

## FORM 7

### MONTHLY PROGRESS REPORT

Name of Listed Issuer: BacTech Environmental Corporation (the "Issuer").

Trading Symbol: BAC

Number of Outstanding Listed Securities: 157,755,558

Date: January 5, 2022

This Monthly Progress Report must be posted before the opening of trading on the fifth trading day of each month. This report is not intended to replace the Issuer's obligation to separately report material information forthwith upon the information becoming known to management or to post the forms required by Exchange Policies. If material information became known and was reported during the preceding month to which this report relates, this report should refer to the material information, the news release date and the posting date on the Exchange website.

This report is intended to keep investors and the market informed of the Issuer's ongoing business and management activities that occurred during the preceding month. Do not discuss goals or future plans unless they have crystallized to the point that they are "material information" as defined in the Policies. The discussion in this report must be factual, balanced and non-promotional.

#### General Instructions

- (a) Prepare this Monthly Progress Report using the format set out below. The sequence of questions must not be altered, nor should questions be omitted or left unanswered. The answers to the items must be in narrative form. State when the answer to any item is negative or not applicable to the Issuer. The title to each item must precede the answer.
- (b) The term "Issuer" includes the Issuer and any of its subsidiaries.
- (c) Terms used and not defined in this form are defined or interpreted in Policy 1 – Interpretation and General Provisions.

#### Report on Business

1. Provide a general overview and discussion of the development of the Issuer's business and operations over the previous month. Where the Issuer was inactive disclose this fact.

*BacTech Environmental Corporation ("BacTech" or "Company") continues to pursue arsenopyrite opportunities in Ecuador and other Andean countries that allow for the use of the Company's proprietary bioleach technology.*

On December 16, , BacTech announced and release the executive summary results of its 3<sup>rd</sup> party produced Bankable Feasibility Study (“BFS”) for the staged development of its 100% owner-operated bioleaching facility in Ponce Enriquez, Ecuador (“PE”). The results point toward a very robust and economically compelling project with strong performance metrics.

South American mining and metallurgical engineering and development firm EPCM Consultores S.R.L. (“EPCMC”) was engaged in July 2021 to undertake the independent feasibility study for the Company’s proposed bioleach processing plant to be located in Tenguel, strategically situated for easy accessibility to PE mining operations. The BFS outlines process economics expectations and metrics pointing toward solid and long-term program viability, while considering associated capital and operating costs for the project.

#### **Key Economic Highlights:**

- Pre-tax NPV (Net Present Value with 5% discount rate) of \$46.9M
- Pre-tax IRR (Internal Rate of Return) of 48%
- Annual Gold Production of 25,900 ounces
- Capital Cost of \$15.5M
- Bioleach Operating Cost of \$212 per tonne
- Assumed Purchase Prices of Concentrate - 65% of the contained gold value
- Pre-tax Earnings Prior to Employee Bonus - \$8.94M
- Payback (75% DEBT) - 2 years

#### **Additional Project Economics & Parameters:**

- Plant Design Capacity -15,030 tonnes of dry concentrate per annum
- Plant Life - 20 years
- Average Gold Recovery Bioleaching – 96%
- Annual Gold Production (55 gpt average feed) - 25,900 ounces
- All-in Opex - \$212 per tonne
- Up Front Capital - \$15.5M
- Base Case Gold Price - \$1600 per ounce
- Payback from Start of Production – 2.5 years

#### **Project Gold Price Sensitivity:**

<b>Gold Price</b>	<b>NPV (5%)</b>	<b>IRR</b>	<b>EBITA</b>
<b>\$1,500</b>	<b>\$41M</b>	<b>43%</b>	<b>\$8.1M</b>
<b>\$1,600</b>	<b>\$47M</b>	<b>47%</b>	<b>\$8.8M</b>
<b>\$1,700</b>	<b>\$53M</b>	<b>53%</b>	<b>\$9.7M</b>
<b>\$1,800</b>	<b>\$59M</b>	<b>57%</b>	<b>\$10.6M</b>
<b>\$1,900</b>	<b>\$65M</b>	<b>62%</b>	<b>\$11.4M</b>

*The feasibility study contemplates the purchase of concentrates, high in both arsenic and gold levels, from mines located in the Ponce Enriquez area of SW Ecuador. In total, there are over 90 small mines operating in the area. BacTech intends to return local miner compensation back to previous payment levels, prior to a sweeping price reduction imposed by Chinese buyers due to recent import levies on arsenic/gold concentrates entering China.*

