and per tissue type) are presented in Table 11-1 (Worksheet No. 11). Composites consisting of three fish/crab each (or five fish per composite for sunfish) constitute a reasonable approach for the current conditions sampling effort. This approach was selected both because 1) as described in USEPA guidance (USEPA 1989, 2000, 2002), composite samples provide the best estimate of the mean concentration, and 2) composite samples help ensure that sufficient mass is available for all analytical samples (even when separate fillet and carcass [or for crab muscle/hepatopancreas and carcass] samples are analyzed). Details on the compositing process and tissue sample preparation are provided in Attachment O.

Describe the sampling design and rationale in terms of what matrices will be sampled, what analytical groups will be analyzed and at what concentration levels, the sampling locations (including QC and critical samples), the number of samples to be taken, and the sampling frequency (including seasonal considerations):

The rationale and description of the sampling design are provided in the above response (“Describe and provide a rationale for choosing the sampling approach”). The information presented here is primarily focused on the sampling protocol and methods that will be used throughout the LPRSA. Sampling areas are presented in Worksheet No. 18.

QAPP Worksheet No. 17. Sampling Design and Rationale (cont.)

Methods to be used at the sampling stations and during the sampling events will vary depending on field conditions and targeted species. Since sampling techniques favor the collection of specific groups or species, multiple methods will need to be employed.

The following protocol will be implemented, as practicable, for collecting fish and crab tissue, as described in further detail in Attachments J, L, N, and O (Worksheet No. 21). The surveys will be conducted using gillnets, baited eel/minnow and crab traps, baited trotlines, beach seines, and electrofishing gear. These sampling methods are appropriate for surveying the fish and crab species that inhabit the LPRSA and were all used during previous sampling efforts in the LPRSA in 2009/2010 and above the LPRSA in 2012 (Windward 2019, 2018a, b, 2011). Gillnets and baited eel/minnow and crab traps were used in the fall 1999 and spring 2000 community surveys by Tierra Solutions (2002). Trotlines are an effective method of capturing fish and will be utilized in the LPRSA. Beach seining will be used because it is an effective, non-selective method suitable for shallower, wadeable waters. Electrofishing will be used because it is the most efficient, non-selective active fish sampling method available for freshwater water bodies. It is adaptable to different sampling conditions (e.g., boat, wading, and shorelines) and is useful at sites where other active methods cannot be used. Electrofishing will be used if the water conductivity is low enough (between 0.04 and 0.4 mS/cm). Supplemental sampling methods may be employed at certain locations depending on the success of the primary methods listed above and at the discretion of the field personnel.

Gillnets:

Gillnetting is a common and effective fishing method used to catch a variety of fish species and sizes. Gillnets can be set to fish at any height in the water column. The mesh size and shape of a gillnet may vary and can be highly selective for specific sizes of fish (see Table 11-2 for details). Fish that are smaller than the mesh are able to pass through unhindered, while those that are too large to push their heads through the mesh as far as their gills are not retained. To reduce the size selectivity, which skews toward specific-sized fish, each gillnet used in field sampling will consist of several mesh sizes. The NJDEP Scientific Collection Permit (19-046, dated July 24, 2019) precludes the use of gillnets prior to September 15, 2019.

Gillnets will be suspended at least 1 ft above the river bottom and placed perpendicular to the shoreline wherever feasible. The nets will be anchored with appropriate weights, and buoy lines will be rigged within 1 to 2 ft of taut with respect to the next predicted high tide following deployment. To comply with federal boating regulations for navigable waterways, buoys will not be set in navigation channels of the river. This requirement may influence the actual location of the gillnet deployments. Gillnets will be deployed during the late afternoon to early evening hours and retrieved the following morning, as practicable. Generally, fish activity increases during the night, and the catch retrieved the following day will be more representative of species movement within the area.

QAPP Worksheet No. 17. Sampling Design and Rationale (cont.)

Baited eel, minnow, and crab traps:

The primary goal of using these traps is to catch eel, sunfish, and crab. Specifically, three types of traps will be used (see Table 11-2 for details): Commercial eel traps will be used to target eel, crab traps will be used to target crab, and minnow traps (both flat-bottom semi-oval traps and standard cylindrical traps) will be used to target sunfish. Fish and crab collected in these traps will be counted, identified, and examined for external anomalies as part of the tissue sampling effort.

Baited eel/minnow traps and crab traps will be deployed wherever feasible. The traps will be anchored with weights, and buoy lines will be rigged within 1 to 2 ft of taut, to allow for fluctuations with the next predicted high tide following deployment. Baited traps will be preferentially set during the day and retrieved the following morning and redeployed as necessary.

Trotlines:

Trotlines may be used to collect a variety of fish species and sizes. Each trotline will consist of a main line (50 to 100 ft in length, with hooks approximately every 5 ft) with baited size 4 to 6 worm hooks. Trotlines will be equipped with anchor weights at each end, and buoy lines will be rigged within 1 to 2 ft of taut to allow for tidal fluctuations. Trotlines will be deployed in sets of three from a boat and generally set perpendicular to the shore in the late afternoon to early evening and retrieved the following morning, because fish activity generally increases at night.

Beach seines:

Beach seining may be used to collect a variety of fish species and sizes. A beach seine will be deployed, where appropriate, according to water depth, site conditions, and target species habitat. A beach seine consists of a lead line and a float line, positioned on the river bottom and floating at the surface, respectively. The seine's height is specific to the water depth. The selected seine will have a mesh size appropriate for the target species and a manageable length and depth appropriate for the LPRSA (see Table 11-2 for details). Fish smaller than the target size will be able to pass through unhindered while target size target species will be retained by the net.

Beach seines will be deployed to capture the entire water column, from the river bottom to the surface, using one of the following methods (Hahn et al. 2007; Portt et al. 2006):

1. **Perpendicular pulled linear set**: One person remains stationary on the beach while the other person pulls one end of the seine perpendicular to shore to the deepest safe navigable water. Both lead and float lines are positioned accordingly using either poles attached to the net or loops held by each person. The two persons walk in parallel up the stretch of river, with

QAPP Worksheet No. 17. Sampling Design and Rationale (cont.)

the beach seine forming a U-shape behind them. Both ends are then brought together on the shore, where target species of the target size are retained.

2. **Perpendicular quarter-arc pulled linear set**: One person remains stationary on the beach while the other person pulls one end of the seine perpendicular to the shore to the deepest safe navigable water. Both lead and float lines are positioned accordingly using either poles attached to the net or loops held by each person. The in-water person then traces a semicircle back upstream and meets the stationary person, whereupon the beach seine is brought on shore and target species of the target size are retained.

During certain situations, it may be necessary to utilize a boat in place of the in-water person, but the methodology remains the same.

Electrofishing:

The suitability of electrofishing will be assessed during the setting of baited traps. If measured *in situ* site conditions such as conductivity and temperature permit it, electrofishing may be employed. Two types of electrofishing gear may be used, depending on the depth of the water. Backpack electrofishing equipment may be used in wadeable water (i.e., above RM 16) where there are few obstructions (e.g., debris) and the substrate is stable; boat-mounted equipment may be used in deeper water. Electrofishing will be conducted after traps have been checked and during daylight hours, to minimize hazards and potential injuries to field personnel.

Backpack electrofishing equipment consists of a power source and a variable voltage pulsator (VVP) on a backpack frame with an anode and cathode (positive and negative electrodes, respectively) attached to the VVP. The VVP controls the output voltage, amperage, pulse interval, and pulse duration. The VVP produces half waves, so the fish are not exposed to a constant voltage. The voltage required is dependent upon the conductivity of the water. Waters with high conductivity or low resistance require less voltage than do waters with low conductivity. A meter on the VVP is used to monitor the current between the electrodes. Two types of currents can be used: direct current and alternating current. Backpack electrofishing requires two certified field technicians. One technician wears and operate the backpack electroshocker, while the second technician collects stunned fish in a net. At sampling locations where backpack equipment can be deployed, 100-ft segments on opposite banks will be sampled. The technician operating the electroshocker will hold the anode wand in one hand and drag the cathode in the water. The first technician will also be responsible for adjusting VVP settings. The second technician will follow with a fish net and collection bucket to collect the stunned fish and to determine whether the settings are appropriate based upon observed fish response. Initial pulse frequency, duration, and voltage should be on low settings and increased as needed based upon fish response. Any changes in VVP settings will be recorded in the field notebook. Voltage will be determined based upon the conductivity of the water and observed fish

QAPP Worksheet No. 17. Sampling Design and Rationale (cont.)

behavior. All instances of stunned fish will be recorded in the field notebook, including date and time of encounter. The length of time spent at one particular location will also be recorded.

Boat electrofishing requires two certified field technicians working from the boat and a boat operator. Output current and pulse rate are determined by the water conductivity and fish species and behavior. Field technicians will wear chest waders and electrical safety gloves while waiting aboard the boat for stunned fish to rise to the surface of the water. Long dip nets will be used to collect the fish. A safety rail will keep the technicians from falling into the water during electrofishing activities. All fish species that are stunned and captured will be immediately collected and placed in a collection bucket with site water and air pumps. Any fish that are stunned and observed but not captured/identified (i.e., swim away) will be counted and recorded, if possible, and if fish can be identified.

Any fish collected that is not retained for chemistry and age analysis will be identified in the field and released live, if possible.

The fish and crab tissue collection effort will be conducted in late summer/early fall of 2019.

QAPP Worksheet No. 18. Proposed Sampling Locations and Methods/SOP Requirements Table

Sampling Area[a,b]	Fishing Method	Analytical Group(s)	Notes Regarding Site Access	Target Number of Samples[c]	Sampling SOP Reference[d]	Rationale for Sampling Location
RM 8.3 to RM 15	Baited eel/minnow and crab traps (deployed on the river bottom), baited trotlines (deployed on the river bottom), gillnets (deployed > 3-ft depth), beach seining (wadeable water), and electrofishing	PCDDs/PCDFs, select metals (methylmercury, mercury, copper, and lead), PCB congeners, select organochlorine pesticides (DDX components [i.e., DDD, DDE, and DDT] and dieldrin), PAHs, percent lipids, and percent moisture	Entire area anticipated to be accessible by boat	12 composites per target species	1–10	TBD (specific locations TBD in the field)
RM 15 to Dundee Dam	Baited eel/minnow and crab traps (deployed on the river bottom), baited trotlines (between RM 15 and RM 16, deployed on the river bottom), gillnets (deployed between RM 15 and RM 16, > 3-ft depth), beach seining (wadeable water), and electrofishing	PCDDs/PCDFs, select metals (methylmercury, mercury, copper, and lead), PCB congeners, select organochlorine pesticides (DDX components [i.e., DDD, DDE, and DDT] and dieldrin, PAHs, percent lipids, and percent moisture	Area up to approximately RM 16 anticipated to be accessible by boat; limited shoreline access above RM 16	12 composites per target species[e]	1–10	TBD (specific locations TBD in the field)

[a] Target sampling locations within each sampling area will be selected in the field based on *in situ* habitat observations and conditions. All sampling locations will be bank specific.

[b] Each sampled location will be identified with unique alphanumeric characters (i.e., a location ID). The first set of characters for the location ID will be "LPR" to identify the project area and a 2-digit sampling year. The second set of characters will be a letter (A for RM 8 to RM 15; B for RM 15 to Dundee Dam) and 3-digit sequential number. For example, the first tissue sampling location in the RM 8 to RM 15 sampling area during the 2019 field effort will be identified as "LPR19-A001." Attempts will be numbered sequentially (separated by a dash from the location ID). For example, the first attempt for the above location will be labeled "LPR19-A001-1."

[c] Refer to Table 11-1 in Worksheet No. 11 of this QAPP addendum for details. Counts are for target species (i.e., American eel, bass, blue crab, catfish, common carp, sunfish, and white perch).

[d] Refer to Project Sampling SOP References table (Worksheet No. 21).

[e] As described as part of DQO 1, based on habitat and previous LPRSA biota sampling, CPG and USEPA acknowledge that the planned current conditions sampling may not achieve the targeted sample size goals in this area.

CPG – Cooperating Parties Group
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
DQO – data quality objective
ID – identification
LPR – Lower Passaic River
LPRSA – Lower Passaic River Study Area
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-p-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan
RM – river mile
SOP – standard operating procedure
TBD – to be determined
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 19. Analytical SOP Requirements Table

Matrix	Analytical Group	Conc. Level	SOP Reference	Sample Size[a]	Containers (number, size, and type) [b]	Preservation Requirements (chemical, temperature, light protected) [c]	Maximum Holding Time (preparation/ analysis)[d]
Tissue	PCDDs/ PCDFs	Low	T3	10 g minimum	One 4-oz. WM clear or amber glass jar	Frozen in the dark at < 0°C until analysis at laboratory and during shipment	1 year to extract if frozen, 40 days to analysis
Tissue	PCBs – congeners	Low	T2	10 g minimum	One 4-oz. WM clear or amber glass jar	Frozen in the dark at < 0°C until analysis at laboratory and during shipment	1 year to extract if frozen, 40 days to analysis
Tissue	Lipids	Low	T23	5 g minimum	One 4-oz. WM clear or amber glass jar	Frozen in the dark at < 0°C until analysis in laboratory and during shipment	1 year if frozen
Tissue	Percent moisture	Low	T24	5 g minimum	One 4-oz. WM clear or amber glass jar	Frozen in the dark at < 0°C until analysis in laboratory and during shipment	1 year if frozen
Tissue	Total mercury	Low	T14, T15	5 g minimum	One 4-oz. WM glass or plastic jar, clear or amber	Frozen in the dark at < 0°C until analysis in laboratory and during shipment	1 year if frozen
Tissue	Methylmercury	Low	T16	5 g minimum	One 4-oz. WM glass or plastic jar, clear or amber	Frozen in the dark at < 0°C until analysis in laboratory and during shipment	1 year if frozen
Tissue	Metals	Low	T10	10 g minimum	One 4-oz. WM glass or plastic jar, clear or amber	Frozen in the dark at < 0°C until analysis in laboratory and during shipment	1 year if frozen
Tissue	Organochlorine pesticides	Low	T7	10 g minimum	One 4-oz. WM clear or amber glass jar	Frozen in the dark at < 0°C until analysis in laboratory and during shipment	1 year to extract, 40 days to analysis
Tissue	PAHs	Low	T4	10 g minimum	One 4-oz. WM clear or amber glass jar	Frozen in the dark at < 0°C until analysis at laboratory and during shipment	1 year to extract if frozen, 40 days to analysis
Scales	Age	na	Attachment J	10 scales minimum	One coin envelope	Dry at room temperature	Not applicable
Fin ray/spine				1	One coin envelope or vial		
Otolith				2	One vial		

[a] Sample sizes may not allow for re-extractions, if necessary, or required batch QC samples. Smaller sample sizes may be analyzed resulting in higher reporting limits and detection limits.

QAPP Worksheet No. 19. Analytical SOP Requirements Table (cont.)

[b] Only one sample container will be submitted to each laboratory. When multiple analyses are conducted at any given laboratory, the aliquots for each analysis will be taken from the single sample container. Container size may be modified at the discretion of the laboratory to accommodate small sample masses. The smallest container size should be selected; however, volume increases due to expansion of water upon freezing must be accounted for to avoid breaking the container upon freezing.

[c] Tissue samples for chemical analyses will be frozen upon collection and thawed or partially thawed for processing and homogenization. After homogenization, tissues will be refrozen in containers for shipment to the analytical laboratories. Tissues will remain frozen until extraction/preparation for analysis. When frozen samples for chemical analysis are couriered, ice will be used as a preservative.

[d] Holding times are in calendar days. Any remaining tissue mass will be archived frozen.

PAH – polycyclic aromatic hydrocarbons
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan
QC – quality control
SOP – standard operating procedure
WM – wide mouth

QAPP Worksheet No. 20. Field QC Sample Summary Table

Matrix	Analytical Group	Conc. Level	SOP Reference[a]	No. of Samples	No. of Matrix Duplicates[b]	No. of MS/MSD	No. of Rinsate Blanks[c]	CRM	Total No. of Samples for Lab
Tissue	PCDDs/PCDFs	Low	T3	312	16	0/0	8	16	352
Tissue	PCB congeners	Low	T2	312	16	0/0	8	16	352
Tissue	Lipids	Low	T23	312	16	0/0	0	16	344
Tissue	Percent moisture	Low	T24	312	16	0/0	0	0	328
Tissue	Total mercury	Low	T14, T15	312	16	16/16	8	16	384
Tissue	Methylmercury	Low	T16	312	16	16/16	8	16	384
Tissue	Metals	Low	T10	312	16	16/0	8	16	368
Tissue	Organochlorine pesticides	Low	T7	312	16	0/0	8	16	352
Tissue	PAHs	Low	T4	312	16	0/0	8	16	352

Note: Trip blanks will not be collected because they are not applicable to solid samples.

[a] Refer to Worksheet No. 23 for SOP titles.

[b] After homogenization, sample masses will be reviewed, and samples will be selected for matrix-specific QC samples (MD, MS, and MSD) and USEPA split samples. Matrix-specific QC samples will be analyzed at a rate of approximately 1 sample per 20 per matrix type (unless the analytical method requires more) as sample mass permits. In order to have enough mass for QC samples, sample mass must be at least three times the post-homogenization minimum target mass.

[c] Matrix-specific QC will not be required for rinsate samples. Rinsate samples will be collected at a rate of 1 per 40 samples.

CRM – certified reference material
MD – matrix duplicates
MS – matrix spikes
MSD – matrix spike duplicates
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan
QC – quality control
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 21. Project Sampling SOP References Table

SOP Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
1	Locating Sample Points Using a Hand-Held Global Positioning System (GPS) SOP, (July 2007), Revision 0	Windward	handheld GPS unit	N	no revisions needed
2	Locating Sample Points Using a Boat-Mounted Global Positioning System (GPS) (July 2007), Revision 0	Windward	Trimble Geo XT (or similar unit) with related cable and power supply	N	no revisions needed
3 (revised)	Procedures to Decontaminate Biological Sampling Equipment SOP (June 2019), Revision 1	Windward	nets and traps, fish boards, scales, and any equipment that comes into contact with fish or crab	Y	Attachment I; revised to include beach seine
4 (revised)	Fish Surveys, Collection, and Tissue Sampling. SOP (June 2019), Revision 2	Windward	sampling vessel, trotlines, eel/minnow traps, beach seine, gillnets	Y	Attachment J; revised to include beach seine and sample prep for age analysis
5	Management and Disposal of Investigation-Derived Waste SOP (July 2007), Revision 0	Windward	open-top drums, storage racks, and insulated coolers	N	no revisions needed
6	Fish Collection by Backpack and Boat Electrofishing SOP (June 2010), Revision 1	Windward	electrofishing unit	N	no revisions needed
7	Procedures for Chain-of-Custody (COC) Tracking and Sample Shipping SOP (July 2007), Revision 0	Windward	COC forms, custody seals, sample containers, packaging supplies and coolers	N	no revisions needed
8	Crab and Crayfish Collection and Tissue Sampling SOP (July 2007), Revision 0	Windward	sampling vessel, crab and crayfish traps and supplies	N	no revisions needed
9	Laboratory Processing of Fish and Decapod Tissue Composites and Homogenization (April 2002), Revision 0	Alpha Analytical	scalpel, tissue grinder, glove box	N	no revisions needed
10	Documenting Field Activities SOP (March 2009), Revision 0	Windward	wireless recording device (e.g., laptop), bound waterproof logbooks, electronic field data forms, camera	N	no revisions needed

QAPP Worksheet No. 21. Project Sampling SOP References Table (cont.)

SOP Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
11	Fish Surveys, Using Traps and Trotlines. SOP (January 2010), Revision 0	Windward	sampling vessel; trotlines; and minnow, eel, and box traps	N	no revisions needed

COC – chemical of concern
GPS – global positioning system
QAPP – quality assurance project plan
SOP – standard operating procedure
Windward – Windward Environmental LLC

QAPP Worksheet No. 23. Analytical SOP References Table

Reference No.	Primary Method Reference	Title, Revision Date, and/or No.	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work?	Attached to this QAPP Addendum?[a]
T1	NA	SOP ID 2166 (OP-003), Tissue Preparation and Homogenization, Revision 4, 5/8/2014	NA	NA	glass or polyethylene cutting board; Black & Decker® food processor with small titanium blade; ceramic, stainless steel, or titanium knives; Omni-GLH grinding unit with stainless steel or titanium saw tooth probes; Janke & Kunkel IKA tissuemizer; LEM electric meat grinder, stainless steel	Alpha Analytical	No[b]	Yes
T2	USEPA 1668C	CF-OA-E003, PCB Congener Analysis by HRGC/HRMS, Revision 7, 7/13/2018	Definitive	PCBs	Waters Autospec Premier high-resolution mass spectrometer/Agilent 7890 GC	Cape Fear Analytical	No	Yes
T3	USEPA 1613B	CF-OA-E002, PCDDs/ PCDFs Analysis by HRGC/HRMS, Revision 15, 1/23/2018	Definitive	PCDDs/ PCDFs	Waters Autospec Premier high-resolution mass spectrometer/Agilent 7890 GC	Cape Fear Analytical	No	Yes
T4	USEPA 1625 Mod.	Sample preparation and analysis of PAHs based on a Modified EPA 8270 / 1625 Method, Rev. 3, 03/17/2016	Definitive	PAHs	HRGC/HRMS	Vista Analytical	No	Yes
T7	USEPA 1699 Mod	Preparation and Analysis of Pesticides by Method 1699, Rev. 10, 04/11/2018	Definitive	Pesticides	HRGC/HRMS	Vista Analytical	No	Yes
T9	USEPA 3051A	SOP 2150, Revision 6, Microwave Assisted Acid Digestion of Sediments, Soils, and Tissues for Determination by ICP-MS, 1/21/2016	Definitive	Total metals	Flororcarbon polymer or quartz closed vessel in laboratory microwave unit	Alpha Analytical	No	Yes

QAPP Worksheet No. 23. Analytical SOP References Table (cont.)

Reference No.	Primary Method Reference	Title, Revision Date, and/or No.	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work?	Attached to this QAPP Addendum?[a]
T10	USEPA SW-846 6020	SOP 26797, Inductively Coupled Plasma-Mass Spectrometry 6020B, Revision 3, 2/27/2019	Definitive	Total metals	Thermo ICP/MS (VG PQ-S or ExCell or X-Series model)	Alpha Analytical	No	Yes
T14	USEPA 1631	SOP No.BAL-3101, BAL Procedure for EPA Method 1631, Appendix to (1/01): Total Mercury in Tissue, Sludge, Sediment, and Soil by Acid Digestion and BrCl Oxidation by Cold Vapor Atomic Fluorescence Spectrophotometry (CVAFS), Revision 005a, 8/28/2018	Definitive	Total mercury	BRI MERX-T Automated Total Mercury CVAFS Systems	Brooks Applied Labs	No	Yes
T15	USEPA 1631	SOP No.BAL-3100, BAL Procedure for EPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, Revision 005, 3/15/2018	Definitive	Total mercury	BRI MERX-M Automated Total Mercury CV-GC-AFS Systems	Brooks Applied Labs	No	Yes
T16	USEPA 1630	SOP No.BAL-3200, Determination of Methyl Mercury by Aqueous Phase Ethylation, Trap Pre-Collection, Isothermal GC Separation, and CVAFS Detection: BAL Procedure for EPA Method 1630 (Waters) and EPA Method 1630, Modified (Solids), Revision 002a, 10/3/2018	Definitive	Methyl-mercury	BRI MERX-M Automated Total Mercury CV-GC-AFS	Brooks Applied Labs	No	Yes

QAPP Worksheet No. 23. Analytical SOP References Table (cont.)

Reference No.	Primary Method Reference	Title, Revision Date, and/or No.	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work?	Attached to this QAPP Addendum?[a]
T23	NOAA Technical Memorandum NOS ORCA 130	SOP 2171, Percent Lipids Determination, Revision 6, 8/3/2015	Definitive	Lipids	Analytical balance capable of weighing to the nearest 0.0001 g and Cahn microbalance as needed	Alpha Analytical	No	Yes
T24	SM2540G Mod	SOP 2175, Percent Solids Determination, Revision 6, 2/23/2017	Definitive	Percent moisture	Analytical balance capable of weighing to the nearest 0.0001 g and a top-loading balance capable of weighing to the nearest 0.01 g	Alpha Analytical	No	Yes
T25	NA	SOP 1754, Balance Calibration and Maintenance, Revision 4, 2/22/2018	Definitive	Percent moisture	Various Laboratory Balances, QA Reference Weights, Laboratory Reference Weights, Forceps and Daily Balance Calibration Logbooks	Alpha Analytical	No	Yes

[a] The SOP is attached to this QAPP addendum if it was updated by the laboratory after the Fish/Decapod QAPP (Windward 2009) was finalized; otherwise, the SOP is provided in Attachment T of the Fish/Decapod QAPP.

BRI – Brooks Rand Instruments
CVAFS – cold vapor atomic fluorescence spectroscopy
CV-GC-AFS – cold vapor-gas chromatography-atomic fluorescence spectroscopy
GC – gas chromatography
HP – Hewlett Packard
HRGC – high-resolution gas chromatography
HRMS – high-resolution mass spectrometry
ICP – inductively coupled plasma
ID – identification
MS – mass spectrometer
NA – not applicable
OC – organic carbon
ORCA – Ocean Resources Conservation and Assessment
NOAA – National Oceanic and Atmospheric Administration
NOS – National Ocean Service
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
SM – Standard Methods
SOP – standard operating procedure
QAPP – quality assurance project plan
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 24. Analytical Instrument Calibration Table

Instrument/ Chemical	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action	Person Responsible for Corrective Action	SOP Reference[a]
HRGC/HRMS – PCDDs/PCDFs	Refer to Cape Fear Analytical SOP No. CF-OA-E-002.	ICAL after instrument set up, after major instrument changes and when continuing calibration criteria are not met; CCVs daily at beginning and end of 12 hour analytical batch	ICAL: %RSD ≤ 10% for native standards or ≤ 20% for extraction standards CCV: Refer to Method 1613	Inspect system; correct problem; rerun calibration and affected samples.	Analyst, Data Reviewer, Production Manager, Cape Fear Analytical	T3
HRGC/HRMS – PCB congeners	Refer to Cape Fear Analytical SOP No. CF-OA-E-003.	ICAL after instrument set up, after major instrument changes and when continuing calibration criteria are not met; CCV daily at beginning of 12-hour analytical batch	ICAL: %RSD ≤ 20% for target analytes calculated by isotope dilution or ≤ 35% for target analytes calculated by internal standard. CCV: ≤ 20% drift for toxic congeners or ≤ 50% drift for non-toxic congeners	Inspect system; correct problem; rerun calibration and affected samples.	Analyst, Data Reviewer, Production Manager, Cape Fear Analytical	T2
Analytical balance – percent moisture	Refer to Alpha Analytical SOP 1754, Balance Calibration and Maintenance	Calibrate monthly, check calibration daily	0.1% of true value	Clean, level, and tare the balance; repeat procedure; if acceptance criteria is not met, balance must not be used for project samples; correct problem in consultation with laboratory QA staff	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T25

QAPP Worksheet No. 24. Analytical Instrument Calibration Table (cont.)

Instrument/ Chemical	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action	Person Responsible for Corrective Action	SOP Reference[a]
Top-loading balance – percent moisture	Refer to Alpha Analytical SOP 1754, Balance Calibration and Maintenance	Calibrate monthly, check calibration daily	1% of true value	Clean, level, and tare the balance; repeat procedure; if acceptance criteria is not met, balance must not be used for project samples; correct problem in consultation with laboratory QA staff	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T25
Analytical balance – percent lipids	Refer to Alpha Analytical SOP 1754, Balance Calibration and Maintenance	Calibration checks are performed daily for each day analyses are performed.	1% of true value	Clean, level, and tare the balance; repeat procedure; if acceptance criteria is not met, balance must not be used for project samples; correct problem in consultation with laboratory QA staff	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T25
CVAFS – total mercury and methylmercury	Refer to Brooks Applied Labs SOPs, No.BAL-3101, and No.BAL-3200	Calibration and ICV daily; CCV end of analytical batch and once every 10 injections	ICAL: RSD of response factors ≤15%; low standard % recovery 75 – 125% for total mercury or 65 – 135% for methylmercury ICV: 85 – 115% recovery for total mercury or 80 – 120% recovery for methylmercury CCV: 77 – 123% recovery for total mercury or 67 – 133% recovery for methylmercury	Inspect system, correct problem. Recalibrate and rerun affected samples.	Josie McMillan or Sage Presster, Brooks Applied Labs	T14 and T16
ICP/MS – metals	Refer to Alpha SOP 26797	Calibration and ICV daily; CCV at beginning and end of analytical batch and once every 10 samples	CRA: % recovery ±100% ICV: 90 – 110% recovery CCV: 90 – 110% recovery	Inspect system; correct problem; re-run calibration and affected samples	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T10

QAPP Worksheet No. 24. Analytical Instrument Calibration Table (cont.)

Instrument/ Chemical	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action	Person Responsible for Corrective Action	SOP Reference[a]
HRGC/HRMS – organochlorine pesticides	Refer to SOP-39	ICAL after instrument set up, after major instrument changes and when continuing calibration criteria are not met; CCV daily at beginning of 12 hour analytical batch	ICAL: %RSD < 20% (35% for labeled compounds) CCV: ± 25%	Inspect system; correct problem; rerun calibration and affected samples	Instrument Analyst, Vista Analytical	T7
HRGC/HRMS – PAHs	Refer to SOP-47	ICAL after instrument set up, after major instrument changes and when continuing calibration criteria are not met; CCV daily at beginning of 24 hour analytical batch	ICAL: %RSD < 30% for unlabeled standards and internal standards CCV: ± 30% of ICAL	Inspect system; correct problem; rerun calibration and affected samples.	Instrument Analyst, Vista Analytical	T4

[a] From Analytical SOP References table (Worksheet No. 23).

CCV – continuing calibration verification
CVAFS – cold vapor atomic fluorescence spectrometer
HRGC/HRMS – high-resolution gas chromatograph/high-resolution mass spectrometer
ICAL – initial calibration
ICV – initial calibration verification
ICP-MS – inductively coupled plasma/mass spectrometer
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAO – quality assurance officer
QAPP – quality assurance project plan
RSD – relative standard deviation
SOP – standard operating procedure

QAPP Worksheet No. 25. Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Instrument/ Equipment	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
HRGC/HRMS	Clean sources; maintain vacuum pumps	See SOP	Instrument performance and sensitivity	Service vacuum pumps twice per year; other maintenance as needed	See SOP	See SOP	Instrument Operator, Cape Fear Analytical	T2, T3
Analytical balance – percent lipids	Calibration check	See SOP	Instrument performance and sensitivity	Check calibration daily	See SOP	See SOP	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T25
Analytical balance – percent moisture	Calibrate	See SOP	Instrument performance and sensitivity	Calibrate monthly, check calibration daily	See SOP	See SOP	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T25
CVAFS	Replace disposables, flush lines	See SOP	Check connections	Daily or as needed	See SOP	See SOP	Josie McMillan, Brooks Applied Labs	T14

QAPP Worksheet No. 25. Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table (cont.)

Instrument/ Equipment	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
ICP/MS	Cone removal and cleaning, clean ICP/MS glassware and fittings, clean RF contact strips, clean air and oil mist filters, check rotary pump oil, clean extraction lens and ion lens stack, check electron multiplier.	See SOP	Check connections	Daily or as needed	See SOP	See SOP	Jim Todaro (QAO) or appointed alternate, Alpha Analytical	T10
HRGC/HRMS – organochlorine pesticides	Clean sources and quadruple rods; maintain vacuum pumps	Refer to SOP39	Instrument performance and sensitivity	Service vacuum pumps twice per year; other maintenance as needed	Refer to SOP39	Refer to SOP39	Instrument Analyst, Vista Analytical	T7
HRGC/HRMS – PAHs	Clean sources and GC; maintain vacuum pumps	Refer to SOP47	Instrument performance and sensitivity	Service vacuum pumps twice per year; other maintenance as needed	Refer to SOP47	Refer to SOP47	Instrument Analyst, Vista Analytical	T4

CVAFS – cold vapor atomic fluorescence spectrometer
HRGC/HRMS – high-resolution gas chromatograph/high-resolution mass spectrometer
ICP/MS – inductively coupled plasma/mass spectrometer
PAH – polycyclic aromatic hydrocarbon
QAO – quality assurance officer
QAPP – quality assurance project plan
RF – response factor
SOP – standard operating procedure

QAPP Worksheet No. 26. Sample Handling System

Sample Collection, Packaging, and Shipment	**Person(s) Responsible**
Sample collection (personnel/organization):	Thai Do or designee/Windward
Sample packaging (personnel/organization):	Thai Do or designee/Windward
Coordination of shipment (personnel/organization):	Thai Do or designee/Windward
Type of shipment/carrier:	Alpha Analytical courier from field to processing laboratory; overnight carrier (FedEx, UPS or equivalent) to other subcontracted laboratories
Sample Receipt and Analysis	
Sample receipt (personnel/organization):	Contact at appropriate laboratory
Sample custody and storage (personnel/organization):	Contact at appropriate laboratory
Sample preparation (personnel/organization):	Contact at appropriate laboratory
Sample determinative analysis (personnel/organization):	Contact at appropriate laboratory
Sample Archiving	
Field sample storage (Up to 1 year from sample collection or until Windward authorizes disposal):	Contact at appropriate laboratory
Sample extract/digestate storage (Up to 1 year from extraction/digestion or until Windward authorizes disposal):	Contact at appropriate laboratory
Sample Disposal	
Sample Disposal Notification	Amara Vandervort or designee/Windward
Sample Disposal	Contact at appropriate laboratory

QAPP Worksheet No. 27. Sample Custody Requirements Table

Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory):

Fish and crab tissue specimens will be collected and logged in the field facility. Fish and crab specimen samples will be identified and measured, and they may be weighed, labeled, sealed in plastic bags, and stored on wet ice in the field for additional processing and freezing at the field facility. The SOPs for collecting and processing the fish and crab tissue samples are discussed in further detail in Attachments J, L, and N (Worksheet No. 21). The SOPs for documenting field sample custody are discussed in further detail in Attachment M (Worksheet No. 21).

Samples for laboratory processing will be transported to Alpha Analytical in coolers, on ice, with the original COCs generated in the field. After the compositing scheme is approved by USEPA and CPG, Windward will oversee the initial process and compositing at Alpha Analytical. The Composite Sample Form provided in Attachment F will be completed by Windward and Alpha Analytical. Alpha Analytical will process samples according to its SOP in Attachment T and tissue processing guidance in Attachment O. Fish and crab specimens not included in a composite will be disposed of once analysis and validation of the composite samples are complete. USEPA will be notified prior to the disposal of these specimens.

After samples have been processed and/or composited, new COC forms will be generated by Alpha Analytical and will accompany all sample shipments. Samples will be shipped in batches of 20 per delivery group for chemical analyses. Samples will be packed on ice in coolers. The appropriate signed COC forms will be placed in a sealable plastic bag, which will be sealed and taped to the inside lid of the cooler. Fiber tape will be wrapped completely around the cooler. On each side of the cooler, a “This Side Up” arrow label will be attached; a “Handle with Care” label will be attached to the top of the cooler, and the cooler will be sealed with a custody seal in two locations. An example COC form and custody seal are provided in Attachment M.

After the finalization of the compositing plan (i.e., after the specimens to be included in the composites have been selected), Windward (or designated lab personnel) will ship all selected age analysis samples (i.e., fin rays/spines, scales, and/or otoliths) via overnight delivery to the age analysis laboratory. Appropriate signed COC forms will be placed in a sealable plastic bag, which will be sealed and included in the package. The package will be secured with fiber tape and sealed with a custody seal in two locations.

Laboratory Sample Custody Procedures (receipt of samples, archiving, disposal):

Frozen composite samples will be shipped to the appropriate analytical laboratories. All field-collected data and documentation will be retained under Windward’s custody.

Each contracted laboratory will have a laboratory-specific SOP that details the procedures used to document sample receipt and custody within the laboratory. The following procedures must be addressed in the laboratory-specific custody SOP:

QAPP Worksheet No. 27. Sample Custody Requirements Table (cont.)

- Each laboratory must have a designated sample custodian who accepts custody of the samples at the time of delivery to the laboratory and verifies that the information on the sample labels matches the information on the COC. The sample custodian must sign and date all appropriate receiving documents and note any discrepancies in sample documentation, as well as the condition of the samples at the time of receipt.
- Once the samples have been accepted by the laboratory, checked, and logged in, they must be maintained in accordance with laboratory custody and security requirements as outlined in the laboratory quality management program (QMP).
- To ensure the traceability of samples during the analytical process, the laboratory will assign a sample identification (ID) number based on procedures outlined in the laboratory QMP or laboratory SOP.

The following procedures, at a minimum, must be documented by the laboratory:

- Tissue processing (Alpha Analytical only)
- Sample extraction/preparation
- Sample analysis
- Data reduction
- Data reporting

Laboratory personnel will be responsible for sample custody until the samples are returned to the secure sample storage area.

When sample analysis, QC, and validation procedures are completed, any remaining sample(s) must be stored in accordance with contractual terms. A minimum of 30 days' notice must be provided before the disposal of any sample. Data sheets, custody documents, and all other laboratory records must be retained in accordance with contractual agreements.

Final Evidence Files

Laboratory records—including all field- and laboratory-initiated COCs and other sample receiving records, sample preparation and analysis records, and the final data package—will become part of the laboratory final evidence file and must be retained as required by the contractual agreement. An original copy of the data package and associated electronic deliverable must be provided to Windward in accordance with the contractual agreement and will be retained by Windward along with associated field records and other related correspondence.

Sample Identification Procedures:

Fish and crab tissue specimens will be identified with the site name, tissue type, species ID, time, date, sampling location, and field crew initials. Unique alphanumeric IDs will be assigned to each individually wrapped fish or crab specimen in the field and recorded

QAPP Worksheet No. 27. Sample Custody Requirements Table (cont.)

on the Specimen Tally Form (Attachment D). Organisms that are not retained will be recorded on the Non-Target Species Tally Form (Attachment E) and will be assigned no individual specimen ID.

Each retained individual specimen will be assigned a unique specimen ID. The sample identification scheme will be as follows:

- The first five alphanumeric characters will be "LPR" to identify the project area (Lower Passaic River) and the 2-digit sampling year (e.g., 19 for 2019).
- The next set of alphanumeric characters will identify the location and will include one letter to identify the sampling area (i.e., A for RM 8 to RM 15; B for RM 15 to Dundee Dam) and a three-digit sequential number.
- The final set of alphanumeric characters will include two letters to identify the fish or crab species by its scientific (Latin binomial) name and a three-digit sequential number for the specimen captured during the sampling event.

For example, the first common carp (*Cyprinus carpio*) collected and retained for analysis during the 2019 sampling year from location A001 would be identified as "LPR19-A001-CC001." Note that specimens will be assigned a unique number regardless of collection location (i.e., there will only be one CC001).

All relevant information for each individually wrapped and labeled target specimen will be recorded on the Location Data Form and Specimen Tally Form (Attachments B and C, respectively) and included as an appendix in the final data report. Therefore, all pertinent data associated with each individual fish or crab specimen will be trackable.

For fin ray/spine, scale, or otolith samples that will submitted for age analysis, the sample ID will be the same as the specimen ID.

For composite samples, the sample ID scheme will be as follows:

- The first five alphanumeric characters will be "LPR" to identify the project area (Lower Passaic River) and a 2-digit sampling year (e.g., 19 for 2019).
- The next character will indicate the sampling area (i.e., A for RM 8 to RM 15; B for RM 15 to Dundee Dam).
- The next set of characters will include two letters to identify the fish or crab species by its scientific (Latin binomial) name[10] and tissue type. Tissue type will be identified using one of the following codes: "WB" for whole-body tissue, "FT" for fillet tissue, "CT" for carcass tissue, or "MH" for muscle/hepatopancreas combined tissue.
- The next set of alphanumeric characters will be "Comp" to identify the composite sample, followed by a two-digit sequential number.

For example, the first common carp fillet tissue composite sample collected during the 2019 sampling event from sampling area A would be identified as "LPR19-A-CCFT-Comp01."

[10] For any composite sample that is composed of more than one species, the scientic (Latin binomial) name will be replaced by "SX" for mixed sunfish, "BX" for mixed bass, or "CX" for mixed catfish.

QAPP Worksheet No. 27. Sample Custody Requirements Table (cont.)

All relevant information for each tissue sample (i.e., whole-body, fillet, carcass, and blue crab tissue types) will be recorded electronically on the Composite Sample Form (Attachment F) and included as an appendix in the final data report.
Chain-of-custody Procedures:
COC procedures are documented in detail in Attachment M (Worksheet No. 21) and summarized briefly below. Samples will be considered to be in custody if they are: 1) in the custodian's possession or view; 2) in a secured place (under lock) with restricted access; or 3) in a container and secured with an official seal(s) such that the sample cannot be reached without breaking the seal(s). Custody procedures as defined in Attachment M will be used for all samples throughout the collection and transport process. Custody procedures will be initiated during sample collection. An electronic COC form will accompany samples to the analytical laboratory. Each person who has custody of the samples will sign the COC form and ensure that the samples are not left unattended unless properly secured. The Field Coordinator will be responsible for all sample tracking and custody procedures for samples in the field. The Field Coordinator will be responsible for final sample inventory and will maintain sample custody documentation. The Field Coordinator will also complete COC forms prior to removing samples from the sampling area. At the end of each day, and prior to transfer, COC entries will be made for all samples. Information on the labels will be checked against sample log entries, and samples will be recounted. COC forms will accompany all samples. The COC forms will be signed at each point of transfer. Copies of all COC forms will be retained and included as appendices to QA/QC reports and data reports. Samples will be shipped in sealed coolers. Windward will ensure that COC forms are properly signed upon receipt of the samples and will note questions or observations concerning sample integrity on the COC forms. Windward will contact the Field Coordinator and Project Task QA/QC Manager immediately if discrepancies are discovered between the COC forms and the sample shipment upon receipt.

QAPP Worksheet No. 28. QC Samples Table

Matrix	Tissue
Analytical Group	PCDDs/PCDFs
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	USEPA 1613B/T3
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Cape Fear Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
Method blank	1 per batch of 20 samples	No target compounds above minimum level; compound specific (refer to laboratory SOP)	If a method blank fails to meet defined criteria, the source of contamination should be found and eliminated before proceeding with analysis.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Contamination	Laboratory control limits
LCS/LCSD	1 per batch of 20 samples	Recoveries of spiked analytes within compound-specific limits (refer to laboratory SOP)	Refer to SOP.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Contamination	Laboratory control limits
MD	1 per batch of 20 samples per matrix type (mass permitting)	RPD is ≤ 35% when within the curve and the sample is a true laboratory duplicate.	Identify the source of variation before implementing corrective action. Assess impact on sample data reliability and consider re-extraction and reanalysis of samples if necessary for generating reliable data as mass permits.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Precision and accuracy	Laboratory RPD control limit

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	PCDDs/PCDFs
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	USEPA 1613B/T3
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Cape Fear Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
CRM	1 per batch of 20 samples	PD of certified target analytes should be within 25% of consensus values or recovery within limits set by CRM manufacturer (whichever is greater) when within the ICAL.	Identify source of variance before implementing corrective action. In all cases, assess impact on sample data reliability and consider re-extraction and reanalysis of samples if necessary for generating reliable data as sample mass permits.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Accuracy	Laboratory control limits

CRM – certified reference material
DQI – data quality indicator
ICAL – initial calibration
LCS – laboratory control sample
LCSD – laboratory control sample duplicate
MB – method blank
MD – matrix duplicate
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
PD – percent difference
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	PCB – Congeners
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/ SOP Reference	USEPA 1668A/T2
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Cape Fear Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
Method blank	1 per prep batch of 20 samples or fewer	No target compounds above minimum level; compound specific (refer to laboratory SOP)	If a method blank fails to meet defined criteria, the source of contamination should be found and eliminated before proceeding with analysis.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Contamination	Laboratory control limits
LCS/LCSD	1 per prep batch of 20 samples or fewer	Recovery compound specific (refer to laboratory SOP)	If an LCS fails to meet specified criteria, the process should be reviewed to identify potential areas for failure. Any problem areas should be corrected before re-extraction or reanalysis is performed.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Accuracy/ precision	Laboratory control limits
Extraction standard	Spiked into every sample and QC sample	Recovery compound specific (refer to laboratory SOP)	Refer to SOP for corrective action.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Accuracy	Laboratory % recovery control limits

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	PCB – Congeners
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/ SOP Reference	USEPA 1668A/T2
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Cape Fear Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MD	1 per 20 samples per matrix type (mass permitting)	RPD ≤ 35% when within curve and the sample is a true laboratory duplicate.	Identify source of variance before implementing corrective action. Assess impact on sample data reliability and consider re-extraction and reanalysis of samples if necessary for generating reliable data as sample mass permits.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Precision	Laboratory PD control limit
CRM	1 per prep batch of 20 samples or fewer	PD of certified target analytes should be within 25% of consensus values or recovery within limits set by CRM manufacturer (whichever is greater) when within the ICAL	Identify source of variance before implementing corrective action. In all cases, assess impact on sample data reliability and consider re-extraction and reanalysis of samples if necessary for generating reliable data as sample mass permits.	Analyst, Data Reviewer, Laboratory Supervisor, Cape Fear Analytical	Accuracy	Laboratory control limits

CRM – certified reference material
DQI – data quality indicator
ICAL – initial calibration
LCS – laboratory control sample
LCSD – laboratory control sample duplicate
MD – matrix duplicate
PCB – polychlorinated biphenyl
PD – percent difference
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Lipids
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	NOAA NOS ORCA 130 /T23
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Alpha Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MB	1 per batch of 20 samples	No target analytes at MRL	Reanalyze affected samples. Qualify data as needed.	Sarah Barr, Alpha Analytical	Contamination	Laboratory control limit
MD	1 per batch of 20 samples	RPD 20%	Reanalyze affected samples. Qualify data as needed.	Sarah Barr, Alpha Analytical	Precision	Laboratory RPD control limit
CRM	1 per batch of 20 samples	Recovery within limits set by CRM manufacturer	Reanalyze and qualify data as needed.	Sarah Barr, Alpha Analytical	Accuracy	Laboratory % recovery control limits

CRM – certified reference material
DQI – data quality indicator
MB – method blank
MD – matrix duplicate
MRL – method reporting limit
NOAA – National Oceanic and Atmospheric Administration
NOS – National Ocean Service
ORCA – Ocean Resources Conservation and Assessment
RPD – relative percent difference
QC – quality control
SOP – standard operating procedure

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Percent Moisture
Concentration Level	NA
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	SM2540G Mod. /T24
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Alpha Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MD	1 per batch of 20 samples	RPD of 10%	Reanalyze affected samples. Qualify data as needed.	Patrick Sullivan, Alpha Analytical	Precision	Laboratory RPD control limit

DQI – data quality indicator
MD – matrix duplicate
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SM – standard method
SOP – standard operating procedure

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Metals: Total Mercury
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/ SOP Reference	USEPA 1631 /T14, T15
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Brooks Applied Labs
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
Method blank	3 per batch	Average ≤ MRL; Standard deviation ≤ MDL or high MB < 1/10 of associated samples	Correct problem until criteria are met. All samples associated with a contaminated MB must be reanalyzed or qualified accordingly.	Josie McMillan or Sage Presster, Brooks Applied Labs	Contamination	Laboratory control limits
CRM	1 per 20 client samples	Percent recovery = 75–125% or recovery within limits set by CRM manufacturer (whichever is greater)	Correct problem prior to continuing analysis.	Josie McMillan or Sage Presster, Brooks Applied Labs	Accuracy/bias	Laboratory % recovery control limits
MD	1 per 10 client samples per matrix (mass permitting)	RPD ≤ 30%	If RPD criteria are not met, then the system is not in control. Correct problem and reanalyze all associated samples or qualify accordingly.	Josie McMillan or Sage Presster, Brooks Applied Labs	Precision	Laboratory RPD control limit
MS/MSD	1 per 10 client samples (mass permitting)	Percent recovery = 70-130% RPD ≤ 35%	If recoveries are similar but fail recovery criteria, interference may be present in the sample and the result must be qualified. If RPD are criteria not met, then the system is not in control. Correct problem and reanalyze all associated samples.	Josie McMillan or Sage Presster, Brooks Applied Labs	Precision and accuracy/bias	Laboratory % recovery control limits

CRM – certified reference material
DQI – data quality indicator
MB – method blank
MDL – method detection limit
MRL – method reporting limit
MD – matrix duplicate
MS/MSD – matrix spike/matrix spike duplicate
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Metals: Methylmercury
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	USEPA 1630/T16
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Brooks Applied Labs
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MB	4 per batch	Average ≤ 2 x MDL; SD ≤ 2/3 MDL or < 1/10 of associated samples	Correct problem. All samples associated with a contaminated method blank must be reanalyzed.	Josie McMillan or Sage Presster, Brooks Applied Labs	Contamination	No target analytes at MRL
CRM	1 per 20 client samples	Percent recovery = 65-135%	Correct problem prior to continuing analysis	Josie McMillan or Sage Presster, Brooks Applied Labs	Accuracy/bias	Laboratory % recovery control limits
MD	1 per 10 client samples per matrix type (mass permitting)	RPD ≤ 35% or ± 2 x MRL if sample < 5 x MRL	If RPD criteria are not met, then the system is not in control. Correct problem and reanalyze all associated samples.	Josie McMillan or Sage Presster, Brooks Applied Labs	Precision	Laboratory RPD control limit
MS/MSD	1 per 10 client samples per matrix type (mass permitting)	Percent recovery = 65-135% RPD ≤ 35%	If recoveries are similar but fail recovery criteria, an interference is present in the sample and the result must be qualified. If RPD criteria are not met, then the system is not in control. Correct problem and reanalyze all associated samples.	Josie McMillan or Sage Presster, Brooks Applied Labs	Precision and accuracy/bias	Laboratory % recovery control limits

CRM – certified reference material
DQI – data quality indicator
MB – method blank
MD – matrix duplicate
MDL – method detection limit
MRL – method reporting limit
MS/MSD – matrix spike/matrix spike duplicate
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure
SD – standard deviation
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Metals (ICP/MS)
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/ SOP Reference	USEPA SW-846 6020/T10
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Alpha Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MB	Minimum of 1 per batch	Result < MRL	All samples associated with contaminated method blanks must be reanalyzed.	Robert Stevenson, Alpha Analytical	Contamination	Laboratory control limits
LCS	Minimum of 1 per batch	Percent recovery = 75-125%	If recovery is outside of the control limit, then batch must be reprepared and reanalyzed.	Robert Stevenson, Alpha Analytical	Accuracy/bias	Laboratory % recovery control limits
MD	Minimum of 1 per 20 client samples per matrix type (mass permitting)	RPD ≤ 30%	Either redigest the sample batch or flag the results, whichever is appropriate.	Robert Stevenson, Alpha Analytical	Precision	Laboratory RPD control limit
MS	Minimum of 1 per 20 client samples per matrix type (mass permitting)	Percent recovery = 75-125%	Either redigest the sample batch or flag the results, whichever is appropriate.	Robert Stevenson, Alpha Analytical	Precision and accuracy/bias	Laboratory % recovery control limits
CRM	Minimum of 1 per batch	Vendor-provided limits	Either redigest the sample batch or flag the results, whichever is appropriate.	Robert Stevenson, Alpha Analytical	Accuracy/bias	Laboratory % recovery control limits

CRM – certified reference material
DQI – data quality indicator
ICP/MS – inductively coupled plasma/ mass spectrometry
LCS – laboratory control sample
MB – method blank
MD – matrix duplicate
MRL – method reporting limit
MS – matrix spike
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure
SW – solid waste
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Organochlorine Pesticides
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/ SOP Reference	USEPA 1699 Mod./ T7
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Vista Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MB	A minimum of 1 for every 20 samples	No target compounds > ½ MRL	All of the samples must be reprepared and reanalyzed. If sufficient sample mass is not available, then any positive sample data must be flagged as possibly contaminated to the level found in the MB.	Instrument Analyst, Vista Analytical	Contamination	Laboratory control limits
LCS	1 for every batch of samples up to a maximum batch size of 20 samples	Compound specific (refer to laboratory SOP)	Check calculations and reanalyze if recoveries are outside of these limits. If the blank spike is outside of limits but MS is acceptable, then the blank spike may have been spiked incorrectly. Review the data with the Team or Group Leader. All data may be accepted but must be flagged as exceeding acceptance criteria. If both the blank spike and the MS exceed their respective limits, reprepare and reanalyze the samples, providing sufficient sample mass is available. If sufficient sample mass is not available the data must be flagged.	Instrument Analyst, Vista Analytical	Accuracy/bias	Laboratory % recovery control limits

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	Organochlorine Pesticides
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/ SOP Reference	USEPA 1699 Mod./ T7
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Vista Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MD	1 for every 20 samples per matrix type (mass permitting)	RPD < 50% if both samples are > 5 x QL	Check calculation for errors. Check solid samples for homogeneity; if not homogeneous, flag data as appropriate. If sample is homogeneous, reprepare and reanalyze sample.	Instrument Analyst, Vista Analytical	Precision	Laboratory RPD control limit
Pre-extraction internal standards (surrogates)	Spiked into every sample and QC sample	Compound specific (refer to laboratory SOP)	The data will still be acceptable provided that the signal is equal to or greater than 10 times the noise level. This will be flagged in the Case Narrative section of the final report. The extract may be diluted and rerun. Complex matrices may mask or enhance the response of 4,4'-DDT. The sample may be re-extracted if nothing can be found to explain the low or high recoveries and no obvious interference is causing the problem.	Instrument Analyst, Vista Analytical	Accuracy/bias	Laboratory % recovery control limits
CRM	1 for every batch of samples up to a maximum batch size of 20 samples	Recovery within limits set by CRM manufacturer	Reanalyze sample to see if an analytical error has occurred. Qualify data as needed. Consider re-extraction and reanalysis of samples if necessary for generating reliable data as sample mass permits.	Instrument Analyst, Vista Analytical	Accuracy	Laboratory % recovery control limits

QAPP Worksheet No. 28. QC Samples Table (cont.)

CRM – certified reference material
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
DQI – data quality indicator
LCS – laboratory control sample
MB – method blank
MD – matrix duplicate
MRL – method reporting limit
MS – matrix spike
QAPP – quality assurance project plan
QC – quality control
QL – quantitation limit
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	PAHs
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	USEPA 1625 Mod. / T4
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Vista Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
MB	1 per batch of 20 samples	No target compounds > reporting limit	Investigate possible source of contamination by checking, at a minimum: instrument spike standard solutions, recovery standards, proofing of glassware, proofing of solvent, and absorbance used in clean-up. If positive blanks are detected at levels > 5% of sample values, the impacted samples should be reanalyzed.	Instrument Analyst, Vista Analytical	Contamination	Laboratory control limits
MD	1 per batch of 20 samples per matrix type (mass permitting)	RPD ≤ 50% if samples are > 5 x QL	Flag associated results.	Instrument Analyst, Vista Analytical	Precision	Laboratory RPD control limit
Pre-extraction internal standards	Spiked into every sample and QC sample	50–150%	Refer to SOP for corrective action.	Instrument Analyst, Vista Analytical	Accuracy	Laboratory % recovery control limits
LCS	1 for every batch of samples up to a maximum batch size of 20 samples	50–150%	Reanalyze affected samples.	Instrument Analyst,Vista Analytical	Precision and accuracy	Laboratory RPD control limit and percent drift

QAPP Worksheet No. 28. QC Samples Table (cont.)

Matrix	Tissue
Analytical Group	PAHs
Concentration Level	Low
Sampling SOP	Attachments J, L, N, and O
Analytical Method/SOP Reference	USEPA 1625 Mod. / T4
Sampler's Name	Windward Field Staff
Field Sampling Organization	Windward Environmental LLC
Analytical Organization	Vista Analytical
Number of Samples	312

QC Sample	Frequency/ Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	DQI	Measurement Performance Criteria
CRM	1 for every batch of samples up to a maximum batch size of 20 samples	Recovery within limits set by CRM manufacturer	Reanalyze sample to verify if an analytical error has occurred. Qualify data as needed. Consider re-extraction and reanalysis of samples if necessary for generating reliable data as sample mass permits.	Instrument Analyst, Vista Analytical	Accuracy	CRM Manufacturer % recovery control limits

CRM – certified reference material
DQI – data quality indicator
LCS – laboratory control sample
MB – method blank
MD – matrix duplicate
PAH – polycyclic aromatic hydrocarbon
QAPP – quality assurance project plan
QC – quality control
RPD – relative percent difference
SOP – standard operating procedure
USEPA – US Environmental Protection Agency

QAPP Worksheet No. 29. Project Documents and Records Table

Sample Collection Documents and Records
On-Site Analysis Documents and Records
Field Logbook
Location Data Form
Specimen Tally Form
Non-Target Species Tally Form
Corrective Action Reports (Protocol Modification Forms)
Progress report, made daily or as scheduled by Field Coordinator to Investigative Organization Project Manager and Task QA/QC Manager
Electronic GPS file
Off-Site Analysis Documents and Records
COC record of sample shipment to analytical laboratory
Corrective Action Reports (Protocol Modification Forms)
Composite Sample Form
Progress reports
Electronic Data Deliverables
Laboratory data report and supporting documentation
Data Assessment Documents and Records
Verification of GPS coordinates of surveyed locations by GIS database manager
Data validation reports
Data usability assessment
Deliverables
Fish/crab chemistry data report

QAPP Worksheet No. 29. Project Documents and Records Table (cont.)

This section describes the project data management process that will be used to trace the data from their generation through final use and/or storage. All project data, communications, and other information must be documented in a format usable by project personnel.

Project Document Control System

Project documents will be controlled by the Task QA/QC Manager or designee, who will maintain and manage hardcopies and electronic copies of all project-related documents. Electronic copies of all information relating to this project will be maintained on the project network files and backed up at least once daily; access to these files will be limited to authorized project personnel. All project data and information must be documented in a standard format that is usable by all project personnel.

Data Recording

Data generated during this project will be captured electronically (refer to SOP 10 or Attachment P). Computer-generated laboratory data will be managed using the laboratory information management system used by subcontracted laboratories, as described in their QA documentation.

Data Quality Assurance Procedures

Windward will monitor the progress of sample collection to verify that samples are collected as planned. Sample collection progress will be monitored through the documentation of samples collected and shipped each day. The participating laboratories must maintain and adhere to a formal QA plan that addresses all data-generating aspects of the daily operations. A policy of continuous improvement will allow all data generation processes to be reviewed and modified as necessary to meet project objectives. Periodic audits of field and laboratory operations will ensure that data collection, documentation, and QC procedures are followed.

Laboratory Data Transmittal

Laboratory data will be managed by the laboratories' information management systems, beginning with the sample receiving process. Laboratories will be required to provide data reports (sample results, QC summary information, and supporting raw data), including EDDs, within the turnaround times specified in Worksheet No. 30. EDDs will be provided according to the specifications of the investigative organization information manager. All EDDs will be checked for errors prior to transmittal.

Data Storage and Retrieval

Completed field forms, field logbooks, photographs, data packages, and electronic files will be transmitted regularly to the QA/QC Manager. Each laboratory will maintain copies of all documents generated, as well as backup files of all electronic data relating to the analysis of samples. Raw data and electronic files of all field samples, QC analyses, and blanks must be archived from the date of generation and maintained by each laboratory for a minimum of five years in accordance with the terms of the contract between Windward and the laboratory. Project closeout will be conducted in accordance with contractual guidance. As required by the settlement agreement, all data and other project records will be made available to USEPA. Data transfer to USEPA will include an

QAPP Worksheet No. 29. Project Documents and Records Table (cont.)

