

# Notice









#### **CHAPTER I - THE PROGRAM**

**Article 1 -** M-SPOT is a customized Mining Hub program to solve unique challenges of mining companies and associated suppliers. In M-SPOT, the mining company or supplier can launch specific challenges and of its exclusive interest, according to the operational or strategic need of that company.

**First Paragraph** - All the benefits that the Mining Hub offers for M-Start will be maintained for M-SPOT, such as: exclusive ownership of the Intellectual Property (PI) to the STARTUP and sharing of the results achieved in the Proof of Concept (POC), at Demoday phase.

**Second paragraph** - The program takes place in cycles, with the choice of the benefiting mining company defined in a consensual way among all those associated with the Mining Hub. The areas of the challenges will be defined according to the reality of each company, so they can vary in each cycle.

**Article 2** - The third cycle of M-SPOT will be with MINING COMPANY ANGLO AMERICAN and will be called M-SPOT Cycle 3. The challenges will be categorized from the following strategic guidelines: (1) Operational Excellence, (2) Environmental Sustainability and (3) Safety.

**Sole paragraph** - The purpose of this Regulation is to define the rules and conditions for participation in the **M-SPOT Cycle 3** program.

**Article 3** - In order to seek innovative solutions for the mining industry, the main objective of **M-SPOT** is to prospect and select ("STARTUPS"), as defined in Article 4 of this chapter, and support the development of Proofs of Concept ("PoCs") of such startups with the Mining Companies associated with the Mining Hub.

(i) Proof of Concept: Proof of Concept (PoC) is understood to be the project that aims to demonstrate the feasibility of an idea for a potential project or product. It also corresponds to a small-scale project carried out to prove that the technology has the potential to solve a given problem, being carried out on a small scale and within a previously established schedule.











#### Article 4 - Participation in the M-SPOT program is targeted at:

(i) STARTUPS and technology-based companies that fit the definition of Startup according to Complementary Law 146/2019, which in its Article 4 defines:

Startups are defined as business or corporate organizations, newly created or in recent operation, whose performance is characterized by innovation applied to the business model or the products or services offered.

- § 1<sup>st</sup> For the purposes of applying this Complementary Law, the individual entrepreneur, the individual limited liability company, the business companies, the cooperatives and the simple (civil) companies are eligible for framing in the special treatment mode intended for the promotion of startups:
- I With gross revenue of up to R\$ 16,000,000.00 (sixteen million reais)<sup>1</sup> in the previous calendar year or of R\$ 1,333,334.00 (one million, three hundred and thirty-three thousand, three hundred and thirty-four reais) multiplied by the number of months of activity in the previous calendar year, when less than 12 (twelve) months, regardless of the corporate form adopted;
- II With up to 10 (ten) years of registration in the National Register of Legal Entities (CNPJ) of the Special Secretariat of the Federal Revenue of Brazil of the Ministry of Economy.
- (ii) SPIN-OFFS, as companies derived from another organization, whose purpose is dedicated to innovation and that meet items I and II set out above.
  - (a) For purposes of this Public Notice, hereinafter, these companies will also be referred to as STARTUP.
- (ii) MINING COMPANY ANGLO AMERICAN

#### **CHAPTER II - PROGRAM STAGES**

**Article 5 -** The main stages of the **M-SPOT CYCLE 3** are shown and detailed below:

Applications: from 05/02/2022 to 05/29/2022 at 23:59 BRT:

<sup>&</sup>lt;sup>1</sup> For currency conversion purposes, the value of 1 USD = 4,9185 Real/BRL, as established on 04/29/2022 by the Central Bank of Brazil, shall be used as reference.











The candidate STARTUP must submit its proposal using the online form available through the website <a href="https://www.mininghub.com.br">www.mininghub.com.br</a>.

Selection: from 05/30/2022 to 08/10/2022:

The evaluation and selection of the proposals will be made by a panel composed of the program management team and technicians from the MINING COMPANY ANGLO AMERICAN, according to the rules established in this Public Notice. More information about the Selection stage can be found in Chapter V of this Public Notice.

Proof of Concept (PoC): from 08/01/2022 to 01/31/2023:

Period in which the STARTUP will sign the contract with the MINING COMPANY ANGLO AMERICAN and will also execute the PoC, according to the work proposal presented and validated in the Immersion stage, held during the Selection stage.

- Contract signing from 08/01/2022 to 09/02/2022
- Implementation of the PoC from 09/03/2022 to 12/13/2022
- Demoday on 01/31/2023

At the end of the Proof of Concept stage, the STARTUP that has its PoC validated will participate in the Demoday, closing event of the program cycle, in which the STARTUPs present the results of the PoCs.

**First Paragraph** - The execution activities of the PoCs will only start after the conclusion of the contract signature process by all parties involved - STARTUP, MINING COMPANY ANGLO AMERICAN and IBRAM.

**Second Paragraph** - The validation of the PoC for a given challenge, throughout the program, will occur between one STARTUP and one MINING COMPANY ANGLO AMERICAN, and at the end of the execution cycle the case generated will be shared with all other MINING COMPANIES associated with the Mining Hub.

**Third Paragraph** - The schedule of activities for the main stages of the **M-SPOT** program is available for consultation on the website











www.mininghub.com.br/en/programas/m-spot, as well as in ANNEX I of this Public Notice.

#### **CHAPTER III - CHALLENGES**

**Article 6** - From article 7 to 12 of this Public Notice, we describe the challenges proposed by the MINING COMPANY ANGLO AMERICAN, divided by themes. In addition, for each challenge, there is a picture that aims to promote a better understanding of the key information of each problem. The pictures can be seen in Annex II.

**Article 7 -** In relation to the strategic guideline "OPERATIONAL EXCELLENCE", the prioritized challenges for validating the STARTUPS POCs are shown in Table 1

Table 1 - Operational Excellence

#### **CHALLENGE**

- 1.1 How can we make predictive mining asset inspection more dynamic, effective and autonomous?
- 1.2 How to reduce contaminants in the water that circulates in the beneficiation process?
- 1.3 How to develop an intelligent system for viewing, identifying trends and predicting variables in Anglo American's production process?

