



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
DEP16028

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER 304-558-2316

VENDOR

\*626144827      304-757-8954  
 BIO CHEM TESTING INC  
 PO BOX 634  
 PUTNAM VILLAGE SHOPPING CTR  
 TEAYS WV 25569-0634

SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPT. OF  
 OFFICE OF MINING & RECLAMATION  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304      304-926-0499

DATE PRINTED:
01/29/2013

BID OPENING DATE: 02/26/2013      BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		961-48		
WATER SAMPLING 250 LOCATIONS THROUGHOUT COAL REGIONS  THE WEST VIRGINIA PRUCHASING DIVISION, ON BEHALF OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, IS SOLICITING BIDS FROM QUALIFIED VENDORS TO PROVIDE WATER TESTING SERVICES PER THE ATTACHED SPECIFICATIONS, BID REQUIREMENTS, TERMS & CONDITIONS AND BID SCHEDULE.  ***** THIS IS THE END OF RFQ    DEP16028 ***** TOTAL: _____						
04/04/13 12:44:50 PM West Virginia Purchasing Division						

SIGNATURE	TELEPHONE	DATE
	304 757 8954	1-03-13
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
President	55-0732395	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**INSTRUCTIONS TO VENDORS SUBMITTING BIDS**

- 1. **REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.
- 2. **MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.
- 3. **PREBID MEETING:** The item identified below shall apply to this Solicitation.

A pre-bid meeting will not be held prior to bid opening.

A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing. Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required

information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. **VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are non-binding.

Question Submission Deadline: 02/12/2013

Submit Questions to:

Frank Whittaker  
2019 Washington Street, East  
P.O. Box 50130  
Charleston, WV 25305

Fax: 304-558-4115

Email: frank.m.whittaker@wv.gov

5. **VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including that made at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.
6. **BID SUBMISSION:** All bids must be signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The bid delivery address is:

Department of Administration, Purchasing Division  
2019 Washington Street East  
P.O. Box 50130,  
Charleston, WV 25305-0130

The bid should contain the information listed below on the face of the envelope or the bid may not be considered:

SEALED BID

BUYER: \_\_\_\_\_  
SOLICITATION NO.: \_\_\_\_\_  
BID OPENING DATE: \_\_\_\_\_  
BID OPENING TIME: \_\_\_\_\_  
FAX NUMBER: \_\_\_\_\_

In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus  convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE:     | Technical  
                   | Cost

- 7. **BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when time stamped by the official Purchasing Division time clock.

Bid Opening Date and Time:

02/26/2013 At 1:30 PM

Bid Opening Location:

Department of Administration, Purchasing Division  
2019 Washington Street East  
P.O. Box 50130,  
Charleston, WV 25305-0130

- 8. **ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

- 9. **BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

**GENERAL TERMS AND CONDITIONS:**

1. **CONTRACTUAL AGREEMENT:** Issuance of a Purchase Order signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.
  
2. **DEFINITIONS:** As used in this Solicitation / Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation / Contract.
  - 2.1 **"Agency" or "Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.
  
  - 2.2 **"Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods and services requested in the Solicitation.
  
  - 2.3 **"Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.
  
  - 2.4 **"Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.
  
  - 2.5 **"Purchase Order"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the successful bidder and Contract holder.
  
  - 2.6 **"Solicitation"** means the official solicitation published by the Purchasing Division and identified by number on the first page thereof.
  
  - 2.7 **"State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.
  
  - 2.8 **"Vendor" or "Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. **CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

**Term Contract**

**Initial Contract Term:** This Contract becomes effective on   
  
 and extends for a period of  year(s).

**Renewal Term:** This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal must be submitted to the Purchasing Division Director thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to  successive one (1) year periods. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

**Reasonable Time Extension:** At the sole discretion of the Purchasing Division Director, and with approval from the Attorney General's office (Attorney General approval is as to form only), this Contract may be extended for a reasonable time after the initial Contract term or after any renewal term as may be necessary to obtain a new contract or renew this Contract. Any reasonable time extension shall not exceed twelve (12) months. Vendor may avoid a reasonable time extension by providing the Purchasing Division Director with written notice of Vendor's desire to terminate this Contract 30 days prior to the expiration of the then current term. During any reasonable time extension period, the Vendor may terminate this Contract for any reason upon giving the Purchasing Division Director 30 days written notice. Automatic extension of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases, but Attorney General approval may be required.

- Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within  days.
- One Time Purchase:** The term of this Contract shall run from the issuance of the Purchase Order until all of the goods contracted for have been delivered, but in no event shall this Contract extend for more than one fiscal year.
- Other:** See attached.

4. **NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Purchase Order will be considered notice to proceed
5. **QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.
- Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.
  - Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.
  - Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.
  - One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.
6. **PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.
7. **EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.
8. **REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.
- BID BOND:** All Vendors shall furnish a bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

[ | **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of [ ]. The performance bond must be issued and received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

[ | **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be issued and delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable.

[ | **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

[ | **WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall have appropriate workers' compensation insurance and shall provide proof thereof upon request.

[ | **INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award:

[ | **Commercial General Liability Insurance:**  
[ ] or more.

[ | **Builders Risk Insurance:** builders risk – all risk insurance in an amount equal to 100% of the amount of the Contract.

[	
[	
[	
[	
[	



The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

**LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

[ ]	[ ]	
[ ]	[ ]	
[ ]	[ ]	
[ ]	[ ]	

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

**9. LITIGATION BOND:** The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or \$5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

**10. ALTERNATES:** Any model, brand, or specification listed herein establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

**11. EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or

other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

**12. LIQUIDATED DAMAGES:** Vendor shall pay liquidated damages in the amount

	for	

This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

**13. ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part. Vendor's signature on its bid signifies acceptance of the terms and conditions contained in the Solicitation and Vendor agrees to be bound by the terms of the Contract, as reflected in the Purchase Order, upon receipt.

**14. REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee if applicable.

**15. COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

**16. FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

**17. PAYMENT:** Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears, to the Agency at the address on the face of the purchase order labeled "Invoice To."

**18. UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

**19. DELIVERY:** All quotations are considered freight on board destination ("F.O.B. destination") unless alternate shipping terms are clearly identified in the bid. Vendor's listing of shipping terms that contradict the shipping terms expressly required by this Solicitation may result in bid disqualification.

**20. INTEREST:** Interest attributable to late payment will only be permitted if authorized by the West Virginia Code. Presently, there is no provision in the law for interest on late payments.

**21. PREFERENCE:** Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Resident Vendor Certification form has been attached hereto to allow Vendor to apply for the preference. Vendor's

failure to submit the Resident Vendor Certification form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

- 22. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid on or after July 1, 2012, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to submission of its bid to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.
- 23. TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
- 24. CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-7.16.2.
- 25. WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.
- 26. TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.
- 27. APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.
- 28. COMPLIANCE:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendors acknowledge that they have reviewed, understand, and will comply with all applicable law.
- 29. PREVAILING WAGE:** On any contract for the construction of a public improvement, Vendor and any subcontractors utilized by Vendor shall pay a rate or rates of wages which shall not be less than the fair minimum rate or rates of wages (prevailing wage), as established by the West Virginia Division of Labor under West Virginia Code §§ 21-5A-1 et seq. and available at <http://www.sos.wv.gov/administrative-law/wagerates/Pages/default.aspx>. Vendor shall be responsible for ensuring compliance with prevailing wage requirements and determining when prevailing wage

requirements are applicable. The required contract provisions contained in West Virginia Code of State Rules § 42-7-3 are specifically incorporated herein by reference.

- 30. ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.
- 31. MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). **No Change shall be implemented by the Vendor until such time as the Vendor receives an approved written change order from the Purchasing Division.**
- 32. WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.
- 33. SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.
- 34. ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.
- 35. WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.
- 36. STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.
- 37. BANKRUPTCY:** In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

- 38. HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at <http://www.state.wv.us/admin/purchase/vrc/hipaa.html> and is hereby made part of the agreement provided that the Agency meets the definition of a Covered entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the Vendor.
- 39. CONFIDENTIALITY:** The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.
- 40. DISCLOSURE:** Vendor's response to the Solicitation and the resulting Contract are considered public documents and will be disclosed to the public in accordance with the laws, rules, and policies governing the West Virginia Purchasing Division. Those laws include, but are not limited to, the Freedom of Information Act found in West Virginia Code § 29B-1-1 et seq.

If a Vendor considers any part of its bid to be exempt from public disclosure, Vendor must so indicate by specifically identifying the exempt information, identifying the exemption that applies, providing a detailed justification for the exemption, segregating the exempt information from the general bid information, and submitting the exempt information as part of its bid but in a segregated and clearly identifiable format. Failure to comply with the foregoing requirements will result in public disclosure of the Vendor's bid without further notice. A Vendor's act of marking all or nearly all of its bid as exempt is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor's act of marking a bid or any part thereof as "confidential" or "proprietary" is not sufficient to avoid disclosure and WILL NOT BE HONORED. In addition, a legend or other statement indicating that all or substantially all of the bid is exempt from disclosure is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor will be required to defend any claimed exemption for nondisclosure in the event of an administrative or judicial challenge to the State's nondisclosure. Vendor must indemnify the State for any costs incurred related to any exemptions claimed by Vendor. Any questions regarding the applicability of the various public records laws should be addressed to your own legal counsel prior to bid submission.

- 41. LICENSING:** In accordance with West Virginia Code of State Rules §148-1-6.1.7, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

**42. ANTITRUST:** In submitting a bid to, signing a contract with, or accepting a Purchase Order from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

**43. VENDOR CERTIFICATIONS:** By signing its bid or entering into this Contract, Vendor certifies (1) that its bid was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid for the same material, supplies, equipment or services; (2) that its bid is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this RFQ in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

The individual signing this bid on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

**44. PURCHASING CARD ACCEPTANCE:** The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

**45. VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms and returns pertinent to all of the foregoing. Vendor shall hold harmless the

State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

- 46. INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.
- 47. PURCHASING AFFIDAVIT:** In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of \$1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.
- 48. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by and extends to other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"). This Contract shall be extended to the aforementioned Other Government Entities on the same prices, terms, and conditions as those offered and agreed to in this Contract. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.
- 49. CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire any interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.
- 50. REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:
- Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

- [ ] Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at [purchasing.requisitions@wv.gov](mailto:purchasing.requisitions@wv.gov).

**51. BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision.

The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

**52. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS:** Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process.

The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

- a. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total



contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

- b. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

**53. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL:** In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

REQUEST FOR QUOTATION  
DEP16028  
Water Sampling

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**SPECIFICATIONS**

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Department of Environmental Protection to establish an open-end contract for water testing services at trend stations throughout coal regions as listed on Attachment A and other locations that may be added at a later date.
  
2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
  - 2.1 **“Desired Item” or “Desired Items”** means the list of items identified in Section III, Subsection 1 below.
  
  - 2.2 **“Pricing Pages”** means the schedule of prices, estimated order quantity, and totals attached hereto as Exhibit A and used to evaluate the RFQ.
  
  - 2.3 **“RFQ”** means the official RFQ published by the Purchasing Division and identified as DEP16028.
  
3. **GENERAL REQUIREMENTS:**
  - 3.1 **Desired Items and Mandatory Requirements:** Vendor shall provide Agency with the Desired Items listed below on an open-end and continuing basis. Desired Items must meet or exceed the mandatory requirements as shown below.
    - 3.1.1 **Collect and conduct laboratory analysis of water samples at approximately 250 site locations throughout the state of West Virginia.**
      - 3.1.1.1 Sampling must be conducted on a monthly basis for Items 1 through 16 on the bid schedule and on a quarterly basis for items 17 through 39.
  
      - 3.1.1.2 Further expansion of collections must be conducted on biannual basis of benthic sampling, Item 40.

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Water Sampling

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- 3.1.1.3** Item 41 includes all costs to collect sample from each site. A list of sites is referenced in Attachment A and sampling sites may be viewed at the DEP Website: <http://tagis.dep.wv.gov/mining/> Other sites may be added at a later date by formal written change order.
- 3.1.1.4** All test results are to be submitted monthly electronically via e-mail to DEP, 601 57<sup>th</sup> Street, SE, Charleston WV 25304. The protocol for these submissions will be provided by DEP.
- 3.1.1.5** The vendor must be a West Virginia Certified laboratory. Only WV Certified Labs may bid. Proof of certification must be provided prior to award, but preferably with the bid.
- 3.1.1.6** All required methods for the parameter analysis in the monthly and quarterly basis groups must be EPA approved methods.
- 3.1.1.7** Vendor must detect lowest water quality standards as contained in 46CSR1. 46CSR1 can be found at: <http://apps.sos.wv.gov/adlaw/csr/readfile.aspx?DocId=7120&Format=PDF>
- 3.1.1.8** Prior to award, but preferably with the bid, the vendor must provide a list of who will be doing the benthic sampling, Item 40.
- 3.1.1.9** Permits for the benthic sampling must be obtained from the WVDNR Fish & Wildlife Office by the vendor prior to sampling.
- 3.1.1.10** The vendor must follow the EPA-Rapid Bioassessment Protocols III E41-B-99-002 for use in streams. The EPA lists these protocols on their website: <http://water.epa.gov/scitech/monitoring/rs1/bioassessment/index.cfm>

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Water Sampling

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**4. CONTRACT AWARD:**

- 4.1 Contract Award:** The Contract shall be awarded to the Vendor that provides the Desired Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.
- 4.2 Pricing Pages:** Vendor should complete the Pricing Pages by indicating their unit price for each item noted 1-41 and extend those unit prices by multiplying the unit price by the quantity listed and inserting that extended price in the column titled "Total". The total at the bottom of the schedule should be the total extended sum of the lines 1-41. Vendors are to make no other calculations on this bid schedule (i.e. Monthly, quarterly, or yearly costs). Vendor should complete the Pricing Pages in their entirety as failure to do so may result in Vendor's bids being disqualified.

The estimated purchase volume for each item represents the approximate volume of anticipated purchases only. No future use of the Contract or any individual item is guaranteed or implied.

Vendor should type or electronically enter the information into the Pricing Pages to prevent errors in the evaluation.

**5. MISCELLANIOUS:**

- 5.1 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract.

Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
1	station_id	station_desc	latitude	longitude	surf_elev
2	TS1	DRY FK CR-9 off Rt 16, 400 ft above Andys Wrecker @ gas well	37.275083	81.666889	1287.00
3	TS2	JACOB FORK 400' upstream of Big Creek Branch	37.289794	81.650000	1356.00
4	TS3	BIG CK Rt. 16 below CR-9 first long hollow on left	37.290750	81.651139	1977.00
5	TS4	TUG FK/SOUTH FK/ 1.2 miles off 103 on 161 South, 200 ft upstream of golf corse	37.330861	81.478361	1552.00
6	TS5	BIG SANDY RIVER/TUG FK 0.4 miles up 161 N from 103, right hand turn to metal bridge	37.336389	81.477306	1523.00
7	TS6	MIDDLE FK CK 0.2 miles south of Bradshaw Rt 83 Metal Bridge	37.343861	81.806833	1338.00
8	TS7	BLUESTONE RIVER R7 in above 1st one lane bridge 3rd house on right	37.355833	81.246444	2298.00
9	TS8	WIDE MOUTH CK off Rt 71 on Browning School Rd 200 ft above green bridge	37.377833	81.231389	2276.00
10	TS9	DRY FK Rt 80, 150 below Garwood Metal Bridge	37.401722	81.784556	1345.00
11	TS10	ELKHORN CK off US52W @ Northfork City Limit @ RR Track	37.420139	81.440389	1583.00
12	TS11	SITE 11	37.419556	81.590444	
13	TS12	BEAVER CK 41 north CR-8	38.316865	80.650256	2264.00
14	TS13	RICH CK RD in Spanishburg to Lusk Hollow Rd	37.544556	81.135444	2138.00
15	TS14	CLEAR FK off US 52 @ crossing	37.450333	81.736694	1287.00
16	TS15	PANTHER CK Downstream of Panther State Forest entrance on CR-3-3	37.463861	81.890583	1345.00
17	TS16	PENNICAL CK 16 South up Pennicale CK Rd	37.552361	81.506083	1462.00
18	TS17	TBA			
19	TS18	BEN CK just above Tug River @ last blue steel bridge	37.544556	81.962611	874.00
20	TS19	BARKERS CK Rt 10 between Tralee Computer Elmp bridge	37.558472	81.402139	1487.00
21	TS20	INDIAN CK Intersection left @ Nite Branch Rd	37.553889	81.622722	1322.00
22	TS21	GUYANDOTTE RIVER Rt 97 east 2.0 miles past Glover 750' below Kepler Proces.	37.579306	81.571944	1231.00
23	TS22	HUFF CK US Rt 52 2 miles before Mingo Co. 400' below drag strip	37.584111	81.814278	1082.00
24	TS23	SLAB FK Rt 54 Left Hand turn before 1st bridge into Mullens	37.600306	81.380944	1525.00
25	TS24	ROCK CASTLE CK behind Dairy Queen in Pineville	37.588306	81.533833	1274.00
26	TS25	DEVILS CK Rt 16 Amigo 2nd Alley on Devils CK Town	37.596833	81.319333	1635.00
27	TS26	WINDING GULF left hand turn off after Byrd Privillamen School 0.3 miles US	37.607250	81.320000	1607.00
28	TS27	TOMMY CK Under bridge on CR-33 off Rt 16	37.602972	81.313278	1629.00
29	TS28	LAUREL CK 0.5 miles below 3rd bridge from Sun Hill	37.612278	81.723528	1293.00
30	TS29	HORSEPEN CK just above Dentist Office & Used Car Lot cross bridge @ grey/red DW	37.612694	81.882056	891.00
31	TS30	BIG CUB CK 350' below Sturgeon Bridge 1.2 miles below Coal Mt	37.649389	81.770000	1190.00
32	TS31	BELOW GEORGE ALLEN BR behind Estep house in N.Matewan	37.624778	82.152278	623.00
33	TS32	LAUREL FK. Cr-1 Glenn Fk below Baptist Temple	37.694111	81.535833	
34	TS33	CLEAR FK. Oceana, Hatcher across from Storage Buildings	37.695500	81.618833	1170.00
35	TS34	PIGEON CK above Rockhouse fk in Delbarton beside funeral home	37.705167	82.185139	769.00

Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
36	TS35	ABOVE PIGEON CK in Delbarton by blue bridge	37.711306	82.175444	783.00
37	TS36	HUFF CREEK 50yds below Gilman Bottom bridge	37.729306	81.795333	933.00
38	TS37	PINEY CK CR-18 Cedar above water crossing (100')	37.738750	81.210833	1635.00
39	TS38	OMAR Logan Co.	37.753917	82.000222	891.00
40	TS39	BEAVER CK Intersection of Sullivan Rd & US 19 @ Glen Morgan US of RR Tressel	37.756417	81.155444	2145.00
41	TS40	GLADE CK Pluto Rd @ bridge @ Beckley Water Co.	37.704194	81.052667	2700.00
42	TS41	LAUREL CK CR-7 near Sandtone Murphy Farm	37.766684	80.866801	1521.00
43	TS42	ACCOVILLE above right fk of Buffalo Ck.	37.771639	81.831278	840.00
44	TS43	COAL RIVER/MARSH FK off Rt 99 on Posey-Saxon Rd @ propane tank	37.779194	81.372167	187.00
45	TS44	ABOVE PIGEON CK on Day Star Rd @ 2nd ck crossing across rd from brown & tan trailer	37.775361	82.218583	660.00
46	TS45	LICK CK I-64 exit 143 @ Green Sulphur Springs	37.633421	80.800246	1560.00
47	TS46	LAUREL FK below right fk above Lenore across rd from blue mobile home	37.807028	82.273278	627.00
48	TS47	LOGAN near mouth of Rum Creek	37.812750	81.934389	736.00
49	TS48	MEADOW CK CR-7 Exit 139 I-64	37.800226	80.916778	1510.00
50	TS49	SANDLICK RD off Rt 3 to CR-3-9 Pine Branch Rd 1st bridge	37.824528	81.414583	1672.00
51	TS50	DINGESS RUN 500yds above Tops	37.837167	81.961833	740.00
52	TS51	PINEY CK Foot of Bat off Mt on 41N Sharp Curve Right turn 500' Upstream	37.846167	81.093278	778.00
53	TS52	COPPERAS MINE FK above Mud Fk behind Rich gas station	37.844111	82.019111	756.00
54	TS53	LAUREL CK in Fayette CO @ Quiniment Railroad Yard	37.852250	81.045167	1272.00
55	TS54	COPPERAS MINE FK near conf w/Guyandotte river behind Logan Auto Parts	37.846972	82.004694	721.00
56	TS55	MARROWBONE CK downstream in curve across from sawmill	37.859611	82.382667	640.00
57	TS56	COAL RIVER/MARSH FK abandon house beside football field @ Marsh Fk	37.878278	81.528556	888.00
58	TS57	POND FK Rt 85 Barrett across from Metal bridge above school	37.888444	81.671389	899.00
59	TS58	SPRUCE CK downstream above Monclo of Beech Fk	37.920389	81.829639	800.00
60	TS59	PAINT CK CR-rtc 23 North of Pax @ Concrete Bridge	37.920417	81.266333	778.00
61	TS60	METHODIST BR Hunter Rd 60/2 Near Crawley	37.916819	80.650214	2463.00
62	TS61	MEADOW RIVER @ Crawley inside Meadow River Wildlife Management area			
63	TS62	DUNLOUP CK in Harvey @ Franks Bait Shop	37.931028	81.129278	779.00
64	TS63	LITTLE CLEAR CK Bridge on Rt 60 Shawkers Crossing			
65	TS64	SPRUCE CREEK downstream	37.944720	81.803778	813.00
66	TS65	BIG COAL RIVER/CLEAR FK 9 miles up Clear Fk Rd @ Pentacostal Church	37.952083	81.426194	
67	TS66	TWELVE POLE CK west fork behind turkey creek church	38.957833	82.341194	785.00
68	TS67	BOGGS CK in Rainelle @ 13th Street Bridge			
69	TS68	SEWELL CK in city limits of Rainelle @ Rite Aid			
70	TS69	CRAWLEY CK below conf. Of Mill Fk. Justice	37.966944	82.038778	570.00
71	TS70	HEWITT CK downstream above Jeffrey Post Office	37.970667	81.825639	821.00

Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
72	TS71	WEST FK Gordan 0.2 miles above Whites Bridge @ "the grill"	37.976333	81.696917	899.00
73	TS72	SMOKY BR Glade Ck in Babcock State Park			
74	TS73	BIG CREEK Downstream	38.006806	82.029056	574.00
75	TS74	BIG CLEAR CK @ Rupert on Anjean Rd CR-1 Private bridge across RR tracks			
76	TS75	TWELVE POLE CK east fork below McComas Branch	38.012861	82.305139	584.00
77	TS76	BIG HARTS CK behind Harts High Sch. Lower parking lot	38.020750	82.128417	672.00
78	TS77	MEADOW RIVER Corliss Rd CR-10 Near Hilton Village			
79	TS78	SPRUCE CK downstream @ Madison on Haddad Street	38.055333	81.827611	740.00
80	TS79	POND FK 0.5 miles off Rt 85 across from Madison Pool	38.054833	81.817056	747.00
81	TS80	SPRING CK 219 South CR-5 to CR 5-1 on left	38.049833	80.353083	1844.00
82	TS81	WOLF CK @ Fayette Station below New River Gorge Bridge	38.050234	81.066916	
83	TS82	WHITE OAK CK Rt 3 orgas 500' up White Oak Ck Rd	38.063750	81.570333	801.00
84	TS83	KIAH CK Threshold site just above East Lynn Lake	38.166639	82.294806	584.00
85	TS84	COAL FK Laurel Rd from Prenter Rd 1st one lane bridge	38.069556	81.644361	779.00
86	TS85	BRACKENS CK @ Ruselville Rt 41N	38.066782	80.883534	2193.00
87	TS86	BIG COAL RIVER Prenter Rd 3.2 miles Double Wide Trailer	38.077028	81.632028	781.00
88	TS87	BIG UGLY near mouth of creek @ gas pump station	38.082000	82.125639	657.00
89	TS88	LOOP CK off Rt 61 above Robson	38.100001	81.233548	
90	TS89	LAUREL CK off Rt 16 Near Cotton Hill	38.100123	81.800269	
91	TS90	CABIN CK RD. Kanawha downstream Cabin Ck. above Coal Fk	38.105667	81.446670	781.00
92	TS91	MILL CK @ Ansted	38.116710	81.100213	876.00
93	TS92	MILL CK downstream off US 52 bridge near Fort Gay	38.115917	82.582222	567.00
94	TS93	ANGLINS CK Rt. 41 N above Nollen @ Wilderness PSD	38.133438	80.883374	2193.00
95	TS94	ARMSTRONG CK off Rt 61 on CR 61-24	38.133481	81.283496	620.00
96	TS95	HOMINY CK 20 South CR-13 @ CR 13-6 Make right @ Bridge	38.145389	80.718444	2373.00
97	TS96	PAINT CK downstream below Livingston	38.157722	81.406472	712.00
98	TS97	MUD RIVER cross upper bridge cross lake head waters @ turn left down gravel rd to ck	38.132444	82.041417	791.00
99	TS98	BIG HORSE CK turn US @ rd just before low water bridge @ pumpstation	38.165389	81.868194	645.00
100	TS99	BRUSHY MEADOW CK 20 South	38.170528	80.689444	1844.00
101	TS100	LEFT FK MUD RIVER below Whittens Church @ wooden walk bridge above lake	38.155556	82.023167	813.00
102	TS101	EAST LYNN lower water bridge	38.162333	82.390222	583.00
103	TS102	SMITHERS CK downstream on Cannelton Rd	38.186444	81.298722	652.00
104	TS103	CHERRY RIVER Johnson Rd to dirt Rd straight ahead on left	38.191444	80.468222	1844.00
105	TS104	LAUREL CK 55 east, west 39-14 straight ahead			
106	TS105	HURRICANE CK Downstream US Rt.52	38.192500	82.579389	580.00
107	TS106	LITTLE LAUREL CK 39 east CR 39-18 on left			

Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
108	TS107	BIG BRANCH crossing below town of Wayne	38.202444	82.457389	530.00
109	TS108	KELLYS CREEK downstream	38.221944	81.426056	617.00
110	TS109	WITCHER CK downstream	38.226222	81.680472	609.00
111	TS110	CHERRY RIVER 39 east right outside of Richwood on Johnson Rd	38.216833	80.516757	2235.00
112	TS111	DEER CK 39 east CR 39-22 on off Rd			
113	TS112	LENS CREEK downstream	38.232722	81.571194	645.00
114	TS113	GAULEY RIVER Twenty mile Ck above Gauley Bridge	38.233432	81.183337	
115	TS114	BRIER CK 119 south CR-15	38.239583	81.770889	678.00
116	TS115	TBA			
117	TS116	PETERS CK @ Drennen below junction of Rt 39 & Rt 129	38.250251	81.016669	
118	TS117	GAULEY RIVER /Panther Ck 39 west up Rd on Right	38.267667	80.071750	1844.00
119	TS118	TWENTY MILE CK upstream site	38.283360	81.133401	
120	TS119	CRANBERRY RIVER 55 east 94-5 stay left to river			
121	TS120	ELKHORN CK Upstream from Big Lots off US 52 @ RR Switch	37.432639	81.567944	1329.00
122	TS121	CAMPBELLS CK downstream	38.312722	81.539278	630.00
123	TS122	WHITES CK CR-19 Wayne Co. just above little White Church Carey farm	38.283473	82.533358	611.00
124	TS123	WILLIAMS RIVER/Sugar Ck CR-46 off US 150 first one lane bridge	38.332639	80.225222	3125.00
125	TS124	BLUE CK above Elkview on CR-57	38.416893	81.433449	767.00
126	TS125	BLUE CK above Sanderson Kawawha Co. on CR-57	38.350171	81.350189	876.00
127	TS126	GAULEY RIVER 55 west to lod 19 on left on old RR			
128	TS127	WILLIAMS RIVER 20 north CR-46 take Rt to National Forest	38.383500	80.499417	2247.00
129	TS128	GAULEY RIVER CR-46 Forest Rd 234	38.356778	80.518472	2231.00
130	TS129	ELK RIVER US 219 Slaty Fk @ Beckwith Lumer Co. Left Side	38.415028	80.126528	2563.00
131	TS130	ELK RIVER/BIG SPRING FK US 219 Slaty Fk @ Beckwith Lumer Co.	38.416778	80.126056	2513.00
132	TS131	GAULEY RIVER 20 South get on CR-42 Just above Turkey Ck	38.424611	80.352917	2878.00
133	TS132	SYCAMORE CK trib of Elk River near Big Sycamore	38.416821	81.166795	877.00
134	TS133	LEATHERWOOD CK near Hartland CR 16-3	38.416926	81.083562	578.00
135	TS134	LITTLE FK off CR-46 to Little Camping Area	38.338278	80.375444	2397.00
136	TS135	BUFFALO CK @ Clay trib of Elk River of CR-11	38.450102	81.066711	770.00
137	TS136	BUFFALO CK office CR 15-4 dirt roak beside bridge .10 mile	38.433568	80.916792	
138	TS137	LILY FK BUFFALO @ Clay on old Surface Mine Rd	38.433493	81.033566	
139	TS138	FALLING ROCK CK CR-63 Reamer Rd cross bridge in Clendenin turn right	38.450216	81.383470	608.00
140	TS139	LEATHERWOOD CK 0.5 miles up CR 26-4 @ Bergoo	38.482000	80.299750	1801.00
141	TS140	BIRCH RIVER CR-82 pass CR 1-9 on right	38.483564	80.716806	
142	TS141	ELK RIVER CR-26 from Rt 15 3.0 miles past Bergoo	38.501389	80.278833	2132.00
143	TS142	LAUREL CK 20 south CR-9 to Erbacon Rt Rd just before RR tracks	38.528083	80.577917	2878.00



Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
144	TS143	BLACK FK of Elk River CR-26 from Webster Springs foot bridge	38.510972	80.362861	2099.00
145	TS144	STRANGE CK CR-40 by 3rd bridge	38.550143	80.883511	
146	TS145	GRASSY CK Rt 20 @ concrete bridge below Rt 20 & 15 intersection	38.559694	80.451139	1357.00
147	TS146	LITTLE BIRCH RD CR-38 to first bridge beside bridge	38.550202	80.766785	
148	TS147	HOLLY RIVER Rt Fk beside store @ Rt 20 & 15 intersection	38.563417	80.444861	1334.00
149	TS148	SUGAR CK CR-18 from Rt 20 CR 18-3 @ Skelt Near Powerlines	38.570722	80.309500	2152.00
150	TS149	BIRCH RIVER on CR 40-8 near low water crossing	38.583426	80.866761	
151	TS150	LEFT FK HOLLY RIVER Rt 20 above Hacker Valley CR-3 @ State Road Garage	38.652556	80.380972	1504.00
152	TS151	HOLLY RIVER 15 east to Holly on Gerald R Freeman Campground	38.671361	80.542833	988.00
153	TS152	RIGHT FK OF LITTLE KANAWHA CR 50-6 from Rt 20 3.1 miles upstream from last house in wildcat	38.744111	80.451278	1029.00
154	TS153	BUCHANNON RIVER RT FK CR 11-17 to CR-44 metal bridge to church	38.743806	80.236167	2088.00
155	TS154	LF FK RT FK BUCHANNON CR-11-17 to CR 11-20 0.9 miles on right	38.747278	80.235250	1973.00
156	TS155	LITTLE KANAWHA River off 20 north on County Rt 46	38.770222	80.379556	870.00
157	TS156	LF FK BUCHANNON CR-11 from French Ck to Alexander old RR yard	38.780833	80.217167	1983.00
158	TS157	MIDDLE FK RIVER CR-46 from Mill Ck to CR-34 1.6 miles from turn off	38.791889	80.030611	2124.00
159	TS158	SALTICK CK CR-5 below Burns Run Rd	38.800207	80.666703	791.00
160	TS159	KNAWLES CK @ Burnsville Lake in WMA	38.816834	80.516889	874.00
161	TS160	MIDDLE FK RIVER CR-46 from Mill Ck to CR-34 to Cassity after bridge	38.826444	80.035139	1996.00
162	TS161	LITTLE KANAWHA River below Burnsville Dam	38.833572	80.633346	791.00
163	TS162	OIL CK @ Burnsville on CR-1	38.850242	80.650012	791.00
164	TS163	UPSHUR CO. CR 30-5 @ first bridge			
165	TS164	MIDDLE FK RT FK Co. line on 151 CR-28 to White House about 2 miles	38.896333	80.113694	1898.00
166	TS165	WEST FK RIVER 19 North get off on CR-44 @ bridge	38.869333	80.457722	870.00
167	TS166	INDIAN CK CR-13 in Gilmer Co.	38.916672	80.683371	765.00
168	TS167	ROARING CK US 33 to Norton on Rt 151 CR 5-5 across new bridge 450' US	38.933222	79.951472	1916.00
169	TS168	SANDY FK CR-11 towards Dolan beside bridge @ pull off	38.933603	80.666744	
170	TS169	UPSHUR CO. Rt 20 to Tennerton turn to CR-9 @ school-metal bridge	39.968472	80.230472	1437.00
171	TS170	LENDING CK Old US 219 below Whyte @ Mountian State Memorial Gardens	38.984306	79.836111	1409.00
172	TS171	SKIN CREEK CR-30 Stonewall	38.929167	80.421583	1109.00
173	TS172	GLADYS FK RD Below Gaston Rt. 33/119	39.025639	80.421583	1071.00
174	TS173	SAND RUN US 33 from Buchannon to CR-3;CR-8 left hand turn @ concrete bridge	39.018778	80.131833	1435.00
175	TS174	WEST FK RD CR-12 towards Jackson Mill @ USGS site	39.083456	80.466682	
176	TS175	FREEMANS CK CR-12 across from Jackson Mill 4th Camp	38.083516	80.466751	
177	TS176	ELK CK Beside I-79 Near Jan Lew	39.109389	80.540278	998.00
178	TS177	NORTH FK BLACK WATER River @ Douglas on CR-27	37.116818	79.516693	2797.00
179	TS178	BLACKWATER RIVER Davis on Delta Road 1	39.133338	79.400153	3220.00

Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
180	TS179	BEAVER CK off Rt 93	37.150014	79.433409	3208.00
181	TS180	HOLLICK RUN RD Near Jane Lew	39.144722	80.461167	1011.00
182	TS181	LAUREL CK/SUGAR CK CR 92-12;CR 5-8 @ concrete bridge	39.143806	79.960000	1409.00
183	TS182	GNATTY CK Romines Mills CR-20 from Lost Ck	39.175194	80.272056	1068.00
184	TS183	ELK CK @ bridge on Rt 20 & Rt 57 Intersection	39.182556	80.272861	1070.00
185	TS184	LOST CK between West Milford & Lost Ck Rt 270	39.186972	80.395222	989.00
186	TS185	HORSESHOE RUN below Lead Mine on CR-9	39.183366	79.583511	1749.00
187	TS186	TETER CK Rt 92 1.1 mile north of Nestorville	39.191167	79.915083	1394.00
188	TS187	BRUSHY FK above Stonewood, right hand road above town	39.175194	80.307139	1032.00
189	TS188	STONE RIVER above Mt. Storm Rt 50 West	39.266724	79.250196	
190	TS189	BEARDS RUN Rt 77/4 cross rr tracks turn left field above trailers	38.278472	80.203917	1068.00
191	TS190	LITTLE WOLF CK St. George Rd CR-110 off Rt 50 E	39.284278	79.625694	1509.00
192	TS191	TEN MILE RD CR 5-9 Salem Fk Rd	39.300013	80.483369	
193	TS192	SANDY CK off St Rt 92 on old 92-13 CR gravel Rd 3/4 mile to site	39.293581	79.883364	
194	TS193	LITTLE SANDY CK off old 92-16 on gravel Rd to pasture	39.300173	79.883408	
195	TS194	BUFFALO CK Macomber @ intersection of Rt 72 & Rt 50	39.320333	79.691278	1448.00
196	TS195	THREE FK CK Beside CSX yard USGS stream station on curve in bridge	39.333416	79.983497	
197	TS196	SALT LICK CK Rowlesburg on CR-51 Salt Lick Rd	39.359250	79.661778	1524.00
198	TS197	LITTLE TEN MILE CK CR-9 @ intersection bridge to Rt 20	39.350170	80.383365	
199	TS198	ABRAM CK Hartmanville Rd CR-2			
200	TS199	TEN MILE CK CR-8 to water street behind ball field	39.366822	80.333503	
201	TS200	RACoon CK CR-7 to dirt rd in curve to train bridge	39.383451	79.883538	
202	TS201	BOOTHs CK @ Eldona from Nog Lick Run	39.419000	80.210333	1053.00
203	TS202	SNOWY CK Corinth off Russ Deberry Rd CR-98	39.429389	79.508083	
204	TS203	LONG RUN CR-8 uphill past Feather Hill Rd 1st wide spot on left	39.416866	80.283517	973.00
205	TS204	THREE FORK CK CR-35 from 33 on dirt road over hill	39.433487	79.833447	
206	TS205	BUFFALO CK CR off 250-31 @ bridge	39.500106	80.150068	
207	TS206	PRICKETT CK 1.4 miles to 1st bridge towards Prickett State Park	39.500156	80.083334	
208	TS207	MUDDY CK Beech Run Rd Teters Campground	37.522083	79.654833	1429.00
209	TS208	BUFFALO CK off CR-1 Near Train Crossing	39.516815	80.350265	
210	TS209	PYLES FK US 250 N @ Mannington on Pyles Rd	39.533379	80.333505	
211	TS210	PAW PAW CK CR-17 across from Baxter Ball Park	39.533503	80.133519	
212	TS211	WHITEDAY CK @ Opekiska	39.550051	80.033519	920.00
213	TS212	LITTLE INDIAN CK CR-5 left pass 2nd bridge	39.566706	80.066886	
214	TS213	BOOTHs CK Boat launch ramp @ Offington locked gate left side of CR73	39.583337	79.966826	906.00
215	TS214	DECKERS CK Rock forge beside Rt7 on rt @ gasoline town of Dellslow	39.583551	79.850223	1360.00

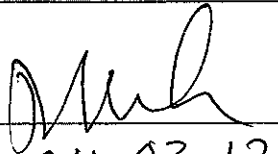
Attachment A  
DEP16028  
Current Site Locations

	A	C	D	E	J
216	TS215	BIG SANDY CK CR-73 to CR 73/11 Goss Run	38.633590	79.666805	973.00
217	TS216	LITTLE SANDY CK Brandonville Pike Rd CR-3	39.633511	79.600045	963.00
218	TS217	LAUREL RUN CR-14 from Laurel Run Community take rural 4X4 path	39.638361	79.701639	973.00
219	TS218	HAZEL RUN	39.650174	79.683427	1200.00
220	TS219	FISH CK 2nd bridge up hollow on right across from old house	39.683381	80.500132	981.00
221	TS220	FISH CK above town Hundred in curve @ fairgrounds below conf. Of Browns run	39.683534	80.500001	941.00
222	TS221	WV FORK front of 906 Shamrock rd Parrish Fark on Dunkard Ck	39.716744	80.266789	1002.00
223	TS222	TBA			
224	TS223	TBA			
225	TS224	LYNN CAMP RUN above low water bridge @ 1st white house in front of red barn	39.750204	80.700058	851.00
226	TS225	FISH CK Cameron Ridge, CNR plant behind it	39.750253	80.633543	778.00
227	TS226	GRAVE CK Moundsville Gun Range across low water bridge @ old landfill	39.850129	80.716855	834.00
228	TS227	MIDDLE GRAVE CK left hand @ end of Wades Trailer park @ Moundsville	39.900187	80.733418	801.00
229	TS228	TBA			
230	TS229	BIG WHEELING beside CR-7 uphill gate on right follow to creek	39.966702	80.600002	803.00
231	TS230	MIDDLE WHEELING above Wagner Add. Rd across from 2 story brick home	40.033562	80.616933	867.00
232	TS231	LITTLE WHEELING Beside Rt 40 east near Tridelphia	40.050024	80.616941	625.00
233	TS232	SHORT CK Near Windsor Heights off Rt 2 Brooke County	40.183347	80.666697	689.00
234	TS233	BUFFALO CK below the conf. Of Pierce Run Brooke County	40.233509	80.583551	757.00
235	TS234	HARMON CK below Weirton WV Brook CO.	39.716671	80.150278	784.00
236	TS235	DUNKARD CK below Randolph run near Pentress	39.716671	80.150278	973.00
237	TS236	DENTS RUN in Granville site across from Dunlaney oil Building	39.633444	79.983436	796.00
238	TS237	SCOTTS RUN Osage across river from Starr City Morgantown under bridge	39.650180	80.000078	963.00
239	TS238	CLEAR FK 0.9 miles up clear Fk Rd end guard rail	37.963389	81.524361	868.00
240	TS239	SLAUGHTERS CK downstream under I-64 bridge	38.192722	81.499639	643.00

**Bid Schedule  
DEP16028**

The DEP and the State reserve the right to request additional information and supporting documentation regarding unit prices when the unit price appears to be unreasonable. \*Quantities listed are for bidding purposes only.