EDD compatible with USEPA Region 2 format version 4. The EDD will include all qualified and rejected data (including the reported, numerical values for rejected data).

QAPP Worksheet No. 30. Analytical Services Table

Matrix	Analytical Group	Concentration Level	Sample Locations/ ID Number	Analytical SOP	Data Package Turnaround Time[a]	Laboratory/ Organization (name and address, contact person and telephone number)	Backup Laboratory/ Organization (name and address, contact person and telephone number)
Tissue	Tissue processing and homogenization	not applicable	All	T1	4 – 6 weeks	Alpha Analytical 320 Forbes Boulevard Mansfield, MA 02048 Elizabeth Porta 508.844.4124	SGS Axys Analytical Services Ltd. 2045 West Mills road Sidney, British Columbia V8L 5X2 Canada Georgina Brooks 250.655.5801
Tissue	PCDDs/PCDFs – homologs and 17 congeners	Low	All	T3	30 days	Cape Fear Analytical 3306 Kitty Hawk Road #120 Willmington, NC 28405 Cynde Larkins 910.795.0421	SGS Axys Analytical Services Ltd. 2045 West Mills road Sidney, British Columbia V8L 5X2 Canada Georgina Brooks 250.655.5801
Tissue	PCBs – congeners	Low	All	T2	30 days	Cape Fear Analytical 3306 Kitty Hawk Road #120 Willmington, NC 28405 Cynde Larkins 910.795.0421	SGS Axys Analytical Services Ltd. 2045 West Mills road Sidney, British Columbia V8L 5X2 Canada Georgina Brooks 250.655.5801
Tissue	Lipids	Low	All	T23	30 days	Alpha Analytical 320 Forbes Boulevard Mansfield, MA 02048 Elizabeth Porta 508.844.4124	ALS Environmental Kelso 1317 South 13th Ave. Kelso, WA 98626 Kurt Clarkson 360.501.3356
Tissue	Percent moisture	Low	All	T24, T25	30 days	Alpha Analytical 320 Forbes Boulevard Mansfield, MA 02048 Elizabeth Porta 508.844.4124	ALS Environmental Kelso 1317 South 13th Ave. Kelso, WA 98626 Kurt Clarkson 360.501.3356
Tissue	Total mercury	Low	All	T14, T15	30 days	Brooks Applied Labs 3958 6th Ave. NW Bothell, WA 98011 Amanda Royal 206-753-	ALS Environmental Kelso 1317 South 13th Ave. Kelso, WA 98626 Kurt Clarkson 360.501.3356
Tissue	Methylmercury	Low	All	T16	30 days	Brooks Applied Labs 3958 6th Ave. NW Bothell, WA 980117 Amanda Royal 206-753-6111	ALS Environmental Kelso 1317 South 13th Ave. Kelso, WA 98626 Kurt Clarkson 360.501.3356

QAPP Worksheet No. 30. Analytical Services Table (cont.)

Matrix	Analytical Group	Concentration Level	Sample Locations/ ID Number	Analytical SOP	Data Package Turnaround Time[a]	Laboratory/ Organization (name and address, contact person and telephone number)	Backup Laboratory/ Organization (name and address, contact person and telephone number)
Tissue	Metals	Low	All	T9, T10	30 days	Alpha Analytical 320 Forbes Boulevard Mansfield, MA 02048 Elizabeth Porta 508.844.4124	ALS Environmental Kelso 1317 South 13th Ave. Kelso, WA 98626 Kurt Clarkson 360.501.3356
Tissue	Organochlorine pesticides – HRGC/HRMS	Low	All	T7	60 days	Vista Analytical Laboratory, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 Martha Maier 916.673.1520	Maxxam Analytics 6740 Campobello Rd. Mississauga, ON L5N 2L8 Mike Challis 800.563.6266, ext. 5790
Tissue	PAHs – HRGC/HRMS	Low	All	T4	60 days	Vista Analytical Laboratory, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 Martha Maier 916.673.1520	Maxxam Analytics 6740 Campobello Rd. Mississauga, ON L5N 2L8 Mike Challis 800.563.6266, ext. 5790
Tissue	Fish age determination	NA	All	T30, T31	60 days	Normandeau Associates 30 International Drive Portsmouth, NH 03801 Sean Stimmell 603.637.4427	NA

[a] Calendar days from sample receipt.

HRGC – high-resolution gas chromatography
HRMS – high-resolution/mass spectroscopy
ID – identification
NA – not applicable
OC – organochlorine
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan

QAPP Worksheet No. 31. Planned Project Assessments Table

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment (title and organizational affiliation)	Person(s) Responsible for Responding to Assessment Findings (title and organizational affiliation)	Person(s) Responsible for Identifying and Implementing Corrective Actions (title and organizational affiliation)	Person(s) Responsible for Monitoring Effectiveness of Corrective Action (title and organizational affiliation)
Review of field activities/ sampling method compliance	Daily or as scheduled	Internal	Windward	**Jennifer Parker** (Investigative Organization Task QA/QC Manager, Windward)	**Thai Do** (Field Coordinator, Windward) or designee	**Thai Do** (Field Coordinator, Windward) or designee	**Jennifer Parker** (Investigative Organization Task QA/QC Manager, Windward)
Review of laboratory analysis method compliance, audit reports	As needed	Internal	Windward	**Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward)	**Elizabeth Porta** (Laboratory Project Manager, Alpha Analytical), **Cynde Larkins** (Laboratory Project Manager, Cape Fear Analytical), **Amanda Royal** (Laboratory Project Manager, Brooks Applied Labs), **Martha Maier** (Laboratory Project Manager, Vista Analytical)	**Elizabeth Porta** (Laboratory Project Manager, Alpha Analytical), **Cynde Larkins** (Laboratory Project Manager, Cape Fear Analytical), **Amanda Royal** (Laboratory Project Manager, Brooks Applied Labs), **Martha Maier** (Laboratory Project Manager, Vista Analytical)	**Jennifer Parker** (Investigative Organization Task QA/QC Manager, Windward), **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward)

QA – quality assurance
QAPP – quality assurance project plan
QC – quality control
Windward – Windward Environmental LLC

QAPP Worksheet No. 32. Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings (name, title, organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (name, title, organization)	Timeframe for Response
On-site review of field activities/ sampling method compliance	Deficiencies will be documented in the field logbook	**Thai Do** (Field Coordinator, Windward); **Lisa Saban** (Investigative Organization Project Manager, Windward); **Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Bill Potter/Robert Law**, (Project Coordinators, de maximis, inc.); **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward); **Diane Salkie** (USEPA Remedial Project Managers); **William Sy** (USEPA Project QA Officer)	Immediately	Corrective actions will be documented in the field logbook and Protocol Modification Forms (Attachment A)	**Thai Do** (Field Coordinator, Windward); **Lisa Saban** (Investigative Organization Project Manager, Windward); **Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Bill Potter/Robert Law** (Project Coordinators, de maximis, inc.), **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward); **Diane Salkie** (USEPA Remedial Project Managers); **William Sy** (USEPA Project QA Officer)	By next field day
Internal laboratory audits	Deficiencies will be documented as required by laboratory QA manual	**Laboratories** (Alpha Analytical, Cape Fear Analytical, LLC, Brooks Applied Labs, Vista Analytical,) as required by laboratory QA manual	As required by laboratory QA manual	As required by laboratory QA manual	**Laboratories** (Alpha Analytical, Cape Fear Analytical, LLC, Brooks Applied Labs, Vita Analytical,) as required by laboratory QA manual If project DQOs are affected: **Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward)	As required by laboratory QA manual

DQO – data quality objective
QA – quality assurance
QAPP – quality assurance project plan
QC – quality control
USEPA – US Environmental Protection Agency
Windward – Windward Environmental LLC

QAPP Worksheet No. 33. QA Management Reports Table

Type of Report	Frequency (daily, weekly monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (title and organizational affiliation)	Report Recipient(s) (title and organizational affiliation)
Progress report	Daily, or as practicable	Daily, beginning the day after the first field sampling day	**Thai Do** (Field Coordinator, Windward) or designee	**Lisa Saban** (Investigative Organization Project Manager, Windward); **Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Bill Potter/Robert Law** (Project Coordinators, de maximis, inc.); **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward); **Diane Salkie** (USEPA Remedial Project Managers); **William Sy** (USEPA Project QA Officer)
Corrective action reports (protocol modification forms)	Monthly, or as necessary	Monthly, or as necessary	**Thai Do** (Field Coordinator, Windward) or designee	**Lisa Saban** (Investigative Organization Project Manager, Windward); **Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Bill Potter/Robert Law** (Project Coordinators, de maximis, inc.); **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward); **Diane Salkie** (USEPA Remedial Project Managers); **William Sy** (USEPA Project QA Officer)
Report on chemistry results and fish aging results	Monthly, or as necessary	Monthly, or as necessary	**Thai Do** (Field Coordinator, Windward); **Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward)	**Lisa Saban** (Investigative Organization Project Manager, Windward); **Bill Potter/Robert Law** (Project Coordinators, de maximis, inc.); **Diane Salkie** (USEPA Remedial Project Managers); **William Sy** (USEPA Project QA Officer)
Oversight of fish processing	Once, start of project	Start of project	**Amara Vandervort** (Investigative Organization Laboratory and Data Validation Coordinator, Windward)	**Jennifer Parker** (Investigative Organization Project Chemist and Task QA/QC Manager, Windward); **Lisa Saban** (Investigative Organization Project Manager, Windward); **Bill Potter/Robert Law** (Project Coordinators, de maximis, inc.); **Diane Salkie** (USEPA Remedial Project Managers); **William Sy** (USEPA Project QA Officer)

QA – quality assurance
QAPP – quality assurance project plan
QC – quality control
USEPA – US Environmental Protection Agency
Windward – Windward Environmental LLC

QAPP Worksheet No. 34. Sampling and Analysis Verification (Step I) Process Table

Verification Input	Description	Internal/ External	Responsible for Verification (name, organization)
Field-collected coordinates	All field-collected coordinates will be downloaded from the GPS receiver and plotted in the GIS to verify they accurately represent locations that were sampled.	Internal	Mike Yarnes, Windward
Fish and crab counts, length, weight data	Data transfer from field logbooks and forms to a computer-based table will be checked by a second individual.	Internal	Thai Do, Windward
Sample and lab QC	The use of proper packing, shipping, storage, and QC procedures for the tissue samples will be checked.	Internal	Amara Vandervort, Windward
Laboratory data packages	Transcriptions and calculations from the raw data will be spot checked. It will be verified that qualifiers are correct and complete, reported analytes conform to target analytes in the QAPP, samples were prepared/analyzed within the holding times specified in the QAPP, the measurement criteria specified in the QAPP were met (and, if not, that appropriate corrective action and notification were taken), and project QLs conformed to the QAPP and any deviations were justified.	External	Pei Geng, LDC

GIS – geographic information system
LDC – Laboratory Data Consultants
QAPP – quality assurance project plan
QC – quality control
Windward – Windward Environmental LLC

QAPP Worksheet No. 35. Sampling and Analysis Validation (Steps IIa and IIb) Process Table

Step IIa/IIb	Validation Input	Description	Responsible for Validation (name, organization)
IIa	Analytical data deliverables	Verify that the required deliverables were provided by the laboratory as specified in the contractual documents.	Amara Vandervort, Windward
IIa	Field SOPs, field records	Verify conformance to approved sampling and field measurement procedures; ensure that activities met performance criteria; and verify that deviations from procedures or criteria were documented.	Amara Vandervort, Windward
IIa	Field records, database output	Verify transcription of field data from field forms to database.	Amara Vandervort, Windward
IIa	Custody records, analytical data reports	Review traceability from sample collection through reporting.	Amara Vandervort, Windward
IIa	Analytical data reports	Verify that reported analytes conform to contractual specifications.	Amara Vandervort, Windward
IIa	Laboratory SOPs, analytical data reports	Verify conformance to approved preparation and analytical procedures; ensure that measurement performance criteria were met; and verify that deviations from procedures or criteria were documented.	Amara Vandervort, Windward
IIa	Methods, analytical data reports	Verify that samples were prepared/analyzed within method-specific holding times.	Amara Vandervort, Windward
IIa	Laboratory EDDs	Verify that EDD conforms to specifications of the investigative organization.	Elizabeth Porta, Alpha Analytical/ Cynde Larkins, Cape Fear Analytical, LLC /Amanda Royal, Brooks Applied Labs/ Stephanie Pollen, Maxxam Analytics/
IIa	Laboratory EDDs, analytical data reports, database output	Verify loading of EDDs into database against hard-copy analytical reports.	Kimberley Goffman, Windward
IIa	Analytical data reports	Verify that the qualifiers applied by the laboratory are defined in the analytical report and are in conformance to the contractual requirements.	Amara Vandervort, Windward
IIa	Analytical data reports	Verify that performance evaluation samples were analyzed at the frequency specified in the contractual documents.	Amara Vandervort, Windward
IIa	Laboratory SOPs, analytical data reports	Verify that the measurement criteria were met for all analyses, and, if not, that appropriate corrective action and notification were taken.	Amara Vandervort, Windward
IIa	Analytical data reports	Verify that project QLs conformed to the contractual specifications and that deviations were justified.	Amara Vandervort, Windward

QAPP Worksheet No. 35. Sampling and Analysis Validation (Steps IIa and IIb) Process Table (cont.)

Step IIa/IIb	Validation Input	Description	Responsible for Validation (name, organization)
IIa	Analytical data reports, validation guidance	Validate 100% of the analytical data reports according to the method-specific Region 2 validation SOPs (if available). Apply qualifiers based on the criteria in the Region 2 validation SOPs or QAPP, whichever are more stringent. Spot check transcriptions and calculations from the raw data.	Pei Geng, LDC
IIa	Data validation reports, database output	Verify that entry of qualifiers was correct and complete.	Pei Geng, LDC
IIb	Analytical data reports	Verify that reported analytes conform to target analytes in QAPP.	Pei Geng, LDC
IIb	QAPP, analytical data reports	Verify that samples were prepared/analyzed within the holding times specified in the QAPP.	Pei Geng, LDC
IIb	QAPP, analytical data reports	Verify that samples were prepared/analyzed according to the procedures specified in the QAPP.	Pei Geng, LDC
IIb	QAPP, analytical data reports	Verify that the measurement criteria specified in the QAPP were met for all analyses, and, if not, that appropriate corrective action and notification were taken.	Pei Geng, LDC
IIb	QAPP, analytical data reports	Verify that project QLs conformed to the QAPP and that deviations were justified.	Pei Geng, LDC
IIb	Analytical data reports, validation guidance	Validate 100% of the analytical data reports according to the measurement performance criteria in the QAPP. Qualifiers will be applied based on the criteria in the QAPP or method-specific Region 2 validation SOPs, whichever is more stringent.	Pei Geng, LDC
IIb	QAPP, analytical data reports, validation guidance	Verify that the qualifiers applied during validation were in conformance with the QAPP and specified validation guidance.	Pei Geng, LDC
IIb	QAPP, data validation reports	Verify that data validation was performed in accordance with the QAPP specifications and that all required peer reviews were conducted. If validation actions deviated from the QAPP specifications and/or regional validation guidance based on professional judgment, verify that rationale was documented.	Amara Vandervort, Windward

EDD – electronic data deliverable
LDC – Laboratory Data Consultants
MEDD – multimedia electronic data deliverable
QAPP – quality assurance project plan
QL – quantitation limit
SOP – standard operating procedure
USEPA – US Environmental Protection Agency
Windward – Windward Environmental LLC

QAPP Worksheet No. 36. Sampling and Analysis Validation (Steps IIa and IIb) Summary Table

Step IIa/IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria[a]	Data Validator (title and organizational affiliation)
IIa	Tissue	PCDDs/PCDFs[b]	Low	Region 2 validation SOP HW-25	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	PCDDs/PCDFs[b]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	PCBs – congeners[b]	Low	Region 2 validation SOP HW-46	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	PCBs – congeners[b]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	Lipids[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	Lipids[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	Percent moisture[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	Percent moisture[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	Total mercury[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	Total mercury[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	Methylmercury[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	Methylmercury[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	Metals[c]	Low	Region 2 validation SOP HW-2b	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	Metals[c]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	Organochlorine pesticides [b]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIb	Tissue	Organochlorine pesticides [b]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)
IIa	Tissue	PAHs [b]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)

QAPP Worksheet No. 36. Sampling and Analysis Validation (Steps IIa and IIb) Summary Table (cont.)

Step IIa/IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria[a]	Data Validator (title and organizational affiliation)
IIb	Tissue	PAHs [b]	Low	QAPP Worksheet Nos. 12, 15, 19, 24, and 28	Pei Geng (Validatory Project Manager, LDC)

[a] Validation follows the National Functional Guidelines for Organic Superfund Methods Data Review (USEPA 2017b), National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA 2017a), National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA 2016), and Region 2 modifications to the extent they are applicable. Validation includes professional judgment where appropriate and necessary.

[b] All data packages will be submitted for full validation (USEPA Stage 4).

[c] One SDG or 20% of the data (whichever is greater) will be submitted for full validation, and the remaining SDGs will be submitted for reduced validation (USEPA Stage 2B).

LDC – Laboratory Data Consultants
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCDD – polychlorinated dibenzo-*p*-dioxin
PCDF – polychlorinated dibenzofuran
QAPP – quality assurance project plan
SOP – standard operating procedure
SDG – sample delivery group
USEPA - US Environmental Protection Agency

QAPP Worksheet No. 37. Usability Assessment

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:

The fish and crab tissue collection effort will result in the chemical analysis of targeted fish and targeted crab species at each selected tissue sampling location in the upper portion of the LPRSA (RM 8.3 to Dundee Dam). The third-party independent validator will validate all laboratory chemistry data in accordance with the protocols described in Worksheet No. 36. The Investigative Organization Project Chemist and Task QA/QC Manager, Windward, in conjunction with the project team, will determine whether the analytical data meet the requirements for use in making decisions related to further actions at the site.

All observations made during the field effort will be considered usable as long as they were made according to the methods described in the applicable SOPs (Worksheet No. 21).

Any deviations from the SOPs will be documented appropriately in the field logbook and on the Protocol Modification Form (Attachment A), as well as approved by USEPA or its authorized representative.

Describe the evaluative procedures used to assess overall measurement error associated with the project:

To identify any limitations on data use and, if known, any data bias, the validator will use the following information during the data validation process: sample identification; sample preparation; analysis within holding time; instrument calibration data; and results of QC samples designed to assess blank contamination, analytical precision, and accuracy. The validator will apply qualifiers as needed to reflect any limitations on the use of specific data points and prepare a report detailing the information reviewed, data limitations, and overall usability. Patterns of data use limitations or anomalies that become apparent during the validation process will be reviewed with the Investigative Organization Laboratory and Data Validation Coordinator and the appropriate laboratory. Data that do not meet the quality acceptance limits of Worksheet No. 28, quality levels of Worksheet No. 15, or analytical performance criteria specified in Worksheet No. 12 will be clearly identified in the database so data users are aware of any limitations associated with data usability. Details of the problems identified during data validation and any data bias will be provided in the associated validation memorandum.

Identify the personnel responsible for performing the usability assessment:

Data validation will be performed by an independent third-party validator (Laboratory Data Consultants [LDC]) under the supervision of the Investigative Organization Laboratory and Data Validation Coordinator. The usability assessment will be performed jointly by the Windward and CPG project teams and will include input by field personnel, QA staff, and project management.

QAPP Worksheet No. 37. Usability Assessment (cont.)

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:

The documentation generated during data validation will include a data validation report that describes the information reviewed (as well as the results of that review) and provides a recommendation on overall data usability and limitations on specific data points. The validation report and associated validation worksheets will provide information on the samples included in the review and the date they were collected; the condition of samples when received at the laboratory and any discrepancies noted during the receiving process; verification of sample preparation and analysis within the method-specified holding time; instrument calibration information; a review of associated QC analyses including blanks, laboratory control samples (LCSs), matrix spikes (MSs), and field and/or laboratory duplicates; and verification of selected reported values from raw data. As a result of this review, standard qualifiers will be entered into the database so that data users can readily identify any limitations associated with a specific data point.

The assessment of data usability will be performed using current USEPA Region 2 data validation guidance. The results of the data usability assessment will be summarized in the final project report. The following items will be assessed and conclusions drawn based on their results:

Holding Time: All sample data will be checked to verify that both sample preparation and analysis were performed within the method-required holding time.

Calibration: Data associated with instrument calibration and verification of calibration will be reviewed to confirm that all data were generated using properly calibrated instrumentation.

Accuracy/Bias Contamination: Results for all field blanks, trip blanks, laboratory method blanks, and instrument calibration blanks will be checked against performance criteria specified in Worksheet No. 28; results for analytes that exceed the criteria will be identified, and the impact on field sample data will be assessed. Data will be summarized by type of blank.

Accuracy/Bias Overall: Reported values of LCSs, performance samples, and MSs will be evaluated against the spiked or certified concentration, and the percent recovery will be calculated and compared to the criteria specified in Worksheet No. 28. The percent recovery information will be used to assess the bias associated with the analysis. Recovery for MSs in conjunction with the recovery reported for performance samples and LCSs will provide information on the impact of the sample matrix on specific analyses. Average recoveries will be calculated and reported by analyte for each type of QC sample.

Precision: Results of the relative percent difference (RPD) will be calculated for each analyte in laboratory and field duplicates. These RPDs will be checked against measurement performance criteria presented on Worksheet No. 28; RPDs that exceed the stated criteria will be identified. In addition, the combined RPD of each analyte will be averaged across duplicate pairs for which the

QAPP Worksheet No. 37. Usability Assessment (cont.)

original and duplicate values are both greater than the quantitation limit (QL); a combined overall RPD average will be determined for each analyte in both laboratory and field duplicates. This information will be used to draw conclusions about the precision of the analyses and, for field duplicates, the precision of sampling and analysis. Any limitations on the use of the data will also be described.

Sensitivity: Reporting limits will be checked against the criteria and QLs presented on Worksheet No. 15. Limitations on the use of the data and conclusions about the sensitivity of the analysis will be reported.

Representativeness: A review of field records will be used to confirm that sample collection and handling was performed in a manner that conformed to the designated SOP. Similarly, laboratory preparation procedures will be reviewed during validation to ensure that a representative sample was selected for analysis. Any deviations from or modifications to field or laboratory procedures that might impact the representativeness of the sample will be discussed in the project final report.

Comparability: The sampling and analytical procedures that will be used in this program have been selected to ensure that the resulting data will be comparable to data from similar programs conducted previously or that will be conducted in the future. Any modifications to or deviations from stated procedures that might impact data comparability will be addressed in the project final report.

Completeness: Completeness for the analytical program will be calculated as the number of data points that are accepted as usable based on the validation process divided by the total number of data points for each analysis. Completeness will be reported for each analytical category, and an overall value will be reported. As shown in Worksheet No. 12, the analytical completeness goal is ≥ 90%. Completeness for the field program will be calculated as the number of samples successfully collected compared to the total number proposed in this QAPP. The completeness goal for the field sampling program is ≥ 95%. The usability assessment will also evaluate the effects of elevated detection limits, rejected data, and qualified data.

References

Hahn PKJ, Bailey RE, Ritchie A. 2007. Chapter 9. Beach seining. In: Johnson DH, Shrier BM, O'Neal JS, Knutzen JA, Augerot X, O'Neil TA, Pearsons TN, eds, Salmonid Field Protocols Handbook. Techniques for Assessing Status and Trends in Salmon and Trout Populations. American Fisheries Society in association with State of the Salmon, p 478. Available from: https://www.wildsalmoncenter.org/resources/field-protocols-best-monitoring-practices/.

Malcolm Pirnie, Earth Tech, Battelle. 2006. Lower Passaic River Restoration Project. Draft field sampling plan. Volume 2. Prepared for US Environmental Protection Agency, US Army Corps of Engineers, and New Jersey Department of Transportation/Office of Maritime Resources. Malcolm Pirnie, Inc., White Plains, NY; Earth Tech, Inc., Bloomfield, NJ; Battelle, Stony Brook, NY.

Murphy BR, Willis DR. 1996. Fisheries Techniques. Second ed. American Fisheries Society.

Portt CB, Coker GA, Ming DL, Randall RG. 2006. A review of fish sampling methods commonly used in Canadian freshwater habitats. Canadian technical report of fisheries and aquatic sciences 2604. Fisheries and Oceans Canada.

Tierra Solutions. 2002. Passaic River Study Area fish community characterization. September 26, 2002. Tierra Solutions, Inc., Newark, NJ.

USEPA. 1989. Assessing human health risks from chemically contaminated fish and shellfish: a guidance manual. EPA/503-8-89-002. US Environmental Protection Agency, Washington, DC.

USEPA. 2000. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 1: Fish sampling and analysis. Third ed. EPA 823-B-00-007. US Environmental Protection Agency, Washington, DC.

USEPA. 2002. Guidance on choosing a sampling design for environmental data collection for use in developing a quality assurance project plan. USEPA QA/G-5S. EPA/240/R-02/005. Office of Environmental Information, US Environmental Protection Agency, Washington, DC.

USEPA. 2008. Region 3 fish tissue screening levels, May 2008. US Environmental Protection Agency, Washington, DC.

USEPA. 2016. National functional guidelines for high resolution Superfund methods data review. EPA 542-B-16-001. US Environmental Protection Agency, Washington, DC.

USEPA. 2017a. National functional guidelines for inorganic Superfund methods data review. EPA-540-R-2017-001. US Environmental Protection Agency, Washington, DC.

USEPA. 2017b. National functional guidelines for organic Superfund methods data review. EPA-540-R-2017-002. US Environmental Protection Agency, Washington, DC.

Van den Berg M, Birnbaum LS, Denison M, De Vito M, Farland W, Feeley M, Fiedler H, Hakansson H, Hanberg A, Haws L, Rose M, Safe S, Schrenk D, Tohyama C, Tritscher A, Tuomisto J, Tysklind M, Walker N, Peterson RE. 2006. The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds. Toxicol Sci 93(2):223-241.

Windward. 2009. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Quality Assurance Project Plan: Fish and decapod crustacean tissue collection for chemical analysis and fish community survey. Final. Prepared for Cooperating Parties Group, Newark, NJ. August 6, 2009. Windward Environmental LLC, Seattle, WA.

Windward. 2010. Lower Passaic River Restoration Project. Fish and decapod field report for the late summer/early fall 2009 field effort. Final. Prepared for the Cooperating

Parties Group, Newark, NJ. September 14, 2010. Windward Environmental LLC, Seattle, WA.

Windward. 2011. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Fish community survey and tissue collection data report for the Lower Passaic River Study Area 2010 field efforts. Final. Prepared for Cooperating Parties Group, Newark, NJ. July 20, 2011. Windward Environmental LLC, Seattle, WA.

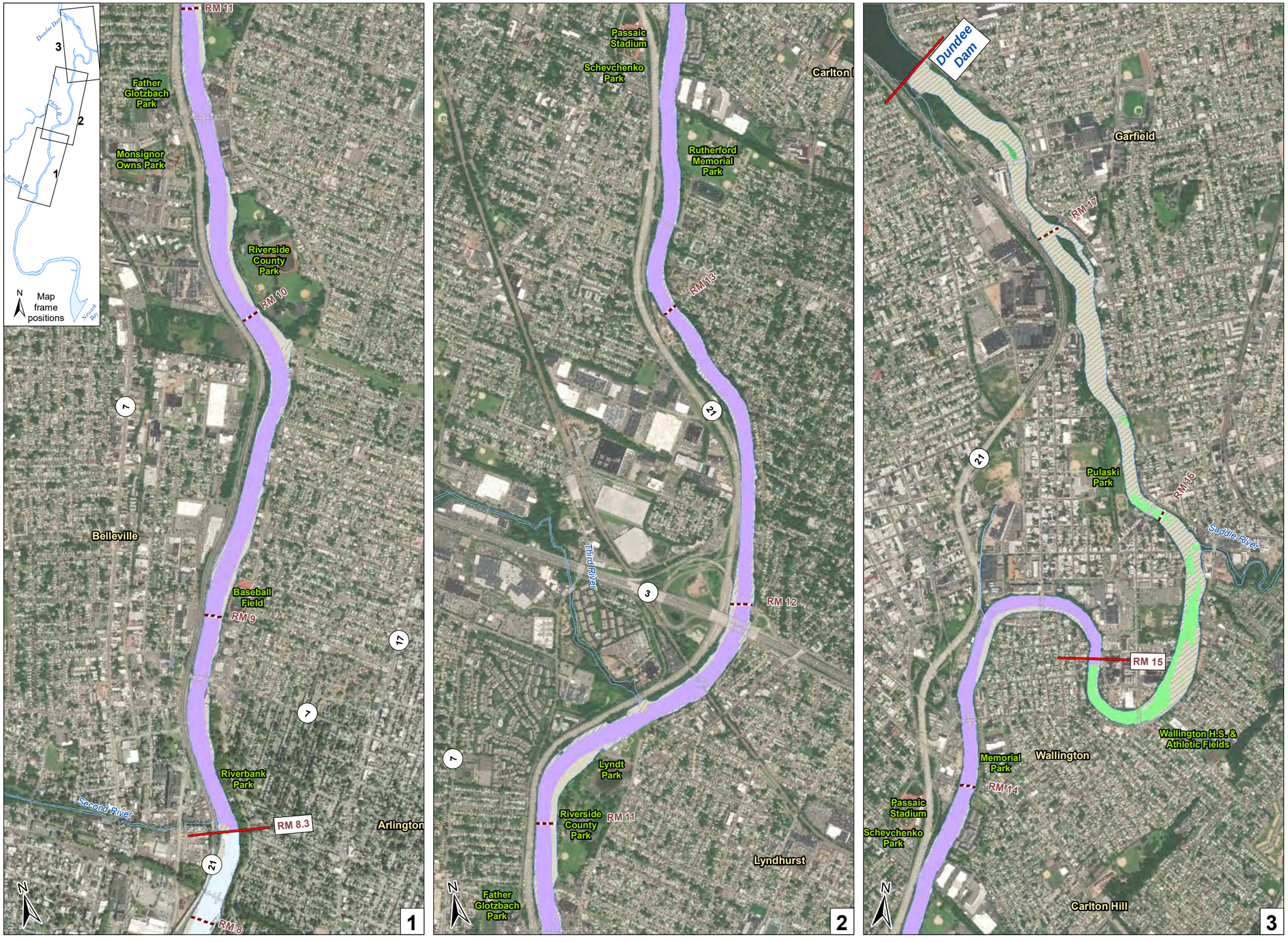
Windward. 2018a. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. 2009 fish and blue crab tissue chemistry data for the Lower Passaic River Study Area. Final. Prepared for Cooperating Parties Group, Newark, NJ. Submitted to USEPA September 11, 2018. Windward Environmental LLC, Seattle, WA.

Windward. 2018b. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. 2010 small forage fish tissue chemistry data for the Lower Passaic River Study Area. Final. Prepared for Cooperating Parties Group, Newark, NJ. Windward Environmental LLC, Seattle, WA.

Windward. 2019. 2012 fish tissue survey and chemistry background data for the Lower Passaic River Study Area. Final. Submitted to USEPA on May 10, 2019. Windward Environmental LLC, Seattle, WA.

Zale AV, Parrish DL, Sutton TM. 2012. Fisheries Techniques. Third ed. American Fisheries Society.

Oversize Figures



Mudflat areas are defined as those areas where the river bottom slope is ≤ 6° and the depth is ≥ -2 ft MLLW, based on the 2007 CPG bathymetric survey.
Imagery (1.5-foot resolution) provided by Digital Globe and ESRI, dated 8/2017 and 10/2018.

Figure 1. Fish/crab sampling areas for current conditions sampling effort

Windward environmental LLC

Prepared by craigh 9/19/2019; W:\Projects\06-58-01 Passaic RI\Data\GIS\Maps_and_Analysis\Upper 9 Mile\QAPP\7060_Fish and crab sampling areas for current conditions.mxd

Attachment B1. Location Data Form

Project Name: **Field Crew Initials:**

Deployment/Start Date and Time	Retrieval/End Date and Time	Trap ID and Attempt[a]	Collection Method	Coordinates[b]		Depth (ft)	Notes
				Easting (X)[c]	Northing (Y)[c]		

[a] Crab traps (CT), eel traps (ET), minnow traps (MT), and trotlines (TL) will be deployed as a set of three units; gillnets (GN) will be deployed as individual units. Beach seining (BS) and electrofishing (EF) attempts will be utilized, as appropriate, based on site conditions (e.g., depth, habitat availability, and accessibility).

[b] Provide if not recorded electronically in GPS unit.

[c] NAD83 New Jersey State Plane (ft).

Attachment I. SOP – Procedures to Decontaminate Biological Sampling Equipment

I. Introduction

This procedure describes the methods used to decontaminate biological sampling equipment and tools used at the site and is based on Standard Operating Procedure (SOP) 25 of the field sampling plan, Vol. II (FSP2) (Malcolm Pirnie et al. 2006). The procedure specifically addresses equipment used to collect biological samples for chemical analyses. This procedure will be used in conjunction with Attachment K: SOP—Management and Disposal of Investigation-Derived Waste in order to achieve the proper disposal of residual water and used chemicals from decontamination procedures.

II. Equipment and supplies

The following equipment may be used to decontaminate equipment and tools used to collect biological samples:

- Pump system (intake/pump/hoses) for handling site water for cleaning and rinsing equipment
- Tap water for cleaning and rinsing equipment
- Deionized water for final equipment rinse
- Non-phosphate detergent (e.g., Alconox™) for cleaning equipment
- Solvents for equipment rinse (e.g., 10% nitric acid, acetone, methanol and hexane)
- Personal protective equipment (PPE), including disposable gloves (nitrile preferred), safety glasses, disposable wipes, eye wash system, first aid kit, and waterproof outerwear, as well as a personal flotation device if necessary
- Teflon® squirt bottles for water, alcohol, and solvents
- Brushes for cleaning equipment
- Field notebook and digital camera to document decontamination procedures

The following equipment will be used to collect biological samples and may require decontamination:

- Eel traps
- Minnow traps
- Crab traps
- Gillnets

- Trotlines and hooks
- Dip nets
- Beach seine
- Electrofishing equipment
- Measuring board
- Ceramic knives, forceps, and scissors

III. Guidelines

All sample collection equipment that contacts the organisms of interest will be decontaminated in accordance with the following procedures.

A. Fish collection nets

1. Remove all inert and organic debris from the net.
2. Brush mud off net.
3. Rinse net with site water or tap water.
4. If the net is oiled or contaminated with material that is not removed with site or tap water, scrub the soiled area with a brush, site or tap water, and non-phosphate detergent, then rinse the net again with site or tap water.
5. Store the net in a covered container (e.g., trash can or plastic bag), where it will be protected from contamination from the vessel, atmospheric fallout, and other field operations, until the next deployment.

B. Crab and/or fish collection traps

1. Remove any bait containers and discard the bait into the trash.
2. Remove all inert and organic debris from the trap.
3. Brush mud from the trap.
4. Rinse the trap with site or tap water.
5. If the trap is oiled or contaminated with material that is not removed with site or tap water, scrub the soiled area with a brush, site or tap water, and non-phosphate detergent.
6. If the bait does not completely wash out of the bait container with site or tap water, use a brush to remove the remaining bait and rinse the container with site or tap water.
7. Store the trap and bait container in a covered container (e.g., trash can or plastic bag), where it will be protected from contamination from the vessel, atmospheric fallout, and other field operations, until the next deployment.

8. Inspect the trap prior to the next deployment; confirm the trap is clean of debris.

C. Tissue sample processing equipment

Samples may be processed at some level on the vessel, depending on the quality assurance project plan (QAPP) or field sampling plan (FSP) specifications. If utensils or equipment come in contact with tissue samples, the utensils or equipment will be decontaminated as follows:

1. Rinse each item with site or tap water to remove tissue, fluids (e.g., blood), and/or other visually present material.
2. Scrub the item with a brush and soapy water, using non-phosphate detergent.
3. Rinse the item with site or tap water to remove all residual soap.
4. Rinse the item with 10% nitric acid, ultrapure. This rinse may be omitted if metals samples are not collected.
5. Rinse the item with deionized water.
6. Rinse the item with acetone only or with methanol followed by hexane. This rinse may be omitted if organics samples are not collected.
7. Rinse the item with deionized or analyte-free water and allow to air dry. The volume of water used in the final rinse should be at least five times the volume of solvent used in the previous step (No. 6).
8. Wrap the item(s) in aluminum foil to protect it until it is used again.

IV. Reference

Malcolm Pirnie, Earth Tech, Battelle. 2006. Lower Passaic River Restoration Project. Draft field sampling plan. Volume 2. Prepared for US Environmental Protection Agency, US Army Corps of Engineers, and New Jersey Department of Transportation/Office of Maritime Resources. Malcolm Pirnie, Inc., White Plains, NY; Earth Tech, Inc., Bloomfield, NJ; Battelle, Stony Brook, NY.

Attachment J. SOP – Fish Collection and Tissue Sampling

I. Introduction

This procedure, based on Standard Operating Procedure (SOP) 29 of the field sampling plan, Vol. II (FSP2) (Malcolm Pirnie et al. 2006), defines the procedures to be followed when collecting fish tissue samples, where appropriate, from the Lower Passaic River Study Area (LPRSA). The fish collections will be performed, as practicable, using baited eel and minnow traps and trotlines, gillnets, beach seines, and electrofishing equipment. Although the details of sample collection will be influenced by site-specific conditions, certain aspects of sample collection can be standardized. These procedures herein describe the equipment, field procedures, and documentation necessary to conduct tissue sampling. Other SOPs may be used with this SOP and are addressed in the project-specific Fish/Decapod quality assurance project plan (QAPP) (Windward 2009) or its addendums. All data—including information on individual fish collected for analysis, as well as fishing coordinates, depths, and times—will be included in an electronic database, which will be provided to the US Environmental Protection Agency (USEPA).

II. Preparations for Sampling

The QAPP identifies sampling stations, frequency of sampling, and sample types. The field team is responsible for reviewing the QAPP prior to conducting field activities and ensuring that all field equipment, including sample containers and preservatives, are available and in acceptable condition.

III. Equipment and Supplies

Equipment to be used during the collection of fish tissue samples may include, but is not limited to, the following:

- Sampling vessel
- Eel traps and bait
- Minnow traps and bait
- Trotlines, hooks, and bait
- Gillnet
- Dip net
- Beach seine net
- Weights and buoys (or floats)

- Ceramic knives
- Fish measuring board
- Electronic scale
- Specimen Data Form
- Field guides and taxonomic keys
- Plastic buckets and/or steel washtubs
- Sample containers
- Bubble wrap
- Ice (wet and dry)
- Insulated coolers
- Sample identification labels/tags
- Waterproof marking pens
- Ziplock bags
- Personal protective equipment (PPE) as required (e.g., disposable gloves, safety glasses)
- Tissue processing equipment
- Camera

IV. Equipment Decontamination Procedures

Decontamination of fish tissue sampling equipment will be performed between samples collected from each location/event in accordance with procedures outlined in the Decontamination of Biological Sampling Equipment SOP (Attachment I). Personnel decontamination procedures are described separately in the health and safety plan (HSP) (Attachment R).

V. Location of Sampling Stations

The position and depth of the sampling station will be established. The positioning procedures are described in Attachments G and H: Locating Sample Points Using a Hand-Held Global Positioning System (GPS), and Locating Sample Points Using a Boat-Mounted Global Positioning System (GPS), respectively. The depth of the sampling station will be determined using either a fathometer or weighted demarcated line.

VI. Fish/Crab Collection

The following protocol shall be implemented, as practicable, for collecting fish tissue samples from the LPRSA at the appropriate sampling stations as described the QAPP.

A. Baited eel and minnow traps

Both minnow traps and commercial-style eel traps will be used. Commercial eel traps are 12 × 12 × 24 in. in size. Various minnow traps will be used, including flat-bottom semi-oval traps (28 × 20 × 13 in. with a 4.75-in. opening) and cylindrical traps (with a 2.5-in. opening). Bait used in traps will not be analyzed for contaminant concentrations. To prevent bait ingested by sampled fish from impacting the anticipated tissue residue analyses, all trap bait will be in bait bags or perforated containers that will prevent the consumption of bait. Baited traps will be deployed at three locations at each of the sampling stations. Baited traps may be deployed in conjunction with gillnets. The primary goal of using these traps is to catch adult American eel (using eel traps) and sunfish (using minnow traps) for the tissue residue analysis. Not all fish collected in these traps will be kept for tissue analysis.

For non-target fish that will not be retained for chemical analysis, a subsample of 10 to 15 fish may be used to generate weight and length (total) data for each species size. Length, weight, and, if practicable, gender will be recorded for all individual fish retained for tissue analysis. When gender cannot be identified, it will be recorded as "indeterminate." Each trap will be made of reinforced aluminum mesh (1/4 in.) and will be equipped a small flotation device so that the trap can be buoyed. Baited minnow traps and eel traps will be set during the day, allowed to soak overnight, and retrieved the following day. The following protocols will be followed, as practical, when collecting fish with traps.

1. Place the bait into the bait bag or perforated container or on the hook attached to the center bow of the trap. Attach a float or buoy to the end of the minnow trap line.
2. Lower the trap into the water from the side of the boat, making sure that the trap is securely anchored to and oriented on the river bottom. A buoy should be clearly visible on the water surface so that the minnow trap can be easily retrieved.
3. Note the time and location of deployment and retrieval and any pertinent sampling location and condition descriptions in the field logbook.

4. Retrieve traps.
5. Empty each trap into an individual clean holding container (e.g., insulated cooler) by slowly pulling the two ends of the trap apart.
6. All trapped fish will be identified, counted, weighed, measured (total length), and recorded on the Specimen Data Form or Non-Target Species Form, which is included as Attachment C in the Fish/Decapod QAPP. Gross external abnormalities (i.e., missing/deformed fins or legs) will be noted.

B. Trotlines

Trotlines may be used to collect a variety of fish species and sizes. Each trotline will consist of a main line (50 to 100 ft in length, with hooks approximately every 5 ft) with baited size 4 to 6 hooks. Trotlines will be deployed from a boat and generally set perpendicular to the shore. To comply with federal boating regulations for navigable waterways, buoys will not be set in navigation channels. If practicable, a minimum of one trotline will be set per sampling zone. An anchor and float line will be attached to each end of the main line, and the trotline will be set overnight. Field observations on the presence of bait material in the gullet of the collected fish to be retained for analysis will be made, when possible. The following protocols will be followed, as practical, when collecting fish with trotlines.

1. After baiting the hooks, place the trotlines into the water from the side of the boat, making sure that the line is taut from beginning to end. An attached buoy should be clearly visible on the water surface so that the trotlines can be easily retrieved.
2. Set trotlines perpendicular to the shore.
3. Note the time and location of deployment and retrieval and any pertinent sampling location and condition descriptions in the field logbook.
4. Retrieve trotlines.
5. Unhook any fish caught on the trotlines (if possible) and place in a clean holding container.
6. Fish removed from the trotlines will be identified, counted, weighed, measured (total length), and recorded on the Specimen Data Form or Non-Target Species Form, which is included as Attachment C in the

Fish/Decapod QAPP. Gross external abnormalities (i.e., missing/deformed fins or legs) will be noted.

7. Hooks that are difficult to remove without compromising the physical integrity of the fish will be left in during field collection and noted for the laboratory where samples will be processed and prepared for analysis.

C. Gillnets

Multiple gillnets—each approximately 50 to 150 ft long and made up of either a single mesh size (1.5 in.) or variable mesh sizes (1.0 to 4.0 in.)—will be used. The use of nets with different mesh types is intended to help capture various sizes of fish. Each net will be equipped with lead weights and floats designed to hold the net vertically in the water column (i.e., after deployment, the bottom of the net will be suspended at least 1 ft above the bottom of the river to avoid contact with bottom debris). The nets will be anchored with appropriate weights, and buoy lines will be rigged within 1 to 2 ft of taut with respect to the next predicted high tide following deployment. To comply with federal boating regulations for navigable waterways, buoys will not be set in navigation channels of the river. This requirement may influence the actual location of the gillnet deployments. These deployment techniques will ensure reasonable positioning of the nets in the water column throughout the tidal cycle. If necessary, alternate-sized gillnets may also be used under this sampling plan.

Gillnets will be deployed perpendicular to shore during the late afternoon or early evening hours and retrieved the following morning, as practicable. Generally, fish activity increases during the night, so the catch retrieved the following day will be more representative of species movement within the area. The following protocols will be followed, as practical, when collecting fish with gillnets.

1. Position the vessel at the site at which the gillnets are to be set.
2. Attach floats and anchor weights to surface float lines and bottom lead lines of gillnets.
3. Examine the bow of the vessel. Identify and cover with duct tape any cleats, exposed screws, and irregularities in the deck rail where the net might become entangled during deployment.

4. Deploy gillnets perpendicular to shore/current from bow of vessel while vessel is in reverse. Note the time and location of deployment in the field logbook.
5. Retrieve gillnets after the desired interval. Approach the net from the downwind end and slowly pull the net onto the boat.
6. Stack the gillnet in a cooler or washtub in coils or figure eights, carefully removing fish as the net is pulled out of the water.
7. Place fish removed from the gillnet in a clean holding container (e.g., insulated cooler or bucket).
8. Fish removed from the gillnets will be identified, counted, weighed, measured (total length), and recorded on the Specimen Data Form or Non-Target Species Form, which is included as Attachment C in the Fish/Decapod QAPP. Gross external abnormalities (i.e., missing/deformed fins or legs) will be noted.

D. Dip nets

Long-handled dip nets come in various mesh sizes. The selected dip net should have a mesh size that is appropriate for the target species. The following protocols will be followed, as practical, when collecting fish with dip nets.

1. Position the vessel parallel to the shore at the site where the dip nets are to be used.
2. Hold the dip net below the water's surface (against the side of the vessel for stability, if necessary) as the vessel slowly moves forward parallel to the shore. Note the time and location in the field logbook.
3. Pull up the dip net after the desired interval (e.g., distance or time) has passed.
4. Carefully remove any fish caught in the dip net, and place fish in a clean, labeled holding container (e.g., insulated cooler).
5. Fish removed from the dip net will be identified, counted, weighed, measured (total length), and recorded on the Specimen Data Form or Non-Target Species Form, which is included as Attachment C in the Fish/Decapod QAPP. Gross external abnormalities (i.e., missing/deformed fins or legs) will be noted.

E. Beach Seine

Seines will be deployed, where appropriate, according to water depth and conditions and habitat types (e.g., rocky bottoms or dense aquatic plant presence is not ideal for this sampling method). Beach seining nets come in various mesh sizes. The selected seine will have a mesh size that is appropriate for the target species and a manageable length and depth appropriate for the Lower Passaic River (LPR). For example, a 20-ft beach seine with 0.25-in. mesh would be appropriate for targeting sunfish.

The following protocols will be followed, as practical and applicable, when collecting small forage fish with beach seining methods (Hahn et al. 2007; Portt et al. 2006):

1. Two people will be deployed, one on the beach and one walking upstream in the water parallel to the shoreline, each holding one end of the seine. If necessary, the person at the in-water end may be holding the seine while on a vessel.
2. The seine will be checked to be free of tangles and positioned properly with the lead and float lines positioned accordingly.
3. Two seine retrieval methods can be used:
    a. Perpendicular pulled linear set: Both persons walk in parallel while the beach seine forms a U-shape behind them.
    b. Perpendicular quarter-arc pulled linear set: One person remains fixed on the beach, while the other person deploys the net, which stretches into the current, before walking in a semicircle back to the beach.
4. Beach seine retrievals (hauls) will be accomplished by trapping fish between the lead and float lines and pulling the seine back to the shore.
5. The net will be carefully retrieved, and any fish caught in the seine will be removed and placed in a clean, labeled holding container (e.g., insulated cooler).
6. Fish will be removed from the seine and identified, counted, weighed, measured (total length), and recorded on the Specimen Data Form or Non-Target Species Form, which is included as Attachment C in the Fish/Decapod QAPP. Gross external abnormalities (i.e., missing/deformed fins or legs) will be noted.

VII. Fish Handling and Preservation

Non-target species should be identified in the field and released. Fish that are damaged/dead or compromised will not be retained for tissue analysis and will be disposed of or released at the site of capture. Any observed fish mortalities will be recorded. Fish collected for tissue analysis will be weighed and measured before being wrapped in aluminum foil and double bagged in clean polyethylene resealable bags.

Sample bags will be labeled with the sample identification (ID) (described in the QAPP), sample date and time, and crew initials. The bags will then be placed on wet ice on the boat and transferred to the field laboratory for further processing and preparation, if necessary, before storage in a standard freezer at the staging area until shipment to the analytical laboratory. The field laboratory will be staffed by field personnel during the sampling effort.

VIII. Age Analysis Preparation

After length and weight measurements have been recorded in the field laboratory notebook, selected fish will be prepared for age analysis, using fin rays/spines, scales, or otoliths.

1. Wear appropriate PPE as required by the HSP. Outer gloves should be changed between samples.
2. If necessary, wipe fish clean of organic material (i.e., mucus) or other inorganic debris with a clean disposable towel.
3. If using scales (Zale et al. 2012; Murphy and Willis 1996):
    a. Remove a minimum of 10 scales from each fish from a designated area (3b) by individually pulling them with forceps, or by scraping in an anterior-to-posterior direction with the blade of a clean knife or similar object to simultaneously remove several scales.
    b. Common locations for removing scales include areas just posterior to the pectoral fin, just dorsal to the lateral line and ventral to the dorsal fin, and on the caudal peduncle. The best location differs by species, so aging scales will be collected from the proper location for each given species.
    c. Forceps or knives should be cleaned of scales after each fish to prevent cross contamination among samples.
    d. Store scales dry (e.g., in a labelled coin envelope); store so the scales dry flat to prevent them from curling.
4. If using fin rays/spines (Zale et al. 2012; Murphy and Willis 1996):

a. Remove fin ray/spine from fish by cutting near the base of the ray/spine with clean side-cutter pliers, scissors, knife, or scalpel.

b. Cut the ray/spine as close to body as possible, because the first annulus may be present only in the basal section of the ray.

c. For spiny-rayed fish, the first, second, or anal spine is typically collected for aging; for soft-rayed fish, the leading pectoral or pelvic fin ray is typically collected.

d. For carp and catfish, it may be necessary to disarticulate the pectoral spine by pressing it flat against the body and then, with pliers, rotating the spine in a counterclockwise direction (i.e., for the right spine).

e. Remove any excess tissue attached to the fin ray or spine.

f. Place in labelled envelopes; store envelopes until the fin rays/spines dry.

5. If using otoliths (Zale et al. 2012; Murphy and Willis 1996):

a. Otoliths will be removed by age analysis laboratory or other trained personnel

b. Exact techniques to extract otoliths vary by species, but all require cutting through the top of the skull and across the head of the fish, or cutting the isthmus and removing the gill arches to access through the base of the skull.

c. After exposure, remove otoliths with forceps.

d. Remove any excess tissue and store in a clean, labelled tube or vial and allow to dry for a minimum 12 hours prior to continuing the aging process.

e. Place tube/vial in clean, labelled envelope.

6. Send age analysis samples to laboratory for fish age analysis.

IX. Laboratory Sample Processing

Fish and invertebrate samples are processed in the laboratory according to laboratory-specific methods based on the laboratory equipment, the analysis requirements, and specific guidance provided in the Fish/Decapod QAPP and Attachment O, Laboratory Processing of Fish and Decapod Tissue Composites and Homogenization. In general, operations will follow the steps detailed below.

1. The homogenizing device will be cleaned as specified in the appropriate laboratory SOP (Attachment O) and the manufacturer's manual.

2. Tissues will be thawed at room temperature, if frozen.
3. Either: a) whole organisms will be placed in the homogenizing device, or b) samples will be resected[1] as specified in the Fish/Decapod QAPP (Worksheet No. 11, Table 11-1), and resected portions (e.g., fillet and remaining carcass portions) designated for analysis will be placed in the homogenizing device.
4. Sample will be homogenized.
5. Sample will be extracted (if required) and analyzed.

X. Sample Preservation

Generally, fish will be placed on wet ice while on the boat, transferred to a freezer at the staging area (or processed if logistically acceptable), and shipped frozen to the analytical laboratory.

XI. Quality Control

All age analysis samples will be examined by two independent readers, resulting in 100% quality control (QC). For age samples on which there is disagreement, an third party will examine the disputed sample and produce a third age estimate. If the third age is in agreement with either of the other two ages, then that age will be accepted. If there is disagreement among all three independent readers, the sample will be discarded.

To help identify potential sample contamination sources and to evaluate potential errors introduced by sample handling and processing. QC samples will include rinsate of homogenization equipment and will be collected at the frequency specified in the QAPP (Worksheet No. 20).

XII. References

Hahn PKJ, Bailey RE, Ritchie A. 2007. Chapter 9. Beach seining. In: Johnson DH, Shrier BM, O'Neal JS, Knutzen JA, Augerot X, O'Neil TA, Pearsons TN, eds, Salmonid Field Protocols Handbook. Techniques for Assessing Status and Trends in Salmon and Trout Populations. American Fisheries Society in association with State of the Salmon, p 478. Available from: https://www.wildsalmoncenter.org/resources/field-protocols-best-monitoring-practices/.

Malcolm Pirnie, Earth Tech, Battelle. 2006. Lower Passaic River Restoration Project. Draft field sampling plan. Volume 2. Prepared for US Environmental

[1] Resecting may include removing the organism's skin, scales, shell, or exoskeleton.

Protection Agency, US Army Corps of Engineers, and New Jersey Department of Transportation/Office of Maritime Resources. Malcolm Pirnie, Inc., White Plains, NY; Earth Tech, Inc., Bloomfield, NJ; Battelle, Stony Brook, NY.

Murphy BR, Willis DR. 1996. Fisheries Techniques. Second ed. American Fisheries Society.

Portt CB, Coker GA, Ming DL, Randall RG. 2006. A review of fish sampling methods commonly used in Canadian freshwater habitats. Canadian technical report of fisheries and aquatic sciences 2604. Fisheries and Oceans Canada.

Windward. 2009. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Quality Assurance Project Plan: Fish and decapod crustacean tissue collection for chemical analysis and fish community survey. Final. Prepared for Cooperating Parties Group, Newark, NJ. August 6, 2009. Windward Environmental LLC, Seattle, WA.

Zale AV, Parrish DL, Sutton TM. 2012. Fisheries Techniques. Third ed. American Fisheries Society.

Attachment O. SOP – Processing of Fish and Crab Tissue Composites

I. Introduction

This attachment presents additional project-specific details for tissue sample processing.

II. Summary of tissue sample processing for chemistry analysis

Figure 1 presents the general process of how samples will be collected and prepared for chemistry analysis.

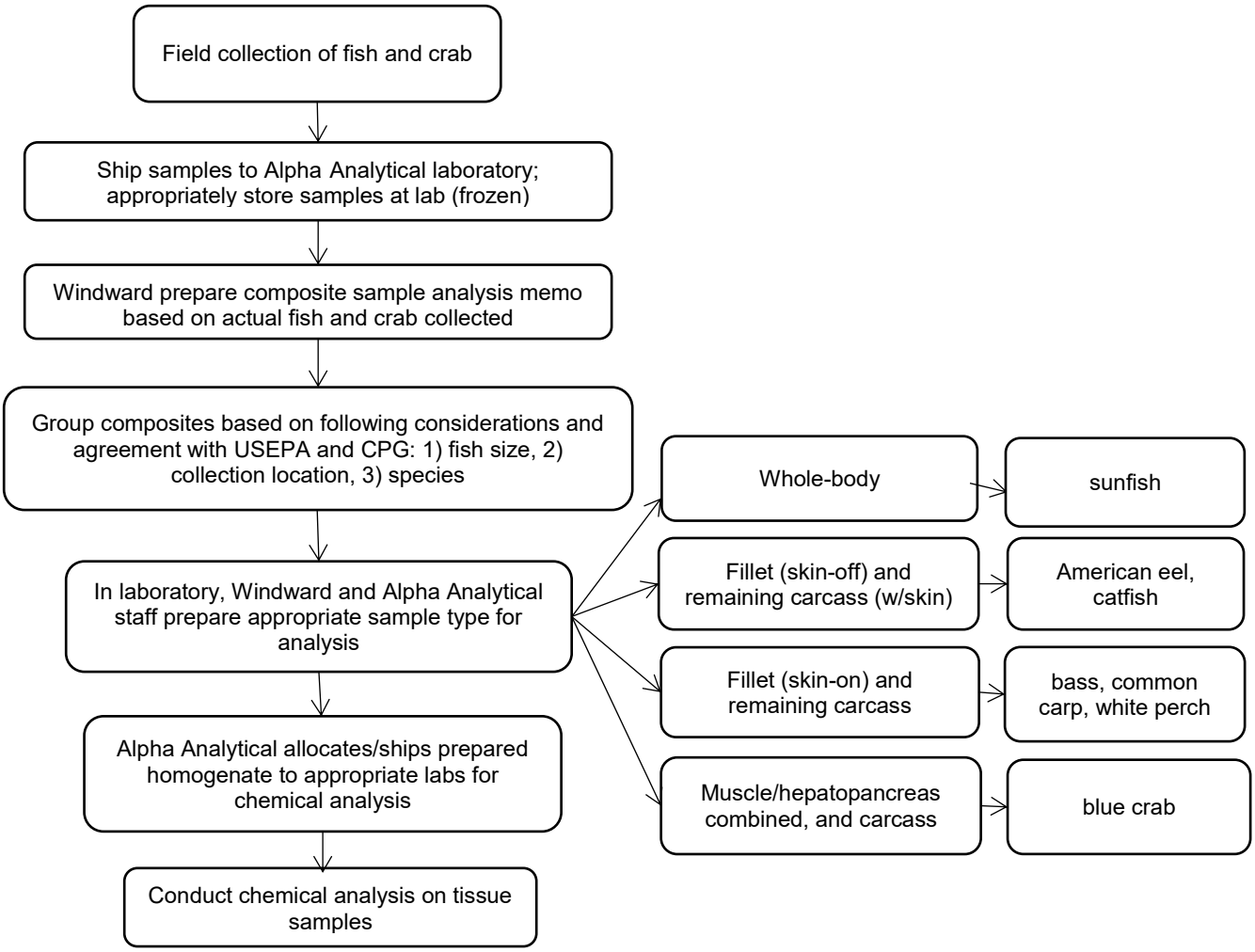


Figure 1. General process for preparing fish and crab tissue samples for analysis

All sample preparation (e.g., compositing and homogenization) will occur at the analytical laboratory. Once sampling efforts are complete, Windward Environmental LLC (Windward) will prepare a compositing plan memorandum. The compositing scheme will consider the following:

- **Fish size –** Ideally, all individuals included in a given composite will be of similar size so that the smallest individual in a composite is no less than 75% of the length of the largest individual (USEPA 2000). However, this target size requirement will be evaluated in conjunction with the US Environmental Protection Agency (USEPA) to determine whether this guideline can realistically be applied for some species that are less abundant during sampling.
- **Collection location –** Fish collected from the same location or from nearby locations will be preferentially grouped together to help evaluate spatial patterns.
- **Species –** For species groups for which multiple species are targeted (i.e., bass, catfish, and sunfish), composites will be composed of a single species when possible, although it will also be necessary to consider size and catch location when determining composite content.