# 1.1 - HOW CAN WE MAKE PREDICTIVE MINING ASSET INSPECTION MORE DYNAMIC, EFFECTIVE AND AUTONOMOUS?



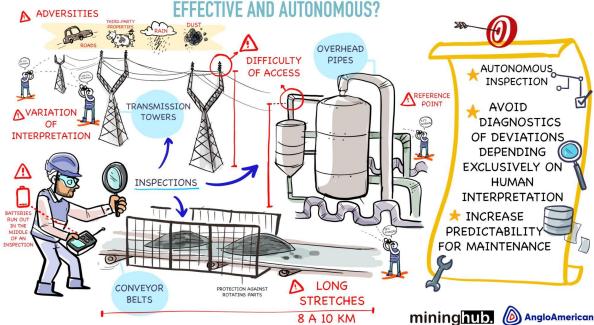








# HOW CAN WE MAKE PREDICTIVE INSPECTION OF MINING ASSETS MORE DYNAMIC,



#### **Problem description:**

In mining, we already apply in large scale several predictive inspection techniques in large assets, usually with difficult access and long geographic distances and with great dependence on the human interface, in terms of availability aspects and technical "know how" for diagnostics.

The challenge we launched is based on the search for automation of inspections, focusing on assets such as Belt Conveyors, Transmission and Distribution Towers and Process Pipes.

The presence of suspended particulates, atmospheric phenomena, restriction of overlapping works and inspections outside the company's area of influence (urban and rural areas) are inherent to the industrial environment in which we operate.

#### **Expected results:**

- Increase the database of assets listed for the challenge by at least 50%, in order to increase predictability;
- Autonomously promote inspection of at least 1 of the 3 assets listed in the challenge;











Avoid diagnoses of deviations depending exclusively on human interpretation.

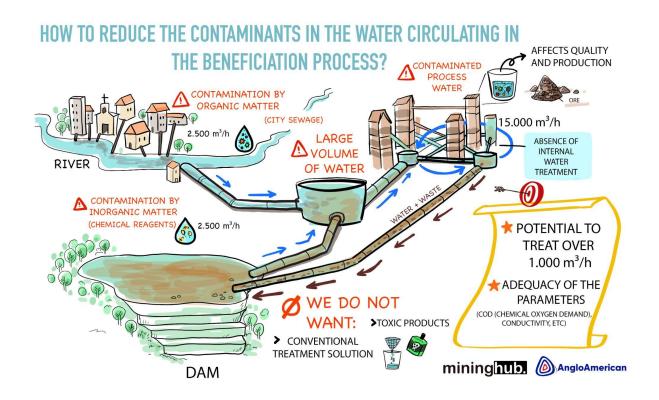
#### What we do not want or have already tested:

We currently use manual databases with routine inspections. We emphasize the importance of not using databases and manual equipment, as well as fixed sensors installed in the components.

### Possible difficulties in executing the POCs:

Adverse weather conditions, irregularities in the paving, geographic distance between assets, protections against rotating parts - NR 12, database/cloud with multiplatform interface conditioned to the communication protocols of the information technology area.

# 1.2 - HOW TO REDUCE CONTAMINANTS IN THE WATER THAT CIRCULATES IN THE BENEFICIATION PROCESS?



#### **Problem description:**









Currently, at Anglo American, a high volume of water is used in the production process. This natural asset comes from rivers (which do not have sewage treatment) and from the tailings dam. Furthermore, there is an intense recirculation of these waters in unit operations, known as process water. Water capture is in the range of 5000 m³/h and recirculation at 15000 m³/h. Due to the very nature of the water collected and the use of reagents in the processing of ore, the physical-chemical/biological quality of this resource deteriorates and impacts the operational parameters and the quality of the final product.

An alternative is then sought to reduce process water contaminants, consequently producing a concentrate that meets the specifications and with due efficiency (production volume).

It is understood that the POC can be carried out on a laboratory scale, but that the solution must be scalable for the plant and work with large volumes of water.

#### **Expected results:**

Worked water is expected to meet at least one of the following requirements:

- Chemical Oxygen Demand (< 150 mg/l);</li>
- Total Organic Carbon (< 100 mg/l);</li>
- Conductivity (< 200 micro siemens);</li>
- Oxyreduction potential (between 50 and 100 mV);
- Dissolved oxygen (>2.5 mg/l);
- Fecal coliforms (<1000 NMP.100ml-1).</li>

#### What we do not want or have already tested:

- Due to the large volume of water we use in processing, a small-scale application solution (<1000 m3/h) is not desired, which would have little impact on the total volume;
- Conventional treatments that are widely commercialized are not wanted (e.g., traditional ETEs (Sewage Treatment Plants) - use of sulfates, sandbox, deaerator, anaerobic lagoon, etc.);













- Dissolved air flotation (FAD), a solution offered on the market and associated with major players, has already been tested, with good results. However, the implementation of this alternative was economically unfeasible (high cost);
- We do not want just a tool for monitoring water parameters;
- It is not necessary for the solution to reduce all quality parameters at once.

#### Possible difficulties in executing the POCs:

The possible difficulties for the execution of the POC and deployment of the solution industrially are:

- Use of very toxic reagents or products;
- Employment of a very high number of operators for the correct functioning of the solution;
- Use of a large physical infrastructure, which generates high implementation costs.
- 1.2 HOW TO DEVELOP AN INTELLIGENT SYSTEM FOR VIEWING, IDENTIFYING TRENDS AND PREDICTING VARIABLES IN ANGLO AMERICAN'S PRODUCTION PROCESS?

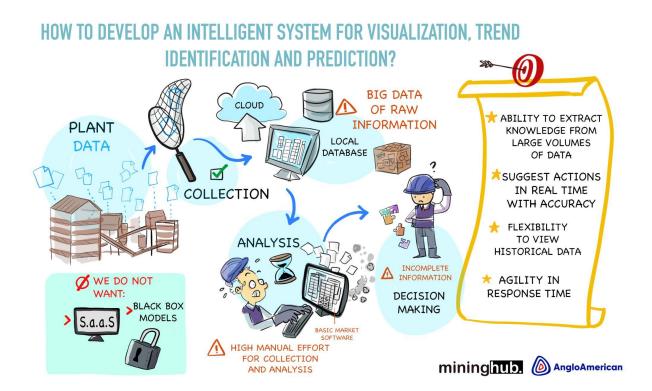












### **Problem description:**

The plant, process and mechanical operation teams deal daily with a very large volume of data originated from thousands of sensors in the beneficiation plant and centralized in a historian platform. However, despite the efficient and systematized organization of data, the assessment of the health of the process/equipment, the analysis of failures or production deviations still happens very manually and on demand.

