

PROFESSIONAL SERVICES CONTRACT
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This Contract ("this Contract"), entered into by and between Indiana Department of Environmental Management (the "State") and PACE ANALYTICAL SERVICES, INC (the "Contractor"), is executed pursuant to the terms and conditions set forth herein. In consideration of those mutual undertakings and covenants, the parties agree as follows:

1. Duties of Contractor. The Contractor shall provide the following services relative to this Contract in accordance with the attached **Exhibit A, Scope of Work**; and **Exhibit C, Schedule of Project Tasks, Exhibit D, Invoice Contents and Format**.

2. Consideration. The Contractor will be paid in accordance with the attached **Exhibit B, TOTAL ESTIMATED PROJECT EXPENSE and THE CONTRACTOR PRICING** for performing the duties set forth above. Total remuneration under this Contract shall not exceed \$ 230,000.00.

3. Term. This Contract shall be effective for a period of twenty-four (24) months. It shall commence on the date of the last State signatory and shall remain in effect through twenty-four (24) months.

4. Access to Records. The Contractor and its subcontractors, if any, shall maintain all books, documents, papers, accounting records, and other evidence pertaining to all costs incurred under this Contract. They shall make such materials available at their respective offices at all reasonable times during this Contract, and for three (3) years from the date of final payment under this Contract, for inspection by the State or its authorized designees. Copies shall be furnished at no cost to the State if requested.

5. Assignment; Successors.

A. The Contractor binds its successors and assignees to all the terms and conditions of this Contract. The Contractor may assign its right to receive payments to such third parties as the Contractor may desire without the prior written consent of the State, provided that the Contractor gives written notice (including evidence of such assignment) to the State thirty (30) days in advance of any payment so assigned. The assignment shall cover all unpaid amounts under this Contract and shall not be made to more than one party.

B. The Contractor shall not assign or subcontract the whole or any part of this Contract without the State's prior written consent. Additionally, the Contractor shall provide prompt written notice to the State of any change in the Contractor's legal name or legal status so that the changes may be documented and payments to the successor entity may be made.

6. Assignment of Antitrust Claims. As part of the consideration for the award of this Contract, the Contractor assigns to the State all right, title and interest in and to any claims the Contractor now has, or may acquire, under state or federal antitrust laws relating to the products or services which are the subject of this Contract.

7. Audits. The Contractor acknowledges that it may be required to submit to an audit of funds paid through this Contract. Any such audit shall be conducted in accordance with IC § 5-11-1, *et seq.*, and audit guidelines specified by the State.

The State considers the Contractor to be a “Contractor” under 2 C.F.R. 200.330 for purposes of this Contract. However, if it is determined that the Contractor is a “subrecipient” and if required by applicable provisions of 2 C.F.R. 200 (Uniform Administrative Requirements, Cost Principles, and Audit Requirements), Contractor shall arrange for a financial and compliance audit, which complies with 2 C.F.R. 200.500 *et seq.*

8. Authority to Bind Contractor. The signatory for the Contractor represents that he/she has been duly authorized to execute this Contract on behalf of the Contractor and has obtained all necessary or applicable approvals to make this Contract fully binding upon the Contractor when his/her signature is affixed, and accepted by the State.

9. Changes in Work. The Contractor shall not commence any additional work or change the scope of the work until authorized in writing by the State. The Contractor shall make no claim for additional compensation in the absence of a prior written approval and amendment executed by all signatories hereto. This Contract may only be amended, supplemented or modified by a written document executed in the same manner as this Contract.

10. Compliance with Laws.

A. The Contractor shall comply with all applicable federal, state, and local laws, rules, regulations, and ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment or modification of any applicable state or federal statute or the promulgation of rules or regulations thereunder after execution of this Contract shall be reviewed by the State and the Contractor to determine whether the provisions of this Contract require formal modification.

B. The Contractor and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the State as set forth in IC § 4-2-6, *et seq.*, IC § 4-2-7, *et seq.* and the regulations promulgated thereunder. **If the Contractor has knowledge, or would have acquired knowledge with reasonable inquiry, that a state officer, employee, or special state appointee, as those terms are defined in IC § 4-2-6-1, has a financial interest in the Contract, the Contractor shall ensure compliance with the disclosure requirements in IC § 4-2-6-10.5 prior to the execution of this Contract.** If the Contractor is not familiar with these ethical requirements, the Contractor should refer any questions to the Indiana State Ethics Commission, or visit the Inspector General's website at <http://www.in.gov/ig/>. If the Contractor or its agents violate any applicable ethical standards, the State may, in its sole discretion, terminate this Contract immediately upon notice to the Contractor. In addition, the Contractor may be subject to penalties under IC §§ 4-2-6, 4-2-7, 35-44.1-1-4, and under any other applicable laws.

C. The Contractor certifies by entering into this Contract that neither it nor its principal(s) is presently in arrears in payment of taxes, permit fees or other statutory, regulatory or judicially required payments to the State of Indiana. The Contractor agrees that any payments currently due to the State of Indiana may be withheld from payments due to the Contractor. Additionally, further work or payments may be withheld, delayed, or denied and/or this Contract suspended until the Contractor is current in its payments and has submitted proof of such payment to the State.

D. The Contractor warrants that it has no current, pending or outstanding criminal, civil, or enforcement actions initiated by the State, and agrees that it will immediately notify the State of any such actions. During the term of such actions, the Contractor agrees that the State may delay, withhold, or deny work under any supplement, amendment, change order or other contractual device issued pursuant to this Contract.

E. If a valid dispute exists as to the Contractor's liability or guilt in any action initiated by the State or its agencies, and the State decides to delay, withhold, or deny work to the Contractor, the Contractor may request that it be allowed to continue, or receive work, without delay. The Contractor must submit, in writing, a request for review to the Indiana Department of Administration (IDOA) following the procedures for disputes outlined herein. A determination by IDOA shall be binding on the parties. Any payments that the State may delay, withhold, deny, or apply under this section shall not be subject to penalty or interest, except as permitted by IC § 5-17-5.

F. The Contractor warrants that the Contractor and its subcontractors, if any, shall obtain and maintain all required permits, licenses, registrations, and approvals, and shall comply with all health, safety, and environmental statutes, rules, or regulations in the performance of work activities for the State. Failure to do so may be deemed a material breach of this Contract and grounds for immediate termination and denial of further work with the State.

G. The Contractor affirms that, if it is an entity described in IC Title 23, it is properly registered and owes no outstanding reports to the Indiana Secretary of State.

H. As required by IC § 5-22-3-7:

(1) The Contractor and any principals of the Contractor certify that:

(A) the Contractor, except for de minimis and nonsystematic violations, has not violated the terms of:

- (i) IC §24-4.7 [Telephone Solicitation Of Consumers];
- (ii) IC §24-5-12 [Telephone Solicitations]; or
- (iii) IC §24-5-14 [Regulation of Automatic Dialing Machines];

in the previous three hundred sixty-five (365) days, even if IC § 24-4.7 is preempted by federal law; and

(B) the Contractor will not violate the terms of IC § 24-4.7 for the duration of the Contract, even if IC §24-4.7 is preempted by federal law.

(2) The Contractor and any principals of the Contractor certify that an affiliate or principal of the Contractor and any agent acting on behalf of the Contractor or on behalf of an affiliate or principal of the Contractor, except for de minimis and nonsystematic violations,

(A) has not violated the terms of IC § 24-4.7 in the previous three hundred sixty-five (365) days, even if IC §24-4.7 is preempted by federal law; and

(B) will not violate the terms of IC § 24-4.7 for the duration of the Contract, even if IC §24-4.7 is preempted by federal law.

11. Condition of Payment. All services provided by the Contractor under this Contract must be performed to the State's reasonable satisfaction, as determined at the discretion of the undersigned State representative and in accordance with all applicable federal, state, local laws, ordinances, rules and regulations. The State shall not be required to pay for work found to be unsatisfactory, inconsistent with this Contract or performed in violation of any federal, state or local statute, ordinance, rule or regulation.

12. Confidentiality of State Information. The Contractor understands and agrees that data, materials, and information disclosed to the Contractor may contain confidential and protected information. The Contractor covenants that data, material, and information gathered, based upon or disclosed to the Contractor for the purpose of this Contract will not be disclosed to or discussed with third parties without the prior written consent of the State.

The parties acknowledge that the services to be performed by Contractor for the State under this Contract may require or allow access to data, materials, and information containing Social Security numbers maintained by the State in its computer system or other records. In addition to the covenant made above in this section and pursuant to 10 IAC 5-3-1(4), the Contractor and the State agree to comply with the provisions of IC § 4-1-10 and IC § 4-1-11. If any Social Security number(s) is/are disclosed by Contractor, Contractor agrees to pay the cost of the notice of disclosure of a breach of the security of the system in addition to any other claims and expenses for which it is liable under the terms of this contract.

13. Continuity of Services.

A. The Contractor recognizes that the service(s) to be performed under this Contract are vital to the State and must be continued without interruption and that, upon Contract expiration, a successor, either the State or another contractor, may continue them. The Contractor agrees to:

- 1. Furnish phase-in training; and
- 2. Exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.

B. The Contractor shall, upon the State's written notice:

- 1. Furnish phase-in, phase-out services for up to sixty (60) days after this Contract expires; and
- 2. Negotiate in good faith a plan with a successor to determine the nature and extent of phase-in, phase-out services required. The plan shall specify a training program and a date for transferring responsibilities for each division of work described in the plan, and shall be subject to the State's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this Contract are maintained at the required level of proficiency.

C. The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this Contract. The Contractor also shall disclose necessary personnel records and allow the successor to conduct on-site interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.

D. The Contractor shall be reimbursed for all reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations).

14. Debarment and Suspension.

A. The Contractor certifies by entering into this Contract that neither it nor its principals nor any of its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from entering into this Contract by any federal agency or by any department, agency or political subdivision of the State of Indiana. The term "principal" for purposes of this Contract means an officer, director, owner, partner, key employee or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor.

B. The Contractor certifies that it has verified the state and federal suspension and debarment status for all subcontractors receiving funds under this Contract and shall be solely responsible for any recoupment, penalties or costs that might arise from use of a suspended or debarred subcontractor. The Contractor shall immediately notify the State if any subcontractor becomes debarred or suspended, and shall, at the State's request, take all steps required by the State to terminate its contractual relationship with the subcontractor for work to be performed under this Contract.

15. Default by State. If the State, sixty (60) days after receipt of written notice, fails to correct or cure any material breach of this Contract, the Contractor may cancel and terminate this Contract and institute measures to collect monies due up to and including the date of termination.

16. Disputes.

A. Should any disputes arise with respect to this Contract, the Contractor and the State agree to act immediately to resolve such disputes. Time is of the essence in the resolution of disputes.

B. The Contractor agrees that, the existence of a dispute notwithstanding, it will continue without delay to carry out all of its responsibilities under this Contract that are not affected by the dispute. Should the Contractor fail to continue to perform its responsibilities regarding all non-disputed work, without delay, any additional costs incurred by the State or the Contractor as a result of such failure to proceed shall be borne by the Contractor, and the Contractor shall make no claim against the State for such costs.

C. If the parties are unable to resolve a contract dispute between them after good faith attempts to do so, a dissatisfied party shall submit the dispute to the Commissioner of the Indiana Department of Administration for resolution. The dissatisfied party shall give written notice to the Commissioner and the other party. The notice shall include: (1) a description of the disputed issues, (2) the efforts made to resolve the dispute, and (3) a proposed resolution. The Commissioner shall promptly issue a Notice setting out documents and materials to be submitted to the Commissioner in order to resolve the dispute; the Notice may also afford the parties the opportunity to make presentations and enter into further negotiations. Within thirty (30) business days of the conclusion of the final presentations, the Commissioner shall issue a written decision and furnish it to both parties. The Commissioner's decision shall be the final and conclusive administrative decision unless either party serves on the Commissioner and the other party, within ten (10) business days after receipt of the Commissioner's decision, a written request for reconsideration and modification of the written decision. If the Commissioner does not modify the written decision within thirty (30) business days, either party may take such other action helpful to resolving the dispute, including submitting the dispute to an Indiana court of competent jurisdiction. If the parties accept the Commissioner's decision, it may be memorialized as a written Amendment to this Contract if appropriate.

D. The State may withhold payments on disputed items pending resolution of the dispute. The unintentional nonpayment by the State to the Contractor of one or more invoices not in dispute in accordance with the terms of this Contract will not be cause for the Contractor to terminate this Contract, and the Contractor may bring suit to collect these amounts without following the disputes procedure contained herein.

E. With the written approval of the Commissioner of the Indiana Department of Administration, the parties may agree to forego the process described in subdivision C. relating to submission of the dispute to the Commissioner.

F. This paragraph shall not be construed to abrogate provisions of IC § 4-6-2-11 in situations where dispute resolution efforts lead to a compromise of claims in favor of the State as described in that statute. In particular, releases or settlement agreements involving releases of legal claims or potential legal claims of the state should be processed consistent with IC § 4-6-2-11, which requires approval of the Governor and Attorney General.

17. Drug-Free Workplace Certification. As required by Executive Order No. 90-5 dated April 12, 1990, issued by the Governor of Indiana, the Contractor hereby covenants and agrees to make a good faith effort to provide and maintain a drug-free workplace. The Contractor will give written notice to the State within ten (10) days after receiving actual notice that the Contractor, or an employee of the Contractor in the State of Indiana, has been convicted of a criminal drug violation occurring in the workplace. False certification or violation of this certification may result in sanctions including, but not limited to, suspension of contract payments, termination of this Contract and/or debarment of contracting opportunities with the State for up to three (3) years.

In addition to the provisions of the above paragraph, if the total amount set forth in this Contract is in excess of \$25,000.00, the Contractor certifies and agrees that it will provide a drug-free workplace by:

- A. Publishing and providing to all of its employees a statement notifying them that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
- B. Establishing a drug-free awareness program to inform its employees of: (1) the dangers of drug abuse in the workplace; (2) the Contractor's policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; and (4) the penalties that may be imposed upon an employee for drug abuse violations occurring in the workplace;
- C. Notifying all employees in the statement required by subparagraph (A) above that as a condition of continued employment, the employee will: (1) abide by the terms of the statement; and (2) notify the Contractor of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;
- D. Notifying the State in writing within ten (10) days after receiving notice from an employee under subdivision (C)(2) above, or otherwise receiving actual notice of such conviction;
- E. Within thirty (30) days after receiving notice under subdivision (C)(2) above of a conviction, imposing the following sanctions or remedial measures on any employee who is convicted of drug abuse violations occurring in the workplace: (1) taking appropriate personnel action against the employee, up to and including termination; or (2) requiring such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state or local health, law enforcement, or other appropriate agency; and
- F. Making a good faith effort to maintain a drug-free workplace through the implementation of subparagraphs (A) through (E) above.

18. Employment Eligibility Verification. As required by IC § 22-5-1.7, the Contractor swears or affirms under the penalties of perjury that the Contractor does not knowingly employ an unauthorized alien. The Contractor further agrees that:

A. The Contractor shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC § 22-5-1.7-3. The Contractor is not required to participate should the E-Verify program cease to exist. Additionally, the Contractor is not required to participate if the Contractor is self-employed and does not employ any employees.

B. The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien.

C. The Contractor shall require his/her/its subcontractors, who perform work under this Contract, to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

The State may terminate for default if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified by the State.

19. Employment Option. If the State determines that it would be in the State's best interest to hire an employee of the Contractor, the Contractor will release the selected employee from any non-competition agreements that may be in effect. This release will be at no cost to the State or the employee.

20. Force Majeure. In the event that either party is unable to perform any of its obligations under this Contract or to enjoy any of its benefits because of natural disaster or decrees of governmental bodies not the fault of the affected party (hereinafter referred to as a "Force Majeure Event"), the party who has been so affected shall immediately or as soon as is reasonably possible under the circumstances give notice to the other party and shall do everything possible to resume performance. Upon receipt of such notice, all obligations under this Contract shall be immediately suspended. If the period of nonperformance exceeds thirty (30) days from the receipt of notice of the Force Majeure Event, the party whose ability to perform has not been so affected may, by giving written notice, terminate this Contract.

21. Funding Cancellation. As required by Financial Management Circular 2007-1 and IC § 5-22-17-5, when the Director of the State Budget Agency makes a written determination that funds are not appropriated or otherwise available to support continuation of performance of this Contract, this Contract shall be canceled. A determination by the Director of State Budget Agency that funds are not appropriated or otherwise available to support continuation of performance shall be final and conclusive.

22. Governing Law. This Contract shall be governed, construed, and enforced in accordance with the laws of the State of Indiana, without regard to its conflict of laws rules. Suit, if any, must be brought in the State of Indiana.

