Annex A: Sustainability Report

Contextual Information

Company Details	
Name of Organization	Benguet Corporation
Location of Headquarters	7F Universal RE Building, 106 Paseo de Roxas, 1226 Makati City Philippines
Location of Operations	Balatoc, Itogon, Benguet Province for mining of gold and silver Irisan, Baguio City for operation / processing of lime products
Report Boundary: Legal entities (e.g. subsidiaries) included in this report*	Benguet Gold Operations (BGO) for mining of gold and silver Corporate Headquarters (CHQ) Irisan Lime Project
Business Model, including Primary Activities, Brands, Products, and Services	Natural resources company engaged in, but not limited to the following: 1. Mineral exploration; 2. Mine development; 3. Mineral resources extraction; 4. Gold & silver processing; 5. Management of mine waste and mill tailings; 6. Production of quicklime and hydrated lime; and 7. Restoration / rehabilitation of mined-out areas.
Markets Served	Processed gold is sold to Bangko Sentral ng Pilipinas (BSP); Lime products are sold to mining and allied companies and farmers within Benguet and neighboring Provinces.
Scale of the Organization	1. Total average number of employees for 2025 is **345** employees which includes Central Headquarters (CHQ), Benguet Gold Operation (BGO) and Irisan Lime Project (ILP). 2. Total number of operations: • One (1) – Mining and milling operations for gold and silver • One (1) – 3 Kilns alternately operating for lime production. 3. Net Sales (private sector) • Total Capitalization • Debt – Php1.613B • Equity – Php10.137B 4. Quantity of products sold • Gold – 6,780.87 ounces • Silver – 664.49 ounces • Lime – 5,916.93 Metric Tons
Reporting Period	FY 2025
Highest Ranking Person responsible for this report	Atty. Lina G. Fernandez - President

Materiality Process

Explain how you applied the materiality principle (or the materiality process) in identifying your material topics.[1]

The 2025 Sustainability Report aims to inform our stakeholders of the most critical and material topics that influenced the 2025 ESG performance, and its impact on health, the environment, and the economy. Despite challenges, the Company continues to adopt a solution-driven approach to create long-term value for its investors and stakeholders. The report provides a detailed overview of the way best sustainability practices are deeply rooted in Benguet Corporation's business.

Given these factors, Benguet Corporation continuously strives to manage its operations under the following principles and commitments to attain its long-term objectives:

a. Profit and growth-oriented;
b. Responsible operation and environmental stewardship;
c. Commitment to improving the quality of life of our employees, the communities, and all stakeholders; and
d. Compliance with applicable laws, rules, and other obligations

The Board has a clearly defined and updated vision, mission, and core values. Please refer to the BC website under the tab "About Us" https://benguetcorp.com/about-us/mission-vision-core-values/

Please also refer to the Board Charter (p.8), which states that one of the general responsibilities of the Board is to determine the Company's purpose, vision, mission, and strategies to carry out its objectives.
https://benguetcorp.com/corporate-governance-category/manual-on-corporate-governance/

Economic Material Factors
Our economic performance is based on the value our operations contribute to the local and national governments, host and neighboring mining communities, and the environment at large. Our operations have created derived demand resulting in the establishment of micro, small, and medium enterprises in our mining community as well as in other areas where we source our value chain. Through our operations, the quality of life of our shareholders, employees, and other stakeholders has improved, local economies vigorously grew, and protection of the environment intensified.

Environmental Material Factors
Benguet Corporation is committed to the protection and enhancement of the environment by ensuring that its mining operations are in full compliance with mining and environmental laws, rules, and regulations. It ensures close collaboration and coordination with the Department of Environment and Natural Resources (DENR), the Mines and Geosciences Bureau (MGB), the Environmental Management Bureau (EMB), and all government agencies that monitor compliance. Sustainability is core to BC's corporate strategy and sits at the heart of everything it does. Our operation aims to be environmentally responsible, respecting human rights and supporting the communities in which BC operates. It is the leading value that enables our people to understand our common purpose, our values, how we measure success, and the basis for our decision-making. It is about managing our risks, reducing adverse environmental, social, economic, and cultural impacts, and supporting and sustaining the communities and environments in which we operate.

The Environmental Material Factors have been considered essential in keeping our operations successful. As a mining company, we are committed partners of the government in the conscientious development of the country's natural resources. This agreement comes with a huge responsibility not just to harness, particularly to protect, nurture, restore, and enhance the environment. Nature and the resources within are the main enablers of our business and as such, considerable care is our priority. Mitigating any possible adverse effects of our operations on the environment is part of our day-to-day function. The Company's mining activity is guided by the provisions of Philippine Laws, such as but not limited to the following:

1. Department Administrative Order No. 2010-21 (Implementing Rules and Regulations of R.A. 7942 – The Philippine Mining Act of 1995);
2. R.A. 9275 – Philippine Clean Water Act of 2004;
3. Department Administrative Order No. 2005-10 (IRR of R.A. 9275 – Philippine Clean Water Act);
4. Department Administrative Order No. 2000-98 (Mine Safety and Health Standard);
5. Department Administrative Order No. 2000-81 (IRR of R.A. 8749 – Philippine Clean Air Act);
6. R.A. 8371 – Indigenous Peoples Rights Act;
7. DENR Administrative Order No. 2001-34 (IRR of R.A. No. 9003 – Ecological Solid Waste Management

[1] See *GRI 102-46* (2016) for more guidance.

Act);
8. R.A. No. 6969 – An Act to Control Toxic Substances and Hazardous and Nuclear Wastes;
9. Department Administrative Order No. 28 (IRR of R.A. 6969 – Toxic Substances and Hazardous and Nuclear Wastes Control Act); and
10. DENR Administrative Order No. 2003-30 (Revised Procedural Manual of P.D. 1586 – Environmental Impact Statement System).

We constantly monitor the land, air, and water quality, the siltation levels in bodies of water, as well as the forest cover / density in the affected areas within our operations and its surrounding environments. We adhere to the strict parameters laid out by the government in ensuring that we protect the ecosystem, promote biodiversity, and enhance the environment.

Social Material Factors

Benguet Corporation puts health and safety as top priority and believes that sustainability includes playing an appropriate role in addressing global issues such as climate change, supporting and respecting human rights, and advocating for social change, such as supporting the rights of Indigenous Peoples. As a century-old corporation, BC has witnessed and navigated countless crises together with our employees, suppliers, and local communities, but BC has managed to prioritize people above all else.

As a responsible business entity, our Vision, Mission, Goals, Safety and Environmental Policies are centered on achieving productivity and advocating for the safety and health of our employees, assisting the people within our host and neighboring communities, and the continuous enhancement of our environment. We share the stewardship of our country's natural resources. As we operate within the indigenous communities, we support local cultures and respect human rights as we help drive economic development in the area.

As a responsible corporate partner of society, the Company has a social obligation not only to preserve, protect, and enhance the physical and ecological environment, but also to improve the quality of life of the people in the communities surrounding its operations.

Aside from the Company's commitment to be socially responsible and environmentally conscious, it also aims to achieve competitiveness and excellence as a natural resource development company through enhanced productivity and improvement of the quality of life of its employees, their families, and the host communities. At the heart of Benguet Corporation's philosophy are the people (employees and other stakeholders) promoting not only their interests and maintaining good community relationships but also enabling them to be empowered for the stewardship of the environment and natural resources surrounding them. To support this, we have fostered and developed an inclusive and diverse workforce that is representative of the communities where we operate.

As a continuing commitment and manifestation of the Company's compliance with the implementation of its Social Development and Management Programs, Benguet Corporation has extended assistance on the various needs of its host and neighboring communities in all its areas of operations based on the following development framework as provided under the SDMP guidelines on:

1. Human Resource Development and Institutional Building;
2. Enterprise Development and Networking;
3. Assistance to Infrastructure Development and Support Services;
4. Access to Education and Educational Support Programs;
5. Access to Health Services, Health Facilities and Health Professionals;
6. Protection and Respect to Socio-Cultural Values;
7. Development of Mining Technology; and
8. United Nations Sustainable Development Goals.

This is our fundamental way to maintain our social license.

ECONOMIC

Economic Performance

Direct Economic Value Generated and Distributed

IN MILLIONS

Disclosure	Amount (2025) BGO/CHQ	Amount (2025) ILP	Total Amount (2025)	Total Amount (2024)	Unit
Direct economic value generated (revenue)	1,352.82	92.14	1,444.96	891.77	PhP
Direct economic value distributed:					
a. Operating costs	670.99	59.68	730.67	452.81	PhP
b. Employee wages and benefits	99.58	4.75	104.33	102.76	PhP
c. Payments to suppliers, other operating costs	170.06	7.22	177.28	145.07	Php
d. Dividends given to stockholders	178.90	0	178.90	143.56	PhP
e. Interest payments to loan providers	0	0	0	7.934	PhP
f. Taxes given to government	59.37	0.31	59.67	31.64	PhP
g. Investments to community (e.g. donations, CSR)	3.85	0.89	4.74	5.58	PhP

Identification of Impact	Stakeholders Affected	Management Approach
Benguet Corporation's mining operations encompass two key sites: the Benguet Gold Operation (BC-BGO) in Benguet, which utilizes underground mining or tunneling methods, and the Irisan Lime Project (ILP) in Baguio City. ILP sources its raw limestone from land development and quarrying suppliers in the surrounding areas of Baguio City and Benguet Province as feed material for its kiln plant. Total Revenue for 2025 increased to Php 1,444.96 million, up Php 553.19 million or approximately 62.03% from Php 891.77 million in 2024. The increase was primarily driven by: • BGO contributing Php1,352.82 million, approximately 93.62% of total revenue. • ILP contributing Php92.14 million, about 6.38% of the total. Gold production in 2025 reached 6,785.21 ounces, higher compared to 5,508.05 ounces in 2024. The increase in production is attributed to higher ore milled and improved mechanical availability of equipment this year. Gold sold increased to 6,780.87 this year, against 5,750.24 ounces in 2024. Average price of gold significantly increased to US$3,484.58/ounce from US$2,414.80/ounce in 2024. The higher price of gold and production attributed to higher revenue for the period. ILP generated P92.14M revenue this year, slightly lower than 2024. Lime sales declined to 5,916.93 DMT from 6,362.14 DMT in 2024, but this was offset by the increase of interest income from the money market placements.	The Company's operations generate significant economic impacts, benefiting a diverse range of stakeholders: • Employees • Mining Contractors • Host and Neighboring Communities • Local and National Government: Service Providers and Suppliers • Local Business Establishments • National Government: • Micro, Small, and Medium Enterprises (MSMEs) • Shareholders	The Company manages its economic impacts through strict regulatory compliance, ethical business practices, and fulfillment of stakeholder commitments; it drives operational excellence and invests in long-term resilience through diversification into agribusiness, land development, and renewable energy; management, finance, health and safety, and diversification teams each have defined responsibilities, supported by proactive measures to mitigate potential negative economic impacts. The Company remains steadfast in its commitment to employees and host communities by providing the following key benefits: • Fosters economic growth in host and neighboring communities. • Maintains the family income of employees and community residents. • Delivers medical services through the Social Development and Management Program (SDMP). • Offers educational scholarships to deserving students from host and neighboring communities. • Ensures the continued collection of tax revenue by local government units. • Assists in local government infrastructure projects and sustains the delivery of essential community services via the SDMP. • Guarantees budgetary allocations for the protection and enhancement of the environment and for social development programs. • Subsidizes electricity and provides free water to employees and other stakeholders within the communities.

What are the Risk/s Identified?	Stakeholders Affected	Management Approach
The risks identified that have affected the 2025 operations include the following: • Financial volatility; • Resource constraints; • Evolving regulatory uncertainties; • Illegal mining intrusions (both external and internal); • Internal theft; • Safety and security breaches; • Environmental risks (particularly water quality); • Unstable power supply; • Depletion of non-renewable resources; • Scarcity of timber for mine support; and • Increased competition for water resources.	• The Company; • Employees of the Company and Mining Contractors; • People in the Host and Neighboring Communities; • Local and National Government; and • Service Providers and Suppliers.	The Company employs a comprehensive approach encompassing environmental protection (ISO 14001:2015 EMS compliance and rehabilitation investments), proactive stakeholder engagement (with Indigenous Peoples, LGUs, and communities through SDMP), strong regulatory communication and compliance (with DENR, MGB, EMB), and robust asset protection measures (enhanced monitoring, increased security surveillance, and technology deployment to abate gold pilferage).
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
The Company actively pursues strategic opportunities to enhance operational efficiency and financial resilience in the context of rising energy costs and evolving market conditions: • By implementing shared mill charges, the Company reduces exposure to fluctuating fuel and power prices. • With continued increases in gold prices, BGO is investing in deeper-level mining studies to optimize ore extraction, leveraging external consultants for technical evaluations for its Expansion below Level 2000. • The Company is exploring advanced technologies to improve gold recovery from tailings, supporting both economic value creation and resource sustainability.	• The Company; • Mining Contractors; and • Investors.	BGO addresses rising energy costs and leverages high gold prices by implementing shared mill charges to promote cost efficiency and sustainability. The Company engages consultants to assess other areas for increased production potential and is actively exploring new technologies to enhance gold recovery from tailings. These initiatives support long-term financial resilience and operational efficiency, aligned with the Company's sustainability goals.

Climate-related risks and opportunities[2]

Governance

Disclose the organization's governance around climate-related risks and opportunities.

The Company acknowledges the significant impacts of its energy-intensive activities, including GHG emissions. Climate-related risks and opportunities are integrated into the Company's governance structure and are overseen by the Board Risk Oversight Committee (BROC). The BROC develops and implements the enterprise risk management plan, evaluating key risks, including climate and EESG factors. The Chief Risk Officer supervises risk management processes, while the executive team implements the climate strategy. The Company's ISO 14001:2015 certified EMS and the EPEP provide frameworks for managing climate risks, ensuring sustainable operations through Board oversight.

Please refer to the Manual on Corporate Governance.
http://benguetcorp.com/corporate- governance/board-committees/.

Strategy

Disclose the actual and potential impacts[3] of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.

Climate change encompasses a wide range of conditions, including the increasing frequency of natural hazards caused by abnormal weather patterns, depletion of water resources, food scarcity, flooding, typhoons, earthquakes, etc. Under each condition, the impacts on mining operations of BC-BGO and to the surrounding environment are pronounced.

Every year, BGO and ILP allocate a portion of their operating costs to further strengthen their environmental programs, which, to some extent, go beyond mere regulatory compliance.

BGO and ILP operations collaborate with the host and neighboring communities to actively participate in CO^2 sequestration by planting more trees in their surroundings.

All previously established plantations are being maintained yearly.

The total expenditures for the implementation of the environmental protection program of BC-BGO in 2025 amounted to P10,877,353.03.