Composite samples will follow the compositing design presented in Table 1, as is a summary of the targeted types of tissue to be collected per species. Most species will be separated into components (e.g., fish fillet and carcass and blue crab tissue components). The decision to analyze fish species as skin-on or skinless fillets is based on USEPA guidance and typical consumption practices (USEPA 2000). Scaled fish (including perch, bass, and carp) will be analyzed as skin-on fillets after removing scales. Eel and catfish will be analyzed as skinless fillets. Sunfish will be analyzed as whole-body samples.

Table 1. Summary of compositing per sample type for fish and crab tissue collection

Target Species	No. of Fish per Composite[a]	Target No. of Composite Samples		Tissue Types[b]	Target No. of Analytical Samples	Size Range (mm)		Composite Sample Identification	Alpha SOP Section
		RM 8.3 to RM 15	RM 15 to RM Dundee Dam			Target Range	Minimum Retention Size		
American eel	3	12 (36 fish)	12 (36 eel)	skinless fillet and carcass with skin	48	400–600	≥ 350	LPR19-#-ARFT-Comp## / LPR19-#-ARCT-Comp##	10.3.4 (fish tissue preparation); 10.3.4.3 (removal of skin); 10.3.4.4 (fillet)
Bass[c]	3	12 (36 fish)	12 (36 fish)	skin-on fillet and carcass	48	200–300	≥ 150	LPR19-#-BXFT-Comp## / LPR19-#-BXCT-Comp##[f]	10.3.4 (fish tissue preparation)); 10.3.4.3 (removal of scales)
Blue crab	3	12 (36 crab)	12 (36 crab)	muscle/ hepatopancreas and carcass	48	125–145	≥ 115	LPR19-#-CSHP-Comp## / LPR19-#-CSCT-Comp##	14.2 (fish tissue preparation)
Common carp	3	12 (36 fish)	12 (36 fish)	skin-on fillet and carcass	48	500–600	≥ 500	LPR19-#-CCFT-Comp## / LPR19-#-CCCT-Comp##	10.3.4 (fish tissue preparation); 10.3.4.3 (removal of scales); 10.3.4.4 (fillet)
Catfish[d]	3	12 (36 fish)	12 (36 fish)	skinless fillet and carcass	48	400–500	≥300	LPR19-#-CXFT-Comp## / LPR19-#-CXCT-Comp##[f]	10.3.4 (fish tissue preparation); 10.3.4.3 (removal of skin); 10.3.4.4 (fillet)
Sunfish[e]	5	12 (60 fish)	12 (60 fish)	whole body	24	100-140	≥ 80	LPR19-#-SXWB-Comp##[f]	10.3.4 (fish tissue preparation)
White perch	3	12 (36 fish)	12 (36 fish)	skin-on fillet and carcass	48	150-200	≥ 125	LPR19-MAFT-#-Comp## / LPR19-#-MACT-Comp##	10.3.4 (fish tissue preparation); 10.3.4.3 (removal of scales); 10.3.4.4 (fillet)
Total number of analytical samples					**312**				

[a] A minimum target pre-homogenization analytical mass of 90 g (70 g post-homogenization) is required for each sample. This minimum target mass does not include additional mass required for QC or USEPA split samples. The sizes of fish and crab to be included in each composite will be considered as part of the development of the compositing plan, which will be developed in collaboration with USEPA. Ideally, all individuals included in a given composite will be of similar size so that the smallest individual in a composite is no less than 75% of the length of the largest individual (USEPA 2000). However, this target size

requirement will be evaluated in conjunction with USEPA to determine whether this guideline can realistically be applied for some species that are less abundant during sampling.

[b] Carcass tissue will be composed of the remaining (non-fillet) portion. Tissue type concentrations will be combined mathematically (proportionally to their average weights in each species) to calculate whole-body concentrations.

[c] Bass species include largemouth bass (*Micropterus salmoides*) and smallmouth bass (*Micropterus dolomieu)*.

[d] Catfish species include channel catfish (*Ictalurus punctatus*) and white catfish (*Ameiurus catus)*.

[e] Based on the 2009/2010 sampling efforts, sunfish species primarily include bluegill (*Lepomis macrochirus*), pumpkinseed (*Lepomis gibbosus*), and redbreast sunfish (*Lepomis auritus*). Other species may also be retained for compositing and analysis.

[f] Sample identification will be based on a mixed-species composite. If the composite is composed of a single species, the scientific (Latin binomial) name will be used for the composite sample identification.

QC – quality control RM – river mile SOP – standard operating procedure USEPA – US Environmental Protection Agency

For all composites, multiple individuals per sample will be targeted to meet the anticipated minimum sample mass requirements (90 g pre-homogenization and 70 g post-homogenization). The minimum mass will not be sufficient for re-extractions or matrix-specific quality control (QC) samples. As discussed with USEPA, all samples will be analyzed as composites, each consisting of three individuals, with the exception of sunfish, for which each composite will consist of five individuals. It should also be noted that additional tissue mass will be needed for certain samples to accommodate USEPA split sample objectives.[1]

Once the individual and composite memorandum is approved by USEPA, sample homogenates will be prepared in the laboratory based on species-specific sample types as presented in Table 1. For whole-body, fillet, carcass, and blue crab tissue type composite samples, the composite sample identification scheme is as follows (also described on Fish/Decapod quality assurance project plan [QAPP] (Windward 2009) Worksheet No. 27):

- The first five alphanumeric characters will be "LPR" to identify the project area (Lower Passaic River) and the two-digit sampling year.
- The next character will indicate the sampling area (i.e., A for RM 8 to RM 15; B for RM 15 to Dundee Dam).
- The next set of characters will include two letters to identify the fish or crab species by its scientific (Latin binomial) name[2] and tissue type. Tissue type will be identified using one of the following codes: "WB" for whole-body tissue, "FT" for fillet tissue, "CT" for carcass tissue, or "MH" for muscle/hepatopancreas combined tissue.
- The next set of alphanumeric characters will be "Comp" to identify the composite sample, followed by a two-digit sequential number.

For example, the first common carp fillet tissue composite sample collected during the 2019 sampling event from sampling area A would be identified as "LPR19-A-CCFT-Comp01."

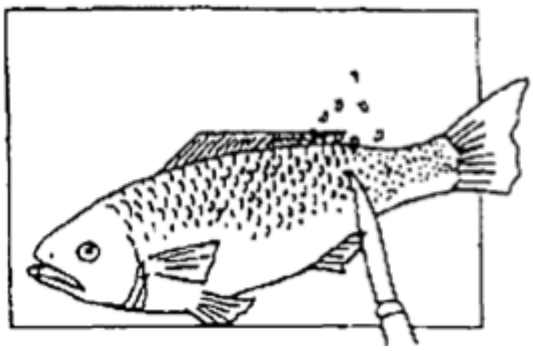
The general sampling identifiers for each sample are presented in Table 1.

All relevant information for each composite and individual sample will be recorded electronically on the Composite Sample Form (Attachment F) and included as an appendix in the final data report.

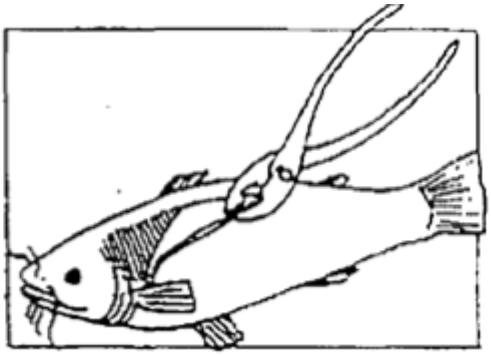
[1] Once the composite memorandum is approved, USEPA may select target samples for splits. If the mass of a target sample is insufficient to provide splits, USEPA will be notified, and an alternative sample may be selected.
[2] For any composite sample that is composed of more than one species, the scientific (Latin binomial) name will be replaced by "SX" for mixed sunfish, "BX" for mixed bass, or "CX" for mixed catfish.

III. Additional details on fillet sample preparation

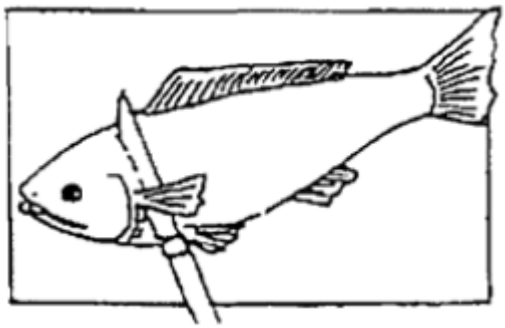
The laboratory procedure for tissue preparation and homogenization is presented in the laboratory standard operating procedure (SOP) (Attachment T1). Fish fillet preparation procedures are adapted from USEPA guidance (USEPA 2000) and presented in Figure 2. White perch and carp fillets will be prepared with skin on but scales removed.



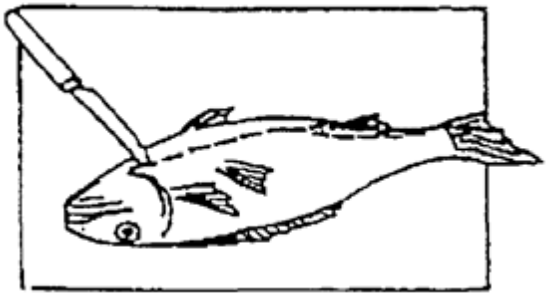
1. Removing Fish Scales: Remove the scales (by scraping with the edge of a knife) and rinse the fish with deionized water. Scales are not included in the carcass tissue.



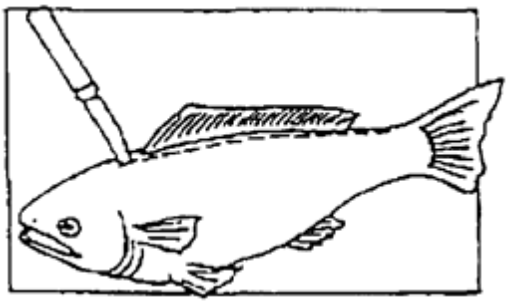
1b. Removing Skin on Scale-less Fish: Cut the skin behind the gill cover. Using a knife blade, pliers, or other cleaned utensils, pull the skin off towards the tail of the fish. Note: This step applies only to catfish and other scale-less fish



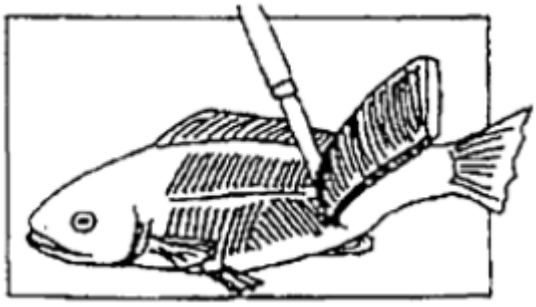
2.To fillet the fish, make a cut behind the entire length of the gill cover, cutting through the skin and flesh to the bone.



3. Make a shallow cut along the belly from the base of the pectoral fin to the tail. A single cut is made from behind the gill to the anus, and then a cut is made on both sides of the anal fin. Do not cut into the gut cavity as this may contaminate fillet tissue.



4. Make a shallow cut through the skin (on either side of the dorsal fin) from the top of the head to the base of the tail.



5. Remove the fillet.

Figure 2: Fish fillet preparation procedures

IV. Additional details on blue crab sample preparation

The laboratory procedure for blue crab tissue preparation and homogenization is presented in the laboratory SOP (Attachment T1). Crab will be separated into several tissue type samples (Table 1). The anatomy of the blue crab is presented in Figure 3.

Graphic courtesy of Virginia Sea Grant

Figure 3. Anatomy of blue crab

Preference should be given to compositing male blue crabs of similar relative sizes, as practicable. A sufficient number of crabs will be utilized to meet the analytical sample volumes for each tissue type specified in Worksheet No. 10 of the Fish/Decapod QAPP.

The crab samples will be partially thawed before processing. The samples will be homogenized using a decontaminated glass blender with a stainless steel blade. The following protocols shall be implemented, as practicable, when preparing crab tissue samples.

Individual crabs will be dissected to obtain muscle/hepatopancreas and carcass tissues according to the following protocols as practicable.

1. Prior to removal of tissues, rinse each crab with deionized water to remove any attached sediment. In addition, examine each crab for damage to the carapace; discard any crabs exhibiting extensive damage (i.e., cracks or holes).
2. Break off the chelipeds at the carapace and place claws aside for tissue removal. Lift the tail, place fingers in the body cavity of the crab, and pull the top carapace off, exposing the internal organs.
3. Using a clean, decontaminated stainless steel spoon or knife, remove as much of the hepatopancreas from the upper and lower portions of the carcass as possible and place the tissue on a decontaminated glass plate. Care should be taken to allow calculation of other tissue types with the hepatopancreas.
4. Following removal of the hepatopancreas, remove the muscle tissue from the thoracic cavity, claws, legs, and abdomen portions of the crab using a clean, decontaminated stainless steel spoon or knife. Combine the muscle tissue with the hepatopancreas. The edible tissue can be removed from the claws by breaking open the cheliped and scraping or pulling out all muscle tissue.
5. Homogenize the samples (i.e., muscle/hepatopancreas and carcass) separately in a glass blender with a stainless steel or titanium blade, transfer to the appropriate sample bottles, wrap with bubble wrap, and place in a labeled plastic bag.
6. Place the bag on ice in an insulated cooler, or in a freezer for storage until shipment.
7. Complete the appropriate chain-of-custody form for each sample container.
8. Ship sample in cooler containing wet or dry ice.

V. Additional details on preparing tissues for shipment

1. Wrap each bagged sample jar in bubble wrap and secure with tape or place sample jar in a bubble bag and seal.

2. Fill temperature blank with water and freeze. Once frozen, place the temperature blank container inside the cooler among sample jars.

3. Complete the appropriate chain-of-custody form for each sample container. Place chain-of-custody form in a small plastic bag inside the cooler.

4. Pack the samples in a cooler containing wet or dry ice. Ensure that the dry ice does not touch the sample jars. Ensure that the appropriate labels are applied to the cooler for the dry ice documentation.

5. Sign, date, and affix custody seals to the top of the cooler. Send the cooler via overnight delivery (avoid sending on Friday for Saturday delivery whenever possible).

VI. References

USEPA. 2000. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 1: Fish sampling and analysis. Third ed. EPA 823-B-00-007. US Environmental Protection Agency, Washington, DC.

Windward. 2009. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Quality Assurance Project Plan: Fish and decapod crustacean tissue collection for chemical analysis and fish community survey. Final. Prepared for Cooperating Parties Group, Newark, NJ. August 6, 2009. Windward Environmental LLC, Seattle, WA.

LOWER PASSAIC RIVER RESTORATION PROJECT

QUALITY ASSURANCE PROJECT PLAN:
FISH AND CRAB TISSUE COLLECTION AND CHEMICAL ANALYSIS:
ATTACHMENT R. HEALTH AND SAFETY PLAN

FINAL

September 13, 2019
Revision Number: 1

Prepared by: Windward environmental LLC

200 West Mercer Street, Suite 401 ♦ Seattle, Washington ♦ 98119

Table of Contents

Table of Tables iii

Table of Figures iii

1 Introduction 1

2 Site Description and Project Scope 2
2.1 SITE DESCRIPTION 2
2.2 SCOPE OF WORK 2

3 Health and Safety Personnel 2

4 Hazard Evaluation and Control Measures 4
4.1 PHYSICAL HAZARDS 4
4.1.1 Slips, trips, and falls 4
4.1.2 Sampling equipment deployment 4
4.1.3 Fish collection by backpack or boat electrofishing 5
4.1.4 Working on or near water 6
4.1.5 Manual lifting 6
4.1.6 Hypothermia or frostbite 7
4.1.7 Heat stress 7
4.1.8 Inclement weather 8
4.1.9 Vessel traffic 9
4.1.10 Feral animals 9
4.1.11 Pinch point 9
4.1.12 Poisonous plants 9
4.1.13 Insects 10
4.2 CHEMICAL HAZARDS 13
4.2.1 Exposure routes 13
4.2.2 Chemical hazards occurring in natural environment 13
4.2.3 Chemical hazards used in sample preservation and decontamination 14
4.3 BIOLOGICAL HAZARDS 14
4.3.1 Raw sewage 15
4.3.2 Tetanus 15
4.3.3 Needles and syringes 15
4.3.4 Infection control 15

5 Work Zones and Shipboard Access Control 16
5.1 WORK ZONE 16
5.2 DECONTAMINATION STATION 16
5.3 ACCESS CONTROL 16

6 Safe Work Practices 17

7 Personal Protective Equipment and Safety Equipment 17
7.1 LEVEL D PERSONAL PROTECTIVE EQUIPMENT 18
7.2 MODIFIED LEVEL D PERSONAL PROTECTIVE EQUIPMENT 18
7.3 SAFETY EQUIPMENT 18

8 Monitoring Procedures for Site Activities 19

9 Decontamination 20
9.1 MINIMIZATION OF CONTAMINATION 20
9.2 PERSONNEL DECONTAMINATION 21
9.3 SAMPLING EQUIPMENT DECONTAMINATION 21

10 Disposal of Contaminated Materials 22
10.1 PERSONAL PROTECTIVE EQUIPMENT 22
10.2 EXCESS SAMPLE MATERIALS AND OTHER WASTE 22

11 Training Requirements 22
11.1 PROJECT-SPECIFIC TRAINING 22
11.2 DAILY SAFETY BRIEFINGS 23
11.3 FIRST AID AND CPR 23

12 Medical Surveillance 23

13 Reporting and Record Keeping 24

14 Emergency Response Plan 25
14.1 PRE-EMERGENCY PREPARATION 25
14.2 PROJECT EMERGENCY COORDINATOR 26
14.3 EMERGENCY RESPONSE CONTACTS 26
14.4 RECOGNITION OF EMERGENCY SITUATIONS 27
14.5 DECONTAMINATION 27
14.6 FIRE 27
14.7 PERSONAL INJURY 27
14.8 OVERT PERSONAL EXPOSURE OR INJURY 28
14.8.1 Skin contact 29
14.8.2 Inhalation 29
14.8.3 Ingestion 29
14.8.4 Puncture wound or laceration 29
14.9 SPILLS AND SPILL CONTAINMENT 29
14.10 BOATING HAZARDS 29
14.11 EMERGENCY ROUTE TO THE HOSPITAL 30

15 References 34

Appendix A. Field Team Health and Safety Plan Review 35

Table of Tables

Table 1. Emergency response contacts 26
Table 2. Potential boat emergency hazards and responses 29

Table of Figures

Figure 1. Route to St. Mary's Hospital from the CPG dock 31
Figure 2. Route to St. Mary's Hospital from the north 32
Figure 3. Route to St. Mary's Hospital from the south 33

Title and Approval Page
Health and Safety Plan for Fish and Crab Tissue Collection for Chemical Analysis

---

By their signature, the undersigned certify that this health and safety plan is approved and that it will be used to govern health and safety aspects of fieldwork described in the quality assurance project plan to which it is attached.

Name Project Manager	Date
Name Corporate Health and Safety Manager	Date
Name Field Coordinator/Health and Safety Officer	Date

1 Introduction

This site-specific health and safety plan (HSP) describes safe working practices for conducting field activities at potentially hazardous sites and for handling potentially hazardous materials/waste products. This HSP covers elements as specified in 29 CFR 1910§120 and certain sections of 29 CFR§1926. The procedures and guidelines contained herein are based on generally recognized health and safety practices. Any changes or revisions to this plan will be made by a written amendment that will become a permanent part of this plan. The goal of the HSP is to establish procedures for safe working practices for all field personnel and visitors.

This HSP is specific to field activities of the fish and crab tissue collection for chemical analysis, which will be conducted to support the remedial investigation/feasibility study (RI/FS) of the Lower Passaic River Restoration Project (LPRRP). This HSP has been developed on behalf of the Lower Passaic River Study Area (LPRSA) Cooperating Parties Group (CPG). It includes relevant elements from the HSP Core Document developed by Malcolm Pirnie Inc. (Malcolm Pirnie 2005). The HSP Core Document describes the general health and safety issues related to field activities for the RI/FS.

This HSP addresses all activities associated with collection and handling of biological specimens from the LPRSA for preparation of tissue samples for chemical analyses. During site work, this HSP will be implemented by the field coordinator (FC), who is also the designated site health and safety officer (HSO), in cooperation with the Windward corporate health and safety manager (HSM) and the Windward project manager (PM).

All personnel involved in fieldwork on this project, including Windward, AECOM, and de maximis, inc. (dmi) employees and any contractor employees, are required to comply with this HSP. The contents of this HSP reflect the anticipated types of activities to be performed, knowledge of the physical characteristics of the site, and consideration of preliminary chemical data from previous investigations at the site. The HSP may be revised based on new information and/or changed conditions during site activities. Revisions will be documented in the project records. Each employee must sign the Field Team Health and Safety Plan Review Form (Appendix A) affirming that they have read and understood the details of the HSP.

2 Site Description and Project Scope

2.1 SITE DESCRIPTION

The sampling area is in the approximate upper 9 miles of the LPRSA (see Figure 1 in the Fish/Decapod Quality Assurance Project Plan [QAPP]) Addendum No. 7 (Windward 2009). The field sample processing and storage area and boat dock are located on the east bank of the Lower Passaic River (LPR) at approximately River Mile (RM) 13.6.

The QAPP to which this HSP is attached summarizes the site and provides complete details of the sampling program. Additional details about the site are provided in Section 2 of the HSP Core Document (Malcolm Pirnie 2005). The following section summarizes the types of work that will be performed during field activities.

2.2 SCOPE OF WORK

Specific tasks to be performed are as follows:

- Collection of biological specimens from a boat using a gillnets and trotlines
- Collection of biological specimens from a boat using baited eel, minnow, crab, and crayfish traps
- Collection of biological specimens in shallow, nearshore water using beach seining and electrofishing
- Sample handling, processing, and shipping

The tissue collection is scheduled to occur in late summer or early fall (i.e., September) of 2019. An additional event is anticipated to occur in late summer or early fall of 2020. Additional details on the sampling design and sampling methods are provided in QAPP Worksheet Nos. 10, 11, 14, and 17.

3 Health and Safety Personnel

Key health and safety personnel and their responsibilities are described below. These individuals are responsible for the implementation of this HSP and will be responsible for informing all individuals assigned to work on the site, or visit the site, of the contents of this plan and ensuring that each person signs the Health and Safety Plan Review Form. By signing the Health and Safety Plan Review Form, individuals recognize the site health and safety hazards, known or suspected, and will adhere to the protocols required to minimize exposure to such hazards.

Project Manager: The PM has overall responsibility for the successful outcome of the project. The PM will ensure that adequate resources and budget are provided for the health and safety staff to carry out their responsibilities during fieldwork. The PM, in consultation with the HSM, makes final decisions concerning implementation of the HSP.

Field Coordinator/Health and Safety Officer: The FC and HSO will be the same person and will direct field sampling activities, coordinate the technical components of the field program with health and safety components, and ensure that work is performed according to the QAPP.

The FC/HSO will implement this HSP at the work location and will be responsible for all health and safety activities and the delegation of duties to a health and safety technician in the field, if appropriate. The FC/HSO also has stop-work authority, to be used if there is an imminent safety hazard or potentially dangerous situation. The FC/HSO or his designee will be present during sampling and operations.

Corporate Health and Safety Manager: The HSM has overall responsibility for preparation, approval, and revisions of this HSP. The HSM will not necessarily be present during fieldwork but will be readily available, if required, for consultation regarding health and safety issues during fieldwork.

Field Crew: All field crew members must be familiar with and comply with the information in this HSP. They also have the responsibility to report any potentially unsafe or hazardous conditions to the FC/HSO immediately.

Boat Captain: All boat captains assigned to the project will be responsible for managing all on-water operations associated with the field work described in the QAPP and will have completed the boating safely course offered by the United States Coast Guard (USCG) Auxiliary. These responsibilities include:

- Serving as primary point of contact for coordinating marine operations
- Monitoring local boat traffic during on-water operations
- Broadcasting a security call prior to the start of each day's on-water activity and at regular intervals during the day to alert boat traffic of on-going marine sampling activities
- Verifying that the vessels are properly licensed and registered and that the vessels are properly sized and equipped for existing river conditions
- Conducting a mandatory all-hands safety briefing prior to the start of on-water activities and conducting a supplemental briefing for all visitors and/or personnel coming aboard after the initial briefing

- Conducting daily safety briefings to remind staff of on-water hazards and review any suggestions for improving vessel safety
- Performing a thorough inspection of the boat and deck
- Postponing or suspending on-water operations due to weather conditions
- Coordinating any emergency response efforts

4 Hazard Evaluation and Control Measures

This section covers potential physical, chemical, and biological hazards that may be associated with the proposed project activities and presents control measures for addressing these hazards. Confined-space entry will not be necessary for this project. Therefore, hazards associated with this activity are not discussed in this HSP.

4.1 PHYSICAL HAZARDS

For this project, it is anticipated that physical hazards will present a greater risk of injury than chemical hazards. Physical hazards are identified and discussed below.

4.1.1 Slips, trips, and falls

As with all field work, caution should be exercised to prevent slips on slick surfaces. In particular, sampling from a boat or other floating platform requires careful attention to minimize the risk of falling down or falling overboard. The same care should be used in rainy conditions or on the shoreline where slick rocks are found. Slips can be minimized by wearing boots with good tread, made of material that does not become overly slippery when wet.

Trips are always a hazard on the uneven deck of a boat, in a cluttered work area, or in the intertidal zone where uneven substrate is common. Personnel will keep work areas as free as possible from items that interfere with walking.

Falls may be avoided by working as far from exposed edges as possible, by erecting railings, and by using fall protection when working on elevated platforms. For this project, no work that would present a fall hazard is anticipated.

4.1.2 Sampling equipment deployment

Several different fishing methods and associated gear will be used to collect tissue samples and conduct the community surveys (see QAPP Worksheet No.17 for additional details). Appropriate protocols will be used in the deployment and hauling of all sampling gear to ensure the safety of the field personnel. Before sampling

activities begin, there will be a training session for all field personnel for the equipment that will be onboard the sampling vessel.

4.1.3 Fish collection by backpack or boat electrofishing

Fish may be collected using electrofishing equipment, which employs electrical power to temporarily stun fish within an effective range. Electrofishing can be completed using backpack equipment or boat equipment.

Backpack Electrofishing

Backpack electrofishing equipment is designed to sample wadeable streams and shallow waters effectively. Backpack electrofishing equipment consists of a power source and a variable voltage pulsator (VVP) on a backpack frame with an anode and cathode (positive and negative electrodes, respectively) attached to the VVP. The backpack typically weighs between 30 and 50 pounds. Common power sources include a 12-volt battery or a small gas-powered generator.

One technician will wear and operate the backpack electroshocker, while the second technician will collect stunned fish in a net. The technician operating the electroshocker will hold the anode wand in one hand and drag the cathode in the water. The technician slowly passes the anode over the desired areas, creating an electric field. Neither technician should reach into the water while the electroshocker is operating. Additional precautions include:

- Prior to use, the unit should be inspected and, where practicable, used to verify its proper operation. The unit should be taken out of service if the necessary insulation or back board (prevents burns to user) is missing or insufficient.
- Individuals wearing the unit must wear rubber boots and electrical safety gloves.
- Netters should also wear gloves in case the anode comes in contact with the net. The handle of the net should also be properly insulated with fiberglass.
- Wading should only be done is areas where there is no danger of water filling the waders. If there is uncertainty in this regard, waders with a quick release harness or waders which will not fill with water must be used.
- Employees carrying the unit should be cautious in rough, uneven terrain to avoid tripping or falling. Care should be exercised to maintain good balance when entering and leaving the water and when wading.

Boat Electrofishing

Boat electrofishing equipment is similar to backpack electrofishing equipment but is designed to sample deeper waters. To adequately power the boat electrofishing equipment, a gas generator that produces 2,000 watts or more should be used. The boat is the staging area for the electrofishing equipment, and the sampling locations are sampled from the boat. There are different configurations for setting up the electrical equipment, and the user's manual will help determine the best one to use. In addition, the sampling location, water depth, conductivity, and fish species will be evaluated to determine an appropriate setup on the boat. Normally the VVP is positioned near or in the console of the boat. The electrical current from the water back to the VVP travels through the flexible metal conduit. Often the front probes or wands are constructed of fiberglass with a flexible metal conduit attached to their anterior ends. The boat operator is able to carefully position the boat and the wands to access areas full of obstructions (e.g., large woody debris, beds of aquatic plants) because of the flexible nature of the metal conduit.

Two field technicians work from the boat with a boat operator during boat electrofishing. All personnel must be aware of the kill switches for the electrofishing equipment and power sources. Both technicians will wear chest waders and electrical safety gloves. Technicians will work from the bow of the boat. A safety rail must border the bow of the boat to prevent technicians from falling into the water during electrofishing and fish collection.

4.1.4 Working on or near water

Some of the sampling activities will be conducted from a boat and are thereby subject to the "Working on or Near Water" regulations (29 CFR§1926.106). As with any work from a floating platform, there is a chance of falling overboard. USCG Type II or III personal flotation devices (PFDs) will be worn while working on the boat. A Type IV PFD (ring-type) with 90 ft of line, an air horn, and flares will also be available on all boats.

4.1.5 Manual lifting

Equipment and sample containers/coolers must be lifted and carried. Back strain can result if lifting is done improperly. During any manual handling tasks, personnel should lift with the load supported by their legs and not their backs. For heavy loads, an adequate number of people will be used, or if possible, a mechanical lifting/handling device will be used.

4.1.6 Hypothermia or frostbite

Because this field effort includes fish community events planned for late fall (November) and late winter (March), cold temperatures potentially associated with hypothermia or frostbite may be experienced. Cold temperatures at or below freezing or due to wind chill can lead to cold stress-related problems, including frostbite or hypothermia. Frostbite occurs in several degrees, ranging from frost nip (whitening of the skin) to deep frostbite (tissues become solid resulting in serious injury). Hypothermia is a systemic response caused by exposure to freezing temperatures and can be fatal. The five stages of hypothermia include: shivering; apathy or sleepiness; unconsciousness and slow pulse and respiratory rate; freezing of extremities; and death.

All personnel will wear protective clothing, such as protective gloves or mittens or a USCG-approved survival suit, appropriate for the weather conditions and physical activity. A person exhibiting any of the signs of cold stress should be removed from the work area to a warm area. Immediate steps that can be taken to reduce the symptoms of frostbite and/or hypothermia include minimizing contact with cold metal surfaces and bare skin, limiting sitting or standing still for long periods, rehydration with warm fluids, and the removal of outer layers of clothing to permit sweat evaporation during rest periods in a warm environment.

4.1.7 Heat stress

Heat stress could be an issue during the late summer/early fall tissue collection and community survey sampling event. Heat-related problems include heat rash, heat cramps, heat exhaustion, and heat stroke if the person does not ingest sufficient fluids. Heat rash can occur when sweat is not allowed to evaporate, leaving the skin wet most of the time and making it subject to irritation. Heat cramps are painful spasms of the muscles from excessive salt loss associated with sweating. Excessive sweating can also lead to heat exhaustion, resulting in moist, clammy skin. Physical signs and symptoms of heat exhaustion include headache, nausea, vertigo, weakness, thirst, and giddiness. Heat exhaustion may progress to heat stroke if a worker is unable to cool and re-hydrate their body. The primary signs and symptoms of heat stroke are confusion, irrational behavior, loss of consciousness, convulsions, a lack of sweating, hot dry skin, and an abnormally high body temperature. Workers should be aware of the key differences between the signs and symptoms of heat stroke and those of heat exhaustion, such as the lack of sweating, the color of the skin (red), and the rise in body temperature. Heat stroke is a medical emergency that requires immediate medical attention.

A person exhibiting any of the signs of heat stress should be removed from the work area to a shaded area. Immediate steps that can be taken to reduce the symptoms include use of a fan or soaking with water to increase cooling and promote evaporation, rehydration with electrolyte replacement fluids, and the removal of outer layers of clothing.

4.1.8 Inclement weather

In general, field team members will be equipped for the normal range of weather conditions. The FC/HSO will be aware of current weather conditions and of the potential for those conditions to pose a hazard to the field crew. Some conditions that might force work stoppage are thunderstorms, high winds, or high waves resulting from winds.

During the expected sampling period, severe thunderstorms may pose a hazard to site personnel. The project team will be issued a battery-operated National Oceanic and Atmospheric Administration (NOAA) weather radio equipped with an alarm that will automatically broadcast any pertinent information from NOAA's National Weather Service. The most pertinent information would be whether severe thunderstorm watches or warnings have been issued for the work area by the National Weather Service. A severe thunderstorm watch indicates that a severe thunderstorm is possible. A severe thunderstorm warning, in contrast, indicates that a severe thunderstorm has actually been spotted or is strongly indicated on radar and it is time to seek safe shelter immediately.

If a severe thunderstorm watch is issued, field team members must remain alert for approaching storms and review the procedures for seeking refuge in the event that a warning is issued. If a severe thunderstorm warning is issued and thunder is heard, field team members will take the following measures:

- Cease all work, and contact shore support teams to coordinate a meeting at the nearest pre-defined access point on the river, then immediately seek shelter in a vehicle or back at the CPG field facility.
- Do not take shelter in small sheds, under isolated trees, or in convertible automobiles.
- If in a car, keep the windows up.

In the event that no shelter is available, field team members should find a low spot away from trees, fences and poles, and squat low to the ground on the balls of their feet and place their hands on their knees with their heads positioned between them.

Field team members should not return to work until 30 minutes after thunder was last heard.

4.1.9 Vessel traffic

Because of the high volumes of vessel and barge traffic in some areas of the LPRSA (i.e., specifically the lower 8 miles), precautions and safe boating practices will be implemented to ensure that the field boats do not interrupt vessel traffic. As practical, the field boats will stay out of the navigation channel. When samples are collected near cable crossing points in the LPRSA, clearance will be requested from the USCG prior to sampling.

In addition, when multiple boats are working to collect samples or transfer equipment, supplies and/or field personnel, the boat operators will clearly communicate their position to each other to avoid any potential interference or collision. Each boat will work a safe distance from the others and approach any dock one at a time.

4.1.10 Feral animals

Some field activities may take place on land, and field personnel may come into contact with a feral animal (i.e., dog or cat). If encountered, field personnel should not approach or touch the feral animal because it may have contacted a disease from another wild animal. Also, if field personnel encounter a pack of feral dogs, they should avoid eye contact, watch them cautiously while walking slowly to a safe area and give the dogs a wide berth. In the event that a field team member is scratched or bitten by a feral animal, that person will receive the appropriate medical care.

4.1.11 Pinch point

Pinch points can occur anywhere a part of the body can get caught between two objects. This is a concern while field personnel are handling the fish sampling equipment. Proper equipment and safety training will be provided to each individual who will be working with the sampling equipment. Field personnel will keep clothing and body extremities well clear of pinch points. The pinch point and moving part areas include the openings of the fish sampling traps and the space between the two field boats when tied up together to transfer samples.

4.1.12 Poisonous plants

Persons working on the site should be aware of the possible presence of poisonous plants. Poison ivy is a climbing plant with leaves that consist of three glossy, greenish leaflets. Poison ivy has conspicuous red foliage in the fall. Small yellowish-white flowers appear in May through July at the lower leaf axils of the plant. White berries

appear from August through November. Poison ivy is typically found east of the Rockies. Poison oak is similar to poison ivy but its leaves are oak-like in form. Poison oak occurs mainly in the south and southwest. Poison sumac typically occurs as a small tree or shrub and may be 6 to 20 ft in height. The bark is smooth, dark and speckled with darker spots. Poison sumac is typically found in swampy areas and east of the Mississippi. The leaves have 7 to 13 smooth-edged leaflets and drooping clusters of ivory-white berries appear in August and last through spring.

The leaves, roots, stems and fruit of these poisonous plants contain urushiol. Contact with the irritating oil causes an intensely itching skin rash and characteristic, blister-like lesions. The oil can be transmitted on soot particles when burned and may be carried on the fur of animals, equipment, and apparel.

Proper identification of these plants is the key to preventing contact and subsequent dermatitis. Wear long sleeves and pants when working in wooded areas. In areas of known infestation, wear Tyvek® coveralls and gloves. Oils are easily transferred from one surface to another. If you come in contact with these poisonous plants, wash all exposed areas immediately with cool water to remove the oils. Some commercial products such as Tecnu's Poison Oak-n-Ivy Cleanser claim to further help with the removal of oils.

4.1.13 Insects

Persons working on the site should be aware of the possible presence of poisonous and disease-bearing insects such as ticks, mosquitoes, wasps, and bees.

4.1.13.1 Ticks

Ticks are bloodsuckers and attach themselves to warm-blooded vertebrates to feed. Deer ticks are associated with the transmission the bacteria that causes Lyme disease. Female deer ticks are about one-quarter inch in length and are black and brick red in color. Males are smaller and all black. If a tick is not removed, or if the tick is allowed to remain for days feeding on human blood, a condition known as tick paralysis can develop. This is due to a neurotoxin, which the tick apparently injects while engorging. This neurotoxin acts upon the spinal cord causing incoordination, weakness, and paralysis.

The early stages of Lyme disease, which can develop within a week to a few weeks of the tick bite, are usually marked by one or more of these signs and symptoms:

- Tiredness
- Chills and fever

- Headache
- Muscle and/or joint pain
- Swollen lymph glands
- Characteristic skin rash (i.e., bulls-eye rash)

Rocky Mountain spotted fever is spread by the American dog tick, the lone-star tick, and the wood tick, all of which live in wooded areas and tall, grassy fields. The disease is most common in the spring and summer when these ticks are active, but it can occur anytime during the year when the weather is warm. Rocky Mountain spotted fever is found throughout the United States, except in Maine, Alaska, and Hawaii. Despite the name, few cases are reported from the Rocky Mountain region. Most cases occur in the southeastern United States.

Initial signs and symptoms of Rocky Mountain spotted fever include sudden onset of fever, headache, and muscle pain, followed by development of a rash. Initial symptoms may include fever, nausea, vomiting, severe headache, muscle pain, and lack of appetite. The rash first appears 2 to 5 days after the onset of fever and is often not present or may be very subtle. Most often it begins as small, flat, pink, non-itchy spots on the wrists, forearms, and ankles. These spots turn pale when pressure is applied and eventually become raised on the skin. Later signs and symptoms include rash, abdominal pain, joint pain, and/or diarrhea.

The characteristic red, spotted rash of Rocky Mountain spotted fever is usually not seen until the sixth day or later after onset of symptoms, and this type of rash occurs in only 35 to 60% of patients with Rocky Mountain spotted fever. The rash involves the palms or soles in as many as 50 to 80% of patients; however, this distribution may not occur until later in the course of the disease.

Tick season lasts from April through October; peak season is May through July. You can reduce your risk by taking these precautions:

- During outside activities, wear long sleeves and long pants tucked into socks. Wear a hat and tie hair back.
- Use insecticides to repel or kill ticks. Repellents containing the compound DEET can be used on exposed skin except for the face, but they do not kill ticks and are not 100% effective in discouraging ticks from biting. Products containing permethrin kill ticks, but they cannot be used on the skin – only on clothing. When using any of these chemicals, follow label directions carefully.
- After outdoor activities, perform a tick check. Check body areas where ticks are commonly found: behind the knees, between the fingers and toes, under the

arms, in and behind the ears, and on the neck, hairline, and top of the head. Check places where clothing presses on the skin.

- Remove attached ticks promptly. Removing a tick before it has been attached for more than 24 hours greatly reduces the risk of infection. Use tweezers, grab as closely to the skin as possible and extract. Do not try to remove ticks by squeezing them, coating them with petroleum jelly, or burning them with a match.
- Report any of the above symptoms and all tick bites to the FC or HSO for evaluation.

4.1.13.2 Mosquitoes

West Nile encephalitis is an infection of the brain caused by the West Nile virus, which is transmitted by infected mosquitoes. Following transmission from an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of the brain tissue. However, most infections are mild and symptoms include fever, headache, and body aches. More severe infections may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis and rarely, death. Persons over the age of 50 have the highest risk of severe disease.

Prevention centers on public health action to control mosquitoes and on individual action to avoid mosquito bites. To avoid being bitten by the mosquitoes that cause the disease, use the following control measures:

- If possible, stay inside between dusk and dark. This is when mosquitoes are most active.
- When outside between dusk and dark, wear long pants and long-sleeved shirts.
- Spray exposed skin with an insect repellent, preferably containing DEET.

4.1.13.3 Wasps and bees

Wasps (hornets and yellow jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer, or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either below or above the ground. Yellow jackets tend to build their nests in the ground, but hornets tend to build their nests in trees and shrubbery. Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once; wasps sting multiple times

because their stinger is barbless. Wasps sting when they feel threatened. By remaining calm and not annoying wasps by swatting, you lessen the chance of being stung.

Wasps and bees inject a venomous fluid under the skin when they sting. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it with tweezers. Some people may develop an allergic reaction (i.e., anaphylactic shock) to a wasp or bee sting. If such a reaction develops, seek medical attention at once. In addition, if individuals know they have an allergic reaction to wasp and bee stings, they are encouraged to consult their doctor prior to working in the area that may pose such a risk and carry the proper medication.

4.2 CHEMICAL HAZARDS

Chemical hazards include those occurring in the natural environment of the site (i.e., sediments and surface water) and those that are used in sample preservation and decontamination.

4.2.1 Exposure routes

Potential routes of chemical exposure include inhalation, dermal contact, and ingestion. Exposure will be minimized by using safe work practices and by wearing the appropriate personal protective equipment (PPE). Further discussion of PPE requirements is presented in Section 7.

Inhalation — Inhalation is not expected to be an important route of exposure.

Dermal exposure — Dermal exposure to hazardous substances associated with sediments, surface water, or equipment decontamination will be controlled by the use of PPE and by adherence to detailed sampling and decontamination procedures.

Ingestion — Incidental ingestion of sediment or surface water is not considered a major route of exposure for this project. Accidental ingestion of surface water is possible. However, careful handling of equipment and containers onboard the boat should prevent the occurrence of water splashing or spilling during sample collection and handling activities.

4.2.2 Chemical hazards occurring in natural environment

Previous investigations have shown that some chemicals are present at higher-than-background concentrations in the sampling area. For the purpose of discussing potential exposure to chemicals in sediments, the chemical contaminants of concern are metals, dioxins, pesticides, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs). Each of these chemical groups is associated with significant adverse health effects. Additional

details on the chemical hazards associated with these chemicals are provided in Section 4.2 of the HSP Core Document (Malcolm Pirnie 2005).

The site contaminants of concern are predominantly non-volatile in nature so exposure to the vapors of these compounds is not likely to occur. Similarly, the potential for exposure to dust containing the chemical contaminants of concern during sample collection and sample processing will also be minimal because the sampling equipment is not likely to come into contact with soils that could generate dust.

To avoid direct dermal contact with contaminated media, PPE, as described in Section 7, will be required when collecting samples. Exposure to chemical contaminants of concern may occur via ingestion (i.e., hand-to-mouth transfer). The decontamination procedures described in Section 9 address personal hygiene issues that will limit the potential for chemical contaminant ingestion.

4.2.3 Chemical hazards used in sample preservation and decontamination

Chemicals that may be used in the field for sample preservation or decontamination include:

- Formalin
- Nitric acid
- Hexane
- Acetone
- Methanol

The specific uses of these chemicals are described in QAPP Attachments I and J. Field personnel will safely handle these chemicals according to the QAPP and will wear appropriate PPE. A ventilation hood will be used in the field facility to minimize exposure to solvent vapors.

Material safety data sheet (MSDS) will be available for each of the chemicals listed above that is used in the field or the field facility. These MSDS will be maintained in a binder located in the field office, as well as on the boat. In addition, all containers of hazardous materials must be clearly labeled, ideally using the original manufacturer's label. Such a label will also need to be applied to any transfer bottles that are used.

4.3 BIOLOGICAL HAZARDS

Microbiological hazards, in the form of bacteria, protozoans, and viruses, might be encountered from contact with raw sewage or through cuts or wounds.

4.3.1 Raw sewage

Raw sewage may be discharged into the study area through combined sewer outfalls (CSOs). The most common pathogenic organisms found in raw sewage include bacteria, viruses, and parasitic protozoa.

Ingestion of and direct contact with contaminated water are the primary methods of disease transmission in humans. Infection generally results from bacterial penetration of the skin in scratched or abraded areas. Bacterial infection cause varying degrees of gastrointestinal disease and may be accompanied by fever, headache, and chills. Waterborne microbes can also cause eye and ear infections, as well as more serious diseases such as hepatitis A, jaundice, and gastrointestinal discomfort.

4.3.2 Tetanus

Tetanus is a bacterial disease that may be contracted through a cut or wound that becomes contaminated with tetanus bacteria. Tetanus bacteria may cause a fatal disease characterized by respiratory paralysis and tonic spasms and rigidity of the voluntary muscles, especially those of the neck and lower jaw (lockjaw). Common first signs of tetanus are a headache and muscular stiffness in the jaw followed by stiffness of the neck, difficulty in swallowing, rigidity of abdominal muscles, spasms, sweating and fever. Symptoms usually begin 8 days after the infection, but may range in onset from 3 days to 3 weeks.

4.3.3 Needles and syringes

Some riverbank areas may be littered with needles or syringes that have been used for medical and/or illicit drug use. To avoid contact with needles that could possibly be infected with the HIV or other viruses, field team members will not work in areas where drug paraphernalia and/or hypodermic needles are present.

4.3.4 Infection control

The following control measures will be implemented to minimize exposure to biological hazards:

- Field team members with skin lesions or abraded skin areas that are particularly susceptible to infection will be assigned to tasks that do not pose a potential exposure to bacterial hazards.
- Gloves of sufficient length to prevent contact with water and safety glasses will be worn when collecting or processing samples.

- Field team members will wash their faces and hands and any other part of their body that may have contacted contaminated water as soon as possible. Alcohol-based hand sanitizer or Wash 'n Dri towelettes will be available on each boat.
- All field team members will receive hepatitis A and tetanus booster vaccines if their existing vaccines are out of date.

5 Work Zones and Shipboard Access Control

During sampling and sample handling activities, work zones will be established to identify where sample collection and processing are actively occurring. The intent of the zone is to limit the migration of sample material out of the zone and to restrict access to active work areas by defining work zone boundaries.

5.1 Work Zone

The work zone will encompass the area where sample collection and handling activities are performed. Work zones will be identified for each sampling gear type. The FC/HSO will delineate the work zone as a particular area on-board the collection vessels (for gillnets and traps) or on the beach (for backpack electroshocking). Only persons with appropriate training, PPE, and authorization from the FC/HSO will be allowed to enter the work zone while work is in progress.

5.2 Decontamination Station

A decontamination station will be set up, and personnel will clean soiled boots or PPE prior to leaving the work zone. The station will have the buckets, brushes, soapy water, rinse water, or wipes necessary to clean boots, PPE, or other equipment leaving the work zones. Plastic bags will be provided for expendable and disposable materials. If the location does not allow the establishment of a decontamination station, the FC/HSO will provide alternatives to prevent the spread of contamination.

Decontamination of the boat will also be completed at the end of each work day. Cockpit and crew areas will be rinsed down with water to minimize the accumulation of sediment.

5.3 Access Control

Security and control of access to the boat will be the responsibility of the FC/HSO and boat captain. Boat access will be granted only to necessary project personnel and authorized visitors. Any security or access control problems will be reported to the client or appropriate authorities.

6 Safe Work Practices

Following common sense rules will minimize the risk of exposure or accidents at a work site. These general safety rules will be followed on site:

- Do not climb over or under obstacles of questionable stability.
- Do not eat, drink, smoke, or perform other hand-to-mouth transfers in the work zone.
- Work only in well-lighted spaces.
- Never enter a confined space without the proper training, permits, and equipment.
- Make eye contact with equipment operators when moving within the range of their equipment.
- Be aware of the movements of shipboard equipment when not in the operator's range of vision.
- Get immediate first aid for all cuts, scratches, abrasions, or other minor injuries.
- Use the established sampling and decontamination procedures.
- Always use the buddy system.
- Be alert to your own and other workers' physical condition.
- Report all accidents, no matter how minor, to the FC/HSO.
- Do not do anything dangerous or unwise even if ordered by a supervisor.

7 Personal Protective Equipment and Safety Equipment

Appropriate PPE will be worn as protection against potential hazards. In addition, a USCG Type II or Type III PFD will be worn when working onboard the boat. Prior to donning PPE, the field crew will inspect their PPE for any defects that might render the equipment ineffective.

Fieldwork will be conducted in Level D or modified Level D PPE, as discussed below in Sections 7.1 and 7.2. Situations requiring PPE beyond modified Level D are not anticipated. Should the FC/HSO determine that PPE beyond modified Level D is necessary, the HSM will be notified and an alternative selected.

New personnel or visitors will be informed of PPE requirements during their initial site briefing (see Section 3).

7.1 LEVEL D PERSONAL PROTECTIVE EQUIPMENT

Workers performing general activities in which skin contact with contaminated materials is unlikely will wear Level D PPE. Level D PPE includes the following:

- Cotton overalls or lab coats
- Chemical-resistant steel-toed boots
- Chemical-resistant gloves
- Safety glasses
- USCG Type II or Type III PFD

7.2 MODIFIED LEVEL D PERSONAL PROTECTIVE EQUIPMENT

Workers performing activities during which skin contact with contaminated materials is possible and inhalation risks are not expected will be required to wear an impermeable outer suit. The type of outerwear will be chosen according to the types of chemical contaminants that might be encountered. Modified Level D PPE includes the following:

- Impermeable outer garb such as rain gear, waders or Tyvek®
- Chemical-resistant steel-toed boots
- Chemical-resistant outer gloves

7.3 SAFETY EQUIPMENT

In addition to PPE that will be worn by shipboard personnel, basic emergency and first aid equipment will also be provided. Equipment for the field team will include:

- A copy of this HSP
- First aid kit adequate for the number of personnel
- Emergency eyewash
- ABC-class fire extinguisher
- Flares

The FC/HSO will ensure that the safety equipment is onboard. Equipment will be checked daily to ensure its readiness for use.

8 Monitoring Procedures for Site Activities

A monitoring program that addresses the potential site hazards will be maintained. For this project, air, dust, and noise monitoring will not be necessary. The sampled media will be wet and will not pose a dust hazard, and none of the equipment emits high-amplitude (>85 dBA) sound. For this project, the monitoring program will consist of all workers monitoring themselves and their co-workers for signs that might indicate physical stress or illness.

All personnel will be instructed to look for and inform each other of any deleterious changes in their physical or mental condition during the performance of all field activities. Examples of such changes are as follows:

- Headaches
- Dizziness
- Nausea
- Symptoms of heat stress
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory system
- Changes in complexion or skin color
- Changes in apparent motor coordination
- Increased frequency of minor mistakes
- Excessive salivation or changes in papillary response
- Changes in speech ability or speech pattern
- Shivering
- Blue lips or fingernails

If any of these conditions develop, work will be halted immediately, and the affected person(s) evaluated. If further assistance is needed, personnel at the local hospital will be notified, and an ambulance will be summoned if the condition is thought to be serious. If the condition is the direct result of sample collection or handling activities, procedures will be modified to address the problem.

9 Decontamination

Decontamination is necessary to prevent the migration of contaminants from the work zone(s) into the surrounding environment and to minimize the risk of exposure of personnel to contaminated materials that might adhere to PPE. The following sections discuss personnel and equipment decontamination. The following supplies will be available to perform decontamination activities:

- Wash buckets
- Rinse buckets
- Long-handled scrub brushes
- Clean water sprayers
- Paper towels
- Plastic garbage bags
- Alconox® or similar decontamination solution

9.1 Minimization of Contamination

The first step in addressing contamination is to prevent or minimize exposure to existing contaminated materials and the spread of those materials. During field activities, the FC/HSO will enforce the following measures:

Personnel:

- Do not walk through areas of obvious or known contamination.
- Do not handle, touch, or smell contaminated materials directly.
- Make sure PPE has no cuts or tears prior to use. If it tears while working, stop and replace PPE.
- Fasten all closures on outer clothing, covering with tape if necessary.
- Protect and cover any skin injuries.
- Stay upwind of airborne dusts and vapors.
- Do not eat, drink, chew tobacco, or smoke in the work zones.

Sampling equipment and boat:

- Place clean equipment on a plastic sheet or aluminum foil to avoid direct contact with contaminated media.

- Keep contaminated equipment and tools separate from clean equipment and tools.
- Clean boots before entering the boat.

9.2 PERSONNEL DECONTAMINATION

The FC/HSO will ensure that all site personnel are familiar with personnel decontamination procedures. Personnel will perform the following decontamination procedures, as appropriate, before eating lunch, taking a break, or leaving the work location:

1. If outer suit is heavily soiled, rinse it off.
2. Wash and rinse outer gloves and boots with water.
3. Remove outer gloves; inspect and discard if damaged.
4. Wash hands if taking a break.
5. Don necessary PPE before returning to work.

Dispose of soiled, expendable PPE before leaving for the day.

9.3 SAMPLING EQUIPMENT DECONTAMINATION

Sampling equipment will be decontaminated as described in QAPP Attachment I: SOP—Procedure to Decontaminate Biological Sampling Equipment. In summary, to minimize sample contamination, the following practices will be followed:

- Caught fish will only be placed on clean surfaces, such as aluminum foil (dull side touching the fish).
- Ice chests will be scrubbed with Alconox® detergent and rinsed with deionized water prior to any sampling activities.
- Samples will be placed in resealable, waterproof plastic bags to avoid contamination from melting ice.
- Sampling equipment will be free from contaminants such as oils, grease, and fuels.
- All utensils or equipment used directly in handling fish (e.g., such as measuring boards) will be scrubbed with Alconox® detergent and rinsed with deionized water and/or appropriate solvents (e.g., 10% nitric acid, acetone, methanol and hexane), and stored in aluminum foil until use.

10 Disposal of Contaminated Materials

Contaminated materials that may be generated during field activities include PPE and excess sample material. These contaminated materials will be disposed of as an integral part of the project.

10.1 Personal Protective Equipment

Gross surface contamination will be removed from PPE, including PFDs. All disposable sampling materials and PPE, such as disposable coveralls, gloves, and paper towels used in sample processing, will be placed in heavyweight garbage bags. Filled garbage bags will be placed in a normal refuse container for disposal as solid waste.

10.2 Excess Sample Materials And Other Waste

At each sampling location, excess or unwanted specimens collected for tissue samples or during the fish community survey will be returned promptly to the water. Other wastes generated during the investigation may include detergent wash water or decontamination solvents; these will be collected on the boat or at the CPG field facility and stored in a dedicated waste solvent 55-gallon drum at the field facility. Disposable PPE will also be collected in dedicated waste containers.

11 Training Requirements

Individuals performing work at locations where potentially hazardous materials and conditions may be encountered must meet specific training requirements. It is not anticipated that hazardous concentrations of contaminants will be encountered in sampled material, so training will consist of site-specific instruction for all personnel and the oversight of inexperienced personnel by an experienced person for one working day. The following sections describe the training requirements for this fieldwork.

11.1 Project-Specific Training

In addition to HAZWOPER training, field personnel will undergo training specifically for this project. All personnel and visitors must read this HSP and be familiar with its contents before beginning work or providing oversight. They must acknowledge reading the HSP by signing the Field Team Health and Safety Plan Review form (Appendix A). The form will be kept in the project files.

The boat captain and FC/HSO will also be required to have the US Coast Guard Auxiliary Boating Safely certification. The boat captain or a designee will provide project-specific training prior to the first day of fieldwork and whenever new workers arrive. Field personnel will not be allowed to begin work until project-specific training is completed and documented by the FC/HSO. Training will address the HSP and all health and safety issues and procedures pertinent to field operations. Training will include, but not be limited to, the following topics:

- Activities with the potential for chemical exposure
- Activities that pose physical hazards and actions to control the hazard
- Ship access control and procedures
- Use and limitations of PPE
- Decontamination procedures
- Emergency procedures
- Use and hazards of sampling equipment
- Location of emergency equipment on the vessel
- Vessel safety practices
- Vessel evacuation and emergency procedures

11.2 Daily Safety Briefings

The FC/HSO or a designee and the boat captain will present safety briefings before the start of each day's activities. These safety briefings will outline the activities expected for the day, update work practices and hazards, address any specific concerns associated with the work location, and review emergency procedures and routes. The FC/HSO or designee will document safety briefings in the logbook.

11.3 First Aid and CPR

At least one member of the field team must have adult first-aid and cardiopulmonary resuscitation (CPR) training. Documentation of which individuals possess first-aid and CPR training will be kept in the project health and safety files.

12 Medical Surveillance

A medical surveillance program conforming to the provisions of 29 CFR 1910§120(f) is not necessary for field team members because they do not meet any of the following

four criteria outlined in the regulations for implementation of a medical surveillance program:

- Employees who are or may be exposed to hazardous substances or health hazards at or above permissible exposure levels for 30 days or more per year (1910.120(f)(2)(I)
- Employees who must wear a respirator for 30 days or more per year (1910.120(f)(2)(ii))
- Employees who are injured or become ill as a result of possible over-exposures involving hazardous substances or health hazards from an emergency response or hazardous waste operation (1910.120(f)(2)(iii))
- Employees who are members of HAZMAT teams (1910.120(f)(2)(iv))

As described in Section 8, employees will monitor themselves and each other for any deleterious changes in their physical or mental condition during the performance of all field activities.

13 Reporting and Record Keeping

Each member of the field crew will sign the Field Team Health and Safety Plan Review form (see Appendix A). If necessary, accident/incident report forms and Occupational Safety and Health Administration (OSHA) Form 200s will be completed by the FC/HSO.

The FC/HSO or a designee will maintain records on the health- and safety-related details of the project in electronic field logbook entries (see QAPP Attachment P: SOP—Documenting Field Activities). At a minimum, each day's entries must include the following information:

- Project name or location
- Names of all personnel onboard
- Weather conditions
- Type of fieldwork being performed

The person maintaining the entries will initial and date the bottom of each completed page. Each day's entries will begin on the first blank page after the previous workday's entries.

14 Emergency Response Plan

As a result of the hazards onboard and the conditions under which operations will be conducted, the potential exists for an emergency situation to occur. Emergencies may include personal injury, exposure to hazardous substances, fire, explosion, or release of toxic or non-toxic substances (spills). OSHA regulations require that an emergency response plan be available for use onboard to guide actions in emergency situations.

Onshore organizations will be relied upon to provide response in emergency situations. The local fire department and ambulance service can provide timely response. Field personnel will be responsible for identifying an emergency situation, providing first aid if applicable, notifying the appropriate personnel or agency, and evacuating any hazardous area. Shipboard personnel will attempt to control only very minor hazards that could present an emergency situation, such as a small fire, and will otherwise rely on outside emergency response resources.

The following sections identify the onboard individual(s) who should be notified in case of emergency, provide a list of emergency telephone numbers, offer guidance for particular types of emergencies, and provide directions and a map for getting from any sampling location to a hospital.

