

# **TOXICITY REDUCTION EVALUATION**

## **Wastewater Treatment Plant**

### **Town of Bristol, Indiana**

Prepared for: Ms. Kaitlyn Baer  
Certified Operator  
Bristol, Indiana  
1300 West Vistula Street  
Bristol, IN 46507

**Project No.:** 18108  
**Date:** June 27, 2023

Prepared by:



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## 1.0 INTRODUCTION

The Town of Bristol owns and operates a wastewater treatment plant in Elkhart County, Indiana. This proposal is to assist the town with the whole effluent toxicity requirements of the current National Pollutant Discharge Elimination System (NPDES) permit.

The Bristol Wastewater Treatment Plant (WWTP) has an average design flow of 0.75 MGD. Treatment units consist of a rotating drum comminutor with bar screen, a primary clarifier, a biotower trickling filter, solids contact tanks, secondary clarifiers, phosphorus removal and UV disinfection. Solids are aerobically digested, dewatered and hauled to a landfill. The treated effluent is discharged to the St. Joseph River under NPDES permit number IN0036846. The permit has an effective date of February 1, 2019.

Part I, Item D of the NPDES permit requires the Town to test for whole effluent toxicity (WET) at Outfall 001. Part 2 of that section describes the Toxicity Reduction Evaluation (TRE) which is required if the effluent demonstrates toxicity. Toxicity is demonstrated if the effluent is observed to have exceeded 1.0 acute toxic units (TUa) based on 100% effluent for the test organisms in 48 hours for *Pimephales promelas* (*P. promelas*), and 96 hours for *Daphnia magna* (*D. magna*), and *Ceriodaphnia spp.* (*C. dubia*). In January 2023 and March 2023, the effluent demonstrated toxicity for *P. promelas*. Therefore, the NPDES permit requires that a TRE be completed in accordance with the schedule in the table below.

Development and Submittal of TRE Plan	Within 90 days of two failed toxicity tests
Initiate Effluent TRE	Within 30 days of TRE Plan submittal to IDEM
Progress Reports	Every 90 days from the initiation date of the TRE
Submit Final TRE Results	Within 90 days of the completion of the TRE, not to exceed 3 years from the date of the initial determination of toxicity. (two failed toxicity tests)
Post-TRE Biomonitoring Requirements	Immediately upon completion of the TRE, conduct 3 consecutive months of toxicity tests, if no toxicity is shown, reduce toxicity tests to once every 6 months for the duration of the permit term. If post-TRE biomonitoring demonstrates toxicity, revert to implementation of a TRE.

This proposal outlines the tasks that will be completed to meet Part 1,D of the NPDES permit.

## 2.0 SCOPE OF WORK

This proposal lays out the tasks for evaluating and attempting to identify the toxicity source(s). All methods used in the performance of these services are in accordance with USEPA approved methods.

By nature, the TIE/TRE process must proceed in a stepwise, iterative fashion. Information obtained by one technique must be verified and evaluated before determining the next course of action. For these reasons, this proposal does not attempt to set forth a fixed sequence of steps.

Rather, this document provides a conceptual plan for a TIE/TRE that accomplishes the following major tasks:

1. Gather additional information to determine the toxicity's constancy and better define the observed toxicity range.
2. Thoroughly evaluate practices, processes, and chemical usage to identify factors that influence toxicity in the facility discharge.
3. Thoroughly evaluate industrial user (IU) discharges, if present, to identify factors that influence toxicity. This evaluation should focus on process changes, chemicals used, housekeeping, and cleaning/disinfection agents used in the IU.
4. Identify the general class(es) of toxicant(s) present and then proceed to identify the specific toxicant(s) and source(s).

### **TASK 1: SITE VISIT AND DATA REVIEW**

Understanding the WWTP processes and operations is important for evaluating toxicity and sources of toxicity. EnviroScience will visit the WWTP to walk through the facility and gather information on the treatment process, chemicals used, and industrial dischargers. NetDischarge Monitoring (NetDMR) reports for the past 3 years and past toxicity testing data will be obtained from WWTP staff and reviewed. Information will also be gathered on past activities completed by the Town to investigate toxicity. The costs for this task include one trip to the WWTP and time for follow up discussions.