23. HIPAA Compliance. If this Contract involves services, activities or products subject to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Contractor covenants that it will appropriately safeguard Protected Health Information (defined in 45 CFR 160.103), and agrees that it is subject to, and shall comply with, the provisions of 45 CFR 164 Subpart E regarding use and disclosure of Protected Health Information.

24. Indemnification. The Contractor agrees to indemnify, defend, and hold harmless the State, its agents, officials, and employees from all third party claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any, in the performance of this Contract. The State will not provide indemnification to the Contractor.

25. Independent Contractor; Workers' Compensation Insurance. The Contractor is performing as an independent entity under this Contract. No part of this Contract shall be construed to represent the creation of an employment, agency, partnership or joint venture agreement between the parties. Neither party will assume liability for any injury (including death) to any persons, or damage to any property, arising out of the acts or omissions of the agents, employees or subcontractors of the other party. The Contractor shall provide all necessary unemployment and workers'

compensation insurance for the Contractor's employees, and shall provide the State with a Certificate of Insurance evidencing such coverage prior to starting work under this Contract.

26. Indiana Veteran Owned Small Business Enterprise Compliance. Award of this Contract was based, in part, on the Indiana Veteran Owned Small Business Enterprise ("IVOSB") participation plan, as detailed in the IVOSB Subcontractor Commitment Form, commonly referred to as "Attachment A-1" in the procurement documentation and incorporated by reference herein. Therefore, any changes to this information during the Contract term must be approved by IDOA's IVOSB Division ("IVOSB Division") and may require an amendment. It is the State's expectation that the Contractor will meet the subcontractor commitments during the Contract term. The following certified IVOSB subcontractor(s) will be participating in this Contract:

IVOSB	COMPANY NAME	PHONE	EMAIL OF CONTACT PERSON
PERCENT			

This is a Special Procurement Contract. It was not awarded based on a particular plan.

Briefly describe the IVOSB service(s)/product(s) to be provided under this Contract and include the estimated date(s) for utilization during the Contract term:

A copy of each subcontractor agreement must be submitted to the IVOSB Division within thirty (30) days of the effective date of this Contract. The subcontractor agreements may be uploaded into Pay Audit (Indiana's subcontractor payment auditing system), emailed to IndianaVeteransPreference@idoa.IN.gov, or mailed to IDOA, 402 W. Washington Street, Room W-478, Indianapolis, IN 46204. Failure to provide a copy of any subcontractor agreement may be deemed a violation of the rules governing IVOSB procurement and may result in sanctions allowable under 25 IAC 9-5-2. Requests for changes must be submitted to IndianaVeteransPreference@idoa.IN.gov for review and approval before changing the participation plan submitted in connection with this Contract.

The Contractor shall report payments made to certified IVOSB subcontractors under this Contract on a monthly basis using Pay Audit. The Contractor shall notify subcontractors that they must confirm payments received from the Contractor in Pay Audit. The Pay Audit system can be accessed on the IDOA webpage at: www.in.gov/idoa/mwbe/payaudit.htm. The Contractor may also be required to report IVOSB certified subcontractor payments directly to the IVOSB Division, as reasonably requested and in the format required by the IVOSB Division.

The Contractor's failure to comply with the provisions in this clause may be considered a material breach of the Contract.

27. Information Technology Enterprise Architecture Requirements. If this Contract involves information technology-related products or services, the Contractor agrees that any such products or services are compatible with the technology standards, including the assistive technology standard, all found at <https://www.in.gov/iot/2394.htm>. The State may terminate this Contract for default if the terms of this paragraph are breached.

28. Insurance.

A. The Contractor and its subcontractors (if any) shall secure and keep in force during the term of this Contract the following insurance coverages (if applicable) covering the Contractor for any and all claims of any nature which may in any manner arise out of or result from Contractor's performance under this Contract:

1. Commercial general liability, including contractual coverage, and products or completed operations coverage (if applicable), with minimum liability limits not less than \$700,000 per person and \$5,000,000 per occurrence

unless additional coverage is required by the State. The State is to be named as an additional insured on a primary, non-contributory basis for any liability arising directly or indirectly under or in connection with this Contract.

2. Automobile liability for owned, non-owned and hired autos with minimum liability limits not less than \$700,000 per person and \$5,000,000 per occurrence. The State is to be named as an additional insured on a primary, non-contributory basis.
3. Errors and Omissions liability with minimum liability limits of \$1,000,000 per claim and in the aggregate. Coverage for the benefit of the State shall continue for a period of two (2) years after the date of service provided under this Contract.
4. Fiduciary liability if the Contractor is responsible for the management and oversight of various employee benefit plans and programs such as pensions, profit-sharing and savings, among others with limits no less than \$700,000 per cause of action and \$5,000,000 in the aggregate.
5. Valuable Papers coverage, if applicable, with an Inland Marine Policy Insurance with limits sufficient to pay for the re-creation and reconstruction of such records.
6. Surety or Fidelity Bond(s) if required by statute or by the agency.
7. Cyber Liability if requested by the State addressing risks associated with electronic transmissions, the internet, networks and informational assets, and having limits of no less than \$700,000 per occurrence and \$5,000,000 in the aggregate.

The Contractor shall provide proof of such insurance coverage by tendering to the undersigned State representative a certificate of insurance prior to the commencement of this Contract and proof of workers' compensation coverage meeting all statutory requirements of IC § 22-3-2. In addition, proof of an "all states endorsement" covering claims occurring outside the State is required if any of the services provided under this Contract involve work outside of Indiana.

B. The Contractor's insurance coverage must meet the following additional requirements:

1. The insurer must have a certificate of authority or other appropriate authorization to operate in the state in which the policy was issued.
2. Any deductible or self-insured retention amount or other similar obligation under the insurance policies shall be the sole obligation of the Contractor.
3. The State will be defended, indemnified and held harmless to the full extent of any coverage actually secured by the Contractor in excess of the minimum requirements set forth above. The duty to indemnify the State under this Contract shall not be limited by the insurance required in this Contract.
4. The insurance required in this Contract, through a policy or endorsement(s), shall include a provision that the policy and endorsements may not be canceled or modified without thirty (30) days' prior written notice to the undersigned State agency.
5. The Contractor waives and agrees to require their insurer to waive their rights of subrogation against the State of Indiana.

C. Failure to provide insurance as required in this Contract may be deemed a material breach of contract entitling the State to immediately terminate this Contract. The Contractor shall furnish a certificate of insurance and all endorsements to the State before the commencement of this Contract.

29. Key Person(s).

A. If both parties have designated that certain individual(s) are essential to the services offered, the parties agree that should such individual(s) leave their employment during the term of this Contract for whatever reason, the State shall have the right to terminate this Contract upon thirty (30) days' prior written notice.

B. In the event that the Contractor is an individual, that individual shall be considered a key person and, as such, essential to this Contract. Substitution of another for the Contractor shall not be permitted without express written consent of the State.

Nothing in sections A and B, above shall be construed to prevent the Contractor from using the services of others to perform tasks ancillary to those tasks which directly require the expertise of the key person. Examples of such ancillary tasks include secretarial, clerical, and common labor duties. The Contractor shall, at all times, remain responsible for the performance of all necessary tasks, whether performed by a key person or others.

Key person(s) to this Contract are not applicable.

30. Licensing Standards. The Contractor, its employees and subcontractors shall comply with all applicable licensing standards, certification standards, accrediting standards and any other laws, rules, or regulations governing services to be provided by the Contractor pursuant to this Contract. The State will not pay the Contractor for any services performed when the Contractor, its employees or subcontractors are not in compliance with such applicable standards, laws, rules, or regulations. If any license, certification or accreditation expires or is revoked, or any disciplinary action is taken against an applicable license, certification, or accreditation, the Contractor shall notify the State immediately and the State, at its option, may immediately terminate this Contract.

31. Merger & Modification. This Contract constitutes the entire agreement between the parties. No understandings, agreements, or representations, oral or written, not specified within this Contract will be valid provisions of this Contract. This Contract may not be modified, supplemented, or amended, except by written agreement signed by all necessary parties.

32. Minority and Women's Business Enterprises Compliance.

Award of this Contract was based, in part, on the Minority and/or Women's Business Enterprise ("MBE" and/or "WBE") participation plan as detailed in the Minority and Women's Business Enterprises Subcontractor Commitment Form, commonly referred to as "Attachment A" in the procurement documentation and incorporated by reference herein. Therefore, any changes to this information during the Contract term must be approved by MWBE Compliance and may require an amendment. It is the State's expectation that the Contractor will meet the subcontractor commitments during the Contract term.

The following MBE/WBE Division ("Division") certified MBE and/or WBE subcontractors will be participating in this Contract:

MBE or WBE PERCENT	COMPANY NAME	PHONE	EMAIL OF CONTACT PERSON
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This is a Special Procurement Contract. It was not awarded based on a particular plan.

Briefly describe the MBE and/or WBE service(s)/product(s) to be provided under this Contract and include the estimated date(s) for utilization during the Contract term:

A copy of each subcontractor agreement must be submitted to the Division within thirty (30) days of the effective date of this Contract. The subcontractor agreements may be uploaded into Pay Audit (Indiana's subcontractor payment auditing system), emailed to MWBECompliance@idoa.IN.gov, or mailed to MWBE Compliance, 402 W. Washington Street, Indianapolis IN 46204. Failure to provide a copy of any subcontractor agreement may be deemed a violation of the rules governing MBE/WBE procurement and may result in sanctions allowable under 25 IAC 5-7-8. Requests for changes must be submitted to MWBECompliance@idoa.IN.gov for review and approval before changing the participation plan submitted in connection with this Contract.

The Contractor shall report payments made to Division certified subcontractors under this Contract on a monthly basis using Pay Audit. The Contractor shall notify subcontractors that they must confirm payments received from the Contractor in Pay Audit. The Pay Audit system can be accessed on the IDOA webpage at: www.in.gov/idoa/mwbe/payaudit.htm. The Contractor may also be required to report Division certified subcontractor payments directly to the Division, as reasonably requested and in the format required by the Division.

The Contractor's failure to comply with the provisions in this clause may be considered a material breach of the Contract.

33. Nondiscrimination. Pursuant to the Indiana Civil Rights Law, specifically IC § 22-9-1-10, and in keeping with the purposes of the federal Civil Rights Act of 1964, the Age Discrimination in Employment Act, and the Americans with Disabilities Act, the Contractor covenants that it shall not discriminate against any employee or applicant for employment relating to this Contract with respect to the hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of the employee's or applicant's race, color, national origin, religion, sex, age, disability, ancestry, status as a veteran, or any other characteristic protected by federal, state, or local law ("Protected Characteristics"). The Contractor certifies compliance with applicable federal laws, regulations, and executive orders prohibiting discrimination based on the Protected Characteristics in the provision of services. Breach of this paragraph may be regarded as a material breach of this Contract, but nothing in this paragraph shall be construed to imply or establish an employment relationship between the State and any applicant or employee of the Contractor or any subcontractor.

The State is a recipient of federal funds, and therefore, where applicable, the Contractor and any subcontractors shall comply with requisite affirmative action requirements, including reporting, pursuant to 41 CFR Chapter 60, as amended, and Section 202 of Executive Order 11246 as amended by Executive Order 13672.

34. Notice to Parties. Whenever any notice, statement or other communication is required under this Contract, it will be sent by E-mail or first class U.S. mail service to the following addresses, unless otherwise specifically advised.

A. Notices to the State shall be sent to:

Alison Meils
Indiana Dept. of Environmental Management Office of Water Quality
Watershed Assessment and Planning Branch Targeted Monitoring Section
2525 N Shadeland Ave, Suite 100 (MC 65-40-2 Shadeland)
Indianapolis, IN 46219-1787
Email: ameils@idem.in.gov

B. Notices to the Contractor shall be sent to:

Mary Christie, Program Manager
Sediment/Biota Market Specialist Pace Analytical Services, Inc.
1241 Bellvue, Suite 9 Green Bay, WI 54302
Email: Mary.Christie@pacelabs.com

As required by IC § 4-13-2-14.8, payments to the Contractor shall be made via electronic funds transfer in accordance with instructions filed by the Contractor with the Indiana Auditor of State.

35. Order of Precedence; Incorporation by Reference. Any inconsistency or ambiguity in this Contract shall be resolved by giving precedence in the following order: (1) this Contract, (2) attachments prepared by the State, (3) Special Procurement approved by the State, and (4) attachments prepared by the Contractor. All attachments, and all documents referred to in this paragraph, are hereby incorporated fully by reference.

36. Ownership of Documents and Materials.

A. All documents, records, programs, applications, data, algorithms, film, tape, articles, memoranda, and other materials (the “Materials”) not developed or licensed by the Contractor prior to execution of this Contract, but specifically developed under this Contract shall be considered “work for hire” and the Contractor hereby transfers and assigns any ownership claims to the State so that all Materials will be the property of the State. If ownership interest in the Materials cannot be assigned to the State, the Contractor grants the State a non-exclusive, non-cancelable, perpetual, worldwide royalty-free license to use the Materials and to use, modify, copy and create derivative works of the Materials.

B. Use of the Materials, other than related to contract performance by the Contractor, without the prior written consent of the State, is prohibited. During the performance of this Contract, the Contractor shall be responsible for any loss of or damage to the Materials developed for or supplied by the State and used to develop or assist in the services provided while the Materials are in the possession of the Contractor. Any loss or damage thereto shall be restored at the Contractor’s expense. The Contractor shall provide the State full, immediate, and unrestricted access to the Materials and to Contractor’s work product during the term of this Contract.

37. Payments.

A. All payments shall be made thirty five (35) days in arrears in conformance with State fiscal policies and procedures and, as required by IC § 4-13-2-14.8, the direct deposit by electronic funds transfer to the financial institution designated by the Contractor in writing unless a specific waiver has been obtained from the Indiana Auditor of State. No payments will be made in advance of receipt of the goods or services that are the subject of this Contract except as permitted by IC § 4-13-2-20.

B. If the Contractor is being paid in advance for the maintenance of equipment, software or a service as a subscription, then pursuant to IC § 4-13-2-20(b)(14), the Contractor agrees that if it fails to fully provide or perform under this Contract, upon receipt of written notice from the State, it shall promptly refund the consideration paid, pro-rated through the date of non-performance.

38. Penalties/Interest/Attorney’s Fees. The State will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest or attorney’s fees, except as permitted by Indiana law, in part, IC § 5-17-5, IC § 34-54-8, IC § 34-13-1 and IC § 34-52-2.

Notwithstanding the provisions contained in IC § 5-17-5, any liability resulting from the State’s failure to make prompt payment shall be based solely on the amount of funding originating from the State and shall not be based on funding from federal or other sources.

39. Progress Reports. The Contractor shall submit progress reports to the State upon request. The report shall be oral, unless the State, upon receipt of the oral report, should deem it necessary to have it in written form. The progress reports shall serve the purpose of assuring the State that work is progressing in line with the schedule, and that completion can be reasonably assured on the scheduled date.

40. Public Record. The Contractor acknowledges that the State will not treat this Contract as containing confidential information, and will post this Contract on the transparency portal as required by IC § 5-14-3.5-2. Use by the public of the information contained in this Contract shall not be considered an act of the State.

41. Renewal Option. This Contract may be renewed under the same terms and conditions, subject to the approval of the Commissioner of the Department of Administration and the State Budget Director in compliance with IC § 5-22-17-4. The term of the renewed contract may not be longer than the term of the original Contract.

42. Severability. The invalidity of any section, subsection, clause or provision of this Contract shall not affect the validity of the remaining sections, subsections, clauses or provisions of this Contract.

43. Substantial Performance. This Contract shall be deemed to be substantially performed only when fully performed according to its terms and conditions and any written amendments or supplements.

44. Taxes. The State is exempt from most state and local taxes and many federal taxes. The State will not be responsible for any taxes levied on the Contractor as a result of this Contract.

45. Termination for Convenience. This Contract may be terminated, in whole or in part, by the State, which shall include and is not limited to IDOA and the State Budget Agency whenever, for any reason, the State determines that such termination is in its best interest. Termination of services shall be effected by delivery to the Contractor of a Termination Notice at least thirty (30) days prior to the termination effective date, specifying the extent to which performance of services under such termination becomes effective. The Contractor shall be compensated for services properly rendered prior to the effective date of termination. The State will not be liable for services performed after the effective date of termination. The Contractor shall be compensated for services herein provided but in no case shall total payment made to the Contractor exceed the original contract price or shall any price increase be allowed on individual line items if canceled only in part prior to the original termination date. For the purposes of this paragraph, the parties stipulate and agree that IDOA shall be deemed to be a party to this Contract with authority to terminate the same for convenience when such termination is determined by the Commissioner of IDOA to be in the best interests of the State.