14.1 Pre-emergency Preparation

Before the start of field activities, the FC/HSO will ensure that preparation has been made in anticipation of emergencies. Preparatory actions include the following:

- Meeting with the FC/HSO and equipment handlers concerning the emergency procedures in the event that a person is injured
- A training session given by the FC/HSO informing all field personnel of emergency procedures, locations of emergency equipment and their use, and proper evacuation procedures
- A training session given by senior staff operating field equipment to apprise field personnel of operating procedures and specific risks associated with that equipment
- Ensuring that field personnel are aware of the existence of the emergency response plan in the HSP and ensuring that a copy of the HSP accompanies the field team

14.2 PROJECT EMERGENCY COORDINATOR

The FC/HSO will serve as the project emergency coordinator in the event of an emergency. He/she will designate his replacement for times when he/she is not on board or is not serving as the project emergency coordinator. The designation will be noted in the logbook. The project emergency coordinator will be notified immediately when an emergency is recognized. The project emergency coordinator will be responsible for evaluating the emergency situation, notifying the appropriate emergency response units, coordinating access with those units, and directing interim actions onboard before the arrival of emergency response units. The project emergency coordinator will notify the HSM and the Windward PM as soon as possible after initiating an emergency response action. The Windward PM will have responsibility for notifying the client.

14.3 EMERGENCY RESPONSE CONTACTS

All onboard personnel must know whom to notify in the event of an emergency situation, even though the FC/HSO has primary responsibility for notification. Table 1 lists the names and phone numbers for emergency response services and individuals. A copy of this HSP will be made available for every vehicle designated for field use or emergency transport, and on each sampling boat.

Table 1. Emergency response contacts

CONTACT	TELEPHONE NUMBER
Emergency Numbers:	
Ambulance	911
Police	911
Fire	911
St. Michael's Medical Center (Newark, NJ)	(973) 268-8000
Clara Maass Medical Center, West Hudson Division (Kearny, NJ)	(201) 955-7000
St. Mary's Hospital (Passaic, NJ)	(973) 365-4489
Emergency Responders:	
US Coast Guard Emergency General information – Sector New York Command Center	 (718) 354-4119 (718) 354-4353/4193 VHF Channel 16
National Response Center	(800) 424-8802
US Environmental Protection Agency	(800) 424-8802
New Jersey Department of Environmental Protection – Bureau of Emergency Response	(877) 927-6337

CONTACT	TELEPHONE NUMBER
(24-hour emergency line)	
Emergency Contacts:	
Windward Project Manager	
Lisa Saban	(206) 812-5429
Windward Corporate Health and Safety Manager	
Mike Johns	(206) 812-5418
Field Coordinator/Field Health and Safety Officer	
Thai Do/Suzanne Replinger	Site cellular telephone: To be determined at start of sampling event

14.4 RECOGNITION OF EMERGENCY SITUATIONS

Emergency situations will generally be recognizable through observation. An injury or illness will be considered an emergency if it requires treatment by a medical professional and cannot be treated with simple first-aid techniques.

14.5 DECONTAMINATION

In the case of evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. If an injured individual is also heavily contaminated and must be transported by emergency vehicle, the emergency response team will be told of the type of contamination. To the extent possible, contaminated PPE will be removed but only if doing so does not exacerbate the injury. Plastic sheeting will be used to reduce the potential for spreading contamination to the inside of the emergency vehicle.

14.6 FIRE

Field personnel will attempt to control only small fires, should they occur. If an explosion appears likely, personnel will follow evacuation procedures specified during the training session. If a fire cannot be controlled with the on-board fire extinguisher that is part of the required safety equipment, personnel will either withdraw from the vicinity of the fire or evacuate the boat as specified in the training session.

14.7 PERSONAL INJURY

In the event of serious personal injury, including unconsciousness, possibility of broken bones, severe bleeding or blood loss, burns, shock, or trauma, the first responder will immediately do the following:

- Administer first aid, if qualified.

- If not qualified, seek out an individual who is qualified to administer first aid, if time and conditions permit.
- Notify the project emergency coordinator of the incident, the name of the injured individual(s), the location, and the nature of the injury.

The project emergency coordinator will immediately do the following:

- Notify the boat captain and the appropriate emergency response organization.
- Assist the injured individual(s).
- Follow the emergency procedures for retrieving or disposing of equipment reviewed in the training session and leave the site en route to the predetermined land-based emergency pickup.
- Designate someone to accompany the injured individual to the hospital.
- If a life-threatening emergency occurs (i.e., injury where death is imminent without immediate treatment), the FC/HSO or boat captain will call 911 and arrange to meet the emergency personnel at the nearest accessible dock. Otherwise, for emergency injuries that are not life-threatening (e.g., broken bones, minor lacerations), the project emergency coordinator will follow the procedures outlined above and proceed to the CPG field facility or to an alternative location if that would be more expedient.
- Notify the HSM and the PM.

If the project emergency coordinator determines that emergency response is not necessary, he/she may direct someone to decontaminate and transport the individual by vehicle to the nearest hospital. Directions showing the route to the hospital are in Section 14.11.

If a worker leaves the boat to seek medical attention, another worker should accompany that individual to the hospital. When in doubt about the severity of an injury or exposure, personnel should always seek medical attention as a conservative approach and notify the project emergency coordinator.

The project emergency coordinator will have responsibility for completing all accident/incident field reports, OSHA Form 200s, and other required follow-up forms.

14.8 Overt Personal Exposure or Injury

If an overt exposure to toxic materials occurs, the first responder to the victim will initiate actions to address the situation. The following actions should be taken, depending on the type of exposure.

14.8.1 Skin contact

- Wash/rinse the affected area thoroughly with copious amounts of soap and water.
- If eye contact has occurred, eyes should be rinsed for at least 15 minutes using the eyewash that is part of the emergency equipment onboard.
- After initial response actions have been taken, seek appropriate medical attention.

14.8.2 Inhalation

- Move victim to fresh air.
- Seek appropriate medical attention.

14.8.3 Ingestion

- Seek appropriate medical attention.

14.8.4 Puncture wound or laceration

- Seek appropriate medical attention.

14.9 SPILLS AND SPILL CONTAINMENT

No bulk chemicals or other materials subject to spillage are expected to be used during this project. Accordingly, no spill containment procedure is required for this project.

14.10 BOATING HAZARDS

Emergency responses to boating hazards are described in Table 2.

Table 2. Potential boat emergency hazards and responses

Potential Emergency Hazard	Response
Fire or explosion	If manageable, attempt to put out a small fire with a fire extinguisher. Otherwise, call the US Coast Guard or 911 and evacuate the area (by life raft, rescue boat, or swimming) and meet at a designated area. The FC will take roll call to make sure everyone evacuated safely. Emergency meeting places will be determined in the field during the daily safety briefings.
Medical emergency/ personal injury	At least one person with current first aid/CPR training will be on board the vessel at all times. This person will attempt to assess the nature and critical path of the injury, call 911 immediately, and apply CPR if necessary. Stop work and wait for medical personnel to arrive. Fill out a site accident report.

Potential Emergency Hazard	Response
Person overboard	Immediately throw the person in the water a life ring (Type IV PFD). Have one person keep an eye on the person and shout the distance (boat lengths) and direction (o'clock) of the person from the vessel. Stop work and use the vessel to retrieve the person in the water.
Sinking vessel	Call the US Coast Guard immediately. If possible, wait for a rescue boat to arrive to evacuate vessel personnel. Stay with the boat until rescue arrives, if possible. See the fire/explosion section for emergency evacuation procedures. The FC will take a roll call to make sure everyone is present.
Hydraulic oil spill or leak	If the leak/spill is small, immediately apply absorbent pads to control the leak and continue work. If the leak/spill is uncontainable, stop work, call 911 immediately, and wait for assistance. The vessel operator will call the USCG for spill control, assess the personal safety hazard associated with the leak/spill and begin evacuation procedures if necessary.
Lack of visibility	If navigation visibility or personal safety is compromised because of smoke, fog, or other unanticipated hazards, stop work immediately. The vessel operator and FC will assess the hazard and, if necessary, send out periodic horn blasts to mark the vessel location and to warn other vessels potentially in the area, move to a secure location (i.e., berth), and wait for the visibility to clear.
Loss of power	Stop work and call the US Coast Guard for assistance. Vessel personnel should watch for potential collision hazards and notify vessel operator if hazards exist. Secure vessel to a berth, dock, or mooring as soon as possible.
Collision	Stop work and call the US Coast Guard for assistance. The FC and vessel operator will assess damage and potential hazards. If necessary, the vessel will be evacuated and secured until repairs can be made.

14.11 EMERGENCY ROUTE TO THE HOSPITAL

The names, addresses, and telephone numbers of the hospitals that will be used to provide medical care are as follows:

Clara Maass Medical Center, West Hudson Division
206 Bergen Ave., Kearny, NJ
Phone: (201) 955-7000

or:

St. Mary's Hospital
350 Boulevard, Passaic, NJ
Phone: (973) 365-4489

The hospital will be selected by the project emergency coordinator (i.e., the FC) based on proximity to the emergency scene. If the emergency occurs on the boat, the vessel will be docked at the closest available launch or dock.

Directions from the CPG dock to St. Mary's Hospital (Figure 1) are as follows:

- Head northeast on Madison St. toward Plosia Pl.
- Turn left at Carlton Ave.
- Continue straight onto Paterson Ave.
- Turn left at Main Ave.
- Take a slight right at River Rd./River Dr., continue to follow River Dr.
- Turn left at Prospect St.
- Turn left at Pennington Ave.
- Turn right at Paulison Ave.
- Turn left at Broadway
- Turn right at Boulevard St.
- Hospital will be on the right.

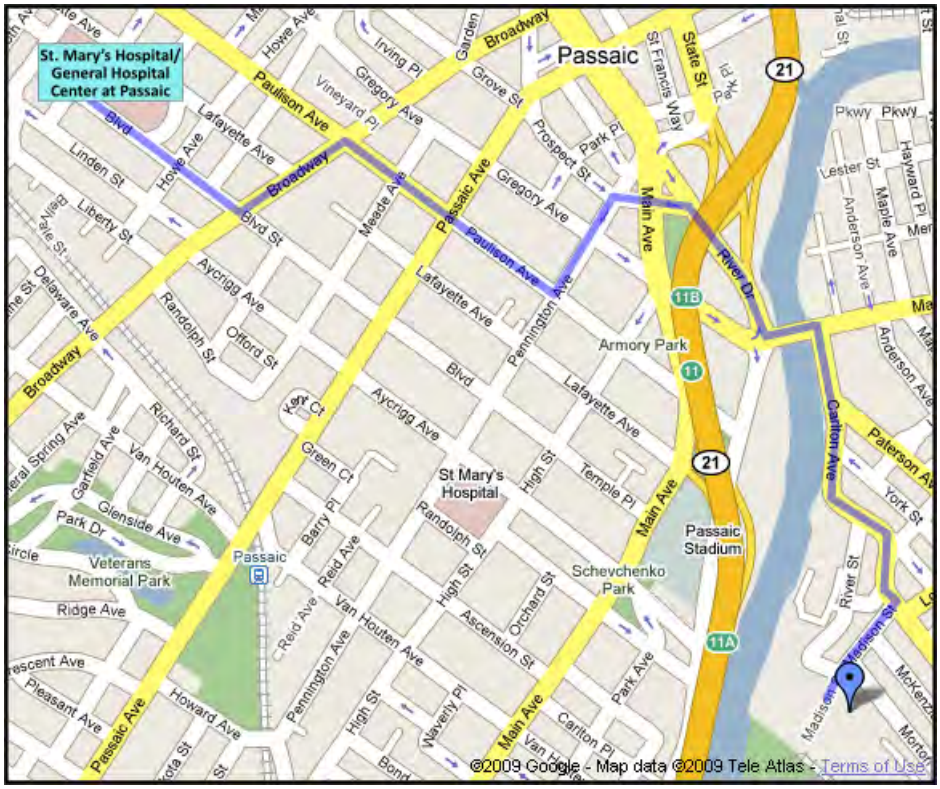


Figure 1. Route to St. Mary's Hospital from the CPG dock

Directions to St. Mary's Hospital from the north (e.g., Dundee Dam) are as follows (Figure 2):

- Head southwest on Clifton Ave. toward Schoonmaker Pl.
- Turn left at Paulison Ave.
- Turn right at Oak St.
- Turn left at Boulevard St.
- Hospital will be on the left.

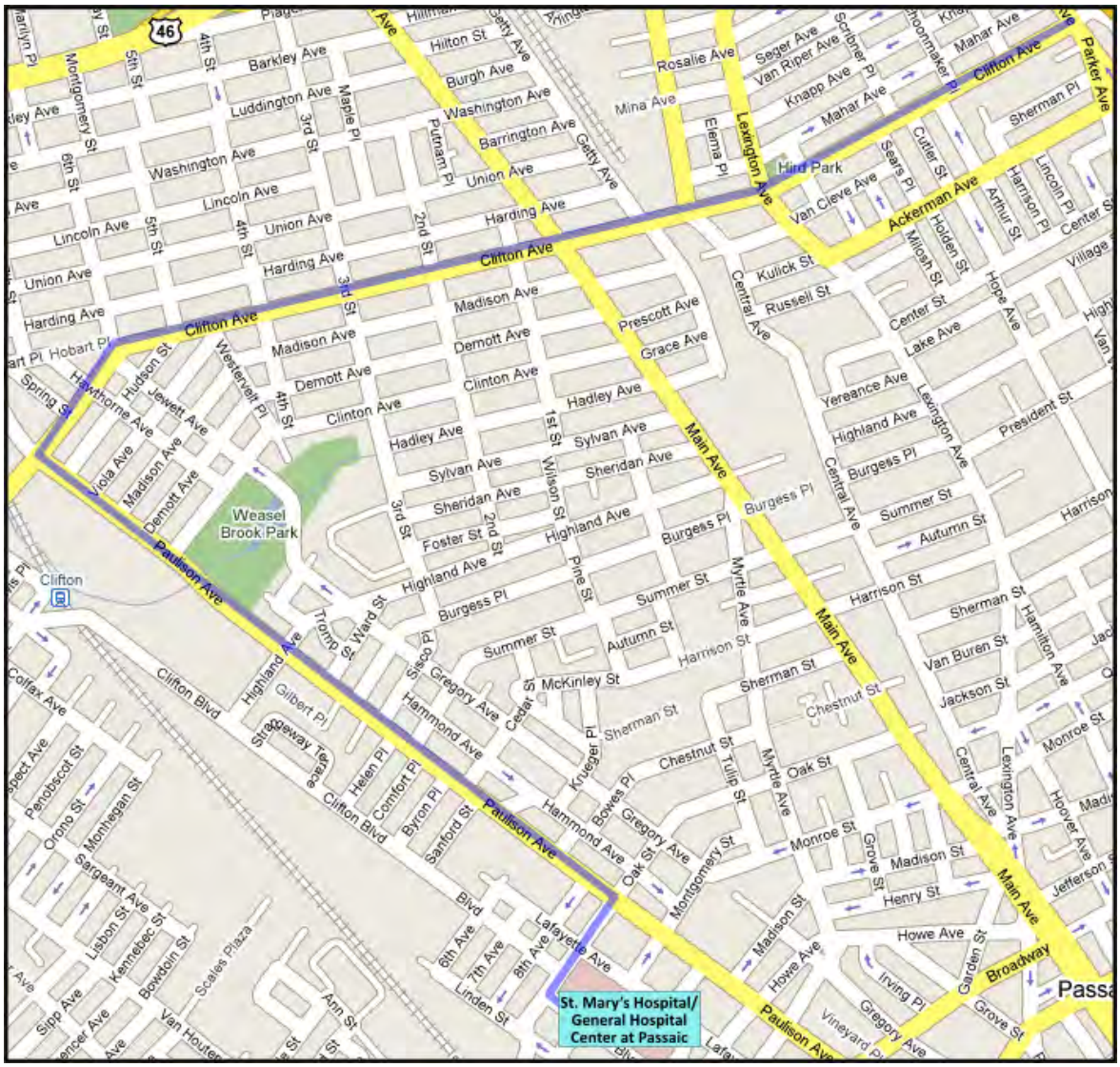


Figure 2. Route to St. Mary's Hospital from the north

Directions to St. Mary's Hospital from the south (e.g., Nutley, Belleville, or River Bank Park in Lyndhurst) (Figure 3) are as follows:

- If located on the east side of the river (e.g., River Bank Park in Lyndhurst), head north on Riverside Ave.
- Turn left on Kingsland Ave.
- Turn right to merge onto NJ-21 N.
- Continue (or from points on west bank of river, head) north on NJ-21 N.
- Take Exit 11A to merge onto River Rd./River Dr. toward Passaic.
- Turn left at Paulison Ave.
- Turn left at Broadway.
- Turn right at Boulevard St.
- Hospital will be on the right.

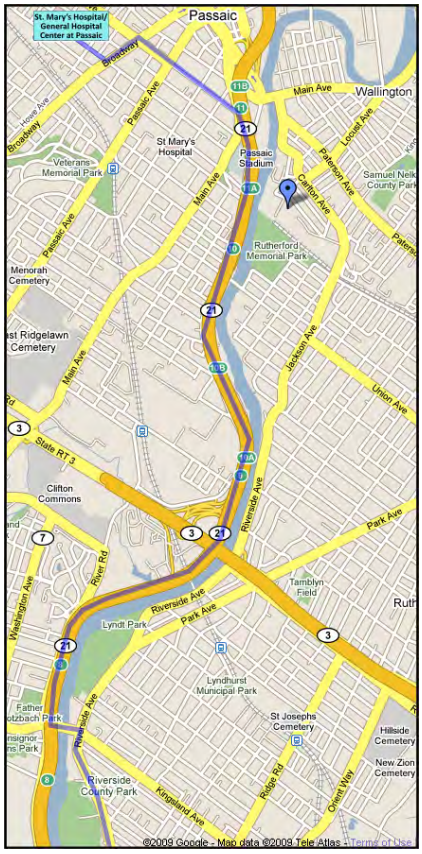


Figure 3. Route to St. Mary's Hospital from the south

15 References

Malcolm Pirnie. 2005. Lower Passaic River Restoration Project. Health and safety plan - core document and hydrodynamic studies. Final. Prepared for US Environmental Protection Agency and US Army Corps of Engineers. Malcolm Pirnie, Inc., White Plains, NY.

Windward. 2009. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Quality Assurance Project Plan: Fish and decapod crustacean tissue collection for chemical analysis and fish community survey. Final. Prepared for Cooperating Parties Group, Newark, NJ. August 6, 2009. Windward Environmental LLC, Seattle, WA.

Appendix A. Field Team Health and Safety Plan Review

I have read a copy of the health and safety plan, which covers field activities that will be conducted to investigate potentially contaminated areas in the LPRSA. I understand the health and safety requirements of the project, which are detailed in this health and safety plan.

Signature	Date
Signature	Date
Signature	Date
Signature	Date
Signature	Date
Signature	Date
Signature	Date
Signature	Date
Signature	Date
Signature	Date

Attachment T. Laboratory SOPs

Title, Revision Date, and/or Number	Reference No.
SOP ID 2166 (OP-003), Tissue Preparation and Homogenization, Revision 4, 5/8/14	T1
CF-OA-E003, PCB Congener Analysis by HRGC/HRMS, Revision 7, 7/13/18	T2
CF-OA-E002, PCDDs/ PCDFs Analysis by HRGC/HRMS, Revision 15, 1/23/18	T3
SOP 47, Revision 3, Sample Preparation and Analysis of PAHs Based on a Modified EPA 8270/1625 Method, 3/17/16	T4
SOP 39, Revision 10, Preparation and Analysis of Pesticides by Method 1699, 4/11/18	T7
SOP 2150, Revision 6, Microwave Assisted Acid Digestion of Sediments, Soils, and Tissues for Determination by ICP-MS	T9
SOP 26797, Inductively Coupled Plasma-Mass Spectrometry 6020B, Revision 3, 2/27/19	T10
SOP No.BAL-3101, BAL Procedure for EPA Method 1631, Appendix to (1/01): Total Mercury in Tissue, Sludge, Sediment, and Soil by Acid Digestion and BrCl Oxidation by Cold Vapor Atomic Fluorescence Spectrophotometry (CVAFS), Revision 005a, 8/28/18	T14
SOP No.BAL-3100, BAL Procedure for EPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, Revision 005, 3/15/18	T15
SOP No.BAL-3200, Determination of Methyl Mercury by Aqueous Phase Ethylation, Trap Pre-Collection, Isothermal GC Separation, and CVAFS Detection: BAL Procedure for EPA Method 1630 (Waters) and EPA Method 1630, Modified (Solids), Revision 002a, 10/3/18	T16
SOP 2171, Percent Lipids Determination, Revision 6, 8/3/15	T23
SOP 2175, Percent Solids Determination, Revision 6, 2/23/17	T24
SOP 1754, Balance Calibration and Maintenance, Revision 4, 2/22/18	T25

Attachment U. Laboratory Certifications

Laboratory	Accreditation	Year	Reference No.
Alpha Analytical	New Jersey Department of Environmental Protection	2018–2019	U1
Brooks Applied Labs	State of Florida, Department of Health, Bureau of Public Health Laboratories	2019	U2
Cape Fear Analytical	State of Utah, Department of Health, Environmental Laboratory Certification Program	2014–2019	U3
	New Jersey Department of Environmental Protection	2018–2019	U4
Vista Analytical Laboratory	Oregon Environmental Laboratory Accreditation Program	2019–2020	U5

State of New Jersey
Department of Environmental Protection
Certifies That

ALPHA ANALYTICAL

Laboratory Certification ID # MA015
is hereby approved as a

Nationally Accredited Environmental Laboratory

to perform the analyses as indicated on the Annual Certified Parameter List
which must accompany this certificate to be valid

having duly met the requirements of the

Regulations Governing the Certification of Laboratories and Environmental Measurements N.J.A.C. 7:18 et. seq.

and
having been found compliant with the 2009 TNI Standard approved by the

The NELAC Institute

Expires June 30, 2019

Michele M. Potter
Manager

NJDEP is a NELAP Recognized Accreditation Body

This certificate is to be conspicuously displayed at the laboratory with the annual certified parameter list in a location on the premises visible to the public. Consumers are urged to verify the laboratory's current accreditation status with the State of NJ, NELAP.

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: AE01 --Inorganics - Non-Metals Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE01.00030	Carbon Dioxide	Thermal Conductivity	EPA 3C	NH
Certified	Yes	AE01.00220	Methane	Thermal Conductivity	EPA 3C	NH
Certified	Yes	AE01.00230	Nitrogen	Thermal Conductivity	EPA 3C	NH
Certified	Yes	AE01.00290	Oxygen	Thermal Conductivity	EPA 3C	NH

Category: AE02 --Inorganics - Metals Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE02.00750	Lead	ICP/MS	EPA 40CFR50, 2013, App. G	NH

Category: AE04 --Organics Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE04.00001	Acenaphthene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02000	Aroclor 1016	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02010	Aroclor 1221	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02020	Aroclor 1232	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02030	Aroclor 1242	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02040	Aroclor 1248	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02050	Aroclor 1254	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02060	Aroclor 1260	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02070	Aroclor 1262	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02080	Aroclor 1268	GC/ECD, LV PUF	EPA TO-10A	NH
Certified	Yes	AE04.02650	Acetaldehyde	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02660	Acetone	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02670	Benzaldehyde	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02680	Benzaldehyde [2,5-Dimethyl]	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: AE04 --Organics Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE04.02690	Butanal [3-Methyl] [Isovaleraldehyde]	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02710	Butenal (2-) [Crotonaldehyde]	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02720	Butyl aldehyde	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02730	Formaldehyde	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02740	Hexanal [Hexaldehyde/Caproaldehyde]	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02750	Pentanal [Valeraldehyde]	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02760	Propionaldehyde	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02770	Tolualdehyde (2-)	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02780	Tolualdehyde (3-)	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02790	Tolualdehyde (4-)	HPLC/UV, Adsorbant Cartridge	EPA TO-11A	NH
Certified	Yes	AE04.02800	Non-Methane Organic Compounds	GC/PDFID, Cryogenic Preconcentration	EPA TO-12	NH
Certified	Yes	AE04.02810	Acenaphthylene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02820	Anthracene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02830	Benzo(a)anthracene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02840	Benzo(a)pyrene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02850	Benzo(b)fluoranthene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02860	Benzo(ghi)perylene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02870	Benzo(k)fluoranthene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02880	Benzo(e)pyrene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02890	Chrysene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02910	Dibenzo(a,h)anthracene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02920	Fluoranthene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02930	Fluorene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02940	Indeno(1,2,3-cd)pyrene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02950	Naphthalene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02960	Perylene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02970	Phenanthrene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.02980	Pyrene	GC/MS	EPA TO-13A	NH
Certified	Yes	AE04.03500	Acetaldehyde	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03510	Acetone	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03520	Acetonitrile	GC/MS, Canisters	EPA TO-15	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: AE04 --Organics Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE04.03540	Acrolein	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03570	Acrylonitrile	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03580	Allyl chloride	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03600	Benzene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03610	Benzyl chloride	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03640	Bromodichloromethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03650	Bromoform	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03660	Bromomethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03670	Butadiene (1,3-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03690	Butylbenzene (n-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03700	Carbon disulfide	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03720	Carbon tetrachloride	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03750	Chlorobenzene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03760	Chloroethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03770	Chloroform	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03780	Chloromethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03800	Chlorotoluene (2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03820	Cyclohexane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03840	Dibromo-3-chloropropane (1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03850	Dibromochloromethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03860	Dibromoethane (1,2-) (EDB)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03870	Dichlorobenzene (1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03880	Dichlorobenzene (1,3-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03890	Dichlorobenzene (1,4-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03900	Dichlorodifluoromethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03910	Dichloroethane (1,1-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03920	Dichloroethane (1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03930	Dichloroethene (1,1-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03940	Dichloroethene (cis-1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03950	Dichloroethene (trans-1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03960	Dichlorofluoromethane	GC/MS, Canisters	EPA TO-15	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: AE04 --Organics Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE04.03970	Dichloropropane (1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03980	Dichloropropene (cis-1,3-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.03990	Dichloropropene (trans-1,3-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04000	Dichlorotetrafluoroethane (1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04070	Dioxane (1,4-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04100	Ethanol	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04110	Ethyl acetate	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04140	Ethylbenzene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04170	Ethyltoluene (4-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04200	Heptane (n-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04210	Hexachlorobutadiene (1,3-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04230	Hexane (n-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04240	Hexanone (2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04260	Isopropanol	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04270	Isopropylbenzene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04280	Methyl alcohol (Methanol)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04290	Methyl ethyl ketone (MEK)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04310	Methyl isobutyl ketone (MIBK)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04330	Methyl methacrylate	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04340	Methyl tert-butyl ether	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04350	Methylene chloride (Dichloromethane)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04380	Naphthalene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04490	Propylbenzene (n-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04510	Propylene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04540	Sec-butylbenzene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04550	Styrene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04570	Tert-butyl alcohol	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04580	Tert-butylbenzene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04590	Tetrachloroethane (1,1,2,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04600	Tetrachloroethene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04610	Tetrahydrofuran	GC/MS, Canisters	EPA TO-15	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: AE04 --Organics Analysis

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE04.04620	Toluene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04630	Trichloro (1,1,2-) trifluoroethane (1,2,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04640	Trichlorobenzene (1,2,4-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04650	Trichloroethane (1,1,1-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04660	Trichloroethane (1,1,2-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04670	Trichloroethene	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04680	Trichlorofluoromethane	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04710	Trimethylbenzene (1,2,4-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04720	Trimethylbenzene (1,3,5-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04730	Trimethylpentane (2,2,4-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04740	Vinyl acetate	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04750	Vinyl bromide	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04760	Vinyl chloride	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04770	Xylene (m-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04780	Xylene (o-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04790	Xylene (p-)	GC/MS, Canisters	EPA TO-15	NH
Certified	Yes	AE04.04800	Xylenes (total)	GC/MS, Canisters	EPA TO-15	NH

Category: AE06 --Air - Lab Developed/Non-Std Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE06.00010	Acenaphthene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00030	Acenaphthylene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00060	Anthracene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00100	Benzo(a)anthracene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00120	Benzo(a)pyrene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00140	Benzo(b)fluoranthene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00160	Benzo(ghi)perylene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00180	Benzo(k)fluoranthene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: AE06 --Air - Lab Developed/Non-Std Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	AE06.00200	Benzo(e)pyrene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00420	Chrysene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00490	Dibenzo(a,h)anthracene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00890	Fluoranthene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.00910	Fluorene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01020	Indeno(1,2,3-cd)pyrene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01190	Methylnaphthalene (1-)	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01200	Methylnaphthalene (2-)	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01240	Naphthalene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01420	Perylene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01440	Phenanthrene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH
Certified	Yes	AE06.01500	Pyrene	GC/MS/SIM	User Defined EPA TO-13A SIM	NH

Category: BT02 --Metals - BT Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT02.00020	Metals	Microwave Acid Digest: Soil Sediment & Sludge	SW-846 3051A	NH

Category: BT03 --Metals

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT03.00090	Mercury	Purge & Trap Atomic Fluorescence	User Defined SW-846 7474	NH
Certified	Yes	BT03.00110	Mercury - solid waste	AA, Manual Cold Vapor	SW-846 7471B	NH

Category: BT04 --Metals - ICP, ICP/MS and DCP

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT04.00032	Aluminum	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00072	Antimony	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00112	Arsenic	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00152	Barium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00192	Beryllium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00232	Cadmium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00252	Calcium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00292	Chromium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00332	Cobalt	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00372	Copper	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00412	Iron	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00452	Lead	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00472	Magnesium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00512	Manganese	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00562	Molybdenum	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00602	Nickel	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00622	Potassium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00662	Selenium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00702	Silver	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00722	Strontium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00742	Thallium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00762	Tin	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00802	Vanadium	ICP/MS	SW-846 6020B	NH
Certified	Yes	BT04.00842	Zinc	ICP/MS	SW-846 6020B	NH

Category: BT05 --Organics - BT Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT05.00010	Semivolatile organics	Cleanup-Alumina	SW-846 3610B	NH
Certified	Yes	BT05.00030	Semivolatile organics	Cleanup-Gel Permeation	SW-846 3640A	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: BT05 --Organics - BT Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT05.00040	Semivolatile organics	Cleanup-Silica Gel	SW-846 3630C	NH
Certified	Yes	BT05.00070	Semivolatile organics	Microscale Solvent Extraction - Solids	SW-846 3570	NH
Certified	Yes	BT05.00080	Semivolatile organics	Separatory Funnel Extraction	SW-846 3510C	NH

Category: BT06 --Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT06.00220	Aldrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00230	Alpha BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00240	Beta BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00250	Chlordane (alpha) (cis-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00260	Chlordane (gamma) (trans-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00270	Chlordane (technical)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00280	DDD (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00290	DDE (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00300	DDT (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00310	Delta BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00320	Dieldrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00330	Endosulfan I	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00340	Endosulfan II	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00350	Endosulfan sulfate	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00360	Endrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00370	Endrin aldehyde	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00380	Endrin ketone	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00390	Heptachlor	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00400	Heptachlor epoxide	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00410	Lindane (gamma BHC)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00420	Methoxychlor	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	BT06.00430	Toxaphene	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: BT06 --Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT06.00510	PCB 1016	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	BT06.00520	PCB 1221	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	BT06.00530	PCB 1232	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	BT06.00540	PCB 1242	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	BT06.00550	PCB 1248	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	BT06.00560	PCB 1254	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	BT06.00570	PCB 1260	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH

Category: BT07 --Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT07.00010	Acenaphthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05090	Acenaphthylene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05100	Anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05110	Benzaldehyde	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05120	Benzo(a)anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05130	Benzo(a)pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05140	Benzo(b)fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05150	Benzo(ghi)perylene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05160	Benzo(k)fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05170	Biphenyl (1,1'-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05180	Bis (2-ethylhexyl) phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05190	Butylbenzylphthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05200	Chloronaphthalene (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05210	Chrysene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05220	Dibenzo(a,h)anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05230	Dibenzofuran	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05240	Diethyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05250	Dimethyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: BT07 --Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	BT07.05260	Di-n-butyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05270	Di-n-octyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05280	Fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05290	Fluorene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05300	Indeno(1,2,3-cd)pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05310	Methylnaphthalene (1-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05320	Methylnaphthalene (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05330	Naphthalene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05340	Pentachlorophenol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05350	Phenanthrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05360	Pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05370	Acenaphthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05380	Acenaphthylene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05390	Anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05400	Benzo(a)anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05410	Benzo(a)pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05420	Benzo(b)fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05430	Benzo(ghi)perylene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05440	Benzo(k)fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05450	Dibenzo(a,h)anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05460	Fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05470	Fluorene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05480	Indeno(1,2,3-cd)pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05490	Methylnaphthalene (2-)	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05500	Naphthalene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05510	Pentachlorophenol	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05520	Phenanthrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	BT07.05530	Pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH

Category: DW06 --Metals

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	DW06.00480	Mercury	Manual Cold Vapor	EPA 245.1	NH

Category: DW07 --Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	DW07.00001	Aluminum	ICP	EPA 200.7	NH
Certified	Yes	DW07.00020	Aluminum	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00050	Antimony	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00070	Arsenic	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00080	Barium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00110	Barium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00150	Beryllium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00160	Boron	ICP	EPA 200.7	NH
Certified	Yes	DW07.00170	Cadmium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00190	Cadmium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00200	Calcium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00230	Calcium-hardness	Ca as Carbonate	EPA 200.7	NH
Certified	Yes	DW07.00240	Chromium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00270	Chromium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00280	Cobalt	ICP	EPA 200.7	NH
Certified	Yes	DW07.00290	Cobalt	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00300	Copper	ICP	EPA 200.7	NH
Certified	Yes	DW07.00330	Copper	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00340	Iron	ICP	EPA 200.7	NH
Certified	Yes	DW07.00380	Lead	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00400	Magnesium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00430	Manganese	ICP	EPA 200.7	NH
Certified	Yes	DW07.00460	Manganese	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00500	Nickel	ICP	EPA 200.7	NH
Certified	Yes	DW07.00530	Nickel	ICP/MS	EPA 200.8	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: DW07 --Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	DW07.00540	Potassium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00560	Selenium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00600	Silver	ICP	EPA 200.7	NH
Certified	Yes	DW07.00630	Silver	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00640	Sodium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00660	Strontium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00670	Thallium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00680	Tin	ICP	EPA 200.7	NH
Certified	Yes	DW07.00690	Titanium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00700	Total hardness	Hardness By Calculation	EPA 200.7	NH
Certified	Yes	DW07.00750	Vanadium	ICP	EPA 200.7	NH
Certified	Yes	DW07.00760	Vanadium	ICP/MS	EPA 200.8	NH
Certified	Yes	DW07.00770	Zinc	ICP	EPA 200.7	NH
Certified	Yes	DW07.00800	Zinc	ICP/MS	EPA 200.8	NH

Category: DW09 --Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	DW09.02260	Dioxane (1,4-)	SPE, GC/MS/SIM	EPA 522	NH
Certified	Yes	DW09.05030	N-ethylperfluorooctanesulfonamidoacetic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05040	N-methylperfluorooctanesulfonamidoacetic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05050	Perfluorobutanesulfonic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05060	Perfluorodecanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05070	Perfluorododecanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05080	Perfluoroheptanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05090	Perfluorohexanesulfonic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05100	Perfluorohexanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: DW09 --Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	DW09.05110	Perfluorononanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05120	Perfluorooctanesulfonic acid (PFOS)	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05130	Perfluorooctanoic acid (PFOA)	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05140	Perfluorotetradecanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05150	Perfluorotridecanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH
Certified	Yes	DW09.05160	Perfluoroundecanoic acid	LC MS/MS, Electrospray Ionization	EPA 537	NH

Category: NPW06--Metals - NPW Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW06.00050	Metals, Total Rec and Dissolved	Acid Digestion/Surface and Groundwater, ICP, FLAA	SW-846 3005A	NH
Certified	Yes	NPW06.00080	Metals	Acid Digestion For GFAA, Micro asst Aqueous	SW-846 3015A	NH

Category: NPW07--Metals

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW07.02160	Mercury	Manual Cold Vapor	EPA 245.1	NH
Certified	Yes	NPW07.02190	Mercury - liquid waste	AA, Manual Cold Vapor	SW-846 7470A	NH
Certified	Yes	NPW07.02200	Mercury	Purge & Trap Atomic Fluorescence	EPA 1631E	NH

Category: NPW08--Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW08.00012	Aluminum	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.00050	Aluminum	Digestion, ICP	EPA 200.7	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW08--Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW08.00082	Aluminum	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.00130	Aluminum	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.00182	Antimony	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.00220	Antimony	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.00252	Antimony	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.00300	Antimony	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.00342	Arsenic	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.00370	Arsenic	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.00402	Arsenic	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.00450	Arsenic	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.00482	Barium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.00510	Barium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.00542	Barium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.00590	Barium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.00642	Beryllium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.00680	Beryllium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.00712	Beryllium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.00760	Beryllium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.00822	Boron	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.00860	Boron	ICP	EPA 200.7	NH
Certified	Yes	NPW08.00892	Boron	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.00982	Cadmium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.01030	Cadmium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.01062	Cadmium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.01110	Cadmium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.01172	Calcium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.01200	Calcium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.01232	Calcium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.01312	Chromium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.01350	Chromium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.01382	Chromium	ICP/MS	SW-846 6020B	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW08--Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW08.01430	Chromium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.01502	Cobalt	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.01530	Cobalt	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.01562	Cobalt	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.01610	Cobalt	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.01652	Copper	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.01690	Copper	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.01722	Copper	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.01770	Copper	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.01890	Hardness - total as CaCO3	Ca + Mg Carbonates, ICP	EPA 200.7	NH
Certified	Yes	NPW08.01900	Hardness - total as CaCO3	Ca + Mg Carbonates, ICP	SM 2340 B-11	NH
Certified	Yes	NPW08.02002	Iron	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.02040	Iron	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.02072	Iron	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.02110	Iron	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.02172	Lead	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.02210	Lead	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.02242	Lead	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.02290	Lead	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.02382	Magnesium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.02420	Magnesium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.02452	Magnesium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.02542	Manganese	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.02580	Manganese	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.02612	Manganese	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.02660	Manganese	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.02722	Molybdenum	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.02750	Molybdenum	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.02782	Molybdenum	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.02830	Molybdenum	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.02872	Nickel	ICP	SW-846 6010D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW08--Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW08.02910	Nickel	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.02942	Nickel	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.02990	Nickel	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.03142	Potassium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.03150	Potassium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.03200	Potassium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.03232	Potassium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.03282	Selenium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.03310	Selenium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.03342	Selenium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.03390	Selenium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.03440	Silica - dissolved	0.45u Filtration + ICP	EPA 200.7	NH
Certified	Yes	NPW08.03532	Silver	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.03570	Silver	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.03602	Silver	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.03650	Silver	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.03712	Sodium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.03740	Sodium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.03772	Sodium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.03810	Sodium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.03840	Strontium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.03862	Strontium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.03882	Strontium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.03910	Sulfur	Closed Vessel Sample Preparation, ICP	User Defined SW-846 6010D	NH
Certified	Yes	NPW08.03932	Thallium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.03950	Thallium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.03982	Thallium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.04030	Thallium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.04112	Tin	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.04130	Tin	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.04152	Tin	ICP/MS	SW-846 6020B	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW08--Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW08.04212	Titanium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.04220	Titanium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.04242	Titanium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.04392	Vanadium	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.04430	Vanadium	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.04462	Vanadium	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.04510	Vanadium	Digestion, ICP/MS	EPA 200.8	NH
Certified	Yes	NPW08.04572	Zinc	ICP	SW-846 6010D	NH
Certified	Yes	NPW08.04610	Zinc	Digestion, ICP	EPA 200.7	NH
Certified	Yes	NPW08.04642	Zinc	ICP/MS	SW-846 6020B	NH
Certified	Yes	NPW08.04690	Zinc	Digestion, ICP/MS	EPA 200.8	NH

Category: NPW09--Organics - NPW Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW09.00060	Organics	Waste Dilution	SW-846 3580A	NH
Certified	Yes	NPW09.00090	Semivolatile organics	Separatory Funnel Extraction	SW-846 3510C	NH
Certified	Yes	NPW09.00190	Semivolatile organics	Cleanup-Silica Gel	SW-846 3630C	NH
Certified	Yes	NPW09.00200	Semivolatile organics	Cleanup-Gel Permeation	SW-846 3640A	NH
Certified	Yes	NPW09.00220	Semivolatile organics	Cleanup-Sulfur Removal	SW-846 3660B	NH
Certified	Yes	NPW09.00230	Semivolatile organics	Cleanup-Sulfuric Acid/KMnO4	SW-846 3665A	NH

Category: NPW10--Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW10.06010	Ethane	GC, Headspace, FID	Other J. Chrom. Sci. RSK-175	NH
Certified	Yes	NPW10.06020	Ethene	GC, Headspace, FID	Other J. Chrom. Sci. RSK-175	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW10--Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW10.06040	Methane	GC, Headspace, FID	Other J. Chrom. Sci. RSK-175	NH
Certified	Yes	NPW10.06050	Propane	GC, Headspace, FID	Other J. Chrom. Sci. RSK-175	NH
Certified	Yes	NPW10.08320	Amyl alcohol (t-)	GC, Direct Injection or Heated P & T, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08360	Diesel range organic	Extraction, GC, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08400	Ethyl alcohol	GC, Direct Injection, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08410	Ethylene glycol	GC, Direct Injection, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08460	Iso-butyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08470	Isopropyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08480	Methyl alcohol (Methanol)	GC, Direct Injection, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08550	Propyl Alcohol (n-)	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08560	Propylene glycol	GC, Direct Injection, FID	SW-846 8015D	NH
Certified	Yes	NPW10.08600	Tert-butyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	NPW10.09880	Aldrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.09890	Alpha BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.09910	Beta BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.09920	Chlordane (alpha) (cis-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.09930	Chlordane (gamma) (trans-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.09940	Chlordane (technical)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10010	DDD (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10020	DDE (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10030	DDT (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10040	Delta BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10050	Dieldrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10060	Endosulfan I	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10070	Endosulfan II	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10080	Endosulfan sulfate	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10090	Endrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10100	Endrin aldehyde	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10110	Endrin ketone	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10130	Heptachlor	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10140	Heptachlor epoxide	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW10--Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW10.10150	Hexachlorobenzene	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10170	Lindane (gamma BHC)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10180	Methoxychlor	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10210	Mirex	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10250	Toxaphene	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	NPW10.10590	Trichlorobiphenyl (2,2',5-) (PCB 18)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10610	Tetrachlorobiphenyl (2,2',3,5'-) (PCB 44)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10620	Tetrachlorobiphenyl (2,2',5,5'-) (PCB 52)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10630	Tetrachlorobiphenyl (2,3',4,4'-) (PCB 66)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10670	Pentachlorobiphenyl (2,3',4,4',5-) (PCB 118)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10680	Hexachlorobiphenyl (2,2',3,3',4,4'-) (PCB 128)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10690	Hexachlorobiphenyl (2,2',3,4,4',5'-) (PCB 138)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10730	Heptachlorobiphenyl (2,2',3,3',4,4',5-) (PCB 170)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10770	Nonachlorobiphenyl (2,2',3,3',4,4',5,5',6-) (PCB 206)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10780	PCB 1016	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10790	PCB 1221	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10800	PCB 1232	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10810	PCB 1242	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10820	PCB 1248	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10830	PCB 1254	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10840	PCB 1260	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10850	PCB 1262	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	NPW10.10860	PCB 1268	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH

Category: NPW11--Organic Parameters - Chromatography/MS

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.00010	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00020	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00030	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00040	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00050	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00060	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00070	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00080	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00090	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00100	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00110	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00120	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00130	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00140	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00150	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00160	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.00170	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	NPW11.06660	Dioxane (1,4-)	SPE, GC/MS/SIM	EPA 522	NH
Certified	Yes	NPW11.17750	Acenaphthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17760	Acenaphthylene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17770	Acetophenone	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17840	Aniline	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17850	Anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17870	Atrazine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17890	Benzaldehyde	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17910	Benzidine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17920	Benzo(a)anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17930	Benzo(a)pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17940	Benzo(b)fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17950	Benzo(ghi)perylene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17970	Benzo(k)fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.17980	Benzoic acid	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.18000	Benzyl alcohol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18030	Biphenyl (1,1'-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18040	Bis (2-chloroethoxy) methane	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18050	Bis (2-chloroethyl) ether	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18060	Bis(2-chloroisopropyl)ether|2,2'-oxybis(1-chloropropane)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18070	Bis (2-ethylhexyl) phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18080	Bromophenyl-phenyl ether (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18090	Butylbenzylphthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18100	Caprolactam	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18110	Carbazole	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18150	Chloroaniline (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18180	Chloronaphthalene (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18190	Chlorophenol (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18200	Chlorophenyl-phenyl ether (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18210	Chrysene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18320	Dibenzo(a,h)anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18360	Dibenzofuran	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18370	Dichlorobenzene (1,2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18380	Dichlorobenzene (1,3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18390	Dichlorobenzene (1,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18400	Dichlorobenzidine (3,3'-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18410	Dichlorophenol (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18440	Diethyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18470	Dimethyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18540	Dimethylphenol (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18550	Di-n-butyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18580	Dinitrophenol (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18590	Dinitrophenol (2-methyl-4,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18600	Dinitrotoluene (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18610	Dinitrotoluene (2,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.18620	Di-n-octyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18650	Diphenylhydrazine / Azobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18750	Fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18760	Fluorene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18790	Hexachlorobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18800	Hexachlorobutadiene (1,3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18810	Hexachlorocyclopentadiene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18820	Hexachloroethane	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18870	Indeno(1,2,3-cd)pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18890	Isophorone	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.18980	Methyl phenol (4-chloro-3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19010	Methylnaphthalene (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19020	Methylphenol (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19030	Methylphenol (3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19040	Methylphenol (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19050	Naphthalene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19090	Nitroaniline (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19100	Nitroaniline (3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19110	Nitroaniline (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19120	Nitrobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19140	Nitrophenol (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19150	Nitrophenol (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19170	N-Nitrosodimethylamine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19190	N-Nitroso-di-n-propylamine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19200	N-Nitrosodiphenylamine / Diphenylamine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19370	Pentachloronitrobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19380	Pentachlorophenol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19400	Phenanthrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19410	Phenol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19490	Pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19500	Pyridine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.19570	Tetrachlorobenzene (1,2,3,5-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19580	Tetrachlorobenzene (1,2,4,5-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19590	Tetrachlorophenol (2,3,4,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19640	Trichlorobenzene (1,2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19650	Trichlorophenol (2,4,5-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19660	Trichlorophenol (2,4,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19690	Acenaphthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19700	Acenaphthylene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19710	Anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19720	Benzo(a)anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19730	Benzo(a)pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19740	Benzo(b)fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19750	Benzo(ghi)perylene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19760	Benzo(k)fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19770	Chrysene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19780	Dibenzo(a,h)anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19794	Dioxane (1,4-)	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19800	Fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19810	Fluorene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19840	Indeno(1,2,3-cd)pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19850	Methylnaphthalene (1-)	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19860	Methylnaphthalene (2-)	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19870	Naphthalene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19890	Pentachlorophenol	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19900	Phenanthrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.19910	Pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	NPW11.20170	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20180	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20190	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20200	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20210	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.20220	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20230	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20240	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20250	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20260	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20270	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20280	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20290	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20300	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20310	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20320	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20330	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20340	Total HpCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20350	Total HpCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20360	Total HxCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20370	Total HxCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20380	Total PeCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20390	Total PeCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20400	Total TCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	NPW11.20410	Total TCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH

Category: NPW16--NPW - Lab Developed/Non-Std Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW16.00060	Alkylated PAHs	GC/MS	User Defined SW-846 8270-SIM (M)	NH
Certified	Yes	NPW16.02350	Perfluorobutanesulfonic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW16--NPW - Lab Developed/Non-Std Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW16.02360	Perfluorobutanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02370	Perfluorodecanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02380	Perfluorododecanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02390	Perfluoroheptanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02400	Perfluorohexanesulfonic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02410	Perfluorohexanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02420	Perfluorononanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02430	Perfluorooctanesulfonic acid (PFOS)	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02440	Perfluorooctanoic acid (PFOA)	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02450	Perfluoropentanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02460	Perfluorotetradecanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH
Certified	Yes	NPW16.02470	Perfluorotridecanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: NPW16--NPW - Lab Developed/Non-Std Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW16.02480	Perfluoroundecanoic acid	LC MS/MS, Electrospray Ionization	User Defined LC/MS/MS Isotope Dilution, ID No 23528, R9,11/5/18	NH

Category: SCM03--Inorganic Parameters and Preparation

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	No	SCM03.01120	Total organic carbon (TOC)	Infrared Spectrometry or FID	Other NJ Modified SM-846 9060A	NH
Certified	Yes	SCM03.01130	Total organic carbon (TOC)	Pyrolytic	Other Lloyd Kahn	NH
Certified	Yes	SCM03.01190	Total, fixed, and volatile solids (SQAR)	Gravimetric, 500 Degrees C	SM 2540 G SM 18th Ed.	NH

Category: SCM05--Metals - SCM Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM05.00010	Metals	Acid Digestion, Soil Sediment & Sludge	SW-846 3050B	NH
Certified	Yes	SCM05.00090	Metals	Microwave Acid Digest: Soil Sediment & Sludge	SW-846 3051A	NH

Category: SCM06--Metals

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM06.00640	Mercury - soils/sediments	Atomic Fluorescence	SW-846 7474	NH
Certified	Yes	SCM06.00660	Mercury - solid waste	AA, Manual Cold Vapor	SW-846 7471B	NH

Category: SCM07--Metals - ICP, ICP/MS and DCP

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM07.00022	Aluminum	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00042	Aluminum	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00062	Antimony	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00092	Antimony	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00122	Arsenic	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00152	Arsenic	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00172	Barium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00202	Barium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00232	Beryllium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00262	Beryllium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00282	Boron	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00302	Boron	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00332	Cadmium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00362	Cadmium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00392	Calcium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00412	Calcium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00432	Chromium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00462	Chromium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00502	Cobalt	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00532	Cobalt	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00552	Copper	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00582	Copper	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00612	Iron	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00632	Iron	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00662	Lead	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00692	Lead	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00742	Magnesium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00762	Magnesium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00792	Manganese	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00822	Manganese	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00852	Molybdenum	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00882	Molybdenum	ICP/MS	SW-846 6020B	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM07--Metals - ICP, ICP/MS and DCP

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM07.00912	Nickel	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.00942	Nickel	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.00992	Potassium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01012	Potassium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01042	Selenium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01072	Selenium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01122	Silver	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01152	Silver	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01182	Sodium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01202	Sodium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01222	Strontium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01242	Strontium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01270	Sulfur	Closed Vessel Sample Preparation, ICP	User Defined SW-846 6010D	NH
Certified	Yes	SCM07.01292	Thallium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01322	Thallium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01382	Tin	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01402	Tin	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01422	Titanium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01442	Titanium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01532	Vanadium	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01562	Vanadium	ICP/MS	SW-846 6020B	NH
Certified	Yes	SCM07.01592	Zinc	ICP	SW-846 6010D	NH
Certified	Yes	SCM07.01622	Zinc	ICP/MS	SW-846 6020B	NH

Category: SCM08--Organics - SCM Prep. / Screening Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM08.00090	Organics	Waste Dilution	SW-846 3580A	NH
Certified	Yes	SCM08.00180	Semivolatile organics	Cleanup-Gel Permeation	SW-846 3640A	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM08--Organics - SCM Prep. / Screening Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM08.00190	Semivolatile organics	Cleanup-Silica Gel	SW-846 3630C	NH
Certified	Yes	SCM08.00200	Semivolatile organics	Cleanup-Sulfur Removal	SW-846 3660B	NH
Certified	Yes	SCM08.00220	Semivolatile organics	Cleanup-Sulfuric Acid/KMnO4	SW-846 3665A	NH
Certified	Yes	SCM08.00230	Semivolatile organics	Microscale Solvent Extraction - Solids	SW-846 3570	NH
Certified	Yes	SCM08.00280	Semivolatile organics	Soxhlet Extraction	SW-846 3540C	NH

Category: SCM09--Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM09.00730	Amyl alcohol (t-)	GC, Direct Injection or Heated P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00770	Diesel range organic	Extraction, GC, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00810	Ethyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00820	Ethylene glycol	GC, Direct Injection, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00870	Iso-butyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00880	Isopropyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00890	Methyl alcohol (Methanol)	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00960	Propyl Alcohol (n-)	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.00970	Propylene glycol	GC, Direct Injection, FID	SW-846 8015D	NH
Certified	Yes	SCM09.01010	Tert-butyl alcohol	GC, Direct Injection or P & T, FID	SW-846 8015D	NH
Certified	Yes	SCM09.02290	Aldrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02300	Alpha BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02320	Beta BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02330	Chlordane (alpha) (cis-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02340	Chlordane (gamma) (trans-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02350	Chlordane (technical)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02420	DDD (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02430	DDE (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02440	DDT (4,4'-)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02450	Delta BHC	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM09--Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM09.02460	Dieldrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02470	Endosulfan I	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02480	Endosulfan II	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02490	Endosulfan sulfate	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02500	Endrin	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02510	Endrin aldehyde	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02520	Endrin ketone	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02540	Heptachlor	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02550	Heptachlor epoxide	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02560	Hexachlorobenzene	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02580	Lindane (gamma BHC)	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02590	Methoxychlor	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02620	Mirex	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02660	Toxaphene	GC, Extraction, ECD or HECD, Capillary	SW-846 8081B	NH
Certified	Yes	SCM09.02980	Chlorobiphenyl (2-) (PCB 1)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.02990	Dichlorobiphenyl (2,3-) (PCB 5)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03000	Trichlorobiphenyl (2,2',5-) (PCB 18)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03010	Trichlorobiphenyl (2,4',5-) (PCB 31)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03020	Tetrachlorobiphenyl (2,2',3,5'-) (PCB 44)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03030	Tetrachlorobiphenyl (2,2',5,5'-) (PCB 52)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03040	Tetrachlorobiphenyl (2,3',4,4'-) (PCB 66)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03050	Pentachlorobiphenyl (2,2',3,4,5'-) (PCB 87)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03060	Pentachlorobiphenyl (2,2',4,5,5'-) (PCB 101)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03070	Pentachlorobiphenyl (2,3,3',4',6-) (PCB 110)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03080	Pentachlorobiphenyl (2,3',4,4',5-) (PCB 118)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03090	Hexachlorobiphenyl (2,2',3,3',4,4'-) (PCB 128)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03100	Hexachlorobiphenyl (2,2',3,4,4',5'-) (PCB 138)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM09--Organic Parameters - Chromatography

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM09.03110	Hexachlorobiphenyl (2,2',3,4,5,5'-) (PCB 141)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03120	Hexachlorobiphenyl (2,2',3,5,5',6-) (PCB 151)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03130	Hexachlorobiphenyl (2,2',4,4',5,5'-) (PCB 153)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03140	Heptachlorobiphenyl (2,2',3,3',4,4',5-) (PCB 170)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03150	Heptachlorobiphenyl (2,2',3,4,4',5,5'-) (PCB 180)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03160	Heptachlorobiphenyl (2,2',3,4,4',5',6-) (PCB 183)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03170	Heptachlorobiphenyl (2,2',3,4',5,5',6-) (PCB 187)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03180	Nonachlorobiphenyl (2,2',3,3',4,4',5,5',6-) (PCB 206)	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03190	PCB 1016	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03200	PCB 1221	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03210	PCB 1232	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03220	PCB 1242	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03230	PCB 1248	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03240	PCB 1254	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03250	PCB 1260	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03260	PCB 1262	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH
Certified	Yes	SCM09.03270	PCB 1268	GC, Extraction, ECD or HECD, Capillary	SW-846 8082A	NH

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00050	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00060	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00070	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00080	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00090	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00100	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00110	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00120	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00130	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00140	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00150	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00160	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00170	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00180	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00190	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00210	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.00220	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	NH
Certified	Yes	SCM10.09230	Acenaphthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09240	Acenaphthylene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09250	Acetophenone	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09320	Aniline	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09330	Anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09370	Benzaldehyde	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09390	Benzidine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09400	Benzo(a)anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09410	Benzo(a)pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09420	Benzo(b)fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09430	Benzo(ghi)perylene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09450	Benzo(k)fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09460	Benzoic acid	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09480	Benzyl alcohol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09510	Biphenyl (1,1'-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09520	Bis (2-chloroethoxy) methane	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.09530	Bis (2-chloroethyl) ether	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09540	Bis(2-chloroisopropyl)ether|2,2'-oxybis(1-chloropropane)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09550	Bis (2-ethylhexyl) phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09560	Bromophenyl-phenyl ether (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09570	Butylbenzylphthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09580	Caprolactam	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09590	Carbazole	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09630	Chloroaniline (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09660	Chloronaphthalene (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09670	Chlorophenol (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09680	Chlorophenyl-phenyl ether (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09690	Chrysene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09800	Dibenzo(a,h)anthracene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09840	Dibenzofuran	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09850	Dichlorobenzene (1,2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09860	Dichlorobenzene (1,3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09870	Dichlorobenzene (1,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09880	Dichlorobenzidine (3,3'-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09890	Dichlorophenol (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09920	Diethyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.09950	Dimethyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10020	Dimethylphenol (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10030	Di-n-butyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10060	Dinitrophenol (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10070	Dinitrophenol (2-methyl-4,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10080	Dinitrotoluene (2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10090	Dinitrotoluene (2,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10100	Di-n-octyl phthalate	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10130	Diphenylhydrazine / Azobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10230	Fluoranthene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.10240	Fluorene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10270	Hexachlorobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10280	Hexachlorobutadiene (1,3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10290	Hexachlorocyclopentadiene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10300	Hexachloroethane	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10350	Indeno(1,2,3-cd)pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10370	Isophorone	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10460	Methyl phenol (4-chloro-3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10490	Methylnaphthalene (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10500	Methylphenol (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10510	Methylphenol (3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10520	Methylphenol (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10530	Naphthalene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10570	Nitroaniline (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10580	Nitroaniline (3-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10590	Nitroaniline (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10600	Nitrobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10620	Nitrophenol (2-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10630	Nitrophenol (4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10650	N-Nitrosodimethylamine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10670	N-Nitroso-di-n-propylamine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10680	N-Nitrosodiphenylamine / Diphenylamine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10850	Pentachloronitrobenzene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10860	Pentachlorophenol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10880	Phenanthrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10890	Phenol	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10970	Pyrene	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.10980	Pyridine	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11060	Tetrachlorobenzene (1,2,4,5-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11070	Tetrachlorophenol (2,3,4,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11120	Trichlorobenzene (1,2,4-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.11130	Trichlorophenol (2,4,5-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11140	Trichlorophenol (2,4,6-)	GC/MS, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11170	Acenaphthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11180	Acenaphthylene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11190	Anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11200	Benzo(a)anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11210	Benzo(a)pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11220	Benzo(b)fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11230	Benzo(ghi)perylene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11240	Benzo(k)fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11250	Chrysene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11260	Dibenzo(a,h)anthracene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11280	Fluoranthene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11290	Fluorene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11320	Indeno(1,2,3-cd)pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11330	Methylnaphthalene (1-)	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11340	Methylnaphthalene (2-)	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11350	Naphthalene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11370	Pentachlorophenol	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11380	Phenanthrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH
Certified	Yes	SCM10.11390	Pyrene	GC/MS/SIM, Extract or Dir Inj, Capillary	SW-846 8270D	NH

Category: SCM11--PCDD / PCDF

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM11.00250	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00260	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00270	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00280	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Category: SCM11--PCDD / PCDF

