# FORM 7

## MONTHLY PROGRESS REPORT

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

Trading Symbol: BAC

Number of Outstanding Listed Securities: 96,903,756

Date: July 7, 2019

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 the CNSX 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 CNSX.ca 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 CNSX 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.

*The BacTech bioleaching technology can be applied to the 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*



CNSX CANADIAN NATIONAL STOCK EXCHANGE

*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.*

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

*GENERAL CORPORATE UPDATE*

*On May 29, 2019 the Company announced the official launch of a new project in Ecuador. The Company has taken initial steps to establish a bioleach project in Ecuador that will treat high-arsenic concentrates produced in the country. Please refer to press release for further details.*

*On November 1, 2018, BacTech announced the results of the test work from Met-Solve. Two process options have been generated from the results. One considers a flotation circuit to produce a concentrate for brine leaching. The other is a whole ore feed for brine leaching. The differences between these two options have to do with the recoverable silver. The concentrate approach recovers 60% of the silver while a whole ore feed will recover 80% of the silver but at a higher capital cost. An optimization study will determine whether the additional silver production can be justified by the higher capital cost.*

*Qualified person; Dr. Paul Miller is a qualified person as defined by NI 43-101. Dr. Paul Miller has reviewed and approved the contents of this summary report. The following are the highlights of the report:*

*Summary of Results*

- *BacTech engaged the Engineering Faculty at the University of Oruro to conduct an engineering study for the Telamayu project. Given the absence of a Canadian equivalent Qualified Person the company is unable to publicly release the results of the study. The Company is releasing the report to selected parties after receipt of a signed Non-Disclosure Agreement.*

- *Between 50% and 60% of the copper is highly labile and is extracted in a weak sulphuric acid leach at pH 2.0 as the first process step. Cementation using iron is employed to precipitate the copper from the pregnant solution to give a high purity copper precipitate for direct sale.*
- *After removal of the labile copper an option exists for production of a bulk sulphide concentrate using flotation. The material is subjected to a light regrind to refresh particle surfaces prior to bulk sulphide flotation using conventional reagents, which recovers up to 84% of the silver and an equivalent of 25% of the copper in the feed into a mass of between 35% and 40% of the original feed. The bulk sulphide concentrate is subjected to hot brine leaching at 75-80C from which 80% of the silver and 80% of the copper is extracted from the concentrate into the brine solution. Cementation using iron is employed on the pregnant brine solution to give a precipitate for direct sale containing up to 5% (50 kg) silver with the majority of the balance being 70% copper. The overall silver recovery from this route of weak acid leaching; concentrate production and brine leaching of concentrate is between 58% and 63%, while overall copper recovery is 80%.*
- *The tails from bulk sulphide flotation are then subjected to gravity processing for the recovery of tin. The use of high-speed gravity falcon concentrators results in an overall tin recovery from the initial process feed of 25%, through gravity rougher and cleaner steps to produce a concentrate grade of 6%.*

- *As an alternative to producing a bulk sulphide concentrate, and after the first process step to remove labile copper, the ore can be directly subjected to a hot brine leach without concentrate production. This results in an improved silver recovery of 80% as there are no silver losses in concentrate production. However, this route has increased capital and operating costs due to the brine leaching of the whole ore as opposed to a smaller mass of concentrate. A trade off study is required to evaluate the most economic flowsheet option to employ.*
- *For the whole ore treatment option, the residue from brine leaching would be subjected to gravity recovery using high speed falcon concentrators for tin recovery. Work has yet to be undertaken to confirm that the tin recovery would be similar for whole ore processing to that obtained from the concentrate production route*