Risk Management

Disclose how the organization identifies, assesses, and manages climate-related risks.

- Identification and Assessment:
  In accordance with ISO 14001:2015, BC-Benguet Gold Operation systematically identifies and assesses environmental aspects and their associated impacts, including climate-related risks. This process considers both the direct and indirect impacts of our operations.

- Environmental Risk Management System Manual:
  All identified and assessed climate-related risks, along with their corresponding mitigation measures, are documented and addressed within our Environmental Management System (ERMS) Manual. This manual outlines procedures for managing these risks, including operational controls, monitoring, and emergency preparedness, Specifically: Benguet Corporation identifies, assesses, and manages climate-related risks through its enterprise risk management framework overseen by the Board Risk Oversight Committee (BROC). The committee develops and monitors risk management strategies that integrate climate-related risks with other environmental, economic, and social factors. Climate-related risks are assessed within the broader risk framework, with mitigation plans developed to manage them. Reports on risk exposures and the effectiveness of mitigation strategies are provided to the Board to ensure comprehensive management.

[2] Adopted from the Recommendations of the Task Force on Climate-Related Financial Disclosures. The TCFD Recommendations apply to non-financial companies and financial-sector organizations, including banks, insurance companies, asset managers and asset owners.
[3] For this disclosure, impact refers to the impact of climate-related issues on the company.

- Environmental Protection and Enhancement Program (EPEP):
  The Environmental Protection and Enhancement Program (EPEP), which is continuously monitored by regulatory agencies, includes specific measures to mitigate climate-related risks. This may include initiatives to reduce GHG emissions, improve energy efficiency, manage water resources sustainably, and protect biodiversity. The EPEP ensures that our operations comply with environmental regulations and strive for continuous improvement in our environmental performance.

- Monitoring and Review:
  The effectiveness of our climate-related risk management measures is continuously monitored and reviewed as part of our EMS and EPEP. This includes regular audits, performance evaluations, and management reviews to ensure that our strategies remain effective and aligned with best practices.

Please see Risk Management Charter https://benguetcorp.com/wp-content/uploads/2024/06/Risk-Management-Charter.pdf
And ERM Framework *https://benguetcorp.com/wp-content/uploads/2024/06/Enterprise-Risk-Mgnt-Framework.pdf*

Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

- The Company continuously looks for ways to contribute to community and ecosystem resiliency.

- With the approved Annual Environmental Protection and Enhancement Program (AEPEP), the Company has laid out its annual targets and milestones to continuously address and mitigate the identified climate-related risks.

Recommended Disclosures	
a) *Describe the board's oversight of climate-related risks and opportunities.* The Board of Directors of BC-Benguet Gold Operation oversees climate-related risks and opportunities through the Board Risk Oversight Committee (BROC). The BROC ensures these risks are identified, assessed, and managed within the enterprise risk management framework. It monitors implementation, advises on risk appetite, and integrates climate considerations into the EMS and EPEP, aligning with ISO 14001:2015. The Chief Risk Officer and executive team support the BROC with regular updates, ensuring that climate risks are addressed strategically and sustainably at the highest level of governance.	a) *Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.* Among the identified risks and opportunities related to climate change are the following: 1. Risks - a. Deforestation b. Landslide c. Forest fire / bush fire d. Underground water depletion e. Air pollution 2. Opportunities – a. Employment through reforestation activities b. Watershed enhancement c. Water spring and water impounding development d. Cleaner air

a) *Describe the organization's processes for identifying and assessing climate-related risks.*

BC-Benguet Gold Operation employs a structured process for identifying and assessing climate-related risks, integrated into its broader risk management framework and aligned with ISO 14001:2015. Key elements include:

1. Systematic Risk Identification: Climate-related risks (physical and transition) are systematically identified as part of environmental aspect assessments, which aligns with the principles of ISO 14001:2015.

2. Site Manager Involvement: Site Managers assess operational risks. This ensures that operational realities and site-specific vulnerabilities to climate change are thoroughly considered.
3. Risk Response Development: Management develops mitigation plans with budget estimates.
4. Executive Management Approval: Plans are reported to Executive Management for approval, and to BROC, if necessary.
5. Implementation and Reporting: Site management implements plans and reports on progress.
6. Monitoring: The Chief Risk Officer monitors mitigation effectiveness.

7. Regulatory Reporting: Risks and actions are reported to regulatory agencies.

Please refer to the Board Risk Oversight Committee Charter link. *http://benguetcorp.com/wp- content/uploads/2020/06/C- Board-Risk-Oversight-Comm- Charter.pdf*

a) *Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.*

We recognize that there is increasing pressure to better understand and mitigate GHG emissions. Our Company strategically integrates the assessment of climate-related risks and opportunities in our business functions and risk management processes through transparent communication and a commitment to environmental stewardship, measured through the following:

1. Open lines of communication exist between the Board, Committees, Company Executives, and Site Management. We track the content of Board and Committee discussions pertaining to climate-related risks and opportunities.
2. Programs on climate-related risks, particularly water management, pollution control, tailings management and reforestation, are top management priorities. The effectiveness of our water management programs is assessed through metrics measured against regulatory standards. Pollution control efforts are evaluated based on reductions in air and water pollutant emissions (measured in relevant units like ppm or mg/L) and adherence to permitted levels. The success of reforestation activities is tracked by the number of hectares reforested and the survival rate of planted species.
3. BC-BGO and ILP adhere to the provisions of the following various Philippine Environmental Laws and Regulations:
    a. R.A. 9275 – Philippine Clean Water Act of 2004
    b. DAO No. 2005-10 (IRR of R.A. 9275 – Philippine Clean Water Act);
    c. DAO No. 2000-81 (IRR of R.A. 8749 – Philippine Clean Air Act);
    d. DENR Administrative Order No. 2001-34 (IRR of R.A. No. 9003 – Ecological Solid Waste Management Act);
    e. R.A. No. 6969 – An Act to Control Toxic Substances and Hazardous and Nuclear Wastes;
    f. Department Administrative Order No. 28 (IRR of R.A. 6969 –Toxic Substances and Hazardous and Nuclear Wastes Control Act); and
    g. DENR DAO No. 2003-30 (Revised Procedural Manual of P.D. 1586 – Environmental Impact Statement System).

Our compliance with environmental regulations (R.A. 9275, DAO 2005-10, DAO 2000-81, DENR AO No. 2001-34, R.A. 6969, DAO 28, and DENR AO 2003-30) is rigorously monitored through regular audits and inspections, recording any instances of non-compliance and the corrective actions taken. We also track the number of environmental permits and licenses held and their renewal status to ensure continuous operational legality.

b) Describe management's role in assessing and managing climate-related risks and opportunities. • Executive management, led by the Chief Risk Officer (CRO), manages the day-to-day assessment and management of these risks. • At BC-Benguet Gold Operation, climate change management is a shared responsibility among key managers and front-line personnel. • Executive management's duties include: a. Identifying and assessing physical and transition risks through departmental collaboration; b. Developing and implementing mitigation and opportunity strategies; c. Monitoring effectiveness against set targets; d. Regularly reporting to Executive Management and BROC (when necessary); e. Integrating climate considerations into the Environmental Management System (EMS) and Environmental Protection and Enhancement Program (EPEP), aligned with ISO 14001 Standards; and f. Collaborating with external stakeholders on climate issues. • The CRO oversees the Enterprise Risk Management (ERM) process and communicates top risks, including climate-related ones, to the BROC.	*b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.* The mining operation is an extractive process that is always associated with environmental risk. Benguet Corporation's operation in Itogon is the subject of rigorous evaluation and monitoring by regulatory agencies on its compliance with environmental laws and regulations to reduce or eliminate pollution. The Company stands in solidarity with the government to arrest the deteriorating climate pattern through wise utilization of natural resources and lowering CO2 emission that affects the ozone layer. The Company's reforestation programs (Mining Forest Program and the National Greening Program) are its positive contribution to the worsening climate change. As presented in the approved Annual Environmental Protection and Enhancement Program of 2025, Plans/Programs/Activities (P/P/A's) are all provided with corresponding budget and monitoring strategies.
c) Describe the organization's processes for managing climate-related risks BC recognizes the role in collaborating with others to achieve progress in managing the challenges of climate change. Experts from the private sector, government agencies, the academe, and non-government organization are consulted on various aspects to prevent and minimize the effects of climate change. The company implements programs that are consistent with its goals and targets. The budget for the full implementation of the reforestation program on denuded slopes of the mountain and rehabilitation of eroded areas is funded. Water pollution control measures are strictly monitored to prevent the escape of processed water from leaks that may contaminate the water bodies. The company seeks opportunities to work with partners to utilize technologies that will include carbon capture and the natural climate solutions of reforestation and afforestation. We will continue to seek opportunities to collaborate with value chain partners, investors, researchers, and government agencies to work towards reducing the negative effects of climate change.	*c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.* The implementation of the approved 2025 Environmental Protection and Enhancement Program (EPEP) of BGO and ILP includes the annual targets and corresponding budget per activity. The total expenditures for the implementation of the 2025 EPEP amount to PHP 10,877,353.03, lower by 30.68% of the approved PhP15,692,299.08 AEPEP budget.

d) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios including a 2°C or lower scenario. BC's environmental enhancement program, particularly on reforestation and forest protection, is aimed at reducing CO2 in the atmosphere. In addition to the establishment of forest plantations, additional projects implemented to attain the different climate-related scenarios are as follows: • Increased preventive maintenance schedule of anti-pollution devices such as scrubbers to arrest air pollutants from gold smelting processes. • Dust emissions were reduced with a dust suppressor system using air and water to act as suppressors for spraying along roads inside industrial area. • Regular preventive maintenance program is being conducted on vehicles and equipment to ensure smoke emissions are within the DENR-prescribed standards.All environmental safeguards are put in place to mitigate and reduce the emission of CO^2.	*d) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.* The Board Risk Oversight Committee and CRO are tasked to make sure that the Company's environmental programs and compliances are integrated into the overall mine development program and implemented in accordance with the approved program by the Department of Environment and Natural Resources through the Mines and Geosciences Bureau and Environmental Management Bureau.

Procurement Practices –
Proportion of spending on local suppliers

Disclosure	Quantity				Units
	BGO		ILP		
	2025	2024	2025	2024	
Percentage of procurement budget used for significant locations of operations that is spent on local suppliers	84%	92%	100%	100%	%
	106,021,702.18	123,830,567.00	58,620,287.88	62,131,972.29	Php

Identification of Impact	Stakeholders Affected	Management Approach
Both BGO and ILP demonstrate a substantial proportion of their procurement budget being spent on local suppliers in both 2024 and 2025. BGO shows a decrease in its percentage of spending on local suppliers from 92% in 2024 to 84% in 2025. On the other hand, ILP maintained a consistent 100% of its procurement budget spent on local suppliers in both years. ILP maintained its operation (100%) in 2024-2025. Both operations align strongly with the company's emphasis on sustainable procurement and working closely with key partners along the value chain. This preference for local sourcing contributes to several sustainability objectives: • By prioritizing local suppliers, both BGO and ILP are directly supporting the local economies. This fosters local job creation,	Employees in-charge of procurement Suppliers/manufacturers of product and services providers Materials Management Departments	BC believes that the success of the operation can be achieved through respect and transparent dealings between the management and the various agencies/entities and suppliers that provide the goods and services to the Company. It manages supplier relationships through its values and compliance with applicable regulatory frameworks. To ensure sustainability in our supply chain, a risk-based approach in assessing suppliers is in place. Suppliers must comply with the standard requirements, such as ISO certified or government standard compliances. We acknowledge the invaluable contributions of our suppliers and service providers who play an integral role in our holistic value chain.

strengthens local businesses, and contributes to the overall economic well-being of the communities. • Sourcing locally for essential commodities, supplies, and materials can significantly reduce the environmental impact associated with long-distance transportation, including lower GHG emissions from freight and reduced reliance on extensive logistics networks. • The practice of working closely with our key partners/suppliers fosters long-term relationships, promotes knowledge sharing on sustainability practices, and builds a more resilient and responsible supply chain within the Philippines.		
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
Delays in the delivery of imported supplies and materials/equipment parts have affected the mechanical availability of the equipment. Sub-standard quality of supplies and materials or products that may affect or slow down the operation and reduce gold production. Sourcing imported materials is expensive and may delay the delivery of needed supplies which will affect production.	Shareholders – lesser revenue due to lower production; Employees of contractors and suppliers – productivity is affected; Operations – they must work around the limitations of local suppliers sometimes sacrificing the timeliness of the process which may result in higher production costs. Suppliers – loss of trust and confidence	To ensure sustainability in the supply chain, a risk-based approach is being taken in assessing suppliers. We engage them through a commercial framework that is aligned with BC's Purchasing Policy. Long-term planning on mining development and programs to advance the forecasting of needed materials and supplies to ensure availability when needed by the operation. The company has prioritized suppliers with ISO 14001-2015 Certification.

What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
Partnering with local suppliers gives BC better credit lines, more responsive lead times, and customization options (smaller minimum order requirement). Through its mining operation, the Company is opening doors and providing business opportunities to suppliers and service providers, local and foreign suppliers, and community residents.	Suppliers – local suppliers can sustain and grow their operations because of the mining operations of BGO and ILP. MSMEs – as mining operations expand, intermediate industries are given the opportunity to address the needs in each part of the value chain. Employees – direct collaboration in dealing with local suppliers	Continue to develop good relationships with suppliers and service providers. Continue to work with local suppliers that provide quality services and products at lower costs.