ITEM NO.	* ESTIMATED QUANTITY	DESCRIPTION	Unit Cost	TOTAL
1.0	3,000 each	Ph	00	\$ 00
2.0	3,000 each	Temperature	00	\$ 00
3.0	3,000 each	Flow	2-00	\$ 6000
4.0	3,000 each	Total hot acidity	3-00	\$ 9000
5.0	3,000 each	Mineral acidity	3-00	\$ 9000
6.0	3,000 each	Total alkalinity	3-00	\$ 9000
7.0	3,000 each	Total Fe	3-00	\$ 9000
8.0	3,000 each	Dissolved Fe	2-50	\$ 7500
9.0	3,000 each	Total Mn	3-00	\$ 9000
10.0	3,000 each	Dissolved Mn	2-50	\$ 7500
11.0	3,000 each	TSS	4-50	\$ 13500
12.0	3,000 each	TDS	4-50	\$ 13500
13.0	3,000 each	Specific conductance	2-00	\$ 6000
14.0	3,000 each	Sulfates	5-00	\$ 15000
15.0	3,000 each	Total Al	3-00	\$ 9000
16.0	3,000 each	Dissolved Al	2-50	\$ 7500
17.0	1,000 each	Total Antimony	4-00	\$ 4000
18.0	1,000 each	Total Arsenic	4-00	\$ 4000
19.0	1,000 each	Total Beryllium	4-00	\$ 4000
20.0	1,000 each	Total Cadmium	4-00	\$ 4000
21.0	1,000 each	Total Chromium	4-00	\$ 4000
22.0	1,000 each	Total Copper	4-00	\$ 4000
23.0	1,000 each	Total Lead	4-00	\$ 4000
24.0	1,000 each	Total Mercury	12-50	\$ 12500
25.0	1,000 each	Total Nickel	4-00	\$ 4000
26.0	1,000 each	Total Selenium	4-00	\$ 4000
27.0	1,000 each	Total Silver	4-00	\$ 4000
28.0	1,000 each	Total Zinc	4-00	\$ 4000
29.0	1,000 each	Total Thallium	4-00	\$ 4000
30.0	1,000 each	Total Cyanide	12-50	\$ 12500
31.0	1,000 each	Total Phenols	13-00	\$ 13000
32.0	1,000 each	Total Nitrates/Nitrites	9-00	\$ 9000
33.0	1,000 each	Total Sodium	4-00	\$ 4000
34.0	1,000 each	Dissolved Calcium	4-00	\$ 4000
35.0	1,000 each	Dissolved Magnesium	4-00	\$ 4000
36.0	1,000 each	Dissolved Potassium	4-00	\$ 4000
37.0	1,000 each	Dissolved Bicarbonate	4-00	\$ 4000
38.0	1,000 each	Dissolved Carbonate	4-00	\$ 4000
39.0	1,000 each	Dissolved Phosphate	6-00	\$ 6000
40.0	500 each	Benthic Sampling	80-00	\$ 4000
41.0	500 hours	Labor Per Site Visit	28-00	\$ 14000
<b>TOTAL</b>				<b>\$ 309,500</b>

Signature:  Mukesh Shah  
 Date: 04-03-13

Bio-Chem Testing  
 5 Weatheridge Drive  
 State Route 34  
 Hurricane, WV 25526

Benthic ID by AEC on Bio-chem

# VENDOR PREFERENCE CERTIFICATE

Certification and application\* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**

- Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
- Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
- Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,

2. **Application is made for 2.5% resident vendor preference for the reason checked:**

- Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

3. **Application is made for 2.5% resident vendor preference for the reason checked:**

- Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

**Application is made for 5% resident vendor preference for the reason checked:**

- Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

- Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

- Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**

- Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Bio-Chem Testing, Inc. Signed: [Signature]  
 Date: A-03-13 Title: President

RFQ No. DEP 16028

STATE OF WEST VIRGINIA  
Purchasing Division  
**PURCHASING AFFIDAVIT**

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate

**DEFINITIONS:**

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, Limited Liability Company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

**EXCEPTION:** The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

**WITNESS THE FOLLOWING SIGNATURE**

Vendor's Name: Bio-Chem Testing Inc.

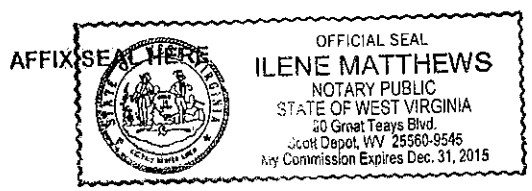
Authorized Signature: [Signature] Date: 04-03-2013

State of WV

County of Putnam, to-wit:

Taken, subscribed, and sworn to before me this 3rd day of April, 2013

My Commission expires Dec 31 2015, 20  




NOTARY PUBLIC [Signature]

**CERTIFICATION AND SIGNATURE PAGE**

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Bio-Chem Testing, Inc.  
(Company)

  
(Authorized Signature)

M. Shah, President  
(Representative Name, Title)

304 757 8954      304-757-9676  
(Phone Number)                      (Fax Number)

4-03-13  
(Date)

**ADDENDUM ACKNOWLEDGEMENT FORM**

**SOLICITATION NO.:** DEP16028

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

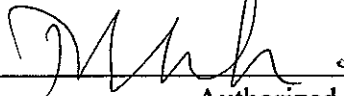
**Addendum Numbers Received:**

(Check the box next to each addendum received)

- |                                     |                |                          |                 |
|-------------------------------------|----------------|--------------------------|-----------------|
| <input checked="" type="checkbox"/> | Addendum No. 1 | <input type="checkbox"/> | Addendum No. 6  |
| <input checked="" type="checkbox"/> | Addendum No. 2 | <input type="checkbox"/> | Addendum No. 7  |
| <input checked="" type="checkbox"/> | Addendum No. 3 | <input type="checkbox"/> | Addendum No. 8  |
| <input type="checkbox"/>            | Addendum No. 4 | <input type="checkbox"/> | Addendum No. 9  |
| <input type="checkbox"/>            | Addendum No. 5 | <input type="checkbox"/> | Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Bio-Chem Testing, INC.  
Company

  
Authorized Signature

4-03-13  
Date

**NOTE:** This addendum acknowledgement should be submitted with the bid to expedite document processing.





State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
DEP16028

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
FRANK WHITTAKER 804-558-2316

RFQ COPY

TYPE NAME/ADDRESS HERE  
 Bio-Chem Testing, Inc.  
 P.O. Box 634  
 Teays, WV 25569-0634

SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPT. OF  
 OFFICE OF MINING & RECLAMATION  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304 304-926-0499

DATE PRINTED
02/22/2013

BID OPENING DATE: 03/14/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO. 01		
				1. ADDENDUM ISSUED TO MOVE THE BID OPENING DATE FROM: 02/26/2013 TO: 03/14/2013 BID OPENING TIME @ 1:30 P.M. REMAINED UNCHANGED.		
				2. TO PROVIDE ADDENDUM ACKNOWLEDGEMENT, THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID. FAILURE TO SIGN AND RETURN MAY RESULT IN THE DISQUALIFICATION OF YOUR BID.		
				***** END OF ADDENDUM NO. 01 *****		

SIGNATURE	TELEPHONE	DATE
	804 757 8954	A-03-B
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
President	55-0732395	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
DEP16028

PAGE
2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER 304-558-2316

PROPERTY

RFQ COPY  
 TYPE NAME/ADDRESS HERE

*Bio-Chem Testing Inc.  
 P.O. Box 634  
 Trays, WV 25569-0634*

SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPT. OF  
 OFFICE OF MINING & RECLAMATION  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304 304-926-0499

DATE PRINTED
02/22/2013

BID OPENING DATE:

03/14/2013

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		961-48		
WATER SAMPLING 250 LOCATIONS THROUGHOUT COAL REGIONS						
THE WEST VIRGINIA PRUCHASING DIVISION, ON BEHALF OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, IS SOLICITING BIDS FROM QUALIFIED VENDORS TO PROVIDE WATER TESTING SERVICES PER THE ATTACHED SPECIFICATIONS, BID REQUIREMENTS, TERMS & CONDITIONS AND BID SCHEDULE.						
***** THIS IS THE END OF RFQ DEP16028 ***** TOTAL:						

SIGNATURE <i>[Signature]</i>	TELEPHONE 304 757 8954	DATE A-03-13
TITLE President	FEIN 55-0732395	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

SOLICITATION NUMBER: DEP16028

Addendum Number: 01

---

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

**Applicable Addendum Category:**

- | Modify bid opening date and time
- | Modify specifications of product or service being sought
- | Attachment of vendor questions and responses
- | Attachment of pre-bid sign-in sheet
- | Correction of error
- | Other

**Description of Modification to Solicitation:**

1. To move the bid opening date from 02/26/2013 to 03/14/2013.  
Bid opening time @ 1:30 P.M. remained the same.
2. To provide Addendum Acknowledgement.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

**Terms and Conditions:**

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: DEP16028**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

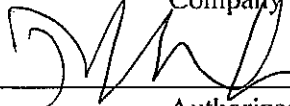
**Addendum Numbers Received:**

(Check the box next to each addendum received)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2            | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Bio-Chem Testing, INC.  
Company

  
Authorized Signature

\_\_\_\_\_  
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.  
Revised 6/8/2012



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
DEP16028

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
FRANK WHITTAKER 304-558-2316

VENDOR

\*626144827      304-757-8954  
 BIO CHEM TESTING INC  
 PO BOX 634  
 PUTNAM VILLAGE SHOPPING CTR  
 TEAYS WV 25569-0634

SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPT. OF  
 OFFICE OF MINING & RECLAMATION  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304      304-926-0499

DATE PRINTED
03/08/2013

BID OPENING DATE: 04/04/2013      BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 02						
1. ADDENDUM ISSUED TO MOVE THE BID OPENING DATE FROM: MARCH 14, 2013 TO: APRIL 4, 2013 THE BID OPENING TIME @ 1:30 P.M. REMAINS UNCHANGED.						
2. TO PROVIDE ADDENDUM ACKNOWLEDGEMENT, THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID. FAILURE TO SIGN AND RETURN MAY RESULT IN THE DISQUALIFICATION OF YOUR BID.						
***** END OF ADDENDUM NO. 02 *****						

SIGNATURE	TELEPHONE	DATE
	304-757-8954	A-03-13
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
President	55-0732395	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Solicitation

NUMBER
DEP16028

PAGE
2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER 304-558-2316

V E N D O R	*626144827      304-757-8954
	BIO CHEM TESTING INC
	PO BOX 634
	PUTNAM VILLAGE SHOPPING CTR
	TEAYS WV 25569-0634

S H I P T O	ENVIRONMENTAL PROTECTION
	DEPT. OF
	OFFICE OF MINING & RECLAMATION
	601 57TH STREET SE
	CHARLESTON, WV 25304      304-926-0499

DATE PRINTED
03/08/2013

BID OPENING DATE: 04/04/2013      BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		961-48		
WATER SAMPLING 250 LOCATIONS THROUGHOUT COAL REGIONS						
***** THIS IS THE END OF RFQ DEP16028 ***** TOTAL:						

SIGNATURE	TELEPHONE	DATE
	304 757 8954	3-1-13
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
President	55-0732295	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**SOLICITATION NUMBER: DEP16028**  
**Addendum Number: 02**

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The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

**Applicable Addendum Category:**

- | Modify bid opening date and time
- | Modify specifications of product or service being sought
- | Attachment of vendor questions and responses
- | Attachment of pre-bid sign-in sheet
- | Correction of error
- | Other

**Description of Modification to Solicitation:**

1. To move the bid opening date from March 14, 2013 to April 4, 2013  
The bid opening time of 1:30 P.M. remains unchanged.
2. To provide Addendum Acknowledgement.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

**Terms and Conditions:**

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: DEP16028**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

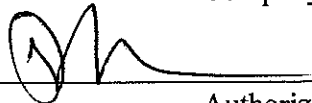
**Addendum Numbers Received:**

(Check the box next to each addendum received)

- |  |  |
|--|--|
| <input type="checkbox"/> Addendum No. 1            | <input type="checkbox"/> Addendum No. 6  |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Bio-chem Testing, Inc.  
Company

  
Authorized Signature

4-02-13  
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.  
Revised 6/8/2012





State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
DEP16028

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
FRANK WHITTAKER 304-558-2316

VENDOR

\*626144827      304-757-8954  
 BIO CHEM TESTING INC  
 PO BOX 634  
 PUTNAM VILLAGE SHOPPING CTR  
 TEAYS WV 25569-0634

SHIP TO

ENVIRONMENTAL PROTECTION  
 DEPT. OF  
 OFFICE OF MINING & RECLAMATION  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304      304-926-0499

DATE PRINTED
03/20/2013

BID OPENING DATE:

04/04/2013

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 3						
1. ADDENDUM ISSUED TO PROVIDE TECHNICAL QUESTIONS AND ANSWERS AS ATTACHED.						
2. TO EXTEND DEADLINE FOR SUBMISSION OF ADDITIONAL TECHNICAL QUESTIONS UNTIL MARCH 22, 2013.						
3. TO PROVIDE HIPAA VERBIAGE AS AN ADDITIONAL LANGUAGE OF THE MASTER TERMS AND CONDITIONS.						
4. THE BID OPENING DATE AND TIME REMAIN UNCHANGED.						
5. TO PROVIDE ADDENDUM ACKNOWLEDGEMENT. THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID. FAILURE TO SIGN AND RETURN MAY RESULT IN THE DISQUALIFICATION OF YOUR BID.						
***** END OF ADDENDUM NO. 3 *****						
04/04/13 12:44:50 PM West Virginia Purchasing Division						

SIGNATURE	TITLE	TELEPHONE	DATE
	President	304 757 8954	4-03-13
FEIN 55-0732395		ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
DEP16028

PAGE
2

ADDRESS CORRESPONDENCE TO ATTENTION OF
FRANK WHITTAKER 304-558-2316

VENDOR

\*626144827      304-757-8954  
 BIO CHEM TESTING INC  
 PO BOX 634  
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SHIP TO

ENVIRONMENTAL PROTECTION  
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 OFFICE OF MINING & RECLAMATION  
 601 57TH STREET SE  
 CHARLESTON, WV  
 25304      304-926-0499

DATE PRINTED
03/20/2013

BID OPENING DATE:

04/04/2013

BID OPENING TIME 1:30PM

LINE	QUANTITY	UCP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		961-48		
WATER SAMPLING 250 LOCATIONS THROUGHOUT COAL REGIONS						
***** THIS IS THE END OF RFQ    DEP16028 ***** TOTAL:						<u>\$ 309,500</u>

SIGNATURE	TELEPHONE	DATE
<i>[Signature]</i>	304 757 8954	4-03-13
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
<i>[Signature]</i>	55-0732395	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**SOLICITATION NUMBER: DEP16028**  
**Addendum Number: 3**

---

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

**Applicable Addendum Category:**

- | Modify bid opening date and time
- | Modify specifications of product or service being sought
- | Attachment of vendor questions and responses
- | Attachment of pre-bid sign-in sheet
- | Correction of error
- | Other

**Description of Modification to Solicitation:**

1. To provide technical Questions & Answers.
2. To extend deadline of submission of Q&A until March 22, 2013.
3. To add HIPAA verbiage to the Master Terms & Conditions Language.
4. To provide Addendum Acknowledgement.
5. Bid opening date & time remain unchanged.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

**Terms and Conditions:**

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

DEP16028  
Questions and Answers

1. Question: We did not see an inquiry for a technical proposal. Are we correct in assuming that a technical proposal is not a necessary submittal for this project?

Answer: You are correct

2. Question: We see that the "Insurance" section was not checked off in the downloadable package. What are the insurance requirements for this project?

Answer: \$250,000.00 Liability

3. Question: On the "Bid Schedule" page, the last item says, "Labor per Site Visit" (est. quantity 500 hrs). May we please get clarification on what constitutes a Site Visit (e.g. one sample event, one sample collected)?

Answer: A visit to the site to collect samples.

4. Question: Following the RBP III Protocol, what level of taxonomic identification is required for benthic identification?

Answer: Please read protocol.

5. Question: What are the collection periods for the biannual benthic sampling?

Answer: Please read protocol.

6. Question: Is there a specific turnaround for reporting benthic identifications?

Answer: Please read protocol.

7. Question: What is the reporting format requested for the benthic identifications?

Answer: Please read protocol and collection permit requirements.

DEP16028  
Questions and Answers

8. Question: Does the benthic sample line item include field, lab, and data generation costs?

Answer: Yes.

9. Question: For the line item 'Labor per Site Visit', is the unit cost as a per hour rate regardless of the number of personnel used?

Answer: Yes.

10. Question: Should all time be accounted for in "Labor per Site Visit" (sampling, analysis, reporting, review)?

Answer: Whatever is done at the site is included in labor cost.

11. Question: Is flow measured using cross-sectional data and instantaneous flow rods?

Answer: Depends on the site.