*Recommendations:*

- *Further tin recovery test work with centrifugal gravity concentration is recommended to optimize and improve the recovery and upgrading of tin.*
- *Determining the attainable tin grade and recoveries with recycle streams of the tin that are lost into the various gravity tailings by locked-cycle testing is another option for future work and would simulate the tin upgrading and recovery performance in an industrial circuit.*
- *Mineralogical analysis is recommended on the brine leach residue to determine the cause of approximately 23.4 per cent of tin, which is not recoverable by direct flotation or gravity concentration.*
- *The brine leach conditions must be further investigated to optimize the CuSO4 (copper sulphate) dosage and leach retention times.*
- *The cementation conditions must also be optimized to determine the iron chip dosage requirements and cementation retention times.*

## *BOLIVIA*

*On October 25, 2017 the BacTech released the results from its initial metallurgical test work on material sourced from the Telamayu tailings in Bolivia.*

*Overall the results were positive except for tin recovery at 25% into a low grade 6%concentrate. Additional test work using different reagents and centrifugal concentration are being carried out on a new 100 kg sample at Met-Solve in Vancouver to potentially add more tin recovery. The results are broken down below by metal type.*

***Copper***

*Bench scale laboratory washing tests conducted at ambient temperature using 1 kg samples of 'as-received' material gave a copper extraction of between 56.4% and 66.9%. The variation in recovery was dependent upon whether acid additions were made to the wash water. A larger scale batch test using120kg of feed resulted in a copper extraction of 59.6% with a sulphuric acid consumption of 21.6kg/t of feed. Cementation of copper from the wash solution gave a cement quality copper precipitate of 97.8% purity and a scrap iron consumption of 1.08kg iron per kg of copper precipitated. Copper recovery from the solution was 99.9%. After this first step of copper recovery, 30kg of washed material was screened at 65mesh (230um) and a bulk sulphide flotation test conducted under acidic conditions on the undersize to produce a silver copper rougher concentrate. The results from flotation of this undersize fraction indicated that a further 23.5% of the copper*

*present in the original 'as-received' feed can be captured into a flotation concentrate, complimented by 61% of the silver. The concentrate assayed 753g/t silver and 0.71% copper. The combination of copper recovered from wash water combined with the copper reporting to the rougher flotation concentrate gave an overall copper recovery of 83.1%.*

***Silver***

*The silver remains inert in the acid washing stage and remains unaltered whether washing is conducted or not. Silver recovery for the second flotation test was improved to 75.3% compared to the recovery obtained from the first test of 61% - although into a higher concentrate mass of 33.5%. The second flotation test was conducted under alkali conditions and a different reagent regime. This suggests that conducting further optimization work on reagent schemes, may lead to further improvements in silver recovery.*

*Such an improvement on flotation reagent regimes was investigated by using a sulphidization step prior to flotation. The objective of this step is to make semi-oxidized material more amenable to the sulphide flotation process. This resulted in a silver recovery of 65% into a concentrate mass of 22.2% and an assay value of 3,190g/t silver while copper recovery also improved. These tests support the premise that conducting further flotation optimization work may lead to improved grade and metal recovery.*

***Tin***

*The tailings from the flotation of copper and silver were subjected to additional flotation testing for the recovery of tin. From the limited flotation conditions investigated, 33.1% of the tin was recovered into a concentrate of 13.1% by mass but at a very low grade of 3.1% tin. Further test work using a wider range of flotation reagents and test conditions may result in an improvement in both tin grade and recovery. Alternative methods for upgrading an improved tin rougher concentrate may also improve the final concentrate grade while reducing loss of recovery. Initial diagnostic type testing using a laboratory super-panner recovered 42.4% of the tin at a concentrate grade of 9.6% into a mass of 6.4%. These results are preliminary in conclusion because of the exploratory nature of the gravity techniques investigated in this phase of test work. The application of magnetic separation to remove hematite iron gangue may also be of value for upgrading final concentrates.*

*All the test work was conducted at the University of Oruro in Bolivia, an accredited lab for metallurgical test work. A second round of test work is underway in Vancouver at Met-Solve to improve on tin recoveries as well as to verify the copper/silver approach.*