*EPCMC is a South American engineering and development firm specializing in mining and metallurgical projects. EPCMC has considerable experience in a range of professional engineering services including feasibility studies, project design and construction within South America and Europe, having delivered close to 50 major projects and working with various international mining companies including Orvana, Silver Standard, Aquila Resources and Yamana Gold.*

*This press release has been reviewed by Dr. Paul C. Miller Ph.D. Chem. Eng. C.Eng. MIMM., considered to be a qualified expert for reporting purposes.*

2. Provide a general overview and discussion of the activities of management.

#### GENERAL CORPORATE

*The BacTech bioleaching technology can be applied to the processing of high arsenic concentrates and remediation of polluted mine waste in an economically beneficial manner. The BacTech bioleaching technology has been used commercially in the past for the liberation of precious and base metals from difficult to treat mine concentrates and ores. The business plan for BacTech Environmental Corporation is to apply the BacTech bioleaching technology to abatement projects to remove harmful elements such as arsenic and sulphur from the environment, where this can be assisted by a positive cash flow from metal recovery. Metals which could be extracted include gold, silver, cobalt, nickel, copper, uranium and zinc.*

## ECUADOR

BacTech has identified the Ponce Enriquez area of southern Ecuador as an area where the Company's bioleaching technology can be successfully deployed for environmental processing of locally produced concentrates. Given the high levels of arsenic contained in the ore from the area, miners receive significantly reduced prices for their concentrates due to penalties applied by the buyers. The buyers tend to be from Asia where concentrates are shipped for conventional smelting and/or roasting. The concentrates are subject to a 3% export royalty on the gold value payable by the miner to the Government of Ecuador. BacTech believes that by implementing an in-country bioleach solution it can offer superior pricing for these concentrates to the local producers, better payment terms, provide domestic Ecuadorian employment opportunities. It should be noted that the final arsenical product resulting from bioleaching, ferric arsenate, is a US Environmental Protection Agency approved land-fillable form of arsenic.

### *Plans for Ecuador*

Ecuador Project	Q1 2022	Q2 2022	Q3 2022	Q4 2022
Bioleach Test Work	Completed			
Feasibility Study	Completed			
Detailed Engineering	In Progress			
Project Financing	In Progress			
Permitting		In Progress		
Construction			In Progress	

The initial capacity for the proposed plant would be 50 tonnes per day ("tpd") of arsenopyrite and refractory pyrite concentrates. At this stage the Company will be pursuing its goals with 100% ownership, but BacTech would consider a joint venture partner going forward. BacTech will act strictly as a purchaser and processor of third party concentrates and will not own any mineral properties in Ecuador. The current size of the market is estimated to be 200-250 tpd of concentrate.

In the above chart we can see that the first step in the process involves ear-marking suitable concentrates for which a detailed bioleach test program will be undertaken. The Company collected samples from 6 different mines in the area from which 3 were selected as candidates for bioleaching. These samples were assayed for gold and arsenic content before being subjected to bioleach test work carried out at ALS Labs in Perth, Australia. A first step in the process is completion of a diagnostic leach study to get a better understanding of the leachability of the gold. On April 21, 2021, BacTech announced that it has achieved gold recoveries of over 99%. The estimated time to complete the test work is 16-20 weeks after which BacTech would establish the projected gold recovery and sulphide oxidation ratios as well as gaining a good understanding of the flow sheet for the plant.

## Bio-Oxidation Kinetics

Bioleach test work on material collected from small mine producers in Ponce Enriquez, Ecuador, previously assayed to confirm positive magnitudes of gold, was completed on June 23<sup>rd</sup>, 2021. No unusual phenomenon was encountered during the testing compared to other feedstocks. The results are particularly encouraging, given the fact that some of the feedstocks were pretreated with cyanide by the miner to obtain any free gold present. Cyanide contaminated concentrates with high arsenic content are recognized as more difficult to treat due to toxicity phenomenon. A specialized pre-washing process was used to mitigate the toxicity effects of any residual cyanide species present in these feedstocks on the bio-oxidation process. A further positive attribute is that due to the low amount of inert siliceous gangue present in the feedstocks, a high weight loss was noted in the bio-oxidation testing. This has positive process implications in reducing the size of equipment required for downstream gold recovery and hence capital and operating costs.

## Gold Recovery

Cyanidation work was conducted on the bio-oxidized residues at an independent lab to quantify the amount of gold that was liberated using bioleaching. Previous diagnostic test results received from ALS Laboratories on 20 April showed that if the feedstocks are oxidized to extinction, then 99% of the gold can be recovered. On July 19<sup>th</sup> the Company released the expected recovery rates for gold from bioleaching. In a program designed with added rigor to test the entire commercial process, final results showed a range of 95.5 to 96.5% gold recovery on the samples of arsenopyrite and pyrite.