Training on Anti-corruption Policies and Procedures

Disclosure	Quantity	Units/%
The percentage of employees to whom the organization's anti-corruption policies and procedures have been communicated to	100	%
Percentage of business partners to whom the organization's anti-corruption policies and procedures have been communicated to	100	%
Percentage of directors and management that have received anti-corruption training	100	%
Percentage of employees that have received anti-corruption training	100	%

Identification of Impact	Stakeholders Affected	Management Approach
BC practices zero tolerance to corruption in the conduct of its business. Some potential sources of corruption are as follows: Employees may be involved in bribery and corruption on permit and license acquisition and during land acquisitions/negotiation. As there are numerous purchasing transactions, employees may be offered bribes/ incentives on these engagements. Giving or asking special favors to/from mining contractors, Service Contractors, or other stakeholders in exchange for personal gain such as but not limited to relaxing company policies and procedures.	Suppliers – all suppliers must go through the same screening. This ensures the company gets what it pays for, and the supplier delivers what it promises. Employees – must be the vanguards of integrity especially when representing the company to external parties. Community – those who support corruption by supporting peers engaged in unlawful conduct deprive honest businesses of the chance of flourishing their trade and contributing back to the community. Management – should always advocate a culture of excellence and integrity. They set the values of the company and must promote the example of anti-corruption. Government regulatory agencies – officials must practice global policies on anti-corruption in the conduct of government and private business transactions.	The board sets the tone and makes a stand against corrupt practices by adopting an Anti-fraud, Corruption, and Whistleblowing Policy and its Code of Employee and Business Conduct. Please refer to the following link *https://benguetcorp.com/corporate-governance-category/policies/* Anti-Fraud, Corruption and Whistleblowing Policy: *https://benguetcorp.com/wp-content/uploads/2024/06/anti-fraud-corruption-whistleblowing-policy.pdf* Policy on Whistle Blowing: *https://benguetcorp.com/wp-content/uploads/2024/06/Policy-on-Whistle-Blowing.pdf* Code of Employee Conduct and Discipline: *https://benguetcorp.com/wp-content/uploads/2024/06/Employee-Code-of-Conduct.pdf* Code of Business Conduct and Ethics *http://benguetcorp.com/wp-content/uploads/2020/06/E.-Code- of-Conduct-of-Business-and- Ethics.pdf*
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
Delay in the acquisition of permits and licenses. Engagement in corrupt practices may result in: • Cancellation or suspension of permits, licenses, contracts, or agreements, or other penalties • Court cases • Business losses • Exposure to higher or additional operational costs	Mining contractors – reduced share in volume and value LGUs – reduces tax collection Employees – suspension or withholding of salaries and benefits, or dismissal from employment Host communities – stoppage of the implementation of social development programs	Prompt submission of documents and compliance with government requirements to avoid delays in the processing of permits and licenses. Maintain good relationships and close communication with concerned regulatory agencies. The Company has clear and stringent Anti-Fraud and Corruption policies and procedures to curb and penalize employee involvement in

		offering, paying, or receiving bribes or unlawful benefits. The Company disseminated the anti-corruption policies and programs to employees throughout the organization via emails and employees signed acknowledgements of receipt. Please refer to link Code of Employee Conduct and Discipline, *https://benguetcorp.com/wp-content/uploads/2024/06/Employee-Code-of-Conduct.pdf*
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
With the existence of written policies, communication thereof to all concerned, and their vigorous implementation, possible involvement in corruption and bribery will be minimized, if not eliminated. Harmonious relationship with the regulatory agencies, community, and other stakeholders is maintained. The continuity of mining operation is assured, and the integrity and reputation of the Company are preserved in the absence of corruption and bribery within the organization.	Host communities – increase in public investment and support to the organization National government agencies and local government units – Strengthen the position of the regulatory system and guarantee a degree of fairness. Suppliers/contractors/service providers – Lead to a secure and long-term business relationship. Employees – job satisfaction and security, and increase employee morale and shared values	Closer relationship with all stakeholders in the mining circle and government agencies. Strict observance of the schedule for the submission of regulatory reports and compliances.

Incidents of Corruption

Disclosure	Quantity	Units
Number of incidents in which directors were removed or disciplined for corruption	0	#
Number of incidents in which employees were dismissed or disciplined for corruption	0	#
Number of incidents when contracts with business partners were terminated due to incidents of corruption	0	#

What is the impact and where does it occur? What is the organization's involvement in the impact?	Stakeholders Affected	Management Approach
The Company has not experienced or recorded any incidents of corruption involving its Board of Directors, officers, or employees. The Company's Code of Business Conduct and anti-corruption standards clearly prohibit bribery and corruption in all business dealings. Benguet Corporation has been recognized as a top Philippine publicly listed company for corporate governance based on the 2021 and 2022 ASEAN Corporate Governance Scorecard (ACGS) and Corporate Governance Scorecard (CGS) assessments by the Institute of Corporate Directors. This commitment is further evidenced by the Company receiving	The Company, Board of Directors, officers, Senior Managers, and all employees are responsible for the strict implementation and compliance with the Employee Code of Conduct and with all applicable government regulations and other pertinent governing bodies.	All employees are covered by the Anti-Fraud, Corruption, and Whistleblowing Policy and Employee Code of Business Conduct. Members of the Management Team continue to comply with the requirements of governing bodies, including Corporate Governance reports and compliances. Please refer to the following links: Anti-fraud, Corruption and Whistle-blowing Policy *http://benguetcorp.com/wp-content/uploads/2020/06/anti-fraud-corruption-whistleblowing-policy.pdf*

Golden Arrow Awards on January 20, 2023, September 28, 2023, September 19, 2024 and October 23, 2025. This consistent recognition underscores Management's strong and sustained dedication to good corporate governance.		ACGS Awarded Benguet Corporation as top performing publicly listed Company *http://benguetcorp.com/corporate-governance/*
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
Keeping the workplace free from corruption vis-a'-vis building a culture of integrity is always a continuous challenge, as employees and stakeholders are exposed to high-value minerals and assets. If the risk of income/profit loss due to corruption or pilferage is not addressed, it could eventually lead to business closure.	Business closure may affect the following: Mining contractors – reduced amount of share in volume and value LGU – lower tax collection Employees – suspension or termination of employment Host communities - Community development projects might be suspended/stopped.	Management, including its officers and managers, should set a personal example of integrity. Strong leadership and commitment in the implementation of the Anti-fraud, Corruption and Whistleblowing Policy and the Employee Code of Conduct are uniformly implemented across all organizations and levels. The Company shall continue to: 1. Orient new officers, managers, and employees on the above-named policies during HR orientations; 2. Periodically update the policies and procedures as necessary; and 3. Cascade updates to all concerned. Transparency and fairness in the disciplinary process should be observed at levels.
What are the Opportunity/ies Identified	**Stakeholders Affected**	**Management Approach**
A workplace free of corruption with employees who have high regard for integrity could lead to more productive and greater business opportunities for the Company.	The opportunities and outcomes will surely be reaped by the communities, LGUs, employees, and other stakeholders.	Management endeavors to further strengthen its core values, systems, and procedures to reduce, if not totally eliminate, corruption and fraud in the workplace.

ENVIRONMENT

Resource Management

Energy consumption within the organization:

Disclosure	Quantity						Units
	BGO		ILP		TOTAL		
	2024	2025	2024	2025	2024	2025	
Kerosene	1,472.37	1,760.50	0.00	0.00	1,472.37	1,760.50	GJ
Gasoline	45.57	30.88	0.00	0.00	45.57	30.88	GJ
LPG	0.00	0.00	0.00	0.00	0.00	0.00	GJ
Diesel	3,601.155	3,179.82	231.12	3,374.55	3,832.275	6,554.37	GJ
Bunker fuel	0.00	0.00	4,903.1768	4,824.29	4,903.1768	4,824.29	GJ
Electricity	4,505,184.79	5,468,519.51	209,850	196,285	4,715,034.79	5,664,804.51	kWh

Reduction of energy consumption

Disclosure	Quantity						Units
	BGO		ILP		TOTAL		
	2024	2025	2024	2025	2024	**2025**	
Kerosene	645.21	(288.13)	0.00	0.00	645.21	288.13	GJ
Gasoline	(16.25)	(14.69)	0.00	0.00	(14.69)	(16.25)	GJ
LPG	0.00	0.00	0.00	0.00	0.00	0.00	GJ
Diesel	1,083.865	421.335	80.22	(3,143.43)	1,164.085	(2,722.095)	GJ
Bunker fuel	0.00	0.00	421.3979)	(78.8868	(421.3979)	78.8868	GJ
Electricity	517,231.22	(963,334.72)	12,216	(13,565)	529,447.22	(976,899.72)	kWh

Identification of Impacts	Stakeholders Affected	Management Approach
The increase in electricity consumption at BGO is due to increased production of gold in BGO, attributed to higher ore milled and improved mechanical availability of equipment this year. The Irisan Lime Project (ILP) saw a jump of over 1,360% in diesel consumption due to the frequent brownouts by BENECO in the Baguio area, which necessitated a heavy reliance on diesel-powered generator sets to maintain operational continuity at the ILP site. Please refer to the following: *Appendix "A"–EMS Guidelines on Power Conservation*	Operations – power cost is a significant cost driver in gold operations. Small-scale miners (SSM) – The Company monitored the disconnected illegal connections by SSM to eliminate pilferage of electricity. An increase in milling charges due to the increased cost of electricity and fuel/oil affected the operation of mining contractors. Employees – home activities of employee dependents are affected by the energy conservation measures being implemented.	Safeguards in the following measures to be sustainable: Conduct regular energy level monitoring/ reports. Schedule regular follow-up of the delivery of mechanical parts and supplies. Submission of regulatory reports on energy consumption to Mines and Geosciences Bureau and Environmental Management Bureau. Maintain BC Program on energy conservation. Disconnection of illegally connected power lines by small-scale miners. Regular monitoring is implemented to prevent reconnection. BC–BGO has been re-certified ISO 14001:2015 (by NQA) as proof of commitment to make operations aligned with international environmental and safety standards that include energy conservation.

What are the Risk/s Identified	Stakeholders Affected	Management Approach
• Price of fuel and oil - The fluctuating world market price of diesel and bunker fuel has affected the overall operating cost and the profitability of the operation. • The low grade of ore from the mining operation has affected the milling cost. • Pilferage of processed and unprocessed ore; stealing of processed/loaded carbon has contributed to income loss. • Misappropriation / inappropriate target/goal setting affected the revenue projection. • Grid Instability/ BENECO brownouts	BC Operation Suppliers of fuel & oil Employees/miners Community	BC follows a strict set of environmental standards in the conduct of its operation to monitor power consumption and utilization. To be sustainable, there is a need to strictly implement the following: • Energy level monitoring; • Strengthen security measures and surveillance of mine and mill workers/employees; • Close monitoring of production vs budget and revise projections when necessary; • Submission of regulatory reports on energy consumption; • Conduct regular Preventive Maintenance Schedule on equipment and vehicles; and • Conduct regular monitoring of small-scale miners' operations in the area and implement immediate disconnection of illegally connected power lines.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
Replacing or retrofitting the ILP machinery is a key opportunity to reduce energy intensity even when grid power is available. Cost savings initiatives are being implemented across the value chain to become the least-cost producer as well as achieve greener, cleaner operations. Develop a better understanding of the mine and mill operations process flow and coordination with security, mill, and mine managers that will improve relationships among department heads to prevent pilferage of commodities.	Community LGU	Continuously monitor its power consumption and check areas that can be subjected to power adjustments. The company maintained reducing power consumption in its industrial areas by shifting to energy-efficient motors and lighting fixtures for a cost-reduction program. Shared electricity rates through graduated increased milling charges to contractors.

Water consumption within the organization

Disclosure	QUANTITY						Units
	BGO		ILP		TOTAL		
	2024	2025	2024	2025	2024	2025	
Water withdrawal: Industrial	50,352.42	72,064.72	631*	567*	50,983.42	72,631.72	Cubic meters
Domestic	7,191.40	6,269.87			7,191.40	6,269.87	
Water consumption Industrial	50,352.42	72,064.72	631*	567*	50,983.42	72,631.72	Cubic meters
Domestic	7,191.40	6,269.87			7,191.40	6,269.87	

Water recycled and reused	0.00	0.00	0.00	0.00	0.00	0.00	Cubic meters
**Combined industrial and domestic figures*							

Identification of Impact	Stakeholders Affected	Management Approach
Water is a critical input for the mining & milling operations at the BC-BGO site. Recognizing its importance, the Company actively monitors the operational impact on adjacent river systems and downstream communities in Itogon to ensure water resources are maintained at levels that allow for equitable access by all stakeholders. Water Sourcing: • BC-BGO (Benguet): Industrial water for mining activities is sourced from the Company's old underground mine tunnel located in L-2000, Acupan, Itogon, Benguet. This withdrawal is governed by Water Rights Permit No. 16154 issued by the National Water Resources Board (NWRB). Potable water for employees' consumption at the BGO site is supplied by a private individual who owns and maintains a natural spring for his water delivery business, with the Company procuring this water at a fixed rate per drum. • ILP (Baguio City): Domestic water needs for the ILP operations in Baguio City is supplied by the Baguio Water District (BWD). Industrial water for ILP is supplied by private individual, sourced from a natural spring permitted by the government for his water delivery business, with costs negotiated per cubic meter.	The affected stakeholders are as follows: Company – has 24/7 access to water supply from its underground mine tunnels for industrial use. BC-BGO employees, contractors/service providers, have access to safe potable water within the mine site. Host, and neighboring communities – have free access to water sources present in the area since the Company source and utilize its water internally.	Access to water is a basic human right as it is a shared resource of high economic, environmental, and social value. Considering that its operation is dependent on the free-flowing water from the Company's underground mine tunnel and for the continuous water recharging of the aquifer, it developed a strategy through an intensified watershed development and management by implementing a reforestation program on denuded and sparsely vegetated areas within and outside the Company's mining claims. This activity is included in the Annual Environmental Protection and Enhancement Program. Streamflow measurement and water quality monitoring is done quarterly. *Please refer to Appendix "B" – Certificate of Approval of Annual Environmental Protection and Enhancement Program (AEPEP for BGO)* *Please refer to Appendix "B-1" – Certificate of Approval of Annual Environmental Protection and Enhancement Program (AEPEP) for ILP*
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
The identified water-related risks are as follows: 1. Poor housekeeping practices by underground miners pose a risk to the quality of water intended for domestic use. 2. The growing population and business activity in the surrounding area are expected to double overall water demand, potentially impacting availability and cost. 3. Anticipated drying of some springs during the summer months will likely intensify competition for domestic water resources, potentially leading to price increases and volume limitations. 4. High water competition is expected during the dry season due to the water-intensive ball milling operations of illegal small-scale miners.	BC-BGO employees, contractors/service providers, community residents.	The company will continue to support a range of projects that offer sustainability co-benefits, including support for local communities' biodiversity conservation, and watershed rehabilitation. The Company's Mining Forest Program is a shared responsibility with the community while the government monitors the implementation of the program. The Company continues to engage with its host and neighboring communities for an uninterrupted partnership in the protection of the reforested areas to increase the water yield of the aquifer.