46. Termination for Default.

A. With the provision of thirty (30) days' notice to the Contractor, the State may terminate this Contract in whole or in part if the Contractor fails to:

1. Correct or cure any breach of this Contract; the time to correct or cure the breach may be extended beyond thirty (30) days if the State determines progress is being made and the extension is agreed to by the parties;
2. Deliver the supplies or perform the services within the time specified in this Contract or any extension;
3. Make progress so as to endanger performance of this Contract; or
4. Perform any of the other provisions of this Contract.

B. If the State terminates this Contract in whole or in part, it may acquire, under the terms and in the manner the State considers appropriate, supplies or services similar to those terminated, and the Contractor will be liable to the State for any excess costs for those supplies or services. However, the Contractor shall continue the work not terminated.

C. The State shall pay the contract price for completed supplies delivered and services accepted. The Contractor and the State shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. The State may withhold from these amounts any sum the State determines to be necessary to protect the State against loss because of outstanding liens or claims of former lien holders.

D. The rights and remedies of the State in this clause are in addition to any other rights and remedies provided by law or equity or under this Contract.

47. Travel. No expenses for travel will be reimbursed unless specifically authorized by this Contract. Permitted expenses will be reimbursed at the rate paid by the State and in accordance with the Budget Agency's *Financial Management Circular – Travel Policies and Procedures* in effect at the time the expenditure is made. Out-of-state travel requests must be reviewed by the State for availability of funds and for conformance with *Circular* guidelines.

48. Waiver of Rights. No right conferred on either party under this Contract shall be deemed waived, and no breach of this Contract excused, unless such waiver is in writing and signed by the party claimed to have waived such right. Neither the State's review, approval or acceptance of, nor payment for, the services required under this Contract shall be construed to operate as a waiver of any rights under this Contract or of any cause of action arising out of the performance of this Contract, and the Contractor shall be and remain liable to the State in accordance with applicable law for all damages to the State caused by the Contractor's negligent performance of any of the services furnished under this Contract.

49. Work Standards. The Contractor shall execute its responsibilities by following and applying at all times the highest professional and technical guidelines and standards. If the State becomes dissatisfied with the work product of or the working relationship with those individuals assigned to work on this Contract, the State may request in writing the replacement of any or all such individuals, and the Contractor shall grant such request.

50. State Boilerplate Affirmation Clause. I swear or affirm under the penalties of perjury that I have not altered, modified, changed or deleted the State's standard contract clauses (as contained in the *2018 OAG/ IDOA Professional Services Contract Manual* or the *2018 SCM Template*) in any way except as follows:

1. Duties of the Contractor-Modified to attach Exhibit regarding Contractor duties.
2. Consideration-Modified to attach **Exhibit B, Total Estimated Project Expense**
35. Order of Precedence; Incorporated by Reference-Modified to Special Procurement

Non-Collusion and Acceptance

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Contract other than that which appears upon the face hereof. **Furthermore, if the undersigned has knowledge that a state officer, employee, or special state appointee, as those terms are defined in IC § 4-2-6-1, has a financial interest in the Contract, the Contractor attests to compliance with the disclosure requirements in IC § 4-2-6-10.5.**

Agreement to Use Electronic Signatures

I agree, and it is my intent, to sign this Contract by accessing State of Indiana Supplier Portal using the secure password assigned to me and by electronically submitting this Contract to the State of Indiana. I understand that my signing and submitting this Contract in this fashion is the legal equivalent of having placed my handwritten signature on the submitted Contract and this affirmation. I understand and agree that by electronically signing and submitting this Contract in this fashion I am affirming to the truth of the information contained therein. I understand that this Contract will not become binding on the State until it has been approved by the Department of Administration, the State Budget Agency, and the Office of the Attorney General, which approvals will be posted on the Active Contracts Database: https://hr.gmis.in.gov/psp/pa91prd/EMPLOYEE/EMPL/h/?tab=PAPP_GUEST

In Witness Whereof, the Contractor and the State have, through their duly authorized representatives, entered into this Contract. The parties, having read and understood the foregoing terms of this Contract, do by their respective signatures dated below agree to the terms thereof.

PACE ANALYTICAL SERVICES INC

Indiana Department of Environmental Management

By: *Michael R. Prasch*

By: *Bruno Pigott*

Title: CFO

Title: Commissioner

Date: 7/18/2019

Date: 8/27/19

Electronically Approved by: Department of Administration By: _____ (for) Lesley A. Crane, Commissioner <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	
Electronically Approved by: State Budget Agency By: _____ (for) Zachary Q. Jackson, Director <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	Electronically Approved as to Form and Legality: Office of the Attorney General By: _____ (for) Curtis T. Hill, Jr., Attorney General <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>

EXHIBIT A SCOPE OF WORK

The Contractor shall perform the following tasks and provide the following services relative to this contract for the specific purpose of; performing analytical laboratory services and documentation of testing and analyses of biological (fish) tissues and/or aquatic sediments for chemical contaminants.

Task A. General Services and Responsibilities

- 1) The Contractor shall provide analytical laboratory services and reporting for the analysis of samples submitted by the Indiana Department of Environmental Management (IDEM). Sample sources include fish or other biological tissues and aquatic sediments from streams, lakes, ponds, surface impoundments, point or non-point discharges from wastefills, spill sites, storage facilities, wastewater treatment plants in addition to solid waste samples.
- 2) The Contractor shall perform analysis on approximately 200 fish tissue samples and up to 20 sediment samples per year for all Tasks. The Contractor can be required to analyze additional samples as requested by IDEM.
- 3) The Contractor shall maintain and document proper sample chain of custody procedures, Quality Assurance/Quality Control (QA/QC) measures and analytical reports. The Contractor shall maintain and make available all support documentation, QA/QC documentation and analytical reports for the use of the IDEM for five (5) years after the expiration date of this Contract, Amendments to this Contract, and/or Extensions to this Contract, unless in cases of enforcement or matters concerning sampling are in litigation.
- 4) All information regarding IDEM samples, or projects is considered confidential. Release of any information is allowed only with the written permission of the IDEM.
- 5) The Contractor shall maintain samples in accordance with the United States Environmental Protection Agency (US EPA) specifications for the type of analyte being determined and methodology utilized. Where no specification exists, samples shall be maintained at four (4) degrees Celsius (4°C) for sediments and -10 °C for biological tissues.
- 6) The Contractor shall maintain samples specified by IDEM as Enforcement or Data Quality Level 4 (DQA4) as follows:
 - a) Maintain at 4 °C for sediments and -10 °C for biological tissues until IDEM provides written permission for disposal.
 - b) Maintain a sample log showing dates and times of receipt, preparation and handling of sample(s).
- 7) Excess sample materials from Enforcement or DQA samples shall be labeled with instructions of “DO NOT DISPOSE” until IDEM provides written permission for disposal. Excess sample materials, for any sample, shall be disposed of in accordance with all applicable State and Federal Regulations.

- 8) The Contractor shall provide the following general services:
 - a) The Contractor shall provide sample pick-up upon request.
 - b) The Contractor shall provide proper sample storage containers, coolers, shipping containers, dry ice and other coolants/preservatives needed for the samples to IDEM personnel.
 - c) The Contractor shall on an as needed basis will provide other packaging materials needed that will be supplied through existing arrangements that The Contractor has with local Indiana vendors such as zip-lock bags and aluminum foil.
 - d) The Contractor shall assume the costs associated with sample transportation and shipping.
 - e) The Contractor shall provide overnight or one-day courier delivery to The Contractor's facility to facilitate sample shipping.
 - f) The Contractor shall provide analysis for designated parameters on collected samples using prescribed methods in Task C; Table C1 Data Quality Assessment Levels and Table C2 Analytical Parameters by Task.
 - g) The Contractor shall prepare analytical reports for samples analyzed.
 - h) The Contractor shall provide necessary Quality Assurance/Quality Control measures and documentation.
 - i) The Contractor shall provide raw data results and QC information as described in the Electronic Reporting Section in Task D for all analytical parameters except Specific Gravity and Grain Size in Task 2, Tributyl Tin in Task 6E, and Perfluoroalkyl Acids (PFAA) in Task 12. The Contractor shall report these parameters in an External Data Frame (EDF) format. IDEM will provide the Contractor with an EXCEL template using this format.
 - j) The Contractor shall provide explanation of reports and expert testimony in enforcement actions.
 - k) The Contractor shall provide additional services as agreed to by The Contractor and the IDEM program areas.

* IDEM and The Contractor shall make arrangements for after-hours delivery prior to sample collection.

** If sample analysis is performed at more than one physical facility/location, each physical facility/location shall be separately and independently required to meet all requirements of this Contract and its Attachments.

- 9) The Contractor shall allow on-site laboratory audits. If The Contractor utilizes out-of-state laboratory facilities, The Contractor shall pay for the cost of travel to and from The Contractor and its Agent(s) facilities, excluding per diem and lodging, for two (2) IDEM auditors per audit visit.

Task B. Personnel Availability and Miscellaneous Services

The Contractor and its Agent(s) must provide qualified personnel meeting the minimum qualifications listed below when performing the tasks under this contract. "Experience" is defined as at least fifty percent (50%) of the personnel's productive work time in active participation of a given task. The Contractor shall make personnel available in enforcement actions or litigation proceedings at the IDEM's request. See **Exhibit B**, Total Estimated Project Expense and Contractor Pricing. .

The IDEM reserves the right to review personnel qualifications and reject those not meeting the following minimum experience requirements:

- The Quality Assurance Officer shall have at least two (2) years of experience in the field of QA/QC, in addition to a minimum of three (3) years of experience as a laboratory analyst.

- The Inductively Coupled plasma (ICP) Spectroscopist shall have at least one (1) year of experience in the operation of an ICP on biological and/or fish tissue and sediment or soil samples.
- The Flame Atomic Absorption (FLAA) Spectroscopist shall have at least nine (9) months of experience in the operation of FLAA on biological and/or fish tissue and sediment or soil samples.
- The Graphite Furnace Atomic Absorption (GFAA) and Cold Vapor Atomic Absorption (CVAA) Spectroscopist shall have at least nine (9) months of experience in the operation of GFAA and CVAA on environmental samples.
- The Inorganic Sample Preparation Expert shall have at least three (3) months of experience in the preparation of ICP and AA biological and/or fish tissue and sediment or soil samples and standards.
- The General Inorganic Techniques Analyst shall have at least six (6) months of experience in the measurement of inorganics in biological and/or fish tissue and sediment or soil samples.
- The Gas Chromatography (GC) and GC/Mass Spectrometry (MS) Operators shall have at least one (1) year of experience in the operation of their respective instrumentation on biological and/or fish tissue and sediment or soil samples.
- The Extraction/Concentration Specialist shall have at least six (6) months of experience in the preparation of extracts from biological and/or fish tissue and sediment or soil samples.
- The Polychlorinated Biphenyls (PCB) /Pesticide Residue Analysis Specialist shall have at least one (1) year of experience in pesticide residue and PCB analysis, including clean-up procedures such as Florisil column, Mercury, Sulfuric Acid and Gel Permeation clean-up on biological and/or fish tissue and sediment or soil samples.
- The BTEX/TPH Analyst shall have at least one (1) year of experience in the operation of a GC on biological and/or fish tissue and sediment or soil samples.
- The High Performance Liquid Chromatography (HPLC) Operator responsible for work under this contract shall have one (1) year of experience on biological and/or fish tissue and sediment or soil samples.
- The Biological and/or Fish Tissue Preparation Technician shall have a minimum of three (3) months of experience preparing and extracting frozen fish tissue.
- The Contractor's sediment sample preparation technician, responsible for work under this contract, must have a minimum of three (3) months of experience preparing and extracting sediment or soil samples.
- Sample Special Conditions and Delivery Times
The Contractor shall inform the IDEM of any special conditions or time restrictions for samples and/or sample types delivered on a Friday or at the end of the day. If not informed of special conditions or time restrictions, sample delivery and analysis shall be treated as a business day.

Task C. Quality Assurance and Quality Control

- 1) The Contractor shall maintain a written Quality Assurance and Quality Control (QA/QC) program capable of demonstrating that data has a specified degree of reliability. An acceptable QA/QC Program would be one patterned after a publication such as, the "Handbook for Analytical Quality Control in Water and Wastewater Laboratories", USEPA 600/4-79-019. The Contractor must be able to validate each method used and each analysis performed by that method using the QA/QC Program.
- 2) The Contractor shall maintain and document continual evaluation of the accuracy and precision of an analytical procedure and the ability of individual analysts to meet laboratory performance for an analytical method or procedure.
- 3) The Contractor shall participate in the US EPA's Water Supply (WS) Performance Evaluation study or other acceptable Performance Evaluation Studies.
- 4) The Contractor shall maintain proper sample chain-of-custody procedures. Sample analysis must begin within the holding time. Payment will not be authorized for samples analyzed outside of method holding times unless directed by IDEM/OWQ Quality Assurance Officer.
- 5) Table 1 specifies the IDEM's data quality assessment or levels (DQA) for sampling, chain-of-custody, Contractor analyses, and reporting. The Contractor shall process the IDEM samples at data quality assessment 4 (DQA4) unless specified in a Task or authorized by IDEM staff prior to analysis by The Contractor.
- 6) The Contractor must maintain all QA/QC documentation for five (5) years after the expiration date of this contract and made available for the use of IDEM/OWQ upon request.

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Table C1. Data Quality Assessment Levels

DQA Level	Data Type	Description
1	Screening Data	The results are usually generated onsite and have no QC checks. Analytical results, which have no QC checks or no precision or accuracy information or no detection limit calculations, but just numbers, are included in this category. Primarily, onsite data are used for pre-surveys and for preliminary rapid assessment.
2	Field Analysis Data	Data is recorded in the field or laboratory on calibrated or standardized equipment. Field duplicates are measured on a regular periodic basis. Calculations may be done in the field or later at the office. Analytical results, which have limited QC checks, are included in this category. Detection limits and ranges have been set for each analysis. The QC checks information for field or laboratory results is useable for estimating precision, accuracy, and completeness for the project. Data from this category are used independently for rapid assessment and preliminary decisions.
3	Laboratory Analytical Data	Analytical results include QC check samples for each batch of samples from which precision, accuracy, and completeness can be determined. Method detection limits (MDLs) have been determined using <u>40 CFR Part 136 Appendix B</u> . Additionally, all reporting information required in the laboratory contract, and in the <i>Quality Assurance Project Plan for Indiana Surface Waters</i> , especially Table A9-1 , are included in the analytical data reports. Raw data, chromatograms, spectrograms, and bench sheets are not included as part of the analytical report, but are maintained by the contract laboratory for easy retrieval and review. Data can be elevated from DQA Level 3 to DQA Level 4 by the inclusion of this information in the data report and the QC data are reported using CLP forms or CLP format. Data falling under this category are considered as complete, legally defensible, and used for regulatory decisions.
4	Enforcement Data	Analytical results mostly meet the USEPA required Contract Laboratory Program (CLP) data analysis, Contract Required Quantification Limits (CRQL), and validation procedures. QC data are reported on CLP forms or CLP format. Raw data, chromatograms, spectrograms, and bench sheets are included as part of the analytical report. Additionally, all reporting information required in the laboratory contract, and in the <i>Quality Assurance Project Plan for Indiana Surface Waters</i> , especially Table A9-1 , are included in the analytical data reports. Data falling under this category are considered as complete, legally quantitative in value, and used for regulatory decisions.

- 1) The Contractor shall apply the following QA/QC criteria in accordance with the analytical method and as specified in this Contract in Task C. In the event that a method does not specify QA/QC criteria, The Contractor shall apply the following minimum criteria:
 - a) Initial calibration or linear calibration at least once per year.
 - b) Method detection limit determined at least once per year.

