1. Introduction

MSALABS Guyana Inc. was established in 2017 and has since expanded into a state-of-the-art analytical laboratory providing fire assay and geochemical services to the mining and exploration sector in Guyana. In order to enhance our service offering and support the needs of the mining industry, we are seeking approval to add **Leaching Assay** using a **Pulverize and Leach (PAL) machine** to our list of services.

This project summary outlines the proposed process, environmental safeguards, and benefits of introducing leaching assays at our Coldingen laboratory.

2. Project Description

A **Leaching Assay** is a laboratory procedure designed to determine how much of a target metal primarily **gold** can be extracted from ore or pulp samples using a cyanide solution. This process simulates industrial gold recovery methods such as **Carbon-in-Leach (CIL)** and **Carbon-in-Pulp (CIP)**.

2.1 Equipment and Power Supply

The proposed work will utilize a **Pulverize and Leach Assay (PAL) machine)**, which operates with a **noise level of 70 dB**. The machine will be powered alternately by **two 150 KVA generators**, each producing a noise level of approximately **75 dB**.

2.2 PAL Machine Specifications

The PAL machine consists of:

- **52 steel pots**, each with capacity for:
  - 1 kg of sample
  - 1.5 L of water
  - 2 kg of grinding media
- The machine pulverizes samples to **>90% passing -75 µm** while simultaneously leaching gold with cyanide and LeachWELL tablets in less than one hour.

2.3 Analytical Method

- Slurry samples are collected and analysed for gold content using **Atomic Absorption Spectroscopy (AAS)**.
- Residues are retained for additional analysis as required.
- The assay measures:
  - Total gold recoverable under controlled conditions.
  - Leach kinetics (rate of extraction).
  - Reagent consumption (cyanide, lime, oxygen).
  - Residual gold in tailings.

3. Operating Procedure

The leaching assay will be conducted under the following controlled steps:

1. Receipt of samples, verification of IDs.
2. Drying of wet samples.
3. Crushing of coarse material (rock and drill core).
4. Splitting to obtain ≤1 kg representative sample.
5. Weighing and recording of sample mass (±20 g).
6. Loading of 43 samples (plus repeats, blanks, and standards) into the PAL machine.
7. Retention of remnant material for further analyses.
8. Addition of water, grinding balls, and two LeachWELL cyanide tablets.
9. Active leaching for 60 minutes.
10. Settling and removal of liquor.
11. Collection of slurry for recovery testing.
12. Analysis of liquor by AAS.
13. Reporting of results.

4. Waste Management and Disposal

MSALABS Guyana Inc. is committed to safe and environmentally responsible practices.

- **Cyanide bearing solutions** will be collected in **dedicated storage tanks**.
- All solutions will be treated with **sodium hypochlorite (bleach)** to neutralize cyanide.
- Treated solutions will be tested to confirm **zero traces of free cyanide** prior to disposal.
- Solid residues (pulps) will be safely stored for possible future re-analysis or disposed of according to established laboratory protocols.

5. Environmental Safeguards

- Closed system leaching with no uncontrolled discharge.
- Strict inventory and monitoring of cyanide reagents.
- Personal protective equipment (PPE) and safety protocols for all staff.
- Compliance with national regulations and international best practices for cyanide handling.

6. Project Benefits

- Provides the Guyanese mining industry with **faster, more accurate gold recovery data**.
- Reduces reliance on external laboratories abroad.
- Supports exploration companies and gold producers in optimizing recovery and reducing losses.
- Enhances local capacity and expertise in advanced mineral assay techniques.
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7. Conclusion

MSALABS Guyana Inc. respectfully seeks the approval of the Environmental Protection Agency to implement **Leaching Assay services** using a Pulverize and Leach (PAL) machine at our Coldingen laboratory. The facility will operate under strict environmental controls, ensuring that all cyanide solutions are neutralized prior to disposal, thereby eliminating environmental risk.

We believe this project will provide significant benefits to the mining sector in Guyana while maintaining the highest standards of environmental stewardship.

Yours Faithfully,

Dane Henry

Country Director – Guyana