What are the Opportunity/ies Identified?	Stakeholders Affected	Management Approach
In 2025, total water withdrawal across our operations increased by 35.63%, from 58,174.82 cubic meters in 2024 to 78,901.59 cubic meters. Industrial water withdrawal increased by 42.46% due to increased number of ball mill and CIL/CIP tanks operating and improved process controls, while domestic water withdrawal decreased slightly by 12.81%, reflecting stable consumption patterns. No water recycling or reuse activities were recorded during the reporting period. Recognizing this opportunity, we are prioritizing the development of water reuse initiatives to enhance sustainability in future operations. In addition, intensified watershed development in the area has provided livelihood opportunities for Indigenous Peoples (IPs) through contract reforestation, seedling propagation, plantation maintenance, and forest protection activities — further strengthening the community's role in environmental stewardship. Moreover, the Company's abundant underground water source presents significant potential for business development, particularly to supply bulk water needs of the surrounding communities, contributing to local water security and economic development. Our progress demonstrates our commitment to responsible resource management, community development, and environmental sustainability.	Employees, contractors/service providers, community residents	The Company actively engages stakeholders by providing livelihood opportunities such as seedling propagation, contract-based tree planting, and maintenance of reforestation areas. These initiatives strengthen community relationships, empower Indigenous Peoples and local residents, and support long-term forest rehabilitation efforts. Through intensified tree-planting activities within the mining claim, forest cover is being significantly enhanced, leading to increased spring water yield and contributing to lower atmospheric temperatures in the surrounding areas — critical factors in sustaining local ecosystems and improving climate resilience. Additionally, the Company is evaluating the development of its Acupan underground water source as a potential business opportunity to supply bulk water to nearby communities, including Itogon and Baguio City. This initiative aims to contribute to regional water security while creating new avenues for sustainable economic development.

Materials used by the organization –

Disclosure	Quantity				Units
	BGO		ILP		
	2024	2025	2024	2025	
Materials used by weight or volume					
• Renewable	92,535	89,336.59	592	0.00	kg/liters
• Non-renewable (lubricants, motor oils, bunker fuel oil, diesel oil, kerosene, dynamite explosive, sodium cyanide, nitric acid, ammonium nitrate, sodium hypochlorite, hydrochloric acid, activated carbon, lime and sulfuric acid, caustic soda, hydrochloric acid, nitric acid, etc.	534,513.37	648,386.82	1,213,446.03	1,281,118.153	kg/liters
Percentage of recycled input materials used to manufacture the organization's primary products and services	0.13% (sawdust) 0.11% (paper)	0.00	100 592 (paper, carton)	100 64 (paper)	%

Disclosure	Quantity		Units
	TOTAL BGO & ILP		
Materials used by weight or volume	2024	2025	
• Renewable	93,127	89,336.59	kg/liters
• Non-renewable (lubricants, motor oils, bunker fuel oil, diesel oil, kerosene, dynamite explosive, sodium cyanide, nitric acid, ammonium nitrate, sodium hypochlorite, hydrochloric acid, activated carbon, lime and sulfuric acid, caustic soda, hydrochloric acid, nitric acid, etc.	1,747,959.4	1,929,504.973	kg/liters
Percentage of recycled input materials used to manufacture the organization's primary products and services	100 (paper, carton)	100 (paper)	%

Identification of Impact	Stakeholders Affected	Management Approach
BGO's underground mining operations utilize mine timbers for tunnel support to ensure the safety of mine workers. All timbers are procured legally, supported by Certificates of Lumber Origin issued by the DENR. To enhance sustainability, the Company recycles wood wastes, such as sawdust for firing carbon ash, and reuses papers internally for printing. Explosives necessary for underground development are handled responsibly, with permits issued by the Firearms and Explosives Unit of the Philippine National Police. The Company actively explores alternative materials for underground support structures. While pre-cast concrete columns are considered, they are often cost-prohibitive and vulnerable to acidic and heavy ground conditions. BC-BGO remains committed to minimizing timber usage without compromising worker safety. Forest plantation initiatives are promoted within the operational area, and suppliers are encouraged to support reforestation activities. The Company complies fully with ISO 14001:2015 standards and R.A. 9003 (Ecological Solid Waste Management Act), ensuring responsible material use and waste management practices. For the period 2025: a. Renewable material consumption slightly dropped by 4.07%, due to operational scaling or efficiency improvements; b. Non-renewable material usage slightly increased by 10.38%, due to increased operational needs in gold production at BGO mill. For the year under report, gold production increased vs 2024 production. c. Recycling practices notably improved, reflecting strengthened environmental commitment.	BGO mine and mill employees, community, suppliers and Irisan Lime Project employees and its surrounding residential areas. Employees of the mining contractors.	The underground workings/tunnels are supported by square-set mine timbers to provide safe working conditions for the mine workers. Pre-cast concrete columns are the alternative mine support, but the cost is expensive and may not last especially on heavy grounds and acidic underground. BC-BGO is committed to explore other alternative materials as substitutes for mine timber for underground support without sacrificing the safety of mine workers. This is part of the Company's sustainability commitment to minimize the use of timber resources. Forest plantations will be part of the Company's sustainable commitment to environmental enhancement in its area of operation. It encourages suppliers of mine timber to participate in the reforestation program of the company and the government. In compliance with BC-BGO's commitment and its concurrence to the standards set in its ISO 14001:2015 certification, the company strictly adheres to the standards set by the regulatory agencies (DENR-EMB) on proper recording and labeling of renewable and non-renewable materials in accordance with R.A. 9003 (Ecological Solid Waste Management Act) provisions.

What are the Risk/s Identified?	Stakeholders Affected	Management Approach
• Depletion of renewable materials such as lumber and paper. • Improper handling of non-renewables could lead to air, water, and soil pollution. • Worker exposure to hazardous materials increases occupational health risks. • Heavy reliance on non-renewable materials can inflate production costs. • Blasting activities pose safety hazards including fly rocks, noise pollution, and dust emissions if improperly managed. Please refer to the following: *Appendix "C" - Summary of Risks* *Appendix "D" – EMS Document # EMSG-03 (EMS Guidelines on Diesel, Oil and Grease Hauling, Transport and Storage)* *Appendix "E" – EMS Document # EMSG - 12 (EMS Guidelines on Contaminated Water)*	Underground employees/miners/blasters Employees at the motor pool area, mine and mill mechanical shops; Communities adjacent to the operation.	• Regular monitoring of implementation of ISO 14001:2015 objectives, targets and performance vs. audit reports • Ensure secure storage, waste management, and disposal practices aligned with regulatory standards. • Continue regular quality monitoring tests and submission of reports to regulatory agencies for validation of results following DENR Standards. • Monitor the strict implementation of the Annual Environmental Protection and Enhancement Program. • Provision of complete PPE, regular training on chemical handling, and safety protocols enforcement underground. • Conduct regular safety lectures, meetings, and pep talks before deployment in assigned working areas to remind workers of safety protocols in the underground mining activities and proper handling of chemicals at the mill.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
• Sawdust is being recycled for firing carbon ash while used paper is recycled for printing internal reports and memo. • Continuous improvement in mining technologies and innovations and how it can benefit from renewable sources of energy throughout the stages of operation. • BGO's logistics and support services, on the other hand, utilize renewable materials such as wood and used packing materials (cartons or box containers made of cardboard). • Better planning and forecasting of usage of non-renewable materials in relation to programmed procurement systems can lead to cost efficiencies of the operation.	Residents in the surrounding communities stand to benefit from cleaner air and water. Employees Operations – cost efficiencies will deliver better profit margins without incremental damage to the environment.	Safety lectures and work briefings before deployment to assigned working areas. Continue to monitor the usage of non-renewable materials to attain reduction year over year without sacrificing production. Implement materials storage, handling, management, monitoring, and disposal of waste/tailings. Continue regular submission of reports to the regulatory body on the use of regulated chemicals. Regular water quality monitoring to ensure water is free from contaminants that are hazardous to human and animal health.

Ecosystems and biodiversity (whether in upland/watershed or coastal/marine) –

Disclosure	Quantity		Units
	BGO	ILP	
Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Crosby Park – 11.0 ha Virac Timberyard – 1.0 Ha Kelly – 3.0 Ha. Antamok – 2.0 Ha. Keystone – 3.0 ha	maintained 0.3711 ha Plantation area within Irisan tenement.	ha
Habitats protected or restored	0.00	0.00	ha
IUCN[4] Red List species and national conservation list species with habitats in areas affected by operations	0.00	0.00	ha

Identification of Impact	Stakeholders Affected	Management Approach
The Company recognizes the importance of preserving ecosystems and biodiversity in the areas where it operates. BC continued its commitment to environmental stewardship through dedicated biodiversity and habitat management initiatives. The established Crosby Forest Park, a 11.0-hectare man-made forest within the mining property, was continuously maintained and protected. This park serves as crucial support for the company's watershed development efforts. Enrichment planting activities were ongoing in areas with sparse tree cover to enhance the local greenery. The park also serves as a recreational area for employees' families and visitors, offering opportunities for enjoying the scenery and camping. Additionally, BC maintained an aggregate area of 9 hectares within its mining tenement. Species planted include coffee plants and bamboo species. In compliance with its Environmental Protection and Enhancement Program, the company implemented a reforestation initiative within and around its mining claims.	Employees and families – benefit from using the Crosby Park Contractors and laborers of the reforestation project. Community residents – inhaling pollution-free and fresh air.	• Forest Park Maintenance: Continued care and maintenance activities under the Environmental Work Program (EWP), supported by a hired local caretaker. • Community Engagement: Engaged local communities for stewardship and protection of reforested areas. • Intensified Reforestation: Expanded reforestation and forest protection initiatives under the Annual Environmental Protection and Enhancement Program (AEPEP).

[4] International Union for Conservation of Nature

The Irisan Lime Project has continuously maintained a total plantation area of 3,711 square meters (0.3711 hectares). These areas contribute significantly to biodiversity conservation, watershed management, and ecological rehabilitation efforts. Although no formal designation as protected or restored habitats has been made, the Company's initiatives support ecosystem services that benefit both its operations and surrounding communities. Notably, no IUCN Red List species or nationally protected species have been recorded as impacted by the Company's activities within these sites.		
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
Illegal cutting of trees and squatting. Illegal cattle grazing. Forest / bushfire	Employees and nearby residents	➢ Strengthened and frequent foot patrols by the Claims Protection Team to prevent illegal activities such as squatting and small-scale mining. ➢ Ongoing surveillance, installation of warning signage, and coordination with local authorities to enhance protection efforts.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
Opportunities identified from these efforts include the development of ecological tourism (such as at Crosby Park), watershed restoration that enhances water security and climate resilience, and community employment through reforestation activities. The reforestation and forest maintenance programs continue to provide income opportunities for local families and associations through seedling production, plantation establishment, and forest protection roles.	Employees and the host and neighboring communities.	BGO will sustain the maintenance and enrichment of Crosby Park to strengthen its role in ecological tourism and biodiversity conservation, while expanding reforestation efforts to enhance watershed functions and support landscape restoration. The Company actively works with nearby communities in maintaining these forest areas, conducting regular patrols to prevent illegal activities such as tree cutting and small-scale mining. Forest enrichment planting and further protection activities are continuously implemented to strengthen ecological integrity.

Environmental impact management –

Air Emissions -

GHG

Disclosure	Quantity						Units
	BGO		ILP		TOTAL		
	2024	2025	2024	2025	2024	2025	
Direct (Scope 1) GHG Emissions (Diesel fuel, Gasoline, Kerosene, Bunker Fuel)	391.78	383.75	3,767.38	3,939.57	4,159.16	4,323.32	Tonnes CO_2e
Energy indirect (Scope 2) GHG Emissions (electricity)	1,275.28	1,547.97	59.40	55.56	1,334.68	1,603.53	Tonnes CO_2e
Emissions of ozone-depleting substances (ODS)	0.00	0.00	0.00	0.00	0.00	0.00	Tonnes

Identification of Impact	Stakeholders Affected	Management Approach
In 2025, the Company recorded a total of 4,323.32 tonnes of direct (Scope 1) GHG emissions, reflecting a slight increase of approximately 3.94% compared to 4,159.16 tonnes CO_2e in 2024. The increase was mainly due to higher diesel & kerosene consumption across operational sites. Meanwhile, indirect (Scope 2) GHG emissions related to electricity consumption totaled 1,603.53 tonnes CO_2e in 2025, representing an increase of approximately 20.14% compared to 1,334.69 tonnes CO_2e in 2024. The increase reflects the Company's continuous efforts to increase gold production by running additional 1-unit ball mill.	Employees and their families Community / IP's Suppliers	➢ Conduct a comprehensive assessment to identify additional sources of GHG emissions and implement targeted mitigation measures. ➢ Optimize energy efficiency by evaluating and right-sizing the horsepower of air conditioning units relative to office floor area, ensuring appropriate cooling capacity while minimizing energy use. ➢ Implement a regular preventive maintenance program for all diesel-powered motors and equipment to maintain optimal operating efficiency and reduce unnecessary fuel consumption and emissions. ➢ Promote operational best practices and energy-saving behaviors across sites to further minimize the Company's carbon footprint.
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
A. Lime Kiln Operations • Prolonged operator exposure to high temperatures poses significant health risks, including heat stress and related illnesses. • Inhalation of dust from raw materials and fumes, particularly during start-up operations, may result in respiratory health issues. B. Underground Mining Operations	Employees - The health of employees is affected which will result in a reduced workforce. Company - reduced ore tonnage	For Lime Kiln Operations, the Company will provide heat-resistant PPE, improve ventilation, and conduct regular health monitoring and safety training to protect workers from heat and dust exposure. For Underground Mining Operations, preventive maintenance of air compressors, enhancement of ventilation systems, installation of gas detectors, and regular emergency drills will be enforced to safeguard miner health and ensure continuous operations.

• Failure or breakdown of air compressors could cause operational disruptions, leading to the suspension or slowdown of underground activities. • Inadequate ventilation can impair miner performance, decrease productivity, and elevate health risks. • Poor ventilation may result in the accumulation of carbon monoxide emissions from diesel-operated locomotives, posing serious health hazards and potential fatality risks to underground personnel.		
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
➢ Reduced Scope 1 GHG emissions through lower fuel consumption in BGO and ILP operations, supporting climate goals. ➢ Lower operational costs and improved environmental performance from optimized equipment efficiency. ➢ Increased kiln product output and sales, driving revenue growth.	Employees of the company and mining contractors. Residents residing in the camp.	The Company will strengthen coordination among operations and executives to address challenges efficiently. Regular preventive maintenance and monitoring of equipment running hours will minimize downtime, optimize fuel use, reduce GHG emissions, and support increased kiln production and revenue growth.