- c) Continuing calibration check per sample batch.
 - d) Calibration blank per sample batch.
 - e) Laboratory fortified blank per sample batch.
 - f) Quality control standard on a quarterly basis.
 - g) The IDEM acknowledges that some analytical procedures will not require all of the minimum criteria listed above. Examples of this instance are: pH or turbidity.
- 2) The Contractor shall determine Method Detection Limits (MDLs) in accordance with 40 CFR Part 136, Appendix B or LCMRL as referenced in EPA815-R-05-006, at a frequency specified in the method. If The Contractor utilizes multiple instruments for a procedure, The Contractor may report the largest MDL value for an analyte obtained from a group of instruments. The Contractor must list the instrument identification number or some other form of identifier with the MDL value obtained from that instrument.
- 3) The Contractor shall use the following criteria in addition to the analytical methods as described in Table C1 Data Quality Assessment Levels and/or Table C2 Analytical Parameters by Analysis Task Group.
- a) Control Criteria - Analyses shall be conducted in-control as specified in the method and this Contract. If an analysis or instrument is found to be out-of-control, the analyst shall perform the corrective action measures necessary to bring the system back into control.
 - b) All analytical and QA/QC samples analyzed since the last acceptable QC criteria shall be reanalyzed after the analysis is brought into control. The Contractors shall document and report out-of-control operations, QC parameters, remedies, and re-analyses in the analytical report Narrative.
 - c) Holding Times - When samples are analyzed out of holding time, the analysis is deemed “out-of-control,” unless the analysis is approved by the IDEM/OWQ contact person.
 - d) Laboratory Reagent Blank (LRB) and Calibration - The LRB or method blank and initial or continuing calibrations shall be in control prior to conducting an analytical run or the analysis is deemed out-of-control.
 - e) Internal Standards (IS) and Surrogate Standard (SS) - If a single IS or SS does not meet recovery criteria for a method during a batch run, the analysis will be considered in control: however, the analyst shall take remedial measures to identify and correct the problem prior to future batches.
 - i) If the IS or SS retention window is not met per the analytical method, the analysis is deemed out-of-control. The IS retention time shall be brought back into control and all samples reanalyzed since the last IS that met retention time criteria.
 - ii) If two IS or SS, in a sample, do not meet recovery criteria, the analysis is deemed out-of-control.
 - iii) If one or more IS or SS in consecutive samples do not meet recovery criteria, the analysis is deemed out-of-control.
 - iv) If an analysis is out-of-control due to the failure of an IS or SS, a QC check sample shall be analyzed following the last out-of-control sample. If the QC check sample meets recovery criteria, then the analysis is in control and the recovery failure may be due to matrix interferences. The Contractor should contact the responsible IDEM contact person to see if reanalysis of the out-of-control sample(s) is required.
 - f) Matrix Spike/Matrix Spike Duplicate (MS/MSD) – If an MS or MSD is out-of-control the problem shall be found, corrected, and the analysis repeated. The flagging of data as being “out-of-control without repeat analysis, is not acceptable. Analytical results reported when the procedure is operating “out-of-control” will be refused and payment will be withheld unless approved in writing by IDEM. Written

approval may be given only in those situations where the results are needed and the sample cannot be analyzed again due to insufficient amount of sample remaining or a proper justification can be made using precision and accuracy data obtained by the method. Written approval will be entirely at the discretion of IDEM.

- g) Laboratory Fortified Matrix (LFM) – Acceptance criteria are established in the laboratory for each method. If the analysis of an LFM does not agree with the true value within an acceptable criteria, and the LFB and CCC are “in control”, then the percent recovery failure may be due to matrix interferences. The Contractor shall document the potential LFM matrix interference in the Narrative.
- h) High Biased Samples - If a QC sample indicates a high biased result and the sample results are below detection limits for all target compounds, reanalysis is not required.
- 4) Changes in separatory methods, columns, extraction techniques, and pre-concentration procedures must be approved by IDEM prior to processing. Any modification must provide analyte selectivity and detector response greater than or equal to the unmodified procedure. Modifications outside of those specified in the method shall be approved by the IDEM prior to utilization on IDEM samples.
- 5) Modifications may be approved on a conditional basis until sufficient sample analyses are conducted (at least thirty (30) actual samples) under production conditions.

To receive conditional approval for a procedure modification The Contractor shall provide the following:

- a) Sample and QA/QC numbers, prep dates and times, analytical sequence, and names of analyst(s) and/or technician(s).
- b) MDL determination.
- c) Side by side comparison runs without modifications.
- d) All sample preparatory data.
- e) Initial, intermediate, and final volumes for each step.
- f) Instrumental conditions, column types, detectors, flow rates, or other operational parameters.
- g) Raw data.
- h) QA/QC showing accuracy and precision.

Permanent approval may be granted by the IDEM after reviewing results of production analytical runs with the modification(s).

- 6) The Contractor shall analyze the Parameters for a Method and meet the Method and Contract Required Quantitation Limits (CRQLs) as specified in Table C2.

Analysis Tasks for Analytical Parameters (See Table C2) are broken down by major analytical area (general parameters, metals, organochlorine pesticides, polychlorinated biphenyls (PCBs), organic compounds, etc.). The primary sample matrix will be a biological tissue sample (primarily fish fillets or whole fish) and secondarily sediments from river or lake bottom. Analyses will be performed for the parameters listed in the following tables for Tasks 1 through 12, to a detection level equal to or less than the one listed in the tables, and using the most appropriate analytical methods. The proposed acceptance criteria listed in Appendix E of the Contractor’s proposal are accepted by IDEM/OWQ.

Tasks may be asked for in any combination on individual samples. All parameters within the requested tasks are to be analyzed and reported. For tissue, all samples will at least have tasks 1, 3, 5, 6, and 6F assigned. Approximately one third could also contain tasks 10, 11, or one of the expanded lists of metals. Task 12 may be requested on approximately 10 to 20 samples each year. Tasks 3B and/or 3C (PCB congeners and/or dioxins) will only be requested for special situations and so the number of samples will be limited. All of this is dependent on

available funds and Agency priorities and so is subject to change. For sediments all samples would have tasks 2, 4, 5, 6D and 10 assigned. Additional tasks will be requested on a limited number of samples as needed.

Tentative Identifications for Semi-Volatile and Volatile Organic Compounds

For each sample, The Contractor shall execute a maximum of 20 library searches on substances not listed in Tasks 7 and 8 (Acids and Base/Neutrals) and Task 9 (Volatile Organics). The 20 substances of greatest apparent concentration not listed in Tasks 7, 8 and 9 shall be tentatively identified via a forward search of the EPA/NIH (or other similar library) mass spectral library (substances with responses less than 25% of the internal standards are not required to be searched in this fashion). Only after visual comparison of sample spectra with nearest library searches will the mass spectral interpretation specialist assign a tentative identification.

Table C2. Analytical Parameters by Analysis Task Group

TASK 1 PERCENT LIPID AND MOISTURE TARGET PARAMETER LIST (TPL)

PARAMETER	BIOLOGICAL		SEDIMENT	
	CRQL	UNITS	CRQL	UNITS
PERCENT LIPID	0.1	%	NA*	NA*
PERCENT MOISTURE	0.1	%	NA*	NA*

CRQL Contract Required Quantitation Limit

* NA = Not Applicable

% percentage units

TASK 2 GENERAL CHEMISTRY TARGET PARAMETER LIST (TPL)

PARAMETER (CAS or OWQ IDENTIFIER)	BIOLOGICAL		SEDIMENTS	
	CRQL	UNITS	CRQL	UNITS**
PERCENT SOLIDS (E-10151)	NA	NA	1.0	%
TOTAL VOLATILE SOLIDS (E-11927)	NA	NA	0.1	%
TOTAL ORGANIC CARBON ² (E-10195)	NA	NA	0.1	%
TOTAL AMMONIA AS N (7664-41-7)	NA	NA	11.0	mg/kg
ACID VOLATILE SULFIDE (E-AVS)	NA	NA	19.0	mg/kg
GRAIN SIZE ANALYSIS (GRAINSIZE)	NA	NA	0.1	% [@]
SPECIFIC GRAVITY (SPECGRAVITY)	NA	NA	0.1	g/cm ³ @@

CRQL Contract Required Quantitation Limit

NA Not Applicable.

@ A measure of the frequency distribution of the size ranges of particles.

@@ Ratio of the mass of a given volume of sediment material at a specific temperature to an equal volume of distilled water at the same stated temperature.

** dry weight basis.

2 based on high-temperature
combustion after acid treatment (Plumb
1981)
% percentage units
mg/kg milligrams per kilogram

TASK 2B
GENERAL CHEMISTRY
NUTRIENTS
TARGET PARAMETER LIST (TPL)

PARAMETER (CAS or OWQ IDENTIFIER)	BIOLOGICAL		SEDIMENTS	
	CRQL	UNITS	CRQL	UNITS**
Nitrite + Nitrate (E-10128)	NA	NA	0.13	mg/kg
Total Kjeldahl Nitrogen (E-10264)	NA	NA	6.3	mg/kg
Extractable* Nitrogen	NA	NA		mg/kg
Total Phosphorus (7723-14-0)	NA	NA	3.2	mg/kg
Ortho (reactive) Phosphorus	NA	NA		mg/kg
Acid Hydrolyzable Phosphorus	NA	NA		mg/kg
Organic Phosphorus	NA	NA		mg/kg
Chemical Oxygen Demand (E-10117)	NA	NA	5.0	mg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* Biologically available.

** dry weight basis.

mg/kg milligrams per kilogram

TASK 3
POLYCHLORINATED BIPHENYLS (PCB)
TARGET PARAMETER LIST (TPL)

Preparation 3540C (U.S. EPA 1996e)

Method 8082A (U.S. EPA 2007d)

PARAMETER	CAS NUMBER	BIOLOGICAL		SEDIMENT	
		CRQL	UNITS*	CRQL	UNITS**
Total PCBs	1336-36-3	20.0	µg/kg	NA	NA
Aroclor 1016	12674-11-2	50.0	µg/kg	NA	NA
Aroclor 1210	147601-87-4	50.0	µg/kg	NA	NA
Aroclor 1216	151820-27-8	50.0	µg/kg	NA	NA
Aroclor 1221	11104-28-2	50.0	µg/kg	NA	NA
Aroclor 1231	37234-40-5	50.0	µg/kg	NA	NA
Aroclor 1232	11141-16-5	50.0	µg/kg	NA	NA
Aroclor 1240	71328-89-7	50.0	µg/kg	NA	NA
Aroclor 1242	53469-21-9	50.0	µg/kg	NA	NA
Aroclor 1248	12672-29-6	50.0	µg/kg	NA	NA

PARAMETER	CAS NUMBER	BIOLOGICAL		SEDIMENT	
		CRQL	UNITS*	CRQL	UNITS**
Aroclor 1250	165245-51-2	50.0	µg/kg	NA	NA
Aroclor 1252	89577-78-6	50.0	µg/kg	NA	NA
Aroclor 1254	11097-69-1	50.0	µg/kg	NA	NA
Aroclor 1260	11096-82-5	50.0	µg/kg	NA	NA
Aroclor 1262	37324-23-5	50.0	µg/kg	NA	NA
Aroclor 1268	11100-14-4	50.0	µg/kg	NA	NA
Aroclor (unspecified)	12767-79-2	50.0	µg/kg	NA	NA

CRQL Contract Required Quantitation Limit

* wet weight basis

NA Not Applicable.

µg/kg micrograms per kilogram

TASK 3B
POLYCHLORINATED BIPHENYL CONGENERS (PCB)
SOILS, SEDIMENT, AND TISSUES BY CAPILLARY CHROMATOGRAPHY
TARGET PARAMETER LIST (TPL)

Method 1668 Rev. B (U.S. EPA 2008)

PARAMETER	CAS NUMBER	BIOTA CRQL	UNITS*	SEDIMENT CRQL	UNITS**
PCB congeners	see below	0.5-20	ng/kg	0.5-20	ng/kg

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

ng/kg nonograms per kilogram

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
CP1_---_--	2051-60-7	1	2-Chlorobiphenyl	Congener
CP0_---_--	2051-61-8	2	3-Chlorobiphenyl	Congener
CP0_---_--	2051-62-9	3	4-Chlorobiphenyl	Congener
---_---_--	13029-08-8	4	2,2'-Dichlorobiphenyl	Congener
CP1_---_--	16605-91-7	5	2,3-Dichlorobiphenyl	Congener
CP1_---_--	25569-80-6	6	2,3'-Dichlorobiphenyl	Congener
CP1_---_--	33284-50-3	7	2,4-Dichlorobiphenyl	Congener
CP1_---_--	34883-43-7	8	2,4'-Dichlorobiphenyl	Congener

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
CP1_---_--_--	34883-39-1	9	2,5-Dichlorobiphenyl	Congener
---_---_--_--	33146-45-1	10	2,6-Dichlorobiphenyl	Congener
CP0_---_--_2M	2050-67-1	11	3,3'-Dichlorobiphenyl	Congener
CP0_---_--_--	2974-92-7	12	3,4-Dichlorobiphenyl	Congener
CP0_---_--_--	2974-90-5	13	3,4'-Dichlorobiphenyl	Congener
CP0_---_--_2M	34883-41-5	14	3,5-Dichlorobiphenyl	Congener
CP0_---_PP_--	2050-68-2	15	4,4'-Dichlorobiphenyl	Congener
---_---_--_--	38444-78-9	16	2,2',3-Trichlorobiphenyl	Congener
---_---_--_--	37680-66-3	17	2,2',4-Trichlorobiphenyl	Congener
---_---_--_--	37680-65-2	18	2,2',5-Trichlorobiphenyl	Congener
---_---_--_--	38444-73-4	19	2,2',6-Trichlorobiphenyl	Congener
CP1_---_--_2M	38444-84-7	20	2,3,3'-Trichlorobiphenyl	Congener
CP1_---_--_--	55702-46-0	21	2,3,4-Trichlorobiphenyl	Congener
CP1_---_--_--	38444-85-8	22	2,3,4'-Trichlorobiphenyl	Congener
CP1_---_--_2M	55720-44-0	23	2,3,5-Trichlorobiphenyl	Congener
---_---_--_--	55702-45-9	24	2,3,6-Trichlorobiphenyl	Congener
CP1_---_--_--	55712-37-3	25	2,3',4-Trichlorobiphenyl	Congener
CP1_---_--_2M	38444-81-4	26	2,3',5-Trichlorobiphenyl	Congener
---_---_--_--	38444-76-7	27	2,3',6-Trichlorobiphenyl	Congener
CP1_---_PP_--	7012-37-5	28	2,4,4'-Trichlorobiphenyl	Congener
CP1_---_--_--	15862-07-4	29	2,4,5-Trichlorobiphenyl	Congener
---_---_--_--	35693-92-6	30	2,4,6-Trichlorobiphenyl	Congener
CP1_---_--_--	16606-02-3	31	2,4',5-Trichlorobiphenyl	Congener
---_---_--_--	38444-77-8	32	2,4',6-Trichlorobiphenyl	Congener
CP1_---_--_--	38444-86-9	33	2,3',4'-Trichlorobiphenyl	Congener
CP1_---_--_2M	37680-68-5	34	2,3',5'-Trichlorobiphenyl	Congener
CP0_---_--_2M	37680-69-6	35	3,3',4-Trichlorobiphenyl	Congener
CP0_---_--_2M	38444-87-0	36	3,3',5-Trichlorobiphenyl	Congener
CP0_---_PP_--	38444-90-5	37	3,4,4'-Trichlorobiphenyl	Congener
CP0_---_--_2M	53555-66-1	38	3,4,5-Trichlorobiphenyl	Congener
CP0_---_--_2M	38444-88-1	39	3,4',5-Trichlorobiphenyl	Congener
---_4CL_--_2M	38444-93-8	40	2,2',3,3'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	52663-59-9	41	2,2',3,4-Tetrachlorobiphenyl	Congener
---_4CL_--_--	36559-22-5	42	2,2',3,4'-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	70362-46-8	43	2,2',3,5-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	41464-39-5	44	2,2',3,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	70362-45-7	45	2,2',3,6-Tetrachlorobiphenyl	Congener
---_4CL_--_--	41464-47-5	46	2,2',3,6'-Tetrachlorobiphenyl	Congener
---_4CL_PP_--	2437-79-8	47	2,2',4,4'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	70362-47-9	48	2,2',4,5-Tetrachlorobiphenyl	Congener