12. Question: Can a WV certified lab submit as a prime vendor and team with another WV certified lab?

Answer: Any subcontractor must be WV Certified.

13. Question: Approximately how many sites do not flow in dry conditions?

Answer: Unknown.

14. Question: Approximately how many sites are inaccessible during high flow conditions?

Answer: Unknown.

15. Question: Is the 500 hours labor a total for monthly, quarterly, and benthic sampling?

Answer: Used for comparison only.

DEP16028  
Questions and Answers

16. Question: For metals analysis, what is the preferred method / MDL to be used?

Answer: Please refer to the RFQ specifications.

17. Question: Could an example of the monthly/quarterly and benthic report be provided

Answer: Please read protocol and collection permit requirements.

**HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at <http://www.state.wv.us/admin/purchase/vrc/hipaa.html> and is hereby made part of the agreement provided that the Agency meets the definition of a Covered entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the Vendor. Additionally, the HIPAA Privacy, Security, Enforcement & Breach Notification Final Omnibus Rule was published on January 25, 2013. It may be viewed online at <http://www.gpo.gov/fdsys/pkg/FR-2013-01-25/pdf/2013-01073.pdf>. Any organization, that qualifies as the Agency's Business Associate, is expected to be in compliance with this Final Rule. For those Business Associates entering into contracts with a HIPAA Covered State Agency between January 25, 2013 and the release of the 2013 WV State Agency Business Associate Agreement, or September 23, 2013 (whichever is earlier), be advised that you will be required to comply with the 2013 WV State Agency Business Associate Agreement. For those Business Associates with contracts with a HIPAA Covered State Agency executed prior to January 25, 2013, be advised that upon renewal or modification, you will be required to comply with the 2013 WV State Agency Business Associate Agreement no later than September 22, 2014.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: DEP16028**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

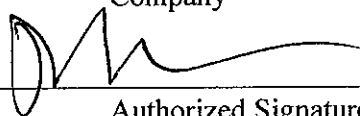
**Addendum Numbers Received:**

(Check the box next to each addendum received)

- |  |  |
|--|--|
| <input type="checkbox"/> Addendum No. 1            | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2            | <input type="checkbox"/> Addendum No. 7  |
| <input checked="" type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

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Bio-chem Testing, Inc.  
Company

  
Authorized Signature

A-03-13  
Date



# Mukesh Shah

## Experience

**May 1975 to April 1989**

***Technical Testing, Inc.***

- BOD5,
- Chemical Oxygen Demand
- Specific Conductance
- TSS, TDS, TS, %Solids
- Phenolics
- Fecal Coliform, Total Coliform
- Acidity, Alkalinity, Hardness
- Nutrient, Ammonia, TKN, Organic Nitrogen
- Metals by AA Flame, AA Furnace
- Mercury by Cold Vapor Technique using Mercury Analyzer
- Quality Control
- Supervision of 8 Technicians
- Over seeing production

**April 1989 to March 1995**

***SGS Environmental, Commercial Testing & Engineering***

- Supervision of 11 Technicians
- Wet Chemistry, Physical Characteristics (as described above)
- Metals analysis by ICP, AA Furnace, AA Flame, Mercury Analyzer
- Over seeing production

**March 1995 to date**

***Bio-Chem Testing, Inc.***

- Operation over all laboratory including but not limited to:
  1. Purchasing
  2. Business development
  3. Hiring new employees
  4. Management

## Education

**West Virginia Institute of Technology; Graduate, BS in Chemistry 1975,  
Montgomery, WV**

Bio-Chem Testing, Inc.  
5 Weatheridge Drive,  
Hurricane, WV 25526  
304-757-8954

# John Joseph

## Experience

**October 1973 – September 1982**  
*WV Health Dept.*

**October 1982 – May 1993**  
*WVDNR, DEP*

**May 1993 – June 2000**  
*FMC, Great Lakes Chemical*

**June 2000 – April 2001**  
*AC&S Analytical*

**April 2001 – October 2008**  
*WVDEP Quality Assurance/Lab Certification*

**November 2008 - Present**  
*Bio-Chem Testing, Inc.*

- Quality Assurance Officer: 16 years experience
- Level Three QA-QC: 4 years experience

## Education

**West Virginia State College; Graduate, BS in Chemistry 1973, Institute,  
WV**

# **Brian Richards**

## **Experience**

**June 2003 – October 2005**

**Environmental Assessment Associates, LLC. (EAA), Barboursville, WV**

- Field Assistant (2003-2004)
- Project Supervisor (2004-2005)
- Benthic Identification WVSCI, Habitat Assessments (2002-2005)

**December 2005 - Present**

***Bio-Chem Testing, Inc.***

- Laboratory / Production Manager: 3.5 years experience
- Field Crew Supervision: 6.5 years experience
- ICP: 2.5 years experience

## **Education**

**Alderson Broaddus College; Graduate, BS in Environmental Science,  
2003, Philippi, WV**

**Marshall University; GeoBioPhysical Modeling, 2003-2005, Huntington,  
WV**

# Kara Frampton

## Experience

**May 2004 – Present**  
***Bio-Chem Testing, Inc.***

- Cold Vapor Mercury: 9 years experience
- Graphite Furnace AA: 8.5 years experience
- Settleable Solids: 5 years experience
- Paint Filter Test: 9 years experience
- Chlorides Titration: 7 years experience
- ICP: 2 years experience
- Generation of Laboratory Reports: 4 years experience
- eDMRs: 3 years experience

## Education

**Fairmont State College; Graduate, BS Biology 2003, Fairmont, WV**

# **William Smith**

## **Experience**

**September 2002 - Present**  
***Bio-Chem Testing, Inc.***

- Ion Chromatography: 11 years experience
- Chemical Oxygen Demand: 11 years experience
- Specific Conductance: 11 years experience
- ICP/MS: 1 years experience
- Phenolics: 9 years experience
- Field Sampling: 11 years experience

## **Education**

**Marshall University; Graduate, BS in Biology 2002, Huntington, WV**

# **Jamell Hart**

## **Experience**

**June 2006 - Present**

***Bio-Chem Testing, Inc.***

- Bacteria by Most Probable Number: 6.5 years experience
- Bio-solids by EPA1680: 6.5 years experience
- Total Residual Chlorine: 6.5 years experience
- Total Dissolved Solids: 6.5 years experience
- Sample Login: 5.5 years experience

## **Education**

**Coastal Carolina University; Graduate, BS in Marine Science 2003,  
Conway, SC**

# Cindy Walker

## Experience

**August 2008 - Present**  
***Bio-Chem Testing, Inc.***

- Metals Digestions: 4 years experience
- Turbidity: 4 years experience
- Total Solids: 4 years experience
- Color Pt-Co: 4 years experience
- Color ADMI: 4 years experience
- TCLP Extractions: 4 years experience
- SPLP Extractions: 4 years experience
- pH: 4 years experience
- Corrosivity: 4 years experience
- % Solids: 4 years experience
- Volatile Solids: 4 years experience
- Selenium by GHAF: 1.3 years experience
- Hexachrome: 18 months experience

## Education

**West Virginia State University; Graduate, BS in Biology, 2007, Institute,  
WV**

# **Nathan Milam**

## **Experience**

**May 2008 - Present**  
***Bio-Chem Testing, Inc.***

- Total Phosphorus: 4 years experience
- Ortho-Phosphorus: 4 years experience
- Total Cyanide: 4 years experience
- WAD Cyanide: 4 years experience
- Total Suspended Solids: 4 years experience
- Oil and Grease: 4 years experience
- Hardness: 3.5 years experience

## **Education**

**Glenville State College; Graduate, BS in Biology 1999, Glenville, WV**



# Frederic Walker

## Experience

**March 2011 - Present**  
***Bio-Chem Testing, Inc.***

- Field Sampling: 2years experience
- Total Dissolved Solids: 2 years experience

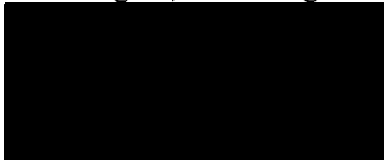
## Education

**Wheeling Jesuit University:** Graduate, BS in Science and Chemistry, 2008,  
Wheeling, WV

# CURRICULUM VITA

## Mary (Mindy) Yeager Armstead

Integrated Science And Technology  
Marshall University  
One John Marshall Way  
Huntington, West Virginia 25755



### EDUCATION

Ph.D. Program in Aquatic Ecology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061. September 1994.

*Dissertation: Abiotic and Biotic Factors Influencing the Decline of Native Unionid Mussels in the Clinch River, Virginia.*

M.S. in Aquatic Ecology, Marshall University, Huntington, West Virginia, July 1991. *Thesis: An Analysis of Variation in a Disjunct Population of the Central Mudminnow, Umbra limi (Kirtland) in the Greenbottom Wildlife Management Area, Cabell County, West Virginia.*

University of North Carolina-Charlotte, Charlotte, North Carolina  
21 hours graduate course work, Fall 1988 - Spring 1989.

B.S. Biology, University of Charleston, Charleston, West Virginia.  
May 1987 (Cum Laude).

### EMPLOYMENT

2011 – Present

Associate Professor, Marshall University, Department of Integrated Science and Technology. The position is an Eminent Scholar appointment to develop research opportunities in the area of Aquatic Ecology.

2007 – 2011

Adjunct faculty, Wheeling Jesuit University, Bold Program – The position involves project oversight of undergraduate research projects and teaching research methods and statistics.

2002 – 2011

Adjunct faculty, Marshall University, College of Information Technology and Engineering – The position involves teaching environmental science classes in the graduate program at both the Huntington and South Charleston campus'. Classes taught include Water Resources and Ecosystem Dynamics.

1998-1999

Adjunct faculty, Marshall University, College of Integrated Science and Technology – The position involved teaching environmental sciences in the undergraduate program at the Huntington campus. Classes taught included Environmental Problems and Environmental Solutions.

1997 - Present

Senior Scientist, Potesta & Associates, Inc., Charleston, West Virginia – As a senior scientist with a local consulting firm, I have the opportunity to be involved in all aspects of issues relating to aquatic resources in the state of West Virginia. The position involves supervising staff of various backgrounds and levels and leading them to solve complex environmental problems. Projects involve determining appropriate water quality standards, assessing aquatic community health and developing strategies to improve or protect stream ecosystems. Current areas of research include the golden algae, *Prymnesium parvum*; selenium; total dissolved solids; and the development of site specific water quality criteria.

1996 - 1997

Senior Scientist, TERRADON Corporation, Poca, West Virginia – The position involved assisting industrial clients with National Pollutant Discharge Elimination System permitting and compliance issues.

1994 - 1996

Research Associate, Department of Biology, Virginia Polytechnic Institute and State University – The position involved the development of a watershed scale restoration plan for Leading Creek in Ohio. The stream was damaged by an acid mine drainage discharge following the accidental flooding of an active coal mine.

1992 - 1994

Graduate Research Assistant, Department of Biology, Virginia Polytechnic Institute and State University

1991 - 1992

Graduate Teaching Assistant, Department of Biology, Virginia Polytechnic Institute and State University

1989 - 1991

Graduate Teaching Assistant, Department of Biology, Marshall University,  
Huntington, West Virginia

1988 - 1989

Graduate Teaching Assistant, Department of Biology, University of North  
Carolina - Charlotte, Charlotte, North Carolina

### **CERTIFICATIONS**

Licensed Remediation Specialist, West Virginia

### **PROFESSIONAL ORGANIZATIONS AND AFFILIATIONS**

Society of Environmental Toxicology and Chemistry  
North American Benthological Society  
Air & Waste Management Association

### **PUBLISHED ABSTRACTS AND PRESENTATIONS**

Yeager, M.M., D. Tarter, T. Jones, and D. Cincotta. 1990. *Discovery of the Central Mudminnow Umbra limi (Kirtland), in the Greenbottom Wildlife Management Area*. Cabell County, West Virginia. West Virginia Academy of Science, Association of Southeastern Biologists, 1990. (Paper Presented).

Yeager, M.M., D. Tarter, and T. Jones. 1990. *Discovery of the Central Mudminnow Umbra limi (Kirtland), in West Virginia, with Preliminary Observations on Reproductive Activities*. The Ohio River Basin Consortium for Research and Education. (Paper Presented).

Yeager, M.M., D. Tarter, and T. Jones. 1991. *Discovery of the Central Mudminnow Umbra limi (Kirtland), in West Virginia, with Observations on Reproductive Activities and Recommendations for Habitat Management*. Tri-State Fisheries. (Paper Presented).

Yeager, M.M., D. Tarter, and T. Jones. 1991. *The Reproductive Biology of a Disjunct Population of the Central Mudminnow, Umbra limi (Kirtland), in the Greenbottom Wildlife Management Area, Cabell County, West Virginia*. West Virginia Academy of Science, Association of Southeastern Biologists. (Paper Presented).

- Yeager, M.M., D. Tarter, M. Little, and M. Seidel. 1991. *An Analysis of Variation in a Disjunct Population of the Central Mudminnow, Umbra limi (Kirtland), in the Greenbottom Wildlife Management Area, Cabell County, West Virginia*. West Virginia Academy of Science, Association of Southeastern Biologists. (Paper Presented).
- Cherry, D.S., Farris, J.L., Bidwell, J.R., Mikailoff, A., Yeager, M.M., Lynde, S.R., Shema, R.L., and McIntire, J.W. 1992. *Environmental Effects of Molluscicide Application for Corbicula Control in a Nuclear Power Plant: A Two-year Study*. Thirteenth Annual Meeting, Society of Environmental Toxicology and Chemistry. (Paper Presented).
- Yeager, M.M., Cherry, D.S., and R. Neves. 1992. *Interstitial Feeding Behavior of Juvenile Unionid Mussels, Villosa iris*. Association of Southeastern Biologists (Paper presented).
- Yeager, M.M. and D. S. Cherry. 1993. *An Assessment of Sediment Contamination in the Clinch River, Virginia*. Fourteenth Annual Meeting, Society of Environmental Toxicology and Chemistry. (Poster presented)
- Yeager, M.M., D.S. Cherry, and J.H. Van Hassel. 1994. *Laboratory and Field Studies Evaluating Intermittent Sediment Toxicity on Unionid Mussel Populations in the Clinch River, Virginia*. 42nd Annual Meeting of the North American Benthological Society in Orlando, Florida. (Invited Presentation)
- Yeager, M.M., D.S. Cherry, J.C. Scott and J.H. Van Hassel. 1994. *In-stream Validation of the Effects of Intermittent Sediment Toxicity on Recruitment of Juvenile Unionid Mussels*. 15<sup>th</sup> Annual Meeting of the Society of Environmental Toxicology and Chemistry. Denver, Colorado. (Invited Presentation)
- Scheller, J.L., D.S. Cherry, M.M. Yeager, S.R. Lynde and N.D. Shepard. 1994. *Water and Sediment Toxicity of Freshwater Mussels from Population Crashes of Asiatic Clams*. 15<sup>th</sup> Annual Meeting of the Society of Environmental Toxicology and Chemistry. Denver, Colorado. (Poster Presented)
- Cherry, D.S., J.R. Bidwell, M.M. Yeager, M.G. Dobbs and S.R. Lynde. 1994. *Comparative Efficacies of Oxidizing and Nonoxidizing Molluscicides at Different Temperatures*. 15<sup>th</sup> Annual Meeting of the Society of Environmental Toxicology and Chemistry. Denver, Colorado. (Invited Presentation)
- Bidwell, J.R., D.S. Cherry, S.R. Lynde, M.G. Dobbs and M.M. Yeager. 1994. *Monitoring Non-target Impact of a Surfactant-Based Biocide*. 15<sup>th</sup> Annual Meeting of the Society of Environmental Toxicology and Chemistry. Denver, Colorado. (Invited Presentation)

- Yeager, M.M., D.S. Cherry, and R.J. Neves. 1995. *Impaired Growth and Ingestion of Juvenile Villosa iris, (Bivalvia: Unionidae), by Adult Corbicula fluminea*. 43rd Annual Meeting of the North American Benthological Society in Keystone, Colorado. (Poster Presentation)
- Dobbs, M.G., D.S. Cherry, J.R. Bidwell, M.M. Yeager and S.R. Lynde. 1995. *The Impact of an Unbleached Paper Mill Effluent Using Chlorine and Chlorine Dioxide Disinfection upon a Third Order Stream*. 43rd Annual Meeting of the North American Benthological Society in Keystone, Colorado. (Poster Presentation)
- Van Hassel, D.S. Cherry, M.M. Yeager and J.L. Farris. 1995. *Water and Sediment Quality Factors Affecting Unionid Mussel Populations in the Clinch River, Virginia, USA.*. Second SETAC World Congress, Society of Environmental Toxicology and Chemistry in Vancouver, British Columbia. (Poster Presentation)
- Yeager, M.M., D.S. Cherry, J.L. Yeager, R.C. Cavender and M.G. Dobbs. 1995. *Ichthyoplankton Use of a Thermally Influenced Macrophyte Bed in the New River, Virginia*. Second SETAC World Congress, Society of Environmental Toxicology and Chemistry in Vancouver, British Columbia. (Poster Presentation)
- Yeager, M.M., D.S. Cherry, R.C. Cavender, D.L. Balfour and J.C. Scott. 1995. *The Development of In-situ Testing Methods for Juvenile Villosa iris (Bivalvia: Unionidae) with Higher Sensitivity than Laboratory Sediment Tests*. Second SETAC World Congress, Society of Environmental Toxicology and Chemistry in Vancouver, British Columbia. (Poster Presentation)
- Cherry, D.S., M.G. Dobbs, M.M. Yeager, J.R. Bidwell, R.L. Shema, and J.W. McIntire. 1995. *In-situ Bioassay Monitoring of Molluscicide-Influenced River Sediment in Laboratory and Field Survival/Growth Impairment Studies*. Second SETAC World Congress, Society of Environmental Toxicology and Chemistry in Vancouver, British Columbia. (Invited Presentation)
- Cavender, R.C., D.S. Cherry, M.G. Dobbs, J.R. Bidwell and M.M. Yeager. 1995. *Progress in the Development of Short Term Chronic Toxicity Testing Methods for Crude Oil and Commercial Bioremediation Agents*. Second SETAC World Congress, Society of Environmental Toxicology and Chemistry in Vancouver, British Columbia. (Poster Presentation)
- Yeager, J.L., D.S. Cherry, J.R. Bidwell, M.M. Yeager, and S.R. Lynde. 1996. *Impact of Agricultural Runoff on Habitat and Benthic Macroinvertebrate Assemblages in the Little River, Virginia*. Seventeenth Annual Meeting, Society of Environmental Toxicology and Chemistry, Washington, D.C. (Presented Poster)
- Yeager, M.M., and D.S. Cherry. 1996. *Progress in Developing a Watershed Restoration Plan for Leading Creek, Ohio Using Ecological Risk Assessment*. Society of Environmental Toxicology and Chemistry, Washington, DC. (Paper Presented).