*On September 12, 2017, the Company reported a summary of a recently completed National Instrument 43-101 mineral resource estimate on its Telamayu tailings reclamation project in Bolivia. The recent 57-drill-hole campaign and subsequent assay results form the basis of the resource calculation. The full report will be posted on SEDAR and on the company's website in the coming weeks. For more information please refer to the press release dated September 12, 2017.*

*Qualified person: The mineral resource estimate was prepared by Pierre O'Dowd, PGeo, an independent qualified person as defined by the NI 43-101. Mr. O'Dowd has reviewed and approved the contents of this release.*

*The following are the highlights of the report:*

- *Indicated and inferred resource of 373,000 tonnes and 79,000 tonnes, respectively;*
- *Average tin grade of 1.30 per cent indicated and 1.19 per cent inferred;*
- *Average silver grade of 8.2 ounces per ton indicated and 8.7 ounces per ton inferred;*
- *Average (total) copper grade of 1.15 per cent indicated and 1.07 per cent inferred;*
- *Average (soluble) copper grade of 0.63 per cent indicated and 0.65 per cent inferred.*

| Ag oz./t | Ag g/t | % Sn | % CU S. | % Cu T. | BD | TONNAGE | Sn lbs. |
|---|---|---|---|---|---|---|---|
| 8,223 | 281,88 | 1,30 | 0,63 | 1,15 | 1,63 | 373 016 | 9 725 887 |
| 8,689 | 297,84 | 1,19 | 0,65 | 1,07 | 1,75 | 78 991 | 1 885 809 |

*BD: Bulk Density*

***Future Plans***

*BacTech is now reviewing the processing flowsheet between the two options which is concentrate production and subsequent treatment of a concentrate with a brine leach and a route of direct whole ore treatment again followed by a brine leach. Depending on which of 2 flow sheets chosen at this time the expected annual production for the first 5 years on the Telamayu tailings could generate the following:*

- *950 tonnes of Cu cement,*
- *540,000 oz Ag and*
- *320 tonnes of Tin in a 6% tin concentrate. The tin concentrate will most likely be sold locally to a smelter in Orouro.*

*The products produced include a copper cement product that is 98% copper and 2% iron and a silver/copper cement (that is 5% silver (50 kg/t) /70 % copper) product that resembles a stable "sludge" from filtration consisting of very fine particles of metal. Quality assessment will be very easy to do as each batch will come from a filter press and will be uniform in content and will be easy to assay. Our pregnant solutions containing the copper prior to the precipitation process will be of high purity with very little contamination from other elements. The main contaminant will be iron as this is what is used to precipitate the copper and silver.*

*There is considerable infrastructure at the mill site including power, rail, a mill housing and a local, trained workforce. The Telamayu mill has processed ores from the surrounding mines for over 70 years with the Antigua and Nuevo tailings created from the operation. The existing infrastructure should lead to reduced capital costs.*

*The final stage is the commercialization of the plant which is expected to be completed within the next 12 months. All three stages require the posting of a performance bond equal to 7% of the expected capital outlay that is released upon completion of each phase. BacTech has posted a bond of $32,000 to cover the initial phase. The final stage will be the building and commercialization of the plant which is expected to be completed in 2019.*

*On June 27, 2018, the Company announced it had signed has signed a Memorandum of Understanding ("MOU") with respect to financing its Bolivian tailings project. The MOU was signed with CACS International Investment Co. Ltd.("CACSI"). BacTech will grant CACSI the sole mandate to exclusively design, manufacture and install a mineral processing plant for the reprocessing the Antiguo tailings located at Atocha, Bolivia. In addition, CACSI will assist BacTech to arrange project financing from a Chinese financial institution for 85% of the cost of the project. The term of the MOU is 12 months.*