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
---_4CL_--_--	41464-40-8	49	2,2',4,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	62796-65-0	50	2,2',4,6'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	68194-04-7	51	2,2',4,6'-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	35693-99-3	52	2,2',5,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	41464-41-9	53	2,2',5,6'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	15968-05-5	54	2,2',6,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	74338-24-2	55	2,3,3',4'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	41464-43-1	56	2,3,3',4'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	70424-67-8	57	2,3,3',5'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	41464-49-7	58	2,3,3',5'-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	74472-33-6	59	2,3,3',6'-Tetrachlorobiphenyl	Congener
CP1_4CL_PP_--	33025-41-1	60	2,3,4,4'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	33284-53-6	61	2,3,4,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	54230-22-7	62	2,3,4,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	74472-34-7	63	2,3,4',5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	52663-58-8	64	2,3,4',6'-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	33284-54-7	65	2,3,5,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_PP_--	32598-10-0	66	2,3',4,4'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	73575-53-8	67	2,3',4,5'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	73575-52-7	68	2,3',4,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	60233-24-1	69	2,3',4,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	32598-11-1	70	2,3',4',5'-Tetrachlorobiphenyl	Congener
---_4CL_--_--	41464-46-4	71	2,3,4,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	41464-42-0	72	2,3,5,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	74338-23-1	73	2,3,5,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_PP_--	32690-93-0	74	2,4,4,5'-Tetrachlorobiphenyl	Congener
---_4CL_PP_--	32598-12-2	75	2,4,4,6'-Tetrachlorobiphenyl	Congener
CP1_4CL_--_2M	70362-48-0	76	2,3,4,5'-Tetrachlorobiphenyl	Congener
CP0_4CL_PP_2M	32598-13-3	77	3,3,4,4'-Tetrachlorobiphenyl	Congener
CP0_4CL_--_2M	70362-49-1	78	3,3,4,5'-Tetrachlorobiphenyl	Congener
CP0_4CL_--_2M	41464-48-6	79	3,3,4,5'-Tetrachlorobiphenyl	Congener
CP0_4CL_--_2M	33284-52-5	80	3,3,5,5'-Tetrachlorobiphenyl	Congener
CP0_4CL_PP_2M	70362-50-4	81	3,4,4,5'-Tetrachlorobiphenyl	Congener
---_4CL_--_2M	52663-62-4	82	2,2,3,3,4-Pentachlorobiphenyl	Congener
---_4CL_--_2M	60145-20-2	83	2,2,3,3,5-Pentachlorobiphenyl	Congener
---_4CL_--_2M	52663-60-2	84	2,2,3,3,6-Pentachlorobiphenyl	Congener
---_4CL_PP_--	65510-45-4	85	2,2,3,4,4-Pentachlorobiphenyl	Congener
---_4CL_--_2M	55312-69-1	86	2,2,3,4,5-Pentachlorobiphenyl	Congener
---_4CL_--_2M	38380-02-8	87	2,2,3,4,5-Pentachlorobiphenyl	Congener
---_4CL_--_--	55215-17-3	88	2,2,3,4,6-Pentachlorobiphenyl	Congener

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
---_4CL_--_--	73575-57-2	89	2,2,3,4,6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	68194-07-0	90	2,2,3,4,5-Pentachlorobiphenyl	Congener
---_4CL_--_--	68194-05-8	91	2,2',3,4',6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	52663-61-3	92	2,2',3,5,5'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	73575-56-1	93	2,2',3,5,6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	73575-55-0	94	2,2',3,5,6'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	38379-99-6	95	2,2',3,5',6-Pentachlorobiphenyl	Congener
---_4CL_--_--	73575-54-9	96	2,2',3,6,6'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	41464-51-1	97	2,2',3,4',5'-Pentachlorobiphenyl	Congener
---_4CL_--_--	60233-25-2	98	2,2',3,4',6'-Pentachlorobiphenyl	Congener
---_4CL_PP_--	38380-01-7	99	2,2',4,4',5-Pentachlorobiphenyl	Congener
---_4CL_PP_--	39485-83-1	100	2,2',4,4',6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	37680-73-2	101	2,2',4,5,5'-Pentachlorobiphenyl	Congener
---_4CL_--_--	68194-06-9	102	2,2',4,5,6'-Pentachlorobiphenyl	Congener
---_4CL_--_--	60145-21-3	103	2,2',4,5',6-Pentachlorobiphenyl	Congener
---_4CL_--_--	56558-16-8	104	2,2',4,6,6'-Pentachlorobiphenyl	Congener
CP1_4CL_PP_2M	32598-14-4	105	2,3,3',4,4'-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	70424-69-0	106	2,3,3',4,5-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	70424-68-9	107	2,3,3',4',5-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	70362-41-3	108	2,3,3',4,5'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	74472-35-8	109	2,3,3',4,6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	38380-03-9	110	2,3,3',4',6-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	39635-32-0	111	2,3,3',5,5'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	74472-36-9	112	2,3,3',5,6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	68194-10-5	113	2,3,3',5',6-Pentachlorobiphenyl	Congener
CP1_4CL_PP_2M	74472-37-0	114	2,3,4,4',5-Pentachlorobiphenyl	Congener
---_4CL_PP_--	74472-38-1	115	2,3,4,4',6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	18259-05-7	116	2,3,4,5,6-Pentachlorobiphenyl	Congener
---_4CL_--_2M	68194-11-6	117	2,3,4',5,6-Pentachlorobiphenyl	Congener
CP1_4CL_PP_2M	31508-00-6	118	2,3',4,4',5-Pentachlorobiphenyl	Congener
---_4CL_PP_--	56558-17-9	119	2,3',4,4',6-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	68194-12-7	120	2,3',4,5,5'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	56558-18-0	121	2,3',4,5',6-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	76842-07-4	122	2,3,3',4',5'-Pentachlorobiphenyl	Congener
CP1_4CL_PP_2M	65510-44-3	123	2,3',4,4',5'-Pentachlorobiphenyl	Congener
CP1_4CL_--_2M	70424-70-3	124	2,3',4',5,5'-Pentachlorobiphenyl	Congener
---_4CL_--_2M	74472-39-2	125	2,3',4',5',6-Pentachlorobiphenyl	Congener
CP0_4CL_PP_2M	57465-28-8	126	3,3',4,4',5-Pentachlorobiphenyl	Congener
CP0_4CL_--_2M	39635-33-1	127	3,3',4,5,5'-Pentachlorobiphenyl	Congener
---_4CL_PP_2M	38380-07-3	128	2,2',3,3',4,4'-Hexachlorobiphenyl	Congener

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
---_4CL_--_2M	55215-18-4	129	2,2',3,3',4,5-Hexachlorobiphenyl	Congener
---_4CL_--_2M	52663-66-8	130	2,2',3,3',4,5'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	61798-70-7	131	2,2',3,3',4,6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	38380-05-1	132	2,2',3,3',4,6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	35694-04-3	133	2,2',3,3',5,5'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	52704-70-8	134	2,2',3,3',5,6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	52744-13-5	135	2,2',3,3',5,6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	38411-22-2	136	2,2',3,3',6,6'-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	35694-06-5	137	2,2',3,4,4',5-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	35065-28-2	138	2,2',3,4,4',5'-Hexachlorobiphenyl	Congener
---_4CL_PP_--	56030-56-9	139	2,2',3,4,4',6-Hexachlorobiphenyl	Congener
---_4CL_PP_--	59291-64-4	140	2,2',3,4,4',6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	52712-04-6	141	2,2',3,4,5,5'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	41411-61-4	142	2,2',3,4,5,6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	68194-15-0	143	2,2',3,4,5,6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	68194-14-9	144	2,2',3,4,5',6-Hexachlorobiphenyl	Congener
---_4CL_--_--	74472-40-5	145	2,2',3,4,6,6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	51908-16-8	146	2,2',3,4',5,5'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	68194-13-8	147	2,2',3,4',5,6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	74472-41-6	148	2,2',3,4',5,6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	38380-04-0	149	2,2',3,4',5',6-Hexachlorobiphenyl	Congener
---_4CL_--_--	68194-08-1	150	2,2',3,4',6,6'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	52663-63-5	151	2,2',3,5,5',6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	68194-09-2	152	2,2',3,5,6,6'-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	35065-27-1	153	2,2',4,4',5,5'-Hexachlorobiphenyl	Congener
---_4CL_PP_--	60145-22-4	154	2,2',4,4',5,6'-Hexachlorobiphenyl	Congener
---_4CL_PP_--	33979-03-2	155	2,2',4,4',6,6'-Hexachlorobiphenyl	Congener
CP1_4CL_PP_2M	38380-08-4	156	2,3,3',4,4',5-Hexachlorobiphenyl	Congener
CP1_4CL_PP_2M	69782-90-7	157	2,3,3',4,4',5'-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	74472-42-7	158	2,3,3',4,4',6-Hexachlorobiphenyl	Congener
CP1_4CL_--_2M	39635-35-3	159	2,3,3',4,5,5'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	41411-62-5	160	2,3,3',4,5,6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	74472-43-8	161	2,3,3',4,5',6-Hexachlorobiphenyl	Congener
CP1_4CL_--_2M	39635-34-2	162	2,3,3',4',5,5'-Hexachlorobiphenyl	Congener
---_4CL_--_2M	74472-44-9	163	2,3,3',4',5,6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	74472-45-0	164	2,3,3',4',5',6-Hexachlorobiphenyl	Congener
---_4CL_--_2M	74472-46-1	165	2,3,3',5,5',6-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	41411-63-6	166	2,3,4,4',5,6-Hexachlorobiphenyl	Congener
CP1_4CL_PP_2M	52663-72-6	167	2,3',4,4',5,5'-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	59291-65-5	168	2,3',4,4',5',6-Hexachlorobiphenyl	Congener

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
CP0_4CL_PP_2M	32774-16-6	169	3,3',4,4',5,5'-Hexachlorobiphenyl	Congener
---_4CL_PP_2M	35065-30-6	170	2,2',3,3',4,4',5-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	52663-71-5	171	2,2',3,3',4,4',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52663-74-8	172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	Congener
---_4CL_--_2M	68194-16-1	173	2,2',3,3',4,5,6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	38411-25-5	174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	Congener
---_4CL_--_2M	40186-70-7	175	2,2',3,3',4,5',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52663-65-7	176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52663-70-4	177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52663-67-9	178	2,2',3,3',5,5',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52663-64-6	179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	35065-29-3	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	74472-47-2	181	2,2',3,4,4',5,6-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	60145-23-5	182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	52663-69-1	183	2,2',3,4,4',5',6-Heptachlorobiphenyl	Congener
---_4CL_PP_--	74472-48-3	184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52712-05-7	185	2,2',3,4,5,5',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	74472-49-4	186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	Congener
---_4CL_--_2M	52663-68-0	187	2,2',3,4',5,5',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	74487-85-7	188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	Congener
CP1_4CL_PP_2M	39635-31-9	189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	41411-64-7	190	2,3,3',4,4',5,6-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	74472-50-7	191	2,3,3',4,4',5',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	74472-51-8	192	2,3,3',4,5,5',6-Heptachlorobiphenyl	Congener
---_4CL_--_2M	69782-91-8	193	2,3,3',4',5,5',6-Heptachlorobiphenyl	Congener
---_4CL_PP_2M	35694-08-7	194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	Congener
---_4CL_PP_2M	52663-78-2	195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	Congener
---_4CL_PP_2M	42740-50-1	196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	Congener
---_4CL_PP_2M	33091-17-7	197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	Congener
---_4CL_--_2M	68194-17-2	198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	Congener
---_4CL_--_2M	52663-75-9	199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	Congener
---_4CL_--_2M	52663-73-7	200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	Congener
---_4CL_--_2M	40186-71-8	201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	Congener
---_4CL_--_2M	2136-99-4	202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	Congener
---_4CL_PP_2M	52663-76-0	203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	Congener
---_4CL_PP_2M	74472-52-9	204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	Congener
---_4CL_PP_2M	74472-53-0	205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	Congener
---_4CL_PP_2M	40186-72-9	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	Congener
---_4CL_PP_2M	52663-79-3	207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	Congener
---_4CL_--_2M	52663-77-1	208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	Congener

Table of PCB Congeners and Other Species				
Descriptor	CAS NUMBER	Current BZ & IUPAC Number	IUPAC Name	Type
---_---_---_---	2051-24-3	209	Decachlorobiphenyl	Congener
	27323-18-8		Monochlorobiphenyl	Homolog
	25512-42-9		Dichlorobiphenyl	Homolog
	25323-68-6		Trichlorobiphenyl	Homolog
	26914-33-0		Tetrachlorobiphenyl	Homolog
	25429-29-2		Pentachlorobiphenyl	Homolog
	26601-64-9		Hexachlorobiphenyl	Homolog
	28655-71-2		Heptachlorobiphenyl	Homolog
	55722-26-4		Octachlorobiphenyl	Homolog
	53742-07-7		Nonachlorobiphenyl	Homolog
	1336-36-3		Polychlorinated biphenyl (PCB)	Category

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Task 3C
POLYCHLORINATED DIOXINS AND FURANS
TARGET PARAMETER LIST (TPL)

Method 1613 Rev. B (U.S. EPA 1994b)

	CAS	BIOLOGICAL CRQL	SEDIMENT PARAMETER		NUMBER
			UNITS*	CRQL	
UNITS**					
2,3,7,8-TCDF	51207-31-9		0.001	µg/kg	0.001
2,3,7,8-TCDD (Dioxin)	1746-01-6		0.001	µg/kg	0.001
1,2,3,7,8-PeCDF	57117-41-6		.0025	µg/kg	.0025
2,3,4,7,8-PeCDF	57117-31-4		.0025	µg/kg	.0025
1,2,3,7,8-PeCDD	40321-76-4		.0025	µg/kg	.0025
1,2,3,4,7,8-HxCDF	70648-26-9		0.005	µg/kg	0.005
1,2,3,6,7,8-HxCDF	57117-44-9		0.005	µg/kg	0.005
2,3,4,6,7,8-HxCDF	60851-34-5		0.005	µg/kg	0.005
1,2,3,4,7,8-HxCDD	39227-28-6		0.005	µg/kg	0.005
1,2,3,6,7,8-HxCDD	57653-85-7		0.005	µg/kg	0.005
1,2,3,7,8,9-HxCDD	19408-74-3		0.005	µg/kg	0.005
1,2,3,7,8,9-HxCDF	72918-21-9		0.005	µg/kg	0.005
1,2,3,4,6,7,8-HpCDF	67562-39-4		0.005	µg/kg	0.005
1,2,3,4,6,7,8-HpCDD	35822-46-9		0.005	µg/kg	0.005
1,2,3,4,7,8,9-HpCDF	55673-89-7		0.005	µg/kg	0.005
OCDD	3268-87-9		0.005	µg/kg	0.005
OCDF	39001-02-0		0.005	µg/kg	0.005

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

TCDD = Tetrachlorodibenzo-dioxin

TCDF = Tetrachlorodibenzofuran

PeCDD = Pentachlorodibenzo-p-dioxin

PeCDF = Pentachlorodibenzofuran

HxCDD = Hexachlorodibenzo-p-dioxin

HxCDF= Hexachlorodibenzofuran

HpCDD = Heptachlorodibenzo-p-dioxin

HpCDF= Heptachlorodibenzofuran

OCDD = Octachlorodibenzo-p-dioxin

OCDF = Octachlorodibenzofuran

µg/kg micrograms per kilogram

TASK 4
POLYCHLORINATED BIPHENYLS (PCB) AROCLORS
 TARGET PARAMETER LIST (TPL)

Method **8082A** (U.S. EPA 2007d)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	CRQL	SEDIMENT UNITS**
Aroclor - 1016	12674-11-2	NA*	NA*	20.0	µg/kg
Aroclor - 1221	11104-28-2	NA*	NA*	20.0	µg/kg
Aroclor - 1232	11141-16-5	NA*	NA*	20.0	µg/kg
Aroclor - 1242	53469-21-9	NA*	NA*	20.0	µg/kg
Aroclor - 1248	12672-29-6	NA*	NA*	20.0	µg/kg
Aroclor - 1254	11097-69-1	NA*	NA*	20.0	µg/kg
Aroclor - 1260	11096-82-5	NA*	NA*	20.0	µg/kg
Aroclor - 1262	37324-23-5	NA*	NA*	20.0	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 5
ORGANOCHLORINE PESTICIDES
 TARGET PARAMETER LIST (TPL)

Method **8081B** (U.S. EPA 2007c)

PARAMETER	CAS NUMBER	BIOTA CRQL	UNITS*	SEDIMENT CRQL	UNIT**
Aldrin	309-00-2	2.5	µg/kg	2.5	µg/kg
BHC, alpha-	319-84-6	2.5	µg/kg	2.5	µg/kg
BHC, beta-	319-85-7	2.5	µg/kg	2.5	µg/kg
BHC, delta-	319-86-8	2.5	µg/kg	2.5	µg/kg
BHC, gamma-	58-89-9	2.5	µg/kg	2.5	µg/kg
Chlordane, gamma(trans)	5103-74-2	2.5	µg/kg	2.5	µg/kg
Chlordane, alpha(cis)	5103-71-9	2.5	µg/kg	2.5	µg/kg
DDD, o,p'-	53-19-0	2.5	µg/kg	2.5	µg/kg
DDD, p,p'-	72-54-8	5.0	µg/kg	5.0	µg/kg
DDE, o,p'-	3424-82-6	2.5	µg/kg	2.5	µg/kg
DDE, p,p'-	72-55-9	5.0	µg/kg	5.0	µg/kg
DDT, o,p'-	789-02-6	2.5	µg/kg	2.5	µg/kg
DDT, p,p'-	50-29-3	5.0	µg/kg	5.0	µg/kg
Dieldrin	60-57-1	5.0	µg/kg	5.0	µg/kg