In this way, how can we develop an intelligent system for visualization, identification of trends and prediction of time series of operational variables of mineral processing, seeking the continuous improvement of the Plant's quality and productivity parameters?

## **Expected results:**

Ability to identify undesired operating conditions with high accuracy; Flexibility to generate new data visualizations; Flexibility to incorporate/configure new models/heuristics in new variables (scalable to other variables/operations);











Reduction of time spent identifying/analyzing the root cause of failures; Ability to process large volumes of data in low time; Be able to generate alarms for the operational team.

### What we do not want or have already tested:

In the context of this challenge, there are items that we do not want:

- Tools with online integration with Anglo American systems usually require a lot of effort and time;
- Protected source code (makes absorption in Anglo American impossible and makes application in the group unfeasible);
- SAAS System business model incompatible with Anglo American's current reality;
- Black box predictive models Specialized service is sought and not the off-the-shelf product;
- Ready-made solutions on the market (platforms already sold have a low level of adherence to the plant's processes).

#### We have already tested:

Smaller and simpler predictive models - Variability and noise of industrial data is high and demands great efforts and creativity for the elaboration of the models.

## Possible difficulties in executing the POCs:

It will not be possible to connect online to production databases due to restriction of Anglo American's data governance; The startup must also be aware of the POC execution time; High volume of industrial data can result in high pre-processing time; Traditional techniques may not deliver the desired accuracy; Some variables studied may have an insufficient historical base of unwanted events to train machine learning models.











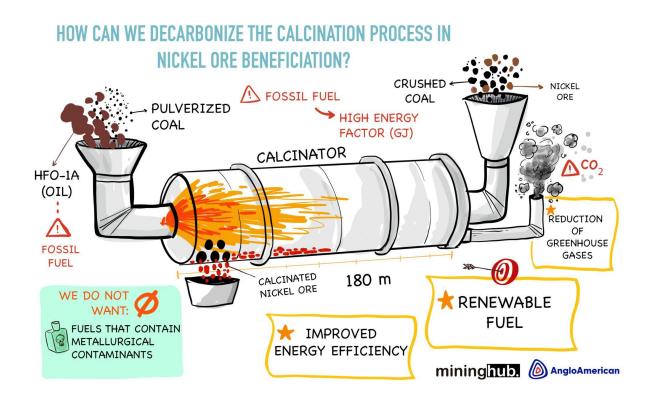
**Article 8** - In relation to the strategic guideline "ENVIRONMENTAL SUSTAINABILITY", the prioritized challenges for validating the STARTUPS POCs are shown in Table 2.

Table 2 - Environmental Sustainability

#### CHALLENGE

- 2.1 How can we decarbonize the calcination process in nickel ore beneficiation?
- 2.2 How can we zero the disposal of waste to landfills?

# 2.1 - HOW CAN WE DECARBONIZE THE CALCINATION PROCESS IN NICKEL ORE BENEFICIATION?



#### **Problem description:**









During the beneficiation of nickel ore, one of the steps is the calcination process in which fossil fuels are used for heat input and ore reduction. The reactor in question is a rotary kiln, which is fed with nickel ores along with coal. In counter-current, there is the combustion of heavy oil and pulverized coal to assist in the heat input to the process. In order to meet Anglo American's environmental challenges of CO<sub>2</sub> reduction, we need alternatives to replace fuels (coal and heavy oil) in order to have a clean process using renewable sources and with a favorable energy balance.

#### **Expected results:**

In order to achieve the Anglo American Group's goals of reducing greenhouse gases and improving energy efficiency, it is expected that this challenge will propose alternatives for the use of clean fuels, with the aim of decarbonizing and promoting the improvement of the energy efficiency of the calcination process.

#### What we do not want or have already tested:

Some possible solutions during the execution of the POC may involve the decarbonization of the calcination but with an increase in the energy balance of the process - which should be avoided as it is necessary to reduce emissions and energy consumption. In addition, we do not want the use of fuel with a CO<sub>2</sub> emission factor greater than the fuel that is already used, or that contain metallurgical contaminants (e.g., P and S), which do not have homogeneity or stability in composition and power. lower calorific value (PCI), which negatively affect the energy balance of the process or which are not available in the required volumes. There is also the concern of not using substances that are dangerous for people, the environment and with a high explosive factor.

#### Possible difficulties in executing the POCs:

There will be difficulties in running pilot scale tests, so bench tests should be considered. The startup must also be aware of the POC execution time. Finally, some security measures may also be necessary if it is feasible to carry out visits to the Plant.











#### 2.2 - HOW CAN WE ZERO THE DISPOSAL OF WASTE TO LANDFILLS?

#### HOW CAN WE ZERO OUT LANDFILL WASTE? WE DO NOT REUSED AND REUTILIZED WASTE A PRESENCE OF RECYCLABLES CO-PROCESSING OF ALL STORAGE OF DISPOSABLE MATERIA ▲ INNOVATIVE NON-RECYCLABLES (HIGH COST) SOLUTIONS NON-RECYCLABLE SDM RAW MATERIAL FIND A DISPOSAL SITE THAT IS NEARBY TINCREASE THE DO NOT USE LANDFILLS RECYCLING, **REUSE AND** NORE SUSTAINABILITY! REUTILIZATION **RATES** CLASS II FIND A LANDFILL DISPOSAL SITE THAT RECYCLES THIRD-PARTY \*ENVIRONMENTAL CONSTRUCTION SITES HE MATERIAL AND ECONOMIC CLASS I HAZARDOUS SUSTAINABILITY LANDFILL WASTE THE S mining hub. AngloAmerican

#### **Problem description:**

Anglo American has a global goal of zeroing waste to landfills by 2025 as part of sustainability actions in mining. The portion destined for landfills in 2021 corresponded to 12% of the total waste generated. There is a need to develop alternatives that provide a better rate of reuse, recycling and reutilization of waste, in line with the environmental, social and safety commitments of the business, considering the entire chain of waste generation, management and disposal, as well as, the pre-established route plan for transporting Anglo American's cargo and materials. A solution is expected that adds to the sustainability of the business, image improvement and that has financial and operational viability.