*A significant milestone for this project was the completion of the association contract for the development of the remediation of tailings at Telamayu, Potosi, that was signed between Empresa Minera Ambiental BacTech SA (EMABSA), BacTech's 98-per-cent-owned Bolivian subsidiary, and Comibol, the Bolivian State mining company, and was approved by the Bolivian government by Law N degrees 831 dated September 15, 2016.*

## *ECUADOR*

*On January 27, 2016 the Company provided a Corporate update on its activities and plans for the project in Ecuador. The following is the Company's vision for an Ecuadorian project, as reported in the press release, that includes the use of bioleaching to treat high-arsenic gold concentrates, resulting in a reduction in mercury use.*

*Industry background*

*With the significant increase in the price of gold over the past 10 years, there has been a corresponding surge in the number of small gold mining and artisanal operations (SGM) globally. An SGM is someone who produces small amounts of ore, usually through the use of rudimentary methods and tools where recoveries are poor. In Ponce Enriques, Ecuador, there a number of small mining operations that sit 1000 to 1500 meters above sea level on the western side of the Andes. Cumulative production has led to a saturation of the tailings facilities that accompany these mines. The tailings, as reported by local miners run anywhere between 2 and 6 grams per tonne.*

*The Problem*

*After mining the ore, SGMs typically use primitive equipment such as Chilean mills (carpeting to extract gold) and much of gold is lost in production to the tailings. In particular, the use of this equipment to obtain gold from arsenopyrite-rich material can be an exercise in futility, as normally less than 10 per cent of the gold is separated from this refractory type of ore. This is due to the gold being physically encapsulated within the arsenopyrite, which is unreactive and impervious to cyanide treatment.*

*Once the arsenopyrite concentrate has been produced another problem arises for the miner. In many cases the level of arsenic in the concentrate far exceeds what is acceptable for burning at a roaster or smelter. The World Health Organization has placed a limit of 1% arsenic that can be processed using smelting. This is due to the creation of arsenic trioxide which is a deadly form of arsenic. Presently high arsenic concentrates (>10% As) are sold at deep discounts to the contained metal value to Asian processors. Concentrates with in excess of 10% As can be sold for less than 50% of the contained gold value.*

*The Solution*

*This scenario creates a unique opportunity for BacTech and bioleaching. Given the existing tailings have reached their capacity a solution is needed to allow mining to continue in this pro-mining community. There is also a need, identified by the government, to process high levels of arsenic in concentrate in country. At present, concentrates are sold for 50% of the gold value and shipped offshore for processing. We can offer better prices locally for the small miner and still earn a healthy gross profit.*

*The opportunity provided to BacTech is real. Given BacTech's experience in bioleaching, and after studying the local market with the assistance of the company's newly appointed country representative, Bernardo Brito, BacTech is confident that a strategy of building a bioleach circuit in Ponce Enriquez would provide healthy returns, not only for the company, but also for the local inhabitants. The Company has spent considerable time meeting with various ministries associated with mining and the environment. To date the response has been very positive as they recognize the benefit of processing material in country especially if there is an answer to the arsenic issue.*

*In January of this year 150 kg of material (concentrates, tailings and ore) were shipped to Laurentian University. After several months of bioleaching the material we received very positive arsenic stabilization results. Approximately 99.5% of the contained arsenic was stabilized as ferric arsenate. A second test is underway to determine the appropriate pulp density to obtain maximum gold recovery.*

*Should BacTech be successful in implementing its strategy for Ecuador, there are opportunities to duplicate these plants in other high-arsenic areas of the Andes Mountains, namely northern Peru and Colombia.*

*Current Activities*

*On June 7, 2017 the Company reported that it had shipped approximately 150 kg of arsenopyrite gold concentrate to Laurentian University in Canada. With the supervision of Inspectorate Ecuador (subsidiary of Bureau Veritas S.A.), the concentrates were collected from various flotation plants in Ponce Enriquez, Southern Ecuador. In addition to concentrate, smaller samples of oxidized rock and unprocessed arsenopyritic ore were shipped. The material contains various levels of arsenic and will be subject to a test work programme aimed at demonstrating the economic, environmental and technical viability of using BacTech's Bioleaching Technology as a pre-treatment method for gold extraction. The test work was conducted and partially funded under the Ontario government's Center of Excellence program.*