Task 5 continued

	CAS	BIOTA		SEDIMENT PARAMETER	
	NUMBER	NUMBER	CRQL	UNITS*	CRQL
					UNIT**
Endosulfan I	959-98-8		2.5	µg/kg	2.5
Endosulfan II	33213-65-9		5.0	µg/kg	5.0
Endosulfan sulfate	1031-07-8		5.0	µg/kg	5.0
Endrin	72-20-8		5.0	µg/kg	5.0
Endrin aldehyde	7421-93-4		5.0	µg/kg	5.0
Endrin ketone	53494-70-5		5.0	µg/kg	5.0
Heptachlor	76-44-8		2.5	µg/kg	2.5
Heptachlor epoxide	1024-57-3		2.5	µg/kg	2.5
Hexachlorobenzene	118-74-1		2.5	µg/kg	2.5
Methoxychlor	72-43-5		25.0	µg/kg	25.0
Mirex	2385-85-5		5.0	µg/kg	5.0
cis- Nonachlor	5103-73-1		5.0	µg/kg	5.0
trans- Nonachlor	39765-80-5		5.0	µg/kg	5.0
Oxychlordan	27304-13-8		5.0	µg/kg	5.0
Pentachloroanisole	1825-21-4		2.5	µg/kg	2.5
Toxaphene	8001-35-2		75.0	µg/kg	75.0

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 6

INORGANICS

TARGET PARAMETER LIST (TPL)

Method 6020A (U.S. EPA 2007a)

PARAMETER	CAS	BIOLOGICAL		SEDIMENT	
	NUMBER	CRQL	UNITS*	CRQL	UNITS**
Cadmium	7440-43-9	10.0	µg/kg	200.0	µg/kg
Lead	7439-92-1	70.0	µg/kg	500.0	µg/kg
Mercury	7439-97-6	20.0	µg/kg	20.0	µg/kg
Selenium	7782-49-2	100	µg/kg	500	µg/kg

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

INORGANICS**TASK 6A****TARGET PARAMETER LIST (TPL)**

Method 6020A (U.S. EPA 2007a)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	CRQL	SEDIMENT UNITS**
Cadmium	7440-43-9	10.0	µg/kg	200	µg/kg
Chromium	7440-47-3	100	µg/kg	800	µg/kg
Copper	7440-50-8	100	µg/kg	500	µg/kg
Lead	7439-92-1	70.0	µg/kg	500	µg/kg
Mercury	7439-97-6	20.0	µg/kg	20.0	µg/kg
Nickel	7440-02-0	1,000	µg/kg	250	µg/kg
Selenium	7782-49-2	100	µg/kg	500	µg/kg
Zinc	7440-66-6	2,000	µg/kg	500	µg/kg

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 6B**INORGANICS****TARGET PARAMETER LIST (TPL)**

Method 6020A (U.S. EPA 2007a)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	SEDIMENT CRQL	UNITS**
Aluminum	7429-90-5	5,000	µg/kg	1,500	µg/kg
Antimony	7440-36-0	2,000	µg/kg	1,000	µg/kg
Arsenic	7440-38-2	1,000	µg/kg	2,000	µg/kg
Barium	7440-39-3	5,000	µg/kg	1,500	µg/kg
Beryllium	7440-41-7	500	µg/kg	1,500	µg/kg
Cadmium	7440-43-9	10.0	µg/kg	200	µg/kg
Calcium	7440-70-2	500,000	µg/kg	5,000	µg/kg
Chromium	7440-47-3	100	µg/kg	800	µg/kg
Cobalt	7440-48-4	5,000	µg/kg	200	µg/kg
Copper	7440-50-8	100	µg/kg	500	µg/kg
Iron	7439-89-6	5,000	µg/kg	5,000	µg/kg
Lead	7439-92-1	70.0	µg/kg	500	µg/kg
Magnesium	7439-95-4	500,000	µg/kg	3,000	µg/kg
Manganese	7439-96-5	1,500	µg/kg	200	µg/kg
Mercury	7439-97-6	20.0	µg/kg	20.0	µg/kg

Task 6B continued

	CAS	BIOLOGICAL	SEDIMENT	PARAMETER	NUMBER	CRQL
		UNITS*		CRQL	UNITS**	
Nickel	7440-02-0		1,000	µg/kg	250	µg/kg
Potassium	7440-09-7		500,000	µg/kg	60,000	µg/kg
Selenium	7782-49-2		100	µg/kg	500	µg/kg
Silver	7440-22-4		500	µg/kg	200	µg/kg
Sodium	7440-23-5		10,000	µg/kg	6,000	µg/kg
Thallium	7440-28-0		1,000	µg/kg	500	µg/kg
Vanadium	7440-62-2		2,000	µg/kg	1,000	µg/kg
Zinc	7440-66-6		2,000	µg/kg	500	µg/kg

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 6C

INORGANICS

TARGET PARAMETER LIST (TPL)

Method 1678 (U.S. EPA 1999a)

Method 9012 (U.S. EPA 2004a)

Method 9014 (U.S. EPA 1996f)

PARAMETER	CAS	BIOLOGICAL		SEDIMENT	
	NUMBER	CRQL	UNITS	CRQL	UNITS*
Total Cyanide	57-12-5	NA	NA	250	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

µg/kg micrograms per kilogram

TASK 6D

ACID VOLATILE SULFIDE (AVS) AND SIMULTANEOUSLY EXTRACTED METALS (SEM)

TARGET PARAMETER LIST (TPL)

Method Draft: (U.S. EPA 1991a)

PARAMETER	CAS	BIOLOGICAL		SEDIMENT	
	NUMBER	CRQL	UNITS	CRQL	UNITS**
ACID VOLATILE SULFIDE [@]		NA	NA	20.0	µg/kg
CADMIUM [@]	7440-43-9	NA	NA	500	µg/kg
COPPER [@]	7440-50-8	NA	NA	500	µg/kg

Task 6D continued

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS	SEDIMENT CRQL	UNITS**
LEAD @	7439-92-1	NA	NA	500	µg/kg
MERCURY @	7439-97-6	NA	NA	20.0	µg/kg
NICKEL @	7440-02-0	NA	NA	500	µg/kg
ZINC @	7440-66-6	NA	NA	500	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

** dry weight basis

µg/kg micrograms per kilogram

@ Must also be reported in micromoles/gram (umole/g) dry sediment weight basis. The sample data summary report must include a proper calculation of the ratio of simultaneously extracted metals to acid volatile sulfides as described in Section 14 page 16 of the analytical method (U.S. EPA, 1991).

TASK 6E**ORGANOTIN****TARGET PARAMETER LIST (TPL)****Method 8323 (U.S. EPA 2003b)**

	CAS NUMBER	BIOLOGICAL CRQL	SEDIMENT PARAMETER UNITS*	CRQL	UNITS**
TRIBUTYL TIN	688-73-3	10.0	µg/kg	10.0	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

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TASK 6F
Total Mercury
Methyl Mercury

Method 1631 (U.S. EPA 2001b)
Method 1630 (U.S. EPA 2001a)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	CRQL	SEDIMENT UNITS**
Mercury	7439-97-6	1.0	µg/kg	1.0	µg/kg
Methyl Mercury	22967-92-6	1.0	µg/kg	1.0	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 7
ACID EXTRACTABLE SEMIVOLATILE ORGANICS
TARGET PARAMETER LIST (TPL)
Method 8270D (U.S. EPA 2007e)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	CRQL	SEDIMENT UNITS**
Benzoic acid	65-85-0	330	µg/kg	660	µg/kg
Chlorophenol, 2-	95-57-8	330	µg/kg	660	µg/kg
Dichlorophenol, 2,4-	120-83-2	330	µg/kg	660	µg/kg
Dimethylphenol, 2,4-	105-67-9	330	µg/kg	660	µg/kg
Nitrophenol, 2-	88-75-5	330	µg/kg	660	µg/kg
Dinitrophenol, 2,4-	51-28-5	330	µg/kg	660	µg/kg
Methylphenol, 2-	95-48-7	330	µg/kg	660	µg/kg
Methylphenol, 4-	106-44-5	330	µg/kg	660	µg/kg
Chloro-3-					
Methylphenol, 4-	59-50-7	330	µg/kg	660	µg/kg
Dinitro-2-					
Methylphenol, 4,6-	534-52-1	330	µg/kg	660	µg/kg
Nitrophenol, 4-	100-02-7	330	µg/kg	660	µg/kg
Pentachlorophenol	87-86-5	330	µg/kg	660	µg/kg
Phenol	108-95-2	330	µg/kg	660	µg/kg
Trichlorophenol, 2,4,5-	95-95-4	330	µg/kg	660	µg/kg
Trichlorophenol, 2,4,6-	88-06-02	330	µg/kg	660	µg/kg

CRQL Contract Required Quantitation Limit

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 8
BASE/NEUTRAL EXTRACTABLE SEMIVOLATILE ORGANICS
TARGET PARAMETER LIST (TPL)

Method 8270D (U.S. EPA 2007e)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	SEDIMENT CRQL	UNITS**
Acenaphthylene	208-96-8	330	µg/kg	660	µg/kg
Acenaphthene	83-32-9	330	µg/kg	660	µg/kg
Anthracene	120-12-7	330	µg/kg	660	µg/kg
Benzo(a)anthracene	56-55-3	330	µg/kg	660	µg/kg
Benzo(a)pyrene	50-32-8	330	µg/kg	660	µg/kg
Benzo(b)fluoranthene	205-99-2	330	µg/kg	660	µg/kg
Benzo(k)fluoranthene	207-08-9	330	µg/kg	660	µg/kg
Benzo(g,h,i)perylene	191-24-2	330	µg/kg	660	µg/kg
Benzyl alcohol	100-51-6	330	µg/kg	660	µg/kg
Bis(2-chloroethoxy)					
Methane	111-91-1	330	µg/kg	660	µg/kg
Bis(2-chloroethyl) Ether	111-44-4	330	µg/kg	660	µg/kg
Oxybis- (1-Chloropropane), 2,2'					
-	108-60-1	330	µg/kg	660	µg/kg
Bis(2-ethylhexyl) Phthalate	117-81-7	330	µg/kg	660	µg/kg
Bromophenyl Phenyl					
Ether, 4-	101-55-3	330	µg/kg	660	µg/kg
Butylbenzylphthalate	85-68-7	330	µg/kg	660	µg/kg
Carbazole	86-74-8	330	µg/kg	660	µg/kg
Chloroaniline, 4-	106-47-8	330	µg/kg	660	µg/kg
Chloronaphthalene, 2-	91-58-7	330	µg/kg	660	µg/kg
Chlorophenyl Phenyl					
Ether, 4-	7005-72-3	330	µg/kg	660	µg/kg
Chrysene	218-01-9	330	µg/kg	660	µg/kg
Dibenzo(a,h)anthracene	53-70-3	330	µg/kg	660	µg/kg
Dibenzofuran	132-64-9	330	µg/kg	660	µg/kg
Di-N-butylphthalate	84-74-2	330	µg/kg	660	µg/kg
Diethylphthalate	84-66-2	330	µg/kg	660	µg/kg
Dimethylphthalate	131-11-3	330	µg/kg	660	µg/kg
Di-N-Octylphthalate	117-84-0	330	µg/kg	660	µg/kg
Dichlorobenzene, 1,2-	95-50-1	330	µg/kg	660	µg/kg
Dichlorobenzene, 1,3-	541-73-1	330	µg/kg	660	µg/kg
Dichlorobenzene, 1,4-	106-46-7	330	µg/kg	660	µg/kg
Dichlorobenzidine, 3,3'-	91-94-1	330	µg/kg	660	µg/kg
Dinitrotoluene, 2,4-	121-14-2	330	µg/kg	660	µg/kg
Dinitrotoluene, 2,6-	606-20-2	330	µg/kg	660	µg/kg
Fluorene	86-73-7	330	µg/kg	660	µg/kg
Fluoranthene	206-44-0	330	µg/kg	660	µg/kg
Hexachlorobenzene	118-74-1	330	µg/kg	660	µg/kg
Hexachlorobutadiene	87-68-3	330	µg/kg	660	µg/kg
Hexachlorocyclopentadiene	77-47-4	330	µg/kg	660	µg/kg

Task 8 continued

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	SEDIMENT CRQL	UNITS**
Hexachloroethane	67-72-1	330	µg/kg	660	µg/kg
Indeno(1,2,3-cd)pyrene	193-39-5	330	µg/kg	660	µg/kg
Isophorone	78-59-1	330	µg/kg	660	µg/kg
Methylnaphthalene, 2-	91-57-6	330	µg/kg	660	µg/kg
Naphthalene	91-20-3	330	µg/kg	660	µg/kg
Nitroaniline, 2-	88-74-4	330	µg/kg	660	µg/kg
Nitroaniline, 3-	99-09-2	330	µg/kg	660	µg/kg
Nitroaniline, 4-	100-01-6	330	µg/kg	660	µg/kg
Nitrobenzene	98-95-3	330	µg/kg	660	µg/kg
Nitrosodiphenylamine, N ⁽¹⁾	86-30-6	330	µg/kg	660	µg/kg
Nitroso-di-n-propylamine, -N621	64-7	330	µg/kg	660	µg/kg
Phenanthrene	85-01-8	330	µg/kg	660	µg/kg
Pyrene	129-00-0	330	µg/kg	660	µg/kg
Trichlorobenzene, 1,2,4-	120-82-1	330	µg/kg	660	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 9
VOLATILE ORGANICS
TARGET PARAMETER LIST (TPL)

Method 8260C (U.S. EPA 2006)

PARAMETER	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	SEDIMENT CRQL	UNITS**
Acetone	67-64-1	10.0	µg/kg	10.0	µg/kg
Benzene	71-43-2	5.0	µg/kg	5.0	µg/kg
Bromodichloromethane	75-27-4	5.0	µg/kg	5.0	µg/kg
Bromomethane	74-83-9	10.0	µg/kg	10.0	µg/kg
Butanone, 2- (MEK)	78-93-3	10.0	µg/kg	10.0	µg/kg
Carbon Disulfide	75-15-0	5.0	µg/kg	5.0	µg/kg
Chlorobenzene	108-90-7	5.0	µg/kg	5.0	µg/kg
Chloroethane	75-00-3	10.0	µg/kg	10.0	µg/kg
Chloroethyl-Vinyl-Ether, 2-	110-75-8	10.0	µg/kg	10.0	µg/kg
Chloromethane	74-87-3	10.0	µg/kg	10.0	µg/kg
Dibromochloromethane	124-48-1	5.0	µg/kg	5.0	µg/kg
Dichloroethane, 1,1-	75-34-3	5.0	µg/kg	5.0	µg/kg
Dichloroethane, 1,2,-	107-06-2	5.0	µg/kg	5.0	µg/kg
Dichloroethene, 1,1-	75-35-4	5.0	µg/kg	5.0	µg/kg

PARAMETER	CAS NUMBER	BIOLOGICAL		SEDIMENT	
		CRQL	UNITS*	CRQL	UNITS**
Dichloroethene, 1,2-(total)	540-59-0	5.0	µg/kg	5.0	µg/kg
Dichloromethane (Methylene chloride)	75-09-2	5.0	µg/kg	5.0	µg/kg
Dichloropropane, 1,2-	78-87-5	5.0	µg/kg	5.0	µg/kg
Dichloropropene, cis-1,3-	10061-01-5	5.0	µg/kg	5.0	µg/kg
Dichloropropene, trans-1,3-	10061-02-6	5.0	µg/kg	5.0	µg/kg
Ethylbenzene	100-41-4	5.0	µg/kg	5.0	µg/kg
Hexanone, 2- (MBK)	591-78-6	10.0	µg/kg	10.0	µg/kg
Methyl-2-pentanone, 4-	108-10-1	10.0	µg/kg	10.0	µg/kg
Styrene	100-42-5	5.0	µg/kg	5.0	µg/kg
Tetrachloroethane, 1,1,2,2-	79-34-5	5.0	µg/kg	5.0	µg/kg
Tetrachloroethene,	127-18-4	5.0	µg/kg	5.0	µg/kg
Tetrachloromethane (Carbon tetrachloride)	56-23-5	5.0	µg/kg	5.0	µg/kg
Tribromomethane (Bromoform)	75-25-2	5.0	µg/kg	5.0	µg/kg
Trichloroethane, 1,1,1-	71-55-6	5.0	µg/kg	5.0	µg/kg
Trichloroethane, 1,1,2-	79-00-5	5.0	µg/kg	5.0	µg/kg
Trichloroethene	79-01-6	5.0	µg/kg	5.0	µg/kg
Trichloromethane (Chloroform)	67-66-3	5.0	µg/kg	5.0	µg/kg
Toluene	108-88-3	5.0	µg/kg	5.0	µg/kg
Vinyl Acetate	108-05-4	10.0	µg/kg	10.0	µg/kg
Vinyl Chloride	75-01-4	10.0	µg/kg	10.0	µg/kg
Xylenes, Total	1330-20-7	5.0	µg/kg	5.0	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 10
POLYNUCLEAR AROMATIC HYDROCARBONS
TARGET PARAMETER LIST (TPL)