Currently, the main non-recyclable waste consists of sanitary waste, sweeping waste, but also identified as discards in this category are Tetra Pak packaging waste, various plastics (HDPE, PP, PVC, etc.), paper/cardboard, rubbers, among others. The











residues that are sent by third-party companies to class I landfills are various residues contaminated by oil and grease resulting from maintenance in workshops.

#### **Expected results:**

Actions adopted in the waste management chain that bring gains in terms of sustainability, whether environmental and/or social, and also with the opportunity to reduce expenses in the final destination, reaching the proposed goal/indicator: zero destination for landfills, increasing the rates of recycling, reuse and reutilization of waste. The solution must provide:

- Alternatives within legal standards
- Reduction in waste disposal costs;
- Provide a solution that seeks to zero the destination of waste to landfills:
- Increase the rates of recycling, reuse and reutilization of waste;
- Alternatives in line with Anglo American's HSE standards.

#### What we do not want or have already tested:

It is not expected that all waste will be sent for co-processing or other type of thermal destruction with or without energy recovery, thermal destruction should only be considered when there are no viable solutions or when the legislation requires it. The solution must be operationally and financially viable, Anglo American values must be met during implementation, and impacts must not be greater than those caused by landfilling solid waste.

#### Possible difficulties in executing the POCs:

Considering the extension of the Minas Rio project, the municipalities and their accesses, as well as the legislation of each one, Logistics Management becomes a great challenge for the execution of the POC. In addition, direct involvement of all areas working in the project would be necessary, with the application of concepts related to Environmental Education and that favor a change in the culture of employees. A legal basis would be necessary to raise the obligations linked to the reuse of materials, legally and without risk to the company.











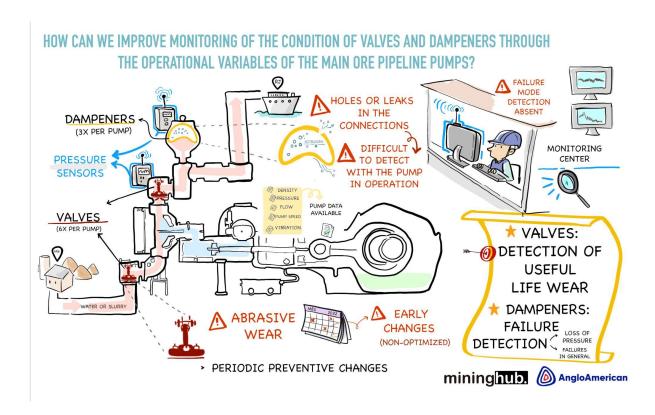
**Article 9 -** In relation to the strategic guideline "SAFETY", the prioritized challenges for validating the STARTUPS POCs are shown in Table 3.

Table 3 - Safety

#### **CHALLENGE**

3.1 - How can we improve the condition monitoring of valves and dampeners through the operational variables of the main pumps of the ore pipeline?

# 3.1 - HOW CAN WE IMPROVE THE CONDITION MONITORING OF VALVES AND DAMPENERS THROUGH THE OPERATIONAL VARIABLES OF THE MAIN PUMPS OF THE ORE PIPELINE?



#### **Problem description:**

The challenge is to improve the monitoring of the valves and dampeners of the ore pipeline's main pumps (GEHO pumps).











The seat/valve set is one of the main components of the main pumps responsible for pumping slurry/water in the ore pipeline. Because they have direct contact with the pulp, and close and open about 50x/min, they present high wear, having to be changed frequently, representing one of the highest component costs of pumping stations. Currently, a monitoring of the condition of the valves is being developed to avoid that they are changed by the operating time based on the dynamic pressure of the pump.

Main pump dampeners are essential to dampen pulsations and vibrations in Pumping Stations and Ore Pipelines that can influence fatigue failures in pump and pipeline components. The failure of these dampeners due to leaks or holes is difficult to identify when the pump is operating, being necessary to stop and depressurize for inspection. An online monitoring system is currently being developed to identify dampener failures based on dynamic pressure sensors.

Therefore, the challenge of this project is to improve the condition monitoring of valves and dampeners using all operational variables of the main pumps of the ore pipeline with the development of data analytics/artificial intelligence algorithms.

#### **Expected results:**

It is expected that the solution presented will allow gains in the time of exchange of valve seat sets without risks to the other components of the pump, such as the blocks. Additionally, we will have as indicators the assertiveness of the solution, both in the monitoring of the useful life of the valves and in the identification of failures in the dampeners (pressure loss, holes, leaks, etc.).

The solution must be robust, using several operational variables of the pumps in order to ensure that all factors that may influence the condition of valves and dampeners are taken into account.

#### What we do not want or have already tested:

That it is necessary to test new sensors/monitoring systems;













- Solutions that depend on noise and/or temperature detection, as we already have similar ones in the field today;
- That the system only detects the final failure, as it is important that the solution is to monitor the failure from the beginning, to allow for early detection;
- Systems that depend on constant human interventions (checks, inputs, maintenance, etc.);
- That depend on an external and/or specialized team to maintain monitoring, since we operate 24/365. Thus, it is necessary that the Anglo American team itself can follow the monitoring.
- Systems that are difficult to integrate with Anglo American programs.

#### Possible difficulties in executing the POCs:

- Project requires several months for testing after its implementation (minimum valve replacement time = 600 hours);
- Difficulty in integrating and accessing the Anglo American database with an external database;
- Need to know the operation of the main pumps of the ore pipeline and of the entire ore pipeline;
- History may be considered insufficient or incomplete for some solutions;
- Solution development time within the work schedule;
- Difficulty implementing the same system for Pump Station 2 (EB2);
- Lack of dedicated staff to keep the system running;
- Need for constant updating of the system due to operational variations (flow, pressure, density, etc.);
- Need of notions of vibration analysis, frequency analysis, predictive techniques, PF curve.