- D.S. Cherry, J.H. Van Hassel, M.M. Yeager, J.E. Babendreier, R.J. Currie, L.E. Astin, and S.R. Lynde. 1996. *Recovery, Restoration, and Development of an Enhancement Plan for the Leading Creek Watershed after Dewatering of the Meigs#31 Coal Mine in Ohio*. Society of Environmental Toxicology and Chemistry, Washington, DC. (Paper Presented).
- R.C. Cavender, D.S. Cherry, and M.M. Yeager. 1996. *Comparison of Feeding Strategies in Acute Toxicity Tests for Crude Oil and Commercial Bioremediation Agents*. Society of Environmental Toxicology and Chemistry, Washington, DC. (Poster Presentation).
- J.J. Scheller, M.M. Yeager, and D.S. Cherry. 1996. *The Impact of Ammonia Produced During Dieoffs of the Asian Clam (*Corbicula fluminea*) on Freshwater Mussels*. Society of Environmental Toxicology and Chemistry, Washington, DC. (Poster Presentation).
- Yeager Armstead, M.M., and R.S. Herd. 2000. *Argument for Quality Control in TMDL Development*. Society of Environmental Toxicology and Chemistry. Nashville, Tennessee. (Paper Presented).
- Yeager Armstead, M.M. 2000. *Water Quality Issues in Trout Streams*. Invited Presentation for Trout Unlimited Meeting. West Virginia Chapter.
- Yaussey, David, R. Herd and M. Yeager Armstead. 2002. *Removing What Doesn't Exist West Virginia and the Public Water Supply Use*. US EPA Nation Symposium -- Designating Attainable Uses for the Nations' Waters. June 3-4, 2002, Washington, DC.
- Yeager Armstead, M., Yeager-Seagle, J. 2003. *In Situ Toxicity Testing of Unionid Mussels*. Society of Environmental Toxicology and Chemistry, Austin, Texas. (Invited Paper Presentation).
- Yeager, J., Armstead, M., Kirsch, A. Ginger, J., and M. White. 2005. *Recovery Monitoring of Kentucky Streams using Benthic Macroinvertebrate and Fish after a Slurry Release*. Society of Environmental Toxicology and Chemistry, Baltimore, Maryland. (Paper Presentation).
- Armstead, M. 2009. *A Presentation of the Monitoring Program for Golden Algae, Prymnesium parvum, in Dunkard Creek, West Virginia*. Mon River Summit, Morgantown, WV.
- Armstead, M., 2009. A Presentation on the Golden Algal Bloom in Dunkard Creek, West Virginia in Fall 2009. Invited Presentation to the ORSANCO Environmental Committee, Cincinnati Ohio.

Armstead, M. 2011. Invited presentation. Water Quality Standard Revisions and Compliance Alternatives. West Virginia Chamber of Commerce Environmental Meeting.

Armstead, M. 2011. Invited presentation. The Drinking Water Use Predicament. West Virginia Chamber of Commerce Environmental Meeting.

Armstead, M. M. (Presenter & Author), Bitzer Creathers, L. (Author Only), West Virginia Water Research Conference, "An Evaluation of Chronic Toxicity in Mining Influenced Streams of West Virginia," West Virginia Water Research Institute, Morgantown, West Virginia. (October 31, 2012).

Armstead, M. M. (Presenter & Author), Wilson, M. (Author Only), Keller, L. (Author Only), Kinney, J. (Author Only), McGill, K. (Author Only), Parsons White, A. (Author Only), West Virginia Water Research Conference, "Methods for Evaluating the Effects of Total Dissolved Solids on Benthic Macroinvertebrate Communities and Individual Taxa," West Virginia Water Research Institute, Morgantown, West Virginia. (October 31, 2012).

Armstead, M. M., Appalachian Research Initiative for Environmental Science Annual Meeting, "Area 1 - Research Update," Appalachian Research Initiative for Environmental Science, Morgantown, West Virginia. (September 11, 2012).

## **PUBLICATIONS**

Yeager, M.M., D. Tarter, T. Jones, and D. Cincotta. 1990. *Discovery of the Central Mudminnow, Umbra limi (Kirtland), in the Greenbottom Wildlife Management Area, Cabell County, West Virginia.* Proceedings West Virginia. Academic. Science.

Yeager, M.M., D. Tarter, and T. Jones. 1991. *The Reproductive Biology of a Disjunct Population of the Central Mudminnow, Umbra limi (Kirtland), in the Greenbottom Wildlife Management Area, Cabell County, West Virginia.* Bulletin of the West Virginia Academy of Sciences.

Yeager, M.M., D.S. Cherry and R. Neves. 1994. *Feeding Behavior and Diet of Juvenile Freshwater Mussels, Villosa iris.* Journal of the North American Benthological Society, 13: 217-222.

Cherry, D.S., J.H. Van Hassel, M.M. Yeager, and J. Cairns, Jr. 1994. *Comparative Responses of Fish Avoidance to Various Interactions of Temperature Selection, Chlorine and pH.* Journal of Aquatic Ecosystem Health. (December Issue)

Cherry, D.S., J.H. Van Hassel, M.M. Yeager, and J. Cairns, Jr. 1995. *Avoidance of twenty-four fish species to thermally influenced, chlorinated water in Making*



Environment Science: A Festschrift in Honor of John Cairns, Jr. J.R. Pratt, N. Bowers, and J.R. Stauffer, editors. Ecoprint, Portland, Oregon.

Cherry, D.S., L.G. Rutherford, M.G. Dobbs, C.E. Zipper, J.C. Cairns, Jr., and M.M. Yeager. 1995. *Acidic pH and Heavy Metal Impacts into Stream Watersheds and River Ecosystems by Abandoned Mined Lands, Powell River, Virginia*. 1995 Powell River Project Research and Education Program Report. Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Yeager, Mindy M., Richard J. Neves, and Donald S. Cherry. 1999. *Competitive interactions between early life stages of *Villosa iris* (Bivalvia: Unionidae) and adult Asian clams (*Corbicula fluminea*)*. Proceedings of the First Freshwater Mollusk Conservation Society Symposium, Pages 253-259.

- Armstead, Mindy M. and J.L. Yeager. 2006. *In-situ Toxicity Testing of Unionids*. In Freshwater Bivalve Ecotoxicology, J. H. Van Hassel and J. L. Farris, Editors. CRC Press.
- Wilson, M., Armstead, M. M. 2012. A Reproductive and Trophic Transfer Study Associated With Selenium Concentrations in the Mud River Watershed. International Conference on Acid Rock Drainage. Ottawa, Canada.
- Vellaisamy V.S., J.J. Tomblin, M.M. Yeager Armstead, E.E. Murray. 2013. Selenium (Sodium selenite) causes cytotoxicity and apoptotic mediated cell death in PLHC-1 fish cell line through DNA and mitochondrial membrane potential damage. *Ecotoxicol. Environ. Saf.* (IN PRESS).
- Vellaisamy V.S., M.M. Yeager Armstead, M.M. Cohenford, E.E. Murray. 2013. Arsenic trioxide ( $As_2O_3$ ) induces apoptosis and necrosis mediated cell death through mitochondrial membrane potential damage and elevated production of reactive oxygen species in PLHC-1 fish cell line. *Chemosphere* 90(3): 1201-9.
- Vellaisamy V.S., M.M. Yeager Armstead, E.E. Murray. 2013. Protective and antioxidant role of selenium on arsenic trioxide-induced oxidative stress and genotoxicity in the fish hepatoma cell line PLHC-1. *Environ. Toxicol. Chem.* (IN PRESS)
- Armstead, M. M., Wilson, M., Keller, L., Kinney, J., McGill, K., Snyder, E. 2013. Methods for Evaluating the Effects of a Simulated Mine Effluent with Elevated Ionic Concentration to Field Collected Benthic Macroinvertebrates. Environmental Considerations in Energy Production Symposium, Charleston West Virginia (IN PRESS).

### **FUNDED GRANTS**

- Co-Principal Investigator: Sources of Pollutants Influencing Sediment Toxicity and the Mussel Fauna in the Clinch River Drainage System - An On-site Investigation.* American Electric Power Service Corporation, Columbus, Ohio. \$75,000. November 1994.
- Co-Principal Investigator: Working Strategy for the Development of the Leading Creek Improvement Plan.* American Electric Power Service Corporation, Columbus, Ohio. \$400,000. May 1995.
- Co-Principal Investigator: Toxicity Testing of Bioremediation Agents Associated with Salt Water Oil Pollution.* US Environmental Protection Agency and NETAC. \$145,000. 1994-1995.

Armstead, M. M. (Supporting), "Assessing Geomorphic Reclamation in Valley Fill Design for West Virginia," Sponsored by Office of Surface Mining, Federal, \$19,834.00. (May 1, 2012 - Present).

Armstead, M. M. (Principal), "Marshall University's Statement of Work for Completion of Tasks 1.5, 1.6, and 2.2.5," Sponsored by ARIES, Private, \$49,984.00. (June 30, 2012 - June 30, 2013).

Armstead, M. M. (Principal), "Marshall University's Statement of Work for Completion of Tasks 1.5, 1.6, and 2.2.5," Sponsored by ARIES, Private, \$102,634.00. (June 30, 2012 - June 30, 2013).

Armstead, M. M. (Principal), "Marshall University's Statement of Work for Completion of Tasks 1.5, 1.6, and 2.2.5," Sponsored by ARIES, Private, \$72,359.00. (January 1, 2012 - June 30, 2012).

### **TECHNICAL REPORTS**

Cherry, D.S., J.R. Bidwell, A. Mikailoff, M.M. Yeager, S.R. Lynde, R.L. Shema, W.R. Cody, G.J. Kenderes, M.F. Davison, M.R. Noel, G.M. Styborski, and J.W. McIntire. 1992. *1991 Corbicula Control Program: Environmental Fate and Effects Studies - Summer and Fall Dosing Studies*. Duquesne Light Company, Beaver Valley Power Station. Submitted to Duquesne Light Company on 14 February 1992.

Cherry, D.S., M.M. Yeager, M.G. Dobbs, J.R. Bidwell, J.L. Farris and E.P. Smith. 1992. *The Influence of Effluent Temperature on the Distribution of Fishes and Other Biota in the New River Near Hoechst Celanese Corporation, Virginia, Report and Proposal*. Submitted to Hoechst Celanese Corporation on 6 November, 1992.

Cherry, D.S., M.G. Dobbs, A. Mikailoff, S.R. Lynde, J.R. Bidwell, M.M. Yeager and J.C. Fischer. October 1992. *Acute Toxicity and Chronic Impairment Testing of Daphnia pulex, Ceriodaphnia dubia, and fathead minnow (Pimephales promelas) to Robins Air Force Ramp-Phase II Effluent - September 1992 tests*.

Cherry, D.S., M.G. Dobbs, M.M. Yeager, S.R. Lynde, and J.F. Scott. 1994. *Benthic Macroinvertebrate Assessment and Bioaccumulation Potential of Freshwater Mussels Exposed to White Phosphorus in the LaCrosse River, Fort McCoy, Wisconsin*. Report submitted to the US Army Corps of Engineers, Vicksburg, Mississippi.

- Cherry, D.S., M.G. Dobbs, M.M. Yeager, S.R. Lynde and J.F. Scott. 1994. *Macroinvertebrate Assessment and Bioaccumulation Potential of Freshwater Mussels Exposed to White Phosphorus in Selected Streams of Fort Bragg, Fayetteville, North Carolina*. Report submitted to the US Army Corps of Engineers, Vicksburg, Mississippi.
- Cherry, D.S., M.G. Dobbs, S.R. Lynde, and M.M. Yeager. 1994. *Benthic Macroinvertebrate Analysis of East Branch, Brandywine Creek for the Sonoco Products Company*. Downingtown, Chester County, Pennsylvania.
- Cherry, D.S., M.M. Yeager, J.L. Yeager, R.C. Cavender, M.G. Dobbs, and S.R. Lynde. 1994. *An Examination of the Effects of Thermal Effluent on Fish Reproduction in a Macrophyte Bed in the New River, Virginia, Report*. Submitted to Hoechst Celanese Corporation in combination with CH2MHill, Atlanta, November 1994.
- Cherry, D.S., J.R. Bidwell, M.M. Yeager, J.L. Yeager, and S.R. Lynde. 1995. *The Impact of Agricultural Runoff upon the Habitat Assessment, Benthic Macroinvertebrate Community Assemblages and Water Quality of Tributaries and the East Fork Little River Watershed*. Submitted to Virginia Environmental Endowment, Floyd County, Virginia, December 1995.
- Cherry, D.S., L.G. Rutherford, M.G. Dobbs, C.E. Zipper, J.C. Cairns, Jr., and M.M. Yeager. 1995. *Acidic pH and Heavy Metal Impacts into Stream Watersheds and River Ecosystems by Abandoned Mined Lands, Powell River, Virginia*. 1995 Powell River Project Research and Education Program Report. Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
- Cherry, D.S., M.G. Dobbs, M.M. Yeager, and J.R. Lauth. 1995. *Acute and Chronic Toxicity Testing of the Inland Silverside (*Menidia beryllina*) to a Bioremediation Agent using Alaskan North Slope Oils*. Submitted to National Environmental Technology Applications Center, January 1995.
- Cherry, D.S., M.G. Dobbs, M.M. Yeager, and J.R. Lauth. 1995. *Acute and Chronic Toxicity Testing of the Estuarine Mysid (*Mysidopsis bahia*) to a Bioremediation Agent Using Alaskan North Slope 521 Weathered Oil*. Submitted to National Environmental Technology Applications Center, January 1995.
- Cherry, D.S., M.M. Yeager, and R.C. Currie. 1996. *Chlorine Dissipation of the 003 Effluent into the Catawba River Resulting from Asiatic Clam Control*. Submitted to Hoechst Celanese Corporation, Rock Hill, South Carolina.
- Cherry, D.S., M.M. Yeager, D.L. Balfour, G.W. Church, J.F. Scott, J.L. Scheller, and R.J. Neves. 1996. *Sources of Pollutants Influencing Sediment Toxicity and the Mussel Fauna in the Clinch River Drainage System - an On-site Investigation*. Submitted to American Electric Power Service Corporation, Columbus, Ohio, April 1996.

- Cherry, D.S., J.R. Bidwell, R.C. Cavender and M.M. Yeager. 1996. *A Comparison of Exposure and Application Regimes for the Toxicity Testing of Crude Oil and Commercial Bioremediation Agents*. Submitted to National Environmental Technology Applications Center, June 1996.
- Cherry, D.S., R.J. Currie, H.A. Latimer, J. Cairns Jr., H.R. Diz, D. Gallagher, D.M. Johnson, and M.M. Yeager. 1999. *The Leading Creek Improvement Plan Southern Ohio Coal Company, Meigs Mine No. 31*. Final Report to Southern Ohio Coal Company (SOCCO) and American Electric Power (AEP), Columbus, Ohio. August 1999
- M.M. Yeager and L.E. McCoy. 1999. *Use Attainability Analysis for the Upper Reaches of the Blackwater River, Tucker County, West Virginia*. Submitted to the West Virginia Environmental Quality Board.
- M.M. Yeager Armstead and L.E. McCoy. 2001. *Mixing Zone Study for Harrison Power Station Coal Combustion By-Products Landfill Multipoint Diffuser for Outfall 008 in the West Fork River in Harrison County, West Virginia*. Submitted to the West Virginia Department of Environmental Protection.
- M.M. Yeager Armstead and L.E. McCoy. 2002. *Supplemental Quantitative Benthic Macroinvertebrate Studies Implemented in Conjunction with the USEPA Mountaintop Mining/Valley Fill Environmental Impact Statement Study Within the Mud River, Spruce Fork, and Island Creek Watersheds*. Submitted to the United States Environmental Protection Agency.
- M.M. Yeager Armstead, C.C. Moore, and L. E. McCoy. 2005. *The development of a Site Specific Translator for Aluminum for Harrison Power Station, Outfall 008, West Fork River, Harrison County, West Virginia*. Submitted to the West Virginia Department of Environmental Protection.
- M.M. Yeager Armstead and S.B. Burdette. Annual reports submitted in 2002, 2003, 2004, 2005. *Sediment and Habitat Characterization in the Wadeable Streams - Coldwater Fork Watershed - date*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.
- M.M. Yeager Armstead and S.B. Burdette. Annual reports submitted in 2002, 2003, 2004, 2005. *Sediment and Habitat Characterization in the Wadeable Streams - Wolf Creek Watershed - date*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.
- M.M. Yeager Armstead and A.E. Schoolcraft. Annual reports submitted in 2002, 2003, 2004, 2005. *Water Chemistry Conditions of Coldwater Fork Watershed Following Martin County Coal Corporation's Slurry Release - date*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.

M.M. Yeager Armstead and A.E. Schoolcraft. Annual reports submitted in 2002, 2003, 2004, 2005. *Water Chemistry Conditions of Wolf Creek Watershed Following Martin County Coal Corporation's Slurry Release - date*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.

M.M. Yeager Armstead and J. V. Ginger. Semi-annual reports submitted for spring and fall sampling in 2002, 2003, 2004, 2005. *Results of the Fish Studies conducted in the Coldwater Fork Watershed for Martin County Coal Corporation in the (multiple dates)*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.

M.M. Yeager Armstead and J. V. Ginger. Semi-annual reports submitted for spring and fall sampling in 2002, 2003, 2004, 2005. *Results of the Fish Studies conducted in the Wolf Creek Watershed for Martin County Coal Corporation in the (multiple dates)*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.

M.M. Yeager Armstead and A. Kirsch. Annual reports submitted for sampling in 2002, 2003, 2004, 2005 (in prep). *Results of the Water Chemistry and Benthic Macroinvertebrate Studies Conducted in the Coldwater Fork Watershed for Martin County Coal Corporation - date*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.

M.M. Yeager Armstead and A. Kirsch. Annual reports submitted for sampling in 2002, 2003, 2004, 2005 (in prep). *Results of the Water Chemistry and Benthic Macroinvertebrate Studies Conducted in the Wolf Creek Watershed for Martin County Coal Corporation - date*. Submitted to Kentucky Division of Water and United States Environmental Protection Agency.

## **PROFESSIONAL EXPERIENCE**

### **1991**

Duquesne Light Company, Beaver Valley, Pennsylvania. Sediment testing as part of a larger project to assess fate and effects of a nuclear power plant outfall following application of a molluscicide.

### **1991 - 1993**

Hoechst Celanese Corporation, Celco Plant, Narrows, Virginia. Fish sampling, fish identification and statistical analysis to evaluate the impact of heated effluent on the distribution of fishes in the New River, Virginia.

**1992 - 1993**

Hoechst Celanese Corporation, Celco Plant, Narrows, Virginia. Monitoring of chlorination for the control of *Corbicula fluminea* biofouling.

Hoechst Celanese Corporation, Celriver Plant, Rock Hill, South Carolina. Monitoring of chlorination for the control of *Corbicula fluminea* biofouling.

**1993 - 1994**

Hoechst Celanese Corporation, Celco Plant, Narrows, Virginia. Fish sampling, gonadal somatic indices, juvenile fry sampling and identification to determine the impact of heated effluent on fish reproductive success in a macrophyte habitat.

**1994**

Hoechst Celanese Corporation, Celco Plant, Narrows, Virginia. Monitoring of chlorination for the control of *Corbicula fluminea* biofouling.

Hoechst Celanese Corporation, Celriver Plant, Rock Hill, South Carolina. Monitoring of chlorination for the control of *Corbicula fluminea* biofouling.

Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. Rapid bioassessment of benthic macroinvertebrate community structure in the La Crosse River, Fort McCoy, Wisconsin.

Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. Rapid bioassessment of benthic macroinvertebrate community structure in two streams in the impact area at Fort Bragg, Fayetteville, North Carolina.

Sonoco Products Company, Hartsville, South Carolina. Determination of the source of acute toxicity in settling pond effluent. Study included determination of retention time of settling ponds, acute toxicity testing and chemical analysis influent and final effluent samples.

Sonoco Products Company, Downingtown, Pennsylvania. Field and laboratory study including benthic macroinvertebrate surveys, water chemistry and effluent toxicity testing to determine the impact of chlorine dioxide treated effluent on the receiving system.