### **TASK 2: TOXICITY SCREENING TESTS**

It is essential to establish the short-term variability of the effluent toxicity. It may provide clues as to the source of the toxicity, which will help minimize the possibility of performing expensive toxicity identification evaluation (TIE) manipulations on samples having little or no toxicity.

The NPDES permit requires annual acute toxicity sampling. In order to establish the short-term variability of the effluent toxicity, EnviroScience recommends performing six acute screening bioassays over 12 weeks using *P. promelas* to gauge the variability of the observed toxicity. WWTP staff will collect these samples. Sample containers, transport coolers, chain of custody forms, and mailing labels will be provided by EnviroScience.

Each screening test will consist of four concentrations: 100% effluent from Outfall 001 and three dilutions. Because we will not use the full dilution series required by a standard test, these test results do not meet the requirements for compliance tests and are not reported on the monthly reports sent to IDEM. The Town should also perform analytical analyses of the effluent for the normal suite of NPDES permit parameters on each of these six screening samples. This NPDES permit required data must be submitted on the monthly reports sent to IDEM. Standard laboratory tests that accompany the bioassay tests include pH, temperature, dissolved oxygen, conductivity, alkalinity, hardness, and residual chlorine. To help gauge the toxicity source, we recommend that the six biweekly samples be collected on different days of the week and include weekends.

As sample results are obtained, reports will be sent to the Town while simultaneously being reviewed and evaluated by EnviroScience personnel. Next steps to be taken depend on the results of the previous test.

### TASK 3: TOXICITY IDENTIFICATION EVALUATION

The goal of this testing is to identify broad classes of chemical constituents responsible for the observed toxicity. The information presented below is not intended to represent a firm sequence of steps. Instead, the intent is to provide a conceptual outline that may be followed, if necessary, to identify and eliminate the source of toxicity.

In accordance with established USEPA guidance, the TIE process is subdivided into three general phases. Phase I involves a series of effluent manipulations that will characterize the toxicants according to broad chemical classes. Phase II uses Phase I information to determine specific chemical analyses that will identify the toxicant. Phase III procedures involve a series of tests and manipulations designed to confirm the identified toxicant before proceeding with treatability analyses.

If determined to be needed based on screening sample results, one or more of the Phase I toxicity characterization procedures identified below will be conducted. The selection and prioritization of the effluent manipulations to be performed will be decided based on screening sample results, information gathered during the site visit and conversations with Town personnel.

These tests will also be acute screening bioassay tests using *P. promelas* for the Phase I TIE work. The tests will include three effluent concentrations (e.g., 100%, 50%, and 10%) and a control. As indicated previously, not all of the manipulations listed below will necessarily be run. A brief description of the possible manipulations is as follows:

<b>Toxicity Screening</b>	Upon receipt, the wastewater sample will be screened for a minimum of 24 hours. Mortality results will be carefully considered before initiation of Phase I manipulations. As a general guideline, the manipulations/testing of the sample will be attempted if mortality exhibited by daphnids equals or exceeds 50% in 48 hours. EnviroScience will move to initiate the TIE within 24 hours of the completion of the toxicity screening.
<b>Baseline Effluent Test</b>	This test usually serves as a toxicity control and is started on the same day as each manipulation test to measure the inherent toxicity of the discharge and to gauge the toxicity changes caused by the wastewater manipulations. Baseline tests may or may not be required based on the outcome of the variability and persistence testing.
<b>EDTA Addition Test</b>	EDTA chelation removes a variety of cationic heavy metals from suspension and produces relatively non-toxic complexes. These metals include aluminum, barium, cadmium, copper, iron, lead, manganese, nickel, strontium, and zinc. EDTA does not complex well with arsenic, chromium, mercury, or selenium.
<b>Sodium Thiosulfate</b>	The addition of sodium thiosulfate reduces oxidants, such as chlorine, and removes some metals not removed by EDTA. These include cationic forms of common metals such as cadmium, copper, mercury, selenium, and silver.