**Article 10 -** The resources available by the MINING COMPANY ANGLO AMERICAN for the validation of the STARTUPS PoCs will be agreed by means of a contract to be signed between the parties at the beginning of the Proof of Concept stage.











**First paragraph** - Expenses related to participation in the M-SPOT program, including transportation, accommodation and food, may be reimbursed within the total amount made available and previously agreed by the respective MINING COMPANY ANGLO AMERICAN for the execution of the PoC.

**Second paragraph** - The disbursement plan for the resources for the PoC and reimbursement of expenses will be developed by STARTUPS and validated with the MINING COMPANY ANGLO AMERICAN during the Immersion phase, in the Selection stage.

**Third paragraph** - If any MINING COMPANY ANGLO AMERICAN does not have the resources available to carry out the PoC and, even so, STARTUP chooses to work with this company, it will not be possible to claim any kind of reimbursement or payment by STARTUP in the future to MINING COMPANY ANGLO AMERICAN.

**Article 11 -** The place of development of the PoC will be defined by MINING COMPANY ANGLO AMERICAN, and may undergo changes at its discretion.

**Article 12 -** STARTUPS are authorized to perform only one PoC per cycle, even if they are selected for more than one of the challenges launched. If this is the case, the STARTUP must choose which challenge/ mining company it will follow in the cycle in question.

#### **CHAPTER IV - APPLICATION**

Article 13 - The application process for a STARTUP is free and must be done by filling and sending the electronic form available, exclusively, through the **MINING HUB** website <a href="www.mininghub.com.br">www.mininghub.com.br</a>, during the period from **05/02/2022** to **05/29/2022**, at 11:59 pm (eleven, fifty-nine minutes), Brasília time.

**Article 14 -** Responses to the registration form can be written in Portuguese or English.

**Article 15** -The applicant, when filling in the submission form, must always indicate, in a specific field, the respective theme and challenge in which wishes to execute the PoC.











**Article 16**: After the end of the registration deadline, the STARTUP will not be able to make changes to the submitted answers.

**First paragraph** – The STARTUP will be able to apply for more than one challenge in the cycle, as long as different registrations are made.

**Second paragraph** - If the STARTUP chooses to work in partnership with another company, this must be indicated on the registration form and must participate in all stages of the selection process, and, at the discretion of the Mining Hub, the partnership may be admitted or not.

**Third paragraph** - The applicant who has a solution within one of the 3 (three) themes of the program, but who does not fit the challenges launched in this cycle, or who have proposals that do not adhere to one of the 3 (three) themes, but which have innovative applicability for the mining sector, can register at M-CONNECT for future opportunities.

**Article 17** - The STARTUP representative indicated on the registration form as "project leader" must have sufficient autonomy to represent THE STARTUP in decision making throughout the selection process and will be responsible for all communication with the program.

**Article 18** - Requests for clarification and doubts must be sent up to 05 (five) business days prior to the closing date for receipt of applications, in Portuguese or English, to the e-mail <a href="mailto:mspot3@mininghub.com.br">mspot3@mininghub.com.br</a>

#### **CHAPTER V - SELECTION**

**Article 19** - STARTUPS that propose to develop solutions to the challenges presented by the MINING COMPANY ANGLO AMERICAN during the Proof of Concept stage will be selected.

**Single paragraph** - The selection of the STARTUPS participating in the program will be carried out by a panel, composed of the program management team and MINING COMPANY ANGLO AMERICAN technicians, according to the criteria described in











Chapter VI. It is also up to the panel the right not to select a STARTUP for one or more challenges, if they believe that there are no suitable proposals.

**Article 20** - The STARTUPS application analysis process consists of the following phases:

- (i) Framework of the STARTUPS, considering the "Elimination Criteria, as described in article 22 Chapter VI, below;
- (ii) Technical screening of the STARTUPS 'proposals with the MINING COMPANY ANGLO AMERICAN for each challenge. In this stage, the first technical evaluation of the proposals will be made, based on the registration form filled out by the STARTUPS and in accordance with the "Classification Criteria", as described in article 23 Chapter VI, below;
- (iii) Face-to-face and/or online interviews, in PITCH format up to 5 minutes in duration, in which the STARTUP must present its proposal to MINING COMPANY ANGLO AMERICAN for the challenge. Up to 3 (three) STARTUPS may be selected for the Immersion phase, according to the "Classification Criteria", as described in article 23 Chapter VI, below;
  - (a) The non-attendance, without any justification, of any member of the candidate STARTUP on the date, time and place designated, even if it is the case of remote presentation, disclosed under the terms of this Notice, will be considered as withdrawal of its participation in this selection process. Justified cases will be analyzed and handled individually.
- (iv) Immersion in person and/or online, in which the objective is to provide the STARTUPS with access to MINING COMPANY ANGLO AMERICAN and the Mining Hub team to understand the details of the challenges and refine the PoC proposal, together. In the period of 1 (one) week, the MINING COMPANY ANGLO AMERICAN will accompany the pre-selected STARTUPS in the interview phase, providing data and clarifying doubts so that each one of them can refine the scope of the proposed solution for the challenge (s) which one (s) applied. At the end, up to 01 (one) STARTUP may be selected by MINING COMPANY ANGLO AMERICAN to proceed











to the Proof of Concept stage. The "Classification Criteria" are described in article 23 - Chapter VI, below.

- (a) During the Immersion phase, the participating STARTUPS will be asked to prepare additional documentation related to the implementation of the proposed PoC (physical and financial project schedules, presentation and other documentation). The selection of the STARTUP for the Proof of Concept stage will be made based on the documentation presented.
- (b) During the Immersion phase the participating STARTUPS must attend all the schedules requested, with the participation of at least one member.

Article 21 - The result of the selection of the STARTUPS will be announced through the communication channels of the Mining Hub, such as the website <a href="https://www.mininghub.com.br">www.mininghub.com.br</a>, Instagram @hubdamineração and by e-mail until July 29, 2022. The date may be changed by decision and necessity of the MINING HUB.

**Single paragraph** - The STARTUPS not selected in the Technical Screening, Interviews and Immersion phases will receive feedback, exclusively in writing, through the e-mail <a href="mailto:mspot3@mininghub.com.br">mspot3@mininghub.com.br</a>, in up to 10 working days after the end of the Selection phase.