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM11.00290	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00300	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00310	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00320	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00330	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00340	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00350	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00360	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00370	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00380	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00390	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00400	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00410	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00420	Total HpCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00430	Total HpCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00440	Total HxCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00450	Total HxCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00460	Total PeCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00470	Total PeCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00480	Total TCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH
Certified	Yes	SCM11.00490	Total TCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	NH

Category: SCM14--SCM - Lab Developed/Non-Std Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM14.00040	Alkylated PAHs	GC/MS	User Defined SW-846 8270D-SIM (M)	NH

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 11/19/2018 until 6/30/2019

Laboratory Name: ALPHA ANALYTICAL Laboratory Number: MA015 Activity ID: NLC 180006
320 FORBES BLVD
MANSFIELD MA 02048

Michele M. Potter, Manager

State of Florida
Department of Health, Bureau of Public Health Laboratories
This is to certify that

E87982

BROOKS APPLIED LABS, LLC
18804 NORTH CREEK PKWY SUITE 100
BOTHELL, WA 98011

has complied with Florida Administrative Code 64E-1,
for the examination of environmental samples in the following categories

NON-POTABLE WATER - METALS, SOLID AND CHEMICAL MATERIALS - METALS, BIOLOGICAL TISSUE - METALS

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: March 15, 2019 Expiration Date: June 30, 2019

Patty A. Lewandowski, MBA, MT(ASCP)
Chief Bureau of Public Health Laboratories
DH Form 1697, 7/04
NON-TRANSFERABLE E87982-32-03/15/2019
Supersedes all previously issued certificates

Laboratory Scope of Accreditation

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Aluminum	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Aluminum	EPA 200.8	Metals	NELAP	9/24/2012
Aluminum	EPA 6020	Metals	NELAP	9/24/2012
Antimony	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Antimony	EPA 1638	Metals	NELAP	7/16/2008
Antimony	EPA 200.8	Metals	NELAP	9/24/2012
Antimony	EPA 6020	Metals	NELAP	9/24/2012
Arsenic	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Arsenic	EPA 1640	Metals	NELAP	9/24/2012
Arsenic	EPA 200.8	Metals	NELAP	9/24/2012
Arsenic	EPA 6020	Metals	NELAP	9/24/2012
Arsenic-III (arsenite)	BAL-4100/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Arsenic-III (arsenite)	EPA 1632	Metals	NELAP	9/24/2012
Arsenic-V (arsenate)	BAL-4100/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Barium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Barium	EPA 200.8	Metals	NELAP	9/24/2012
Barium	EPA 6020	Metals	NELAP	9/24/2012
Beryllium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Beryllium	EPA 200.8	Metals	NELAP	9/24/2012
Beryllium	EPA 6020	Metals	NELAP	9/24/2012
Bismuth	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Boron	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cadmium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cadmium	EPA 1638	Metals	NELAP	7/16/2008
Cadmium	EPA 1640	Metals	NELAP	11/16/2009
Cadmium	EPA 200.8	Metals	NELAP	9/24/2012
Cadmium	EPA 6020	Metals	NELAP	9/24/2012
Calcium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Calcium	EPA 6020	Metals	NELAP	9/24/2012
Chromium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Chromium	EPA 200.8	Metals	NELAP	9/24/2012
Chromium	EPA 6020	Metals	NELAP	9/24/2012
Chromium VI	BAL-4300/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Cobalt	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cobalt	EPA 200.8	Metals	NELAP	9/24/2012
Cobalt	EPA 6020	Metals	NELAP	9/24/2012
Copper	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Copper	EPA 1638	Metals	NELAP	7/31/2006
Copper	EPA 1640	Metals	NELAP	11/16/2009
Copper	EPA 200.8	Metals	NELAP	9/24/2012
Copper	EPA 6020	Metals	NELAP	9/24/2012
Dimethylarsinate	BAL-4100/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Hardness	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Iron	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Iron	EPA 6020	Metals	NELAP	9/24/2012
Lead	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Lead	EPA 1638	Metals	NELAP	7/31/2006
Lead	EPA 1640	Metals	NELAP	11/16/2009
Lead	EPA 200.8	Metals	NELAP	9/24/2012
Lead	EPA 6020	Metals	NELAP	9/24/2012
Lithium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Magnesium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Magnesium	EPA 6020	Metals	NELAP	9/24/2012
Manganese	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Manganese	EPA 200.8	Metals	NELAP	9/24/2012
Manganese	EPA 6020	Metals	NELAP	9/24/2012
Mercury	EPA 1631	Metals	NELAP	7/31/2006
Methyl mercury	EPA 1630	Metals	NELAP	7/31/2006
Molybdenum	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Molybdenum	EPA 200.8	Metals	NELAP	9/24/2012

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Molybdenum	EPA 6020	Metals	NELAP	9/24/2012
Monomethylarsonate	BAL-4100/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Nickel	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Nickel	EPA 1638	Metals	NELAP	11/16/2009
Nickel	EPA 1640	Metals	NELAP	11/16/2009
Nickel	EPA 200.8	Metals	NELAP	9/24/2012
Nickel	EPA 6020	Metals	NELAP	9/24/2012
Selenium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Selenium	EPA 1638	Metals	NELAP	7/31/2006
Selenium	EPA 200.8	Metals	NELAP	9/24/2012
Selenium	EPA 6020	Metals	NELAP	9/24/2012
Selenium (IV)	BAL-4200/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Selenium (IV)	BAL-4201/Revision 001/IC-ICP-MS	Metals	NELAP	3/16/2018
Selenium (VI)	BAL-4200/Revision 001/IC-ICP-MS	Metals	NELAP	4/11/2016
Selenium (VI)	BAL-4201/Revision 001/IC-ICP-MS	Metals	NELAP	3/16/2018
Silver	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Silver	EPA 1638	Metals	NELAP	7/31/2006
Silver	EPA 1640	Metals	NELAP	9/24/2012
Silver	EPA 200.8	Metals	NELAP	9/24/2012
Silver	EPA 6020	Metals	NELAP	9/24/2012
Strontium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Thallium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Thallium	EPA 1638	Metals	NELAP	7/31/2006
Thallium	EPA 200.8	Metals	NELAP	9/24/2012
Thallium	EPA 6020	Metals	NELAP	9/24/2012
Tin	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Total Inorganic Arsenic	EPA 1632	Metals	NELAP	3/16/2018
Tungsten	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Uranium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Uranium	EPA 200.8	Metals	NELAP	9/24/2012

Laboratory Scope of Accreditation

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Uranium	EPA 6020	Metals	NELAP	9/24/2012
Vanadium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Vanadium	EPA 200.8	Metals	NELAP	9/24/2012
Vanadium	EPA 6020	Metals	NELAP	9/24/2012
Zinc	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Zinc	EPA 1638	Metals	NELAP	7/31/2006
Zinc	EPA 1640	Metals	NELAP	9/24/2012
Zinc	EPA 200.8	Metals	NELAP	9/24/2012
Zinc	EPA 6020	Metals	NELAP	9/24/2012

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Aluminum	EPA 6020	Metals	NELAP	4/11/2016
Antimony	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Antimony	EPA 6020	Metals	NELAP	4/11/2016
Arsenic	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Arsenic	EPA 6020	Metals	NELAP	4/11/2016
Barium	EPA 6020	Metals	NELAP	4/11/2016
Beryllium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Beryllium	EPA 6020	Metals	NELAP	4/11/2016
Boron	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cadmium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cadmium	EPA 6020	Metals	NELAP	4/11/2016
Calcium	EPA 6020	Metals	NELAP	4/11/2016
Chromium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Chromium	EPA 6020	Metals	NELAP	4/11/2016
Chromium VI	BAL-4300/Revision 001/IC-ICP-MS	Metals	NELAP	3/16/2018
Cobalt	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cobalt	EPA 6020	Metals	NELAP	4/11/2016
Copper	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Copper	EPA 6020	Metals	NELAP	4/11/2016
Iron	EPA 6020	Metals	NELAP	4/11/2016
Lead	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Lead	EPA 6020	Metals	NELAP	4/11/2016
Magnesium	EPA 6020	Metals	NELAP	4/11/2016
Manganese	EPA 6020	Metals	NELAP	4/11/2016
Mercury	EPA 1631	Metals	NELAP	7/31/2006
Methyl mercury	BAL-3200/Revision 001/CVAFS	Metals	NELAP	4/11/2016
Molybdenum	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Molybdenum	EPA 6020	Metals	NELAP	4/11/2016
Nickel	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Nickel	EPA 6020	Metals	NELAP	4/11/2016

Laboratory Scope of Accreditation

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Selenium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Selenium	EPA 6020	Metals	NELAP	4/11/2016
Silver	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Silver	EPA 6020	Metals	NELAP	4/11/2016
Strontium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Thallium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Thallium	EPA 6020	Metals	NELAP	4/11/2016
Tin	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Vanadium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Vanadium	EPA 6020	Metals	NELAP	4/11/2016
Zinc	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Zinc	EPA 6020	Metals	NELAP	4/11/2016

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Biological Tissue**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Aluminum	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Aluminum	EPA 6020	Metals	NELAP	4/11/2016
Antimony	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Antimony	EPA 6020	Metals	NELAP	4/11/2016
Arsenic	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Arsenic	EPA 1632	Metals	NELAP	6/27/2011
Arsenic	EPA 6020	Metals	NELAP	4/11/2016
Barium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Barium	EPA 6020	Metals	NELAP	4/11/2016
Beryllium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Beryllium	EPA 6020	Metals	NELAP	4/11/2016
Boron	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cadmium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cadmium	EPA 6020	Metals	NELAP	4/11/2016
Calcium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Calcium	EPA 6020	Metals	NELAP	4/11/2016
Chromium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Chromium	EPA 6020	Metals	NELAP	4/11/2016
Cobalt	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Cobalt	EPA 6020	Metals	NELAP	4/11/2016
Copper	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Copper	EPA 6020	Metals	NELAP	4/11/2016
Iron	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Iron	EPA 6020	Metals	NELAP	4/11/2016
Lead	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Lead	EPA 6020	Metals	NELAP	4/11/2016
Magnesium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Magnesium	EPA 6020	Metals	NELAP	4/11/2016
Manganese	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016

Laboratory Scope of Accreditation

Attachment to Certificate #: E87982-32, expiration date June 30, 2019. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E87982** EPA Lab Code: **WA01212** **(206) 632-6206**

E87982
Brooks Applied Labs, LLC
18804 North Creek Pkwy
Suite 100
Bothell, WA 98011

Matrix: **Biological Tissue**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Manganese	EPA 6020	Metals	NELAP	4/11/2016
Mercury	EPA 1631	Metals	NELAP	7/31/2006
Methyl mercury	BAL-3200/Revision 001/CVAFS	Metals	NELAP	4/11/2016
Molybdenum	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Molybdenum	EPA 6020	Metals	NELAP	4/11/2016
Nickel	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Nickel	EPA 6020	Metals	NELAP	4/11/2016
Selenium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Selenium	EPA 6020	Metals	NELAP	4/11/2016
Silver	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Silver	EPA 6020	Metals	NELAP	4/11/2016
Thallium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Thallium	EPA 6020	Metals	NELAP	4/11/2016
Tin	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Total Inorganic Arsenic	EPA 1632	Metals	NELAP	3/16/2018
Vanadium	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Vanadium	EPA 6020	Metals	NELAP	4/11/2016
Zinc	BAL-5000 Revision 001/ICP-MS	Metals	NELAP	4/11/2016
Zinc	EPA 6020	Metals	NELAP	4/11/2016

State of Utah

Department of Health

Environmental Laboratory Certification Program

Certification is hereby granted to

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120
Wilmington, NC 28405

Has conformed with the
2009 TNI Standard
Scope of accreditation is limited to the
State of Utah accredited fields that accompany
this Certificate

EPA Number:	NC01894
Expiration Date:	8/31/2019
Certificate Number:	NC018942018-10

Robyn M. Atkinson, Ph.D, HCLD
Director, Utah Public Health Laboratory

NELAP RECOGNIZED TNI ACCREDITATION BODY

Continued accredited status depends on successful ongoing participation in the program.

UTAH DEPARTMENT OF HEALTH

State of Utah
Gary R. Herbert
Governor
Spencer J. Cox
Lieutenant Governor

Utah Department of Health
Dr. Joseph K. Miner
Executive Director

Division of Disease Control and Prevention
Robyn M. Atkinson, Ph.D, HCLD
Director, Utah Public Health Laboratory

EPA Number: *NC01894* **Attachment to Certificate Number: NC018942018-10**

Cape Fear Analytical, LLC

	Start Date	Expires	AB
Program/Matrix: *Air & Emissions (Air & Emissions)*			
Method EPA TO-9A			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT

Cape Fear Analytical, LLC

Program/Matrix: ***CWA (Non Potable Water)***

Method EPA 1613B

	Start Date	Expires	AB
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-TCDD	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
Method EPA 1613B			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT
Method EPA 1668A			
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)	09/01/14	08/31/19	UT
2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)	09/01/14	08/31/19	UT
2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)	09/01/14	08/31/19	UT
2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)	09/01/14	08/31/19	UT
2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)	09/01/14	08/31/19	UT
2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)	09/01/14	08/31/19	UT
2,2',3,3',4-Pentachlorobiphenyl (BZ-82)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)	09/01/14	08/31/19	UT
2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)	09/01/14	08/31/19	UT
2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)	09/01/14	08/31/19	UT
2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)	09/01/14	08/31/19	UT
2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)	09/01/14	08/31/19	UT
2,2',3,3',5-Pentachlorobiphenyl (BZ-83)	09/01/14	08/31/19	UT
2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)	09/01/14	08/31/19	UT
2,2',3,3',6-Pentachlorobiphenyl (BZ-84)	09/01/14	08/31/19	UT
2,2',3,3'-Tetrachlorobiphenyl (BZ-40)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)	09/01/14	08/31/19	UT
2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)	09/01/14	08/31/19	UT
2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)	09/01/14	08/31/19	UT
2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)	09/01/14	08/31/19	UT
2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)	09/01/14	08/31/19	UT
2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)	09/01/14	08/31/19	UT
2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)	09/01/14	08/31/19	UT
2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)	09/01/14	08/31/19	UT
2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)	09/01/14	08/31/19	UT
2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)	09/01/14	08/31/19	UT
2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)	09/01/14	08/31/19	UT
2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)	09/01/14	08/31/19	UT
2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)	09/01/14	08/31/19	UT
2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)	09/01/14	08/31/19	UT
2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)	09/01/14	08/31/19	UT
2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)	09/01/14	08/31/19	UT
2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)	09/01/14	08/31/19	UT
2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)	09/01/14	08/31/19	UT
2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)	09/01/14	08/31/19	UT
2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)	09/01/14	08/31/19	UT
2,2',3,4,5-Pentachlorobiphenyl (BZ-86)	09/01/14	08/31/19	UT
2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)	09/01/14	08/31/19	UT
2,2',3,4',5-Pentachlorobiphenyl (BZ-90)	09/01/14	08/31/19	UT
2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)	09/01/14	08/31/19	UT
2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)	09/01/14	08/31/19	UT
2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)	09/01/14	08/31/19	UT
2,2',3,4,6-Pentachlorobiphenyl (BZ-88)	09/01/14	08/31/19	UT
2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)	09/01/14	08/31/19	UT
2,2',3,4',6-Pentachlorobiphenyl (BZ-91)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)	09/01/14	08/31/19	UT
2,2',3,4-Tetrachlorobiphenyl (BZ-41)	09/01/14	08/31/19	UT
2,2',3,4'-Tetrachlorobiphenyl (BZ-42)	09/01/14	08/31/19	UT
2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)	09/01/14	08/31/19	UT
2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)	09/01/14	08/31/19	UT
2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)	09/01/14	08/31/19	UT
2,2',3,5,6-Pentachlorobiphenyl (BZ-93)	09/01/14	08/31/19	UT
2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)	09/01/14	08/31/19	UT
2,2',3,5',6-Pentachlorobiphenyl (BZ-95)	09/01/14	08/31/19	UT
2,2',3,5-Tetrachlorobiphenyl (BZ-43)	09/01/14	08/31/19	UT
2,2',3,5'-Tetrachlorobiphenyl (BZ-44)	09/01/14	08/31/19	UT
2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)	09/01/14	08/31/19	UT
2,2',3,6-Tetrachlorobiphenyl (BZ-45)	09/01/14	08/31/19	UT
2,2',3,6'-Tetrachlorobiphenyl (BZ-46)	09/01/14	08/31/19	UT
2,2',3-Trichlorobiphenyl (BZ-16)	09/01/14	08/31/19	UT
2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)	09/01/14	08/31/19	UT
2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)	09/01/14	08/31/19	UT
2,2',4,4',5-Pentachlorobiphenyl (BZ-99)	09/01/14	08/31/19	UT
2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)	09/01/14	08/31/19	UT
2,2',4,4',6-Pentachlorobiphenyl (BZ-100)	09/01/14	08/31/19	UT
2,2',4,4'-Tetrachlorobiphenyl (BZ-47)	09/01/14	08/31/19	UT
2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)	09/01/14	08/31/19	UT
2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)	09/01/14	08/31/19	UT
2,2',4,5',6-Pentachlorobiphenyl (BZ-103)	09/01/14	08/31/19	UT
2,2',4,5-Tetrachlorobiphenyl (BZ-48)	09/01/14	08/31/19	UT
2,2',4,5'-Tetrachlorobiphenyl (BZ-49)	09/01/14	08/31/19	UT
2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)	09/01/14	08/31/19	UT
2,2',4,6-Tetrachlorobiphenyl (BZ-50)	09/01/14	08/31/19	UT
2,2',4,6'-Tetrachlorobiphenyl (BZ-51)	09/01/14	08/31/19	UT
2,2',4-Trichlorobiphenyl (BZ-17)	09/01/14	08/31/19	UT
2,2',5,5'-Tetrachlorobiphenyl (BZ-52)	09/01/14	08/31/19	UT
2,2',5,6'-Tetrachlorobiphenyl (BZ-53)	09/01/14	08/31/19	UT
2,2',5-Trichlorobiphenyl (BZ-18)	09/01/14	08/31/19	UT
2,2',6,6'-Tetrachlorobiphenyl (BZ-54)	09/01/14	08/31/19	UT
2,2',6-Trichlorobiphenyl (BZ-19)	09/01/14	08/31/19	UT
2,2'-Dichlorobiphenyl (BZ-4)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)	09/01/14	08/31/19	UT
2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)	09/01/14	08/31/19	UT
2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)	09/01/14	08/31/19	UT
2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)	09/01/14	08/31/19	UT
2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)	09/01/14	08/31/19	UT
2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)	09/01/14	08/31/19	UT
2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)	09/01/14	08/31/19	UT
2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)	09/01/14	08/31/19	UT
2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)	09/01/14	08/31/19	UT
2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)	09/01/14	08/31/19	UT
2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)	09/01/14	08/31/19	UT
2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)	09/01/14	08/31/19	UT
2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)	09/01/14	08/31/19	UT
2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)	09/01/14	08/31/19	UT
2,3,3',4,5-Pentachlorobiphenyl (BZ-106)	09/01/14	08/31/19	UT
2,3,3',4',5-Pentachlorobiphenyl (BZ-107)	09/01/14	08/31/19	UT
2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)	09/01/14	08/31/19	UT
2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)	09/01/14	08/31/19	UT
2,3,3',4,6-Pentachlorobiphenyl (BZ-109)	09/01/14	08/31/19	UT
2,3,3',4',6-Pentachlorobiphenyl (BZ-110)	09/01/14	08/31/19	UT
2,3,3',4-Tetrachlorobiphenyl (BZ-55)	09/01/14	08/31/19	UT
2,3,3',4'-Tetrachlorobiphenyl (BZ-56)	09/01/14	08/31/19	UT
2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)	09/01/14	08/31/19	UT
2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)	09/01/14	08/31/19	UT
2,3,3',5,6-Pentachlorobiphenyl (BZ-112)	09/01/14	08/31/19	UT
2,3,3',5',6-Pentachlorobiphenyl (BZ-113)	09/01/14	08/31/19	UT
2,3,3',5-Tetrachlorobiphenyl (BZ-57)	09/01/14	08/31/19	UT
2,3,3',5'-Tetrachlorobiphenyl (BZ-58)	09/01/14	08/31/19	UT
2,3,3',6-Tetrachlorobiphenyl (BZ-59)	09/01/14	08/31/19	UT
2,3,3'-Trichlorobiphenyl (BZ-20)	09/01/14	08/31/19	UT
2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)	09/01/14	08/31/19	UT
2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)	09/01/14	08/31/19	UT
2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)	09/01/14	08/31/19	UT
2,3,4,4',5-Pentachlorobiphenyl (BZ-114)	09/01/14	08/31/19	UT
2,3',4,4',5-Pentachlorobiphenyl (BZ-118)	09/01/14	08/31/19	UT
2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)	09/01/14	08/31/19	UT
2,3,4,4',6-Pentachlorobiphenyl (BZ-115)	09/01/14	08/31/19	UT
2,3',4,4',6-Pentachlorobiphenyl (BZ-119)	09/01/14	08/31/19	UT
2,3,4,4'-Tetrachlorobiphenyl (BZ-60)	09/01/14	08/31/19	UT
2,3',4,4'-Tetrachlorobiphenyl (BZ-66)	09/01/14	08/31/19	UT
2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)	09/01/14	08/31/19	UT
2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)	09/01/14	08/31/19	UT
2,3,4,5,6-Pentachlorobiphenyl (BZ-116)	09/01/14	08/31/19	UT
2,3,4',5,6-Pentachlorobiphenyl (BZ-117)	09/01/14	08/31/19	UT
2,3',4,5',6-Pentachlorobiphenyl (BZ-121)	09/01/14	08/31/19	UT
2,3',4',5',6-Pentachlorobiphenyl (BZ-125)	09/01/14	08/31/19	UT
2,3,4,5-Tetrachlorobiphenyl (BZ-61)	09/01/14	08/31/19	UT
2,3,4',5-Tetrachlorobiphenyl (BZ-63)	09/01/14	08/31/19	UT
2,3',4,5'-Tetrachlorobiphenyl (BZ-68)	09/01/14	08/31/19	UT
2,3',4',5-Tetrachlorobiphenyl (BZ-70)	09/01/14	08/31/19	UT
2,3',4',5'-Tetrachlorobiphenyl (BZ-76)	09/01/14	08/31/19	UT
2,3',4,5-Tetrachlorobiphenyl (BZ-67)	09/01/14	08/31/19	UT
2,3,4,6-Tetrachlorobiphenyl (BZ-62)	09/01/14	08/31/19	UT
2,3,4',6-Tetrachlorobiphenyl (BZ-64)	09/01/14	08/31/19	UT
2,3',4,6-Tetrachlorobiphenyl (BZ-69)	09/01/14	08/31/19	UT
2,3',4',6-Tetrachlorobiphenyl (BZ-71)	09/01/14	08/31/19	UT
2,3,4-Trichlorobiphenyl (BZ-21)	09/01/14	08/31/19	UT
2,3,4'-Trichlorobiphenyl (BZ-22)	09/01/14	08/31/19	UT

Cape Fear Analytical, LLC

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Non Potable Water)***			
2,3',4-Trichlorobiphenyl (BZ-25)	09/01/14	08/31/19	UT
2,3',4'-Trichlorobiphenyl (BZ-33)	09/01/14	08/31/19	UT
2,3',5,5'-Tetrachlorobiphenyl (BZ-72)	09/01/14	08/31/19	UT
2,3,5,6-Tetrachlorobiphenyl (BZ-65)	09/01/14	08/31/19	UT
2,3',5',6-Tetrachlorobiphenyl (BZ-73)	09/01/14	08/31/19	UT
2,3,5-Trichlorobiphenyl (BZ-23)	09/01/14	08/31/19	UT
2,3',5-Trichlorobiphenyl (BZ-26)	09/01/14	08/31/19	UT
2,3',5'-Trichlorobiphenyl (BZ-34)	09/01/14	08/31/19	UT
2,3,6-Trichlorobiphenyl (BZ-24)	09/01/14	08/31/19	UT
2,3',6-Trichlorobiphenyl (BZ-27)	09/01/14	08/31/19	UT
2,3-Dichlorobiphenyl (BZ-5)	09/01/14	08/31/19	UT
2,3'-Dichlorobiphenyl (BZ-6)	09/01/14	08/31/19	UT
2,4,4',5-Tetrachlorobiphenyl (BZ-74)	09/01/14	08/31/19	UT
2,4,4',6-Tetrachlorobiphenyl (BZ-75)	09/01/14	08/31/19	UT
2,4,4'-Trichlorobiphenyl (BZ-28)	09/01/14	08/31/19	UT
2,4,5-Trichlorobiphenyl (BZ-29)	09/01/14	08/31/19	UT
2,4',5-Trichlorobiphenyl (BZ-31)	09/01/14	08/31/19	UT
2,4,6-Trichlorobiphenyl (BZ-30)	09/01/14	08/31/19	UT
2,4',6-Trichlorobiphenyl (BZ-32)	09/01/14	08/31/19	UT
2,4-Dichlorobiphenyl (BZ-7)	09/01/14	08/31/19	UT
2,4'-Dichlorobiphenyl (BZ-8)	09/01/14	08/31/19	UT
2,5-Dichlorobiphenyl (BZ-9)	09/01/14	08/31/19	UT
2,6-Dichlorobiphenyl (BZ-10)	09/01/14	08/31/19	UT
2-Chlorobiphenyl (BZ-1)	09/01/14	08/31/19	UT
3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)	09/01/14	08/31/19	UT
3,3',4,4',5-Pentachlorobiphenyl (BZ-126)	09/01/14	08/31/19	UT
3,3',4,4'-Tetrachlorobiphenyl (BZ-77)	09/01/14	08/31/19	UT
3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)	09/01/14	08/31/19	UT
3,3',4,5-Tetrachlorobiphenyl (BZ-78)	09/01/14	08/31/19	UT
3,3',4,5'-Tetrachlorobiphenyl (BZ-79)	09/01/14	08/31/19	UT
3,3',4-Trichlorobiphenyl (BZ-35)	09/01/14	08/31/19	UT
3,3',5,5'-Tetrachlorobiphenyl (BZ-80)	09/01/14	08/31/19	UT
3,3',5-Trichlorobiphenyl (BZ-36)	09/01/14	08/31/19	UT
3,3'-Dichlorobiphenyl (BZ-11)	09/01/14	08/31/19	UT
3,4,4',5-Tetrachlorobiphenyl (BZ-81)	09/01/14	08/31/19	UT
3,4,4'-Trichlorobiphenyl (BZ-37)	09/01/14	08/31/19	UT
3,4,5-Trichlorobiphenyl (BZ-38)	09/01/14	08/31/19	UT
3,4',5-Trichlorobiphenyl (BZ-39)	09/01/14	08/31/19	UT
3,4-Dichlorobiphenyl (BZ-12)	09/01/14	08/31/19	UT
3,4'-Dichlorobiphenyl (BZ-13)	09/01/14	08/31/19	UT
3,5-Dichlorobiphenyl (BZ-14)	09/01/14	08/31/19	UT
3-Chlorobiphenyl (BZ-2)	09/01/14	08/31/19	UT
4,4'-Dichlorobiphenyl (BZ-15)	09/01/14	08/31/19	UT
4-Chlorobiphenyl (BZ-3)	09/01/14	08/31/19	UT
Decachlorobiphenyl (BZ-209)	09/01/14	08/31/19	UT
PCBs	09/01/14	08/31/19	UT

Method EPA 1668C

Program/Matrix: *RCRA (Non Potable Water)*	Start Date	Expires	AB
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)	09/01/14	08/31/19	UT
2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)	09/01/14	08/31/19	UT
2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)	09/01/14	08/31/19	UT
2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)	09/01/14	08/31/19	UT
2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)	09/01/14	08/31/19	UT
2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)	09/01/14	08/31/19	UT
2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)	09/01/14	08/31/19	UT
2,2',3,3',4-Pentachlorobiphenyl (BZ-82)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)	09/01/14	08/31/19	UT
2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)	09/01/14	08/31/19	UT
2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)	09/01/14	08/31/19	UT
2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)	09/01/14	08/31/19	UT
2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)	09/01/14	08/31/19	UT
2,2',3,3',5-Pentachlorobiphenyl (BZ-83)	09/01/14	08/31/19	UT
2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)	09/01/14	08/31/19	UT
2,2',3,3',6-Pentachlorobiphenyl (BZ-84)	09/01/14	08/31/19	UT
2,2',3,3'-Tetrachlorobiphenyl (BZ-40)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)	09/01/14	08/31/19	UT
2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)	09/01/14	08/31/19	UT
2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)	09/01/14	08/31/19	UT
2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)	09/01/14	08/31/19	UT
2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)	09/01/14	08/31/19	UT
2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)	09/01/14	08/31/19	UT
2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)	09/01/14	08/31/19	UT
2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)	09/01/14	08/31/19	UT
2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)	09/01/14	08/31/19	UT
2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)	09/01/14	08/31/19	UT
2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)	09/01/14	08/31/19	UT
2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)	09/01/14	08/31/19	UT
2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)	09/01/14	08/31/19	UT
2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)	09/01/14	08/31/19	UT
2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)	09/01/14	08/31/19	UT
2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)	09/01/14	08/31/19	UT
2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)	09/01/14	08/31/19	UT
2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)	09/01/14	08/31/19	UT
2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)	09/01/14	08/31/19	UT
2,2',3,4,5-Pentachlorobiphenyl (BZ-86)	09/01/14	08/31/19	UT
2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)	09/01/14	08/31/19	UT
2,2',3,4',5-Pentachlorobiphenyl (BZ-90)	09/01/14	08/31/19	UT
2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)	09/01/14	08/31/19	UT
2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)	09/01/14	08/31/19	UT
2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)	09/01/14	08/31/19	UT
2,2',3,4,6-Pentachlorobiphenyl (BZ-88)	09/01/14	08/31/19	UT
2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)	09/01/14	08/31/19	UT
2,2',3,4',6-Pentachlorobiphenyl (BZ-91)	09/01/14	08/31/19	UT
2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)	09/01/14	08/31/19	UT
2,2',3,4-Tetrachlorobiphenyl (BZ-41)	09/01/14	08/31/19	UT
2,2',3,4'-Tetrachlorobiphenyl (BZ-42)	09/01/14	08/31/19	UT
2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)	09/01/14	08/31/19	UT
2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)	09/01/14	08/31/19	UT
2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)	09/01/14	08/31/19	UT
2,2',3,5,6-Pentachlorobiphenyl (BZ-93)	09/01/14	08/31/19	UT
2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)	09/01/14	08/31/19	UT
2,2',3,5',6-Pentachlorobiphenyl (BZ-95)	09/01/14	08/31/19	UT
2,2',3,5-Tetrachlorobiphenyl (BZ-43)	09/01/14	08/31/19	UT
2,2',3,5'-Tetrachlorobiphenyl (BZ-44)	09/01/14	08/31/19	UT
2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)	09/01/14	08/31/19	UT
2,2',3,6-Tetrachlorobiphenyl (BZ-45)	09/01/14	08/31/19	UT
2,2',3,6'-Tetrachlorobiphenyl (BZ-46)	09/01/14	08/31/19	UT
2,2',3-Trichlorobiphenyl (BZ-16)	09/01/14	08/31/19	UT
2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)	09/01/14	08/31/19	UT
2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)	09/01/14	08/31/19	UT
2,2',4,4',5-Pentachlorobiphenyl (BZ-99)	09/01/14	08/31/19	UT
2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)	09/01/14	08/31/19	UT
2,2',4,4',6-Pentachlorobiphenyl (BZ-100)	09/01/14	08/31/19	UT
2,2',4,4'-Tetrachlorobiphenyl (BZ-47)	09/01/14	08/31/19	UT
2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)	09/01/14	08/31/19	UT
2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)	09/01/14	08/31/19	UT
2,2',4,5',6-Pentachlorobiphenyl (BZ-103)	09/01/14	08/31/19	UT
2,2',4,5-Tetrachlorobiphenyl (BZ-48)	09/01/14	08/31/19	UT
2,2',4,5'-Tetrachlorobiphenyl (BZ-49)	09/01/14	08/31/19	UT
2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)	09/01/14	08/31/19	UT
2,2',4,6-Tetrachlorobiphenyl (BZ-50)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
2,2',4,6'-Tetrachlorobiphenyl (BZ-51)	09/01/14	08/31/19	UT
2,2',4-Trichlorobiphenyl (BZ-17)	09/01/14	08/31/19	UT
2,2',5,5'-Tetrachlorobiphenyl (BZ-52)	09/01/14	08/31/19	UT
2,2',5,6'-Tetrachlorobiphenyl (BZ-53)	09/01/14	08/31/19	UT
2,2',5-Trichlorobiphenyl (BZ-18)	09/01/14	08/31/19	UT
2,2',6,6'-Tetrachlorobiphenyl (BZ-54)	09/01/14	08/31/19	UT
2,2',6-Trichlorobiphenyl (BZ-19)	09/01/14	08/31/19	UT
2,2'-Dichlorobiphenyl (BZ-4)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)	09/01/14	08/31/19	UT
2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)	09/01/14	08/31/19	UT
2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)	09/01/14	08/31/19	UT
2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)	09/01/14	08/31/19	UT
2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)	09/01/14	08/31/19	UT
2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)	09/01/14	08/31/19	UT
2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)	09/01/14	08/31/19	UT
2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)	09/01/14	08/31/19	UT
2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)	09/01/14	08/31/19	UT
2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)	09/01/14	08/31/19	UT
2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)	09/01/14	08/31/19	UT
2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)	09/01/14	08/31/19	UT
2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)	09/01/14	08/31/19	UT
2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)	09/01/14	08/31/19	UT
2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)	09/01/14	08/31/19	UT
2,3,3',4,5-Pentachlorobiphenyl (BZ-106)	09/01/14	08/31/19	UT
2,3,3',4',5-Pentachlorobiphenyl (BZ-107)	09/01/14	08/31/19	UT
2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)	09/01/14	08/31/19	UT
2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)	09/01/14	08/31/19	UT
2,3,3',4,6-Pentachlorobiphenyl (BZ-109)	09/01/14	08/31/19	UT
2,3,3',4',6-Pentachlorobiphenyl (BZ-110)	09/01/14	08/31/19	UT
2,3,3',4-Tetrachlorobiphenyl (BZ-55)	09/01/14	08/31/19	UT
2,3,3',4'-Tetrachlorobiphenyl (BZ-56)	09/01/14	08/31/19	UT
2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)	09/01/14	08/31/19	UT
2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)	09/01/14	08/31/19	UT
2,3,3',5,6-Pentachlorobiphenyl (BZ-112)	09/01/14	08/31/19	UT
2,3,3',5',6-Pentachlorobiphenyl (BZ-113)	09/01/14	08/31/19	UT
2,3,3',5-Tetrachlorobiphenyl (BZ-57)	09/01/14	08/31/19	UT
2,3,3',5'-Tetrachlorobiphenyl (BZ-58)	09/01/14	08/31/19	UT
2,3,3',6-Tetrachlorobiphenyl (BZ-59)	09/01/14	08/31/19	UT
2,3,3'-Trichlorobiphenyl (BZ-20)	09/01/14	08/31/19	UT
2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)	09/01/14	08/31/19	UT
2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)	09/01/14	08/31/19	UT
2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)	09/01/14	08/31/19	UT
2,3,4,4',5-Pentachlorobiphenyl (BZ-114)	09/01/14	08/31/19	UT
2,3',4,4',5-Pentachlorobiphenyl (BZ-118)	09/01/14	08/31/19	UT
2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)	09/01/14	08/31/19	UT
2,3,4,4',6-Pentachlorobiphenyl (BZ-115)	09/01/14	08/31/19	UT
2,3',4,4',6-Pentachlorobiphenyl (BZ-119)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Non Potable Water)***

	Start Date	Expires	AB
2,3,4,4'-Tetrachlorobiphenyl (BZ-60)	09/01/14	08/31/19	UT
2,3',4,4'-Tetrachlorobiphenyl (BZ-66)	09/01/14	08/31/19	UT
2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)	09/01/14	08/31/19	UT
2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)	09/01/14	08/31/19	UT
2,3,4,5,6-Pentachlorobiphenyl (BZ-116)	09/01/14	08/31/19	UT
2,3,4',5,6-Pentachlorobiphenyl (BZ-117)	09/01/14	08/31/19	UT
2,3',4,5',6-Pentachlorobiphenyl (BZ-121)	09/01/14	08/31/19	UT
2,3',4',5',6-Pentachlorobiphenyl (BZ-125)	09/01/14	08/31/19	UT
2,3,4,5-Tetrachlorobiphenyl (BZ-61)	09/01/14	08/31/19	UT
2,3,4',5-Tetrachlorobiphenyl (BZ-63)	09/01/14	08/31/19	UT
2,3',4,5'-Tetrachlorobiphenyl (BZ-68)	09/01/14	08/31/19	UT
2,3',4',5-Tetrachlorobiphenyl (BZ-70)	09/01/14	08/31/19	UT
2,3',4',5'-Tetrachlorobiphenyl (BZ-76)	09/01/14	08/31/19	UT
2,3',4,5-Tetrachlorobiphenyl (BZ-67)	09/01/14	08/31/19	UT
2,3,4,6-Tetrachlorobiphenyl (BZ-62)	09/01/14	08/31/19	UT
2,3,4',6-Tetrachlorobiphenyl (BZ-64)	09/01/14	08/31/19	UT
2,3',4,6-Tetrachlorobiphenyl (BZ-69)	09/01/14	08/31/19	UT
2,3',4',6-Tetrachlorobiphenyl (BZ-71)	09/01/14	08/31/19	UT
2,3,4-Trichlorobiphenyl (BZ-21)	09/01/14	08/31/19	UT
2,3,4'-Trichlorobiphenyl (BZ-22)	09/01/14	08/31/19	UT
2,3',4-Trichlorobiphenyl (BZ-25)	09/01/14	08/31/19	UT
2,3',4'-Trichlorobiphenyl (BZ-33)	09/01/14	08/31/19	UT
2,3',5,5'-Tetrachlorobiphenyl (BZ-72)	09/01/14	08/31/19	UT
2,3,5,6-Tetrachlorobiphenyl (BZ-65)	09/01/14	08/31/19	UT
2,3',5',6-Tetrachlorobiphenyl (BZ-73)	09/01/14	08/31/19	UT
2,3,5-Trichlorobiphenyl (BZ-23)	09/01/14	08/31/19	UT
2,3',5-Trichlorobiphenyl (BZ-26)	09/01/14	08/31/19	UT
2,3',5'-Trichlorobiphenyl (BZ-34)	09/01/14	08/31/19	UT
2,3,6-Trichlorobiphenyl (BZ-24)	09/01/14	08/31/19	UT
2,3',6-Trichlorobiphenyl (BZ-27)	09/01/14	08/31/19	UT
2,3-Dichlorobiphenyl (BZ-5)	09/01/14	08/31/19	UT
2,3'-Dichlorobiphenyl (BZ-6)	09/01/14	08/31/19	UT
2,4,4',5-Tetrachlorobiphenyl (BZ-74)	09/01/14	08/31/19	UT
2,4,4',6-Tetrachlorobiphenyl (BZ-75)	09/01/14	08/31/19	UT
2,4,4'-Trichlorobiphenyl (BZ-28)	09/01/14	08/31/19	UT
2,4,5-Trichlorobiphenyl (BZ-29)	09/01/14	08/31/19	UT
2,4',5-Trichlorobiphenyl (BZ-31)	09/01/14	08/31/19	UT
2,4,6-Trichlorobiphenyl (BZ-30)	09/01/14	08/31/19	UT
2,4',6-Trichlorobiphenyl (BZ-32)	09/01/14	08/31/19	UT
2,4-Dichlorobiphenyl (BZ-7)	09/01/14	08/31/19	UT
2,4'-Dichlorobiphenyl (BZ-8)	09/01/14	08/31/19	UT
2,5-Dichlorobiphenyl (BZ-9)	09/01/14	08/31/19	UT
2,6-Dichlorobiphenyl (BZ-10)	09/01/14	08/31/19	UT
2-Chlorobiphenyl (BZ-1)	09/01/14	08/31/19	UT
3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)	09/01/14	08/31/19	UT
3,3',4,4',5-Pentachlorobiphenyl (BZ-126)	09/01/14	08/31/19	UT
3,3',4,4'-Tetrachlorobiphenyl (BZ-77)	09/01/14	08/31/19	UT
3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)	09/01/14	08/31/19	UT

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Non Potable Water)***			
3,3',4,5-Tetrachlorobiphenyl (BZ-78)	09/01/14	08/31/19	UT
3,3',4,5'-Tetrachlorobiphenyl (BZ-79)	09/01/14	08/31/19	UT
3,3',4-Trichlorobiphenyl (BZ-35)	09/01/14	08/31/19	UT
3,3',5,5'-Tetrachlorobiphenyl (BZ-80)	09/01/14	08/31/19	UT
3,3',5-Trichlorobiphenyl (BZ-36)	09/01/14	08/31/19	UT
3,3'-Dichlorobiphenyl (BZ-11)	09/01/14	08/31/19	UT
3,4,4',5-Tetrachlorobiphenyl (BZ-81)	09/01/14	08/31/19	UT
3,4,4'-Trichlorobiphenyl (BZ-37)	09/01/14	08/31/19	UT
3,4,5-Trichlorobiphenyl (BZ-38)	09/01/14	08/31/19	UT
3,4',5-Trichlorobiphenyl (BZ-39)	09/01/14	08/31/19	UT
3,4-Dichlorobiphenyl (BZ-12)	09/01/14	08/31/19	UT
3,4'-Dichlorobiphenyl (BZ-13)	09/01/14	08/31/19	UT
3,5-Dichlorobiphenyl (BZ-14)	09/01/14	08/31/19	UT
3-Chlorobiphenyl (BZ-2)	09/01/14	08/31/19	UT
4,4'-Dichlorobiphenyl (BZ-15)	09/01/14	08/31/19	UT
4-Chlorobiphenyl (BZ-3)	09/01/14	08/31/19	UT
Decachlorobiphenyl (BZ-209)	09/01/14	08/31/19	UT
PCBs	09/01/14	08/31/19	UT
Method EPA 3520C			
Continuous Liquid-Liquid Extraction	09/01/14	08/31/19	UT
Preparation/Extraction	09/01/14	08/31/19	UT
Method EPA 3620B			
Florisil Clean-up	09/01/14	08/31/19	UT
Preparation/Extraction	09/01/14	08/31/19	UT
Method EPA 3630C			
Preparation/Extraction	09/01/14	08/31/19	UT
Silica Gel Clean-up	09/01/14	08/31/19	UT
Method EPA 8290A			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT

Cape Fear Analytical, LLC

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Non Potable Water)***			
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
Method EPA 1613B			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT
Method EPA 1668A			
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)	09/01/14	08/31/19	UT
2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)	09/01/14	08/31/19	UT
2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)	09/01/14	08/31/19	UT
2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)	09/01/14	08/31/19	UT
2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)	09/01/14	08/31/19	UT
2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)	09/01/14	08/31/19	UT
2,2',3,3',4-Pentachlorobiphenyl (BZ-82)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)	09/01/14	08/31/19	UT
2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)	09/01/14	08/31/19	UT
2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)	09/01/14	08/31/19	UT
2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)	09/01/14	08/31/19	UT
2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)	09/01/14	08/31/19	UT
2,2',3,3',5-Pentachlorobiphenyl (BZ-83)	09/01/14	08/31/19	UT
2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)	09/01/14	08/31/19	UT
2,2',3,3',6-Pentachlorobiphenyl (BZ-84)	09/01/14	08/31/19	UT
2,2',3,3'-Tetrachlorobiphenyl (BZ-40)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)	09/01/14	08/31/19	UT
2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)	09/01/14	08/31/19	UT
2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)	09/01/14	08/31/19	UT
2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)	09/01/14	08/31/19	UT
2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)	09/01/14	08/31/19	UT
2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)	09/01/14	08/31/19	UT
2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)	09/01/14	08/31/19	UT
2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)	09/01/14	08/31/19	UT
2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)	09/01/14	08/31/19	UT
2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)	09/01/14	08/31/19	UT
2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)	09/01/14	08/31/19	UT
2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)	09/01/14	08/31/19	UT
2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)	09/01/14	08/31/19	UT
2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)	09/01/14	08/31/19	UT
2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)	09/01/14	08/31/19	UT
2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)	09/01/14	08/31/19	UT
2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)	09/01/14	08/31/19	UT
2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)	09/01/14	08/31/19	UT
2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)	09/01/14	08/31/19	UT
2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)	09/01/14	08/31/19	UT
2,2',3,4,5-Pentachlorobiphenyl (BZ-86)	09/01/14	08/31/19	UT
2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)	09/01/14	08/31/19	UT
2,2',3,4',5-Pentachlorobiphenyl (BZ-90)	09/01/14	08/31/19	UT
2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)	09/01/14	08/31/19	UT
2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)	09/01/14	08/31/19	UT
2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)	09/01/14	08/31/19	UT
2,2',3,4,6-Pentachlorobiphenyl (BZ-88)	09/01/14	08/31/19	UT
2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)	09/01/14	08/31/19	UT
2,2',3,4',6-Pentachlorobiphenyl (BZ-91)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)	09/01/14	08/31/19	UT
2,2',3,4-Tetrachlorobiphenyl (BZ-41)	09/01/14	08/31/19	UT
2,2',3,4'-Tetrachlorobiphenyl (BZ-42)	09/01/14	08/31/19	UT
2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)	09/01/14	08/31/19	UT
2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)	09/01/14	08/31/19	UT
2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)	09/01/14	08/31/19	UT
2,2',3,5,6-Pentachlorobiphenyl (BZ-93)	09/01/14	08/31/19	UT
2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)	09/01/14	08/31/19	UT
2,2',3,5',6-Pentachlorobiphenyl (BZ-95)	09/01/14	08/31/19	UT
2,2',3,5-Tetrachlorobiphenyl (BZ-43)	09/01/14	08/31/19	UT
2,2',3,5'-Tetrachlorobiphenyl (BZ-44)	09/01/14	08/31/19	UT
2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)	09/01/14	08/31/19	UT
2,2',3,6-Tetrachlorobiphenyl (BZ-45)	09/01/14	08/31/19	UT
2,2',3,6'-Tetrachlorobiphenyl (BZ-46)	09/01/14	08/31/19	UT
2,2',3-Trichlorobiphenyl (BZ-16)	09/01/14	08/31/19	UT
2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)	09/01/14	08/31/19	UT
2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)	09/01/14	08/31/19	UT
2,2',4,4',5-Pentachlorobiphenyl (BZ-99)	09/01/14	08/31/19	UT
2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)	09/01/14	08/31/19	UT
2,2',4,4',6-Pentachlorobiphenyl (BZ-100)	09/01/14	08/31/19	UT
2,2',4,4'-Tetrachlorobiphenyl (BZ-47)	09/01/14	08/31/19	UT
2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)	09/01/14	08/31/19	UT
2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)	09/01/14	08/31/19	UT
2,2',4,5',6-Pentachlorobiphenyl (BZ-103)	09/01/14	08/31/19	UT
2,2',4,5-Tetrachlorobiphenyl (BZ-48)	09/01/14	08/31/19	UT
2,2',4,5'-Tetrachlorobiphenyl (BZ-49)	09/01/14	08/31/19	UT
2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)	09/01/14	08/31/19	UT
2,2',4,6-Tetrachlorobiphenyl (BZ-50)	09/01/14	08/31/19	UT
2,2',4,6'-Tetrachlorobiphenyl (BZ-51)	09/01/14	08/31/19	UT
2,2',4-Trichlorobiphenyl (BZ-17)	09/01/14	08/31/19	UT
2,2',5,5'-Tetrachlorobiphenyl (BZ-52)	09/01/14	08/31/19	UT
2,2',5,6'-Tetrachlorobiphenyl (BZ-53)	09/01/14	08/31/19	UT
2,2',5-Trichlorobiphenyl (BZ-18)	09/01/14	08/31/19	UT
2,2',6,6'-Tetrachlorobiphenyl (BZ-54)	09/01/14	08/31/19	UT
2,2',6-Trichlorobiphenyl (BZ-19)	09/01/14	08/31/19	UT
2,2'-Dichlorobiphenyl (BZ-4)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)	09/01/14	08/31/19	UT
2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)	09/01/14	08/31/19	UT
2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)	09/01/14	08/31/19	UT
2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)	09/01/14	08/31/19	UT
2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)	09/01/14	08/31/19	UT
2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)	09/01/14	08/31/19	UT
2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)	09/01/14	08/31/19	UT
2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)	09/01/14	08/31/19	UT
2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)	09/01/14	08/31/19	UT
2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)	09/01/14	08/31/19	UT
2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)	09/01/14	08/31/19	UT

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Solid & Hazardous Material)***			
2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)	09/01/14	08/31/19	UT
2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)	09/01/14	08/31/19	UT
2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)	09/01/14	08/31/19	UT
2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)	09/01/14	08/31/19	UT
2,3,3',4,5-Pentachlorobiphenyl (BZ-106)	09/01/14	08/31/19	UT
2,3,3',4',5-Pentachlorobiphenyl (BZ-107)	09/01/14	08/31/19	UT
2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)	09/01/14	08/31/19	UT
2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)	09/01/14	08/31/19	UT
2,3,3',4,6-Pentachlorobiphenyl (BZ-109)	09/01/14	08/31/19	UT
2,3,3',4',6-Pentachlorobiphenyl (BZ-110)	09/01/14	08/31/19	UT
2,3,3',4-Tetrachlorobiphenyl (BZ-55)	09/01/14	08/31/19	UT
2,3,3',4'-Tetrachlorobiphenyl (BZ-56)	09/01/14	08/31/19	UT
2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)	09/01/14	08/31/19	UT
2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)	09/01/14	08/31/19	UT
2,3,3',5,6-Pentachlorobiphenyl (BZ-112)	09/01/14	08/31/19	UT
2,3,3',5',6-Pentachlorobiphenyl (BZ-113)	09/01/14	08/31/19	UT
2,3,3',5-Tetrachlorobiphenyl (BZ-57)	09/01/14	08/31/19	UT
2,3,3',5'-Tetrachlorobiphenyl (BZ-58)	09/01/14	08/31/19	UT
2,3,3',6-Tetrachlorobiphenyl (BZ-59)	09/01/14	08/31/19	UT
2,3,3'-Trichlorobiphenyl (BZ-20)	09/01/14	08/31/19	UT
2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)	09/01/14	08/31/19	UT
2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)	09/01/14	08/31/19	UT
2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)	09/01/14	08/31/19	UT
2,3,4,4',5-Pentachlorobiphenyl (BZ-114)	09/01/14	08/31/19	UT
2,3',4,4',5-Pentachlorobiphenyl (BZ-118)	09/01/14	08/31/19	UT
2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)	09/01/14	08/31/19	UT
2,3,4,4',6-Pentachlorobiphenyl (BZ-115)	09/01/14	08/31/19	UT
2,3',4,4',6-Pentachlorobiphenyl (BZ-119)	09/01/14	08/31/19	UT
2,3,4,4'-Tetrachlorobiphenyl (BZ-60)	09/01/14	08/31/19	UT
2,3',4,4'-Tetrachlorobiphenyl (BZ-66)	09/01/14	08/31/19	UT
2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)	09/01/14	08/31/19	UT
2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)	09/01/14	08/31/19	UT
2,3,4,5,6-Pentachlorobiphenyl (BZ-116)	09/01/14	08/31/19	UT
2,3,4',5,6-Pentachlorobiphenyl (BZ-117)	09/01/14	08/31/19	UT
2,3',4,5',6-Pentachlorobiphenyl (BZ-121)	09/01/14	08/31/19	UT
2,3',4',5',6-Pentachlorobiphenyl (BZ-125)	09/01/14	08/31/19	UT
2,3,4,5-Tetrachlorobiphenyl (BZ-61)	09/01/14	08/31/19	UT
2,3,4',5-Tetrachlorobiphenyl (BZ-63)	09/01/14	08/31/19	UT
2,3',4,5'-Tetrachlorobiphenyl (BZ-68)	09/01/14	08/31/19	UT
2,3',4',5-Tetrachlorobiphenyl (BZ-70)	09/01/14	08/31/19	UT
2,3',4',5'-Tetrachlorobiphenyl (BZ-76)	09/01/14	08/31/19	UT
2,3',4,5-Tetrachlorobiphenyl (BZ-67)	09/01/14	08/31/19	UT
2,3,4,6-Tetrachlorobiphenyl (BZ-62)	09/01/14	08/31/19	UT
2,3,4',6-Tetrachlorobiphenyl (BZ-64)	09/01/14	08/31/19	UT
2,3',4,6-Tetrachlorobiphenyl (BZ-69)	09/01/14	08/31/19	UT
2,3',4',6-Tetrachlorobiphenyl (BZ-71)	09/01/14	08/31/19	UT
2,3,4-Trichlorobiphenyl (BZ-21)	09/01/14	08/31/19	UT
2,3,4'-Trichlorobiphenyl (BZ-22)	09/01/14	08/31/19	UT

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Solid & Hazardous Material)***			
2,3',4-Trichlorobiphenyl (BZ-25)	09/01/14	08/31/19	UT
2,3',4'-Trichlorobiphenyl (BZ-33)	09/01/14	08/31/19	UT
2,3',5,5'-Tetrachlorobiphenyl (BZ-72)	09/01/14	08/31/19	UT
2,3,5,6-Tetrachlorobiphenyl (BZ-65)	09/01/14	08/31/19	UT
2,3',5',6-Tetrachlorobiphenyl (BZ-73)	09/01/14	08/31/19	UT
2,3,5-Trichlorobiphenyl (BZ-23)	09/01/14	08/31/19	UT
2,3',5-Trichlorobiphenyl (BZ-26)	09/01/14	08/31/19	UT
2,3',5'-Trichlorobiphenyl (BZ-34)	09/01/14	08/31/19	UT
2,3,6-Trichlorobiphenyl (BZ-24)	09/01/14	08/31/19	UT
2,3',6-Trichlorobiphenyl (BZ-27)	09/01/14	08/31/19	UT
2,3-Dichlorobiphenyl (BZ-5)	09/01/14	08/31/19	UT
2,3'-Dichlorobiphenyl (BZ-6)	09/01/14	08/31/19	UT
2,4,4',5-Tetrachlorobiphenyl (BZ-74)	09/01/14	08/31/19	UT
2,4,4',6-Tetrachlorobiphenyl (BZ-75)	09/01/14	08/31/19	UT
2,4,4'-Trichlorobiphenyl (BZ-28)	09/01/14	08/31/19	UT
2,4,5-Trichlorobiphenyl (BZ-29)	09/01/14	08/31/19	UT
2,4',5-Trichlorobiphenyl (BZ-31)	09/01/14	08/31/19	UT
2,4,6-Trichlorobiphenyl (BZ-30)	09/01/14	08/31/19	UT
2,4',6-Trichlorobiphenyl (BZ-32)	09/01/14	08/31/19	UT
2,4-Dichlorobiphenyl (BZ-7)	09/01/14	08/31/19	UT
2,4'-Dichlorobiphenyl (BZ-8)	09/01/14	08/31/19	UT
2,5-Dichlorobiphenyl (BZ-9)	09/01/14	08/31/19	UT
2,6-Dichlorobiphenyl (BZ-10)	09/01/14	08/31/19	UT
2-Chlorobiphenyl (BZ-1)	09/01/14	08/31/19	UT
3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)	09/01/14	08/31/19	UT
3,3',4,4',5-Pentachlorobiphenyl (BZ-126)	09/01/14	08/31/19	UT
3,3',4,4'-Tetrachlorobiphenyl (BZ-77)	09/01/14	08/31/19	UT
3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)	09/01/14	08/31/19	UT
3,3',4,5-Tetrachlorobiphenyl (BZ-78)	09/01/14	08/31/19	UT
3,3',4,5'-Tetrachlorobiphenyl (BZ-79)	09/01/14	08/31/19	UT
3,3',4-Trichlorobiphenyl (BZ-35)	09/01/14	08/31/19	UT
3,3',5,5'-Tetrachlorobiphenyl (BZ-80)	09/01/14	08/31/19	UT
3,3',5-Trichlorobiphenyl (BZ-36)	09/01/14	08/31/19	UT
3,3'-Dichlorobiphenyl (BZ-11)	09/01/14	08/31/19	UT
3,4,4',5-Tetrachlorobiphenyl (BZ-81)	09/01/14	08/31/19	UT
3,4,4'-Trichlorobiphenyl (BZ-37)	09/01/14	08/31/19	UT
3,4,5-Trichlorobiphenyl (BZ-38)	09/01/14	08/31/19	UT
3,4',5-Trichlorobiphenyl (BZ-39)	09/01/14	08/31/19	UT
3,4-Dichlorobiphenyl (BZ-12)	09/01/14	08/31/19	UT
3,4'-Dichlorobiphenyl (BZ-13)	09/01/14	08/31/19	UT
3,5-Dichlorobiphenyl (BZ-14)	09/01/14	08/31/19	UT
3-Chlorobiphenyl (BZ-2)	09/01/14	08/31/19	UT
4,4'-Dichlorobiphenyl (BZ-15)	09/01/14	08/31/19	UT
4-Chlorobiphenyl (BZ-3)	09/01/14	08/31/19	UT
Decachlorobiphenyl (BZ-209)	09/01/14	08/31/19	UT
PCBs	09/01/14	08/31/19	UT