<b>Filtration Test</b>	Filtration with glass fiber filters may reduce toxicity associated with suspended solids or particle-bound toxicants.
<b>Aeration Test</b>	Changes in toxicity due to aeration may be caused by substances that are oxidizable, spargeable, or sublutable.
<b>Post-C18 SPE Column</b>	By passing wastewater through an SPE column, non-polar organics, some metals, and some surfactants are removed.
<b>Methanol Eluate Test</b>	Sorbed, non-polar organics are eluted from SPE columns with methanol to determine the non-polar toxicant.
<b>Graduated pH Tests</b>	By adjusting wastewater pH, this test will determine whether toxicity can be attributed to compounds whose toxicity is pH-dependent, such as ammonia and some metals.

#### **TASK 4: REPORTS**

The first step required by the NPDES permit is the development of a TRE Plan. The TRE Plan is to include appropriate measures to characterize the causative toxicants and the variability associated with these compounds. The report will identify the steps that the Town will take to determine the cause of the toxicity. Technically, this plan was due to be submitted to IDEM by June 25, 2023. The Town reached out to IDEM to explain that the report would be late. EnviroScience will develop the TRE Plan as soon as possible and provide a draft to the Town for review. Once all comments/concerns of the Town are addressed, EnviroScience will provide the Town with a final version of the report that the Town will submit to IDEM. The goal is to have the report submitted by July 25, 2023.

The NPDES permit also requires that progress reports be submitted every 90 days. The first progress report will be due by October 31, 2023. EnviroScience will provide this progress report to the Town no later than 30 days prior to the date required by the NPDES permit to allow for its review and edits prior to submittal to IDEM. Time is allocated for one revision. Time is also allocated for EnviroScience personnel to discuss the report with IDEM via conference call if needed.

### **3.0 COSTS**

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Attachment A includes detailed costs for each task included in this project. Hourly rates are based on the 2023 EnviroScience Standard Rates. Additional details of potential costs associated with the first phase of the acute TIE are provided in Attachment B. Only those manipulations completed will be charged.

### **4.0 KEY PERSONNEL**

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EnviroScience has numerous staff capable of addressing many environmental needs, often with cross-training in multiple technical areas. This depth of staff provides great flexibility, responsiveness, and value. Short biographies of staff are provided below.

#### **Elizabeth Wick, P.E.**

Title: Senior Engineer

Specialty: Toxicity Reduction Evaluations, Industrial Wastewater Permitting, Municipal Wastewater Permitting

Experience: Total Experience 33 Years  
Time with Firm 1.5 years

Education: University of Toledo B.S. Chemical Engineering

Elizabeth Wick, P.E., has extensive experience with environmental permitting, regulations, and management. During her 33-year tenure at the Ohio EPA Northwest District Office (NWDO), Division of Surface Water, Elizabeth helped facilities attain and maintain permit compliance, serving as manager at the district for the past nine years. Elizabeth was responsible for numerous programs, including implementing the Pretreatment Program in the NWDO, where she performed inspections and reviewed engineering drawings and permit applications for industrial wastewater treatment systems. In addition to a B.S. in Chemical Engineering from the University of Toledo, Elizabeth holds a Class III Wastewater Operator license in Ohio.

### **Sheila Rayman, P.E.**

Title: Senior Environmental Engineer

Specialty: Industrial Wastewater Permitting, Municipal Engineering, Stormwater Management and Permitting

Experience: Total Experience 28 Years  
Time with Firm 6 Years

Education: University of Akron B.S. Civil Engineering 1995

Ms. Sheila Rayman, P.E., leads EnviroScience's Compliance Services team where she helps clients reach and maintain compliance with environmental regulation through design and implementation of stormwater management facilities, Stormwater Pollution Prevention Plans, Spill Prevention, Control, and Countermeasure Plans, NPDES Permits and infrastructure plans. Ms. Rayman has spent over 25 years as a municipal and consultant engineer, project manager, compliance, and stormwater specialist. She has a B.S. in Civil Engineering from the University of Akron and holds professional engineer registrations in six states.