*The Company worked closely with Dr. Nadia Mykytczuk at Laurentian University to complete the five-to-six-month bioleach test work program (the first phase of the program) which is now complete. A successful outcome from this program would allow BacTech to pursue the construction of a bioleach plant near the flotation circuits of the area, and to become the sole processor of gold concentrate that is currently shipped halfway around the world.*

*On July 23, 2018, BacTech announced that all of the materials tested to-date have responded well to the bio-oxidation testing procedure. This indicates a high amenability to bioleach processing demonstrating that high oxidation levels are achievable. Importantly,*

*samples of neutralized arsenic precipitate containing stabilized arsenic, have been subjected to Toxicity Characteristic Leach Procedure (TCLP) testing showing that these precipitates are environmentally stable and benign meeting US EPA or equivalent regulatory requirements for disposal.*

*A second round of test work has begun at Laurentian optimizing the pulp density of concentrates in the bioleaching process and for optimization of conditions for downstream gold recovery. In addition, BacTech has come to terms with 2 mines in Ponce Enriquez to source original arsenopyrite concentrates that would normally attract high treatment penalties due to the arsenic content. In the first half of June a total of 35 kg of concentrate will be collected by MSA of Vancouver. MSA will also provide 3rd party assay values as well as a 35 element ICP scan.*

*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 in Bolivia, Peru, and Ecuador.*

*On May 15, 2019 BacTech announced that it had signed a letter of intent with GMR Inc. ("GMR") to license BacTech's proprietary bioleach technology. BacTech joins Dundee Sustainable Technologies (CSE:DST) as a technology partner with GMR to develop a potential solution for the remediation of the Gold Residual Stockpile in Snow Lake, Manitoba. Through this agreement, BacTech received a $20,000 cash payment as an advance on the right to utilize the BacTech proprietary bioleach technology on the Gold Residual Stockpile in Snow Lake, Manitoba. In addition, BacTech will earn 3% undivided equity interest in the net income of the project. GMR is relying on BacTech's historical research conducted in 2011/12 that showed oxidation rates of 95% and gold recovery of 88.6% on material obtained from the arsenic stock pile.*

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.

*Not applicable.*

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 applicabel.*

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 trade-marks.

*Not applicable.*

10. Report on any employee hirings, 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[(1)] |
|---|---|---|---|
| NA | | | |
| | | | |

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

*Not applicable.*

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

*See April 10, 2018 announcement regarding Tin*

**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 were is no material information concerning the Issuer which has not been publicly disclosed.

3. The undersigned hereby certifies to CNSX 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 CNSX Requirements (as defined in CNSX Policy 1).

4. All of the information in this Form 7 Monthly Progress Report is true.

Dated: July 7, 2019

**Name of Director or Officer:** Louis R. Nagy
**Signature:** *signed "Louis R. Nagy"*
**Official Capacity:** Chief Financial Officer

| ***Issuer Details***<br>Name of Issuer<br><br>BacTech Environmental Corporation | For Month End<br><br>June 2019 | Date of Report YY/MM/DD<br><br>19/07/07 |
|---|---|---|
| Issuer Address<br>20 Eglinton Ave. W., Suite 1820 | | |
| City/Province/Postal Code<br>Toronto, Ontario, M4R 1K8 | Issuer Fax No.<br>416-596-9840 | Issuer Telephone No.<br>(416)813-0303 |
| Contact Name<br>Louis R. Nagy | Contact Position<br>Chief Financial Officer | Contact Telephone No.<br><br>(416) 813-0303 x224 |
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