Air pollutants

Disclosure	Quantity				Units
	BGO		ILP		
	2024	2025	2024	2025	
NO_x Stack emission	83.00	240	<21.4 and 13.5	44.8, 13.4	mg/Ncm
Ambient	13.18	15.63 ug/Nm3	4/1.97/1.18	0.41, 1.38, 0.15	ug/Ncm
SO_x Stack emission	50.25	3	18.3 and 1.9	64.8, 5.3	ug/Ncm
Ambient	10.85	8.4 ug/Nm3	0.29/0.57/0.94 (3 sampling stations)	<0.17, <0.17, <0.17	ug/Ncm
Carbon monoxide (CO)	36.57		121 and 25.2 (stack emission)	223.3, 15.6 (stack emission)	ug/Ncm
Persistent organic pollutants (POPs)	N/A	N/A	N/A	N/A	kg
Volatile organic compounds (VOCs)	N/A	N/A	N/A	N/A	kg
Hazardous air pollutants (HAPs) - Lead	0.00	7.31	0.00	0.00	ug/Ncm
Particulate matter (PM)	25.8 mg/Ncm	68.67 mg/Ncm	8.06/7.27/6.27 (ambient)	0.28, 0.16, 0.30 (ambient)	mg/Ncm

Identification of Impacts	Stakeholders Affected	Management Approach
Cognizant of the impact of mining operations on the environment particularly on air quality, the company is very aware of its consequences but equally aware of managing it properly. The identified major sources of air pollution are as follows: 1. Generation of dust during mining development caused by blasting; 2. Generated fumes at the mill operation during gold smelting where chemicals are added to separate gold from other impurities; and 3. ILP operation – Kiln plant operation and generation of dust along access road. In 2025, the Company recorded an increase in criteria air pollutants compared with the 2024 record. Nitrogen oxide (NO_x) stack emissions increased by approximately 65% at BGO and 52% at ILP. Conversely, sulfur oxide (SO_x) emissions at BGO showed a substantial reduction, particularly in stack measurements, reflecting enhanced operational emission control efforts, while ILP's sulfur oxide emission increased by 72%. Carbon monoxide (CO) emissions were detected at moderate levels, underscoring the importance of preventive maintenance and equipment efficiency improvements. The BC ILP facility maintained full compliance with the National Emission Standards for its primary stationary source (Kiln No. 2) throughout 2025. Overall, the results show that all measured parameters for air quality and noise levels are within the mandatory national standards. The operations are in full compliance with the Philippine Clean Air Act of 1999 and NPCC noise standards during the sampling period.	BC-BGO - Employees/workers, community. ILP -Employees, community/neighbouring Puroks of the Plant	The Company strengthens preventive maintenance of equipment to reduce emissions, enhance operational efficiency, and prevent breakdowns. Continuous monitoring of air quality parameters and stricter compliance with emission standards will be enforced. Coordination among operations and leadership will be intensified to proactively address air pollutant sources and implement timely corrective measures.

Please refer also to: *Appendix "F" - Report Certification of Greentek Environmental Phils. Co., on Source Emission Test Result for BGO Reference No.: GEPC-SST-2510-092;* *Appendix "F-1" Report Certification of BSI Environmental Management Service Provider on Source Emission Test Result 1st Sem- ILP FR-25 316-1-83S* *Appendix "F-2" - Report Certification of BSI Environmental Management Service Provider on Source Emission Test Result for ILP 2nd Sem* *Appendix "G" - Ambient Air Quality and Noise Monitoring Report of Greentek Environmental Engineering Services for BGO Reference No.: GEPC-AAQM-2512-059* *Appendix "G-2" Ambient Air Quality and Noise Monitoring Report of BSI Environmental Management Service Provider on Source Emission Test Result for ILP*		
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
• Poor air quality may pose health risks to employees and nearby communities, potentially resulting in complaints filed with regulatory agencies against the Company (BGO and ILP). • Exceedance of DENR standards for dust and acid fumes may lead to regulatory penalties, suspension, or even stoppage of operations.	Employees/workers, adjacent communities ILP- community/ residents of direct impact areas (Purok 10 and 11; employees	• Strengthen air quality monitoring systems to ensure compliance with DENR standards. • Implement dust suppression measures and install fume extraction systems at critical emission points. • Conduct regular maintenance of equipment to minimize pollutant emissions. • Provide PPE and health monitoring programs for employees exposed to air pollutants. • Engage with nearby communities through information drives and grievance mechanisms to address concerns promptly.

What are the Opportunity/ies Identified?	Stakeholders Affected	Management Approach
• Enhanced employee environmental awareness and commitment to air quality protection. • Training on advanced anti-pollution equipment operation, aligned with R.A. 8749. • Improved chemical handling practices to reduce workplace exposure risks. • Sustained compliance with DENR standards and ECC conditions through effective pollution control.	Employees/ workers, community	• Continue environmental awareness and pollution control training for employees. • Regularly update and maintain anti-pollution devices and technologies. • Strictly enforce safe handling protocols for chemicals and reagents. • Conduct periodic air emissions testing to ensure continuous compliance with DENR standards and ECC conditions. • Strengthen internal audits and corrective actions to immediately address any emission issues.

Solid and Hazardous Wastes

Solid Waste

Disclosure	Quantity				Units
	BGO		ILP		
	2024	2025	2024	2025	
Total solid waste generated	159,323.9	123,265	1,653	1,034	kg
Reusable (sawdust, paper)	223.90	117.00	176	64	kg
Recyclable (used sacks, cartoons, pet bottles, cans)	19,500	7,748	131	178	kg
Composted	0.00	0.00	0.00	0.00	kg
Incinerated	N/A	N/A	N/A	N/A	kg
Residuals/Landfilled	136,600	115,400.00	807	792	kg

Disclosure	Quantity		Units
	Total BGO & ILP		
	2024	2025	
Total Solid Waste Generated	160,976.9	124,299	Kg
Reusable (sawdust, paper)	815.9	181	Kg
Recyclable (used sacks, cartoons, pet bottles, cans)	19,754	7,926	Kg
Composted	0.00	0.00	Kg
Incinerated	0.00	0.00	Kg
Residuals/landfilled	140,407	116,192	Kg

Identification of Impacts	Stakeholders Affected	Management approach
Residents in camps and concession stores are the major source of residual waste.	Employees of Benguet Corporation and workers of solid waste/residual waste hauling contractor.	• Integrated proper waste management into daily housekeeping practices.

In 2025, the total solid waste generated by both BGO and ILP operations decreased by 22.78% compared to 2024 (from 160,976.9 kg down to 124,299 kg). This notable reduction reflects the Company's continuous efforts to improve solid waste management practices. Reusable materials decreased by 77.82%, and recyclables decreased by 59.88% (19,754 Kg in 2024 to 7,926 kg in 2025). Meanwhile, residual waste sent to landfills dropped by 17.25%, supporting the goal of minimizing landfill dependency. This positive trend is the result of a persistent information campaign on the provisions of R.A. 9003 (Ecological Solid Waste Management Act) and the regular collection of garbage in the camps. Increased awareness and practice of proper waste management have now become a sustained culture among the residents and employees, reinforcing the Company's commitment to environmental stewardship.	Owners of concession stores	• Enforced strict waste segregation at source in offices and residential areas. • Collected and hauled scrap materials regularly to designated depository areas. • Sold recyclable materials to DENR-accredited contractors to minimize waste generation. • Disposed of residual waste through licensed landfill contractors outside the region. • Operated and maintained a Material Recovery Facility (MRF) for recyclables and biodegradables. • Ensured continuous compliance with R.A. 9003 (Ecological Solid Waste Management Act) and DAO No. 2001-34. • Conducted regular monitoring by the Mine Environment Protection and Enhancement Officer (MEPEO). • Reminded contractors to provide PPE and maintain worker health and permit compliance. • Institutionalized a culture of waste management through persistent information campaigns.
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
• Accumulation of uncollected waste may cause unsanitary conditions, foul odors, and health issues for workers and nearby communities. • Failure to comply with R.A. 9003 could lead to complaints, penalties, or sanctions from regulatory agencies. • Hauling contractor workers face health and safety risks without proper PPE and management oversight.	Workers of solid waste/residual waste hauling contractor Employees of the Company Community	• Regular inspection of waste segregation, collection schedules, and compliance with R.A. 9003 requirements. • Require hauling contractors to maintain valid permits, provide full PPE to their workers, and conduct regular health and safety checks. • Ensure timely hauling and disposal of waste to avoid accumulation and unsanitary conditions.

• Improper waste management could contaminate nearby water bodies, impacting environmental and community health.		• Establish rapid response protocols for waste overflow, missed collections, or accidental spills. • Maintain the Material Recovery Facility (MRF) and enforce strict waste handling procedures to prevent water pollution. • Continue awareness campaigns for employees and residents on proper waste segregation, recycling, and sanitation practices.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
• Sustained cleanliness ensures full compliance with the Ecological Solid Waste Management Act (R.A. 9003) and its IRR (DAO No. 2001-34). • A clean, well-maintained environment enhances the quality of life for employees and surrounding communities. • Compliance strengthens the Company's environmental reputation and reduces risks of regulatory sanctions. • A litter-free, organized community promotes employee pride and fosters stronger community relations.	Company Hauling contractor Employees	• Sustain compliance with R.A. 9003 through regular waste collection and segregation. • Conduct continuous environmental education for employees and residents. • Maintain close coordination with accredited waste haulers. • Promote active involvement of employees and communities in maintaining clean surroundings

Hazardous Waste

Disclosure	Quantity				Units
	BGO		ILP		
	2024	2025	2024	2025	
Total weight of hazardous waste generated :					
1. Type of waste generated – Mill Tailings	22,638.52	301,481	0.00	0.00	KG
Other hazardous waste (lead compounds, busted fluorescent lamps, non-halogenated organic chemicals, clinical waste, oil contaminated materials, Waste electrical and electronic equipment, Mercury and mercury compounds)	6.540	11.00	0.0855	0.0163	KG
2. Total weight of hazardous waste transported	0.00	0.00	0.00	0.00	KG

Disclosure	Quantity		Units
	TOTAL (BGO & ILP)		
	2024	2025	
Total weight of hazardous waste generated:			
1. Type of waste generated – Mill Tailings	22,638.52	301,481	KG
2. Other hazardous waste (lead compounds, busted fluorescent lamps, non-halogenated organic chemicals, clinical waste, oil contaminated materials, Waste electrical and electronic equipment, Mercury and mercury compounds)	6.6255	11.0163	KG
Total weight of hazardous waste transported	0.00	0.00	KG

Identification of Impacts	Stakeholders Affected	Management Approach
Mill tailings are the product of milling the gold-bearing mineral ore to recover the precious metal. The tailings are impounded in the ECC-approved Tailings Storage Facility (TSF) that serves as a treatment facility. In 2025, there was a notable increase in the total hazardous waste generated, from 22,638.52 metric tons in 2024 to 304,481 metric tons. This increase reflects the increase in gold bearing ore milled with improved gold production in 2025 vs 2024. Proper maintenance of the tailings treatment facility helped prevent potential soil and water contamination, mitigating environmental risks associated with cyanide and other chemicals present in the waste. For other hazardous wastes, strict protocols on proper labeling, storage,	Employees of BC-BGO, and ILP Employees of mining contractors and hauler	The Company demonstrates corporate responsibility by strictly adhering to waste management and environmental quality protocols, including compliance with R.A. 9003, R.A. 9275, EMS Guidelines on Hazardous Waste Management, and its Environmental Compliance Certificate (ECC) conditions. Hazardous wastes are properly labeled, stored, and disposed of through a DENR-EMB accredited third-party service provider, ensuring full regulatory compliance. Aligned with the Company's Environmental Policy and Environmental Management System (EMS), continuous monitoring, repair, and maintenance of anti-pollution structures, penstocks, spillways, and tailings dam embankments are regularly carried out. Security personnel are deployed at the Tailings Storage Facility

and regular hauling by an EMB-accredited contractor were effectively maintained. Importantly, in 2025, 11.01 kilograms of hazardous waste were successfully transported for proper disposal, compared to 6.62 recorded transport in 2024. This reflects the Company's commitment to regulatory compliance and proactive environmental stewardship. Overall, the Company's adherence to best practices in hazardous waste management, including persistent monitoring and maintenance, resulted in a cleaner operation and reduced environmental risk, ensuring ongoing compliance with Philippine environmental regulations.		(TSF) to safeguard the structure and prevent unauthorized access. *Please refer to Appendix "H" – EMSG-07-A (EMS Guidelines on Hazardous Waste Management – Used Oil, Oil and Grease Contaminated Items)*
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
• Water contamination of the Ambalanga River if hazardous waste, especially cyanide-laced tailings, is not properly contained and managed. • Siltation along the river system due to deposition of non-toxic tailings or sediments from accidental leaks, leading to ecosystem disruption and potential health hazards. • Chemical exposure and accidents from improper handling, storage, and transport of hazardous wastes like acids, alkalis, used oils, and organic solvents. • Non-compliance with environmental regulations such as R.A. 9275 (Philippine Clean Water Act of 2004) and R.A. 6969 (Toxic Substances and Hazardous and Nuclear Waste Control Act), risking suspension of operations or cancellation of the Environmental Compliance Certificate (ECC). • Fines, sanctions, or reputational damage arising from regulatory violations and community complaints.	Employees of BC-BGO, BC-CHQ and ILP Employees of mining contractors	• Strict enforcement of waste management protocols, especially inside the industrial area, to prevent accidental discharges into the environment. • Regular inspection and maintenance of the tailings treatment facility and pipelines to ensure the integrity of impoundment systems and prevent leaks. • Proper labeling, safe storage, and secure handling of all hazardous waste materials, with dedicated storage areas designed to avoid spills and leaks. • Utilization of EMB-accredited haulers for timely transport and final disposal of hazardous wastes, ensuring compliance with R.A. 6969 and DAO 2004-36. • Water quality monitoring programs along the Ambalanga River and other receiving bodies to detect any signs of contamination early and take corrective actions. • Implementation of emergency response protocols and spill

		containment procedures to immediately address accidental releases. • Regular employee training on hazardous waste management, chemical handling, emergency response, and environmental protection policies. • Strict compliance with the Environmental Compliance Certificate (ECC) conditions and continuous engagement with DENR-EMB to ensure environmental laws and regulations are met. • Community awareness programs to maintain transparency and strengthen trust with surrounding communities.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
• Strengthened environmental stewardship by proactively managing hazardous and non-toxic tailings, enhancing the Company's reputation for responsible mining. • Continued regulatory compliance (R.A. 9275, R.A. 6969) ensures uninterrupted operations, avoiding penalties, suspension, or cancellation of permits. • Improved environmental quality through effective waste management, maintaining a healthy river system and protecting biodiversity. • Enhanced employee skills through regular training on hazardous waste handling, boosting workplace safety and operational efficiency. • Increased community trust through transparent environmental practices and the Company's commitment to protecting local water bodies and ecosystems.	BC-BGO/ACMP, BC-CHQ and ILP employees Employees of mining contractors Suppliers Community.	The Company strengthens its environmental stewardship through strict hazardous waste management, ensuring compliance with R.A. 9275 and R.A. 6969. This protects water bodies like the Ambalanga River, enhances employee safety, fosters community trust, and sustains operational continuity, positioning the Company as a model for sustainable practices. Please refer to Code of Business Conducts and Ethics link *http://benguetcorp.com/wp-content/uploads/2020/06/E.-Code-of-Conduct-of-Business-and-Ethics.pdf*

• Support for a circular economy through proper recycling, recovery, and responsible waste disposal practices. • Positioning the Company as a model for sustainable operations in the mining and industrial sector		