#### **CHAPTER VI - SELECTION CRITERIA**

**Article 22** - STARTUPS will be evaluated according to the following Elimination Criteria:

- (i) Company Profile The applicant company must fit as a STARTUP or SPIN-OFF, according to the definitions and criteria established in Article 4 Chapter I.
- (ii) Themes and Proposed Challenges The solution that does not meet the challenges proposed by the MINING COMPANY ANGLO AMERICAN will be eliminated, as mentioned in Chapter III;











(iii) Innovation - The solution presented by the STARTUP must have an innovative character for the MINING COMPANY ANGLO AMERICAN, that is, it must be tested in Proof of Concept. STARTUPS that present solutions routinely marketed or already tested previously in some mining company in Brazil or abroad, will be automatically excluded from the program.

**Article 23** - STARTUPS will be evaluated by the MINING COMPANY ANGLO AMERICAN, during the stages of Technical Screening, Interviews and Immersion, according to the "Classification Criteria" presented in Table 8 below.

Table 4 - Classification criteria.

| Criterion               | Objective  |
|-------------------------|--|
| Team                    | Assess the team's ability to develop the solution and leverage the business.   |
| Technological potential | Evaluate the effectiveness of the technologies used in the solution and their degrees of maturity.   |
| Proposed solution       | Assess whether the solution meets the MINING COMPANY ANGLO AMERICAN demand (s).  |
| Scalability             | Assess whether the solution allows scalability for companies associated with the Mining Hub  |
| Potential impact        | Assess the potential impact of the solution on MINING COMPANY ANGLO AMERICAN (financial, social, environmental, etc.)                            |
| Resources for the PoC   | Check the necessary resources, regardless of nature (financial, human or otherwise) for the development of the proof of concept of the solution. |

**Sole paragraph** - In the Technical Screening stage, the solutions will be assessed by the MINING COMPANY ANGLO AMERICAN with scores from 0 to10 in each of the criteria described in Table 4. In this process, up to 6 STARTUPS with the highest scores, given by the sum of the averages of the scores in each criterion, they will be classified for the Interview stage. In the Interview stage, based on the criteria











described in Table 4, the MINING COMPANY ANGLO AMERICAN will have free choice of up to 3 STARTUPS for the Immersion stage. Finally, in the Immersion stage, only 1 STARTUP will be selected for the development of the PoC, and this choice will be guided again by the criteria described in Table 4 and by the free decision of the respective MINING COMPANY ANGLO AMERICAN.

#### **CHAPTER VII - DURATION OF THE M-SPOT PROGRAM**

**Article 24** - The schedule with the main milestones of the **M-SPOT** program is available on the MINING HUB website (<a href="www.mininghub.com.br">www.mininghub.com.br</a>) as well as in Annex I.

**Article 25** - Dates may change due to the **MINING HUB**'s decision and need.

#### **CHAPTER VIII - OBLIGATIONS AND RESPONSIBILITIES**

**Article 26** - The obligations of the STARTUPS are:

- (i). Comply with all the provisions present in this Public Notice;
- (ii) Deliver the documents requested to register new "suppliers", demanded by MINING COMPANY ANGLO AMERICAN for the challenge and within the established deadlines;
- (iii) Present, when requested, the Legal Register and Bank Account the STARTUP or the SPIN-OFF must have the National Register of Legal Entities (CNPJ), in case of Brazilian nationality or legal regulations related to their respective nationality, such as Tax Identification Number (NIF), case of Portugal, as well as current account in the name of the company for the signature of the contracts;
- (iv). Participate in the actions provided for in each phase of **M-SPOT**, as well as provide all the necessary information and documents required by the MINING COMPANY ANGLO AMERICAN and or by the Mining Hub team;

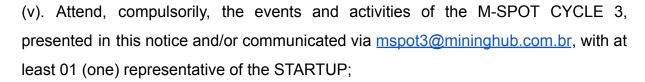












(vi) the STARTUP, when enrolling in this program, declares that it does not use and does not have, in its entire production chain, directly or indirectly, slave labor, in degrading conditions, workers subjected or forced to illegal conditions under the employer's domain, work by minors under 16 (sixteen), except as an apprentice from the age of 14 (fourteen), as established in article 7, item XXXIII of the Federal Constitution, as well as not allowing any type of discrimination and respecting freedom of association, under penalty of being immediately eliminated by the MINING HUB, without the need to send prior notification, being the STARTUP, in case of violation of this clause, subject to compensation of losses and damages caused and the penalties provided for by law;

(vii) The STARTUP, when enrolling in this program, declares, to fully observe Law no. 12,846/ 2013 ("Brazilian Anti-Corruption Law") and declares that it is aware of all the terms and definitions provided in the Brazilian Anti-Corruption Law, which defines as a harmful act to promise, offer or give, directly or indirectly, an undue advantage to a public agent or the third person related to it, among others. In case of breach of said Law, it will be responsible for any losses, damages or liabilities caused, in addition to the penalties provided for by law.

(viii) Comply with ANGLO AMERICAN policies, including the Anglo American Group Code of Conduct: <a href="https://aa.portaldeassinaturas.com.br/Verificar/FF5E0C0F-0380-F86D">https://aa.portaldeassinaturas.com.br/Verificar/FF5E0C0F-0380-F86D</a> and the Anglo American Group Business Integrity Policy: <a href="https://aa.portaldeassinaturas.com.br/Verificar/945D3343-BF37-BB8D">https://aa.portaldeassinaturas.com.br/Verificar/945D3343-BF37-BB8D</a> ) and also with all anti-corruption and anti-fraud legislation;

**Article 27** - The STARTUP declares that it is fully qualified to use the technology used by the proposed solution for the respective challenge during the development of the PoC, owning its characteristics or being duly licensed to use them.











**Article 28** - The STARTUP declares that it does not have, in the composition of its capital stock or in its membership/management/employees/service providers, people with a potential conflict of interest in relation to the mining companies associated with the Mining Hub.