Before coming to EnviroScience, Ms. Rayman was the Assistant City Engineer for the City of Stow. She focused on citywide stormwater improvements and meeting/maintaining compliance with the regulations of the city's Ohio EPA MS4 status. Her responsibilities included stormwater master planning and ensuring that SWPPP and SPCC documents for the city's municipal facilities addressed current regulations. In addition, she assisted in multiple roadway and bridge inspections and condition ratings. Her expertise in residential, commercial, and industrial development and environmental permitting provides experience-based assistance to both private and public sectors. Ms. Rayman's wide range of experience includes environmental studies, compliance with government and safety regulations, design standards, and construction documents and inspections. She maintains a strong focus on stormwater management and incorporating green rather than gray solutions to both new and redeveloped areas.

## 5.0 ASSUMPTIONS

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This proposal includes only the tasks specified above. If the scope of work changes for any reason, including requests from the Town of Bristol for additional work, or unforeseen issues that may extend the service hours and expenses quoted in this proposal, EnviroScience will submit a request for additional funds to cover any service hours or expenses incurred above and beyond the original scope of work.

Confirmatory testing, supplemental chemistry analysis, and additional rounds of specific manipulations may be needed and will be costed separately. Any additional testing will only be conducted with the express approval of the Town at the unit prices stated below.

Costing associated with other effluent manipulations and later stages of a TIE (if such stages prove necessary) will be developed following completion of the work outlined herein.

The costing outlined in Attachment B includes consumable supplies, extra blanks required by some tests, and an average of two hours of technician time for test preparation. The costing is based on one round of acute testing using *P. promelas* for each test and manipulation listed. As noted previously, these tests will be conducted as abbreviated acute toxicity tests, utilizing three effluent dilutions and a control. Note that not all tests may be run depending on the operational assessment results. Finally, more than one round of testing may be required for selected manipulations.

## **SCHEDULE AND AGREEMENT**

EnviroScience, Inc. is prepared to begin work immediately upon written authorization to proceed. Costs for this proposal are presented in Attachment A. The price in this proposal is valid for 60 days from the date of issuance. Terms and Conditions are provided below.

Once the task(s) have been accepted, an officer of EnviroScience will sign, and we will return a fully executed copy for your records.

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**EnviroScience Executive Officer**

**Date**

**Accepted and Authorized to Proceed**

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**Name**

**Title**

**Date**



## TERMS AND CONDITIONS

The following Standard Terms and Conditions, together with the attached Proposal and Fee Schedule, constitute the Agreement between EnviroScience, Inc. ("ES") and the entity or person to whom the proposal is addressed ("Client") for the performance of professional services outlined in the proposal, effective from the date set forth herein. The Standard Fee Schedule may be omitted for Lump Sum type Agreements. The Client and ES agree as follows:

- 1. Engagement.** The Client engages ES to provide the services and deliverables (the "Services") described in the proposal above, subject to the terms and conditions hereof. ES shall not be bound to this Contract unless the Client provides ES with a fully executed Contract that ES has had the opportunity to review before entering into the Agreement. For this Agreement, the "Contract" shall mean any agreement between the Client and any third party to which ES will provide Services for on behalf of the Client as a subcontractor.
- 2. Payments & Accounting.** The Client will pay ES in U.S. Dollars for the Services provided at the costs indicated with and agree to in this proposal (the "Fees"). ES shall invoice the Client for the Fees as described above. Client agrees to timely payment of each invoice as agreed to above. Should the Client fail to pay the agreed-upon Fees, ES may immediately terminate or suspend this Agreement at its sole discretion upon written notice to the Client until payment in full is received for the Services provided or in-process and is satisfied that the Client will pay for future Services. Should ES suspend performance and continue it later, ES will be entitled to a time extension for performance as necessitated by the suspension. Termination or suspension of performance by ES does not relieve the Client of its timely payment obligations. Full or partial payments received from or for the account of the Client, regardless of any writings on or documents attached to such payments, shall be applied by ES against any amount owed by the Client with full reservation of all ES's rights, without an accord and satisfaction of the Client's liability. Unpaid balances will be subject to a finance charge of the lesser of (i) one and one-half percent (1.5%) per month (18% annually), or (ii) the maximum amount permitted by law until all unpaid balances are paid in full.
- 3. Confidentiality.** Confidential information may be provided or access to such information be provided by the Disclosing Party to the Receiving Party (Client or ES). "Confidential Information" refers to any communications or access to the Disclosing Party's intellectual property, proprietary business information, information concerning its employees or subcontractors, or any other information from the Disclosing Party not mentioned herein. The Receiving Party shall not disclose any Confidential Information to any third party for any purpose without written consent of the Disclosing Party. Confidential Information shall not include any information: (i) developed by the Receiving Party without references to the Confidential Information or lawfully in the Receiving Party's possession prior to receipt from the Disclosing Party; (ii) publicly known through no fault of the Receiving Party; or (iii) otherwise lawfully available to the Receiving Party from a third party not known by the Receiving Party to be under an obligation of confidentiality to the Disclosing Party. Upon termination of the Agreement, all Confidential Information and other information shall be returned or destroyed promptly upon request, the Receiving Party shall not retain copies and not thereafter use such Confidential Information in any respect whatsoever. If ES is requested or required to store files, data, samples, or the like hereunder, ES shall keep such material for no longer than five (5) years. Any storage thereafter shall be at the sole cost of the Client. ES reserves the right to retain and present basic project information regarding the services rendered for this project in basic marketing materials and capabilities statements. This information will be limited to services performed by ES only, and not by the Client.
- 4. Intellectual Property.** For this Agreement, "Intellectual Property" means (i) patents, their applications or disclosures, including all ideas, inventions and improvements disclosed therein, and all reissues, continuations, continuations in part, divisions and reexaminations thereof; (ii) trademarks, service marks, trade names, trade dress, logos, slogans, domain names, including all goodwill appurtenant thereto, and all registrations and applications for registrations thereof and all renewals and extensions thereof; (iii) copyrights and mask works and all registrations; (iv) computer software, source code, software applications and platforms, websites, disks or drives, data, databases and user documentation and audiovisuals, domain names, and text materials; (v) all trade secrets, moral rights, research and development materials, processes, procedures, know-how, ideas discoveries, inventions, customer lists, supplier lists, formulas, drawings and designs, technical data, marketing, financial and business plans; (vi) all advertising materials; and (vii) copies and related documentation. The Client agrees that ES owns the exclusive right, title, and interest of all its Intellectual Property and derivatives, whether produced prior to the date hereof, expressly excluded from the Statement of Work, or produced independently of the provision of Services hereunder ("Background IP"). The Client shall not during the Term or thereafter permit any act that impairs the ES's rights in respect to ES's Background IP. The Client will never represent ownership in any of ES's Background IP. Client expressly agrees use and goodwill of the Background IP shall accrue to ES's sole benefit.
- 5. Work Made for Hire.** This Agreement is a contract between ES and the Client for services, and each considers the work product created by the Services (the "Work Product") to be a work made for hire, as that term is defined under the United States Copyright Act. "Work Product" shall expressly exclude all ES Background IP. ES acknowledges and agrees, except as otherwise set forth in this Agreement or Statement of Work, upon payment in full to ES, the Work Product is the exclusive property of the Client. The rights granted hereunder are subject, in

all cases, to the restrictions set forth in Section 4. ES shall retain exclusive ownership of the Background IP together with all Intellectual Property rights, unless otherwise stated in this Agreement.

If any Background IP is incorporated into Work Products or Services, upon payment in full to ES, ES hereby grants the Client a limited, non-assignable, nonexclusive license to use such Background IP solely with its use of the Work Product. If the Client uses the Work Product for any purpose other than its intended use, the license shall be immediately terminated; the Client has no interest in or claim to the Background IP other than the described license. In addition, ES may use, transfer or otherwise deal with the Background IP for use with third parties for the benefit of ES or such third parties.