Effluents

Disclosure	Quantity		Units
	2024	2025	
Total volume of water discharges	61,860.54	72,064.72	Cubic meters
Percent of wastewater recycled	0.00	0.00	%

Identification of Impacts	Stakeholders Affected	Management Approach
In 2025, the mill discharged 72,064.72 cubic meters of effluent — an increase of 16.5% from 61,860.54 cubic meters in 2024 — because of increased milling output during the period under report. Proper TSF operation and maintenance remain critical in minimizing environmental risks and ensuring continued regulatory compliance.	The Company Employees Community	The following are measures that were implemented to mitigate the impacts: • Treat wastewater through detoxification using sodium hypochlorite to neutralize harmful substances. • Maintain and monitor the Tailings Storage Facility (TSF) to prevent hazardous discharges. • Implement water recycling and optimize treatment processes to reduce effluent volume. • Regularly monitor water quality to ensure compliance with regulatory standards. • Engage with regulatory agencies and local communities to promote transparency and environmental stewardship. • The company adheres to the provisions of R.A. 9275 (Philippine Clean Water Act) and conditions set forth in the Environmental Compliance Certificate (ECC). *Please refer to Appendix "I" – Environmental Compliance Certificate for BGO* *Appendix "I-1" – Environmental Compliance Certificate for ILP*

What are the Risk/s Identified?	Stakeholders Affected	Management Approach
• Complaints from farmers/residents downstream of the Tailings Storage Facility (TSF). • Health and livelihood impacts on downstream communities due to water contamination. • Fish kills along river systems. • Water contamination leading to suspension of operations. • Suspension of Environmental Compliance Certificate (ECC) and/or imposition of monetary penalties due to violation of R.A. 9275 (Philippine Clean Water Act of 2004) leading to regulatory sanctions.	The Company; Employees; Community	➢ Observe proper maintenance of the Tailings Storage Facilities and other appurtenant structures and implement mitigating measures to prevent accidental wastewater discharge/leaks. ➢ Assessment of improvement downstream - keep a database of all improvements for future reference. ➢ Strict enforcement and compliance with the provisions of environmental laws & policies and the ECC.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
• Increased employee awareness of responsibility and accountability in environmental management. • Adoption and application of new technologies to treat wastewater and eliminate or reduce toxicity prior to discharge. • Improved environmental performance strengthens corporate image and stakeholder trust. • Reduction in water discharge volume demonstrates enhanced operational efficiency and environmental stewardship. • Strengthens the Company's reputation for environmental compliance. • Opportunity to further improve water recycling rates and sustainable water use.	Employees, community residents; Mines Environmental Protection and Enhancement Officer; Pollution Control Officer	• Maintain and monitor pollution control facilities to ensure safe and compliant operations. • Conduct regular education and awareness programs for stakeholders. • Implement the Environmental Protection and Enhancement Program (EPEP) to promote responsible mining. • Ensure full compliance with all environmental laws and regulations. • Foster continuous improvement and a strong culture of environmental stewardship within the organization.

Environmental compliance

Non-compliance with Environmental Laws and Regulations

Disclosure	Quantity	Units
Total amount of monetary fines for non-compliance with environmental laws and/or regulations No fines or penalty for violations committed against any provisions of environmental laws, permits and licenses that have been assessed or determined with finality during the period under report (2025).	0.00	PhP
No. of non-monetary sanctions for non-compliance with environmental laws and/or regulations	0.00	#
No. of cases resolved through dispute resolution mechanism	0.00	#

Identification of Impacts	Stakeholders Affected	Management Approach
Benguet Corporation remains firmly committed to environmental stewardship and regulatory compliance. As a responsible partner of the government, BC fully adheres to all applicable mining, environmental, and social laws and regulations. All required reports and submissions are completed, reviewed, and approved by the relevant government agencies. The Company implements comprehensive environmental and social programs, maintains regular compliance monitoring, and has consistently received certificates of compliance from regulatory authorities, demonstrating its dedication to sustainable and responsible operations.	The Company employees, service contractors, suppliers, investors, community, local and national government, other stakeholders.	Benguet Corporation is committed to full compliance with all environmental laws, permits, and regulations, maintaining its role as a responsible mining company. Environmental safeguards are in place to manage risks, and Benguet Gold Operation upholds an Environmental Policy focused on excellence in sustainable mineral resource development. Continuous monitoring and engagement with regulators ensure ongoing environmental stewardship.
What are the Risk/s Identified?	**Stakeholders Affected**	**Management Approach**
Failure to submit compliance reports on time, or delays and non-implementation of the approved Annual Environmental Protection and Enhancement Program (AEPEP), Annual Social Development and Management Program (ASDMP), and Annual Safety and Health Program (ASHP) may result in penalties and sanctions from regulatory agencies. Non-compliance with environmental laws and regulations could also lead to legal liabilities and reputational damage.	Benguet Corporation, employees, service contractors, suppliers, investors, community, local and national government, other stakeholders	Benguet Corporation ensures strict adherence to reporting schedules and program implementation. Dedicated teams are tasked with monitoring compliance, promptly preparing and submitting reports, and coordinating closely with regulatory bodies. The Company also continuously strengthens its internal processes and training to maintain high standards of environmental, social, and safety performance. Please refer to link - *http://benguetcorp.com/wp-content/uploads/2020/06/O.-BC-Internal-Audit-Charter.pdf*

		BenguetCorp's Internal Audit Charter – Defining the Scope of Work of the Internal Audit Office (IAO) – Item II, #7-9, p.1 and Detailing Responsibility of IAO – Item V, # 4-6 p. 2 of the Charter.
What are the Opportunity/ies Identified?	**Stakeholders Affected**	**Management Approach**
• Uninterrupted operations through full regulatory compliance. • Improved production via continuous mining activities. • Stronger environmental management through proactive risk mitigation. • Enhanced reputation from consistent environmental and social compliance	Management, employees, mining contractors, stakeholders	• Re-assess and monitor pollution control structures regularly. • Conduct ongoing IEC activities for stakeholders. • Implement and strengthen the Environmental Protection and Enhancement Program (EPEP). • Promote full compliance with environmental laws and regulations. • Foster environmental awareness and continuous operational improvement. *Please refer to Appendix "J"– Registry of Compliance Obligations for C.Y. 2025*

SOCIAL

Employee Management
Employee Hiring and Benefits
Employee Data

Disclosure	Quantity (2025)			Units
	BGO/CHQ	ILP	TOTAL	
Total number of employees[5]	338	7	345	Headcount
a. Number of female employees	67	3	70	Headcount
b. Number of male employees	271	4	275	Headcount
Attrition rate[6]	.15	0		Percent Rate
Ratio of lowest paid employee against minimum wage (P505 lowest rate / regional min. wage of P505 (CAR) and P695 (NCR)		1:1 - approximately 4% higher rate than the prescribed minimum wage in the region		Ratio

Employee Benefits

List of Benefits	Y/N	% of female employees who availed for the year		% of male employees who availed for the year	
		BGO/CHQ	ILP	BGO/CHQ	ILP
SSS (premium)	Y	100%	100%	100%	100%
PhilHealth (premium)	Y	100%	100%	100%	100%
Pag-ibig (premium)	Y	100%	100%	100%	100%
Parental leaves					
Maternity	Y	2.9%	0	0	0
Paternity	Y	0	0	%	0
Solo Parent	Y	0	0	.36%	0
Vacation leaves	Y	100%	100%	100%	100%
Service Incentive Leave	Y	100%	100%	100%	100%
Sick leaves	Y	100%	100%	100%	100%
Medical benefits (aside from PhilHealth))	Y	100%	100%	100%	100%
Free Housing in camp	Y	100%	100%	100%	100%
Retirement fund (aside from SSS)	Y	2.9%	0	1.10%	0
Tuition Fee Refund	Y	13.2%	0	3.6%	0
Company stock options	Y	0	0	0	0
(Others)					
Insurance (Group life; Accident)	Y	100%	100%	100%	100%
Birthday Leave	Y	100%	100%	100%	100%
Mine workers onsite:					
Subsidized water	Y	29.8%	0	43.9%	0
Subsidized electricity	Y	29.8%	0	43.9%	0
Free meal during the shift	Y	26.8%	0	14.3%	0

[5] Employees are individuals who are in an employment relationship with the organization, according to national law or its application (GRI Standards 2016 Glossary)
[6] Attrition are = (no. of new hires – no. of turnover)/(average of total no. of employees of previous year and total no. of employees of current year)

Employee Training and Development

Disclosure	Quantity (2024)	Quantity (2025)	Units
Total training hours provided to employees	1,679	**899**	hours
a. Female employees	775	**301**	hours
b. Male employees	904	**598**	hours
Average training hours provided to employees	12.34	**2.6**	hours
a. Female employees	11	**4.3**	hours
b. Male employees	14	**2.2**	hours

What is the impact and where does it occur? What is the organization's involvement in the impact?	**Management Approach**
In 2025, the Company prioritized essential regulatory and safety training while navigating organizational changes. However, operational adjustments resulted in a 46.46% reduction in total training hours, decreasing from 1,679 hours in 2024 to 899 hours in 2025. Despite a 14.62% increase in total headcount (from 301 in 2024 to 345 in 2025), the average training hours per employee was recorded at 2.6 hours. The conducted trainings are aimed at maintaining a skilled, versatile workforce capable of adapting to operational challenges and supporting strategic objectives. Safety and environmental risks remain critical focus areas, necessitating continuous training to ensure a safe and compliant working environment. The Company remains committed to enhancing workforce competencies and is currently reviewing its training modules to ensure higher impact and efficiency in the next reporting period.	Safety, Health, and Environmental (SHE) training remains a core, ongoing initiative, embedded in daily operations to cultivate a culture of safety, environmental stewardship, and risk mitigation. Training efforts are tailored to address operational needs, employee well-being, and environmental protection, ensuring alignment with the Company's broader sustainability goals.
What are the Risk/s Identified?	**Management Approach**
The loss of skilled employees and insufficiently trained personnel could lead to operational inefficiencies, increased safety incidents, project delays, and regulatory non-compliance. External competition for talent heightens the risk of employee turnover, while inadequate training compromises productivity, workplace safety, and adherence to standards.	BC Management prioritizes retaining skilled employees and ensuring continuous workforce development to safeguard operational efficiency, safety, and compliance. A strong succession plan for critical roles is maintained, alongside initiatives promoting an inclusive, engaging, and trust-based workplace culture. Leadership development, regular monitoring of turnover, and proactive employee feedback mechanisms support continuous improvement. These strategies collectively aim to minimize talent loss, address skill gaps, and sustain a resilient and high-performing workforce.
What are the Opportunity/ies Identified?	**Management Approach**
BC has a strong opportunity to build a highly skilled,	BC Management is committed to proactively leveraging

engaged, and loyal workforce by investing in employee development, offering competitive rewards, and fostering a positive, inclusive work environment. By strengthening retention and training strategies, BC can position itself as an "Employer of Choice" in the mining sector and beyond, attracting top talent while enhancing productivity, innovation, and operational efficiency. A continuous focus on safety, health, and environmental (SHE) training will reinforce a robust safety culture, minimize risks, and improve regulatory compliance. Additionally, boosting employee morale through growth opportunities and recognition will drive engagement and collaboration. By developing local talent and maintaining effective succession planning, BC can ensure a sustainable talent pipeline.	identified opportunities to strengthen its workforce and drive sustainable growth. Talent development and retention are embedded into the Company's core strategy, supported by dedicated resources for training, competitive compensation, and employee engagement initiatives. Competency-based training, with a strong focus on Safety, Health, and Environment (SHE) standards, underpins operational excellence. BC also prioritizes an inclusive, thriving workplace through diversity, well-being programs, and regular feedback mechanisms. Strong partnerships with educational institutions and industry groups further enhance the talent pipeline. Through these actions, BC aims to transform talent management into a key driver of success, resilience, and competitive advantage.

Labor-Management Relations

Disclosure	Quantity	Units
% of employees covered with Collective Bargaining Agreements	0.00	%
Number of consultations conducted with employees concerning employee-related policies	0.00	#

What is the impact and where does it occur? What is the organization's involvement in the impact?	Management Approach
BC maintains a non-unionized environment, focusing on fostering harmonious relationships between management and employees. This approach directly impacts morale, productivity, and workplace stability within its primary operations. Labor-related policies are developed, reviewed, and communicated through the Policies and Procedures Committee and the HR Department, with structured mechanisms in place for addressing employee grievances.	• BC fosters a positive, stable, and engaged workforce in a non-unionized environment through proactive management practices. • Labor-related policies are developed and regularly reviewed with a focus on fairness, transparency, and employee input. • Open communication is promoted via accessible grievance mechanisms and leadership training in employee relations. • Competitive compensation and benefits are benchmarked to industry standards and clearly communicated. • The Company upholds fair labor practices, full legal compliance, and ethical management conduct. • Employee relations are monitored through turnover rates, grievance tracking, engagement surveys, and regular policy audits to ensure continuous improvement.
What are the Risk/s Identified?	**Management Approach**
Erring employees may seek attention from aggressive militant trade unions or organizations, which could disrupt the harmonious relationship and potentially lead to labor unrest.	BC proactively fosters a positive, inclusive work environment by strengthening internal communication and grievance mechanisms. Through active listening, transparent processes, and daily leadership practices, the

This risk is heightened if employees feel their concerns are not being adequately addressed through internal channels.	Company builds trust, addresses concerns early, and mitigates the risk of external disruption, ensuring a stable and engaged workforce.
What are the Opportunity/ies Identified?	**Management Approach**
By strengthening internal communication, grievance mechanisms, and leadership practices, BC can further enhance employee trust, engagement, and workplace stability, reducing the risk of external labor disruptions.	Management ensures that good leadership is maintained, there is competitive compensation package and established employee engagement strategies

Diversity and Equal Opportunity

Disclosure	Quantity (2024)		Units	Quantity (2025)		Units
% of female workers in the workforce	21.9%		%	20.3%		%
% of male workers in the workforce	78%		%	79.7%		%
Number of employees from indigenous communities and/or vulnerable sector*						
	Elderly	22	#	Elderly	30	#
	Solo Parent	5	#	Solo Parent	3	#
	PWDs	1	#	PWDs	5	#
	Indigenous Peoples	118	#	Indigenous Peoples	143	#
	Approximately 90% of the total site workforce are Indigenous people.		%	Approximately 90% of the total site workforce are Indigenous people.		%
**Vulnerable sector includes, elderly, persons with disabilities, vulnerable women, refugees, migrants, internally displaced persons, people living with HIV and other diseases, solo parents, and the poor or the base of the pyramid (BOP; Class D and E).*						