# CHAPTER IX - TERMINATION OF THE RELATIONSHIP BETWEEN THE STARTUPS AND THE MINING COMPANIES OF THE M-SPOT CYCLE 3

**Article 29** - The relationship between the M-SPOT program and the STARTUPS will be considered terminated upon prior notification, in the following cases:

- (i) Elimination in the selection phases;
- (ii) End of program duration term;
- (iii) If there is a violation of any clause of this Public Notice;
- (iv) If the MINING HUB significantly changes the main features of M-SPOT and the STARTUP does not agree with these changes;
- (v) If the insolvency, bankruptcy or judicial recovery of STARTUP and its members is verified;
- (vi) If there is a temporary transfer of activity from STARTUP;
- (vii) At the initiative of STARTUP, duly justified;
- (viii) At the initiative of the MINING HUB, duly justified;
- (ix) At the initiative of the MINING COMPANY ANGLO AMERICAN, duly justified;

**First paragraph:** The STARTUP that does not have available time or does not respect attendance during the program, which will be carried out in person, at the headquarters of the Mining Hub and/or MINING COMPANY ANGLO AMERICAN, or online, will be eliminated. The eliminated will be the sole and exclusive responsible for any costs spent in this period.

**Second paragraph** - After the disclosure of the selection result, each STARTUP will have up to 7 calendar days to communicate without prejudice, via e-mail <a href="mspot3@mininghub.com.br">mspot3@mininghub.com.br</a>, the withdrawal regarding participation in M-Spot Cycle 3. After this period, the STARTUP that, for any reason, gives up participating in the











program will be unable to apply for another MINING HUB initiative for 6 (six) months, counting from the date of withdrawal.

**Third paragraph:** If the MINING COMPANY ANGL AMERICAN chooses to leave the program, it must present its justification in writing to the Mining Hub Board of Directors.

**Fourth paragraph:** Any financial expenses incurred to the STARTUP or the Mining Hub, within the period referring to that cycle in which the MINING COMPANY ANGLO AMERICAN gave up, shall be reimbursed in full by the quitting mining company to the first two cited in this paragraph.

#### CHAPTER X - POSSIBLE BENEFITS FOR THE SELECTED STARTUPS

**Article 30** - The following benefits can be made available to the STARTUPS selected for the Proof of Concept stage:

- Possibility of investment to develop the projects together with MINING COMPANY ANGLO AMERICAN for validation of the POCs;
- Possibility of access to the infrastructure and teams of the MINING COMPANY ANGLO AMERICAN, under favorable and safe conditions for the parties involved:
- Working together with professionals in the mining sector;
- Working together with the program management team;
- Methodology for carrying out Proofs of Concept: technical visits and development monitoring routines.
- Presentation of the partial results of the Proofs of Concept for Mining Companies associated with the Mining Hub.
- At the end of the program, and at its sole discretion, the MINING COMPANY ANGLO AMERICAN, if it consider it feasible for its business, will be able to invest in the operational scale of the solutions, as well as establish partnerships to seek funding, purchase or distribute the STARTUPS' products and services.











#### **CHAPTER XI - GENERAL PROVISIONS**

**Article 31** - It is hereby clearly and established that all rights related to the intellectual property arising from the work performed as a result of this Notice shall be owned by the STARTUP, which shall be entitled to the free disposal of such rights.

Article 32 - It is clear and established from now on that the participation and / or selection in the M-SPOT CYCLE 3 does not constitute any kind of bond, operating agreement, joint venture or association between the participant STARTUP (selected or not), the Mining Hub and others involved in the program. The participating STARTUP (selected or not) and others involved in the program are independent entities among themselves, that no provision of this Public Notice or the program shall be construed to create any corporate, labor or tax relationship between the parties and that there is not or will not be any solidarity or subsidiarity of any nature between the parties.

**Article 33** - It is hereby made clear and established that the participation in the program and the eventual signing of a contract with the MINING COMPANY ANGLO AMERICAN does not generate any kind of employment relationship. The STARTUP undertakes to exclude the Mining Hub and others involved from any liability in labor / social security lawsuits eventually brought by any of its employees, as well as to bear all costs incurred in such lawsuits, including, but not limited to, attorney's fees.

**Article 34** - It is hereby clearly established that the management team may alter this Public Notice at any time if necessary for the good and regular course of the Program established herein.

**Article 35** - It is clear and established now that all STARTUPS registered in M-Spot Cycle 3 authorize the Mining Hub to eventually make contact about future opportunities in other areas of operation of the Mining Hub itself. The STARTUPS may also register a new solution in the M-CONNECT program.











**Article 36** - It is hereby made clear that if there are any questions about this Public Notice, the MINING HUB is available to answer them by e-mail at <a href="mailto:mspot3@mininghub.com.br">mspot3@mininghub.com.br</a>.

**Article 37** - The participants give Mining Hub the right to use their image, text and/or voice in any type of material, free of charge and without exclusivity. In return, the Mining Hub undertakes to use the image of the participants without making any changes to the physiognomy and, further, not to use the image in a derogatory manner, or that may represent, in any form, some kind of violation of moral damage.

**Article 38** - The Mining Hub clarifies that, in the programs conducted by its initiative, the rules provided in the Law for the Defense of Competition (Law No. 12.529/11) are applied, in particular with regard to art. 36 and following, which determines as violations of the economic order, among others, all and any act related to (i) discussion, negotiation, agreement, collusion, manipulation or adjustment on prices, production and division of market segments; (ii) promotion, obtaining and/or influence to adopt uniform commercial conduct (iii) limiting the access of new companies to the market; (iv) preventing the access of competitors to the sources of inputs, raw materials, distribution channels or technology; (v) discriminating purchasers or suppliers of goods or services by means of the differentiated fixing of prices or operational conditions; and (vi) abusive exploitation of industrial property rights, intellectual property, technology or trademark. In this regard, Mining Hub constantly applies measures to mitigate any competition risks arising from the interactions related to the programs, including, among them, but not limited to, the establishment of Antitrust Protocol with the Mining Companies and the Startups eventually selected for its programs.