**1995**

IBM Corporation, New York. Acute toxicity testing of effluent using *Daphnia pulex* and *Pimephales promelas*.

Hoechst Celanese Corporation, Celriver Plant, Rock Hill, South Carolina. Monitoring of chlorination for the control of *Corbicula fluminea* biofouling.

Sonoco Products Company, Hartsville, South Carolina. Acute toxicity testing of effluent to determine the source of toxicity in settling pond effluent.

Invited lecturer for a discussion of aquatic ecotoxicology at Marshall University, Huntington, West Virginia.

Presentation at the National Biological Survey Headquarters in Arlington, Virginia to representatives of the United States Justice Department and the National Biological Survey to outline the development of a restoration plan for Leading Creek, Ohio.

Invited presentation on environmental ethics at the University of Charleston, Charleston, West Virginia

Virginia Environmental Endowment, Floyd County, Virginia. Rapid bioassessment of benthic macroinvertebrate community structure in the Little River watershed to assess habitat degradation and instream community impairment due to agriculture.

Sonoco Products Company, Downingtown, Pennsylvania. Field and laboratory study including benthic macroinvertebrate surveys, water chemistry and effluent toxicity testing to determine the impact of chlorine dioxide treated effluent on the receiving system.

Environmental Planning and Analysis, Inc., Tallahassee, Florida. Review of data collected to determine the effects of pulp and papermill effluent on freshwater and marine receiving systems.

Westmorland Mining Corporation, Pigeon Creek, Virginia. Assessment of the changes in the benthic community structure of a stream following installation of a treatment facility for acid mine drainage.

## 1996

Virginia Environmental Endowment, Floyd County, Virginia. Habitat and benthic macroinvertebrate community structure assessments in the Little River watershed to determine habitat degradation and instream community impairment due to non-point source pollutants from agriculture.

Hoechst Celanese Corporation, Celriver Plant, Rock Hill, South Carolina. Monitoring of chlorination for the control of *Corbicula fluminea* biofouling.

Virginia Environmental Endowment, Floyd County, Virginia. Global Positioning Survey of sites on the Little River, Floyd County, Virginia for the development of a GIS database.



Sheidow Bronze Corporation. Responsible for reviewing a toxicity reduction evaluation, storm water toxicity data, and water quality data for a non-ferrous foundry that manufacturers bronze castings to determine the source of toxicity.

Tetra Technologies. Prepared storm water permit and Storm Water Pollution Prevention Plan for calcium chloride production facility in northern West Virginia.

#### 1997

Hester Industries. Statistical evaluations for the Quality Assurance/Quality Control program of an industrial facilities' laboratory.

Mountain State Airgas. Storm water permit registration and pollution prevention plan updates for welding supply facilities.

#### 1998

AC&S, Incorporated. Laboratory Supervisor for a state certified Aquatic Toxicity Laboratory which conducts acute and chronic single species toxicity tests.

MEPCO. Conducted benthic survey using USEPA Rapid Bioassessment Protocols to assess stream quality prior to the issuance of a re-mining permit in two streams in Monongalia County, West Virginia.

Sheidow Bronze Corporation. Conducted benthic survey using USEPA Rapid Bioassessment Protocols to assess potential impacts from storm water runoff from a non-ferrous foundry that manufacturers bronze castings.

Allegheny Energy Supply. Conducted a Use Attainability Analysis on a river system designated as a cold water fishery in Tucker County, West Virginia.

#### 1999

Reviewed and prepared comments on study design and modeling of Total Maximum Daily Loads Strategies for several streams in West Virginia.

Union Carbide Corporation. Permit modifications for two outfalls including the development of site-specific real-time water quality based effluent limits.

#### 2000 - 2001

Massey Coal Corporation. Spill response involving a 250 million gallon coal mine slurry release including assessment of physical, chemical, and biological impacts, liaison with regulatory and emergency response agencies, assessment of damages and negotiations of fines, negotiation of restoration goals and recovery endpoints, and development of a sampling plan for multiply year surveys to demonstrate recovery.

**2000 - 2002**

Arch Coal Corporation. Preparation of a report detailing benthic macroinvertebrate surveys conducted supplemental to the US EPA's Environmental Impact Statement on Mountaintop/Valley Fill Coal Mining. Project has included presentation of study findings, review of the US EPA findings, discussions with state and federal regulatory agencies, and revisions in response to comments.

**2000 – 2005**

West Virginia Division of Environmental Protection. Reviewer of human health and ecological risk assessments submitted to the WV DEP Office of Environmental Remediation under the Voluntary Remediation and Redevelopment Program. Responsible for providing technical expertise and comments on submitted site and risk assessments.

**2001**

Bandmill Coal Corporation. Response to fish kill and damage assessments.

**2001 – 2003**

Allegheny Energy Supply. Mixing zone delineation using the CORMIX model and field surveys including permitting modifications to incorporate a diffuser outfall and negotiations with state agencies to expedite permit modifications.

**2001-present**

Massey Coal Corporation. Restoration and recovery monitoring of spill-related impacts from a 250 million gallon coal mine slurry release including physical, chemical, and biological monitoring, consulting relating to remediation and restoration, liaison with regulatory agencies, and demonstration of recovery.

**2004**

G.E. Silicone. Compliance assistance related to the development of a mixing zone including modeling, agency negotiations and field validation.

Massey Coal Corporation. Expert testimony related to the in-stream impacts of a valley fill at Green Valley Coal Company in the Blue Branch watershed.

**2005**

Allegheny Energy. Compliance assistance including preparation of a metals translator study and the associated permit modification and agency negotiations.

Consol Coal Corporation. Compliance assistance for 10 facilities including the preparation of a variance application package for mining discharges in West Virginia and biological monitoring.

Multiple Clients from the Coal and Timber Industries. Preparation of comments regarding the listing of approximately 25 streams on the West Virginia Division of Environmental Protection's presumptive Tier 2.5 stream list.

**2006**

Consolidation Coal Company. Permitting compliance assistance for high chloride discharges including the development site-specific chlorides standards applications for streams in northern West Virginia.

**2007 – 2010**

Patriot Mining Company. Evaluating the effects of selenium from the mining industry on aquatic resources in West Virginia to be used to support site specific selenium criteria development.

**2009**

Consolidation Coal Company. Response to fish kill reports in Dunkard Creek, West Virginia which ultimately led to the identification of a harmful algal bloom involving *Prymnesium parvum*, the golden algae. Subsequently developed monitoring plans for the algae in the region and currently oversee scientists conducting the monitoring. Additionally, working with state agencies and others to develop potential responses to further outbreaks in the region.

**2009-2010**

Patriot Mining Company. Supervision of a toxicity testing program in streams receiving high conductivity discharges.

Attachment I

WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WATER AND WASTE MANAGEMENT

List of Certified Parameters  
for

**BIO-CHEM TESTING, INC.**  
**TEAYS, WEST VIRGINIA**

PARAMETERS CERTIFIED

NONPOTABLE WATER INORGANIC NONMETALS

<u>ANALYTE</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Acidity	SM19th2310 B(4a)	Titrimetric
Alkalinity	SM19th2320 B	Titrimetric
Ammonia	HACH 8038	Spectrophotometric
Ammonia	SM18th4500-NH3 B	Distillation
Ammonia	SM18th4500-NH3 E	Titrimetric
Bromide	EPA300.0 Rev 2.1-1993	IC
Carbon, Total Organic (TOC)	SM19th5310 C	Oxidation
Chloride	EPA300.0 Rev 2.1-1993	IC
Chloride	SM19th4500-Cl C	Titrimetric
Chlorine, Residual	HACH 8167	Spectrophotometric
Chlorine, Residual	SM18th4500-Cl G	Spectrophotometric
Color	SM19th2120 B	Visual Comparison
Color	SM19th2120 E	Colorimetric
Conductance, Specific	EPA120.1 Rev 1982	Probe
Cyanide	SM19th4500-CN C	Distillation
Cyanide, Total	SM19th4500-CN E	Colorimetric
Cyanide, Weak Acid Dissociable	SM19th4500-CN I	Distillation
Fluoride	EPA300.0 Rev 2.1-1993	IC
Hardness, Calcium	SM19th2340 B	Calculation
Hardness, Total	SM19th2340 C	Titrimetric
Hardness, Total	SM19th2340 B	Calculation
Nitrate	EPA300.0 Rev 2.1-1993	IC
Nitrate	EPA353.2 Rev 2.0-1993	Calculation
Nitrate-Nitrite	EPA300.0 Rev 2.1-1993	Calculation
Nitrate-Nitrite	EPA353.2 Rev 2.0-1993	Spectrophotometric
Nitrite	EPA300.0 Rev 2.1-1993	IC
Nitrite	EPA353.2 Rev 2.0-1993	Spectrophotometric
Nitrogen, Total Kjeldahl (TKN)	HACH 8038	Spectrophotometric
Nitrogen, Total Kjeldahl (TKN)	SM19th4500-NH3 B	Distillation
Nitrogen, Total Kjeldahl (TKN)	SM19th4500-NH3 C	Titrimetric
Nitrogen, Total Kjeldahl (TKN)	SM19th4500-Norg B	Digestion
Oil & Grease	EPA1664 A	Gravimetric
Oxygen Demand, Biochemical (BOD)	SM19th5210 B	Probe

<u>ANALYTE</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Oxygen Demand, Carbonaceous Biochemical (CBOD)	SM19th5210 B	Probe
Oxygen Demand, Chemical (COD)	HACH 8000	Spectrophotometric
Oxygen, Dissolved	SM19th4500-O G	Probe
pH (Hydrogen Ion)	SM19th4500-H B	Electrode
Phenolics, Total	EPA420.1 Rev 1978	Spectrophotometric
Phosphorus, Ortho	SM19th4500-P E	Spectrophotometric
Phosphorus, Total	EPA365.1 Rev 2.0-1993	Spectrophotometric
Phosphorus, Total	SM19th4500-P B.5	Digestion
Phosphorus, Total	SM19th4500-P E	Spectrophotometric
Solids, Dissolved	SM19th2540 C	Gravimetric
Solids, Settleable	SM19th2540 F	Imhoff
Solids, Suspended	SM19th2540 D	Gravimetric
Solids, Total	SM19th2540 B	Gravimetric
Solids, Volatile	EPA160.4	Gravimetric
Sulfate	EPA300.0 Rev 2.1-1993	IC
Temperature	SM19th2550 B	Thermometric
Turbidity	EPA180.1 Rev 2.0-1993	Turbidimetric

### NONPOTABLE WATER TRACE METALS

<u>METAL</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Aluminum	EPA200.7 Rev 4.4-1994	ICP
Aluminum	EPA200.8 Rev 5.4-1994	ICP-MS
Aluminum	SW6010B	ICP
Aluminum	SW6020	ICP-MS
Antimony	EPA200.7 Rev 4.4-1994	ICP
Antimony	EPA200.8 Rev 5.4-1994	ICP-MS
Antimony	SM19th3113 B	GFAA
Antimony	SW6010B	ICP
Antimony	SW6020	ICP-MS
Arsenic	EPA200.7 Rev 4.4-1994	ICP
Arsenic	EPA200.8 Rev 5.4-1994	ICP-MS
Arsenic	SM19th3113 B	GFAA
Arsenic	SW6010B	ICP
Arsenic	SW6020	ICP-MS
Barium	EPA200.7 Rev 4.4-1994	ICP
Barium	EPA200.8 Rev 5.4-1994	ICP-MS
Barium	SW6010B	ICP
Barium	SW6020	ICP-MS
Beryllium	EPA200.7 Rev 4.4-1994	ICP
Beryllium	EPA200.8 Rev 5.4-1994	ICP-MS
Beryllium	SW6010B	ICP
Beryllium	SW6020	ICP-MS
Boron	EPA200.7 Rev 4.4-1994	ICP
Boron	SW6010B	ICP
Cadmium	EPA200.7 Rev 4.4-1994	ICP
Cadmium	EPA200.8 Rev 5.4-1994	ICP-MS
Cadmium	SM19th3113 B	GFAA
Cadmium	SW6010B	ICP
Cadmium	SW6020	ICP-MS

METAL

Calcium  
 Calcium  
 Chromium  
 Chromium  
 Chromium  
 Chromium  
 Chromium, Hexavalent  
 Cobalt  
 Cobalt  
 Cobalt  
 Cobalt  
 Copper  
 Copper  
 Copper  
 Copper  
 Copper  
 Iron  
 Iron  
 Iron, Ferrous  
 Lead  
 Lead  
 Lead  
 Lead  
 Lead  
 Lead  
 Magnesium  
 Magnesium  
 Manganese  
 Manganese  
 Manganese  
 Manganese  
 Mercury  
 Mercury  
 Metals, Dissolved  
 Metals, Dissolved  
 Metals, Total  
 Metals, Total  
 Metals, Total  
 Metals, Total  
 Molybdenum  
 Molybdenum  
 Molybdenum  
 Molybdenum  
 Nickel  
 Nickel  
 Nickel  
 Nickel  
 Potassium  
 Potassium  
 Selenium  
 Selenium  
 Selenium

METHOD

EPA200.7 Rev 4.4-1994  
 SW6010B  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SW6010B  
 SW6020  
 SM19th3500-Cr D  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SW6010B  
 SW6020  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SM19th3113 B  
 SW6010B  
 SW6020  
 EPA200.7 Rev 4.4-1994  
 SW6010B  
 SM19th3500-Fe D(4.c)  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SM19th3113 B  
 SW6010B  
 SW6020  
 EPA200.7 Rev 4.4-1994  
 SW6010B  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SW6010B  
 SW6020  
 EPA245.1 Rev 3.0-1994  
 SW7470A  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SM19th3030 E  
 SM19th3030 F  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SW6010B  
 SW6020  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SW6010B  
 SW6020  
 EPA200.7 Rev 4.4-1994  
 SW6010B  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SW6010B  
 SW6020  
 EPA200.7 Rev 4.4-1994  
 SW6010B  
 EPA200.7 Rev 4.4-1994  
 EPA200.8 Rev 5.4-1994  
 SM19th3113 B

TECHNOLOGY

ICP  
 ICP  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 Spectrophotometric  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 GFAA  
 ICP  
 ICP-MS  
 ICP  
 ICP  
 Spectrophotometric  
 ICP  
 ICP-MS  
 GFAA  
 ICP  
 ICP-MS  
 ICP  
 ICP  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 CVAA  
 CVAA  
 Filtration  
 Filtration  
 Digestion  
 Digestion  
 Digestion  
 Digestion  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 ICP  
 ICP-MS  
 ICP  
 ICP  
 ICP  
 ICP-MS  
 GFAA

<u>METAL</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Selenium	SM3114 C-97 (Modified)	HGAF
Selenium	SW6010B	ICP
Selenium	SW6020	ICP-MS
Silicon	EPA200.7 Rev 4.4-1994	ICP
Silicon	SW6010B	ICP
Silver	EPA200.7 Rev 4.4-1994	ICP
Silver	EPA200.8 Rev 5.4-1994	ICP-MS
Silver	SM19th3113 B	GFAA
Silver	SW6010B	ICP
Silver	SW6020	ICP-MS
Sodium	EPA200.7 Rev 4.4-1994	ICP
Sodium	SW6010B	ICP
Strontium	EPA200.7 Rev 4.4-1994	ICP
Strontium	SW6010B	ICP
Thallium	EPA200.7 Rev 4.4-1994	ICP
Thallium	EPA200.8 Rev 5.4-1994	ICP-MS
Thallium	EPA279.2 (1978)	GFAA
Thallium	SW6010B	ICP
Thallium	SW6020	ICP-MS
Tin	EPA200.7 Rev 4.4-1994	ICP
Tin	SW6010B	ICP
Titanium	EPA200.7 Rev 4.4-1994	ICP
Titanium	SW6010B	ICP
Uranium	EPA200.7 Rev 4.4-1994	ICP
Uranium	SW6010B	ICP
Vanadium	EPA200.7 Rev 4.4-1994	ICP
Vanadium	EPA200.8 Rev 5.4-1994	ICP-MS
Vanadium	SW6010B	ICP
Vanadium	SW6020	ICP-MS
Zinc	EPA200.7 Rev 4.4-1994	ICP
Zinc	EPA200.8 Rev 5.4-1994	ICP-MS
Zinc	SW6010B	ICP
Zinc	SW6020	ICP-MS

NONPOTABLE WATER MICROBIOLOGY

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Coliform, Fecal (MF)	SM19th9222 D	Membrane Filter
Coliform, Fecal (MPN)	SM19th9221 E	Multiple Tube
Coliform, Total (MF)	SM19th9222 B	Membrane Filter
E. Coli (MF)	HACH 10029	Membrane Filter

WHOLE EFFLUENT TOXICITY

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Acute - Fathead Minnow	EPA821-R-02-012 2000.0	Acute

HAZARDOUS WASTE CHARACTERISTICS

<u>PROCEDURE</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Corrosivity	SW9040C	Electrode

PROCEDURE

Paint Filter Test  
SPLP- Metals  
TCLP- Metals

METHOD

SW9095B  
SW1312  
SW1311

TECHNOLOGY

Gravimetric  
Extraction  
Extraction

SOLID AND CHEMICAL INORGANIC NONMETALS

ANALYTE

Ammonia  
Ammonia  
Ammonia  
Chloride  
Chloride  
Cyanide  
Cyanide, Total  
Fluoride  
Nitrate  
Nitrate  
Nitrate-Nitrite  
Nitrate-Nitrite  
Nitrite  
Nitrite  
Nitrogen, Total Kjeldahl (TKN)  
Nitrogen, Total Kjeldahl (TKN)  
Nitrogen, Total Kjeldahl (TKN)  
Nitrogen, Total Kjeldahl (TKN)  
pH (Hydrogen Ion)  
Phosphorus, Total  
Phosphorus, Total  
Phosphorus, Total  
Solids, Total, Fixed, & Volatile  
Solids, Volatile  
Sulfate

METHOD

HACH 8038  
SM18th4500-NH3 B  
SM18th4500-NH3 E  
EPA300.0 Rev 2.1-1993  
SM19th4500-Cl C  
SM19th4500-CN C  
SM19th4500-CN E  
EPA300.0 Rev 2.1-1993  
EPA300.0 Rev 2.1-1993  
EPA353.2 Rev 2.0-1993  
EPA300.0 Rev 2.1-1993  
EPA353.2 Rev 2.0-1993  
EPA300.0 Rev 2.1-1993  
EPA353.2 Rev 2.0-1993  
HACH 8038  
SM19th4500-NH3 B  
SM19th4500-NH3 C  
SM19th4500-Norg B  
SW9045D  
EPA365.1 Rev 2.0-1993  
SM19th4500-P B.5  
SM19th4500-P E  
SM19th2540 G  
EPA160.4  
EPA300.0 Rev 2.1-1993

TECHNOLOGY

Spectrophotometric  
Distillation  
Titrimetric  
IC  
Titrimetric  
Distillation  
Colorimetric  
IC  
IC  
Spectrophotometric  
IC  
Spectrophotometric  
IC  
Spectrophotometric  
Spectrophotometric  
Distillation  
Titrimetric  
Digestion  
Electrode  
Spectrophotometric  
Digestion  
Spectrophotometric  
Gravimetric  
Gravimetric  
IC

SOLID AND CHEMICAL TRACE METALS

METAL

Aluminum  
Antimony  
Antimony  
Arsenic  
Arsenic  
Barium  
Beryllium  
Boron  
Cadmium  
Cadmium  
Calcium  
Chromium  
Cobalt  
Copper  
Copper

METHOD

SW6010B  
SW6010B  
SW7041  
SW6010B  
SW7060A  
SW6010B  
SW6010B  
SW6010B  
SW6010B  
SW7131A  
SW6010B  
SW6010B  
SW6010B  
SW6010B  
SW6010B  
SW6010B  
SW7211

TECHNOLOGY

ICP  
ICP  
GFAA  
ICP  
GFAA  
ICP  
ICP  
ICP  
ICP  
GFAA  
ICP  
ICP  
ICP  
ICP  
ICP  
ICP  
GFAA



<u>METAL</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Iron	SW6010B	ICP
Lead	SW6010B	ICP
Lead	SW7421	GFAA
Magnesium	SW6010B	ICP
Manganese	SW6010B	ICP
Mercury	EPA245.5	CVAA
Mercury	SW7470A	CVAA
Mercury	SW7471A	CVAA
Metals, Total	SW3050B	Digestion
Molybdenum	SW6010B	ICP
Nickel	SW6010B	ICP
Phosphorus	SW6010B	ICP
Potassium	SW6010B	ICP
Selenium	SW6010B	ICP
Selenium	SW7740	GFAA
Silicon	SW6010B	ICP
Silver	SW6010B	ICP
Silver	SW7761	GFAA
Sodium	SW6010B	ICP
Strontium	SW6010B	ICP
Thallium	SW6010B	ICP
Thallium	SW7841	GFAA
Tin	SW6010B	ICP
Titanium	SW6010B	ICP
Uranium	SW6010B	ICP
Vanadium	SW6010B	ICP
Zinc	SW6010B	ICP

SOLID AND CHEMICAL MICROBIOLOGY

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Coliform, Fecal (MPN)	SM19th9221 E	Multiple Tube

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires July 31, 2013.