Workforce Distribution by Region

Region	No. of Employees (2024)	No. of Employees (2025)
National Capital Region (NCR)	55	61
CARAGA	0	0
Region 1	63	65
Region 2	6	6
Region 3	39	58
Region 4A	4	0
Region 4B	0	2
Region 5	4	2
Region 6	6	1
Region 7	0	0
Region 8	0	3
Region 9	0	2
Region 11	2	2
Cordillera Administrative Region (CAR)	122	143
Total	301	345

What is the impact and where does it occur? What is the organization's involvement in the impact?	Management Approach
The operations of Benguet Gold Operation (BGO) and Irisan Lime Project (ILP) remain primary drivers of socio-economic	BC prioritizes local hiring and upholds a non-discriminatory employment policy, prohibiting bias based on vulnerability, sex, or religious affiliation. The Company

development in their host regions. In 2025, the total workforce grew by 14.6%, increasing from 301 to 345 employees. BC maintains a deep commitment to the inclusion of Indigenous Peoples within its operations. As of 2025, there are 143 Indigenous Peoples employed directly by the company, representing approximately 41.4% of the official employee headcount. When accounting for the broader operational workforce—which includes approximately 2,000 contractor and supplier workers primarily sourced from the local community—the representation of Indigenous Peoples is estimated to reach approximately 90% of the total site workforce. This high level of local and IP participation underscores the success of prioritizing qualified locals in hiring manpower and our role in providing sustainable livelihoods to the communities where we operate. While the majority of our workforce is male (79.7%), we have successfully maintained at least 20% female representation within the organization. There is a positive trend in hiring from vulnerable groups, specifically an increase in Elderly employees (22 to 30) and Persons with Disabilities (PWDs) (1 to 5).	is committed to providing equal employment opportunities to qualified candidates from impact and nearby communities, Our strategy focuses on: • Maintaining a high local employment rate to ensure operational benefits stay within the host communities. • Safety and Medical and HR teams actively monitor conditions for our growing number of elderly (30) and PWD (5) employees to ensure their tasks are appropriate for their physical capabilities. • HR and Safety departments collaborate to enforce discipline regarding safety protocols.
What are the Risk/s Identified?	**Management Approach**
• Vulnerable employees (elderly, persons with disabilities, female workers) may face restrictions in hazardous areas, and are with higher risk of accidents in those areas. • Productivity may decline if a large portion of the workforce is from vulnerable groups. • Accident rates may rise if vulnerable employees are not adequately trained.	Departments identify hazardous jobs during hiring, ensuring proper PPE is provided. Succession planning for elderly managers and close monitoring by Medical and Safety teams help maintain a safe and healthy work environment for vulnerable employees. Behavioral safety is strongly emphasized, with Safety and HR teams enforcing discipline for safety violations.
What are the Opportunity/ies Identified?	**Management Approach**
• Seasoned employees can transfer knowledge to younger generations, benefiting both the company and the employee. • Providing work opportunities for the vulnerable sector (PWDs and retirees) can lead to self-worth and actualization. • Women have proven to be equally capable and competent as men.	Management maintains its commitment to provide equal opportunities in the workplace and in the communities where the Company operates. The Company will continue to uphold its Hiring Policy, strengthen safety protocols, and actively promote an inclusive culture that values the contributions of all employees. Management will also explore structured mentorship programs to facilitate knowledge transfer and ensure that our commitment to equal opportunities translates into tangible career advancement for all segments of our workforce.

Workplace Conditions, Labor Standards, and Human Rights

Occupational Health and Safety

Disclosure	Quantity				Units
	2024		2025		
	BGO/CHQ	ILP	BGO/CHQ	ILP	
Safe Man-Hours	2,431,040	87,449	2,789,209	84,862	Hours
No. of work-related injuries	8	0	11	0	#
No. of work-related fatalities	2	0	0	0	#
No. of work-related ill-health	0	0	0	0	#
No. of safety drills:			4	4	
1. Fire Rescue and National Simultaneous Earthquake Drill	5	3	1	1	#
2. Earthquake and Rescue Drill (night setting)		-	5	3	#
3. Mine Rescue Drill		-	1	0	#
4. Chemical Spill Drill	1	0	1	0	#

What is the impact and where does it occur? What is the organization's involvement in the impact?	Management Approach
During the 2025 reporting period, the Company achieved a significant safety milestone by recording zero fatalities across all operations, a marked improvement for BGO/CHQ which reported two fatalities in the previous year. BGO/CHQ recorded 11 work-related injuries (non-lost time). While operations continued without suspension, the Company is conducting thorough root-cause analyses to address these incidents and strengthen workforce well-being. In contrast, the Irisan Lime Project (ILP) demonstrated exemplary safety performance, clocking 84,862 safe man-hours with zero injuries, fatalities, or cases of work-related ill-health. This "Safety First" culture was externally validated at the 71st Annual National Mine Safety and Environment Conference (ANMSEC) on November 21, 2025, where ILP received the Safest Mineral Processing-Calcining Plant Category award. Remarkably, this marks ILP's 10th consecutive year (since 2016) as a consistent awardee by the MGB for its dedication and innovation in health and safety management. To bolster emergency preparedness, the organization conducted 12 specialized safety drills in 2025: • BGO/CHQ (8 drills): Included 1 National Simultaneous Earthquake Drill, 1 Mine Rescue Drill, 1 Chemical Spill Drill, and 5 Earthquake & Rescue Drills in night settings to ensure 24-hour readiness. • ILP (4 drills): Included 1 National Simultaneous Earthquake Drill and 3 Earthquake & Rescue Drills in night settings.	Employee safety is a core priority across all operations. We implement comprehensive safety systems, conduct regular emergency drills, and provide ongoing training to ensure hazard awareness and risk mitigation. Incident monitoring and root cause analyses to drive continuous improvement. Following 2024 incidents at BGO, management strengthened safety protocols to further enhance workplace health, resilience, and operational integrity.

What are the Risk/s Identified?	Management Approach
• The inherent dangers of mining and milling (strenuous work, perilous conditions) create a significant risk of serious incidents, including fatalities. • Fatalities and injuries can negatively affect employee morale, productivity, legal/regulatory standing, and the company's reputation.	Mining and milling operations inherently involve high-consequence hazards and persistent injury risks. The Company is committed to minimizing these risks by maintaining a robust safety management system, focused on hazard identification, risk assessment, and the implementation of effective controls. Comprehensive safety training, regular emergency response drills, and strict operational protocols are enforced to ensure all employees are physically prepared and fully aware of workplace hazards. Incident data is systematically analyzed to identify trends and inform continuous improvement initiatives. Following the occurrence of fatalities and injuries at BGO in 2024, the Company is strengthening its safety programs through enhanced training, targeted risk mitigation measures, and more frequent safety audits. These actions aim to protect employees' well-being, sustain productivity, and uphold our legal, regulatory, and social license to operate. The Company remains fully committed to fostering a proactive safety culture, preventing serious incidents, and safeguarding both workforce morale and organizational resilience.
What are the Opportunity/ies Identified? Management	**Management Approach**
• Replicate best practices recognized through past safety awards. • Strive for industry leadership to enhance reputation and stakeholder trust. • Implement competency-based training to boost engagement and retention. • Strengthen emergency preparedness through ongoing ERT development.	The Company prioritizes strict compliance with its Occupational Health and Safety Policy, aligned with DENR DAO No. 2000-98, aiming to prevent all work-related fatalities, injuries, and illnesses. A proactive and preventive safety culture is fostered, emphasizing hazard anticipation and early intervention. Employees are empowered to take ownership of safety through active participation in hazard identification and improvement initiatives. The Company aspires to industry leadership in occupational health and safety by continuously improving practices and sharing best practices. Adequate resources are allocated to support these initiatives. The BGO's approved budget for ASHP (Annual Safety and Health Program) for 2025 amounted to Php 8,364,843.00, while the total budget utilized for the said year was Php5,511,593.87, equivalent to 66% of its allocated ASHP budget. For ILP, the approved budget for 2025 for SHP amounts to P471,480, of which approximately 97.06% (457,634.80) of the budget was utilized. *Please refer to Appendix "K" – Certificate of Approval of 2025 Safety and Health Program for BGO*

	Appendix "K-1" – Certificate of Approval of 2025 Safety and Health Program for ILP

Labor Laws and Human Rights

Disclosure	Quantity	Units
No. of legal actions or employee grievances involving forced or child labor	0.00	# of employees

Do you have policies that explicitly disallows violations of labor laws and human rights (e.g. harassment, bullying) in the workplace?

Topic	Y/N	If Yes, cite reference in the company policy
Forced labor	Y	Policy contains provisions of RA 10364 – An Act to Institute Policies to Eliminate Trafficking in Persons specially Women and Children, Establishing the Necessary Institutional Mechanism for the Protection and Support of Trafficked Persons, Providing Penalty for Its Violation and for other Purposes
Child labor	Y	Policy contains provisions of RA 7610
Human Rights	Y	Policy on Sexual Harassment and Employee Code of Conduct https://benguetcorp.com/corporate-governance-category/employee-code-of-conduct/ https://benguetcorp.com/corporate-governance-category/policies/

What is the impact and where does it occur? What is the organization's involvement in the impact?	Management Approach
As a Company, Benguet Corporation does not tolerate forced or child labor and human rights violations. It ensures that the Philippine law on such is strictly implemented across the organization.	As evidenced by the manpower profile, no employee in the roster is below 18 years of age. No incident of human rights violation has been filed by any employee to date. Company Policy on Child Labor is in place. (*see link http://benguetcorp.com/wp-content/uploads/2023/04/Child-Labor- Policy.pdf*) No cases of child labor have been received as of this period.
What are the Risk/s Identified?	**Management Approach**
Contractors and suppliers may engage in forced labor or employment of minors or below 18 years of age and assign them on hazardous workplaces.	Provision in the contracts that Contractors and suppliers must comply with the Company policies and procedures applicable to them as well as with applicable Philippine laws. Stiffer penalty shall apply to those who will be in violation.
What are the Opportunity/ies Identified?	**Management Approach**
With the formulated policies on forced and child labor and human rights violation, Management and employees are properly guided	Employees are oriented on the Code of Conduct before start of employment and regular update is done as necessary.

Relationship with Community
Significant Impacts on Local Communities

Operations with significant (positive or negative) impacts on local communities (exclude CSR projects; this has to be business operations)	The Company actively fulfills its commitment to its Social Development and Management Programs (SDMP) by addressing key needs in its host and neighboring communities. Aligned with the SDMP framework outlined in DAO 2010-21 and DAO 2010-13, the company invested in the following priority areas: 1. Human Resource and Institutional Building 2. Enterprise Development and Networking 3. Infrastructure Development and Support Services 4. Education and Educational Support Programs 5. Health Services, Facilities, and Professionals 6. Protection and Respect of Socio-cultural Values For the year 2025 reporting period, the BGO SDMP implementation performance was 76% of the approved 2025 budget, which is equivalent to PhP 3,454,846.11 vs total budget of PhP 4,544,066.37. On the other hand, for ILP, approximately 83.39% of the total approved budget (or P800,110.04 of 959,528.17) was utilized for SDMP implementation. The delay in the submission of project proposals from beneficiary barangays is among the factors contributing to the late implementation of the remaining SDMP projects. Such a balance is carried over in the CY 2026 program. On top of the SDMP, although not quantified, is the Corporate Social Responsibility (CSR) in the form of Projects Programs and Activities (PPAs) not covered or funded under the SDMP. It is another company's approach to reciprocating communities in maintaining community license. Please refer to link for CSR activities: https://benguetcorp.com/corporate-governance-category/csr/ *Please refer to Appendix "L" – Certificate of Approval of Annual Social Development and Management Program (ASDMP) for BGO* *Please refer to Appendix "L-1" – Certificate of Approval of Annual Social Development and Management Program (ASDMP) for ILP*
Location	Itogon, Benguet & Baguio City
Vulnerable groups (if applicable)	IPs, women, migrant groups, elderly, youth
Does the particular operation have impacts on indigenous people (Y/N)?	Yes
Collective or individual rights that have been identified that	Right to livelihood;

or particular concern for the community	Right to education; Right to shelter; Right to health; Water resource and Infrastructure developments;
Mitigating measures (if negative) or enhancement measures (if positive)	1. The Company continues to uphold and respect the rights of Indigenous Peoples (IPs) in the vicinity of its mining operations, actively contributing to poverty reduction and an improved quality of life 2. The Company actively shares the benefits of its operations with vulnerable community members to improve their quality of life. Furthermore, its mining operations and related projects generated significant employment opportunities for local communities. 3. Recognizing the development challenges in the region, the Company actively partnered with the national government on infrastructure and other key projects. This collaboration involved the proactive promotion of responsible mining practices with the DENR and support for initiatives by the DILG and DA. Despite the contributions of bilateral and multilateral projects in sectors like infrastructure, water resources, rural development, and governance, strengthening LGU capacity remained a priority. The Itogon Municipality and Barangays Virac and Poblacion LGUs are significantly dependent on Internal Revenue Allotment, and limited economic growth perpetuates low-income levels. Notably, the approved and well-executed Social Development and Management Program (SDMP) and Environmental Protection and Enhancement Program (EPEP) from BC-BGO and ILP operations have been instrumental in addressing these limitations and strengthening the LGUs' development projects within their operational areas. Continuously respecting and honoring the rights of the IPs to alleviation of poverty and improvement of the quality of life around the mining area. 4. Sharing the wealth to the vulnerable members of the community to live a better life. The mining operation offers other mining-related projects that generate employment opportunities for the local communities. 5. Assistance to the government in addressing development constraints with infrastructure and other projects through various means, including the proactive promotion of responsible mining with the Department of Environment and Natural Resources (DENR), Department of Interior and Local Government (DILG) support Projects, and Department of Agriculture (DA) Projects. The Itogon Municipality and Barangays Virac, Ampuco and Poblacion LGUs rely heavily on National Tax Allotment as their main source of revenue. Slow economic development reinforces the low-income generations of the LGUs. One possible outcome of these fiscal limitations on the LGUs will be increased. With the approval and proper implementation of the Annual Social Development and Management Program (SDMP), some of these constraints

	may have been addressed and reinforced the LGU's development projects in the host and neighboring areas.
**Vulnerable sector includes children and youth, elderly, persons with disabilities, vulnerable women, refugees, migrants, internally displaced persons, people living with HIV and other diseases, solo parents, and the poor or the base of the pyramid (BOP; Class D and E)*	

For operations that are affecting IPs, indicate the total number of Free and Prior Informed Consent (FPIC) undergoing consultations and Certification Preconditions (CPs) secured and still operational and provide a copy or link to the certificates if available:

Certificates	**Quantity**	**Units**
FPIC –	**0**	**#**
CP secured –	**0**	**#**

What are the Risk/s Identified?	**Management Approach**
The FPIC process under the Indigenous Peoples Right Act of 1997 (R.A. 8371) is not required at this time as there is no new or expansion project. However, several of BC's future projects (e.g., EXPA on mining claims, Malouf SMP, and BTP) are located in areas with Indigenous Peoples (IPs) and thus require FPIC to proceed with regulatory approvals and operations. The following risks are identified: • Denial of permits due to failure to secure FPIC (Free, Prior and Informed Consent) from Indigenous Peoples (IP) communities. • Costly and time-consuming FPIC process, limited to 3 years under DENR's Use it/Lose it policy. • IP community opposition influenced by anti-mining NGOs, LGUs, and small-scale miners. • Potential project cancellation, investment loss, and regulatory delays. • Ambiguity in policies and guidelines regarding PPAs (Programs, Projects & Activities) may lead to misinterpretations, disagreement, and implementation delays.	• Maintain Close Coordination with NCIP and IP Community: • Hiring an expert to develop and implement a strategic approach. • Continuous relationship-building efforts with IP communities to address concerns and reduce opposition. • Acknowledging and acting within the 3-year FPIC limit under DENR policy. The mining claim is mostly titled/patented, and the company has been operating in the area for over 100 years. The land patent and the mining operation existed long before the enactment of the Indigenous Peoples Rights Act (R.A. 8371), which requires FPIC and eventual issuance of CP.
What are the Opportunity/ies Identified?	**Management Approach**
• Strengthening relationships with IP communities and NCIP (National Commission on Indigenous Peoples) opens doors to better collaboration • Engaging consultants for FPIC-related strategies helps BC proactively navigate the process. • Demonstrating respect for indigenous rights can improve	• Uphold IPs' rights through transparent, inclusive, and culturally sensitive consultations. • Build trust-based relationships with IP communities through ongoing dialogue, community development projects, and clear communication of project impacts and benefits.

corporate reputation and social license to operate.	• Secure long-term community acceptance by aligning development goals with community needs and values. • Adhere strictly to FPIC protocols under Indigenous Peoples Rights Act (IPRA) and DENR guidelines. The Company's mineral claim where it undertakes mining operation is Patented / Titled property of Benguet Corporation. In recognition of the rights of the IPs to be informed, management undertake consultations with them in cases of implementing new or expansion projects related to mining activities in its area of operation.