Method EPA 1668C

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)	09/01/14	08/31/19	UT
2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)	09/01/14	08/31/19	UT
2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)	09/01/14	08/31/19	UT
2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)	09/01/14	08/31/19	UT
2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)	09/01/14	08/31/19	UT
2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)	09/01/14	08/31/19	UT
2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)	09/01/14	08/31/19	UT
2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)	09/01/14	08/31/19	UT
2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)	09/01/14	08/31/19	UT
2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)	09/01/14	08/31/19	UT
2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)	09/01/14	08/31/19	UT
2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)	09/01/14	08/31/19	UT
2,2',3,3',4-Pentachlorobiphenyl (BZ-82)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)	09/01/14	08/31/19	UT
2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)	09/01/14	08/31/19	UT
2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)	09/01/14	08/31/19	UT
2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)	09/01/14	08/31/19	UT
2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)	09/01/14	08/31/19	UT
2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)	09/01/14	08/31/19	UT
2,2',3,3',5-Pentachlorobiphenyl (BZ-83)	09/01/14	08/31/19	UT
2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)	09/01/14	08/31/19	UT
2,2',3,3',6-Pentachlorobiphenyl (BZ-84)	09/01/14	08/31/19	UT
2,2',3,3'-Tetrachlorobiphenyl (BZ-40)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)	09/01/14	08/31/19	UT
2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)	09/01/14	08/31/19	UT
2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)	09/01/14	08/31/19	UT
2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)	09/01/14	08/31/19	UT
2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)	09/01/14	08/31/19	UT
2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)	09/01/14	08/31/19	UT
2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)	09/01/14	08/31/19	UT
2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)	09/01/14	08/31/19	UT
2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)	09/01/14	08/31/19	UT
2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)	09/01/14	08/31/19	UT
2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)	09/01/14	08/31/19	UT
2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)	09/01/14	08/31/19	UT
2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)	09/01/14	08/31/19	UT
2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)	09/01/14	08/31/19	UT
2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)	09/01/14	08/31/19	UT
2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)	09/01/14	08/31/19	UT
2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)	09/01/14	08/31/19	UT
2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)	09/01/14	08/31/19	UT
2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)	09/01/14	08/31/19	UT
2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)	09/01/14	08/31/19	UT
2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)	09/01/14	08/31/19	UT
2,2',3,4,5-Pentachlorobiphenyl (BZ-86)	09/01/14	08/31/19	UT
2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)	09/01/14	08/31/19	UT
2,2',3,4',5-Pentachlorobiphenyl (BZ-90)	09/01/14	08/31/19	UT
2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)	09/01/14	08/31/19	UT
2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)	09/01/14	08/31/19	UT
2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)	09/01/14	08/31/19	UT
2,2',3,4,6-Pentachlorobiphenyl (BZ-88)	09/01/14	08/31/19	UT
2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)	09/01/14	08/31/19	UT
2,2',3,4',6-Pentachlorobiphenyl (BZ-91)	09/01/14	08/31/19	UT
2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)	09/01/14	08/31/19	UT
2,2',3,4-Tetrachlorobiphenyl (BZ-41)	09/01/14	08/31/19	UT
2,2',3,4'-Tetrachlorobiphenyl (BZ-42)	09/01/14	08/31/19	UT
2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)	09/01/14	08/31/19	UT
2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)	09/01/14	08/31/19	UT
2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)	09/01/14	08/31/19	UT
2,2',3,5,6-Pentachlorobiphenyl (BZ-93)	09/01/14	08/31/19	UT
2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)	09/01/14	08/31/19	UT
2,2',3,5',6-Pentachlorobiphenyl (BZ-95)	09/01/14	08/31/19	UT
2,2',3,5-Tetrachlorobiphenyl (BZ-43)	09/01/14	08/31/19	UT
2,2',3,5'-Tetrachlorobiphenyl (BZ-44)	09/01/14	08/31/19	UT
2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)	09/01/14	08/31/19	UT
2,2',3,6-Tetrachlorobiphenyl (BZ-45)	09/01/14	08/31/19	UT
2,2',3,6'-Tetrachlorobiphenyl (BZ-46)	09/01/14	08/31/19	UT
2,2',3-Trichlorobiphenyl (BZ-16)	09/01/14	08/31/19	UT
2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)	09/01/14	08/31/19	UT
2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)	09/01/14	08/31/19	UT
2,2',4,4',5-Pentachlorobiphenyl (BZ-99)	09/01/14	08/31/19	UT
2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)	09/01/14	08/31/19	UT
2,2',4,4',6-Pentachlorobiphenyl (BZ-100)	09/01/14	08/31/19	UT
2,2',4,4'-Tetrachlorobiphenyl (BZ-47)	09/01/14	08/31/19	UT
2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)	09/01/14	08/31/19	UT
2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)	09/01/14	08/31/19	UT
2,2',4,5',6-Pentachlorobiphenyl (BZ-103)	09/01/14	08/31/19	UT
2,2',4,5-Tetrachlorobiphenyl (BZ-48)	09/01/14	08/31/19	UT
2,2',4,5'-Tetrachlorobiphenyl (BZ-49)	09/01/14	08/31/19	UT
2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)	09/01/14	08/31/19	UT
2,2',4,6-Tetrachlorobiphenyl (BZ-50)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
2,2',4,6'-Tetrachlorobiphenyl (BZ-51)	09/01/14	08/31/19	UT
2,2',4-Trichlorobiphenyl (BZ-17)	09/01/14	08/31/19	UT
2,2',5,5'-Tetrachlorobiphenyl (BZ-52)	09/01/14	08/31/19	UT
2,2',5,6'-Tetrachlorobiphenyl (BZ-53)	09/01/14	08/31/19	UT
2,2',5-Trichlorobiphenyl (BZ-18)	09/01/14	08/31/19	UT
2,2',6,6'-Tetrachlorobiphenyl (BZ-54)	09/01/14	08/31/19	UT
2,2',6-Trichlorobiphenyl (BZ-19)	09/01/14	08/31/19	UT
2,2'-Dichlorobiphenyl (BZ-4)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)	09/01/14	08/31/19	UT
2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)	09/01/14	08/31/19	UT
2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)	09/01/14	08/31/19	UT
2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)	09/01/14	08/31/19	UT
2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)	09/01/14	08/31/19	UT
2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)	09/01/14	08/31/19	UT
2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)	09/01/14	08/31/19	UT
2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)	09/01/14	08/31/19	UT
2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)	09/01/14	08/31/19	UT
2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)	09/01/14	08/31/19	UT
2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)	09/01/14	08/31/19	UT
2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)	09/01/14	08/31/19	UT
2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)	09/01/14	08/31/19	UT
2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)	09/01/14	08/31/19	UT
2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)	09/01/14	08/31/19	UT
2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)	09/01/14	08/31/19	UT
2,3,3',4,5-Pentachlorobiphenyl (BZ-106)	09/01/14	08/31/19	UT
2,3,3',4',5-Pentachlorobiphenyl (BZ-107)	09/01/14	08/31/19	UT
2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)	09/01/14	08/31/19	UT
2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)	09/01/14	08/31/19	UT
2,3,3',4,6-Pentachlorobiphenyl (BZ-109)	09/01/14	08/31/19	UT
2,3,3',4',6-Pentachlorobiphenyl (BZ-110)	09/01/14	08/31/19	UT
2,3,3',4-Tetrachlorobiphenyl (BZ-55)	09/01/14	08/31/19	UT
2,3,3',4'-Tetrachlorobiphenyl (BZ-56)	09/01/14	08/31/19	UT
2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)	09/01/14	08/31/19	UT
2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)	09/01/14	08/31/19	UT
2,3,3',5,6-Pentachlorobiphenyl (BZ-112)	09/01/14	08/31/19	UT
2,3,3',5',6-Pentachlorobiphenyl (BZ-113)	09/01/14	08/31/19	UT
2,3,3',5-Tetrachlorobiphenyl (BZ-57)	09/01/14	08/31/19	UT
2,3,3',5'-Tetrachlorobiphenyl (BZ-58)	09/01/14	08/31/19	UT
2,3,3',6-Tetrachlorobiphenyl (BZ-59)	09/01/14	08/31/19	UT
2,3,3'-Trichlorobiphenyl (BZ-20)	09/01/14	08/31/19	UT
2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)	09/01/14	08/31/19	UT
2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)	09/01/14	08/31/19	UT
2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)	09/01/14	08/31/19	UT
2,3,4,4',5-Pentachlorobiphenyl (BZ-114)	09/01/14	08/31/19	UT
2,3',4,4',5-Pentachlorobiphenyl (BZ-118)	09/01/14	08/31/19	UT
2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)	09/01/14	08/31/19	UT
2,3,4,4',6-Pentachlorobiphenyl (BZ-115)	09/01/14	08/31/19	UT
2,3',4,4',6-Pentachlorobiphenyl (BZ-119)	09/01/14	08/31/19	UT

Program/Matrix: ***RCRA (Solid & Hazardous Material)***

	Start Date	Expires	AB
2,3,4,4'-Tetrachlorobiphenyl (BZ-60)	09/01/14	08/31/19	UT
2,3',4,4'-Tetrachlorobiphenyl (BZ-66)	09/01/14	08/31/19	UT
2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)	09/01/14	08/31/19	UT
2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)	09/01/14	08/31/19	UT
2,3,4,5,6-Pentachlorobiphenyl (BZ-116)	09/01/14	08/31/19	UT
2,3,4',5,6-Pentachlorobiphenyl (BZ-117)	09/01/14	08/31/19	UT
2,3',4,5',6-Pentachlorobiphenyl (BZ-121)	09/01/14	08/31/19	UT
2,3',4',5',6-Pentachlorobiphenyl (BZ-125)	09/01/14	08/31/19	UT
2,3,4,5-Tetrachlorobiphenyl (BZ-61)	09/01/14	08/31/19	UT
2,3,4',5-Tetrachlorobiphenyl (BZ-63)	09/01/14	08/31/19	UT
2,3',4,5'-Tetrachlorobiphenyl (BZ-68)	09/01/14	08/31/19	UT
2,3',4',5-Tetrachlorobiphenyl (BZ-70)	09/01/14	08/31/19	UT
2,3',4',5'-Tetrachlorobiphenyl (BZ-76)	09/01/14	08/31/19	UT
2,3',4,5-Tetrachlorobiphenyl (BZ-67)	09/01/14	08/31/19	UT
2,3,4,6-Tetrachlorobiphenyl (BZ-62)	09/01/14	08/31/19	UT
2,3,4',6-Tetrachlorobiphenyl (BZ-64)	09/01/14	08/31/19	UT
2,3',4,6-Tetrachlorobiphenyl (BZ-69)	09/01/14	08/31/19	UT
2,3',4',6-Tetrachlorobiphenyl (BZ-71)	09/01/14	08/31/19	UT
2,3,4-Trichlorobiphenyl (BZ-21)	09/01/14	08/31/19	UT
2,3,4'-Trichlorobiphenyl (BZ-22)	09/01/14	08/31/19	UT
2,3',4-Trichlorobiphenyl (BZ-25)	09/01/14	08/31/19	UT
2,3',4'-Trichlorobiphenyl (BZ-33)	09/01/14	08/31/19	UT
2,3',5,5'-Tetrachlorobiphenyl (BZ-72)	09/01/14	08/31/19	UT
2,3,5,6-Tetrachlorobiphenyl (BZ-65)	09/01/14	08/31/19	UT
2,3',5',6-Tetrachlorobiphenyl (BZ-73)	09/01/14	08/31/19	UT
2,3,5-Trichlorobiphenyl (BZ-23)	09/01/14	08/31/19	UT
2,3',5-Trichlorobiphenyl (BZ-26)	09/01/14	08/31/19	UT
2,3',5'-Trichlorobiphenyl (BZ-34)	09/01/14	08/31/19	UT
2,3,6-Trichlorobiphenyl (BZ-24)	09/01/14	08/31/19	UT
2,3',6-Trichlorobiphenyl (BZ-27)	09/01/14	08/31/19	UT
2,3-Dichlorobiphenyl (BZ-5)	09/01/14	08/31/19	UT
2,3'-Dichlorobiphenyl (BZ-6)	09/01/14	08/31/19	UT
2,4,4',5-Tetrachlorobiphenyl (BZ-74)	09/01/14	08/31/19	UT
2,4,4',6-Tetrachlorobiphenyl (BZ-75)	09/01/14	08/31/19	UT
2,4,4'-Trichlorobiphenyl (BZ-28)	09/01/14	08/31/19	UT
2,4,5-Trichlorobiphenyl (BZ-29)	09/01/14	08/31/19	UT
2,4',5-Trichlorobiphenyl (BZ-31)	09/01/14	08/31/19	UT
2,4,6-Trichlorobiphenyl (BZ-30)	09/01/14	08/31/19	UT
2,4',6-Trichlorobiphenyl (BZ-32)	09/01/14	08/31/19	UT
2,4-Dichlorobiphenyl (BZ-7)	09/01/14	08/31/19	UT
2,4'-Dichlorobiphenyl (BZ-8)	09/01/14	08/31/19	UT
2,5-Dichlorobiphenyl (BZ-9)	09/01/14	08/31/19	UT
2,6-Dichlorobiphenyl (BZ-10)	09/01/14	08/31/19	UT
2-Chlorobiphenyl (BZ-1)	09/01/14	08/31/19	UT
3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)	09/01/14	08/31/19	UT
3,3',4,4',5-Pentachlorobiphenyl (BZ-126)	09/01/14	08/31/19	UT
3,3',4,4'-Tetrachlorobiphenyl (BZ-77)	09/01/14	08/31/19	UT
3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)	09/01/14	08/31/19	UT

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Solid & Hazardous Material)***			
3,3',4,5-Tetrachlorobiphenyl (BZ-78)	09/01/14	08/31/19	UT
3,3',4,5'-Tetrachlorobiphenyl (BZ-79)	09/01/14	08/31/19	UT
3,3',4-Trichlorobiphenyl (BZ-35)	09/01/14	08/31/19	UT
3,3',5,5'-Tetrachlorobiphenyl (BZ-80)	09/01/14	08/31/19	UT
3,3',5-Trichlorobiphenyl (BZ-36)	09/01/14	08/31/19	UT
3,3'-Dichlorobiphenyl (BZ-11)	09/01/14	08/31/19	UT
3,4,4',5-Tetrachlorobiphenyl (BZ-81)	09/01/14	08/31/19	UT
3,4,4'-Trichlorobiphenyl (BZ-37)	09/01/14	08/31/19	UT
3,4,5-Trichlorobiphenyl (BZ-38)	09/01/14	08/31/19	UT
3,4',5-Trichlorobiphenyl (BZ-39)	09/01/14	08/31/19	UT
3,4-Dichlorobiphenyl (BZ-12)	09/01/14	08/31/19	UT
3,4'-Dichlorobiphenyl (BZ-13)	09/01/14	08/31/19	UT
3,5-Dichlorobiphenyl (BZ-14)	09/01/14	08/31/19	UT
3-Chlorobiphenyl (BZ-2)	09/01/14	08/31/19	UT
4,4'-Dichlorobiphenyl (BZ-15)	09/01/14	08/31/19	UT
4-Chlorobiphenyl (BZ-3)	09/01/14	08/31/19	UT
Decachlorobiphenyl (BZ-209)	09/01/14	08/31/19	UT
PCBs	09/01/14	08/31/19	UT
Method EPA 3540C			
Preparation/Extraction	09/01/14	08/31/19	UT
Soxhlet Extraction	09/01/14	08/31/19	UT
Method EPA 3620B			
Florisil Clean-up	09/01/14	08/31/19	UT
Preparation/Extraction	09/01/14	08/31/19	UT
Method EPA 3630C			
Preparation/Extraction	09/01/14	08/31/19	UT
Silica Gel Clean-up	09/01/14	08/31/19	UT
Method EPA 8290A			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT

Cape Fear Analytical, LLC

	Start Date	Expires	AB
Program/Matrix: ***RCRA (Solid & Hazardous Material)***			
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT

Cape Fear Analytical, LLC

Program/Matrix: ***SDWA (Potable Water)***

Method EPA 1613B

	Start Date	Expires	AB
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	09/01/14	08/31/19	UT
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	09/01/14	08/31/19	UT
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	09/01/14	08/31/19	UT
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	09/01/14	08/31/19	UT
2,3,4,6,7,8-Hexachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,4,7,8-Pentachlorodibenzofuran	09/01/14	08/31/19	UT
2,3,7,8-TCDD	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	09/01/14	08/31/19	UT
2,3,7,8-Tetrachlorodibenzofuran	09/01/14	08/31/19	UT
Hpcdd, total	09/01/14	08/31/19	UT
Hpcdf, total	09/01/14	08/31/19	UT
Hxcdd, total	09/01/14	08/31/19	UT
Hxcdf, total	09/01/14	08/31/19	UT
Pecdd, total	09/01/14	08/31/19	UT
Pecdf, total	09/01/14	08/31/19	UT
TCDD, total	09/01/14	08/31/19	UT
TCDF, total	09/01/14	08/31/19	UT

The Utah Environmental Laboratory Certification Program (ELCP) encourages clients and data users to verify the most current certification letter for the authorized method.

The analytes by method which a laboratory is authorized to perform at any given time will be those indicated in the most recent certificate letter. The most recent certification letter supersedes all previous certification or authorization letters. It is the certified laboratory's responsibility to review this letter for discrepancies. The certified laboratory must document any discrepancies in this letter and send notice to this bureau within 15 days of receipt. This certificate letter will be recalled in the event your laboratory's certification is revoked.

State of New Jersey

Department of Environmental Protection

Certifies That

CAPE FEAR ANALYTICAL LLC

Laboratory Certification ID # NC013

is hereby approved as a

Nationally Accredited Environmental Laboratory

to perform the analyses as indicated on the Annual Certified Parameter List which must accompany this certificate to be valid

having duly met the requirements of the

Regulations Governing the Certification of Laboratories and Environmental Measurements N.J.A.C. 7:18 et. seq.

and

having been found compliant with the 2009 TNI Standard approved by the

The NELAC Institute

Expires June 30, 2019

Michele M. Potter
Manager

NJDEP is a NELAP Recognized Accreditation Body

This certificate is to be conspicuously displayed at the laboratory with the annual certified parameter list in a location on the premises visible to the public. Consumers are urged to verify the laboratory's current accreditation status with the State of NJ, NELAP.

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: DW09 --Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	DW09.00150	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT

Category: NPW09--Organics - NPW Preparation Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW09.00110	Semivolatile organics	Continuous Liquid-Liquid Extraction	SW-846 3520C	UT
Applied	No	NPW09.00180	Semivolatile organics	Cleanup-Florisil	SW-846 3620C	UT
Certified	Yes	NPW09.00190	Semivolatile organics	Cleanup-Silica Gel	SW-846 3630C	UT

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.00010	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00020	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00030	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00040	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00050	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00060	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00070	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.00080	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00090	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00100	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00110	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00120	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00130	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00140	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00150	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00160	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.00170	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	NPW11.02480	Chlorobiphenyl (2-) (PCB 1)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02490	Chlorobiphenyl (3-) (PCB 2)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02500	Chlorobiphenyl (4-) (PCB 3)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02510	Dichlorobiphenyl (2,2'-) (PCB 4)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02520	Dichlorobiphenyl (2,3-) (PCB 5)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02530	Dichlorobiphenyl (2,3'-) (PCB 6)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02540	Dichlorobiphenyl (2,4-) (PCB 7)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02550	Dichlorobiphenyl (2,4'-) (PCB 8)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02560	Dichlorobiphenyl (2,5-) (PCB 9)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02570	Dichlorobiphenyl (2,6-) (PCB 10)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02580	Dichlorobiphenyl (3,3'-) (PCB 11)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.02590	Dichlorobiphenyl (3,4-) (PCB 12)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02600	Dichlorobiphenyl (3,4'-) (PCB 13)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02610	Dichlorobiphenyl (3,5-) (PCB 14)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02620	Dichlorobiphenyl (4,4'-) (PCB 15)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02630	Trichlorobiphenyl (2,2',3-) (PCB 16)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02640	Trichlorobiphenyl (2,2',4-) (PCB 17)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02650	Trichlorobiphenyl (2,2',5-) (PCB 18)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02660	Trichlorobiphenyl (2,2',6-) (PCB 19)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02670	Trichlorobiphenyl (2,3,3'-) (PCB 20)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02680	Trichlorobiphenyl (2,3,4-) (PCB 21)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02690	Trichlorobiphenyl (2,3,4'-) (PCB 22)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02700	Trichlorobiphenyl (2,3,5-) (PCB 23)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02710	Trichlorobiphenyl (2,3,6-) (PCB 24)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02720	Trichlorobiphenyl (2,3',4-) (PCB 25)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02730	Trichlorobiphenyl (2,3',5-) (PCB 26)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02740	Trichlorobiphenyl (2,3',6-) (PCB 27)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02750	Trichlorobiphenyl (2,4,4'-) (PCB 28)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02760	Trichlorobiphenyl (2,4,5-) (PCB 29)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02770	Trichlorobiphenyl (2,4,6-) (PCB 30)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02780	Trichlorobiphenyl (2,4',5-) (PCB 31)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02790	Trichlorobiphenyl (2,4',6-) (PCB 32)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02800	Trichlorobiphenyl (2,3',4'-) (PCB 33)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02810	Trichlorobiphenyl (2,3',5'-) (PCB 34)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02820	Trichlorobiphenyl (3,3',4-) (PCB 35)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02830	Trichlorobiphenyl (3,3',5-) (PCB 36)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02840	Trichlorobiphenyl (3,4,4'-) (PCB 37)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02850	Trichlorobiphenyl (3,4,5-) (PCB 38)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02860	Trichlorobiphenyl (3,4',5-) (PCB 39)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.02870	Tetrachlorobiphenyl (2,2',3,3'-) (PCB 40)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02880	Tetrachlorobiphenyl (2,2',3,4-) (PCB 41)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02890	Tetrachlorobiphenyl (2,2',3,4'-) (PCB 42)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02900	Tetrachlorobiphenyl (2,2',3,5-) (PCB 43)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02910	Tetrachlorobiphenyl (2,2',3,5'-) (PCB 44)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02920	Tetrachlorobiphenyl (2,2',3,6-) (PCB 45)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02930	Tetrachlorobiphenyl (2,2',3,6'-) (PCB 46)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02940	Tetrachlorobiphenyl (2,2',4,4'-) (PCB 47)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02950	Tetrachlorobiphenyl (2,2',4,5-) (PCB 48)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02960	Tetrachlorobiphenyl (2,2',4,5'-) (PCB 49)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02970	Tetrachlorobiphenyl (2,2',4,6-) (PCB 50)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02980	Tetrachlorobiphenyl (2,2',4,6'-) (PCB 51)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.02990	Tetrachlorobiphenyl (2,2',5,5'-) (PCB 52)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03000	Tetrachlorobiphenyl (2,2',5,6'-) (PCB 53)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03010	Tetrachlorobiphenyl (2,2',6,6'-) (PCB 54)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03020	Tetrachlorobiphenyl (2,3,3',4-) (PCB 55)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03030	Tetrachlorobiphenyl (2,3,3',4'-) (PCB 56)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03040	Tetrachlorobiphenyl (2,3,3',5-) (PCB 57)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03050	Tetrachlorobiphenyl (2,3,3',5'-) (PCB 58)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03060	Tetrachlorobiphenyl (2,3,3',6-) (PCB 59)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03070	Tetrachlorobiphenyl (2,3,4,4'-) (PCB 60)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03080	Tetrachlorobiphenyl (2,3,4,5-) (PCB 61)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03090	Tetrachlorobiphenyl (2,3,4,6-) (PCB 62)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03100	Tetrachlorobiphenyl (2,3,4',5-) (PCB 63)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03110	Tetrachlorobiphenyl (2,3,4',6-) (PCB 64)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03120	Tetrachlorobiphenyl (2,3,5,6-) (PCB 65)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03130	Tetrachlorobiphenyl (2,3',4,4'-) (PCB 66)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03140	Tetrachlorobiphenyl (2,3',4,5-) (PCB 67)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.03150	Tetrachlorobiphenyl (2,3',4,5'-) (PCB 68)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03160	Tetrachlorobiphenyl (2,3',4,6-) (PCB 69)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03170	Tetrachlorobiphenyl (2,3',4',5-) (PCB 70)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03180	Tetrachlorobiphenyl (2,3',4',6-) (PCB 71)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03190	Tetrachlorobiphenyl (2,3',5,5'-) (PCB 72)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03200	Tetrachlorobiphenyl (2,3',5',6-) (PCB 73)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03210	Tetrachlorobiphenyl (2,4,4',5-) (PCB 74)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03220	Tetrachlorobiphenyl (2,4,4',6-) (PCB 75)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03230	Tetrachlorobiphenyl (2,3',4',5'-) (PCB 76)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03240	Tetrachlorobiphenyl (3,3',4,4'-) (PCB 77)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03250	Tetrachlorobiphenyl (3,3',4,5-) (PCB 78)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03260	Tetrachlorobiphenyl (3,3',4,5'-) (PCB 79)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03270	Tetrachlorobiphenyl (3,3',5,5'-) (PCB 80)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03280	Tetrachlorobiphenyl (3,4,4',5-) (PCB 81)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03290	Pentachlorobiphenyl (2,2',3,3',4-) (PCB 82)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03300	Pentachlorobiphenyl (2,2',3,3',5-) (PCB 83)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03310	Pentachlorobiphenyl (2,2',3,3',6-) (PCB 84)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03320	Pentachlorobiphenyl (2,2',3,4,4'-) (PCB 85)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03330	Pentachlorobiphenyl (2,2',3,4,5-) (PCB 86)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03340	Pentachlorobiphenyl (2,2',3,4,5'-) (PCB 87)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03350	Pentachlorobiphenyl (2,2',3,4,6-) (PCB 88)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03360	Pentachlorobiphenyl (2,2',3,4,6'-) (PCB 89)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03370	Pentachlorobiphenyl (2,2',3,4',5-) (PCB 90)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03380	Pentachlorobiphenyl (2,2',3,4',6-) (PCB 91)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03390	Pentachlorobiphenyl (2,2',3,5,5'-) (PCB 92)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03400	Pentachlorobiphenyl (2,2',3,5,6-) (PCB 93)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03410	Pentachlorobiphenyl (2,2',3,5,6'-) (PCB 94)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03420	Pentachlorobiphenyl (2,2',3,5',6-) (PCB 95)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.03430	Pentachlorobiphenyl (2,2',3,6,6'-) (PCB 96)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03440	Pentachlorobiphenyl (2,2',3,4',5'-) (PCB 97)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03450	Pentachlorobiphenyl (2,2',3,4',6'-) (PCB 98)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03460	Pentachlorobiphenyl (2,2',4,4',5-) (PCB 99)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03470	Pentachlorobiphenyl (2,2',4,4',6-) (PCB 100)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03480	Pentachlorobiphenyl (2,2',4,5,5'-) (PCB 101)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03490	Pentachlorobiphenyl (2,2',4,5,6'-) (PCB 102)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03500	Pentachlorobiphenyl (2,2',4,5',6-) (PCB 103)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03510	Pentachlorobiphenyl (2,2',4,6,6'-) (PCB 104)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03520	Pentachlorobiphenyl (2,3,3',4,4'-) (PCB 105)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03530	Pentachlorobiphenyl (2,3,3',4,5-) (PCB 106)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03540	Pentachlorobiphenyl (2,3,3',4',5-) (PCB 107)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03550	Pentachlorobiphenyl (2,3,3',4,5'-) (PCB 108)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03560	Pentachlorobiphenyl (2,3,3',4,6-) (PCB 109)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03570	Pentachlorobiphenyl (2,3,3',4',6-) (PCB 110)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03580	Pentachlorobiphenyl (2,3,3',5,5'-) (PCB 111)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03590	Pentachlorobiphenyl (2,3,3',5,6-) (PCB 112)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03600	Pentachlorobiphenyl (2,3,3',5',6-) (PCB 113)	Extraction, SIM, GC/MS	EPA 1668A	UT

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.03610	Pentachlorobiphenyl (2,3,4,4',5-) (PCB 114)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03620	Pentachlorobiphenyl (2,3,4,4',6-) (PCB 115)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03630	Pentachlorobiphenyl (2,3,4,5,6-) (PCB 116)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03640	Pentachlorobiphenyl (2,3,4',5,6-) (PCB 117)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03650	Pentachlorobiphenyl (2,3',4,4',5-) (PCB 118)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03660	Pentachlorobiphenyl (2,3',4,4',6-) (PCB 119)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03670	Pentachlorobiphenyl (2,3',4,5,5'-) (PCB 120)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03680	Pentachlorobiphenyl (2,3',4,5',6-) (PCB 121)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03690	Pentachlorobiphenyl (2,3,3',4',5'-) (PCB 122)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03700	Pentachlorobiphenyl (2,3',4,4',5'-) (PCB 123)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03710	Pentachlorobiphenyl (2,3',4',5,5'-) (PCB 124)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03720	Pentachlorobiphenyl (2,3',4',5',6-) (PCB 125)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03730	Pentachlorobiphenyl (3,3',4,4',5-) (PCB 126)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03740	Pentachlorobiphenyl (3,3',4,5,5'-) (PCB 127)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03750	Hexachlorobiphenyl (2,2',3,3',4,4'-) (PCB 128)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03760	Hexachlorobiphenyl (2,2',3,3',4,5-) (PCB 129)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03770	Hexachlorobiphenyl (2,2',3,3',4,5'-) (PCB 130)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.03780	Hexachlorobiphenyl (2,2',3,3',4,6-) (PCB 131)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03790	Hexachlorobiphenyl (2,2',3,3',4,6'-) (PCB 132)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03800	Hexachlorobiphenyl (2,2',3,3',5,5'-) (PCB 133)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03810	Hexachlorobiphenyl (2,2',3,3',5,6-) (PCB 134)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03820	Hexachlorobiphenyl (2,2',3,3',5,6'-) (PCB 135)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03830	Hexachlorobiphenyl (2,2',3,3',6,6'-) (PCB 136)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03840	Hexachlorobiphenyl (2,2',3,4,4',5-) (PCB 137)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03850	Hexachlorobiphenyl (2,2',3,4,4',5'-) (PCB 138)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03860	Hexachlorobiphenyl (2,2',3,4,4',6-) (PCB 139)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03870	Hexachlorobiphenyl (2,2',3,4,4',6'-) (PCB 140)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03880	Hexachlorobiphenyl (2,2',3,4,5,5'-) (PCB 141)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03890	Hexachlorobiphenyl (2,2',3,4,5,6-) (PCB 142)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03900	Hexachlorobiphenyl (2,2',3,4,5,6'-) (PCB 143)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03910	Hexachlorobiphenyl (2,2',3,4,5',6-) (PCB 144)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03920	Hexachlorobiphenyl (2,2',3,4,6,6'-) (PCB 145)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03930	Hexachlorobiphenyl (2,2',3,4',5,5'-) (PCB 146)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03940	Hexachlorobiphenyl (2,2',3,4',5,6-) (PCB 147)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.03950	Hexachlorobiphenyl (2,2',3,4',5,6'-) (PCB 148)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03960	Hexachlorobiphenyl (2,2',3,4',5',6-) (PCB 149)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03970	Hexachlorobiphenyl (2,2',3,4',6,6'-) (PCB 150)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03980	Hexachlorobiphenyl (2,2',3,5,5',6-) (PCB 151)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.03990	Hexachlorobiphenyl (2,2',3,5,6,6'-) (PCB 152)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04000	Hexachlorobiphenyl (2,2',4,4',5,5'-) (PCB 153)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04010	Hexachlorobiphenyl (2,2',4,4',5,6'-) (PCB 154)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04020	Hexachlorobiphenyl (2,2',4,4',6,6'-) (PCB 155)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04030	Hexachlorobiphenyl (2,3,3',4,4',5-) (PCB 156)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04040	Hexachlorobiphenyl (2,3,3',4,4',5'-) (PCB 157)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04050	Hexachlorobiphenyl (2,3,3',4,4',6-) (PCB 158)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04060	Hexachlorobiphenyl (2,3,3',4,5,5'-) (PCB 159)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04070	Hexachlorobiphenyl (2,3,3',4,5,6-) (PCB 160)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04080	Hexachlorobiphenyl (2,3,3',4,5',6-) (PCB 161)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04090	Hexachlorobiphenyl (2,3,3',4',5,5'-) (PCB 162)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04100	Hexachlorobiphenyl (2,3,3',4',5,6-) (PCB 163)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04110	Hexachlorobiphenyl (2,3,3',4',5',6-) (PCB 164)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.04120	Hexachlorobiphenyl (2,3,3',5,5',6-) (PCB 165)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04130	Hexachlorobiphenyl (2,3,4,4',5,6-) (PCB 166)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04140	Hexachlorobiphenyl (2,3',4,4',5,5'-) (PCB 167)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04150	Hexachlorobiphenyl (2,3',4,4',5',6-) (PCB 168)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04160	Hexachlorobiphenyl (3,3',4,4',5,5'-) (PCB 169)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04170	Heptachlorobiphenyl (2,2',3,3',4,4',5-) (PCB 170)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04180	Heptachlorobiphenyl (2,2',3,3',4,4',6-) (PCB 171)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04190	Heptachlorobiphenyl (2,2',3,3',4,5,5'-) (PCB 172)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04200	Heptachlorobiphenyl (2,2',3,3',4,5,6-) (PCB 173)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04210	Heptachlorobiphenyl (2,2',3,3',4,5,6'-) (PCB 174)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04220	Heptachlorobiphenyl (2,2',3,3',4,5',6-) (PCB 175)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04230	Heptachlorobiphenyl (2,2',3,3',4,6,6'-) (PCB 176)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04240	Heptachlorobiphenyl (2,2',3,3',4,5',6'-) (PCB 177)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04250	Heptachlorobiphenyl (2,2',3,3',5,5',6-) (PCB 178)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04260	Heptachlorobiphenyl (2,2',3,3',5,6,6'-) (PCB 179)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04270	Heptachlorobiphenyl (2,2',3,4,4',5,5'-) (PCB 180)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04280	Heptachlorobiphenyl (2,2',3,4,4',5,6-) (PCB 181)	Extraction, SIM, GC/MS	EPA 1668A	UT

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.04290	Heptachlorobiphenyl (2,2',3,4,4',5,6'-) (PCB 182)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04300	Heptachlorobiphenyl (2,2',3,4,4',5',6-) (PCB 183)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04310	Heptachlorobiphenyl (2,2',3,4,4',6,6'-) (PCB 184)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04320	Heptachlorobiphenyl (2,2',3,4,5,5',6-) (PCB 185)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04330	Heptachlorobiphenyl (2,2',3,4,5,6,6'-) (PCB 186)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04340	Heptachlorobiphenyl (2,2',3,4',5,5',6-) (PCB 187)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04350	Heptachlorobiphenyl (2,2',3,4',5,6,6'-) (PCB 188)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04360	Heptachlorobiphenyl (2,3,3',4,4',5,5'-) (PCB 189)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04370	Heptachlorobiphenyl (2,3,3',4,4',5,6-) (PCB 190)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04380	Heptachlorobiphenyl (2,3,3',4,4',5',6-) (PCB 191)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04390	Heptachlorobiphenyl (2,3,3',4,5,5',6-) (PCB 192)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04400	Heptachlorobiphenyl (2,3,3',4',5,5',6-) (PCB 193)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04410	Octachlorobiphenyl (2,2',3,3',4,4',5,5'-) (PCB 194)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04420	Octachlorobiphenyl (2,2',3,3',4,4',5,6-) (PCB 195)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04430	Octachlorobiphenyl (2,2',3,3',4,4',5,6'-) (PCB 196)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04440	Octachlorobiphenyl (2,2',3,3',4,4',6,6'-) (PCB 197)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04450	Octachlorobiphenyl (2,2',3,3',4,5,5',6-) (PCB 198)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.04460	Octachlorobiphenyl (2,2',3,3',4,5,5',6'-) (PCB 199)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04470	Octachlorobiphenyl (2,2',3,3',4,5,6,6'-) (PCB 200)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04480	Octachlorobiphenyl (2,2',3,3',4,5',6,6'-) (PCB 201)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04490	Octachlorobiphenyl (2,2',3,3',5,5',6,6'-) (PCB 202)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04500	Octachlorobiphenyl (2,2',3,4,4',5,5',6-) (PCB 203)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04510	Octachlorobiphenyl (2,2',3,4,4',5,6,6'-) (PCB 204)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04520	Octachlorobiphenyl (2,3,3',4,4',5,5',6-) (PCB 205)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04530	Nonachlorobiphenyl (2,2',3,3',4,4',5,5',6-) (PCB 206)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04540	Nonachlorobiphenyl (2,2',3,3',4,4',5,6,6'-) (PCB 207)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04550	Nonachlorobiphenyl (2,2',3,3',4,5,5',6,6'-) (PCB 208)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.04560	Decachlorobiphenyl (PCB 209)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	NPW11.20170	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20180	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20190	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20200	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20210	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20220	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11–Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.20230	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20240	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20250	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20260	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20270	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20280	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20290	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20300	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20310	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20320	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20330	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20340	Total HpCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20350	Total HpCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20360	Total HxCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20370	Total HxCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20380	Total PeCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20390	Total PeCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: NPW11--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	NPW11.20400	Total TCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	NPW11.20410	Total TCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT

Category: SCM08--Organics - SCM Prep. / Screening Methods

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Applied	No	SCM08.00170	Semivolatile organics	Cleanup-Florisil	SW-846 3620C	UT
Certified	Yes	SCM08.00190	Semivolatile organics	Cleanup-Silica Gel	SW-846 3630C	UT
Certified	Yes	SCM08.00280	Semivolatile organics	Soxhlet Extraction	SW-846 3540C	UT

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00050	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00060	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00070	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00080	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00090	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00100	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00110	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00120	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00130	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00140	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00150	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00160	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00170	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00180	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00190	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00210	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00220	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	EPA 1613B	UT
Certified	Yes	SCM10.00240	Chlorobiphenyl (2-) (PCB 1)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00250	Chlorobiphenyl (3-) (PCB 2)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00260	Chlorobiphenyl (4-) (PCB 3)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00270	Dichlorobiphenyl (2,2'-) (PCB 4)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00280	Dichlorobiphenyl (2,3-) (PCB 5)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00290	Dichlorobiphenyl (2,3'-) (PCB 6)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00300	Dichlorobiphenyl (2,4-) (PCB 7)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00310	Dichlorobiphenyl (2,4'-) (PCB 8)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00320	Dichlorobiphenyl (2,5-) (PCB 9)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00330	Dichlorobiphenyl (2,6-) (PCB 10)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00340	Dichlorobiphenyl (3,3'-) (PCB 11)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00350	Dichlorobiphenyl (3,4-) (PCB 12)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00360	Dichlorobiphenyl (3,4'-) (PCB 13)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00370	Dichlorobiphenyl (3,5-) (PCB 14)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00380	Dichlorobiphenyl (4,4'-) (PCB 15)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00390	Trichlorobiphenyl (2,2',3-) (PCB 16)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00400	Trichlorobiphenyl (2,2',4-) (PCB 17)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00410	Trichlorobiphenyl (2,2',5-) (PCB 18)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00420	Trichlorobiphenyl (2,2',6-) (PCB 19)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00430	Trichlorobiphenyl (2,3,3'-) (PCB 20)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00440	Trichlorobiphenyl (2,3,4-) (PCB 21)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00450	Trichlorobiphenyl (2,3,4'-) (PCB 22)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00460	Trichlorobiphenyl (2,3,5-) (PCB 23)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00470	Trichlorobiphenyl (2,3,6-) (PCB 24)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00480	Trichlorobiphenyl (2,3',4-) (PCB 25)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00490	Trichlorobiphenyl (2,3',5-) (PCB 26)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00500	Trichlorobiphenyl (2,3',6-) (PCB 27)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00510	Trichlorobiphenyl (2,4,4'-) (PCB 28)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00520	Trichlorobiphenyl (2,4,5-) (PCB 29)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00530	Trichlorobiphenyl (2,4,6-) (PCB 30)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00540	Trichlorobiphenyl (2,4',5-) (PCB 31)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00550	Trichlorobiphenyl (2,4',6-) (PCB 32)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00560	Trichlorobiphenyl (2,3',4'-) (PCB 33)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00570	Trichlorobiphenyl (2,3',5'-) (PCB 34)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00580	Trichlorobiphenyl (3,3',4-) (PCB 35)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00590	Trichlorobiphenyl (3,3',5-) (PCB 36)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00600	Trichlorobiphenyl (3,4,4'-) (PCB 37)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00610	Trichlorobiphenyl (3,4,5-) (PCB 38)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00620	Trichlorobiphenyl (3,4',5-) (PCB 39)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00630	Tetrachlorobiphenyl (2,2',3,3'-) (PCB 40)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00640	Tetrachlorobiphenyl (2,2',3,4-) (PCB 41)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00650	Tetrachlorobiphenyl (2,2',3,4'-) (PCB 42)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00660	Tetrachlorobiphenyl (2,2',3,5-) (PCB 43)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00670	Tetrachlorobiphenyl (2,2',3,5'-) (PCB 44)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00680	Tetrachlorobiphenyl (2,2',3,6-) (PCB 45)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00690	Tetrachlorobiphenyl (2,2',3,6'-) (PCB 46)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00700	Tetrachlorobiphenyl (2,2',4,4'-) (PCB 47)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00710	Tetrachlorobiphenyl (2,2',4,5-) (PCB 48)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00720	Tetrachlorobiphenyl (2,2',4,5'-) (PCB 49)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00730	Tetrachlorobiphenyl (2,2',4,6-) (PCB 50)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00740	Tetrachlorobiphenyl (2,2',4,6'-) (PCB 51)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00750	Tetrachlorobiphenyl (2,2',5,5'-) (PCB 52)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00760	Tetrachlorobiphenyl (2,2',5,6'-) (PCB 53)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00770	Tetrachlorobiphenyl (2,2',6,6'-) (PCB 54)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00780	Tetrachlorobiphenyl (2,3,3',4-) (PCB 55)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00790	Tetrachlorobiphenyl (2,3,3',4'-) (PCB 56)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00800	Tetrachlorobiphenyl (2,3,3',5-) (PCB 57)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00810	Tetrachlorobiphenyl (2,3,3',5'-) (PCB 58)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00820	Tetrachlorobiphenyl (2,3,3',6-) (PCB 59)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00830	Tetrachlorobiphenyl (2,3,4,4'-) (PCB 60)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00840	Tetrachlorobiphenyl (2,3,4,5-) (PCB 61)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00850	Tetrachlorobiphenyl (2,3,4,6-) (PCB 62)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00860	Tetrachlorobiphenyl (2,3,4',5-) (PCB 63)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00870	Tetrachlorobiphenyl (2,3,4',6-) (PCB 64)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00880	Tetrachlorobiphenyl (2,3,5,6-) (PCB 65)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00890	Tetrachlorobiphenyl (2,3',4,4'-) (PCB 66)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.00900	Tetrachlorobiphenyl (2,3',4,5-) (PCB 67)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00910	Tetrachlorobiphenyl (2,3',4,5'-) (PCB 68)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00920	Tetrachlorobiphenyl (2,3',4,6-) (PCB 69)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00930	Tetrachlorobiphenyl (2,3',4',5-) (PCB 70)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00940	Tetrachlorobiphenyl (2,3',4',6-) (PCB 71)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00950	Tetrachlorobiphenyl (2,3',5,5'-) (PCB 72)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00960	Tetrachlorobiphenyl (2,3',5',6-) (PCB 73)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00970	Tetrachlorobiphenyl (2,4,4',5-) (PCB 74)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00980	Tetrachlorobiphenyl (2,4,4',6-) (PCB 75)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.00990	Tetrachlorobiphenyl (2,3',4',5'-) (PCB 76)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01000	Tetrachlorobiphenyl (3,3',4,4'-) (PCB 77)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01010	Tetrachlorobiphenyl (3,3',4,5-) (PCB 78)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01020	Tetrachlorobiphenyl (3,3',4,5'-) (PCB 79)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01030	Tetrachlorobiphenyl (3,3',5,5'-) (PCB 80)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01040	Tetrachlorobiphenyl (3,4,4',5-) (PCB 81)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01050	Pentachlorobiphenyl (2,2',3,3',4-) (PCB 82)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01060	Pentachlorobiphenyl (2,2',3,3',5-) (PCB 83)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01070	Pentachlorobiphenyl (2,2',3,3',6-) (PCB 84)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01080	Pentachlorobiphenyl (2,2',3,4,4'-) (PCB 85)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01090	Pentachlorobiphenyl (2,2',3,4,5-) (PCB 86)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01100	Pentachlorobiphenyl (2,2',3,4,5'-) (PCB 87)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01110	Pentachlorobiphenyl (2,2',3,4,6-) (PCB 88)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01120	Pentachlorobiphenyl (2,2',3,4,6'-) (PCB 89)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01130	Pentachlorobiphenyl (2,2',3,4',5-) (PCB 90)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01140	Pentachlorobiphenyl (2,2',3,4',6-) (PCB 91)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01150	Pentachlorobiphenyl (2,2',3,5,5'-) (PCB 92)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01160	Pentachlorobiphenyl (2,2',3,5,6-) (PCB 93)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01170	Pentachlorobiphenyl (2,2',3,5,6'-) (PCB 94)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.01180	Pentachlorobiphenyl (2,2',3,5',6-) (PCB 95)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01190	Pentachlorobiphenyl (2,2',3,6,6'-) (PCB 96)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01200	Pentachlorobiphenyl (2,2',3,4',5'-) (PCB 97)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01210	Pentachlorobiphenyl (2,2',3,4',6'-) (PCB 98)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01220	Pentachlorobiphenyl (2,2',4,4',5-) (PCB 99)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01230	Pentachlorobiphenyl (2,2',4,4',6-) (PCB 100)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01240	Pentachlorobiphenyl (2,2',4,5,5'-) (PCB 101)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01250	Pentachlorobiphenyl (2,2',4,5,6'-) (PCB 102)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01260	Pentachlorobiphenyl (2,2',4,5',6-) (PCB 103)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01270	Pentachlorobiphenyl (2,2',4,6,6'-) (PCB 104)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01280	Pentachlorobiphenyl (2,3,3',4,4'-) (PCB 105)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01290	Pentachlorobiphenyl (2,3,3',4,5-) (PCB 106)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01300	Pentachlorobiphenyl (2,3,3',4',5-) (PCB 107)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01310	Pentachlorobiphenyl (2,3,3',4,5'-) (PCB 108)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01320	Pentachlorobiphenyl (2,3,3',4,6-) (PCB 109)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01330	Pentachlorobiphenyl (2,3,3',4',6-) (PCB 110)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01340	Pentachlorobiphenyl (2,3,3',5,5'-) (PCB 111)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01350	Pentachlorobiphenyl (2,3,3',5,6-) (PCB 112)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01360	Pentachlorobiphenyl (2,3,3',5',6-) (PCB 113)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.01370	Pentachlorobiphenyl (2,3,4,4',5-) (PCB 114)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01380	Pentachlorobiphenyl (2,3,4,4',6-) (PCB 115)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01390	Pentachlorobiphenyl (2,3,4,5,6-) (PCB 116)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01400	Pentachlorobiphenyl (2,3,4',5,6-) (PCB 117)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01410	Pentachlorobiphenyl (2,3',4,4',5-) (PCB 118)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01420	Pentachlorobiphenyl (2,3',4,4',6-) (PCB 119)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01430	Pentachlorobiphenyl (2,3',4,5,5'-) (PCB 120)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01440	Pentachlorobiphenyl (2,3',4,5',6-) (PCB 121)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01450	Pentachlorobiphenyl (2,3,3',4',5'-) (PCB 122)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01460	Pentachlorobiphenyl (2,3',4,4',5'-) (PCB 123)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01470	Pentachlorobiphenyl (2,3',4',5,5'-) (PCB 124)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01480	Pentachlorobiphenyl (2,3',4',5',6-) (PCB 125)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01490	Pentachlorobiphenyl (3,3',4,4',5-) (PCB 126)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01500	Pentachlorobiphenyl (3,3',4,5,5'-) (PCB 127)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01510	Hexachlorobiphenyl (2,2',3,3',4,4'-) (PCB 128)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01520	Hexachlorobiphenyl (2,2',3,3',4,5-) (PCB 129)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01530	Hexachlorobiphenyl (2,2',3,3',4,5'-) (PCB 130)	Extraction, SIM, GC/MS	EPA 1668A	UT

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10–Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.01540	Hexachlorobiphenyl (2,2',3,3',4,6-) (PCB 131)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01550	Hexachlorobiphenyl (2,2',3,3',4,6'-) (PCB 132)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01560	Hexachlorobiphenyl (2,2',3,3',5,5'-) (PCB 133)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01570	Hexachlorobiphenyl (2,2',3,3',5,6-) (PCB 134)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01580	Hexachlorobiphenyl (2,2',3,3',5,6'-) (PCB 135)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01590	Hexachlorobiphenyl (2,2',3,3',6,6'-) (PCB 136)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01600	Hexachlorobiphenyl (2,2',3,4,4',5-) (PCB 137)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01610	Hexachlorobiphenyl (2,2',3,4,4',5'-) (PCB 138)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01620	Hexachlorobiphenyl (2,2',3,4,4',6-) (PCB 139)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01630	Hexachlorobiphenyl (2,2',3,4,4',6'-) (PCB 140)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01640	Hexachlorobiphenyl (2,2',3,4,5,5'-) (PCB 141)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01650	Hexachlorobiphenyl (2,2',3,4,5,6-) (PCB 142)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01660	Hexachlorobiphenyl (2,2',3,4,5,6'-) (PCB 143)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01670	Hexachlorobiphenyl (2,2',3,4,5',6-) (PCB 144)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01680	Hexachlorobiphenyl (2,2',3,4,6,6'-) (PCB 145)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01690	Hexachlorobiphenyl (2,2',3,4',5,5'-) (PCB 146)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01700	Hexachlorobiphenyl (2,2',3,4',5,6-) (PCB 147)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.01710	Hexachlorobiphenyl (2,2',3,4',5,6'-) (PCB 148)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01720	Hexachlorobiphenyl (2,2',3,4',5',6-) (PCB 149)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01730	Hexachlorobiphenyl (2,2',3,4',6,6'-) (PCB 150)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01740	Hexachlorobiphenyl (2,2',3,5,5',6-) (PCB 151)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01750	Hexachlorobiphenyl (2,2',3,5,6,6'-) (PCB 152)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01760	Hexachlorobiphenyl (2,2',4,4',5,5'-) (PCB 153)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01770	Hexachlorobiphenyl (2,2',4,4',5,6'-) (PCB 154)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01780	Hexachlorobiphenyl (2,2',4,4',6,6'-) (PCB 155)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01790	Hexachlorobiphenyl (2,3,3',4,4',5-) (PCB 156)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01800	Hexachlorobiphenyl (2,3,3',4,4',5'-) (PCB 157)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01810	Hexachlorobiphenyl (2,3,3',4,4',6-) (PCB 158)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01820	Hexachlorobiphenyl (2,3,3',4,5,5'-) (PCB 159)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01830	Hexachlorobiphenyl (2,3,3',4,5,6-) (PCB 160)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01840	Hexachlorobiphenyl (2,3,3',4,5',6-) (PCB 161)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01850	Hexachlorobiphenyl (2,3,3',4',5,5'-) (PCB 162)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01860	Hexachlorobiphenyl (2,3,3',4',5,6-) (PCB 163)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01870	Hexachlorobiphenyl (2,3,3',4',5',6-) (PCB 164)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.01880	Hexachlorobiphenyl (2,3,3',5,5',6-) (PCB 165)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01890	Hexachlorobiphenyl (2,3,4,4',5,6-) (PCB 166)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01900	Hexachlorobiphenyl (2,3',4,4',5,5'-) (PCB 167)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01910	Hexachlorobiphenyl (2,3',4,4',5',6-) (PCB 168)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01920	Hexachlorobiphenyl (3,3',4,4',5,5'-) (PCB 169)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01930	Heptachlorobiphenyl (2,2',3,3',4,4',5-) (PCB 170)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01940	Heptachlorobiphenyl (2,2',3,3',4,4',6-) (PCB 171)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01950	Heptachlorobiphenyl (2,2',3,3',4,5,5'-) (PCB 172)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01960	Heptachlorobiphenyl (2,2',3,3',4,5,6-) (PCB 173)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01970	Heptachlorobiphenyl (2,2',3,3',4,5,6'-) (PCB 174)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01980	Heptachlorobiphenyl (2,2',3,3',4,5',6-) (PCB 175)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.01990	Heptachlorobiphenyl (2,2',3,3',4,6,6'-) (PCB 176)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02000	Heptachlorobiphenyl (2,2',3,3',4,5',6'-) (PCB 177)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02010	Heptachlorobiphenyl (2,2',3,3',5,5',6-) (PCB 178)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02020	Heptachlorobiphenyl (2,2',3,3',5,6,6'-) (PCB 179)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02030	Heptachlorobiphenyl (2,2',3,4,4',5,5'-) (PCB 180)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02040	Heptachlorobiphenyl (2,2',3,4,4',5,6-) (PCB 181)	Extraction, SIM, GC/MS	EPA 1668A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.02050	Heptachlorobiphenyl (2,2',3,4,4',5,6'-) (PCB 182)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02060	Heptachlorobiphenyl (2,2',3,4,4',5',6-) (PCB 183)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02070	Heptachlorobiphenyl (2,2',3,4,4',6,6'-) (PCB 184)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02080	Heptachlorobiphenyl (2,2',3,4,5,5',6-) (PCB 185)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02090	Heptachlorobiphenyl (2,2',3,4,5,6,6'-) (PCB 186)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02100	Heptachlorobiphenyl (2,2',3,4',5,5',6-) (PCB 187)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02110	Heptachlorobiphenyl (2,2',3,4',5,6,6'-) (PCB 188)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02120	Heptachlorobiphenyl (2,3,3',4,4',5,5'-) (PCB 189)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02130	Heptachlorobiphenyl (2,3,3',4,4',5,6-) (PCB 190)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02140	Heptachlorobiphenyl (2,3,3',4,4',5',6-) (PCB 191)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02150	Heptachlorobiphenyl (2,3,3',4,5,5',6-) (PCB 192)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02160	Heptachlorobiphenyl (2,3,3',4',5,5',6-) (PCB 193)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02170	Octachlorobiphenyl (2,2',3,3',4,4',5,5'-) (PCB 194)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02180	Octachlorobiphenyl (2,2',3,3',4,4',5,6-) (PCB 195)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02190	Octachlorobiphenyl (2,2',3,3',4,4',5,6'-) (PCB 196)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02200	Octachlorobiphenyl (2,2',3,3',4,4',6,6'-) (PCB 197)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02210	Octachlorobiphenyl (2,2',3,3',4,5,5',6-) (PCB 198)	Extraction, SIM, GC/MS	EPA 1668A	UT

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM10--Organic Parameters - Chromatography/MS

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM10.02220	Octachlorobiphenyl (2,2',3,3',4,5,5',6'-) (PCB 199)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02230	Octachlorobiphenyl (2,2',3,3',4,5,6,6'-) (PCB 200)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02240	Octachlorobiphenyl (2,2',3,3',4,5',6,6'-) (PCB 201)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02250	Octachlorobiphenyl (2,2',3,3',5,5',6,6'-) (PCB 202)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02260	Octachlorobiphenyl (2,2',3,4,4',5,5',6-) (PCB 203)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02270	Octachlorobiphenyl (2,2',3,4,4',5,6,6'-) (PCB 204)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02280	Octachlorobiphenyl (2,3,3',4,4',5,5',6-) (PCB 205)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02290	Nonachlorobiphenyl (2,2',3,3',4,4',5,5',6-) (PCB 206)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02300	Nonachlorobiphenyl (2,2',3,3',4,4',5,6,6'-) (PCB 207)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02310	Nonachlorobiphenyl (2,2',3,3',4,5,5',6,6'-) (PCB 208)	Extraction, SIM, GC/MS	EPA 1668A	UT
Certified	Yes	SCM10.02320	Decachlorobiphenyl (PCB 209)	Extraction, SIM, GC/MS	EPA 1668A	UT

Category: SCM11--PCDD / PCDF

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM11.00250	HpCDD (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00260	HpCDF (1,2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00270	HpCDF (1,2,3,4,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM11--PCDD / PCDF

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM11.00280	HxCDD (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00290	HxCDD (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00300	HxCDD (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00310	HxCDF (1,2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00320	HxCDF (1,2,3,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00330	HxCDF (1,2,3,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00340	HxCDF (2,3,4,6,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00350	OCDD (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00360	OCDF (1,2,3,4,6,7,8,9-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00370	PeCDD (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00380	PeCDF (1,2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00390	PeCDF (2,3,4,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00400	TCDD (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00410	TCDF (2,3,7,8-)	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00420	Total HpCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00430	Total HpCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00440	Total HxCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environment Protection
Environmental Laboratory Certification Program

Annual Certified Parameter List and Current Status

Effective as of 07/01/2018 until 6/30/2019

Laboratory Name: CAPE FEAR ANALYTICAL LLC Laboratory Number: NC013 Activity ID: NLC 180001
3306 KITTY HAWK RD STE 120
WILMINGTON NC 28405

Category: SCM11--PCDD / PCDF

Status	Eligible to Report NJ Data	Code	Parameter	Technique	Approved Methods	Primary State
Certified	Yes	SCM11.00450	Total HxCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00460	Total PeCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00470	Total PeCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00480	Total TCDD	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT
Certified	Yes	SCM11.00490	Total TCDF	GC/Hi-Res MS, Selected Ion Monitoring	SW-846 8290A	UT

Michele M. Potter, Manager

OREGON

Environmental Laboratory Accreditation Program

NELAP Recognized

Vista Analytical Laboratory Inc.

4042

1104 Windfield Way

El Dorado Hills, CA 95762

IS GRANTED APPROVAL BY ORELAP UNDER THE 2009 TNI STANDARDS, TO PERFORM ANALYSES ON ENVIRONMENTAL SAMPLES IN MATRICES AS LISTED BELOW :

Air	*Drinking Water*	*Non Potable Water*	*Solids and Chem. Waste*	*Tissue*
Chemistry	Chemistry	Chemistry	Chemistry	Chemistry

AND AS RECORDED IN THE LIST OF APPROVED ANALYTES, METHODS, ANALYTICAL TECHNIQUES, AND FIELDS OF TESTING ISSUED CONCURRENTLY WITH THIS CERTIFICATE AND REVISED AS NECESSARY.

ACCREDITED STATUS DEPENDS ON SUCCESSFUL ONGOING PARTICIPATION IN THE PROGRAM AND CONTINUED COMPLIANCE WITH THE STANDARDS.

CUSTOMERS ARE URGED TO VERIFY THE LABORATORY'S CURRENT ACCREDITATION STATUS IN OREGON.