Method GCMS-SIM HP-5973
Method 8270D (U.S. EPA 2007e)
Method 8310 (U.S. EPA 1986)

PARAMETER UNITS**	CAS NUMBER	BIOLOGICAL CRQL	UNITS*	SEDIMENT CRQL	
Naphthalene	91-2-03	100	µg/kg	33.0	µg/kg
1-Methyl Naphthalene	90-12-0	100	µg/kg	16.0	µg/kg
2-Methyl Naphthalene	91-57-6	100	µg/kg	16.0	µg/kg
Acenaphthylene	208-96-8	125	µg/kg	67.0	µg/kg
Acenaphthene	83-32-9	50.0	µg/kg	33.0	µg/kg
Fluorene	86-73-7	10.0	µg/kg	3.3	µg/kg
Phenanthrene	85-01-8	5.0	µg/kg	3.3	µg/kg
Anthracene	120-12-7	7.5	µg/kg	3.3	µg/kg
Chrysene	218-01-9	5.0	µg/kg	3.3	µg/kg
Fluoranthene	206-44-0	7.5	µg/kg	5.0	µg/kg
Pyrene	129-00-0	2.0	µg/kg	3.3	µg/kg
Benzo (a) anthracene	56-55-3	5.0	µg/kg	3.3	µg/kg
Benzo (b) fluoranthene	205-99-2	5.0	µg/kg	3.3	µg/kg
Benzo (k) fluoranthene	207-08-9	5.0	µg/kg	3.3	µg/kg
Benzo (a) pyrene	50-32-8	10.0	µg/kg	3.3	µg/kg
Dibenzo (a,h) anthracene	53-70-3	15.0	µg/kg	6.7	µg/kg
Benzo (g,h,i) perylene	191-24-2	12.5	µg/kg	6.7	µg/kg
Indeno (1,2,3-c,d) Pyrene	193-39-5	7.5	µg/kg	6.7	µg/kg

CRQL Contract Required Quantitation Limit

NA Not Applicable.

* wet weight basis

** dry weight basis

µg/kg micrograms per kilogram

TASK 11
POLYBROMINATED DIPHENYL ETHERS (PBDE)
TARGET PARAMETER LIST
Method 1614 (DRAFT) Tissues and Soils by HRGC/HRMS (U.S. EPA 2003a)

<u>Congener</u>	<u>IUPAC #</u>	<u>MDL µg/kg</u>	<u>CRQL µg/kg</u>
2-MonoBDE	1	0.5	1.5
3-MonoBDE	2	0.48	1.5
4-MonoBDE	3	0.48	1.5
2,4-DiBDE	7	0.03	0.1
2,4'-DiBDE	8	0.03	0.1
2,6-DiBDE	10	0.03	0.1
3,3'-DiBDE	11	0.00	0.1
3,4-DiBDE	12	0.03	0.1
3,4'-DiBDE	13	0.03	0.1
4,4'-DiBDE	15	0.03	0.1
2,2',4-TriBDE	17	0.03	0.1
2,3',4-TriBDE	25	0.03	0.1
2,4,4'-TriBDE	28	0.03	0.1
2,4,6-TriBDE	30	0.03	0.1
2,4',6-TriBDE	32	0.03	0.1
2',3,4-TriBDE	33	0.00	0.1
3,3',4-TriBDE	35	0.03	0.1
3,4,4'-TriBDE	37	0.03	0.1
2,2',4,4'-TetraBDE	47	0.02	0.1
2,2',4,5'-TetraBDE	49	0.02	0.1
2,3',4,4'-TetraBDE	66	0.03	0.1
2,3',4',6-TetraBDE	71	0.02	0.1
2,4,4',6-TetraBDE	75	0.02	0.1
3,3',4,4'-TetraBDE	77	0.02	0.1
2,2',3,4,4'-PentaBDE	85	0.03	0.1
2,2',4,4,5-PentaBDE	99	0.03	0.1
2,2',4,4',6-PentaBDE	100	0.02	0.1
2,3,3',4,4'-PentaBDE	105	0.02	0.1
2,3,4,5,6-PentaBDE	116	0.02	0.1
2,3',4,4',6-PentaBDE	119	0.02	0.1
3,3',4,4',5-PentaBDE	126	0.02	0.1
2,2',3,4,4',5'-HexaBDE	138	0.08	0.2
2,2',3,4,4',6'-HexaBDE	140	0.06	0.2
2,2',4,4',5,5'-HexaBDE	153	0.07	0.2
2,2',4,4',5,6'-HexaBDE	154	0.05	0.2
2,2',4,4',6,6'-HexaBDE	155	0.06	0.2
2,3,4,4',5,6-HexaBDE	166	0.00	0.2
2,2',3,4,4',5,6-HeptaBDE	181	0.07	0.2
2,2',3,4,4',5',6-HeptaBDE	183	0.05	0.2
2,3,3',4,4',5,6-HeptaBDE	190	0.10	0.3
2,2',3,3',4,4',5,5',6-NonaBDE	206	0.14	0.5
2,2',3,3',4,4',5,6,6'-NonaBDE	207	0.14	0.5
2,2',3,3',4,5,5',6,6'-NonaBDE	208	0.14	0.5
2,2',3,3',4,4',5,5',6,6'-	209	1.10	3.5

IUPAC=International Union of Pure and Applied Chemistry

MDL=method detection limit

DL=detection limit.

TASK 12
PERFLUOROALKYL ACIDS (PFAA)
TARGET PARAMETER LIST (TPL)

Method: WI ESS ORG 1480 (WI ESS 2010)

PARAMETER	CAS Number	BIOLOGICAL	
		CRQL	UNITS**
Perfluoro-1-octanesulfonate (C8, PFOS)*	1763-23-1	0.50	µg/kg ww
Perfluoro-1-butanesulfonate (C4, PFBS)*	375-73-5	0.50	µg/kg ww
Perfluoro-1-hexanesulfonate (C6, PFHxS)*	355-46-4	0.50	µg/kg ww
Perfluoro-1-heptanesulfonate (C7,pFHpS)	375-92-8	0.50	µg/kg ww
Perfluoro-1-decanesulfonate (C10, PFDS)	335-77-3	0.50	µg/kg ww
Perfluoro-n-octanoic acid (C8, PFOA)*	45285-51-6	0.50	µg/kg ww
Perfluoro-n-butanoic acid(C4 PFBA)	375-22-4	0.50	µg/kg ww
Perfluoro-n-pentanoic acid (C5, PFPeA)	2706-90-3	0.50	µg/kg ww
Perfluoro-n-hexanoic acid (C6, PFHxA)*	307-24-4	0.50	µg/kg ww
Perfluoro-n-heptanoic acid (C7, PFHpA)	375-85-9	0.50	µg/kg ww
Perfluoro-n-nonanoic acid (C9, PFNA)*	375-95-1	0.50	µg/kg ww
Perfluoro-n-decanoic acid (C10, PFDA)*	335-76-2	0.50	µg/kg ww
Perfluoro-n-undecanoic acid (C11, PFUnA)	2058-94-8	0.50	µg/kg ww
Perfluoro-n-dodecanoic acid (C12, PFDoA)	307-55-1	0.50	µg/kg ww
Perfluoro-n-tridecanoic acid (C13, PFTrDA)	72629-94-8	0.50	µg/kg ww
Perfluoro-n-tetradecanoic acid (C14, PFTeDA)	376-06-7	0.50	µg/kg ww
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	0.50	µg/kg ww

* Commonly found in the environment

** All results reported as µg/kg wet weight

TASK D. REPORTING

The Contractor shall provide all reports, written and electronic, listed below and in the formats required. See pages H5-1 through H5-12 and Attachment I of Request for Proposal (RFP) 16-088 for reporting details and expectations.

Analytical Time & Reporting Requirements

The Contractor shall provide explanations of reports as requested by IDEM. This does not apply to the interpretation of results obtained by the analysis of samples.

Standard Reporting

The standard analytical and reporting cycle is ninety (90) calendar days. All standard cycle samples shall be analyzed and a completed written analytical report delivered within ninety (90) calendar days after receipt of the sample by The Contractor.

Verification of receipt or the delivery date of a sample report will be in accordance with Task D-Reporting and Task E- Invoicing and Payment Reduction.

The IDEM, at its sole discretion, may grant additional time for the generation of hard copies of analytical reports. The request for an extension must be in writing and approved in writing by IDEM.

Rush Groups & Reporting

IDEM reserves the right to require an expedited processing period for samples to be analyzed and verbally reportable; expedited processing period is defined as within thirty (30) days after receipt of samples by The Contractor. The Contractor will be given an additional five (5) calendar days to submit the written report for thirty (30) days turnaround samples.

Saturday, Sunday or Holiday Due Date

Reporting deadlines falling on Saturday, Sunday or an IDEM Holiday will not be considered late if the reports are received the following IDEM business day, unless the IDEM identifies the need to have results reported on a Saturday or Sunday.

Delivery Requirements

Written reports must be converted to pdf format and transferred to a MSDOS formatted DVD or CD. All reports shall be mailed by first class or certified mail or hand delivered. Reports may be hand delivered at the discretion of The Contractor. Analytical reports shall be delivered to the IDEM at the following:

Indiana Department of Environmental Management
Attention: Alison Meils
Office of Water Quality Targeted Monitoring Section
2525 N Shadeland Ave, STE 100 (MC 65-40-2 Shadeland)
Indianapolis, IN 46218-1787
Email: AMeils@idem.IN.gov

Data Reports

The Contractor shall provide sample analyses reports as outlined in the following sections. The specific items reported shall be determined by the analytical method utilized. The level of QA/QC reporting shall be indicated by the DQA specified in Table 1 of Task C.

- All sediment results except cyanides shall be reported on dry weight basis. Cyanide results must be reported on a wet weight basis for sediment samples. All results for biological samples shall be reported on an “as is” or wet weight basis.
- All reports shall contain a summary of analytical results, a summary of quality control results, a case narrative as needed, a cross reference of QA/QC parameters and sample numbers, completed chain of custody form(s), and a signed QA/QC Certificate of Analysis.
- All Watershed Assessment and Planning Branch reports shall have the data qualified with the data qualifiers specified in Table D1. The Contractor may use additional qualifiers as agreed upon.
- All reports shall contain language which meets approval of IDEM. The Contractor shall report only the facts of sample receipt, condition, QA/QC, observations and analysis in reports. The Contractor shall use statement of facts in reports. The Contractor shall not use language in reports which is subjective and/or interpretive.
- Sample results will not be corrected by The Contractor for any reason other than automatic background correction performed by the instrumentation involved in the analysis. Correction for contaminated blanks, spike recoveries, or other justifiable reason(s) may be permitted by written permission from IDEM. If corrections are permitted they are to be document on all appropriate sample summary and raw data sheets.

- Reports with language which is subjective and/or interpretive shall be returned to The Contractor for correction and inclusion of statement of facts only. The report and analysis shall not be considered Complete or Delivered in accordance with this Contract until the language is corrected. The IDEM shall be the sole judge of language suitability.
- The Contractor shall provide written and electronic analytical and QA/QC reports in the following specified format: general information shall be placed in a header and sample or QA/QC results are itemized. All analytical samples and QA/QC samples shall have a unique lab identification number.
- The Contractor shall provide at a minimum in the Report Header the following information: dates received identification numbers, analytical method, descriptions, and any other items The Contractor chooses to include in addition to the itemized results.
- The Contractor shall provide the following information regarding the Itemized analytical results: parameter name, result, detection limit, and units on one line per parameter, and any other items The Contractor chooses to include in addition to the itemized results.
- The Contractor shall provide the following information regarding the Itemized QA/QC results: parameter name, parameter target concentration, actual measured concentration, units, percent recovery (where applicable), and relative percent difference (where applicable) on one line per parameter. QA/QC sample type shall be clearly identified in the header or on the same line as the parameter name and results. If the QA/QC type is contained in the header, The Contractor shall start a new page for each QA/QC type reported. If listed on the same line as the parameter name and results, The Contractor shall provide QA/QC type grouped according to lab identification number: multiple QA/QC sample types can be listed on the same page with this format.

Analytical Report Contents

The Contractor shall provide Analytical reports that contain the following:

- Report Date (date report is completed).
- IDEM case or sample set number.
- IDEM sample identification number.
- Lab sample identification number.
- Lab analytical run or batch number.
- Sample preparation batch number.
- Contact Information for report explanation.
- IDEM sampling date and time twenty-four (24) hour format.
- Date and time sample received twenty-four (24) hour format.
- Sample digestion or extraction date and time twenty- four (24) hour format.
- Sample digestion or extraction method.
- Sample analysis date & time (24 hour format).
- Sample analytical method.
- Sample parameter name.
- Parameter Chemical Abstracts Service Registry Numbers (CASRN). Use IDEM assigned CASRN where a CASRN is not assigned by Chemical Abstracts Service.
- Sample analytical result.
- Significant Figures:

Task 1 (Percent Fat) - % Lipid (3 significant figures)

Task 1 (Percent Solids) - % Solids (3 significant figures),

Task 2 (Percent Solids) - % Solids (3 significant figures),

Task 2 (Total Volatile Solids) - % Solids (3 significant figures),

Task 2 (Total Organic Carbon) - % (3 significant figures),

Task 2 (Total Ammonia as N) - µg/kg (3 significant figures);

Task 2 (Specific Gravity) - g/cm³ Ratio to equal volume of distilled water at same temperature (20° C). (3 significant figures)

Task 2 (Grain Size) - Percent frequency distribution of particle sizes (3 significant figures)

Tasks 3, 3C, 4, and 5 - µg/kg (3 significant figures),

Task 3B – ng/kg (3 significant figures),

Tasks 6, 6A, 6B, 6C, 6D; 6E and 6F- µg/kg (3 significant figures),

Tasks 7, 8, 9, 10, 11 and 12 - µg/kg. (3 significant figures),

- Wet weight or dry weight designation (all fish tissue results will be listed in wet weight units or whole fish basis, and all sediment results will be listed in dry weight units except for cyanide).
- The Contractor's Sample analytical run Practical Quantitation Limits (PQL).
- The Contractor shall not report the IDEM CRQL, unless the CRQL is equal to the actual PQL for the analytical run.
- Data Qualifiers and Flags per Table D1.
- Sample dilution multipliers.
- Sample analytical result and PQL unit. Results shall be in the same units.
- QA/QC report.
- Analytical sample/(QA/QC) number cross reference (or analytical run number). Note that the QA/QC for a sample shall be easily identified.
- Original copy of completed IDEM "Chain-of-Custody".
- Copy of IDEM "Task Sheet" or "Sample and Test Request" form.
- Case Narrative (if needed).
- Summary of analytical results.
- Summary of quality control results.
- Case narrative (if needed).
- Explanation of Laboratory Flags.
- Cross reference of QA/QC parameters and sample numbers
- Signed QA/QC Certificate of Analysis.

Note - Some items are method dependent and will not be applicable to a particular analysis.

Quality Assurance/Quality Control (QA/QC) Reports

All reports shall contain language which meets approval of IDEM. The Contractor shall provide QA/QC reports which contain the following information for each Data Quality Level (some items are method or analysis dependent and may not be applicable):

1. Data Quality Levels 1 and 2 (DQA1 and DQA2)

The Contractor shall provide calibration, standard check, blank or other QA/QC data used to set up equipment or monitor analysis performance. In cases where calibration, setup, or QA/QC data may or may not be available; The Contractor shall not have to provide that information.

2. Data Quality Level 3 (DQA3)

The Contractor shall provide all quality control data applicable for an analytical method and to an analytical batch containing IDEM samples. The Contractor shall provide: all initial quantities of QA/QC standards and samples, measured values under analytical conditions, and final results of calculations of Relative Standard Deviations (RSD), Relative Percent Differences (RPD), percent recoveries, and signed QA/QC certificate. Bench sheets, chromatograms, recorder/integrator outputs and spectrograms do not need to be submitted.

3. Data Quality Level 4 (DQA4)

In addition to the required QA/QC submissions for DQA3, The Contractor shall provide: all bench sheets, chromatograms, recorder/integrator outputs, spectrograms, and other instrumental outputs.