6. **Injunctive Relief.** The parties agree that damages incurred during a breach of the restrictive covenants within this Agreement may be difficult or impossible to ascertain and no adequate remedy at law may exist. If a breach occurs, the non-breaching party shall be entitled to any lawful remedies and may seek equitable relief to enforce all covenants of this Agreement. The breaching party waives (i) the defense that a remedy in damages will be adequate and (ii) any requirement in action for specific performance or injunction for the posting of a bond.
7. **Reservation of Remedies.** The rights, powers and remedies given or reserved to the parties by this Agreement shall be cumulative and in addition to all other and further remedies provided by law. This Agreement does not deprive the parties of any other rights given by law or at equity. Should a party delay or fail to exercise any right or remedy, it shall not constitute a waiver of any rights under this Agreement. If a party consents to a breach of any express or implied term of this Agreement, it shall not constitute consent to any other prior or subsequent breach.
8. **Disclaimer of Warranties.** ES provides Services to the Client on an "as-is" basis without any warranties, and ES disclaims all warranties, whether express, implied, or statutory, including, without limitation, implied warranties of merchantability, title, fitness for a particular purpose, and non-infringement. ES has no duty to verify third party information and the Client hereby agrees that any reliance by the Client on ES's consulting services, which may or may not include third party information, shall be at the Client's sole risk and liability.
9. **Client Acknowledgements, Representations, and Warranties.** The Client agrees that ES will provide Services "as-is" without any warranty or guaranty, express or implied, and the Client agrees the Work Product and deliverables are solely based on the information, specifications, and requirements they provide. The Client represents and warrants, by entering this Agreement and accepting the Services from ES, that the Client's execution, delivery, and performance of the Agreement have been duly authorized by all appropriate or required action on the part of the Client, and the Agreement constitutes a valid and binding obligation of the Client enforceable against it in accordance with its terms.
10. **Indemnification.** Each party hereto (the "Indemnifying Party") shall indemnify, defend, and hold harmless the other party and any associated persons against all losses, damages, or expenses of any nature, including reasonable costs of legal defense, whether direct or indirect, that they may incur as a result of (i) any act or omission of the Indemnifying Party; (ii) a breach by the Indemnifying Party of any representation, warranty, and/or agreement with any Indemnified Party; and/or (iii) a violation by the Indemnifying Party of any applicable law, regulation, or order of the United States or any applicable governmental authority. The indemnification obligations under this Section 10 shall continue indefinitely.
11. **Limitation of Liability.** Neither party shall be liable and disclaims all lost profits and any other damages whether arising from services or performance under this Agreement as permitted by law. If termination of this Agreement occurs, neither party is liable to the other for compensation, indemnification, reimbursement, or damages whether of prospective profits or sales or on account of financial decisions or commitments or anticipated extended performance. Notwithstanding, the Client's exclusive remedy against ES, and ES's maximum liability and sole obligation, for all claims, shall be limited to refunding the amounts the Client paid ES hereunder.
12. **Term; Termination.**

This Agreement shall commence on the Effective Date and continue while ES performs or provides Services to the Client (the "Term"). This Agreement shall not be terminated except (i) by either party in the event of a material breach by the other party (which shall require a 30-day notice before any such termination can be effective), (ii) by written consent of both parties, or (iii) by ES if the Client fails to pay timely any amount due under an Invoice and the Client does not cure such breach within five (5) calendar days of receipt of ES's notice. Notwithstanding anything herein to the contrary, the rights and obligations of the parties with respect to Intellectual Property rights, confidentiality, and governing law shall survive termination of this Agreement indefinitely.
13. **Termination for Bankruptcy or Liquidation Action.** This Agreement may be terminated immediately by one party if the other party has (i) ceased to do business, (ii) made a general assignment for the benefit of creditors, or (iii) filed or had filed against it a petition seeking the reorganization, arrangement, composition, adjustment, liquidation or dissolution or seeking similar relief under any other law or regulation, or seeking the appointment of a trustee or similar officer of the court for a substantial part of its properties; provided, however, that either party shall have a sixty (60) day cure period for any involuntary petitions in bankruptcy. Should ES terminate this Agreement, all amounts payable to ES for Services rendered will immediately become due and payable to ES, or

if any such amounts are not available for immediate payment, such amounts will be deemed owed to ES by the Client and ES will be identified as a creditor of the Client in such amounts until payment is received in full.