Samples were either tested individually or as a blend, in order to confirm the process flexibility for managing various treatment scenarios in which a range of feedstocks with different compositions would be delivered to the plant. The table below shows the gold recoveries obtained from the tests conducted using a variety of feedstock combinations. The arsenic content of all the feedstock combinations tested was very high.

Feedstock Supplied to the Test	Feedstock Gold Head Grade (g/t)	Feedstock Arsenic Content (%)	Bio-oxidized Gold Grade for CIL processing (g/t)	Tail Gold Grade After CIL Gold Extraction (g/t)	Gold Recovery (%)
Conc. 1 + Conc.3	54.6	16	55.0	2.15	<b>96.1</b>
Conc. 5	21.7	12.9	28.1	1.27	<b>95.5</b>
Conc. 1+ Conc. 3 +Conc. 5	39.6	14.6	52.8	1.92	<b>95.4</b>

## Bioleach Liquor Neutralization

This study will validate model predictions for reagent requirements of limestone (CaCO<sub>3</sub>) and other reagents. Limestone (or lime) will be added to the post bioleach solution to raise the pH enabling precipitation of the iron and arsenic to form a stable ferric arsenate precipitate recognized by the USEPA and similar bodies as being environmentally benign

and suitable for disposal. This test work will also produce a clean water for recycling to the process and the final solutions from neutralization will be assayed to ensure compliance for re-use.

#### *Environmental Testing*

TCLP testing focuses on the arsenic precipitate produced from the neutralization process to confirm resulting ferric arsenate is in compliance with the Toxicity Characteristic Leaching Procedure ("TCLP") standards and the US EPA's standards for deposition of waste materials. BacTech intends to transform harmful contaminants into benign EPA-approved products and the results from this test work will contribute to environmental approval for the project and process permitting. On August 30, 2021, BacTech announced the final bioleaching test results showing the successful neutralization of bio-oxidation liquors and TCLP stability testing of ferric arsenate precipitates. Four neutralization tests were performed on two final bio-oxidation liquors from the Ecuadorian commercial bioleach testing program, confirming that an environmentally stable ferric arsenate precipitate could be produced. The neutralization process, where limestone is added and calibrated to raise the pH of the bioleach liquor to facilitate the precipitation of the ferric arsenate, conclusively demonstrated that the precipitate passes the TCLP (Toxicity Characteristic Leaching Procedure) requirements for stability set out by the U.S. Environmental Protection Agency ("EPA").

#### *Feasibility Study for Ponce Enriquez*

On December 16, , BacTech announced and release the executive summary results of its 3<sup>rd</sup> party produced Bankable Feasibility Study ("BFS") for the staged development of its 100% owner-operated bioleaching facility in Ponce Enriquez, Ecuador ("PE"). The results point toward a very robust and economically compelling project with strong performance metrics. For more information see section 1.

The BFS considers the proposed environmental setting and entire project infrastructure, along with sample collection and final bioleach test work results, to produce conceptual plans and estimates that encompass plant design, constructability, process economics expectations and scheduling. This study is simplified by the fact that there are no mining requirements to consider. Upon completion, the FS will provide the company with the information required to make a definitive decision on the bioleach plant location - culminating with the final representation of the plant build and operational planning requirements.

Using the flow sheet developed by the bioleach test work, the final piece of this phase of the project would be detailed engineering. It is our intent to rely heavily on the designs from previous plants that BacTech has built which addressed material with very similar mineralogical structure.

BacTech has now placed on option to purchase a parcel of land to be used for the operations in Ponce Enriquez. Applications will be made to the Ministries of Mining, Water and Environment, for approval of a water usage license, and tailings approval for the post bioleach residues.



We estimate that the cost to get the project to a “shovel ready” state will be approximately US\$800,000. The actual budget for construction, procurement and materiel is estimated to be \$US 15M with a 20% variance, based on costs from past projects. The detailed engineering will allow the company to reduce the variance in the budget. The estimated time to complete the pre-construction studies is approximately 12 months with the permitting being the longest part of the process. At the end of this process BacTech will actively pursue contractual concentrate feeds from local sources and quite possibly from neighboring countries such as Peru. Once the Company successfully completes the initial plant, it is conceivable we will attract enough feed to exceed the plant’s capacity. The current output from the Ponce Enriquez area is estimated to be 200-250 tpd of gold/arsenic concentrates. This could lead to a straight-forward expansion as BacTech’s plants are modular in design.

### Other

The Company continues to receive and evaluate other expressions of interest and potential projects from many different countries and companies, the latest being the project Peru, Canada and Ecuador.