4. Report Narrative

The Contractor shall provide a narrative along with the analytical report in the event that a failure in any single QA/QC parameter is encountered during an analysis or an analysis is in an out-of-control condition. The narrative shall list and/or explain, as needed, any QA/QC or analytical problem encountered, the corrective action measure(s) taken, and the affected sample numbers.

The Contractor shall provide an itemization of the error and include the procedure used to correct the error; The Contractor shall proceed with the analysis. The Contractor shall utilize any suitable format, subject to IDEM approval, to convey the information in the narrative portion.

5. Certificate of Analysis

The Contractor shall provide the QA/QC Certificate of Analysis signed by The Contractor's QA/QC Officer or equivalent representative. Any analytical report is not considered Completed until the signed QA/QC Certificate of Analysis is received.

Data Qualifiers and Flags

The Contractor shall use the data qualifiers and flags listed in Table D1 for all Watershed Assessment and Planning Branch's analytical reports. The Contractor may use additional qualifiers, but the qualifiers listed in Table D1 cannot be replaced by other characters or representations.

Table D1. Data Qualifiers and Flags

Flags	Description
R	Rejected. Result is not acceptable for use in decision making processes.
J	Estimated. The use of the result in decision making processes will be determined on a case by case basis .
U	Between MDL and RL -- The result of the parameter is above the Method Detection Limit (MDL) but below the Lab Reporting Limit (RL) and will be estimated.
Q	QC Checks or Criteria -- One or more of the QC checks or criteria are out of control

Flags	Description
D	<p>RPD for Duplicates -- The Relative Percent Difference (RPD) for a parameter is outside the acceptable control limits. The parameter will be considered estimated or rejected on the basis listed below:</p> <ol style="list-style-type: none"> 1. If the Sample or Duplicate value is <u>less than the RL</u>, and the other value <u>exceeds 5 times the MDL</u>, then the sample will be estimated. 2. If the RPD is outside the established control limits (max. RPD) but below two times the established control limits (max. RPD), then the sample will be estimated. 3. If the RPD is twice the established control limits (max. RPD) or greater, then the sample will be rejected.
B	<p>Blank Contamination -- This parameter is found in a field or a lab blank. Whether the result is accepted, estimated, or rejected will be based upon the level of contamination listed below:</p> <ol style="list-style-type: none"> 1. If the result of the sample is greater than the reporting limit but less than five times the blank contamination, the result will be rejected. 2. If the result of the sample is between five and ten times the blank contamination, the result will be estimated. 3. If the result of the sample is less than the reporting limit or greater than ten times the blank contamination, the result will be accepted.
H	<p>Holding Time -- The analysis for this parameter was performed out of the holding time. The results will be estimated or rejected on the basis listed below:</p> <ol style="list-style-type: none"> 1. If the analysis was performed between the holding time limit and 1.5 times the holding time limit, the result will be estimated. 2. If the analysis was performed outside the 1.5 times the holding time limit, the result will be rejected.

Electronic Reporting

The Contractor shall comply with the IDEM developed analytical and QA/QC data transfer specifications as listed in Tasks C and D of this Contract. The Contractor shall submit the IDEM's analytical and QA/QC data electronically on a report basis to IDEM specified e-mail addresses in the format specified in pages H5-1 through H5-12 and Attachment I of Request for Proposal (RFP) 16-088; those pages are incorporated fully by reference. IDEM shall approve in advance any adjustments to the data specifications. The Contractor may alter this specification and field names only with IDEM approval.

The Contractor may use its acronyms for tests and QC descriptions. The Contractor shall supply electronic cross references with IDEM definitions. The Contractor shall supply IDEM with updates to the acronyms should The Contractor change its acronyms.

Task E **INVOICING AND PAYMENT REDUCTION**

Invoicing- The Contractor shall provide itemized invoices to IDEM. Invoicing shall be submitted no less than fourteen (14) business days from the date of the delivery receipt(s) signed by IDEM. If The Contractor is not notified of any discrepancies in the analytical report by the end of fourteen (14) calendar days of the dated delivery receipt, the analytical report is deemed acceptable only for invoicing purposes and The Contractor may submit an invoice. If

discrepancies are found after the fourteen (14) calendar days, The Contractor is obligated to make corrections. If The Contractor is notified of a report discrepancy before the end of fourteen (14) calendar days, invoices may not be submitted until the discrepancy is resolved. Refer to Exhibit E for more information on the invoicing process and expectations.

Table E1. Timetable for Invoicing

ITEM	Time	Action
IDEM Receives & Date Stamps Report	Day 0	No invoicing permitted
IDEM Reviews Report	Days 0-14	No invoicing permitted
IDEM notifies The Contractor of report deficiencies	Days 0-14	Clock stops. No invoicing permitted
Report deficiencies corrected	Day ?	Clock starts & finishes count to 14 days. No invoicing permitted
IDEM has not notified The Contractor of report deficiencies or all notified report deficiencies corrected.	Day 15	Invoice may be submitted

The Contractor shall forward all invoices to:

Indiana Department of Environmental Management
 Attention: Alison Meils
 Office of Water Quality Targeted Monitoring Section
 2525 N Shadeland Ave, STE 100 (MC 65-40-2 Shadeland)
 Indianapolis, IN 46218-1787
 Email: Ameils@idem.IN.gov
 Phone: (317)308-3204

Sample Storage

Request of long term storage of samples starting at 180 days after all deliverables have been submitted and approved (including any data generated by the subcontractors) by the IDEM will incur a \$5 per sample per month charge.

The Contractor will store samples collected from Lake Michigan (~12 samples per year) and return the unused material to the IDEM after all deliverables are received and approved by the IDEM. This sample material can be returned annually or at the end of the contract. The IDEM reserves the right to request the material be returned at any time during the contract. These samples are not subject to the monthly long term storage fees if The Contractor decides to send the samples back after 180 days.

Payment Reduction

- a. Reporting

Failure to meet the reporting requirements, including exceedance of the 30-day rush or 90-day standard reporting times, as appropriate, by more than 25% (additional 7.5 days for rush groups and 22.5 days for standard groups), will result in flat-rate forfeiture of ten percent (10%) of the total invoice, for the sample set being reported.

b. Analytical & QA/QC Errors

(1) Out-of-Control Procedures

The Contractor has no excuse for failure to monitor and address analytical control conditions.

IDEM/OWQ will be the sole judge of Analytical Control. The Contractor shall follow and meet the specifications outlined in the respective method, and Task C- Quality Assurance and Quality Control. IDEM/OWQ will notify the Contractor of the specific conditions which it believes the Contractor has failed to meet and give the Contractor the opportunity to correct any deficiencies. Failure to correct the specified deficiencies within 30 days may result in a breach of this Contract.

IDEM/OWQ will not pay for samples analyzed in an out-of-control condition or samples analyzed to isolate and remedy any out-of control condition. The Contractor must meet the remedy conditions and reanalyze out-of-control samples, as specified in each method and in Task C- Quality Assurance and Quality Control, and Task D- Reporting. The remedy conditions must be documented and supplied in the Narrative portion of an analytical report.

A Narrative must be included in accordance with Task D- Reporting. Failure to provide a Narrative (as specified) will result in a forfeiture of five (5%) percent of the total invoice, for the sample set being reported, per week or portion of a week the Narrative is not reported.

(2) Resampling

In the event that IDEM needs to resample because of the failure of the Contractor to analyze samples properly, the Contractor shall pay all costs associated with requiring a replacement sample set including but not limited to time, travel time, lodging, supplies and equipment.

(3) Method Modifications

IDEM will not pay for analyses that are not analyzed according to the specifications listed in the method or modified without prior IDEM/OWQ approval.

Payment

The Contractor shall provide IDEM a minimum of thirty-five (35) calendar days from the date of acceptance of a "Completed" analytical report by IDEM to approve payment for The Contractor services. If there are no deficiencies in a report or electronically transmitted data, the date of acceptance will be the date of receipt in accordance with Task D- Reporting. Payment for services will not be authorized until all deficiencies have been corrected.

EXHIBIT B
TOTAL ESTIMATED PROJECT EXPENSE and THE CONTRACTOR PRICING

The Contractor will be reimbursed by the State for estimated expenses in the following areas not to exceed the indicated amounts. Payment of up to \$230,000.00 will be made in arrears upon submittal of an invoice and progress reports to the State for the specified purposes. Funds cannot be released by the State until the work has been completed and the appropriate invoice and analytical reports have been submitted to the State. The \$230,000.00 has been identified as the amount necessary to complete the project.

Should the Contractor provide personnel for enforcement or litigation proceedings, testimony at those proceedings will be at the rate of \$250 per hour. The Contractor will be required to abide by the State of Indiana Financial Management Circular (FMC) #2016-2 regarding travel, per diem and lodging.

Table 1 lists the Contractor quoted pricing for each analytical Task. IDEM/OWQ shall request additional discounts for larger project based sampling events. Methods and parameters not listed are subject to the Contractor quotes for services.

Table 5. Cost Matrix per Analysis Task Group

LABORATORY CHARGES BY ANALYTICAL TASK GROUP					
Task #	Description*	Bio 60 Day Reporting Time	Bio 30 Day Reporting Time	Sediment 60 Day Reporting Time	Sediment 30 Day Reporting Time
1	Percent Lipid	\$80.00	\$80.00	N/A	N/A
2	General Chemistry	N/A	N/A	\$395.00	\$395.00
2B	Nutrient Parameters	N/A	N/A	\$150.00	\$150.00
3	Total Polychlorinated biphenyls (PCB)	\$145.00	\$145.00	N/A	N/A
3B	PCB Congeners	\$650.00	\$785.00	\$650.00	\$785.00
3C	Polychlorinated Dioxins and Furans	\$525.00	\$665.00	\$525.00	\$665.00
4	Individual Aroclors of PCBs (sediment only)	N/A	N/A	\$75.00	\$100.00
5	Organochlorine Pesticides	\$180.00	\$180.00	\$115.00	\$140.00
3,5	Total PCB and Organochlorine Pesticides	\$200.00	\$210.00	N/A	N/A
1,3,5	Lipid, Solids, Total PCB and Organochlorine Pesticides	\$205.00	\$225.00	N/A	N/A
6	Metals Short List	\$75.00	\$100.00	\$80.00	\$80.00
6A	Metals Medium List	\$125.00	\$145.00	\$125.00	\$135.00
6B	Metals Long List	\$150.00	\$195.00	\$150.00	\$150.00
6C	Cyanide	N/A	N/A	\$40.00	\$45.00
6D	AVS and simultaneously extracted metals (SEM)	N/A	N/A	\$190.00	\$225.00
6E	Tributyl Tin	\$305.00	\$305.00	\$275.00	\$275.00
6F	Total and Methyl-Mercury by Method 1631 and 1630	\$190.00	\$265.00	N/A	N/A
7	Acid Extractables Semivolatiles	\$125.00	\$165.00	\$95.00	\$120.00

LABORATORY CHARGES BY ANALYTICAL TASK GROUP					
Task #	Description*	Bio 60 Day Reporting Time	Bio 30 Day Reporting Time	Sediment 60 Day Reporting Time	Sediment 30 Day Reporting Time
8	Base Neutral Extractables	\$125.00	\$165.00	\$95.00	\$120.00
9	Volatile Organic Compounds	\$125.00	\$150.00	\$75.00	\$100.00
10	Polynuclear Aromatic Hydrocarbons	\$125.00	\$180.00	\$95.00	\$130.00
11	Polybrominated Diphenyl Ethers	\$635.00	\$900.00	\$900.00	\$900.00
12	Perfluorinatedalkyl Acids	\$495.00	\$545.00	N/A	N/A

Table 2 is an estimated workload of analytical services to be provided by The Contractor for the duration of this contract. Under normal conditions all samples will be for 60 day Reporting Time. The distribution of work tasks on samples submitted by IDEM to The Contractor is subject to change.

Table 2. Estimated Workload of Analytical Services.

Task(s)	Task Group	Estimated Volume (2 years)	Estimated Cost (2 years)
1, 3, and 5	BIOL	400	\$82,000.00
3B (HRMS)	BIOL	0	\$0.00
3B (HRMS)	SED	0	\$0.00
3C	BIOL	11	\$5,775.00
3C	SED	0	\$0.00
2, 4, and 5	SED	0	\$0.00
7, 8, and 9	BIOL	0	\$0.00
7, 8, and 9	SED	0	\$0.00
10	BIOL	11	\$1,400.00
10	SED	0	\$0.00
11	BIOL	10	\$6,350.00
12	BIOL	50	\$24,750.00
6	BIOL	350	\$26,250.00
6A	BIOL	0	\$0.00
6B	BIOL	50	\$7,500.00
6B	SED	0	\$0.00
6C	SED	0	\$0.00
6D	SED	0	\$0.00
1 and 6E	BIOL	0	\$0.00
2 and 6E	SED	0	\$0.00
6F	BIOL	400	\$76,000.00
TOTAL ESTIMATED COST			\$230,000.00

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EXHIBIT C
SCHEDULE FOR PROJECT TASKS

The tasks and the associated time periods necessary for the project are as follows:

TASK	Required Completion Date
Task A: General Services and Responsibilities	On-going throughout the term of the contract.
Tasks A.7: Maintain records of QA/QC documentation, support documentation and analytical reports.	Five (5) years after the expiration of this Contract, Amendments to this Contract or extensions to this Contract. Enforcement actions may require longer records maintenance requirements.
Tasks B: Personnel and Availability of Services	On-going throughout the term of the contract.
Task C: Quality Assurance and Quality Control	On-going throughout the term of the contract.
Task D: Reporting	Standard reporting cycle is sixty (60) days. Rush reporting cycle is thirty (30) days. Report acceptance period is fourteen (14) calendar days for invoicing purposes. The Contractor has seven (7) business days to correct report deficiencies.
Task E: Invoicing	Invoices may not be submitted prior to fourteen (14) calendars days after the Delivery Date. Invoices shall be sent to arrive within seven (7) calendar days of invoice date.

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EXHIBIT D
INVOICE CONTENTS AND FORMAT

IDEM/OWQ will submit samples to the Vendor in groups called Sample Sets or “**Analysis Sets**”. All IDEM/OWQ sample identification numbers, listed on single or sequential chain-of-custody forms, will be considered an Analysis Set or Sample Group.

Each Analysis Set or Sample Group must be invoiced separately, that is one invoice per Analysis Set, and must contain copies of the IDEM/OWQ Chain-of-Custody Form and Sample Analysis Request Form.

All analytical analyses, QA/QC sample analyses, Vendor sampling assistance, or any other charges associated with analysis of a Sample Group must be invoiced at the same time.

Partial invoices will not be processed until all Sample Group items and/services are invoiced, unless previously approved by IDEM/OWQ.

Invoices must include a cover sheet with the IDEM/OWQ Purchase Order (P.O.) Number, the invoice date, date/time the Analysis Set was received, the IDEM/OWQ Analysis Set number, and the total charges for the invoice. On a separate sheet(s), the invoice must include an itemized listing of charges with subtotals and totals.

Itemized analytical charges must be grouped by IDEM/OWQ sample number and then by Task. If only a subset of a Task was performed, the itemization must break out the discrete charges and provide a subtotal for the Task: e.g. in the case of metals or inorganics. All direct charges associated with a sample must be itemized together and have a sample subtotal. Only itemize the direct charges: e.g., if a sample price includes a prep procedure in the bid price, DO NOT break out the prep charge and the sample charge.

Other Vendor services and analytical services performed on a Sample Group (or Analysis Set), such as Vendor assisted sampling, can be listed separately. This will be dependent upon type and structure of service performed. Each itemized sample analytical charge must be clearly identified by the IDEM/OWQ sample number, date received, and the cost.

Each itemized QA/QC charge must be clearly identified by the IDEM/OWQ, Analysis or Sample Set Number, Vendor ID number, QA/QC sample description, date of sample, date of analysis, and the cost.

Other services must be clearly identified by the IDEM/OWQ sample number(s) (where applicable), date of service, description of service, and cost of service.

Electronic Approval History				
	User ID	Approver Name	Datetime	Description
1	K302180	Diller,Kimberly	08/27/2019 9:50:31AM	Agency Fiscal Approval
2	S004382	Redding,Sandra D	09/03/2019 12:38:58PM	IDOA Legal Approval
3	H320040	Dickson,Harry C	09/17/2019 3:27:42PM	SBA Approval
4	M338811	Skarbeck,Molly H	09/18/2019 10:30:20AM	Attorney General Approval
5	T350946	Lovett,Travis D	09/30/2019 10:03:21AM	Attorney General Approval