Alia D. Servin, Ph.D.
Oregon State Public Health Laboratory
ORELAP Program Manager
7202 NE Evergreen Parkway, Suite 100
Hillsboro, OR 97124

EFFECTIVE DATE : 02/8/2019

EXPIRATION DATE : 02/7/2020

Certificate No : 4042 - 010

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

MATRIX	Reference	Code	Analyte	Code	Description
Air					
	EPA 23 1			10246705	Determinatiion of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans
		9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
		9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
		9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
		9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
		9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
		9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
		9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
		9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
		9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
		9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
		9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
		9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
		9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
		9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate		
		9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
		9549	2,3,4,7,8-Pentachlorodibenzofuran		
		9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
		9612	2,3,7,8-Tetrachlorodibenzofuran		
		9438	Hpcdd, total		
		9444	Hpcdf, total		
		9468	Hxcdd, total		
		9483	Hxcdf, total		
		9555	Pecdd, total		
		9552	Pecdf, total		
		9609	TCDD, total		
		9615	TCDF, total		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Air

EPA TO-9A — 10249408 — Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS

9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)
9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)
9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)
9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)
9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)
9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)
9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)
9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)
9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)
9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)
9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)
9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)
9480	2,3,4,6,7,8-Hexachlorodibenzofuran
9549	2,3,4,7,8-Pentachlorodibenzofuran
9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
9612	2,3,7,8-Tetrachlorodibenzofuran

Biological Tissue

EPA 1613B — 10120602 — Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS

9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)
9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)
9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)
9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)
9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 1613B	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)	
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran	
	9549	2,3,4,7,8-Pentachlorodibenzofuran	
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	
	9612	2,3,7,8-Tetrachlorodibenzofuran	
	9438	Hpcdd, total	
	9444	Hpcdf, total	
	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	
EPA 1614A 1			10120704 Brominated Diphenyl Ethers by HRGC/HRMS
	9902	2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether (BDE-206)	
	9903	2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether (BDE-207)	
	9892	2,2',3,3',4,4',5,6'-Octabromodiphenyl ether (BDE-196)	
	9893	2,2',3,3',4,4',6,6'-Octabromodiphenyl ether (BDE-197)	
	9904	2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether (BDE-208)	
	9896	2,2',3,3',4,5,6,6'-Octabromodiphenyl ether (BDE-200)	
	9897	2,2',3,3',4,5',6,6'-Octabromodiphenyl ether (BDE-201)	
	9873	2,2',3,3',4',5,6-Heptabromodiphenyl ether (BDE-177)	
	9872	2,2',3,3',4,6,6'-Heptabromodiphenyl ether (BDE-176)	
	9874	2,2',3,3',5,5',6-Heptabromodiphenyl ether (BDE-178)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1614A 1	9899	2,2',3,4,4',5,5',6-Octabromodiphenyl ether (BDE-203)
		9876	2,2',3,4,4',5,5'-Heptabromodiphenyl ether (BDE-180)
		9900	2,2',3,4,4',5,6,6'-Octabromodiphenyl ether (BDE-204)
		9877	2,2',3,4,4',5,6-Heptabromodiphenyl ether (BDE-181)
		9879	2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE-183)
		9835	2,2',3,4,4',5'-Hexabromodiphenyl ether (BDE-138)
		9880	2,2',3,4,4',6,6'-Heptabromodiphenyl ether (BDE-184)
		9836	2,2',3,4,4',6-Hexabromodiphenyl ether (BDE-139)
		9837	2,2',3,4,4',6'-Hexabromodiphenyl ether (BDE-140)
		9784	2,2',3,4,4'-Pentabromodiphenyl ether (BDE-85)
		9569	2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)
		9850	2,2',4,4',5',6-Hexabromodiphenyl ether (BDE-154)
		9571	2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)
		9851	2,2',4,4',6,6'-Hexabromodiphenyl ether (BDE-155)
		9572	2,2',4,4',6-Pentabromodiphenyl ether (BDE-100)
		9773	2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)
		9747	2,2',4,5'-Tetrabromodiphenyl ether (BDE-49)
		9749	2,2',4,6'-Tetrabromodiphenyl ether (BDE-51)
		9716	2,2',4-Tribromodiphenyl ether (BDE-17)
		9867	2,2'3,3',4,4',6-Heptabromodiphenyl ether (BDE-171)
		9901	2,3,3',4,4',5,5',6-Octabromodiphenyl ether (BDE-205)
		9886	2,3,3',4,4',5,6-Heptabromodiphenyl ether (BDE-190)
		9887	2,3,3',4,4',5',6-Heptabromodiphenyl ether (BDE-191)
		9852	2,3,3',4,4',5-Hexabromodiphenyl ether (BDE-156)
		9802	2,3,3',4,4'-Pentabromodiphenyl ether (BDE-105)
		9862	2,3,4,4',5,6-Hexabromodiphenyl ether (BDE-166)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 1614A 1	9815	2,3',4,4',5-Pentabromodiphenyl ether (BDE-118)		
	9764	2,3',4,4'-Tetrabromodiphenyl ether (BDE-66)		
	9817	2,3',4,5,5'-Pentabromodiphenyl ether (BDE-120)		
	9813	2,3,4,5,6-Pentabromodiphenyl ether (BDE-116)		
	9769	2,3',4',6-Tetrabromodiphenyl ether (BDE-71)		
	9720	2,3,4-Tribromodiphenyl ether (BDE-21)		
	9724	2,3',4-Tribromodiphenyl ether (BDE-25)		
	9732	2',3,4-Tribromodiphenyl ether (BDE-33)		
	9774	2,4,4',6-Tetrabromodiphenyl ether (BDE-75)		
	9727	2,4,4'-Tribromodiphenyl ether (BDE-28)		
	9729	2,4,6-Tribromodiphenyl ether (BDE-30)		
	9731	2,4',6-Tribromodiphenyl ether (BDE-32)		
	9706	2,4-Dibromodiphenyl ether (BDE-7)		
	9707	2,4'-Dibromodiphenyl ether (BDE-8)		
	9709	2,6-Dibromodiphenyl ether (BDE-10)		
	9700	2-Monobromodiphenyl ether (BDE-1)		
	9865	3,3',4,4',5,5'-Hexabromodiphenyl ether (BDE-169)		
	9823	3,3',4,4',5-Pentabromodiphenyl ether (BDE-126)		
	9776	3,3',4,4'-Tetrabromodiphenyl ether (BDE-77)		
	9734	3,3',4-Tribromodiphenyl ether (BDE-35)		
	9710	3,3'-Dibromodiphenyl ether (BDE-11)		
	9736	3,4,4'-Tribromodiphenyl ether (BDE-37)		
	9711	3,4-Dibromodiphenyl ether (BDE-12)		
	9712	3,4'-Dibromodiphenyl ether (BDE-13)		
	9701	3-Monobromodiphenyl ether (BDE-2)		
	9714	4,4'-Dibromodiphenyl ether (BDE-15)		
	9905	Decabromodiphenyl ether (BDE-209)		
EPA 1668A EPA 1668A			10262029	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
	9095	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)		
	9090	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)		
	9101	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)		
	9103	2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9102	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)
		9065	2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)
		9104	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)
		9106	2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)
		9020	2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)
		9107	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)
		9109	2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)
		9108	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)
		9110	2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)
		9111	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)
		9112	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)
		9113	2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)
		9116	2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)
		9115	2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)
		9114	2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)
		9118	2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)
		9117	2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)
		9119	2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)
		9121	2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)
		9120	2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)
		9122	2,2',3,3',4-Pentachlorobiphenyl (BZ-82)
		9123	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)
		9124	2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)
		9125	2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)
		9126	2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)
		9128	2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9127	2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)
		9129	2,2',3,3',5-Pentachlorobiphenyl (BZ-83)
		9130	2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)
		9131	2,2',3,3',6-Pentachlorobiphenyl (BZ-84)
		9132	2,2',3,3'-Tetrachlorobiphenyl (BZ-40)
		9133	2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)
		9134	2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)
		9135	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)
		9137	2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)
		9136	2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)
		9075	2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)
		9138	2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)
		9025	2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)
		9139	2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)
		9141	2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)
		9140	2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)
		9142	2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)
		9143	2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)
		9080	2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)
		9030	2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)
		9144	2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)
		9145	2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)
		9146	2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)
		9148	2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)
		9152	2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)
		9150	2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)
		9149	2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9147	2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)
		9151	2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)
		9153	2,2',3,4,5-Pentachlorobiphenyl (BZ-86)
		8975	2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)
		9155	2,2',3,4',5-Pentachlorobiphenyl (BZ-90)
		9154	2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)
		9156	2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)
		9157	2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)
		9158	2,2',3,4,6-Pentachlorobiphenyl (BZ-88)
		9161	2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)
		9160	2,2',3,4',6-Pentachlorobiphenyl (BZ-91)
		9159	2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)
		9163	2,2',3,4-Tetrachlorobiphenyl (BZ-41)
		9162	2,2',3,4'-Tetrachlorobiphenyl (BZ-42)
		9035	2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)
		9164	2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)
		9165	2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)
		9168	2,2',3,5,6-Pentachlorobiphenyl (BZ-93)
		9167	2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)
		9166	2,2',3,5',6-Pentachlorobiphenyl (BZ-95)
		9169	2,2',3,5-Tetrachlorobiphenyl (BZ-43)
		8945	2,2',3,5'-Tetrachlorobiphenyl (BZ-44)
		9170	2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)
		9172	2,2',3,6-Tetrachlorobiphenyl (BZ-45)
		9171	2,2',3,6'-Tetrachlorobiphenyl (BZ-46)
		9173	2,2',3-Trichlorobiphenyl (BZ-16)
		9040	2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)
		9174	2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)
		9175	2,2',4,4',5-Pentachlorobiphenyl (BZ-99)
		9176	2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)
		9177	2,2',4,4',6-Pentachlorobiphenyl (BZ-100)
		9178	2,2',4,4'-Tetrachlorobiphenyl (BZ-47)
		8980	2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)
		9180	2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9179	2,2',4,5',6-Pentachlorobiphenyl (BZ-103)
		9181	2,2',4,5-Tetrachlorobiphenyl (BZ-48)
		8950	2,2',4,5'-Tetrachlorobiphenyl (BZ-49)
		9182	2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)
		9184	2,2',4,6-Tetrachlorobiphenyl (BZ-50)
		9183	2,2',4,6'-Tetrachlorobiphenyl (BZ-51)
		9185	2,2',4-Trichlorobiphenyl (BZ-17)
		8955	2,2',5,5'-Tetrachlorobiphenyl (BZ-52)
		9186	2,2',5,6'-Tetrachlorobiphenyl (BZ-53)
		8930	2,2',5-Trichlorobiphenyl (BZ-18)
		9187	2,2',6,6'-Tetrachlorobiphenyl (BZ-54)
		9188	2,2',6-Trichlorobiphenyl (BZ-19)
		9189	2,2'-Dichlorobiphenyl (BZ-4)
		9190	2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)
		9085	2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)
		9191	2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)
		9192	2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)
		9050	2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)
		9045	2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)
		9193	2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)
		8985	2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)
		9194	2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)
		9195	2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)
		9196	2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)
		9197	2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)
		9198	2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)
		9199	2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)
		9201	2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)
		9200	2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)
		9204	2,3,3',4,5-Pentachlorobiphenyl (BZ-106)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9205	2,3,3',4',5-Pentachlorobiphenyl (BZ-107)
		9203	2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)
		9202	2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)
		9206	2,3,3',4,6-Pentachlorobiphenyl (BZ-109)
		8990	2,3,3',4',6-Pentachlorobiphenyl (BZ-110)
		9208	2,3,3',4-Tetrachlorobiphenyl (BZ-55)
		9207	2,3,3',4'-Tetrachlorobiphenyl (BZ-56)
		9209	2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)
		9210	2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)
		9211	2,3,3',5,6-Pentachlorobiphenyl (BZ-112)
		9212	2,3,3',5',6-Pentachlorobiphenyl (BZ-113)
		9214	2,3,3',5-Tetrachlorobiphenyl (BZ-57)
		9213	2,3,3',5'-Tetrachlorobiphenyl (BZ-58)
		9215	2,3,3',6-Tetrachlorobiphenyl (BZ-59)
		9216	2,3,3'-Trichlorobiphenyl (BZ-20)
		9055	2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)
		9217	2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)
		9218	2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)
		9005	2,3,4,4',5-Pentachlorobiphenyl (BZ-114)
		8995	2,3',4,4',5-Pentachlorobiphenyl (BZ-118)
		9011	2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)
		9219	2,3,4,4',6-Pentachlorobiphenyl (BZ-115)
		9220	2,3',4,4',6-Pentachlorobiphenyl (BZ-119)
		9221	2,3,4,4'-Tetrachlorobiphenyl (BZ-60)
		8960	2,3',4,4'-Tetrachlorobiphenyl (BZ-66)
		9223	2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)
		9222	2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)
		9225	2,3,4,5,6-Pentachlorobiphenyl (BZ-116)
		9227	2,3,4',5,6-Pentachlorobiphenyl (BZ-117)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9226	2,3',4,5',6-Pentachlorobiphenyl (BZ-121)
		9224	2,3',4',5',6-Pentachlorobiphenyl (BZ-125)
		9228	2,3,4,5-Tetrachlorobiphenyl (BZ-61)
		9233	2,3,4',5-Tetrachlorobiphenyl (BZ-63)
		9231	2,3',4,5'-Tetrachlorobiphenyl (BZ-68)
		9230	2,3',4',5-Tetrachlorobiphenyl (BZ-70)
		9229	2,3',4',5'-Tetrachlorobiphenyl (BZ-76)
		9232	2,3',4,5-Tetrachlorobiphenyl (BZ-67)
		9234	2,3,4,6-Tetrachlorobiphenyl (BZ-62)
		9236	2,3,4',6-Tetrachlorobiphenyl (BZ-64)
		9235	2,3',4,6-Tetrachlorobiphenyl (BZ-69)
		9237	2,3',4',6-Tetrachlorobiphenyl (BZ-71)
		9238	2,3,4-Trichlorobiphenyl (BZ-21)
		9241	2,3,4'-Trichlorobiphenyl (BZ-22)
		9240	2,3',4-Trichlorobiphenyl (BZ-25)
		9239	2,3',4'-Trichlorobiphenyl (BZ-33)
		9242	2,3',5,5'-Tetrachlorobiphenyl (BZ-72)
		9243	2,3,5,6-Tetrachlorobiphenyl (BZ-65)
		9244	2,3',5',6-Tetrachlorobiphenyl (BZ-73)
		9245	2,3,5-Trichlorobiphenyl (BZ-23)
		8935	2,3',5-Trichlorobiphenyl (BZ-26)
		9246	2,3',5'-Trichlorobiphenyl (BZ-34)
		9247	2,3,6-Trichlorobiphenyl (BZ-24)
		9248	2,3',6-Trichlorobiphenyl (BZ-27)
		9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
		9612	2,3,7,8-Tetrachlorodibenzofuran
		8920	2,3-Dichlorobiphenyl (BZ-5)
		9249	2,3'-Dichlorobiphenyl (BZ-6)
		9250	2,4,4',5-Tetrachlorobiphenyl (BZ-74)
		9251	2,4,4',6-Tetrachlorobiphenyl (BZ-75)
		9252	2,4,4'-Trichlorobiphenyl (BZ-28)
		9253	2,4,5-Trichlorobiphenyl (BZ-29)
		8940	2,4',5-Trichlorobiphenyl (BZ-31)
		9254	2,4,6-Trichlorobiphenyl (BZ-30)
		9255	2,4',6-Trichlorobiphenyl (BZ-32)
		9257	2,4-Dichlorobiphenyl (BZ-7)
		9256	2,4'-Dichlorobiphenyl (BZ-8)
		9258	2,5-Dichlorobiphenyl (BZ-9)
		9259	2,6-Dichlorobiphenyl (BZ-10)
		8915	2-Chlorobiphenyl (BZ-1)
		9060	3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668A EPA 1668A	9015	3,3',4,4',5-Pentachlorobiphenyl (BZ-126)		
		8965	3,3',4,4'-Tetrachlorobiphenyl (BZ-77)		
		9260	3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)		
		9262	3,3',4,5-Tetrachlorobiphenyl (BZ-78)		
		9261	3,3',4,5'-Tetrachlorobiphenyl (BZ-79)		
		9263	3,3',4-Trichlorobiphenyl (BZ-35)		
		9264	3,3',5,5'-Tetrachlorobiphenyl (BZ-80)		
		9265	3,3',5-Trichlorobiphenyl (BZ-36)		
		8925	3,3'-Dichlorobiphenyl (BZ-11)		
		8970	3,4,4',5-Tetrachlorobiphenyl (BZ-81)		
		9266	3,4,4'-Trichlorobiphenyl (BZ-37)		
		9267	3,4,5-Trichlorobiphenyl (BZ-38)		
		9268	3,4',5-Trichlorobiphenyl (BZ-39)		
		9270	3,4-Dichlorobiphenyl (BZ-12)		
		9269	3,4'-Dichlorobiphenyl (BZ-13)		
		9271	3,5-Dichlorobiphenyl (BZ-14)		
		9272	3-Chlorobiphenyl (BZ-2)		
		9273	4,4'-Dichlorobiphenyl (BZ-15)		
		9274	4-Chlorobiphenyl (BZ-3)		
		9105	Decachlorobiphenyl (BZ-209)		
		8876	Total Dichlorobiphenyls		
		8877	Total Heptachlorobiphenyls		
		8888	Total Hexachlorobiphenyls		
		8889	Total Monochlorobiphenyls		
		8891	Total Nonachlorobiphenyls		
		8892	Total Octachlorobiphenyls		
		8893	Total Tetrachlorobiphenyls		
		8894	Total Trichlorobiphenyls		
	EPA 1668C EPA 1668C			10262109	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
		9095	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)		
		9090	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)		
		9101	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)		
		9103	2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)		
		9102	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)		
		9065	2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)		
		9104	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668C EPA 1668C	9106	2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)
		9020	2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)
		9107	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)
		9109	2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)
		9108	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)
		9110	2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)
		9111	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)
		9112	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)
		9113	2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)
		9116	2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)
		9115	2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)
		9114	2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)
		9118	2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)
		9117	2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)
		9119	2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)
		9121	2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)
		9120	2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)
		9122	2,2',3,3',4-Pentachlorobiphenyl (BZ-82)
		9123	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)
		9124	2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)
		9125	2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)
		9126	2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)
		9128	2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)
		9127	2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)
		9129	2,2',3,3',5-Pentachlorobiphenyl (BZ-83)
		9130	2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)
		9131	2,2',3,3',6-Pentachlorobiphenyl (BZ-84)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668C	9132	2,2',3,3'-Tetrachlorobiphenyl (BZ-40)
	EPA 1668C	9133	2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)
		9134	2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)
		9135	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)
		9137	2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)
		9136	2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)
		9075	2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)
		9138	2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)
		9025	2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)
		9139	2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)
		9141	2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)
		9140	2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)
		9142	2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)
		9143	2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)
		9080	2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)
		9030	2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)
		9144	2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)
		9145	2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)
		9146	2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)
		9148	2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)
		9152	2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)
		9150	2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)
		9149	2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)
		9147	2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)
		9151	2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)
		9153	2,2',3,4,5-Pentachlorobiphenyl (BZ-86)
		8975	2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668C EPA 1668C	9155	2,2',3,4',5-Pentachlorobiphenyl (BZ-90)
		9154	2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)
		9156	2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)
		9157	2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)
		9158	2,2',3,4,6-Pentachlorobiphenyl (BZ-88)
		9161	2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)
		9160	2,2',3,4',6-Pentachlorobiphenyl (BZ-91)
		9159	2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)
		9163	2,2',3,4-Tetrachlorobiphenyl (BZ-41)
		9162	2,2',3,4'-Tetrachlorobiphenyl (BZ-42)
		9035	2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)
		9164	2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)
		9165	2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)
		9168	2,2',3,5,6-Pentachlorobiphenyl (BZ-93)
		9167	2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)
		9166	2,2',3,5',6-Pentachlorobiphenyl (BZ-95)
		9169	2,2',3,5-Tetrachlorobiphenyl (BZ-43)
		8945	2,2',3,5'-Tetrachlorobiphenyl (BZ-44)
		9170	2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)
		9172	2,2',3,6-Tetrachlorobiphenyl (BZ-45)
		9171	2,2',3,6'-Tetrachlorobiphenyl (BZ-46)
		9173	2,2',3-Trichlorobiphenyl (BZ-16)
		9040	2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)
		9174	2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)
		9175	2,2',4,4',5-Pentachlorobiphenyl (BZ-99)
		9176	2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)
		9178	2,2',4,4'-Tetrachlorobiphenyl (BZ-47)
		8980	2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)
		9180	2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)
		9179	2,2',4,5',6-Pentachlorobiphenyl (BZ-103)
		9181	2,2',4,5-Tetrachlorobiphenyl (BZ-48)
		8950	2,2',4,5'-Tetrachlorobiphenyl (BZ-49)
		9182	2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)
		9184	2,2',4,6-Tetrachlorobiphenyl (BZ-50)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668C	9183	2,2',4,6'-Tetrachlorobiphenyl (BZ-51)
	EPA 1668C	9185	2,2',4-Trichlorobiphenyl (BZ-17)
		8955	2,2',5,5'-Tetrachlorobiphenyl (BZ-52)
		9186	2,2',5,6'-Tetrachlorobiphenyl (BZ-53)
		8930	2,2',5-Trichlorobiphenyl (BZ-18)
		9187	2,2',6,6'-Tetrachlorobiphenyl (BZ-54)
		9188	2,2',6-Trichlorobiphenyl (BZ-19)
		9189	2,2'-Dichlorobiphenyl (BZ-4)
		9190	2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)
		9085	2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)
		9191	2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)
		9192	2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)
		9050	2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)
		9045	2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)
		9193	2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)
		8985	2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)
		9194	2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)
		9195	2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)
		9196	2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)
		9197	2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)
		9198	2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)
		9199	2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)
		9201	2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)
		9200	2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)
		9204	2,3,3',4,5-Pentachlorobiphenyl (BZ-106)
		9205	2,3,3',4',5-Pentachlorobiphenyl (BZ-107)
		9203	2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)
		9202	2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)
		9206	2,3,3',4,6-Pentachlorobiphenyl (BZ-109)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue	EPA 1668C EPA 1668C	8990	2,3,3',4',6-Pentachlorobiphenyl (BZ-110)
		9208	2,3,3',4-Tetrachlorobiphenyl (BZ-55)
		9207	2,3,3',4'-Tetrachlorobiphenyl (BZ-56)
		9209	2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)
		9210	2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)
		9211	2,3,3',5,6-Pentachlorobiphenyl (BZ-112)
		9212	2,3,3',5',6-Pentachlorobiphenyl (BZ-113)
		9214	2,3,3',5-Tetrachlorobiphenyl (BZ-57)
		9213	2,3,3',5'-Tetrachlorobiphenyl (BZ-58)
		9215	2,3,3',6-Tetrachlorobiphenyl (BZ-59)
		9216	2,3,3'-Trichlorobiphenyl (BZ-20)
		9055	2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)
		9217	2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)
		9218	2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)
		9005	2,3,4,4',5-Pentachlorobiphenyl (BZ-114)
		8995	2,3',4,4',5-Pentachlorobiphenyl (BZ-118)
		9011	2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)
		9219	2,3,4,4',6-Pentachlorobiphenyl (BZ-115)
		9220	2,3',4,4',6-Pentachlorobiphenyl (BZ-119)
		9221	2,3,4,4'-Tetrachlorobiphenyl (BZ-60)
		8960	2,3',4,4'-Tetrachlorobiphenyl (BZ-66)
		9223	2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)
		9222	2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)
		9225	2,3,4,5,6-Pentachlorobiphenyl (BZ-116)
		9227	2,3,4',5,6-Pentachlorobiphenyl (BZ-117)
		9226	2,3',4,5',6-Pentachlorobiphenyl (BZ-121)
		9224	2,3',4',5',6-Pentachlorobiphenyl (BZ-125)
		9228	2,3,4,5-Tetrachlorobiphenyl (BZ-61)
		9233	2,3,4',5-Tetrachlorobiphenyl (BZ-63)
		9231	2,3',4,5'-Tetrachlorobiphenyl (BZ-68)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 1668C	9230	2,3',4',5-Tetrachlorobiphenyl (BZ-70)
EPA 1668C	9229	2,3',4',5'-Tetrachlorobiphenyl (BZ-76)
	9232	2,3',4,5-Tetrachlorobiphenyl (BZ-67)
	9234	2,3,4,6-Tetrachlorobiphenyl (BZ-62)
	9236	2,3,4',6-Tetrachlorobiphenyl (BZ-64)
	9235	2,3',4,6-Tetrachlorobiphenyl (BZ-69)
	9237	2,3',4',6-Tetrachlorobiphenyl (BZ-71)
	9238	2,3,4-Trichlorobiphenyl (BZ-21)
	9241	2,3,4'-Trichlorobiphenyl (BZ-22)
	9240	2,3',4-Trichlorobiphenyl (BZ-25)
	9239	2,3',4'-Trichlorobiphenyl (BZ-33)
	9242	2,3',5,5'-Tetrachlorobiphenyl (BZ-72)
	9243	2,3,5,6-Tetrachlorobiphenyl (BZ-65)
	9244	2,3',5',6-Tetrachlorobiphenyl (BZ-73)
	9245	2,3,5-Trichlorobiphenyl (BZ-23)
	8935	2,3',5-Trichlorobiphenyl (BZ-26)
	9246	2,3',5'-Trichlorobiphenyl (BZ-34)
	9247	2,3,6-Trichlorobiphenyl (BZ-24)
	9248	2,3',6-Trichlorobiphenyl (BZ-27)
	8920	2,3-Dichlorobiphenyl (BZ-5)
	9249	2,3'-Dichlorobiphenyl (BZ-6)
	9250	2,4,4',5-Tetrachlorobiphenyl (BZ-74)
	9251	2,4,4',6-Tetrachlorobiphenyl (BZ-75)
	9252	2,4,4'-Trichlorobiphenyl (BZ-28)
	9253	2,4,5-Trichlorobiphenyl (BZ-29)
	8940	2,4',5-Trichlorobiphenyl (BZ-31)
	9254	2,4,6-Trichlorobiphenyl (BZ-30)
	9255	2,4',6-Trichlorobiphenyl (BZ-32)
	9257	2,4-Dichlorobiphenyl (BZ-7)
	9256	2,4'-Dichlorobiphenyl (BZ-8)
	9258	2,5-Dichlorobiphenyl (BZ-9)
	9259	2,6-Dichlorobiphenyl (BZ-10)
	8915	2-Chlorobiphenyl (BZ-1)
	9060	3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)
	9015	3,3',4,4',5-Pentachlorobiphenyl (BZ-126)
	8965	3,3',4,4'-Tetrachlorobiphenyl (BZ-77)
	9260	3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)
	9262	3,3',4,5-Tetrachlorobiphenyl (BZ-78)
	9261	3,3',4,5'-Tetrachlorobiphenyl (BZ-79)
	9263	3,3',4-Trichlorobiphenyl (BZ-35)
	9264	3,3',5,5'-Tetrachlorobiphenyl (BZ-80)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 1668C EPA 1668C	9265	3,3',5-Trichlorobiphenyl (BZ-36)		
	8925	3,3'-Dichlorobiphenyl (BZ-11)		
	8970	3,4,4',5-Tetrachlorobiphenyl (BZ-81)		
	9266	3,4,4'-Trichlorobiphenyl (BZ-37)		
	9267	3,4,5-Trichlorobiphenyl (BZ-38)		
	9268	3,4',5-Trichlorobiphenyl (BZ-39)		
	9270	3,4-Dichlorobiphenyl (BZ-12)		
	9269	3,4'-Dichlorobiphenyl (BZ-13)		
	9271	3,5-Dichlorobiphenyl (BZ-14)		
	9272	3-Chlorobiphenyl (BZ-2)		
	9273	4,4'-Dichlorobiphenyl (BZ-15)		
	9274	4-Chlorobiphenyl (BZ-3)		
	9105	Decachlorobiphenyl (BZ-209)		
	8876	Total Dichlorobiphenyls		
	8877	Total Heptachlorobiphenyls		
	8888	Total Hexachlorobiphenyls		
	8889	Total Monochlorobiphenyls		
	8891	Total Nonachlorobiphenyls		
	8892	Total Octachlorobiphenyls		
	8893	Total Tetrachlorobiphenyls		
	8894	Total Trichlorobiphenyls		
EPA 1668C			10262109	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
	9177	2,2',4,4',6-Pentachlorobiphenyl (BZ-100)		
EPA 1699			10133105	Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS
	8580	2,4'-DDD		
	8585	2,4'-DDE		
	8590	2,4'-DDT		
	7355	4,4'-DDD		
	7360	4,4'-DDE		
	7365	4,4'-DDT		
	7005	Alachlor		
	7025	Aldrin		
	7110	alpha-BHC (alpha-Hexachlorocyclohexane)		
	7115	beta-BHC (beta-Hexachlorocyclohexane)		
	7240	cis-chlordane (alpha-Chlordane)		
	7925	cis-Nonachlor		
	7105	delta-BHC		
	7470	Dieldrin		
	7510	Endosulfan I		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 1699	7515	Endosulfan II	
	7520	Endosulfan sulfate	
	7540	Endrin	
	7530	Endrin aldehyde	
	7535	Endrin ketone	
	7120	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	
	7685	Heptachlor	
	7690	Heptachlor epoxide	
	6275	Hexachlorobenzene	
	4835	Hexachlorobutadiene	
	7810	Methoxychlor	
	7870	Mirex	
	3890	Oxychlordane	
	7245	trans-chlordane (gamma-Chlordane)	
	7910	trans-Nonachlor	
EPA 537 1.1		10091675	Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS
	6457	6:2 Fluorotelomersulfonate (6:2FTS)	
	6461	8:2 Fluorotelomersulfonate (8:2FTS)	
	9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	
	9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)	
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	
	9433	N-Methylperfluorooctanesulfonamide (MeFOSA)	
	9434	N-Methylperfluorooctanesulfonamidoethanol (MeFOSA)	
	6911	Perfluorobutane Sulfonate (PFBS)	
	6915	Perfluorobutyric acid (PFBA)	
	9562	Perfluorodecane Sulfonate (PFDS)	
	6905	Perfluorodecanoic acid (PFDA)	
	6903	Perfluorododecanoic acid (PFDoA)	
	9470	Perfluoroheptanesulfonic acid (PFHpA)	
	6908	Perfluoroheptanoic acid (PFHpA)	
	6901	Perfluorohexadecanoic acid (PFHxDA)	
	6910	Perfluorohexane Sulfonate (PFHS)	
	6913	Perfluorohexanoic acid (PFHxA)	
	6906	Perfluorononanoic acid (PFNA)	
	6916	Perfluorooctadecanoic acid (PFODA)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 537 1.1	6917	Perfluorooctane Sulfonamide (PFOSA)	
	6912	Perfluorooctanoic acid (PFOA)	
	6909	Perfluorooctanoic Sulfonate (PFOS)	
	6914	Perfluoropentanoic acid (PFPeA)	
	6902	Perfluorotetradecanoic acid (PFTA)	
	9563	Perfluorotridecanoic acid (PFTrDA)	
	6904	Perfluoroundecanoic acid (PFUnA)	
EPA 8280A			10186808 Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)	
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran	
	9549	2,3,4,7,8-Pentachlorodibenzofuran	
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	
	9612	2,3,7,8-Tetrachlorodibenzofuran	
	9438	Hpcdd, total	
	9444	Hpcdf, total	
	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 8280A	9615	TCDF, total		
EPA 8280B			10187005	Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
	9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate		
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
	9549	2,3,4,7,8-Pentachlorodibenzofuran		
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
	9612	2,3,7,8-Tetrachlorodibenzofuran		
	9438	Hpcdd, total		
	9444	Hpcdf, total		
	9468	Hxcdd, total		
	9483	Hxcdf, total		
	9555	Pecdd, total		
	9552	Pecdf, total		
	9609	TCDD, total		
	9615	TCDF, total		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 8290			10187209	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
	9549	2,3,4,7,8-Pentachlorodibenzofuran		
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
	9612	2,3,7,8-Tetrachlorodibenzofuran		
	9438	Hpcdd, total		
	9444	Hpcdf, total		
	9468	Hxcdd, total		
	9483	Hxcdf, total		
	9555	Pecdd, total		
	9552	Pecdf, total		
	9609	TCDD, total		
	9615	TCDF, total		
EPA 8290A			10187403	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

EPA 8290A	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)	
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran	
	9549	2,3,4,7,8-Pentachlorodibenzofuran	
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	
	9612	2,3,7,8-Tetrachlorodibenzofuran	
	9438	Hpcdd, total	
	9444	Hpcdf, total	
	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	
VAL SOP 49 18			60048502 Vista Analytical Laboratory - Per and Poly-fluorinated Compounds
	9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	
	6946	4:2 Fluorotelomersulfonic acid (4:2 FTS)	
	6947	6:2 Fluorotelomersulfonic acid	
	6948	8:2 Fluorotelomersulfonic acid (8:2 FTS)	
	6950	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	
	9383	Dodecafluoro-3H-4,8-dioxanonoate (NaDONA)	
	9460	Hexafluoropropylene oxide dimer acid (HFPO-DA)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Biological Tissue

VAL SOP 49 18	9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	
	9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)	
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	
	9433	N-Methylperfluorooctanesulfonamide (MeFOSA)	
	6949	N-Methylperfluorooctanesulfonamidoethanol (N_MeFOSE)	
	6918	Perfluorobutanesulfonic acid	
	6915	Perfluorobutyric acid (PFBA)	
	6920	Perfluorodecane sulfonic acid (PFDS)	
	6905	Perfluorodecanoic acid (PFDA)	
	6903	Perfluorododecanoic acid (PFDoA)	
	9470	Perfluoroheptanesulfonic acid (PFHpA)	
	6908	Perfluoroheptanoic acid (PFHpA)	
	6901	Perfluorohexadecanoic acid (PFHxDA)	
	6927	Perfluorohexanesulfonic acid (PFHxS)	
	6913	Perfluorohexanoic acid (PFHxA)	
	6929	Perfluorononane sulfonic acid (PFNS)	
	6906	Perfluorononanoic acid (PFNA)	
	6916	Perfluorooctadecanoic acid (PFODA)	
	6917	Perfluorooctane Sulfonamide (PFOSA)	
	6931	Perfluorooctanesulfonic acid (PFOS)	
	6912	Perfluorooctanoic acid (PFOA)	
	6934	Perfluoropentane sulfonic acid (PFPeS)	
	6914	Perfluoropentanoic acid (PFPeA)	
	6902	Perfluorotetradecanoic acid (PFTA)	
	9563	Perfluorotridecanoic acid (PFTrDA)	
	6904	Perfluoroundecanoic acid (PFUnA)	

Drinking Water

EPA 1613 EPA 1613			10120408	Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
EPA 1613B			10120602	Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Drinking Water

EPA 537 1.1			10091675	Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS
	6457	6:2 Fluorotelomersulfonate (6:2FTS)		
	6461	8:2 Fluorotelomersulfonate (8:2FTS)		
	9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)		
	9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)		
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)		
	9433	N-Methylperfluorooctanesulfonamide (MeFOSA)		
	9434	N-Methylperfluorooctanesulfonamidoethanol (MeFOSA)		
	6911	Perfluorobutane Sulfonate (PFBS)		
	6915	Perfluorobutyric acid (PFBA)		
	9562	Perfluorodecane Sulfonate (PFDS)		
	6905	Perfluorodecanoic acid (PFDA)		
	6903	Perfluorododecanoic acid (PFDoA)		
	9470	Perfluoroheptanesulfonic acid (PFHpA)		
	6908	Perfluoroheptanoic acid (PFHpA)		
	6901	Perfluorohexadecanoic acid (PFHxDA)		
	6910	Perfluorohexane Sulfonate (PFHS)		
	6913	Perfluorohexanoic acid (PFHxA)		
	6906	Perfluorononanoic acid (PFNA)		
	6916	Perfluorooctadecanoic acid (PFODA)		
	6917	Perfluorooctane Sulfonamide (PFOSA)		
	6912	Perfluorooctanoic acid (PFOA)		
	6909	Perfluorooctanoic Sulfonate (PFOS)		
	6914	Perfluoropentanoic acid (PFPeA)		
	6902	Perfluorotetradecanoic acid (PFTA)		
	9563	Perfluorotridecanoic acid (PFTrDA)		
	6904	Perfluoroundecanoic acid (PFUnA)		
EPA 537.1 1.0			10091642	Per- and Polyfluorinated Alkyl Substances in Drinking Water by LC/MS/MS
	9490	11-chloreicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		
	198	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid (HFPO-DA)		
	6951	4,8-dioxa-3H-perfluorononanoic acid (ADONA)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Drinking Water

EPA 537.1 1.0	6952	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	
	9460	Hexafluoropropylene oxide dimer acid (HFPO-DA)	
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	
	6911	Perfluorobutane Sulfonate (PFBS)	
	6918	Perfluorobutanesulfonic acid	
	6905	Perfluorodecanoic acid (PFDA)	
	6903	Perfluorododecanoic acid (PFDoA)	
	6908	Perfluoroheptanoic acid (PFHpA)	
	6910	Perfluorohexane Sulfonate (PFHS)	
	6927	Perfluorohexanesulfonic acid (PFHxS)	
	6913	Perfluorohexanoic acid (PFHxA)	
	6906	Perfluorononanoic acid (PFNA)	
	6931	Perfluorooctanesulfonic acid (PFOS)	
	6912	Perfluorooctanoic acid (PFOA)	
	6909	Perfluorooctanoic Sulfonate (PFOS)	
	6902	Perfluorotetradecanoic acid (PFTA)	
	9563	Perfluorotridecanoic acid (PFTrDA)	
	6904	Perfluoroundecanoic acid (PFUnA)	
ISO 25101 2009			972 Perfluorooctanesulfonate (PFOS) and Perfluorooctanoate (PFOA) by SPE - HPLC/MS/MS
	6911	Perfluorobutane Sulfonate (PFBS)	
	6908	Perfluoroheptanoic acid (PFHpA)	
	6901	Perfluorohexadecanoic acid (PFHxDA)	
	6910	Perfluorohexane Sulfonate (PFHS)	
	6913	Perfluorohexanoic acid (PFHxA)	
	6906	Perfluorononanoic acid (PFNA)	
	6916	Perfluorooctadecanoic acid (PFODA)	
	6917	Perfluorooctane Sulfonamide (PFOSA)	
	6912	Perfluorooctanoic acid (PFOA)	
	6909	Perfluorooctanoic Sulfonate (PFOS)	
	6914	Perfluoropentanoic acid (PFPeA)	
	6902	Perfluorotetradecanoic acid (PFTA)	
	9563	Perfluorotridecanoic acid (PFTrDA)	
	6904	Perfluoroundecanoic acid (PFUnA)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1613B			10120602	Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
	9549	2,3,4,7,8-Pentachlorodibenzofuran		
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
	9612	2,3,7,8-Tetrachlorodibenzofuran		
	9438	Hpcdd, total		
	9444	Hpcdf, total		
	9468	Hxcdd, total		
	9483	Hxcdf, total		
	9555	Pecdd, total		
	9552	Pecdf, total		
	9609	TCDD, total		
	9615	TCDF, total		
EPA 1614A 1			10120704	Brominated Diphenyl Ethers by HRGC/HRMS
	9902	2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether (BDE-206)		
	9903	2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether (BDE-207)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1614A 1	9892	2,2',3,3',4,4',5,6'-Octabromodiphenyl ether (BDE-196)
	9893	2,2',3,3',4,4',6,6'-Octabromodiphenyl ether (BDE-197)
	9904	2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether (BDE-208)
	9896	2,2',3,3',4,5,6,6'-Octabromodiphenyl ether (BDE-200)
	9897	2,2',3,3',4,5',6,6'-Octabromodiphenyl ether (BDE-201)
	9873	2,2',3,3',4',5,6-Heptabromodiphenyl ether (BDE-177)
	9872	2,2',3,3',4,6,6'-Heptabromodiphenyl ether (BDE-176)
	9874	2,2',3,3',5,5',6-Heptabromodiphenyl ether (BDE-178)
	9899	2,2',3,4,4',5,5',6-Octabromodiphenyl ether (BDE-203)
	9876	2,2',3,4,4',5,5'-Heptabromodiphenyl ether (BDE-180)
	9900	2,2',3,4,4',5,6,6'-Octabromodiphenyl ether (BDE-204)
	9877	2,2',3,4,4',5,6-Heptabromodiphenyl ether (BDE-181)
	9879	2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE-183)
	9835	2,2',3,4,4',5'-Hexabromodiphenyl ether (BDE-138)
	9880	2,2',3,4,4',6,6'-Heptabromodiphenyl ether (BDE-184)
	9836	2,2',3,4,4',6-Hexabromodiphenyl ether (BDE-139)
	9837	2,2',3,4,4',6'-Hexabromodiphenyl ether (BDE-140)
	9784	2,2',3,4,4'-Pentabromodiphenyl ether (BDE-85)
	9569	2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)
	9850	2,2',4,4',5',6-Hexabromodiphenyl ether (BDE-154)
	9571	2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)
	9851	2,2',4,4',6,6'-Hexabromodiphenyl ether (BDE-155)
	9572	2,2',4,4',6-Pentabromodiphenyl ether (BDE-100)
	9773	2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)
	9747	2,2',4,5'-Tetrabromodiphenyl ether (BDE-49)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1614A 1	9749	2,2',4,6'-Tetrabromodiphenyl ether (BDE-51)
	9716	2,2',4-Tribromodiphenyl ether (BDE-17)
	9867	2,2'3,3',4,4',6-Heptabromodiphenyl ether (BDE-171)
	9901	2,3,3',4,4',5,5',6-Octabromodiphenyl ether (BDE-205)
	9886	2,3,3',4,4',5,6-Heptabromodiphenyl ether (BDE-190)
	9887	2,3,3',4,4',5',6-Heptabromodiphenyl ether (BDE-191)
	9852	2,3,3',4,4',5-Hexabromodiphenyl ether (BDE-156)
	9802	2,3,3',4,4'-Pentabromodiphenyl ether (BDE-105)
	9862	2,3,4,4',5,6-Hexabromodiphenyl ether (BDE-166)
	9815	2,3',4,4',5-Pentabromodiphenyl ether (BDE-118)
	9764	2,3',4,4'-Tetrabromodiphenyl ether (BDE-66)
	9817	2,3',4,5,5'-Pentabromodiphenyl ether (BDE-120)
	9813	2,3,4,5,6-Pentabromodiphenyl ether (BDE-116)
	9769	2,3',4',6-Tetrabromodiphenyl ether (BDE-71)
	9720	2,3,4-Tribromodiphenyl ether (BDE-21)
	9724	2,3',4-Tribromodiphenyl ether (BDE-25)
	9732	2',3,4-Tribromodiphenyl ether (BDE-33)
	9774	2,4,4',6-Tetrabromodiphenyl ether (BDE-75)
	9727	2,4,4'-Tribromodiphenyl ether (BDE-28)
	9729	2,4,6-Tribromodiphenyl ether (BDE-30)
	9731	2,4',6-Tribromodiphenyl ether (BDE-32)
	9706	2,4-Dibromodiphenyl ether (BDE-7)
	9707	2,4'-Dibromodiphenyl ether (BDE-8)
	9709	2,6-Dibromodiphenyl ether (BDE-10)
	9700	2-Monobromodiphenyl ether (BDE-1)
	9865	3,3',4,4',5,5'-Hexabromodiphenyl ether (BDE-169)
	9823	3,3',4,4',5-Pentabromodiphenyl ether (BDE-126)
	9776	3,3',4,4'-Tetrabromodiphenyl ether (BDE-77)
	9734	3,3',4-Tribromodiphenyl ether (BDE-35)
	9710	3,3'-Dibromodiphenyl ether (BDE-11)
	9736	3,4,4'-Tribromodiphenyl ether (BDE-37)
	9711	3,4-Dibromodiphenyl ether (BDE-12)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1614A 1	9712	3,4'-Dibromodiphenyl ether (BDE-13)		
	9701	3-Monobromodiphenyl ether (BDE-2)		
	9714	4,4'-Dibromodiphenyl ether (BDE-15)		
	9905	Decabromodiphenyl ether (BDE-209)		
EPA 1668A EPA 1668A			10262029	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
	9095	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)		
	9090	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)		
	9101	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)		
	9103	2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)		
	9102	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)		
	9065	2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)		
	9104	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)		
	9106	2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)		
	9020	2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)		
	9107	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)		
	9109	2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)		
	9108	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)		
	9110	2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)		
	9111	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)		
	9112	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)		
	9113	2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)		
	9116	2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)		
	9115	2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)		
	9114	2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)		
	9118	2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)		
	9117	2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)		
	9119	2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668A	9121	2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)
EPA 1668A	9120	2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)
	9122	2,2',3,3',4-Pentachlorobiphenyl (BZ-82)
	9123	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)
	9124	2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)
	9125	2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)
	9126	2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)
	9128	2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)
	9127	2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)
	9129	2,2',3,3',5-Pentachlorobiphenyl (BZ-83)
	9130	2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)
	9131	2,2',3,3',6-Pentachlorobiphenyl (BZ-84)
	9132	2,2',3,3'-Tetrachlorobiphenyl (BZ-40)
	9133	2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)
	9134	2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)
	9135	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)
	9137	2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)
	9136	2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)
	9075	2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)
	9138	2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)
	9025	2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)
	9139	2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)
	9141	2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)
	9140	2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)
	9142	2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)
	9143	2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)
	9080	2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668A	9030	2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)
EPA 1668A	9144	2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)
	9145	2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)
	9146	2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)
	9148	2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)
	9152	2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)
	9150	2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)
	9149	2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)
	9147	2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)
	9151	2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)
	9153	2,2',3,4,5-Pentachlorobiphenyl (BZ-86)
	8975	2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)
	9155	2,2',3,4',5-Pentachlorobiphenyl (BZ-90)
	9154	2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)
	9156	2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)
	9157	2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)
	9158	2,2',3,4,6-Pentachlorobiphenyl (BZ-88)
	9161	2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)
	9160	2,2',3,4',6-Pentachlorobiphenyl (BZ-91)
	9159	2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)
	9163	2,2',3,4-Tetrachlorobiphenyl (BZ-41)
	9162	2,2',3,4'-Tetrachlorobiphenyl (BZ-42)
	9035	2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)
	9164	2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)
	9165	2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)
	9168	2,2',3,5,6-Pentachlorobiphenyl (BZ-93)
	9167	2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)
	9166	2,2',3,5',6-Pentachlorobiphenyl (BZ-95)
	9169	2,2',3,5-Tetrachlorobiphenyl (BZ-43)
	8945	2,2',3,5'-Tetrachlorobiphenyl (BZ-44)
	9170	2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)
	9172	2,2',3,6-Tetrachlorobiphenyl (BZ-45)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668A	9171	2,2',3,6'-Tetrachlorobiphenyl (BZ-46)
EPA 1668A	9173	2,2',3-Trichlorobiphenyl (BZ-16)
	9040	2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)
	9174	2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)
	9175	2,2',4,4',5-Pentachlorobiphenyl (BZ-99)
	9176	2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)
	9177	2,2',4,4',6-Pentachlorobiphenyl (BZ-100)
	9178	2,2',4,4'-Tetrachlorobiphenyl (BZ-47)
	8980	2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)
	9180	2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)
	9179	2,2',4,5',6-Pentachlorobiphenyl (BZ-103)
	9181	2,2',4,5-Tetrachlorobiphenyl (BZ-48)
	8950	2,2',4,5'-Tetrachlorobiphenyl (BZ-49)
	9182	2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)
	9184	2,2',4,6-Tetrachlorobiphenyl (BZ-50)
	9183	2,2',4,6'-Tetrachlorobiphenyl (BZ-51)
	9185	2,2',4-Trichlorobiphenyl (BZ-17)
	8955	2,2',5,5'-Tetrachlorobiphenyl (BZ-52)
	9186	2,2',5,6'-Tetrachlorobiphenyl (BZ-53)
	8930	2,2',5-Trichlorobiphenyl (BZ-18)
	9187	2,2',6,6'-Tetrachlorobiphenyl (BZ-54)
	9188	2,2',6-Trichlorobiphenyl (BZ-19)
	9189	2,2'-Dichlorobiphenyl (BZ-4)
	9190	2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)
	9085	2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)
	9191	2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)
	9192	2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)
	9050	2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)
	9045	2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)
	9193	2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)
	8985	2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)
	9194	2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

	EPA 1668A	9195	2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)
	EPA 1668A	9196	2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)
		9197	2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)
		9198	2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)
		9199	2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)
		9201	2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)
		9200	2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)
		9204	2,3,3',4,5-Pentachlorobiphenyl (BZ-106)
		9205	2,3,3',4',5-Pentachlorobiphenyl (BZ-107)
		9203	2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)
		9202	2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)
		9206	2,3,3',4,6-Pentachlorobiphenyl (BZ-109)
		8990	2,3,3',4',6-Pentachlorobiphenyl (BZ-110)
		9208	2,3,3',4-Tetrachlorobiphenyl (BZ-55)
		9207	2,3,3',4'-Tetrachlorobiphenyl (BZ-56)
		9209	2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)
		9210	2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)
		9211	2,3,3',5,6-Pentachlorobiphenyl (BZ-112)
		9212	2,3,3',5',6-Pentachlorobiphenyl (BZ-113)
		9214	2,3,3',5-Tetrachlorobiphenyl (BZ-57)
		9213	2,3,3',5'-Tetrachlorobiphenyl (BZ-58)
		9215	2,3,3',6-Tetrachlorobiphenyl (BZ-59)
		9216	2,3,3'-Trichlorobiphenyl (BZ-20)
		9055	2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)
		9217	2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)
		9218	2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)
		9005	2,3,4,4',5-Pentachlorobiphenyl (BZ-114)
		8995	2,3',4,4',5-Pentachlorobiphenyl (BZ-118)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

	EPA 1668A	9011	2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)
	EPA 1668A	9219	2,3,4,4',6-Pentachlorobiphenyl (BZ-115)
		9220	2,3',4,4',6-Pentachlorobiphenyl (BZ-119)
		9221	2,3,4,4'-Tetrachlorobiphenyl (BZ-60)
		8960	2,3',4,4'-Tetrachlorobiphenyl (BZ-66)
		9223	2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)
		9222	2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)
		9225	2,3,4,5,6-Pentachlorobiphenyl (BZ-116)
		9227	2,3,4',5,6-Pentachlorobiphenyl (BZ-117)
		9226	2,3',4,5',6-Pentachlorobiphenyl (BZ-121)
		9224	2,3',4',5',6-Pentachlorobiphenyl (BZ-125)
		9228	2,3,4,5-Tetrachlorobiphenyl (BZ-61)
		9233	2,3,4',5-Tetrachlorobiphenyl (BZ-63)
		9231	2,3',4,5'-Tetrachlorobiphenyl (BZ-68)
		9230	2,3',4',5-Tetrachlorobiphenyl (BZ-70)
		9229	2,3',4',5'-Tetrachlorobiphenyl (BZ-76)
		9232	2,3',4,5-Tetrachlorobiphenyl (BZ-67)
		9234	2,3,4,6-Tetrachlorobiphenyl (BZ-62)
		9236	2,3,4',6-Tetrachlorobiphenyl (BZ-64)
		9235	2,3',4,6-Tetrachlorobiphenyl (BZ-69)
		9237	2,3',4',6-Tetrachlorobiphenyl (BZ-71)
		9238	2,3,4-Trichlorobiphenyl (BZ-21)
		9241	2,3,4'-Trichlorobiphenyl (BZ-22)
		9240	2,3',4-Trichlorobiphenyl (BZ-25)
		9239	2,3',4'-Trichlorobiphenyl (BZ-33)
		9242	2,3',5,5'-Tetrachlorobiphenyl (BZ-72)
		9243	2,3,5,6-Tetrachlorobiphenyl (BZ-65)
		9244	2,3',5',6-Tetrachlorobiphenyl (BZ-73)
		9245	2,3,5-Trichlorobiphenyl (BZ-23)
		8935	2,3',5-Trichlorobiphenyl (BZ-26)
		9246	2,3',5'-Trichlorobiphenyl (BZ-34)
		9247	2,3,6-Trichlorobiphenyl (BZ-24)
		9248	2,3',6-Trichlorobiphenyl (BZ-27)
		9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
		9612	2,3,7,8-Tetrachlorodibenzofuran
		8920	2,3-Dichlorobiphenyl (BZ-5)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668A	9249	2,3'-Dichlorobiphenyl (BZ-6)
EPA 1668A	9250	2,4,4',5-Tetrachlorobiphenyl (BZ-74)
	9251	2,4,4',6-Tetrachlorobiphenyl (BZ-75)
	9252	2,4,4'-Trichlorobiphenyl (BZ-28)
	9253	2,4,5-Trichlorobiphenyl (BZ-29)
	8940	2,4',5-Trichlorobiphenyl (BZ-31)
	9254	2,4,6-Trichlorobiphenyl (BZ-30)
	9255	2,4',6-Trichlorobiphenyl (BZ-32)
	9257	2,4-Dichlorobiphenyl (BZ-7)
	9256	2,4'-Dichlorobiphenyl (BZ-8)
	9258	2,5-Dichlorobiphenyl (BZ-9)
	9259	2,6-Dichlorobiphenyl (BZ-10)
	8915	2-Chlorobiphenyl (BZ-1)
	9060	3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)
	9015	3,3',4,4',5-Pentachlorobiphenyl (BZ-126)
	8965	3,3',4,4'-Tetrachlorobiphenyl (BZ-77)
	9260	3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)
	9262	3,3',4,5-Tetrachlorobiphenyl (BZ-78)
	9261	3,3',4,5'-Tetrachlorobiphenyl (BZ-79)
	9263	3,3',4-Trichlorobiphenyl (BZ-35)
	9264	3,3',5,5'-Tetrachlorobiphenyl (BZ-80)
	9265	3,3',5-Trichlorobiphenyl (BZ-36)
	8925	3,3'-Dichlorobiphenyl (BZ-11)
	8970	3,4,4',5-Tetrachlorobiphenyl (BZ-81)
	9266	3,4,4'-Trichlorobiphenyl (BZ-37)
	9267	3,4,5-Trichlorobiphenyl (BZ-38)
	9268	3,4',5-Trichlorobiphenyl (BZ-39)
	9270	3,4-Dichlorobiphenyl (BZ-12)
	9269	3,4'-Dichlorobiphenyl (BZ-13)
	9271	3,5-Dichlorobiphenyl (BZ-14)
	9272	3-Chlorobiphenyl (BZ-2)
	9273	4,4'-Dichlorobiphenyl (BZ-15)
	9274	4-Chlorobiphenyl (BZ-3)
	9105	Decachlorobiphenyl (BZ-209)
	8876	Total Dichlorobiphenyls
	8877	Total Heptachlorobiphenyls
	8888	Total Hexachlorobiphenyls
	8889	Total Monochlorobiphenyls
	8891	Total Nonachlorobiphenyls
	8892	Total Octachlorobiphenyls
	8893	Total Tetrachlorobiphenyls

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668A EPA 1668A	8894	Total Trichlorobiphenyls		
EPA 1668C EPA 1668C			10262109	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
	9095	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)		
	9090	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)		
	9101	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)		
	9103	2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)		
	9102	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)		
	9065	2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)		
	9104	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)		
	9106	2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)		
	9020	2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)		
	9107	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)		
	9109	2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)		
	9108	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)		
	9110	2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)		
	9111	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)		
	9112	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)		
	9113	2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)		
	9116	2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)		
	9115	2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)		
	9114	2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)		
	9118	2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)		
	9117	2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)		
	9119	2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)		
	9121	2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668C	9120	2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)
EPA 1668C	9122	2,2',3,3',4-Pentachlorobiphenyl (BZ-82)
	9123	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)
	9124	2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)
	9125	2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)
	9126	2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)
	9128	2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)
	9127	2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)
	9129	2,2',3,3',5-Pentachlorobiphenyl (BZ-83)
	9130	2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)
	9131	2,2',3,3',6-Pentachlorobiphenyl (BZ-84)
	9132	2,2',3,3'-Tetrachlorobiphenyl (BZ-40)
	9133	2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)
	9134	2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)
	9135	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)
	9137	2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)
	9136	2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)
	9075	2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)
	9138	2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)
	9025	2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)
	9139	2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)
	9141	2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)
	9140	2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)
	9142	2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)
	9143	2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)
	9080	2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)
	9030	2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668C	9144	2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)
EPA 1668C	9145	2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)
	9146	2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)
	9148	2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)
	9152	2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)
	9150	2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)
	9149	2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)
	9147	2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)
	9151	2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)
	9153	2,2',3,4,5-Pentachlorobiphenyl (BZ-86)
	8975	2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)
	9155	2,2',3,4',5-Pentachlorobiphenyl (BZ-90)
	9154	2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)
	9156	2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)
	9157	2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)
	9158	2,2',3,4,6-Pentachlorobiphenyl (BZ-88)
	9161	2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)
	9160	2,2',3,4',6-Pentachlorobiphenyl (BZ-91)
	9159	2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)
	9163	2,2',3,4-Tetrachlorobiphenyl (BZ-41)
	9162	2,2',3,4'-Tetrachlorobiphenyl (BZ-42)
	9035	2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)
	9164	2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)
	9165	2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)
	9168	2,2',3,5,6-Pentachlorobiphenyl (BZ-93)
	9167	2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)
	9166	2,2',3,5',6-Pentachlorobiphenyl (BZ-95)
	9169	2,2',3,5-Tetrachlorobiphenyl (BZ-43)
	8945	2,2',3,5'-Tetrachlorobiphenyl (BZ-44)
	9170	2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)
	9172	2,2',3,6-Tetrachlorobiphenyl (BZ-45)
	9171	2,2',3,6'-Tetrachlorobiphenyl (BZ-46)
	9173	2,2',3-Trichlorobiphenyl (BZ-16)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668C	9040	2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)
EPA 1668C	9174	2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)
	9175	2,2',4,4',5-Pentachlorobiphenyl (BZ-99)
	9176	2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)
	9178	2,2',4,4'-Tetrachlorobiphenyl (BZ-47)
	8980	2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)
	9180	2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)
	9179	2,2',4,5',6-Pentachlorobiphenyl (BZ-103)
	9181	2,2',4,5-Tetrachlorobiphenyl (BZ-48)
	8950	2,2',4,5'-Tetrachlorobiphenyl (BZ-49)
	9182	2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)
	9184	2,2',4,6-Tetrachlorobiphenyl (BZ-50)
	9183	2,2',4,6'-Tetrachlorobiphenyl (BZ-51)
	9185	2,2',4-Trichlorobiphenyl (BZ-17)
	8955	2,2',5,5'-Tetrachlorobiphenyl (BZ-52)
	9186	2,2',5,6'-Tetrachlorobiphenyl (BZ-53)
	8930	2,2',5-Trichlorobiphenyl (BZ-18)
	9187	2,2',6,6'-Tetrachlorobiphenyl (BZ-54)
	9188	2,2',6-Trichlorobiphenyl (BZ-19)
	9189	2,2'-Dichlorobiphenyl (BZ-4)
	9190	2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)
	9085	2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)
	9191	2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)
	9192	2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)
	9050	2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)
	9045	2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)
	9193	2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)
	8985	2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)
	9194	2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)
	9195	2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)
	9196	2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water	EPA 1668C EPA 1668C	9197	2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)
		9198	2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)
		9199	2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)
		9201	2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)
		9200	2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)
		9204	2,3,3',4,5-Pentachlorobiphenyl (BZ-106)
		9205	2,3,3',4',5-Pentachlorobiphenyl (BZ-107)
		9203	2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)
		9202	2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)
		9206	2,3,3',4,6-Pentachlorobiphenyl (BZ-109)
		8990	2,3,3',4',6-Pentachlorobiphenyl (BZ-110)
		9208	2,3,3',4-Tetrachlorobiphenyl (BZ-55)
		9207	2,3,3',4'-Tetrachlorobiphenyl (BZ-56)
		9209	2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)
		9210	2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)
		9211	2,3,3',5,6-Pentachlorobiphenyl (BZ-112)
		9212	2,3,3',5',6-Pentachlorobiphenyl (BZ-113)
		9214	2,3,3',5-Tetrachlorobiphenyl (BZ-57)
		9213	2,3,3',5'-Tetrachlorobiphenyl (BZ-58)
		9215	2,3,3',6-Tetrachlorobiphenyl (BZ-59)
		9216	2,3,3'-Trichlorobiphenyl (BZ-20)
		9055	2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)
		9217	2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)
		9218	2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)
		9005	2,3,4,4',5-Pentachlorobiphenyl (BZ-114)
		8995	2,3',4,4',5-Pentachlorobiphenyl (BZ-118)
		9011	2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)
		9219	2,3,4,4',6-Pentachlorobiphenyl (BZ-115)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1668C	9220	2,3',4,4',6-Pentachlorobiphenyl (BZ-119)
EPA 1668C	9221	2,3,4,4'-Tetrachlorobiphenyl (BZ-60)
	8960	2,3',4,4'-Tetrachlorobiphenyl (BZ-66)
	9223	2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)
	9222	2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)
	9225	2,3,4,5,6-Pentachlorobiphenyl (BZ-116)
	9227	2,3,4',5,6-Pentachlorobiphenyl (BZ-117)
	9226	2,3',4,5',6-Pentachlorobiphenyl (BZ-121)
	9224	2,3',4',5',6-Pentachlorobiphenyl (BZ-125)
	9228	2,3,4,5-Tetrachlorobiphenyl (BZ-61)
	9233	2,3,4',5-Tetrachlorobiphenyl (BZ-63)
	9231	2,3',4,5'-Tetrachlorobiphenyl (BZ-68)
	9230	2,3',4',5-Tetrachlorobiphenyl (BZ-70)
	9229	2,3',4',5'-Tetrachlorobiphenyl (BZ-76)
	9232	2,3',4,5-Tetrachlorobiphenyl (BZ-67)
	9234	2,3,4,6-Tetrachlorobiphenyl (BZ-62)
	9236	2,3,4',6-Tetrachlorobiphenyl (BZ-64)
	9235	2,3',4,6-Tetrachlorobiphenyl (BZ-69)
	9237	2,3',4',6-Tetrachlorobiphenyl (BZ-71)
	9238	2,3,4-Trichlorobiphenyl (BZ-21)
	9241	2,3,4'-Trichlorobiphenyl (BZ-22)
	9240	2,3',4-Trichlorobiphenyl (BZ-25)
	9239	2,3',4'-Trichlorobiphenyl (BZ-33)
	9242	2,3',5,5'-Tetrachlorobiphenyl (BZ-72)
	9243	2,3,5,6-Tetrachlorobiphenyl (BZ-65)
	9244	2,3',5',6-Tetrachlorobiphenyl (BZ-73)
	9245	2,3,5-Trichlorobiphenyl (BZ-23)
	8935	2,3',5-Trichlorobiphenyl (BZ-26)
	9246	2,3',5'-Trichlorobiphenyl (BZ-34)
	9247	2,3,6-Trichlorobiphenyl (BZ-24)
	9248	2,3',6-Trichlorobiphenyl (BZ-27)
	8920	2,3-Dichlorobiphenyl (BZ-5)
	9249	2,3'-Dichlorobiphenyl (BZ-6)
	9250	2,4,4',5-Tetrachlorobiphenyl (BZ-74)
	9251	2,4,4',6-Tetrachlorobiphenyl (BZ-75)
	9252	2,4,4'-Trichlorobiphenyl (BZ-28)
	9253	2,4,5-Trichlorobiphenyl (BZ-29)
	8940	2,4',5-Trichlorobiphenyl (BZ-31)
	9254	2,4,6-Trichlorobiphenyl (BZ-30)