Certificate No 220

Tommy W. Smith II Issued on December 11, 2012

Tommy W. Smith II  
Quality Assurance Officer



**DIVISION OF NATURAL RESOURCES**

**Wildlife Resources Section**

**Operations Center**

**P.O. Box 67**

**Elkins, West Virginia 26241-3235**

**Telephone (304) 637-0245**

**Fax (304) 637-0250**

**Earl Ray Tomblin**  
*Governor*

**Frank Jezioro**  
*Director*

NUMBER 2013.084

**SCIENTIFIC COLLECTING PERMIT**

Under Authority Conferred by Chapter 20, Article 2, Section 50, Code of West Virginia, As Amended

**Mukesh Shah**  
**Bio-Chem Testing, Inc.**  
**5 Weatheridge Drive**  
**Hurricane, WV 25526**

is hereby permitted to collect specimens according to the attached application and the Special Provisions on the reverse side of this permit.

This permit is not transferable and expires on **December 31, 2013.**

A complete list of all specimens collected will be kept and reported to the Director of the Division of Natural Resources of West Virginia no later than 45 days after the expiration date of this permit.

**PERMIT PROVISIONS**

I understand that (1) The privileges granted under this permit are not transferable, and to allow anyone other than myself to use my permit is unlawful and will be considered cause for revocation of said permit; (2) A Federal Scientific Collection Permit issued by the U.S. Department of Interior must be obtained before any migratory birds, or their nests or eggs, are collected or held in captivity; (3) The Federal Permit does not extend the privileges of the permittee beyond those granted by the Division of Natural Resources; (4) Permission must be obtained from either the owner or the custodian of any fenced or posted land before entering same for the purpose of collecting scientific specimens; (5) It is unlawful to carry a revolver or pistol contrary to Article VII, Chapter 61, Code of West Virginia; (6) It is unlawful to collect specimens with a gun on a Sunday; (7) It is unlawful to sell, offer for sale, barter, or offer to barter any wild animals, wild birds, fish or frogs collected; (8) When traps or nets or other devices are used UNATTENDED while exercising the privileges of this permit, said traps, nets, or devices must have attached thereto a tag bearing the name, address and number of the Scientific Collecting Permit; (9) It is unlawful to take or attempt to take any wild animals, wild birds, fish or frogs under said permit except for scientific and propagation purposes; (10) A hunting or fishing license must be obtained before specimens may be taken for sport; (11) Only those species or classes of wild birds, wild animals, fish or frogs listed below, and in the numbers stated, may be lawfully taken under said permit; and (12) I am required by law to carry my Scientific Collecting Permit, on my person while exercising the privileges granted thereunder, and to exhibit the permit to anyone requesting to see the same.

Must be signed before valid.



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Signature of permittee



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Chief, Wildlife Resources, WVDNR

Date of issue Feb 25, 2013

## **IMPORTANT**

THE ATTACHED APPLICATION FORM INDICATING SPECIES TO BE COLLECTED, LOCATIONS OF COLLECTIONS, MANNER OF COLLECTION, AND PURPOSE OF COLLECTION IS TO BE CONSIDERED A PART OF THIS PERMIT AND SHOULD REMAIN ATTACHED.

YOU ARE SUBJECT TO THE FOLLOWING COLLECTING AND REPORTING PROVISIONS. FAILURE TO MEET THESE CRITERIA IS GROUNDS FOR REVOCATION OF THE PERMIT AND/OR DENIAL OF FUTURE PERMIT APPLICATIONS AND/OR PENALTIES OR OTHER STRICTURES.

### **SPECIAL PROVISIONS:**

This is a general permit allowing aquatic surveys. **It is not valid until project-specific information is provided and permit addenda have been issued.**

Collecting protocol, training materials and reporting database can be downloaded from the WVDEP website:

[http://www.dep.wv.gov/WWE/watershed/bio\\_fish/Pages/Bio\\_Fish.aspx](http://www.dep.wv.gov/WWE/watershed/bio_fish/Pages/Bio_Fish.aspx)

Surveys are not permitted in the North Fork West Virginia Fork.

If any work is planned to occur in a State Park or State Forest, a permit must be obtained from WVDNR – Parks and Recreation.

Please provide disposition of any voucher specimens, including the collection number if available.

The WVDNR requests a copy of any papers, reports or theses published as a result of this research.

APPLICATION FOR WEST VIRGINIA SCIENTIFIC COLLECTING PERMIT

Name: Bio-Chem Testing, Inc.

Institution/Affiliation: Mukesh Shah

Street: 5 Weatheridge Drive

City: Harrison State: WV Zip: 25526

Telephone: 304-757-8954 Email: info@biochemtesting.com

Profession: ENV. laboratory Major professor: Environmental lab

Specific manner of collection

Kicknet

Purpose for which specimens are to be collected (attach abstract):

As per DEP bid DEP 16028,  
sample collection throughout coal field  
in WV

How will specimens be disposed?

As by following all WV & EPA rules

Date on which collecting is to be: Feb 26, 11 Feb 26, 14 Dec 31,  
(Commence) (Terminate) 2013

Location(s) where collections are to be taken (be specific):

County(s) various throughout WV If aquatic, indicate:

Stream(s): various throughout WV Location (distance to  
nearest town, miles from the mouth) -

Attach separate pages if additional space is required.

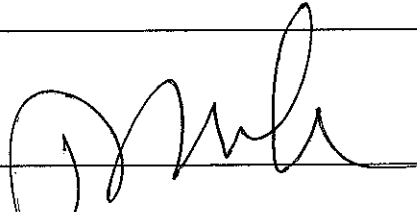
(Over)

Report that will result from studies and additional comments or information which may be pertinent to issuing this permit Report will be issue to  
WV DEP

Have you received a WV permit in previous years? Yes Most recent year 2009

**SPECIES TO BE COLLECTED OR HANDLED**

<u>GENUS</u>	<u>SCIENTIFIC NAME</u>	<u>SPECIES</u>	<u>NUMBER</u>
	<u>Benthic macroinvertebrates</u>		

Signature  Date 02-04-13

Send application to: Scientific Collecting Permit  
Wildlife Resources  
P.O. Box 67, Ward Road  
Elkins, WV 26241

Attachment I

WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WATER AND WASTE MANAGEMENT

List of Certified Parameters  
for

**REI CONSULTANTS, INCORPORATED**  
**BEAVER, WEST VIRGINIA**

PARAMETERS CERTIFIED

NONPOTABLE WATER INORGANIC NONMETALS

<u>ANALYTE</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Acidity	SM18th2310 B	Titrimetric
Alkalinity	SM18th2320 B	Titrimetric
Ammonia	EPA350.1 Rev 2.0-1993	Spectrophotometric
Bromide	EPA300.0 Rev 2.1-1993	IC
Carbon, Total Organic (TOC)	SM18th5310 C	Oxidation
Chloride	EPA300.0 Rev 2.1-1993	IC
Chlorine, Residual	SM18th4500-Cl G	Spectrophotometric
Color	SM18th2120 E	Spectrophotometric
Color	SM2120 B-01	Visual Comparison
Conductance, Specific	SM18th2510 B	Probe
Cyanide, Amenable to Chlorination	SM18th4500-CN G	Distillation
Cyanide, Total	EPA335.4 Rev 1.0-1993	Spectrophotometric
Cyanide, Total	SM18th4500-CN E	Spectrophotometric
Cyanide, Weak Acid Dissociable	SM18th4500-CN I	Distillation
Fluoride	EPA300.0 Rev 2.1-1993	IC
Hardness, Calcium	SM18th2340 B	Calculation
Hardness, Total	SM18th2340 B	Calculation
Nitrate	EPA300.0 Rev 2.1-1993	IC
Nitrate-Nitrite	EPA300.0 Rev 2.1-1993	Calculation
Nitrite	EPA300.0 Rev 2.1-1993	IC
Nitrogen, Total Kjeldahl (TKN)	EPA351.2 Rev 2.0-1993	Colorimetric
Nitrogen, Total Kjeldahl (TKN)	SM18th4500-NH3 B	Distillation
Nitrogen, Total Kjeldahl (TKN)	SM18th4500-NH3 E	Titrimetric
Nitrogen, Total Kjeldahl (TKN)	SM18th4500-Norg B	Digestion
Oil & Grease	EPA1664 A	Gravimetric
Oxygen Demand, Biochemical (BOD)	SM18th5210 B	Probe
Oxygen Demand, Carbonaceous Biochemical (CBOD)	SM18th5210 B	Probe
Oxygen Demand, Chemical (COD)	EPA410.4 Rev 2.0-1993	Spectrophotometric
Oxygen, Dissolved	SM18th4500-O C	Titrimetric
pH (Hydrogen Ion)	SM18th4500-H B	Electrode
Phenolics, Total	EPA420.1 Rev 1978	Colorimetric

Phenolics, Total	EPA420.1 Rev 1978	Distillation
Phosphorus, Ortho	EPA300.0 Rev 2.1-1993	IC
Phosphorus, Total	SM18th4500-P B.5	Digestion
Phosphorus, Total	SM18th4500-P E	Colorimetric
Solids, Dissolved	SM18th2540 C	Gravimetric
Solids, Settleable	SM18th2540 F	Imhoff
Solids, Suspended	SM18th2540 D	Gravimetric
Solids, Total	SM18th2540 B	Gravimetric
Solids, Volatile	SM18th2540 E	Gravimetric
Sulfate	EPA300.0 Rev 2.1-1993	IC
Sulfide	SM18th4500-S E	Titrimetric
Sulfite	SM18th4500-SO3 B	Titrimetric
Surfactants (MBAS)	SM18th5540 C	Spectrophotometric
Temperature	SM18th2550 B	Thermometric
Turbidity	SM18th2130 B	Turbidimetric

### NONPOTABLE WATER TRACE METALS

<u>METAL</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Aluminum	EPA200.7 Rev 4.4-1994	ICP
Aluminum	SW6020A	ICP-MS
Antimony	EPA200.7 Rev 4.4-1994	ICP
Antimony	EPA200.8 Rev 5.4-1994	ICP-MS
Arsenic	EPA200.7 Rev 4.4-1994	ICP
Arsenic	EPA200.8 Rev 5.4-1994	ICP-MS
Barium	EPA200.7 Rev 4.4-1994	ICP
Barium	EPA200.8 Rev 5.4-1994	ICP-MS
Beryllium	EPA200.7 Rev 4.4-1994	ICP
Beryllium	EPA200.8 Rev 5.4-1994	ICP-MS
Boron	EPA200.7 Rev 4.4-1994	ICP
Cadmium	EPA200.7 Rev 4.4-1994	ICP
Cadmium	EPA200.8 Rev 5.4-1994	ICP-MS
Calcium	EPA200.7 Rev 4.4-1994	ICP
Chromium	EPA200.7 Rev 4.4-1994	ICP
Chromium	EPA200.8 Rev 5.4-1994	ICP-MS
Chromium, Hexavalent	EPA218.6 Rev 3.3-1994	IC
Chromium, Hexavalent	SM18th3500-Cr D	Spectrophotometric
Cobalt	EPA200.7 Rev 4.4-1994	ICP
Cobalt	EPA200.8 Rev 5.4-1994	ICP-MS
Copper	EPA200.7 Rev 4.4-1994	ICP
Copper	EPA200.8 Rev 5.4-1994	ICP-MS
Gold	EPA200.7 Rev 4.4-1994	ICP
Gold	EPA200.8 Rev 5.4-1994	ICP-MS
Iron	EPA200.7 Rev 4.4-1994	ICP
Lead	EPA200.7 Rev 4.4-1994	ICP
Lead	EPA200.8 Rev 5.4-1994	ICP-MS
Magnesium	EPA200.7 Rev 4.4-1994	ICP
Manganese	EPA200.7 Rev 4.4-1994	ICP
Manganese	EPA200.8 Rev 5.4-1994	ICP-MS
Mercury	EPA245.1 Rev 3.0-1994	CVAA
Mercury	SW7470A	CVAA
Mercury	SW7470A	Digestion
Metals, Total	EPA200.2	Digestion

Metals, Total	SW3010A	Digestion
Metals, Total	SW3020A	Digestion
Molybdenum	EPA200.7 Rev 4.4-1994	ICP
Molybdenum	EPA200.8 Rev 5.4-1994	ICP-MS
Nickel	EPA200.7 Rev 4.4-1994	ICP
Nickel	EPA200.8 Rev 5.4-1994	ICP-MS
Palladium	EPA200.8 Rev 5.4-1994	ICP-MS
Platinum	EPA200.8 Rev 5.4-1994	ICP-MS
Potassium	EPA200.7 Rev 4.4-1994	ICP
Selenium	EPA200.7 Rev 4.4-1994	ICP
Selenium	EPA200.8 Rev 5.4-1994	ICP-MS
Selenium	SM19th3114 B	GHAF
Silica	EPA200.7 Rev 4.4-1994	Calculation
Silicon	EPA200.7 Rev 4.4-1994	ICP
Silver	EPA200.7 Rev 4.4-1994	ICP
Silver	EPA200.8 Rev 5.4-1994	ICP-MS
Sodium	EPA200.7 Rev 4.4-1994	ICP
Strontium	EPA200.7 Rev 4.4-1994	ICP
Strontium	EPA200.8 Rev 5.4-1994	ICP-MS
Thallium	EPA200.7 Rev 4.4-1994	ICP
Thallium	EPA200.8 Rev 5.4-1994	ICP-MS
Tin	EPA200.7 Rev 4.4-1994	ICP
Tin	EPA200.8 Rev 5.4-1994	ICP-MS
Titanium	EPA200.7 Rev 4.4-1994	ICP
Titanium	EPA200.8 Rev 5.4-1994	ICP-MS
Vanadium	EPA200.7 Rev 4.4-1994	ICP
Vanadium	EPA200.8 Rev 5.4-1994	ICP-MS
Zinc	EPA200.7 Rev 4.4-1994	ICP
Zinc	EPA200.8 Rev 5.4-1994	ICP-MS

### NONPOTABLE WATER MICROBIOLOGY

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Coliform, Fecal (MF)	SM18th9222 D	Membrane Filter
Coliform, Fecal (MPN)	SM18th9221 E	Multiple Tube
Coliform, Total (MF)	SM18th9222 B	Membrane Filter
Coliform, Total (MPN)	SM18th9223 B	Multiple Tube
Heterotrophic Plate Count (HPC)	SM18th9215 B	Pour Plate
Streptococci, Fecal (MF)	SM18th9230 C	Membrane Filter

### NONPOTABLE WATER VOLATILE ORGANIC CHEMICALS

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Acrolein & Acrylonitrile	EPA603	GC
Closed System Purge & Trap	SW5035	Extraction
Halogenated & Aromatic Volatiles	SW8021B	GC
Purge & Trap For Aqueous Samples	SW5030B	Extraction
Purgeable Aromatics	EPA602	GC
Purgeable Halocarbons	EPA601	GC
Purgeables	EPA624	GC/MS
Total Petroleum Hydrocarbons (GRO)	SW8015C	GC/FID
Volatile Organic Compounds	SW8260B	GC/MS



NONPOTABLE WATER EXTRACTABLE AND SEMI-VOLATILE ORGANIC CHEMICALS

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Base/Neutrals & Acids	EPA625	GC/MS
Chlorinated Herbicides	SW8151A	Extraction
Chlorinated Herbicides	SW8151A	GC
EDB & DBCP	EPA504	GC/ECD
EDB & DBCP	SW8011	GC/ECD
Nonhalogenated Volatile Organics	SW8015C	GC/FID
Organochlorine Pesticides	SW8081B	GC
Organochlorine Pesticides & PCBs	EPA608	GC
Phenols	EPA604	GC
Phenols	SW8041	GC
Polychlorinated Biphenyls	SW8082A	GC
Polynuclear Aromatic Hydrocarbons	SW8100	GC
Semivolatile Organic Compounds	SW8270D	GC/MS
Separatory Funnel Liquid-Liquid	SW3510C	Extraction
Total Petroleum Hydrocarbons (DRO)	SW8015C	GC/FID
Total Petroleum Hydrocarbons (KRO)	SW8015C	GC/FID
Total Petroleum Hydrocarbons (ORO)	SW8015C	GC/FID

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<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Acute - Ceriodaphnia dubia	EPA821-R-02-012 2002.0	Acute
Acute - Fathead Minnow	EPA821-R-02-012 2000.0	Acute
Chronic - Ceriodaphnia dubia	EPA821-R-02-013 1002.0	Chronic
Chronic - Fathead Minnow	EPA821-R-02-013 1000.0	Chronic

HAZARDOUS WASTE CHARACTERISTICS

<u>PROCEDURE</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Corrosivity	SW9040C	Electrode
Corrosivity	SW9045D	Electrode
Ignitability	SW1010	Closed Cup
Paint Filter Test	SW9095B	Gravimetric
TCLP-Metals & Organics	SW1311A	Extraction

SOLID AND CHEMICAL INORGANIC NONMETALS

<u>ANALYTE</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Ammonia	EPA350.1	Discrete
Ammonia	SM18th4500-NH3 B	Distillation
Ammonia	SM18th4500-NH3 E	Titrimetric
Bromide	EPA300.0 Rev 2.1-1993	IC
Carbon, Total Organic (TOC)	SW9060A	Combustion
Chloride	EPA300.0 Rev 2.1-1993	IC
Cyanide, Total	EPA335.4 Rev 1.0-1993	Spectrophotometric
Fluoride	EPA300.0 Rev 2.1-1993	IC