14. **Relationship.** Neither party nor any other affiliates shall be deemed a representative of the other, nor shall either party hold itself out as a representative of the other beyond this Agreement, and neither shall have any right or authority to conduct any business in the name of, or on behalf of the other. The parties agree that ES will serve as an independent contractor of the Client, the Client and ES are separate entities and no master/servant, partnership, joint venture, principal/agent, or employer/employee relationship exists between the parties.
15. **Force Majeure.** Except for payment obligations, neither party will be liable for performance delay or failure under the Agreement, in whole or in part, when it results from causes beyond such party's reasonable control. However, if performance (except for payment obligations) becomes impossible for more than 90 consecutive days for the foregoing reasons, the injured party may terminate the Agreement, effective upon receiving notice of termination.
16. **Miscellaneous.**
  - a. **Headings.** The headings or words throughout this Agreement are for reference only and in no way explain, modify, amplify or aid in the interpretation, construction, or the meaning of the provisions of this Agreement.
  - b. **Severability.** Should any part of the Agreement be held illegal, void, or unenforceable, the remainder and its application shall not be affected, and each provision shall be valid and enforced to the fullest extent of the law.
  - c. **Governing Law.** This Agreement shall be governed by and construed per the internal, substantive laws of the State of Ohio, United States of America, without regard to choice or conflict of law rules.
  - d. **Dispute Resolution.** Any party to this Agreement may submit any controversy or claim against another party arising from or relating to this Agreement or breach thereof or any agreement entered into by the parties hereto to mediation on written request to the other party, specifying the matter in dispute. Within ten (10) days of that request, each party shall choose one mediator, and the two mediators shall choose an independent third mediator. The claim, controversy, or breach shall be heard by the three mediators. Each party shall pay for the cost of its own mediator and share in the cost of the third mediator. Each party shall bear its own attorneys' fees regarding the mediation. The mediation shall be held in Cuyahoga County, Ohio. If the parties are unable to resolve their claim, controversy, or breach at mediation and the majority of the mediators (two of the three) declare an impasse or, after thirty (30) days, then either party may file a demand for mandatory arbitration hereto. The arbitration shall be in accordance and in compliance with the commercial rules of the American Arbitration Association, and judgment upon the award rendered by the arbiters may be entered in any court having jurisdiction thereof. All arbitration hearings conducted hereunder and all judicial proceedings to enforce any provisions hereof shall take place in Cuyahoga County, Ohio. Arbitration hearings shall take place before three (3) arbitrators. Each of the parties disputing shall choose one (1) arbitrator, and the two (2) arbitrators shall choose a third, independent arbitrator. The decision of any two (2) of the three (3) arbitrators shall be binding and conclusive on the parties to the arbitration. The submission of a dispute to arbitrators and the rendering of their decision shall be conditioned precedent to any right of legal action to enforce any of the provisions hereof or findings of the arbitrators under the dispute. The costs and expenses of the arbitration, including fees of the arbitrator (but specifically excluding attorneys' fees, expert fees, accounting fees, witness fees, and the cost of discovery), shall be borne by the parties equally.
  - e. **Translation.** If any part of this Agreement requires translation to another language, the Client will provide written notice to ES and produce the translation at their expense. The translation will be provided to ES certified as a true and accurate duplicate and translation of this Agreement and the terms and conditions herein.
  - f. **Entire Agreement; Amendments.** This Agreement contains the entire agreement of the parties. The terms of this Agreement expressly supersede all prior oral or written agreements between the parties with respect to the subject matter hereof. Unless otherwise set forth in this Agreement, no modifications, additions, or amendments to this Agreement shall be effective unless made in writing as an addendum to this Agreement and signed by duly authorized representatives of both parties.
  - g. **Assignments.** The Client shall not transfer this Agreement by any means without ES's prior written consent, and any assignment or attempt to do so without such consent will be void and of no effect.
  - h. **Beneficiaries.** This Agreement will only inure to the benefit of the parties and their permitted successors, and, except as expressly set forth in this Agreement, there are no third-party beneficiaries to this Agreement.
  - i. **Notice.** All communications provided in this Agreement or any Statement of Work will be in writing and delivered to ES in person, by an internationally recognized mail service (e.g., FedEx) or certified mail with postage prepaid and a return receipt requested, or by email, provided the original will promptly follow by the aforementioned mail service. All notices will be sent to the applicable party at the address(es) on the first page of this Agreement (or as otherwise instructed in writing by such party).
  - j. **Counterparts.** This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but both of which shall constitute the same agreement.