**Single paragraph**: Upon completion of registration, the holder of the personal data entered in this document expressly and unequivocally authorizes the MINING HUB to process such personal data, under the terms of Law No. 13.709/18 (LGPD - General Law of Personal Data Protection) and the Privacy Policy of the MINING HUB, for the purposes of (i) identifying and contacting the holder of personal data for the development of a business relationship with the MINING HUB; (ii) sending publicity, advertising, mailings, virtual or physical cards motivated by commemorative dates,











including the holder's birthday, digital and printed magazines, or any other advertising materials, customized or not to the holder's profile, related to the products, services and /or events offered by the MINING HUB and/or its business partners; (iii) using in research, studies, projects and programs developed by the MINING HUB;

**Article 39** - The parties involved undertake to treat as secret all confidential information related to the MINING COMPANY ANGLO AMERICAN that have been revealed to them, and undertake not to reveal it to third parties without their knowledge and consent, under penalty of civil and criminal liability.

"Confidential Information" shall not be deemed as that which is in the public domain before being disclosed or made available by the parties prior to the signing of the contract between STARTUP and MINING COMPANY ANGLO AMERICAN, or that which is made public by the National Institute of Industrial Property - INPI or by the competent body at international level.

**Article 40** - The e-mail <a href="mspot3@mininghub.com.br">mspot3@mininghub.com.br</a> is established as the program's official communication channel.



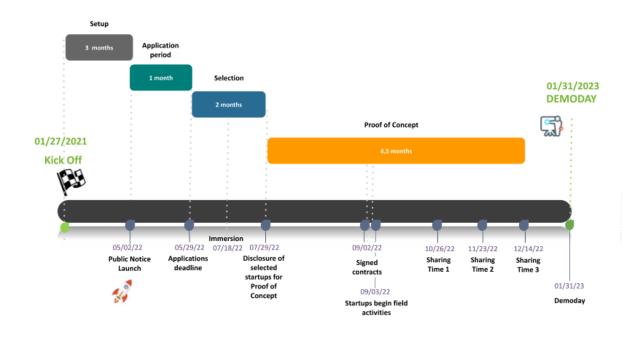


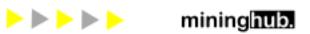






#### **ANNEX I - SCHEDULE**











#### **ANNEX II - CHALLENGES INFOGRAPHICS**

#### 1. OPERATIONAL EXCELLENCE

1.1 - How can we make predictive mining asset inspection more dynamic, effective and autonomous?

#### HOW CAN WE MAKE PREDICTIVE INSPECTION OF MINING ASSETS MORE DYNAMIC. FECTIVE AND AUTONOMOUS? ADVERSITIES OVERHEAD DIFFICULTY PIPES AUTONOMOUS OF ACCESS INSPECTION AREFERENCE POINT TRANSMISSION AVOID TOWERS DIAGNOSTICS OF INTERPRETATION OF DEVIATIONS DEPENDING EXCLUSIVELY ON INSPECTIONS HUMAN INTERPRETATION INCREASE **PREDICTABILITY** FOR MAINTENANCE ⚠ LONG CONVEYOR **BELTS STRETCHES** mining hub. AngloAmerican

1.2 - How to reduce contaminants in the water that circulates in the beneficiation process?

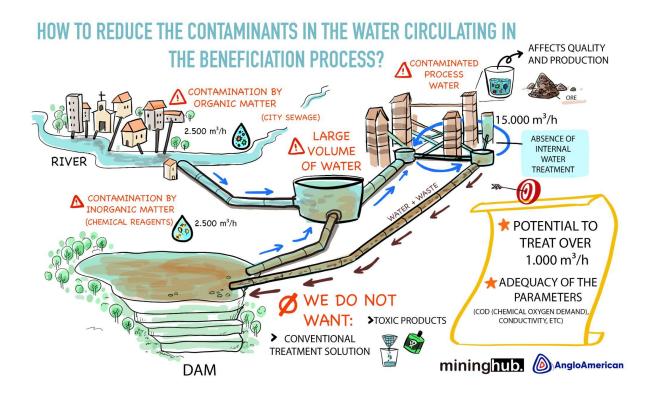
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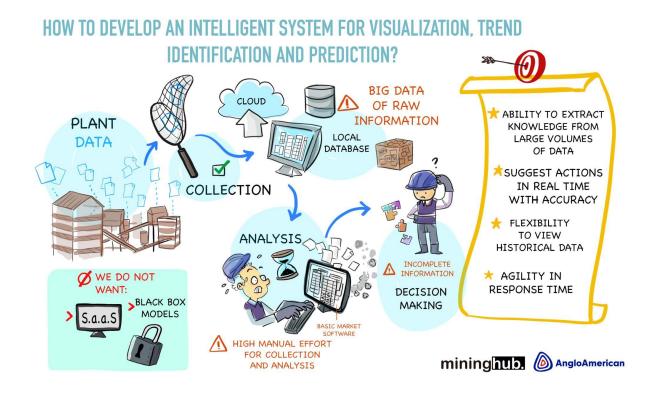








1.3 - How to develop an intelligent system for viewing, identifying trends and predicting variables in Anglo American's production process?





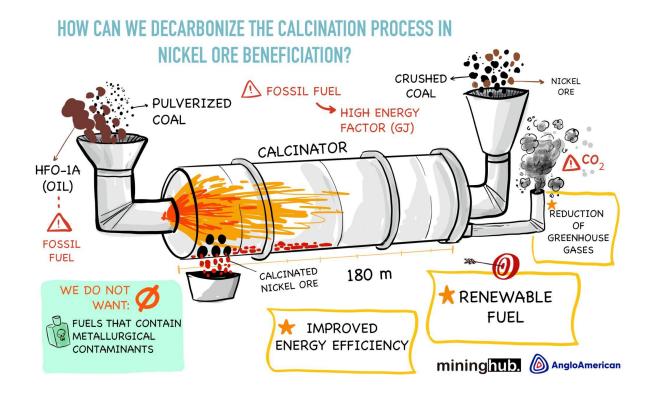






#### 2. ENVIRONMENTAL SUSTAINABILITY

2.1 - How can we decarbonize the calcination process in nickel ore beneficiation?



2.2 - How can we zero the disposal of waste to landfills?









## **HOW CAN WE ZERO OUT LANDFILL WASTE?**



#### 3. SAFETY

3.1 - How can we improve the condition monitoring of valves and dampeners through the operational variables of the main pumps of the ore pipeline?