Nitrate	EPA300.0 Rev 2.1-1993	IC
Nitrate-Nitrite	EPA300.0 Rev 2.1-1993	IC
Nitrite	EPA300.0 Rev 2.1-1993	IC
Nitrogen, Total Kjeldahl (TKN)	EPA351.2 Rev 2.0-1993	Colorimetric
Nitrogen, Total Kjeldahl (TKN)	SM18th4500-NH3 E	Titrimetric
Nitrogen, Total Kjeldahl (TKN)	SM18th4500-Norg B	Digestion
Oil & Grease	SW9071B	Gravimetric
Oxygen Demand, Chemical (COD)	EPA410.4 Rev 2.0-1993	Spectrophotometric
pH (Hydrogen Ion)	SW9045D	Electrode
Phenolics, Total	SW9065	Spectrophotometric
Phosphorus, Ortho	EPA300.0 Rev 2.1-1993	IC
Solids, Total, Fixed, & Volatile	SM18th2540 G	Gravimetric
Sulfate	EPA300.0 Rev 2.1-1993	IC

SOLID AND CHEMICAL TRACE METALS

<u>METAL</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Aluminum	SW6010C	ICP
Aluminum	SW6020A	ICP-MS
Antimony	SW6010C	ICP
Antimony	SW6020A	ICP-MS
Arsenic	SW6010C	ICP
Arsenic	SW6020A	ICP-MS
Barium	SW6010C	ICP
Barium	SW6020A	ICP-MS
Beryllium	SW6010C	ICP
Beryllium	SW6020A	ICP-MS
Boron	SW6010C	ICP
Cadmium	SW6010C	ICP
Cadmium	SW6020A	ICP-MS
Calcium	SW6010C	ICP
Chromium	SW6010C	ICP
Chromium	SW6020A	ICP-MS
Chromium, Hexavalent	SW3060A	Digestion
Chromium, Hexavalent	SW7196A	Spectrophotometric
Cobalt	SW6010C	ICP
Cobalt	SW6020A	ICP-MS
Copper	SW6010C	ICP
Copper	SW6020A	ICP-MS
Gold	SW6010C	ICP
Gold	SW6020A	ICP-MS
Iron	SW6010C	ICP
Lead	SW6010C	ICP
Lead	SW6020A	ICP-MS
Magnesium	SW6010C	ICP
Manganese	SW6010C	ICP
Manganese	SW6020A	ICP-MS
Mercury	EPA245.5	CVAA
Mercury	SW7470A	CVAA
Mercury	SW7471A	CVAA
Mercury	SW7471A	Digestion
Molybdenum	SW6010C	ICP
Molybdenum	SW6020A	ICP-MS

Nickel	SW6010C	ICP
Nickel	SW6020A	ICP-MS
Palladium	SW6020A	ICP-MS
Phosphorus	SW6010C	ICP
Platinum	SW6020A	ICP-MS
Potassium	SW6010C	ICP
Selenium	SW6010C	ICP
Selenium	SW6020A	ICP-MS
Silicon	SW6010C	ICP
Silver	SW6010C	ICP
Silver	SW6020A	ICP-MS
Sodium	SW6010C	ICP
Strontium	SW6010C	ICP
Strontium	SW6020A	ICP-MS
Thallium	SW6010C	ICP
Thallium	SW6020A	ICP-MS
Tin	SW6010C	ICP
Tin	SW6020A	ICP-MS
Titanium	SW6010C	ICP
Titanium	SW6020A	ICP-MS
Vanadium	SW6010C	ICP
Vanadium	SW6020A	ICP-MS
Zinc	SW6010C	ICP
Zinc	SW6020A	ICP-MS

#### SOLID AND CHEMICAL MICROBIOLOGY

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Coliform, Fecal (MF)	SM18th9222 D	Membrane Filter
Coliform, Fecal (MPN)	SM18th9221 E	Multiple Tube
Coliform, Total (MF)	SM18th9222 B	Membrane Filter
Coliform, Total (MPN)	SM18th9223 B	Multiple Tube
Streptococci, Fecal (MF)	SM18th9230 C	Membrane Filter

#### SOLID AND CHEMICAL VOLATILE ORGANIC CHEMICALS

<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Closed System Purge & Trap	SW5035	Extraction
Halogenated & Aromatic Volatiles	SW8021B	GC
Total Petroleum Hydrocarbons (GRO)	SW8015C	GC/FID
Volatile Organic Compounds	SW8260B	GC/MS
Waste Dilution for Volatile Organics	SW3585	Dilution

#### SOLID AND CHEMICAL EXTRACTABLE AND SEMI-VOLATILE ORGANIC CHEMICALS

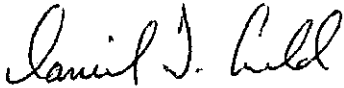
<u>GROUP</u>	<u>METHOD</u>	<u>TECHNOLOGY</u>
Chlorinated Herbicides	SW8151A	Extraction
Chlorinated Herbicides	SW8151A	GC/ECD
EDB & DBCP	SW8011	GC/ECD
Nonhalogenated Volatile Organics	SW8015C	GC/FID
Organochlorine Pesticides	SW8081B	GC

Phenols	SW8041	GC
Polychlorinated Biphenyls	SW8082A	GC
Polynuclear Aromatic Hydrocarbons	SW8100	GC
Semivolatile Organic Compounds	SW8270D	GC/MS
Soxhlet	SW3540C	Extraction
Total Petroleum Hydrocarbons (DRO)	SW8015C	GC/FID
Total Petroleum Hydrocarbons (KRO)	SW8015C	GC/FID
Total Petroleum Hydrocarbons (ORO)	SW8015C	GC/FID
Ultrasonic	SW3550B	Extraction
Waste Dilution	SW3580A	Dilution

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires September 30, 2013.

Certificate No 060



Issued on October 12, 2012

Daniel T. Arnold  
Program Manager

## STATISTICAL QUALITY CONTROL

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The two basic indicators of measurement quality are precision and accuracy. Relative error can be used as a total assessment of accuracy.

### Precision:

Precision refers to the reproducibility of measurement results from a method when it is repeated on a sample, regardless of whether or not the observed values are widely displaced from the true value. This is the result of the systematic or constant errors performed within the method. However, when evaluating results from validated methods, the final estimate of precision will usually rely on the assumption that all practicable steps have been taken to control error. The remaining fluctuations are considered inherently random and determine the experimental precision.

### Accuracy:

Accuracy refers to the agreement between the analytical result of a component measured by the test method and the amount actually present. In other words, it is a measure of how near the result is to the true value. The best method to verify accuracy is to add a known amount of the substance being measured to an aliquot of the actual sample matrix and determine the percent recovery of that known addition.

### Relative Error:

Relative error expresses the difference between the measured and actual amounts as a percentage of theoretical amounts. Thus, the relative error represents the measure of accuracy of a method.

Precision can be measured using duplicate analyses of the same sample and calculating and charting the Relative Percent Differences (RPD). Likewise, accuracy can be measured by spiking samples with known quantities of analyte and calculating the percent of the added known that is recovered from the sample; this is also known as a "matrix spike." The calculations of each method are detailed below along with their respective charting practices, if any.

### Duplicate Analyses

The difference (range) between duplicate analyses is determined as follows:

$$R = |X_1 - X_2|$$

Where:

- R = the difference (or range)
- X<sub>1</sub> = the first measurement
- X<sub>2</sub> = the second measurement

Precision is measured by determining the agreement between sample duplicates expressed in terms of relative percent difference (RPD).

RPD is calculated by the equation:

$$RPD = (S - D) / ((S + D) / 2) \times 100$$

Where:

- S = sample concentration
- D = duplicate concentration

### Matrix Spike Analyses

An estimate of accuracy may be made by means of a matrix spike recovery procedure. The matrix spike is also a good indicator of interfering substances that may be present in the sample. The percent recovery of a matrix spike is calculated as follows:

$$\% \text{Recovery} = 100 \times (S_{\text{spk}} - S) / C$$

Where:

- S<sub>spk</sub> = The measured concentration of background sample analyte plus spiked analyte in the sample aliquot.
- S = The background concentration of the un-spiked sample aliquot.
- C = The known concentration of analyte spiked into the sample aliquot.

A matrix spike duplicate would be the replication of a matrix spike at identical spike concentrations. The purpose of a matrix spike duplicate is to evaluate both precision and accuracy. The difference between recoveries can be calculated for precision using the RPD calculation above.

### Statistical Quality Control (SQC) Charts

Data generated from the calculations above are plotted on control charts so that data can be visually assessed quickly and easily. The charts establish control limits and warning limits on acceptable data. Data associated with a datum point plotted outside the control limits cannot be reported and are considered "out of control." Out of control data must be addressed immediately before continuing with analysis. For more specific

procedures on dealing with out of control data, please see "Corrective Action for Out of Control Data".

A SQC chart is generated using standard deviation calculations to generate control limits and warning limits on the 30 most recent samples. The standard deviation calculation is expressed by the formula:

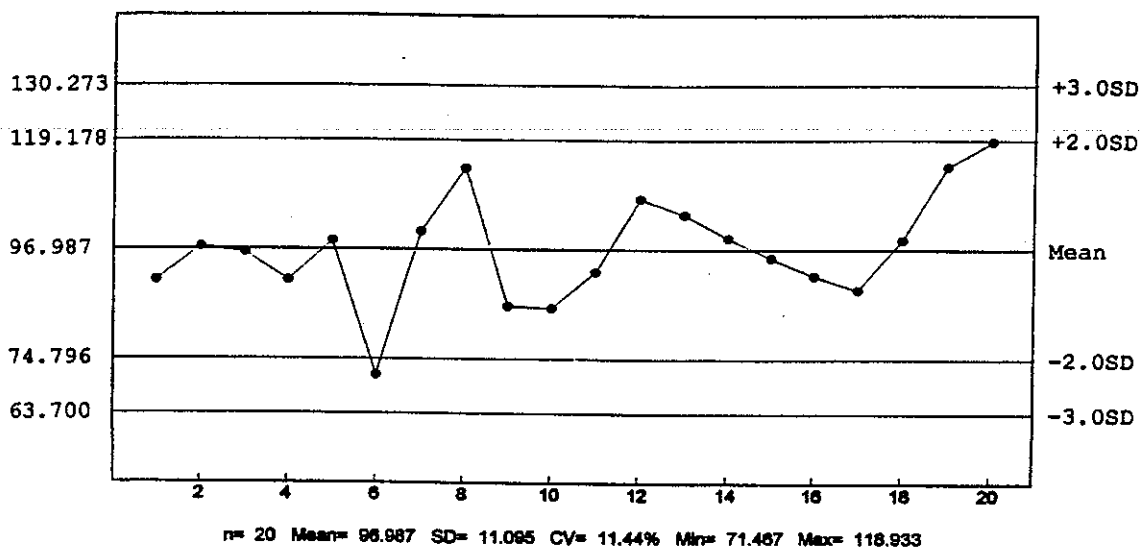
$$SD = \left( \frac{\sum(A - X)^2}{(n-1)} \right)^{1/2}$$

Where:

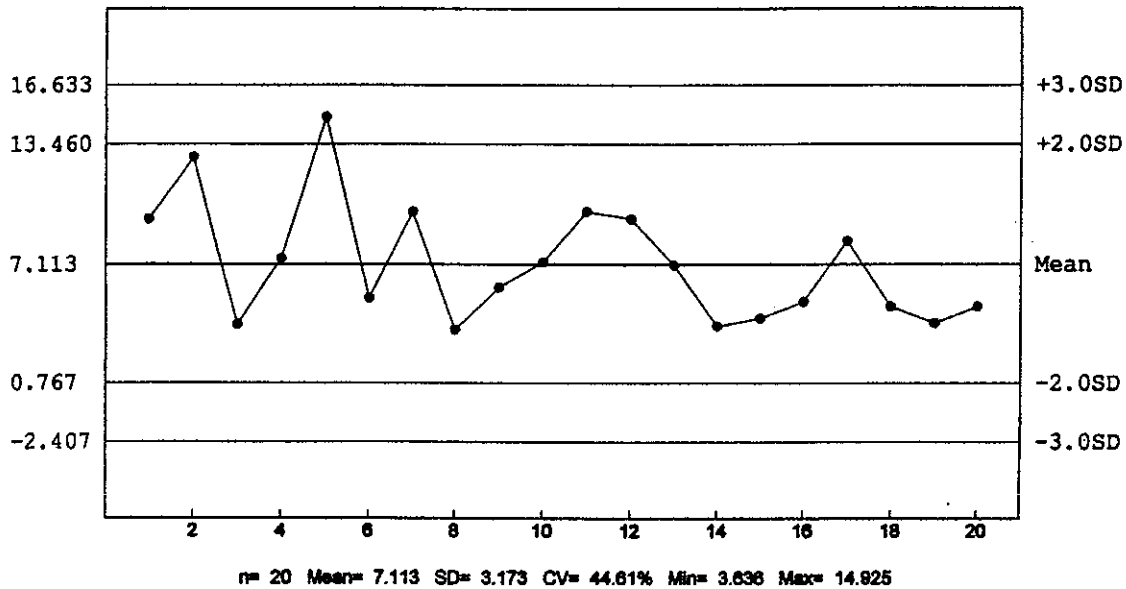
- $\bar{A}$  = The mean of the measured values
- $X$  = The measured value of an individual reference standard
- $n$  = The number of data points
- $(\bar{A} - X)^2$  = The square of all the differences of the mean and measured values.
- $\sum(A - X)^2$  = The sum of the squares of all the differences of the mean and measured values.

The upper control limits and lower control limits (UCL and LCL) are established as +3 times the SD and -3 times the SD from the mean, respectively. The upper warning limit and lower warning limit (UWL and LWL) are established at +2 times the SD and -2 times the SD from the mean, respectively.

A control chart is then constructed from the measured values and the individual datum points plotted with respect to the standard deviations. Below is a fictitious spike recovery chart as an example:



A fictitious chart representing duplicate analyses and the calculated RPD with respect to SD calculations is plotted below:



Charts representing other data can also be generated such as continuing calibration verification standard recoveries, Second source standard recoveries, and initial calibration verification standards. For test methods that do not establish recovery or RPD limits, control charts must be used. Test methods with mandated recovery or RPD limits may also use control charts provided the control limits are equal to or less than the mandated limits.

### Evaluating control charts

Should one result fall outside the control limits (the 99% confidence limit), two successive results fall outside the warning limits (the 95% confidence limit) or 5 successive results fall either above or below the central line, the analysis is "out of control" and immediate action is taken to determine the cause of the outlying result. If the cause cannot be identified and corrected, data generated on the same day as the outlying result are regarded as unreliable. Consult "Corrective Actions for Out of Control Data" for further details.

### Linear Regression Calculations for Calibration Curves

The determination of concentrations from instrument responses via linear curves is a common practice. Currently, most calibration curves are stored in Excel files that are easily accessible to laboratory technicians. The calculations are to be performed manually on a regular basis to



ensure that the calculations have not been accidentally changed in some manner. These checks are to be documented in a workbook designed for that purpose. The mathematical equation used to express a line is:

$$Y = a + bX$$

Where:

- Y = the dependant variable
- a = a is the intercept of the Y axis when X equals zero
- b = is the slope of the regression line
- X = the value of the independent variable

As an example, the following data was collected to form a calibration curve:

Standard concentration ( $\mu\text{g/L}$ ) = Y	Corresponding instrument response (absorbance) = X
0	0.000
1	0.015
2	0.033
5	0.076
10	0.148
25	0.366
50	0.753

From this information we can calculate the following:

- the sum of X ( $\Sigma X$ ) = 1.391
- the mean of X = 0.1987
- the sum of Y ( $\Sigma Y$ ) = 93
- the mean of Y = 13.2857
- number of measurements (n) = 7

If plotted on a piece of graph paper, we would see that the points roughly form a straight line. The pattern the points produce on the graph paper (straight line, parabolic curve, exponential curve, etc.) determines the type of regression model to be applied to the data. For most calibration curves, the straight line is required.

After selecting the model, the next step is to calculate the corrected sum of squares for both X (expressed as  $\Sigma x^2$ ) and Y (expressed as  $\Sigma y^2$ ).

The corrected sum of squares for X:

$$\begin{aligned} \Sigma x^2 &= \Sigma X^2 - \frac{(\Sigma X)^2}{n} \\ &= (0^2 + 0.015^2 + 0.033^2 + \dots + 0.753^2) - (1.391^2) / 7 \end{aligned}$$

$$= 0.4535$$

The corrected sum of squares for Y:

$$\begin{aligned}\Sigma y^2 &= \Sigma Y^2 - \frac{(\Sigma Y)^2}{n} \\ &= (0^2+1^2+2^2+5^2+\dots+50^2) - (93^2) / 7 \\ &= 2019.4286\end{aligned}$$

The corrected sum of products is:

$$\begin{aligned}\Sigma xy &= \Sigma(XY) - \frac{(\Sigma Y)(\Sigma X)}{n} \\ &= ((0X0)+(1X0.015)+(2X0.033)+\dots+(50X0.753)) - (1.391X93) / 7 \\ &= 30.26057\end{aligned}$$

As stated, the mathematical equation for a straight line is  $Y = a + bX$ . In this equation "a" and "b" are constants or regression coefficients that are estimated from our concentration vs. instrument response data set. Y is known as the dependant variable because it is determined from a known value of X, the independent variable. Based on the mathematical procedure of "least squares," the best estimate of these coefficients are:

$$\begin{aligned}b &= \frac{(\Sigma xy)}{(\Sigma x^2)} \\ &= 30.26057 / 0.4535 \\ &= 66.7267 \\ a &= Y - bX \\ &= 13.2857 - (30.26057 X 0.1987) \\ &= 7.2729\end{aligned}$$

Substituting these estimates into the linear equation creates a situation whereby if X is the instrument response to a sample, the concentration can be estimated as the result of Y:

$$Y = 7.2729 + 66.7267X$$

Once "a" and "b" have been solved from our data set, and a "best fit" line has been established with the data set, we must determine whether the line fits the acceptable correlation coefficient criteria established for our method. The first step in accomplishing this is to determine the regression sum of squares (expressed as RegSS). The regression sum of squares is the amount of variation in Y that is directly related to the regression on X. This is calculated by:

$$\begin{aligned}\text{RegSS} &= \frac{(\sum xy)^2}{\sum x^2} \\ &= 30.26057^2 / 0.4535 \\ &= 2019.1887\end{aligned}$$

To measure how strong the correlation is between the variables of Y and X, we can determine the amount of total variation in Y that is associated with the regression model. This ratio is known as the coefficient of determination (expressed as  $r^2$ ). The calculation is:

$$\begin{aligned}r^2 &= \frac{\text{RegSS}}{\sum y^2} \\ &= 2019.1887 / 2019.4286 \\ &= 0.99988\end{aligned}$$

The value of the coefficient of determination ranges from 1.00 to 0.00. The calculated  $r^2$  in the example above was 0.99988 or 99.988%. This suggests that 99.988% of the variation in Y was associated with the change seen in X from the original data set of observations.

The correlation coefficient (expressed as "r") is the primary value used to determine the acceptability of a calibration curve. As the symbol suggests, the calculation is the square root of  $r^2$ .

$$\begin{aligned}r &= \sqrt{r^2} \\ &= \sqrt{0.99988} \\ &= 0.99994\end{aligned}$$

The values for the correlation of coefficient ranges from 1.00 to -1.00. A value of 0.0 indicates that there is no relationship between X and Y. The strength of the relationship between the X and Y variables increases as the value of "r" approaches 1.00 and -1.00. A positive correlation coefficient indicates that an increase in X produces an increase in Y. A negative correlation coefficient indicates that an increase in X decreases the value of Y.