3. Describe and provide details of any new products or services developed or offered. For resource companies, provide details of new drilling, exploration or production programs and acquisitions of any new properties and attach any mineral or oil and gas or other reports required under Ontario securities law.

*Refer to Section 1 –announcements regarding the project in Ecuador.*

4. Describe and provide details of any products or services that were discontinued. For resource companies, provide details of any drilling, exploration or production programs that have been amended or abandoned.

*Not applicable.*

5. Describe any new business relationships entered into between the Issuer, the Issuer’s affiliates or third parties including contracts to supply products or services, joint venture agreements and licensing agreements etc. State whether the relationship is with a Related Person of the Issuer and provide details of the relationship.

*Not applicable.*

6. Describe the expiry or termination of any contracts or agreements between the Issuer, the Issuer’s affiliates or third parties or cancellation of any financing arrangements that have been previously announced.

*Not applicable*

7. Describe any acquisitions by the Issuer or dispositions of the Issuer's assets that occurred during the preceding month. Provide details of the nature of the assets acquired or disposed of and provide details of the consideration paid or payable together with a schedule of payments if applicable, and of any valuation. State how the consideration was determined and whether the acquisition was from or the disposition was to a Related Person of the Issuer and provide details of the relationship.

*Not applicable*

8. Describe the acquisition of new customers or loss of customers.

*Not applicable.*

9. Describe any new developments or effects on intangible products such as brand names, circulation lists, copyrights, franchises, licenses, patents, software, subscription lists and trademarks.

*Not applicable.*

10. Report on any employee hiring, terminations or lay-offs with details of anticipated length of lay-offs.

*Not applicable.*

11. Report on any labour disputes and resolutions of those disputes if applicable.

*Not applicable.*



12. Describe and provide details of legal proceedings to which the Issuer became a party, including the name of the court or agency, the date instituted, the principal parties to the proceedings, the nature of the claim, the amount claimed, if any, if the proceedings are being contested, and the present status of the proceedings.

*Not applicable.*

13. Provide details of any indebtedness incurred or repaid by the Issuer together with the terms of such indebtedness.

*Not applicable.*

14. Provide details of any securities issued and options or warrants granted.

Security	Number Issued	Details of Issuance	Use of Proceeds <sup>(1)</sup>
Common Shares	1,100,000	400,000 warrants and 700,000 options were exercise at various prices for gross proceeds of \$83,000	General working capital

15. Provide details of any loans to or by Related Persons.

*Not applicable.*

16. Provide details of any changes in directors, officers, or committee members.

*Not applicable*

17. Discuss any trends which are likely to impact the Issuer including trends in the Issuer's market(s) or political/regulatory trends.

*The Company is subject to various market, political and regulatory trends as a result of the COVID-19 situation and additional business and financial risks that may result therefrom. The duration of the COVID-19 outbreak and the resultant travel restrictions, social distancing, Government response actions, business closures and disruptions, can all have an impact on the Issuer's operations and access to capital. There can be no assurance that the Issuer will not be impacted by adverse consequences that may be brought about by the COVID-19 pandemic on global financial markets, share prices and financial liquidity and that may severely limit the financing capital available to the Company.*

## Certificate of Compliance

The undersigned hereby certifies that:

1. The undersigned is a director and/or senior officer of the Issuer and has been duly authorized by a resolution of the board of directors of the Issuer to sign this Certificate of Compliance.
2. As of the date hereof there is no material information concerning the Issuer which has not been publicly disclosed.
3. The undersigned hereby certifies to Exchange that the Issuer is in compliance with the requirements of applicable securities legislation (as such term is defined in National Instrument 14-101) and all Exchange Requirements (as defined in CNSX Policy 1).
4. All of the information in this Form 7 Monthly Progress Report is true.

Dated: January 5, 2022

**Name of Director or Officer:** Louis R. Nagy

**Signature:** *signed "Louis R. Nagy"*

**Official Capacity:** Chief Financial Officer

<b>Issuer Details</b>	For Month	Date of Report
Name of Issuer	End	YY/MM/DD
BacTech Environmental Corporation	December 2021	22/01/05
Issuer Address		
37 King Street East, Suite 409		
City/Province/Postal Code	Issuer Fax No.	Issuer Telephone No.
Toronto, Ontario, M5C 1E9	416-596-9840	(416)813-0303
Contact Name	Contact Position	Contact Telephone No.
Louis R. Nagy	Chief Financial Officer	(416) 813-0303 x224
Contact Email Address	Web Site Address	
lnagy@bactechgreen.com	www.bactechgreen.com	