Non-Potable Water

EPA 1668C	9255	2,4',6-Trichlorobiphenyl (BZ-32)		
EPA 1668C	9257	2,4-Dichlorobiphenyl (BZ-7)		
	9256	2,4'-Dichlorobiphenyl (BZ-8)		
	9258	2,5-Dichlorobiphenyl (BZ-9)		
	9259	2,6-Dichlorobiphenyl (BZ-10)		
	8915	2-Chlorobiphenyl (BZ-1)		
	9060	3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)		
	9015	3,3',4,4',5-Pentachlorobiphenyl (BZ-126)		
	8965	3,3',4,4'-Tetrachlorobiphenyl (BZ-77)		
	9260	3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)		
	9262	3,3',4,5-Tetrachlorobiphenyl (BZ-78)		
	9261	3,3',4,5'-Tetrachlorobiphenyl (BZ-79)		
	9263	3,3',4-Trichlorobiphenyl (BZ-35)		
	9264	3,3',5,5'-Tetrachlorobiphenyl (BZ-80)		
	9265	3,3',5-Trichlorobiphenyl (BZ-36)		
	8925	3,3'-Dichlorobiphenyl (BZ-11)		
	8970	3,4,4',5-Tetrachlorobiphenyl (BZ-81)		
	9266	3,4,4'-Trichlorobiphenyl (BZ-37)		
	9267	3,4,5-Trichlorobiphenyl (BZ-38)		
	9268	3,4',5-Trichlorobiphenyl (BZ-39)		
	9270	3,4-Dichlorobiphenyl (BZ-12)		
	9269	3,4'-Dichlorobiphenyl (BZ-13)		
	9271	3,5-Dichlorobiphenyl (BZ-14)		
	9272	3-Chlorobiphenyl (BZ-2)		
	9273	4,4'-Dichlorobiphenyl (BZ-15)		
	9274	4-Chlorobiphenyl (BZ-3)		
	9105	Decachlorobiphenyl (BZ-209)		
	8876	Total Dichlorobiphenyls		
	8877	Total Heptachlorobiphenyls		
	8888	Total Hexachlorobiphenyls		
	8889	Total Monochlorobiphenyls		
	8891	Total Nonachlorobiphenyls		
	8892	Total Octachlorobiphenyls		
	8893	Total Tetrachlorobiphenyls		
	8894	Total Trichlorobiphenyls		
EPA 1668C			10262109	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
	9177	2,2',4,4',6-Pentachlorobiphenyl (BZ-100)		
EPA 1699			10133105	Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS
	8580	2,4'-DDD		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 1699				
	8585	2,4'-DDE		
	8590	2,4'-DDT		
	7355	4,4'-DDD		
	7360	4,4'-DDE		
	7365	4,4'-DDT		
	7005	Alachlor		
	7025	Aldrin		
	7110	alpha-BHC (alpha-Hexachlorocyclohexane)		
	7115	beta-BHC (beta-Hexachlorocyclohexane)		
	7240	cis-chlordane (alpha-Chlordane)		
	7925	cis-Nonachlor		
	7105	delta-BHC		
	7470	Dieldrin		
	7510	Endosulfan I		
	7515	Endosulfan II		
	7520	Endosulfan sulfate		
	7540	Endrin		
	7530	Endrin aldehyde		
	7535	Endrin ketone		
	7120	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)		
	7685	Heptachlor		
	7690	Heptachlor epoxide		
	6275	Hexachlorobenzene		
	4835	Hexachlorobutadiene		
	7810	Methoxychlor		
	7870	Mirex		
	3890	Oxychlordane		
	8250	Toxaphene (Chlorinated camphene)		
	7245	trans-chlordane (gamma-Chlordane)		
	7910	trans-Nonachlor		
EPA 537 1.1			10091675	Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS
	6457	6:2 Fluorotelomersulfonate (6:2FTS)		
	6461	8:2 Fluorotelomersulfonate (8:2FTS)		
	9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)		
	9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)		
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 537 1.1	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	
	9433	N-Methylperfluorooctanesulfonamide (MeFOSA)	
	9434	N-Methylperfluorooctanesulfonamidoethanol (MeFOSA)	
	6911	Perfluorobutane Sulfonate (PFBS)	
	6915	Perfluorobutyric acid (PFBA)	
	9562	Perfluorodecane Sulfonate (PFDS)	
	6905	Perfluorodecanoic acid (PFDA)	
	6903	Perfluorododecanoic acid (PFDoA)	
	9470	Perfluoroheptanesulfonic acid (PFHpA)	
	6908	Perfluoroheptanoic acid (PFHpA)	
	6901	Perfluorohexadecanoic acid (PFHxDA)	
	6910	Perfluorohexane Sulfonate (PFHS)	
	6913	Perfluorohexanoic acid (PFHxA)	
	6906	Perfluorononanoic acid (PFNA)	
	6916	Perfluorooctadecanoic acid (PFODA)	
	6917	Perfluorooctane Sulfonamide (PFOSA)	
	6912	Perfluorooctanoic acid (PFOA)	
	6909	Perfluorooctanoic Sulfonate (PFOS)	
	6914	Perfluoropentanoic acid (PFPeA)	
	6902	Perfluorotetradecanoic acid (PFTA)	
	9563	Perfluorotridecanoic acid (PFTrDA)	
	6904	Perfluoroundecanoic acid (PFUnA)	
EPA 537.1 1.0			10091642 Per- and Polyfluorinated Alkyl Substances in Drinking Water by LC/MS/MS
	9490	11-chloreicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	
	6951	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	
	6952	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	
	9460	Hexafluoropropylene oxide dimer acid (HFPO-DA)	
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	
	6918	Perfluorobutanesulfonic acid	
	6905	Perfluorodecanoic acid (PFDA)	
	6903	Perfluorododecanoic acid (PFDoA)	
	6908	Perfluoroheptanoic acid (PFHpA)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 537.1 1.0	6927	Perfluorohexanesulfonic acid (PFHxS)		
	6913	Perfluorohexanoic acid (PFHxA)		
	6906	Perfluorononanoic acid (PFNA)		
	6931	Perfluorooctanesulfonic acid (PFOS)		
	6912	Perfluorooctanoic acid (PFOA)		
	6902	Perfluorotetradecanoic acid (PFTA)		
	9563	Perfluorotridecanoic acid (PFTrDA)		
	6904	Perfluoroundecanoic acid (PFUnA)		
EPA 613			10105007	Dioxin by GC/HRMS
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
EPA 8280A			10186808	Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
	9549	2,3,4,7,8-Pentachlorodibenzofuran		
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
	9612	2,3,7,8-Tetrachlorodibenzofuran		
	9438	Hpcdd, total		
	9444	Hpcdf, total		
	9468	Hxcdd, total		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 8280A	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	
EPA 8280B			10187005 Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)	
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	
	9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran	
	9549	2,3,4,7,8-Pentachlorodibenzofuran	
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	
	9612	2,3,7,8-Tetrachlorodibenzofuran	
	9438	Hpcdd, total	
	9444	Hpcdf, total	
	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 8290			10187209	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
	9549	2,3,4,7,8-Pentachlorodibenzofuran		
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
	9612	2,3,7,8-Tetrachlorodibenzofuran		
	9438	Hpcdd, total		
	9444	Hpcdf, total		
	9468	Hxcdd, total		
	9483	Hxcdf, total		
	9555	Pecdd, total		
	9552	Pecdf, total		
	9609	TCDD, total		
	9615	TCDF, total		
EPA 8290A			10187403	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

EPA 8290A	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)	
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran	
	9549	2,3,4,7,8-Pentachlorodibenzofuran	
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	
	9612	2,3,7,8-Tetrachlorodibenzofuran	
	9438	Hpcdd, total	
	9444	Hpcdf, total	
	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	
VAL SOP 49 18			60048502 Vista Analytical Laboratory - Per and Poly-fluorinated Compounds
	9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	
	6946	4:2 Fluorotelomersulfonic acid (4:2 FTS)	
	6947	6:2 Fluorotelomersulfonic acid	
	6948	8:2 Fluorotelomersulfonic acid (8:2 FTS)	
	6950	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	
	9383	Dodecafluoro-3H-4,8-dioxanonoate (NaDONA)	
	9460	Hexafluoropropylene oxide dimer acid (HFPO-DA)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Non-Potable Water

VAL SOP 49 18	9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	
	9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)	
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	
	9433	N-Methylperfluorooctanesulfonamide (MeFOSA)	
	6949	N-Methylperfluorooctanesulfonamidoethanol (N_MeFOSE)	
	6918	Perfluorobutanesulfonic acid	
	6915	Perfluorobutyric acid (PFBA)	
	6920	Perfluorodecane sulfonic acid (PFDS)	
	6905	Perfluorodecanoic acid (PFDA)	
	6903	Perfluorododecanoic acid (PFDoA)	
	9470	Perfluoroheptanesulfonic acid (PFHpA)	
	6908	Perfluoroheptanoic acid (PFHpA)	
	6901	Perfluorohexadecanoic acid (PFHxDA)	
	6927	Perfluorohexanesulfonic acid (PFHxS)	
	6913	Perfluorohexanoic acid (PFHxA)	
	6929	Perfluorononane sulfonic acid (PFNS)	
	6906	Perfluorononanoic acid (PFNA)	
	6916	Perfluorooctadecanoic acid (PFODA)	
	6917	Perfluorooctane Sulfonamide (PFOSA)	
	6931	Perfluorooctanesulfonic acid (PFOS)	
	6912	Perfluorooctanoic acid (PFOA)	
	6934	Perfluoropentane sulfonic acid (PFPeS)	
	6914	Perfluoropentanoic acid (PFPeA)	
	6902	Perfluorotetradecanoic acid (PFTA)	
	9563	Perfluorotridecanoic acid (PFTrDA)	
	6904	Perfluoroundecanoic acid (PFUnA)	

Solids

EPA 1613 EPA 1613			10120408	Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
EPA 1613B			10120602	Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		

Solids

EPA 1613B	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)		
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)		
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)		
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran		
	9549	2,3,4,7,8-Pentachlorodibenzofuran		
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)		
	9612	2,3,7,8-Tetrachlorodibenzofuran		
	9438	Hpcdd, total		
	9444	Hpcdf, total		
	9468	Hxcdd, total		
	9483	Hxcdf, total		
	9555	Pecdd, total		
	9552	Pecdf, total		
	9609	TCDD, total		
	9615	TCDF, total		
EPA 1614A 1			10120704	Brominated Diphenyl Ethers by HRGC/HRMS
	9902	2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether (BDE-206)		
	9903	2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether (BDE-207)		
	9892	2,2',3,3',4,4',5,6'-Octabromodiphenyl ether (BDE-196)		
	9893	2,2',3,3',4,4',6,6'-Octabromodiphenyl ether (BDE-197)		
	9904	2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether (BDE-208)		
	9896	2,2',3,3',4,5,6,6'-Octabromodiphenyl ether (BDE-200)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1614A 1	9897	2,2',3,3',4,5',6,6'-Octabromodiphenyl ether (BDE-201)
		9873	2,2',3,3',4',5,6-Heptabromodiphenyl ether (BDE-177)
		9872	2,2',3,3',4,6,6'-Heptabromodiphenyl ether (BDE-176)
		9874	2,2',3,3',5,5',6-Heptabromodiphenyl ether (BDE-178)
		9899	2,2',3,4,4',5,5',6-Octabromodiphenyl ether (BDE-203)
		9876	2,2',3,4,4',5,5'-Heptabromodiphenyl ether (BDE-180)
		9900	2,2',3,4,4',5,6,6'-Octabromodiphenyl ether (BDE-204)
		9877	2,2',3,4,4',5,6-Heptabromodiphenyl ether (BDE-181)
		9879	2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE-183)
		9835	2,2',3,4,4',5'-Hexabromodiphenyl ether (BDE-138)
		9880	2,2',3,4,4',6,6'-Heptabromodiphenyl ether (BDE-184)
		9836	2,2',3,4,4',6-Hexabromodiphenyl ether (BDE-139)
		9837	2,2',3,4,4',6'-Hexabromodiphenyl ether (BDE-140)
		9784	2,2',3,4,4'-Pentabromodiphenyl ether (BDE-85)
		9569	2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)
		9850	2,2',4,4',5',6-Hexabromodiphenyl ether (BDE-154)
		9571	2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)
		9851	2,2',4,4',6,6'-Hexabromodiphenyl ether (BDE-155)
		9572	2,2',4,4',6-Pentabromodiphenyl ether (BDE-100)
		9773	2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)
		9747	2,2',4,5'-Tetrabromodiphenyl ether (BDE-49)
		9749	2,2',4,6'-Tetrabromodiphenyl ether (BDE-51)
		9716	2,2',4-Tribromodiphenyl ether (BDE-17)
		9867	2,2'3,3',4,4',6-Heptabromodiphenyl ether (BDE-171)
		9901	2,3,3',4,4',5,5',6-Octabromodiphenyl ether (BDE-205)
		9886	2,3,3',4,4',5,6-Heptabromodiphenyl ether (BDE-190)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1614A 1	9887	2,3,3',4,4',5',6-Heptabromodiphenyl ether (BDE-191)
		9852	2,3,3',4,4',5-Hexabromodiphenyl ether (BDE-156)
		9802	2,3,3',4,4'-Pentabromodiphenyl ether (BDE-105)
		9862	2,3,4,4',5,6-Hexabromodiphenyl ether (BDE-166)
		9815	2,3',4,4',5-Pentabromodiphenyl ether (BDE-118)
		9764	2,3',4,4'-Tetrabromodiphenyl ether (BDE-66)
		9817	2,3',4,5,5'-Pentabromodiphenyl ether (BDE-120)
		9813	2,3,4,5,6-Pentabromodiphenyl ether (BDE-116)
		9769	2,3',4',6-Tetrabromodiphenyl ether (BDE-71)
		9720	2,3,4-Tribromodiphenyl ether (BDE-21)
		9724	2,3',4-Tribromodiphenyl ether (BDE-25)
		9732	2',3,4-Tribromodiphenyl ether (BDE-33)
		9774	2,4,4',6-Tetrabromodiphenyl ether (BDE-75)
		9727	2,4,4'-Tribromodiphenyl ether (BDE-28)
		9729	2,4,6-Tribromodiphenyl ether (BDE-30)
		9731	2,4',6-Tribromodiphenyl ether (BDE-32)
		9706	2,4-Dibromodiphenyl ether (BDE-7)
		9707	2,4'-Dibromodiphenyl ether (BDE-8)
		9709	2,6-Dibromodiphenyl ether (BDE-10)
		9700	2-Monobromodiphenyl ether (BDE-1)
		9865	3,3',4,4',5,5'-Hexabromodiphenyl ether (BDE-169)
		9823	3,3',4,4',5-Pentabromodiphenyl ether (BDE-126)
		9776	3,3',4,4'-Tetrabromodiphenyl ether (BDE-77)
		9734	3,3',4-Tribromodiphenyl ether (BDE-35)
		9710	3,3'-Dibromodiphenyl ether (BDE-11)
		9736	3,4,4'-Tribromodiphenyl ether (BDE-37)
		9711	3,4-Dibromodiphenyl ether (BDE-12)
		9712	3,4'-Dibromodiphenyl ether (BDE-13)
		9701	3-Monobromodiphenyl ether (BDE-2)
		9714	4,4'-Dibromodiphenyl ether (BDE-15)
		9905	Decabromodiphenyl ether (BDE-209)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 1668A EPA 1668A		10262029	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
9095	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)		
9090	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)		
9101	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)		
9103	2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)		
9102	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)		
9065	2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)		
9104	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)		
9106	2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)		
9020	2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)		
9107	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)		
9109	2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)		
9108	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)		
9110	2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)		
9111	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)		
9112	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)		
9113	2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)		
9116	2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)		
9115	2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)		
9114	2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)		
9118	2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)		
9117	2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)		
9119	2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)		
9121	2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)		
9120	2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 1668A	9122	2,2',3,3',4-Pentachlorobiphenyl (BZ-82)
EPA 1668A	9123	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)
	9124	2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)
	9125	2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)
	9126	2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)
	9128	2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)
	9127	2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)
	9129	2,2',3,3',5-Pentachlorobiphenyl (BZ-83)
	9130	2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)
	9131	2,2',3,3',6-Pentachlorobiphenyl (BZ-84)
	9132	2,2',3,3'-Tetrachlorobiphenyl (BZ-40)
	9133	2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)
	9134	2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)
	9135	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)
	9137	2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)
	9136	2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)
	9075	2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)
	9138	2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)
	9025	2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)
	9139	2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)
	9141	2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)
	9140	2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)
	9142	2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)
	9143	2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)
	9080	2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)
	9030	2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)
	9144	2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668A	9145	2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)
	EPA 1668A	9146	2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)
		9148	2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)
		9152	2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)
		9150	2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)
		9149	2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)
		9147	2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)
		9151	2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)
		9153	2,2',3,4,5-Pentachlorobiphenyl (BZ-86)
		8975	2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)
		9155	2,2',3,4',5-Pentachlorobiphenyl (BZ-90)
		9154	2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)
		9156	2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)
		9157	2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)
		9158	2,2',3,4,6-Pentachlorobiphenyl (BZ-88)
		9161	2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)
		9160	2,2',3,4',6-Pentachlorobiphenyl (BZ-91)
		9159	2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)
		9163	2,2',3,4-Tetrachlorobiphenyl (BZ-41)
		9162	2,2',3,4'-Tetrachlorobiphenyl (BZ-42)
		9035	2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)
		9164	2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)
		9165	2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)
		9168	2,2',3,5,6-Pentachlorobiphenyl (BZ-93)
		9167	2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)
		9166	2,2',3,5',6-Pentachlorobiphenyl (BZ-95)
		9169	2,2',3,5-Tetrachlorobiphenyl (BZ-43)
		8945	2,2',3,5'-Tetrachlorobiphenyl (BZ-44)
		9170	2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)
		9172	2,2',3,6-Tetrachlorobiphenyl (BZ-45)
		9171	2,2',3,6'-Tetrachlorobiphenyl (BZ-46)
		9173	2,2',3-Trichlorobiphenyl (BZ-16)
		9040	2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668A	9174	2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)
	EPA 1668A	9175	2,2',4,4',5-Pentachlorobiphenyl (BZ-99)
		9176	2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)
		9177	2,2',4,4',6-Pentachlorobiphenyl (BZ-100)
		9178	2,2',4,4'-Tetrachlorobiphenyl (BZ-47)
		8980	2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)
		9180	2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)
		9179	2,2',4,5',6-Pentachlorobiphenyl (BZ-103)
		9181	2,2',4,5-Tetrachlorobiphenyl (BZ-48)
		8950	2,2',4,5'-Tetrachlorobiphenyl (BZ-49)
		9182	2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)
		9184	2,2',4,6-Tetrachlorobiphenyl (BZ-50)
		9183	2,2',4,6'-Tetrachlorobiphenyl (BZ-51)
		9185	2,2',4-Trichlorobiphenyl (BZ-17)
		8955	2,2',5,5'-Tetrachlorobiphenyl (BZ-52)
		9186	2,2',5,6'-Tetrachlorobiphenyl (BZ-53)
		8930	2,2',5-Trichlorobiphenyl (BZ-18)
		9187	2,2',6,6'-Tetrachlorobiphenyl (BZ-54)
		9188	2,2',6-Trichlorobiphenyl (BZ-19)
		9189	2,2'-Dichlorobiphenyl (BZ-4)
		9190	2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)
		9085	2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)
		9191	2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)
		9192	2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)
		9050	2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)
		9045	2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)
		9193	2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)
		8985	2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)
		9194	2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)
		9195	2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)
		9196	2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668A	9197	2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)
	EPA 1668A	9198	2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)
		9199	2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)
		9201	2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)
		9200	2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)
		9204	2,3,3',4,5-Pentachlorobiphenyl (BZ-106)
		9205	2,3,3',4',5-Pentachlorobiphenyl (BZ-107)
		9203	2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)
		9202	2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)
		9206	2,3,3',4,6-Pentachlorobiphenyl (BZ-109)
		8990	2,3,3',4',6-Pentachlorobiphenyl (BZ-110)
		9208	2,3,3',4-Tetrachlorobiphenyl (BZ-55)
		9207	2,3,3',4'-Tetrachlorobiphenyl (BZ-56)
		9209	2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)
		9210	2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)
		9211	2,3,3',5,6-Pentachlorobiphenyl (BZ-112)
		9212	2,3,3',5',6-Pentachlorobiphenyl (BZ-113)
		9214	2,3,3',5-Tetrachlorobiphenyl (BZ-57)
		9213	2,3,3',5'-Tetrachlorobiphenyl (BZ-58)
		9215	2,3,3',6-Tetrachlorobiphenyl (BZ-59)
		9216	2,3,3'-Trichlorobiphenyl (BZ-20)
		9055	2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)
		9217	2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)
		9218	2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)
		9005	2,3,4,4',5-Pentachlorobiphenyl (BZ-114)
		8995	2,3',4,4',5-Pentachlorobiphenyl (BZ-118)
		9011	2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)
		9219	2,3,4,4',6-Pentachlorobiphenyl (BZ-115)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762

Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668A	9220	2,3',4,4',6-Pentachlorobiphenyl (BZ-119)
	EPA 1668A	9221	2,3,4,4'-Tetrachlorobiphenyl (BZ-60)
		8960	2,3',4,4'-Tetrachlorobiphenyl (BZ-66)
		9223	2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)
		9222	2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)
		9225	2,3,4,5,6-Pentachlorobiphenyl (BZ-116)
		9227	2,3,4',5,6-Pentachlorobiphenyl (BZ-117)
		9226	2,3',4,5',6-Pentachlorobiphenyl (BZ-121)
		9224	2,3',4',5',6-Pentachlorobiphenyl (BZ-125)
		9228	2,3,4,5-Tetrachlorobiphenyl (BZ-61)
		9233	2,3,4',5-Tetrachlorobiphenyl (BZ-63)
		9231	2,3',4,5'-Tetrachlorobiphenyl (BZ-68)
		9230	2,3',4',5-Tetrachlorobiphenyl (BZ-70)
		9229	2,3',4',5'-Tetrachlorobiphenyl (BZ-76)
		9232	2,3',4,5-Tetrachlorobiphenyl (BZ-67)
		9234	2,3,4,6-Tetrachlorobiphenyl (BZ-62)
		9236	2,3,4',6-Tetrachlorobiphenyl (BZ-64)
		9235	2,3',4,6-Tetrachlorobiphenyl (BZ-69)
		9237	2,3',4',6-Tetrachlorobiphenyl (BZ-71)
		9238	2,3,4-Trichlorobiphenyl (BZ-21)
		9241	2,3,4'-Trichlorobiphenyl (BZ-22)
		9240	2,3',4-Trichlorobiphenyl (BZ-25)
		9239	2,3',4'-Trichlorobiphenyl (BZ-33)
		9242	2,3',5,5'-Tetrachlorobiphenyl (BZ-72)
		9243	2,3,5,6-Tetrachlorobiphenyl (BZ-65)
		9244	2,3',5',6-Tetrachlorobiphenyl (BZ-73)
		9245	2,3,5-Trichlorobiphenyl (BZ-23)
		8935	2,3',5-Trichlorobiphenyl (BZ-26)
		9246	2,3',5'-Trichlorobiphenyl (BZ-34)
		9247	2,3,6-Trichlorobiphenyl (BZ-24)
		9248	2,3',6-Trichlorobiphenyl (BZ-27)
		9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
		9612	2,3,7,8-Tetrachlorodibenzofuran
		8920	2,3-Dichlorobiphenyl (BZ-5)
		9249	2,3'-Dichlorobiphenyl (BZ-6)
		9250	2,4,4',5-Tetrachlorobiphenyl (BZ-74)
		9251	2,4,4',6-Tetrachlorobiphenyl (BZ-75)
		9252	2,4,4'-Trichlorobiphenyl (BZ-28)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668A	9253	2,4,5-Trichlorobiphenyl (BZ-29)
	EPA 1668A	8940	2,4',5-Trichlorobiphenyl (BZ-31)
		9254	2,4,6-Trichlorobiphenyl (BZ-30)
		9255	2,4',6-Trichlorobiphenyl (BZ-32)
		9257	2,4-Dichlorobiphenyl (BZ-7)
		9256	2,4'-Dichlorobiphenyl (BZ-8)
		9258	2,5-Dichlorobiphenyl (BZ-9)
		9259	2,6-Dichlorobiphenyl (BZ-10)
		8915	2-Chlorobiphenyl (BZ-1)
		9060	3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)
		9015	3,3',4,4',5-Pentachlorobiphenyl (BZ-126)
		8965	3,3',4,4'-Tetrachlorobiphenyl (BZ-77)
		9260	3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)
		9262	3,3',4,5-Tetrachlorobiphenyl (BZ-78)
		9261	3,3',4,5'-Tetrachlorobiphenyl (BZ-79)
		9263	3,3',4-Trichlorobiphenyl (BZ-35)
		9264	3,3',5,5'-Tetrachlorobiphenyl (BZ-80)
		9265	3,3',5-Trichlorobiphenyl (BZ-36)
		8925	3,3'-Dichlorobiphenyl (BZ-11)
		8970	3,4,4',5-Tetrachlorobiphenyl (BZ-81)
		9266	3,4,4'-Trichlorobiphenyl (BZ-37)
		9267	3,4,5-Trichlorobiphenyl (BZ-38)
		9268	3,4',5-Trichlorobiphenyl (BZ-39)
		9270	3,4-Dichlorobiphenyl (BZ-12)
		9269	3,4'-Dichlorobiphenyl (BZ-13)
		9271	3,5-Dichlorobiphenyl (BZ-14)
		9272	3-Chlorobiphenyl (BZ-2)
		9273	4,4'-Dichlorobiphenyl (BZ-15)
		9274	4-Chlorobiphenyl (BZ-3)
		9105	Decachlorobiphenyl (BZ-209)
		8876	Total Dichlorobiphenyls
		8877	Total Heptachlorobiphenyls
		8888	Total Hexachlorobiphenyls
		8889	Total Monochlorobiphenyls
		8891	Total Nonachlorobiphenyls
		8892	Total Octachlorobiphenyls
		8893	Total Tetrachlorobiphenyls
		8894	Total Trichlorobiphenyls

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 1668C EPA 1668C		10262109	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
9095	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (BZ-206)		
9090	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)		
9101	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (BZ-207)		
9103	2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)		
9102	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (BZ-196)		
9065	2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)		
9104	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (BZ-197)		
9106	2,2',3,3',4,4',6-Heptachlorobiphenyl (BZ-171)		
9020	2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)		
9107	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (BZ-208)		
9109	2,2',3,3',4,5,5',6-Octachlorobiphenyl (BZ-198)		
9108	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (BZ-199)		
9110	2,2',3,3',4,5,5'-Heptachlorobiphenyl (BZ-172)		
9111	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (BZ-200)		
9112	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)		
9113	2,2',3,3',4,5,6-Heptachlorobiphenyl (BZ-173)		
9116	2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)		
9115	2,2',3,3',4,5',6-Heptachlorobiphenyl (BZ-175)		
9114	2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)		
9118	2,2',3,3',4,5-Hexachlorobiphenyl (BZ-129)		
9117	2,2',3,3',4,5'-Hexachlorobiphenyl (BZ-130)		
9119	2,2',3,3',4,6,6'-Heptachlorobiphenyl (BZ-176)		
9121	2,2',3,3',4,6-Hexachlorobiphenyl (BZ-131)		
9120	2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 1668C	9122	2,2',3,3',4-Pentachlorobiphenyl (BZ-82)
EPA 1668C	9123	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (BZ-202)
	9124	2,2',3,3',5,5',6-Heptachlorobiphenyl (BZ-178)
	9125	2,2',3,3',5,5'-Hexachlorobiphenyl (BZ-133)
	9126	2,2',3,3',5,6,6'-Heptachlorobiphenyl (BZ-179)
	9128	2,2',3,3',5,6-Hexachlorobiphenyl (BZ-134)
	9127	2,2',3,3',5,6'-Hexachlorobiphenyl (BZ-135)
	9129	2,2',3,3',5-Pentachlorobiphenyl (BZ-83)
	9130	2,2',3,3',6,6'-Hexachlorobiphenyl (BZ-136)
	9131	2,2',3,3',6-Pentachlorobiphenyl (BZ-84)
	9132	2,2',3,3'-Tetrachlorobiphenyl (BZ-40)
	9133	2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)
	9134	2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)
	9135	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (BZ-204)
	9137	2,2',3,4,4',5,6-Heptachlorobiphenyl (BZ-181)
	9136	2,2',3,4,4',5,6'-Heptachlorobiphenyl (BZ-182)
	9075	2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)
	9138	2,2',3,4,4',5-Hexachlorobiphenyl (BZ-137)
	9025	2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)
	9139	2,2',3,4,4',6,6'-Heptachlorobiphenyl (BZ-184)
	9141	2,2',3,4,4',6-Hexachlorobiphenyl (BZ-139)
	9140	2,2',3,4,4',6'-Hexachlorobiphenyl (BZ-140)
	9142	2,2',3,4,4'-Pentachlorobiphenyl (BZ-85)
	9143	2,2',3,4,5,5',6-Heptachlorobiphenyl (BZ-185)
	9080	2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)
	9030	2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)
	9144	2,2',3,4',5,5'-Hexachlorobiphenyl (BZ-146)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668C EPA 1668C	9145	2,2',3,4,5,6,6'-Heptachlorobiphenyl (BZ-186)
		9146	2,2',3,4',5,6,6'-Heptachlorobiphenyl (BZ-188)
		9148	2,2',3,4,5,6-Hexachlorobiphenyl (BZ-142)
		9152	2,2',3,4,5,6'-Hexachlorobiphenyl (BZ-143)
		9150	2,2',3,4,5',6-Hexachlorobiphenyl (BZ-144)
		9149	2,2',3,4',5,6-Hexachlorobiphenyl (BZ-147)
		9147	2,2',3,4',5,6'-Hexachlorobiphenyl (BZ-148)
		9151	2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)
		9153	2,2',3,4,5-Pentachlorobiphenyl (BZ-86)
		8975	2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)
		9155	2,2',3,4',5-Pentachlorobiphenyl (BZ-90)
		9154	2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)
		9156	2,2',3,4,6,6'-Hexachlorobiphenyl (BZ-145)
		9157	2,2',3,4',6,6'-Hexachlorobiphenyl (BZ-150)
		9158	2,2',3,4,6-Pentachlorobiphenyl (BZ-88)
		9161	2,2',3,4,6'-Pentachlorobiphenyl (BZ-89)
		9160	2,2',3,4',6-Pentachlorobiphenyl (BZ-91)
		9159	2,2',3,4',6'-Pentachlorobiphenyl (BZ-98)
		9163	2,2',3,4-Tetrachlorobiphenyl (BZ-41)
		9162	2,2',3,4'-Tetrachlorobiphenyl (BZ-42)
		9035	2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)
		9164	2,2',3,5,5'-Pentachlorobiphenyl (BZ-92)
		9165	2,2',3,5,6,6'-Hexachlorobiphenyl (BZ-152)
		9168	2,2',3,5,6-Pentachlorobiphenyl (BZ-93)
		9167	2,2',3,5,6'-Pentachlorobiphenyl (BZ-94)
		9166	2,2',3,5',6-Pentachlorobiphenyl (BZ-95)
		9169	2,2',3,5-Tetrachlorobiphenyl (BZ-43)
		8945	2,2',3,5'-Tetrachlorobiphenyl (BZ-44)
		9170	2,2',3,6,6'-Pentachlorobiphenyl (BZ-96)
		9172	2,2',3,6-Tetrachlorobiphenyl (BZ-45)
		9171	2,2',3,6'-Tetrachlorobiphenyl (BZ-46)
		9173	2,2',3-Trichlorobiphenyl (BZ-16)
		9040	2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 1668C	9174	2,2',4,4',5,6'-Hexachlorobiphenyl (BZ-154)
EPA 1668C	9175	2,2',4,4',5-Pentachlorobiphenyl (BZ-99)
	9176	2,2',4,4',6,6'-Hexachlorobiphenyl (BZ-155)
	9178	2,2',4,4'-Tetrachlorobiphenyl (BZ-47)
	8980	2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)
	9180	2,2',4,5,6'-Pentachlorobiphenyl (BZ-102)
	9179	2,2',4,5',6-Pentachlorobiphenyl (BZ-103)
	9181	2,2',4,5-Tetrachlorobiphenyl (BZ-48)
	8950	2,2',4,5'-Tetrachlorobiphenyl (BZ-49)
	9182	2,2',4,6,6'-Pentachlorobiphenyl (BZ-104)
	9184	2,2',4,6-Tetrachlorobiphenyl (BZ-50)
	9183	2,2',4,6'-Tetrachlorobiphenyl (BZ-51)
	9185	2,2',4-Trichlorobiphenyl (BZ-17)
	8955	2,2',5,5'-Tetrachlorobiphenyl (BZ-52)
	9186	2,2',5,6'-Tetrachlorobiphenyl (BZ-53)
	8930	2,2',5-Trichlorobiphenyl (BZ-18)
	9187	2,2',6,6'-Tetrachlorobiphenyl (BZ-54)
	9188	2,2',6-Trichlorobiphenyl (BZ-19)
	9189	2,2'-Dichlorobiphenyl (BZ-4)
	9190	2,3,3',4,4',5,5',6-Octachlorobiphenyl (BZ-205)
	9085	2,3,3',4,4',5,5'-Heptachlorobiphenyl (BZ-189)
	9191	2,3,3',4,4',5,6-Heptachlorobiphenyl (BZ-190)
	9192	2,3,3',4,4',5',6-Heptachlorobiphenyl (BZ-191)
	9050	2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)
	9045	2,3,3',4,4',5'-Hexachlorobiphenyl (BZ-157)
	9193	2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)
	8985	2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)
	9194	2,3,3',4,5,5',6-Heptachlorobiphenyl (BZ-192)
	9195	2,3,3',4',5,5',6-Heptachlorobiphenyl (BZ-193)
	9196	2,3,3',4,5,5'-Hexachlorobiphenyl (BZ-159)
	9197	2,3,3',4',5,5'-Hexachlorobiphenyl (BZ-162)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668C	9198	2,3,3',4,5,6-Hexachlorobiphenyl (BZ-160)
	EPA 1668C	9199	2,3,3',4',5,6-Hexachlorobiphenyl (BZ-163)
		9201	2,3,3',4',5',6-Hexachlorobiphenyl (BZ-164)
		9200	2,3,3',4,5',6-Hexachlorobiphenyl (BZ-161)
		9204	2,3,3',4,5-Pentachlorobiphenyl (BZ-106)
		9205	2,3,3',4',5-Pentachlorobiphenyl (BZ-107)
		9203	2,3,3',4,5'-Pentachlorobiphenyl (BZ-108)
		9202	2,3,3',4',5'-Pentachlorobiphenyl (BZ-122)
		9206	2,3,3',4,6-Pentachlorobiphenyl (BZ-109)
		8990	2,3,3',4',6-Pentachlorobiphenyl (BZ-110)
		9208	2,3,3',4-Tetrachlorobiphenyl (BZ-55)
		9207	2,3,3',4'-Tetrachlorobiphenyl (BZ-56)
		9209	2,3,3',5,5',6-Hexachlorobiphenyl (BZ-165)
		9210	2,3,3',5,5'-Pentachlorobiphenyl (BZ-111)
		9211	2,3,3',5,6-Pentachlorobiphenyl (BZ-112)
		9212	2,3,3',5',6-Pentachlorobiphenyl (BZ-113)
		9214	2,3,3',5-Tetrachlorobiphenyl (BZ-57)
		9213	2,3,3',5'-Tetrachlorobiphenyl (BZ-58)
		9215	2,3,3',6-Tetrachlorobiphenyl (BZ-59)
		9216	2,3,3'-Trichlorobiphenyl (BZ-20)
		9055	2,3',4,4',5,5'-Hexachlorobiphenyl (BZ-167)
		9217	2,3,4,4',5,6-Hexachlorobiphenyl (BZ-166)
		9218	2,3',4,4',5',6-Hexachlorobiphenyl (BZ-168)
		9005	2,3,4,4',5-Pentachlorobiphenyl (BZ-114)
		8995	2,3',4,4',5-Pentachlorobiphenyl (BZ-118)
		9011	2,3',4,4',5'-Pentachlorobiphenyl (BZ-123)
		9219	2,3,4,4',6-Pentachlorobiphenyl (BZ-115)
		9220	2,3',4,4',6-Pentachlorobiphenyl (BZ-119)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids	EPA 1668C	9221	2,3,4,4'-Tetrachlorobiphenyl (BZ-60)
	EPA 1668C	8960	2,3',4,4'-Tetrachlorobiphenyl (BZ-66)
		9223	2,3',4,5,5'-Pentachlorobiphenyl (BZ-120)
		9222	2,3',4',5,5'-Pentachlorobiphenyl (BZ-124)
		9225	2,3,4,5,6-Pentachlorobiphenyl (BZ-116)
		9227	2,3,4',5,6-Pentachlorobiphenyl (BZ-117)
		9226	2,3',4,5',6-Pentachlorobiphenyl (BZ-121)
		9224	2,3',4',5',6-Pentachlorobiphenyl (BZ-125)
		9228	2,3,4,5-Tetrachlorobiphenyl (BZ-61)
		9233	2,3,4',5-Tetrachlorobiphenyl (BZ-63)
		9231	2,3',4,5'-Tetrachlorobiphenyl (BZ-68)
		9230	2,3',4',5-Tetrachlorobiphenyl (BZ-70)
		9229	2,3',4',5'-Tetrachlorobiphenyl (BZ-76)
		9232	2,3',4,5-Tetrachlorobiphenyl (BZ-67)
		9234	2,3,4,6-Tetrachlorobiphenyl (BZ-62)
		9236	2,3,4',6-Tetrachlorobiphenyl (BZ-64)
		9235	2,3',4,6-Tetrachlorobiphenyl (BZ-69)
		9237	2,3',4',6-Tetrachlorobiphenyl (BZ-71)
		9238	2,3,4-Trichlorobiphenyl (BZ-21)
		9241	2,3,4'-Trichlorobiphenyl (BZ-22)
		9240	2,3',4-Trichlorobiphenyl (BZ-25)
		9239	2,3',4'-Trichlorobiphenyl (BZ-33)
		9242	2,3',5,5'-Tetrachlorobiphenyl (BZ-72)
		9243	2,3,5,6-Tetrachlorobiphenyl (BZ-65)
		9244	2,3',5',6-Tetrachlorobiphenyl (BZ-73)
		9245	2,3,5-Trichlorobiphenyl (BZ-23)
		8935	2,3',5-Trichlorobiphenyl (BZ-26)
		9246	2,3',5'-Trichlorobiphenyl (BZ-34)
		9247	2,3,6-Trichlorobiphenyl (BZ-24)
		9248	2,3',6-Trichlorobiphenyl (BZ-27)
		8920	2,3-Dichlorobiphenyl (BZ-5)
		9249	2,3'-Dichlorobiphenyl (BZ-6)
		9250	2,4,4',5-Tetrachlorobiphenyl (BZ-74)
		9251	2,4,4',6-Tetrachlorobiphenyl (BZ-75)
		9252	2,4,4'-Trichlorobiphenyl (BZ-28)
		9253	2,4,5-Trichlorobiphenyl (BZ-29)
		8940	2,4',5-Trichlorobiphenyl (BZ-31)
		9254	2,4,6-Trichlorobiphenyl (BZ-30)
		9255	2,4',6-Trichlorobiphenyl (BZ-32)

Solids

EPA 1668C	9257	2,4-Dichlorobiphenyl (BZ-7)		
EPA 1668C	9256	2,4'-Dichlorobiphenyl (BZ-8)		
	9258	2,5-Dichlorobiphenyl (BZ-9)		
	9259	2,6-Dichlorobiphenyl (BZ-10)		
	8915	2-Chlorobiphenyl (BZ-1)		
	9060	3,3',4,4',5,5'-Hexachlorobiphenyl (BZ-169)		
	9015	3,3',4,4',5-Pentachlorobiphenyl (BZ-126)		
	8965	3,3',4,4'-Tetrachlorobiphenyl (BZ-77)		
	9260	3,3',4,5,5'-Pentachlorobiphenyl (BZ-127)		
	9262	3,3',4,5-Tetrachlorobiphenyl (BZ-78)		
	9261	3,3',4,5'-Tetrachlorobiphenyl (BZ-79)		
	9263	3,3',4-Trichlorobiphenyl (BZ-35)		
	9264	3,3',5,5'-Tetrachlorobiphenyl (BZ-80)		
	9265	3,3',5-Trichlorobiphenyl (BZ-36)		
	8925	3,3'-Dichlorobiphenyl (BZ-11)		
	8970	3,4,4',5-Tetrachlorobiphenyl (BZ-81)		
	9266	3,4,4'-Trichlorobiphenyl (BZ-37)		
	9267	3,4,5-Trichlorobiphenyl (BZ-38)		
	9268	3,4',5-Trichlorobiphenyl (BZ-39)		
	9270	3,4-Dichlorobiphenyl (BZ-12)		
	9269	3,4'-Dichlorobiphenyl (BZ-13)		
	9271	3,5-Dichlorobiphenyl (BZ-14)		
	9272	3-Chlorobiphenyl (BZ-2)		
	9273	4,4'-Dichlorobiphenyl (BZ-15)		
	9274	4-Chlorobiphenyl (BZ-3)		
	9105	Decachlorobiphenyl (BZ-209)		
	8876	Total Dichlorobiphenyls		
	8877	Total Heptachlorobiphenyls		
	8888	Total Hexachlorobiphenyls		
	8889	Total Monochlorobiphenyls		
	8891	Total Nonachlorobiphenyls		
	8892	Total Octachlorobiphenyls		
	8893	Total Tetrachlorobiphenyls		
	8894	Total Trichlorobiphenyls		
EPA 1668C			10262109	Chlorinated Biphenyl Cogeners in Water, Soil, Sediment, and Tissue by GC-HRMS
	9177	2,2',4,4',6-Pentachlorobiphenyl (BZ-100)		
EPA 1699			10133105	Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS
	8580	2,4'-DDD		
	8585	2,4'-DDE		

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 1699	8590	2,4'-DDT	
	7355	4,4'-DDD	
	7360	4,4'-DDE	
	7365	4,4'-DDT	
	7005	Alachlor	
	7025	Aldrin	
	7110	alpha-BHC (alpha-Hexachlorocyclohexane)	
	7115	beta-BHC (beta-Hexachlorocyclohexane)	
	7240	cis-chlordane (alpha-Chlordane)	
	7925	cis-Nonachlor	
	7105	delta-BHC	
	7470	Dieldrin	
	7510	Endosulfan I	
	7515	Endosulfan II	
	7520	Endosulfan sulfate	
	7540	Endrin	
	7530	Endrin aldehyde	
	7535	Endrin ketone	
	7120	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	
	7685	Heptachlor	
	7690	Heptachlor epoxide	
	6275	Hexachlorobenzene	
	4835	Hexachlorobutadiene	
	7810	Methoxychlor	
	7870	Mirex	
	3890	Oxychlordane	
	8250	Toxaphene (Chlorinated camphene)	
	7245	trans-chlordane (gamma-Chlordane)	
	7910	trans-Nonachlor	
EPA 537 1.1			10091675 Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS
	6457	6:2 Fluorotelomersulfonate (6:2FTS)	
	6461	8:2 Fluorotelomersulfonate (8:2FTS)	
	9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	
	9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)	
	4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	
	4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

	EPA 537 1.1	9433	N-Methylperfluorooctanesulfonamide (MeFOSA)		
		9434	N-Methylperfluorooctanesulfonamidoethanol (MeFOSA)		
		6911	Perfluorobutane Sulfonate (PFBS)		
		6915	Perfluorobutyric acid (PFBA)		
		9562	Perfluorodecane Sulfonate (PFDS)		
		6905	Perfluorodecanoic acid (PFDA)		
		6903	Perfluorododecanoic acid (PFDoA)		
		9470	Perfluoroheptanesulfonic acid (PFHpA)		
		6908	Perfluoroheptanoic acid (PFHpA)		
		6901	Perfluorohexadecanoic acid (PFHxDA)		
		6910	Perfluorohexane Sulfonate (PFHS)		
		6913	Perfluorohexanoic acid (PFHxA)		
		6906	Perfluorononanoic acid (PFNA)		
		6916	Perfluorooctadecanoic acid (PFODA)		
		6917	Perfluorooctane Sulfonamide (PFOSA)		
		6912	Perfluorooctanoic acid (PFOA)		
		6909	Perfluorooctanoic Sulfonate (PFOS)		
		6914	Perfluoropentanoic acid (PFPeA)		
		6902	Perfluorotetradecanoic acid (PFTA)		
		9563	Perfluorotridecanoic acid (PFTrDA)		
		6904	Perfluoroundecanoic acid (PFUnA)		
	EPA 8280A			10186808	Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS
		9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)		
		9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)		
		9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)		
		9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)		
		9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)		
		9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)		
		9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)		
		9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)		
		9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)		
		9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)		

Solids

EPA 8280A	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)			
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)			
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)			
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran			
	9549	2,3,4,7,8-Pentachlorodibenzofuran			
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)			
	9612	2,3,7,8-Tetrachlorodibenzofuran			
	9438	Hpcdd, total			
	9444	Hpcdf, total			
	9468	Hxcdd, total			
	9483	Hxcdf, total			
	9555	Pecdd, total			
	9552	Pecdf, total			
	9609	TCDD, total			
	9615	TCDF, total			
EPA 8280B				10187005	Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)			
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)			
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)			
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)			
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)			
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)			
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)			
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)			
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)			
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)			
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)			
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)			
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)			
	9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate			

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 8280B	9480	2,3,4,6,7,8-Hexachlorodibenzofuran			
	9549	2,3,4,7,8-Pentachlorodibenzofuran			
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)			
	9612	2,3,7,8-Tetrachlorodibenzofuran			
	9438	Hpcdd, total			
	9444	Hpcdf, total			
	9468	Hxcdd, total			
	9483	Hxcdf, total			
	9555	Pecdd, total			
	9552	Pecdf, total			
	9609	TCDD, total			
	9615	TCDF, total			
EPA 8290				10187209	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)			
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)			
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)			
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)			
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)			
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)			
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)			
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)			
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)			
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)			
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)			
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)			
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)			
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran			
	9549	2,3,4,7,8-Pentachlorodibenzofuran			
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)			
	9612	2,3,7,8-Tetrachlorodibenzofuran			
	9438	Hpcdd, total			
	9444	Hpcdf, total			

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

EPA 8290	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	
EPA 8290A			10187403 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS
	9516	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	
	9519	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	
	9420	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)	
	9426	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)	
	9423	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)	
	9471	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)	
	9453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)	
	9474	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)	
	9456	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)	
	9477	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)	
	9459	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)	
	9543	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)	
	9540	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)	
	9480	2,3,4,6,7,8-Hexachlorodibenzofuran	
	9549	2,3,4,7,8-Pentachlorodibenzofuran	
	9618	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)	
	9612	2,3,7,8-Tetrachlorodibenzofuran	
	9438	Hpcdd, total	
	9444	Hpcdf, total	
	9468	Hxcdd, total	
	9483	Hxcdf, total	
	9555	Pecdd, total	
	9552	Pecdf, total	
	9609	TCDD, total	
	9615	TCDF, total	

Solids VAL SOP 49 18 60048502 Vista Analytical Laboratory - Per and Poly-fluorinated Compounds

9462	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate
6946	4:2 Fluorotelomersulfonic acid (4:2 FTS)
6947	6:2 Fluorotelomersulfonic acid
6948	8:2 Fluorotelomersulfonic acid (8:2 FTS)
6950	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate
9383	Dodecafluoro-3H-4,8-dioxanonoate (NaDONA)
9460	Hexafluoropropylene oxide dimer acid (HFPO-DA)
9431	N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)
9395	N-Ethylperfluorooctanesulfonamide (EtFOSA)
4846	N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)
4847	N-Methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)
9433	N-Methylperfluorooctanesulfonamide (MeFOSA)
6949	N-Methylperfluorooctanesulfonamidoethanol (N_MeFOSE)
6918	Perfluorobutanesulfonic acid
6915	Perfluorobutyric acid (PFBA)
6920	Perfluorodecane sulfonic acid (PFDS)
6905	Perfluorodecanoic acid (PFDA)
6903	Perfluorododecanoic acid (PFDoA)
9470	Perfluoroheptanesulfonic acid (PFHpA)
6908	Perfluoroheptanoic acid (PFHpA)
6901	Perfluorohexadecanoic acid (PFHxDA)
6927	Perfluorohexanesulfonic acid (PFHxS)
6913	Perfluorohexanoic acid (PFHxA)
6929	Perfluorononane sulfonic acid (PFNS)
6906	Perfluorononanoic acid (PFNA)
6916	Perfluorooctadecanoic acid (PFODA)
6917	Perfluorooctane Sulfonamide (PFOSA)
6931	Perfluorooctanesulfonic acid (PFOS)
6912	Perfluorooctanoic acid (PFOA)
6934	Perfluoropentane sulfonic acid (PFPeS)
6914	Perfluoropentanoic acid (PFPeA)
6902	Perfluorotetradecanoic acid (PFTA)
9563	Perfluorotridecanoic acid (PFTrDA)

OREGON

Environmental Laboratory Accreditation Program

ORELAP Fields of Accreditation

ORELAP ID: 4042

Vista Analytical Laboratory Inc.

EPA CODE: CA00413

1104 Windfield Way

Certificate: 4042 - 010

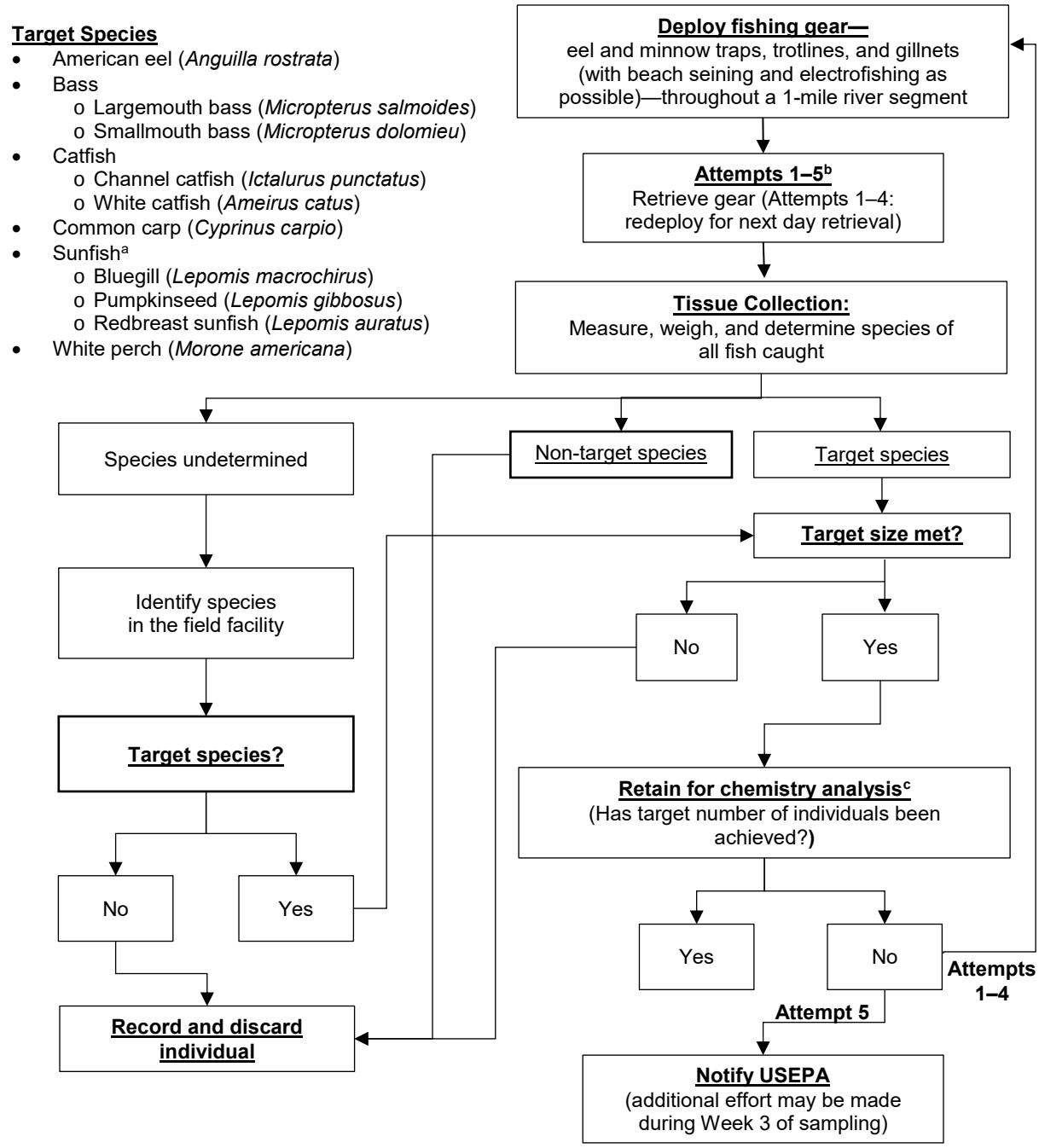
El Dorado Hills, CA 95762 Issue Date: 2/8/2019 Expiration Date: 2/7/2020

As of 2/8/2019 this list supersedes all previous lists for this certificate number.

Solids

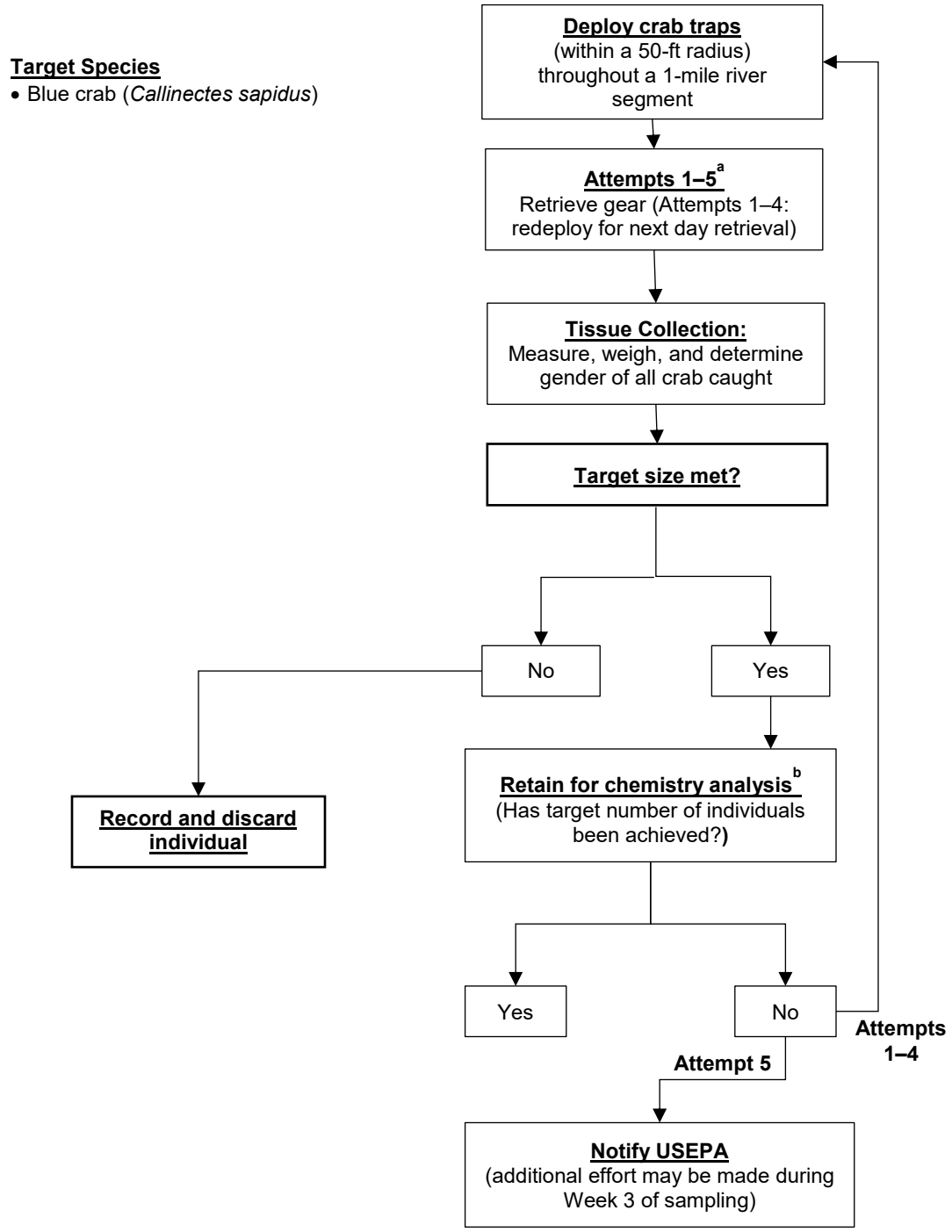
VAL SOP 49 18	6904	Perfluoroundecanoic acid (PFUnA)

Attachment W. Field Sampling Flow Charts



[a] The species listed are the abundant sunfish species primarily caught during the 2009/2010 field efforts. Additional sunfish species may also be retained for analysis.
[b] Catch results (e.g., species, lengths, and weights) will be posted or sent to USEPA on a daily basis.
[c] Individual fish will be labeled with a unique ID to enable tracking from the field to the analytical laboratory.

Figure 1. Field sampling flow chart – fish



[a] Catch results (e.g., species, widths, weights) will be posted or sent to USEPA on a daily basis.
[b] Individual crabs will be labeled with a unique ID to enable tracking from the field to the analytical laboratory.

Figure 2. Field sampling flow chart – crab