## **Attachment A**

### **Costs**

**Attachment A**  
EnviroScience Costs  
Toxicity Reduction Evaluation  
ES Project No. 18108  
Bristol, IN

**Task 1: Site Visit and Data Review**

<b>Item</b>	<b>Unit Cost</b>	<b>Units</b>	<b>Total</b>
Senior Engineer II	\$185.00	3	\$555.00
Senior Engineer I	\$165.00	24	\$3,960.00
Scientist II	\$104.00	8	\$832.00
Total Hours			35
<b>Total Labor Cost</b>			<b>\$5,347.00</b>
Mileage	\$1.02	260	\$263.90
<b>Total Other Direct Costs (ODCs)</b>			<b>\$263.90</b>
<b>Total Cost for Task 1</b>			<b>\$5,610.90</b>

**Task 2: Toxicity Screening Tests**

<b>Item</b>	<b>Unit Cost</b>	<b>Units</b>	<b>Total</b>
Senior Engineer II	\$185.00	1	\$185.00
Senior Engineer I	\$165.00	10	\$1,650.00
Total Hours			11
<b>Total Labor Cost</b>			<b>\$1,835.00</b>
P. promelas Acute Screening	\$400.00	6	\$2,400.00
Shipping	\$100.00	6	\$600.00
<b>Total ODCs</b>			<b>\$3,000.00</b>
<b>Total Cost for Task 2</b>			<b>\$4,835.00</b>

**Task 3: Toxicity Identification Evaluation**

<b>Item</b>	<b>Unit Cost</b>	<b>Units</b>	<b>Total</b>
Senior Engineer II	\$185.00	1	\$185.00
Senior Engineer I	\$165.00	10	\$1,650.00
Total Hours			11
<b>Total Labor Cost</b>			<b>\$1,835.00</b>
<b>Total Cost for Task 3</b>			<b>\$1,835.00</b>

**Attachment A**  
EnviroScience Costs  
Toxicity Reduction Evaluation  
ES Project No. 18108  
Bristol, IN

**Task 4: Reports**

<b>Item</b>	<b>Unit Cost</b>	<b>Units</b>	<b>Total</b>
Senior Engineer II	\$185.00	3	\$555.00
Senior Engineer I	\$165.00	30	\$4,950.00
Total Hours			33
<b>Total Labor Cost</b>			<b>\$5,505.00</b>
<b>Total Cost for Task 4</b>			<b>\$5,505.00</b>
<b>Total Project Cost</b>			<b>\$17,785.90</b>

## Attachment B

### TIE Manipulations and Costs

Test/ Manipulation	Cost w/ Acute Endpoints	Comments
Screening	\$ 400.00	With acute endpoints
Baseline	\$ 400.00	Necessary to ensure we start with a sample exhibiting toxicity
Aeration	\$ 425.00	Targets volatile organic compounds
Aeration - toxicity recovery option	\$ 425.00	Can be initiated after the results of a positive aeration test to verify surfactant toxicity
EDTA	\$ 500.00	Target some metals
Sodium Thiosulphate	\$ 500.00	Performs oxidant reduction, targeting chlorine and some metals
Graduated pH	\$ 650.00	Targets ammonia and some metals
Filtration	\$ 600.00	Removes particulates, necessary for C18 SPE
C18 SPE	\$ 600.00	Removes non-polar organics, some surfactants
Methanol Eluate	\$ 650	May be useful depending on results of SPE and other manipulations; should be run concurrently with SPE
pH adjustment	\$ 600	
Shipping	\$ 100.00	per event
Data Analysis & report prep at \$115 per hour	\$ 1,840.00	The time required for all manipulations and proportionately reduced if not all manipulations are run
<b>Total cost if all elements are selected</b>		<b>\$ 7690</b>