Customer Management Customer Satisfaction

Disclosure	**Score**	**Did a third party conduct the customer satisfaction study (Y/N)?**
Customer satisfaction	100%	N
What is the impact and where does it occur? What is the organization's involvement in the impact?	**Management Approach**	
The company has both products and services. Its gold productions are sold and purchased by the Bangko Sentral ng Pilipinas (BSP) based on the prevailing market price. The world market dictates the price of gold. As to the services, the company complied and extended all that is due to the communities. Their desired quantity of PPAs implemented might not have fully satisfied them, but all were undertaken based on quality and resiliency standards.	Continued engagements with the Bangko Sentral ng Pilipinas as the buyer of our product and abide by its rules and regulations. Continued enhanced engagements with the clients/recipients of the services. An institutionalized participative approach in all stages of coming up with PPAs. For quality assurance, the communities were involved from the planning stage up to implementation and monitoring.	
What are the Risk/s Identified?	**Management Approach**	
Sudden/abrupt reduction of the price of gold in the world market.	Maintained close monitoring of gold prices while constantly engaging with the BSP.	
What are the Opportunity/ies Identified?	**Management Approach**	
Selling BC's gold production to BSP directly contributed to the Philippine economy as opposed to selling the product to foreign buyers. Maintained or improved the purity of gold sold to BSP.	Continue selling gold produced to Bangko Sentral ng Pilipinas (BSP) and silver to the local market. Provided better service to BSP by selling gold concentrate.	

Health and Safety

Disclosure	Quantity	Units
No. of substantiated complaints on product or service health and safety*	0.00	#
No. of complaints addressed	0.00	#
**Substantiated complaints include complaints from customers that went through the organization's formal communication channels and grievance mechanisms as well as complaints that were lodged to and acted upon by government agencies.*		

What is the impact and where does it occur? What is the organization's involvement in the impact?	Management Approach
Safety of employees during transport and delivery of gold to Bangko Sentral ng Pilipinas (BSP) in Baguio City.	No fixed schedule for transporting the commodity. A security alert must be imposed.
What are the Risk/s Identified?	**Management Approach**
There is a possibility of a hold-up and kidnapping for ransom during the delivery of gold to BSP in Baguio City.	Maintain the confidentiality of information on gold production and details. No fixed schedule for transporting the commodity. Security alert imposed. Rotation of security escort during transport and delivery of product to Baguio City.
What are the Opportunity/ies Identified?	**Management Approach**
Accessibility of market – location of BSP is in Baguio City, which is about 15 kms. away from the mine site.	Improve the intelligence network and regular coordination with the Itogon PNP.

Marketing and labelling

Disclosure	Quantity	Units
*No. of substantiated complaints on marketing and labelling** No complaints received for the covered period from our only customer, which is the BSP, on the quality of our products.	0.00	#
No. of complaints addressed. No complaints received/addressed in 2024 from our only customer, which is the BSP.	0.00	#
**Substantiated complaints include complaints from customers that went through the organization's formal communication channels and grievance mechanisms as well as complaints that were lodged to and acted upon by government agencies.*		

Identification of Impact	Management Approach
There was no determined impact because there are no complaints received/addressed in 2024 from BC's only customer, Bangko Sentral ng Pilipinas (BSP). Likewise, no complaint was received from ILP clients.	For the year under report, the Company did not receive any complaint from BC's customer, BSP, regarding the marketing and labeling of our gold product. Likewise, no complaint was received from ILP clients. If ever complaints arise in the future, the Company will handle/resolve the issues following the Company's policies and procedures.

What are the Risk/s Identified?	Management Approach
There were no determined risks because the Company delivers its product in accordance with the established guidelines of its sole customer, the BSP.	For the year under report, the Company did not receive any complaint from BC's sole customer, BSP, regarding the marketing and labeling of its product. Likewise, no complaint was received from ILP clients. If ever complaints arise in the future, the Company will handle/resolve the issues following the Company's policies and procedures.
What are the Opportunity/ies Identified?	**Management Approach**
Increased Gold sales will increase BSP's gold reserve.	Benguet Corporation will continue to maintain or improve further on gold production and purity.

Customer privacy

Disclosure	Quantity	Units
*No. of substantiated complaints on customer privacy**	0.00	#
No. of complaints addressed	0.00	#
No. of customers, users, and account holders whose information is used for secondary purposes	Limited only to authorized Company engagement.	#
**Substantiated complaints include complaints from customers that went through the organization's formal communication channels and grievance mechanisms as well as complaints that were lodged to and acted upon by government agencies.*		

What is the impact and where does it occur? What is the organization's involvement in the impact?	Management Approach
The gold products are sold only to Bangko Sentral ng Pilipinas. Benguet Corporation caters to a government institution as a customer. Thus, the company strives for confidentiality and accountability in all its public disclosures.	Observed the Data Privacy Policy of the company formulated in accordance with the Data Privacy Act of 2012 (R.A. 10173). This assures the confidentiality of customers' information. Moreover, the Company adopted control measures to prevent the occurrence of data breach incidents. Proactively managed risks to ensure the protection of data privacy at the start and throughout the lifecycle of any transaction. Appointment of Data Privacy Officer (DPO) for Baguio Operation.
What are the Risk/s Identified?	**Management Approach**
1. Loss of trust by either party (BC or customer) due to privacy breach. 2. Unauthorized processing which includes but not limited to collection, recording, storage, updating or modification, retrieval, consolidation, use, erasure, or destruction of information/data gathered that may result in financial injury to both the company and the customer.	Security of the data collected from the Bangko Sentral ng Pilipinas is undertaken by limiting access to such information after it's been gathered. Direct and upfront communication with the customers about the information gathered and plans for using it.

What are the Opportunity/ies Identified?	**Management Approach**
Build stronger relationship with the customer.	Give customers an online form or email address for communicating their problems or concerns. Management undertakes to respond to these messages. Such two-way communication can help build trust and loyalty -- and help avoid potential privacy breaches.

Data Security

Disclosure	Quantity	Units
No case of data breaches, including leaks, thefts, and losses of data. There were no reported data privacy incidents, notifiable data breaches relating to cyber security, data governance, or failure in the internal controls, any substantiated complaints concerning breaches of customer privacy and losses of customer data for the reporting period.	0.00	# of data breaches

What is the impact and where does it occur? What is the organization's involvement in the impact?	**Management Approach**
Benguet Corp has a Data Privacy Policy in place being rolled out to all employees. The penalty for the violation of privacy rights resulting in data breaches are also incorporated in the Employee's Code of Conduct, thus it raises the security and privacy awareness further in the organizational culture. The Company implemented and continuously improved its internal control to minimize the risk of data breaches.	To establish and further reinforce the knowledge about security and data protection, the Data Privacy Policy forms part of the onboarding process of newly hired employees. Moreover, the Company adopts control measures to prevent the occurrence of data breach incidents. BC management also ensures that our stakeholders and those we do business or partner with, including third-party providers, follow the law on data privacy. This year the Company has obtained the seal of registration issued by the NPC as proof of compliance.
What are the Risk/s Identified?	**Management Approach**
The accelerating cyber-attack and continuous changing threat landscape.	We are using several frameworks to improve our concept of layered security and defense i.e. Microsoft Defender, Microsoft 365 security, anti-malware and similar security frameworks. We continuously follow security alerts and related information from our IT environment to be able to respond timely to any incident. The Company is compliant with the Data Privacy Law of 2016. *Please refer to link on Data Privacy Policy* http://benguetcorp.com/wp- content/uploads/2018/05P7-Data-Privacy-Policy.pdf

What are the Opportunity/ies Identified?	Management Approach
More opportunities in the field of training to keep abreast of new regulations and compliance management. Opportunity to be certified on ISO 27001:2013.	To ensure that all applicable NPC regulations are followed, our team continuously monitor NPC circulars like the new registration platform that pursues automation of registration process of personal data processing system, notification regarding automated decision-making or profiling, designation of Data Protection Officer. To obtain certification on ISO 27001:2013- Information and Data Security to develop the capabilities of employees engaged with data protection.

UN SUSTAINABLE DEVELOPMENT GOALS

Product or Service Contribution to UN SDGs
Key products and services and its contribution to sustainable development.

SDG No. & Goal	Key Products / Services	Societal Value / Contribution	Potential Negative Impact	Management Approach to Negative Impact
SDG 1: No Poverty	Gold & Silver Production (BGO)	Contributes to national economy, BSP gold reserves, employment, taxes, and local commerce	Land degradation due to small-scale miners; IP migrant influx; illegal squatting	Partner with LGU, MGB, DENR for regulation; enforce camp rules; reduce environmental footprint
SDG 2: Zero Hunger	Gold & Lime Products	Social Development and Management Program (SDMP); Implements livelihood programs, infrastructure development, and food security initiatives; Supports agricultural sustainability and local productivity; Empowers communities through training and capacity building	Potential conflict or resource competition due to program reach	Sustained community-based development project implementation; Engage local communities during planning; Promote transparency and equal access to resources
SDG 3: Good Health and Well-being	Medical missions; Medical services to employees and IP communities	Promotes health and safety among workers and local IP residents; Delivers essential medical services to workers and local IPs; Improves health outcomes in isolated and underserved communities	Poor sanitation; improper PPE disposal	Exposure to hazardous materials; Conduct regular IEC campaigns; Implement robust solid waste and hazardous waste management compliant with RA 9003 and RA 9275; Provide PPE and safety training to workers |
SDG 4: Quality Education	Educational scholarships and IT equipment donation	Offers scholarships to indigent but deserving students; Enhances educational access and digital learning capacity in rural areas	Rivalries/envy from neighboring communities; Community tension from perceived favoritism or exclusion	Use objective, community-endorsed criteria for scholarship selection; Promote transparency and community consultation ; Candidate vetting by local officials;
SDG 6: Clean Water and Sanitation	Gold Processing / TSF operations and wastewater treatment	Equitable water access, solid waste segregation, pollution control; Ensures water quality in adjacent river systems; Prevents contamination through strict TSF operation protocol; Promotes community hygiene and water conservation	Tailings leakage, water contamination; Improper ecological solid waste management	Maintain and monitor TSF regularly, stop mill operation if leakage occurs, ISO 14001 compliance; Implement ISO 14001-aligned environmental protocols; Educate communities on waste disposal and sanitation practices

SDG 8: Decent Work & Economic Growth	All Mining & Support Operations	Livelihood generation, employment opportunities, wealth sharing with vulnerable sectors; Provides income-generating opportunities to local residents; Uplifts local economy through procurement and service contracts; Encourages inclusive economic participation	Limited job reach may exclude marginalized sectors; Fluctuations in demand may affect employment stability	Prioritize locals for jobs and contracts; Promote inclusive hiring policies and skill development
SDG 12: Responsible Consumption & Production	Procurement and supply chain management	Practices responsible sourcing and supplier partnerships; Ensures quality and timeliness of critical operational supplies; Encourages sustainable practices in logistics; Support to local suppliers	Substandard or delayed supply delivery; High costs of imported materials; Unstable supply chain affecting productivity	Vet suppliers with risk-based assessment; Require ISO certification and compliance; Develop long-term procurement forecasting and planning; Support capacity-building of local suppliers
SDG 13: Climate Action	Reforestation, Pollution Controls	Maintains reforested areas; Actively sequesters CO2 through tree planting; Minimizes air pollution with scrubbers and emission monitoring	Deforestation, air pollution, landslides, forest fires, underground water depletion	Continue preventive maintenance of equipment; Implement firebreaks and reforestation measures; Collaborate with local communities in disaster preparedness; Engage third-party air quality monitoring firms
SDG 15: Life on Land	Forest Park, Tree Planting and biodiversity programs	Preserves biodiversity through Crosby Forest Park; Promotes ecological tourism and awareness; Maintains reforestation efforts with tree density goals ,	Land encroachment or unsanctioned land use; Loss of tree cover if neglected |	Conduct regular forest inspections; Involve employee families in environmental stewardship; Sustain enrichment planting programs
SDG 16: Peace, Justice, and Strong Institutions	Security Operations and enforcement	Maintains peace and order within operational areas; prevents illegal mining & squatting	Disruption from illegal small-scale mining; Social instability from migrant influx	Partner with law enforcement and barangay units; Enforce rules fairly and transparently
SDG 17: Partnerships for the Goals	Employment and engagement with IP co-ops, contractors	Employment of workforce including IPs; Strengthens cooperation with MGB and other government agencies; Builds inclusive local economies thru business for suppliers and co-ops	Legal, financial, and reputational risks from non-compliance; Risk of conflict with unregulated small-scale mining	Maintain ISO 14001:2015 Certification; Align operations with DAO 2015-07; Continue partnerships that support responsible and inclusive development |

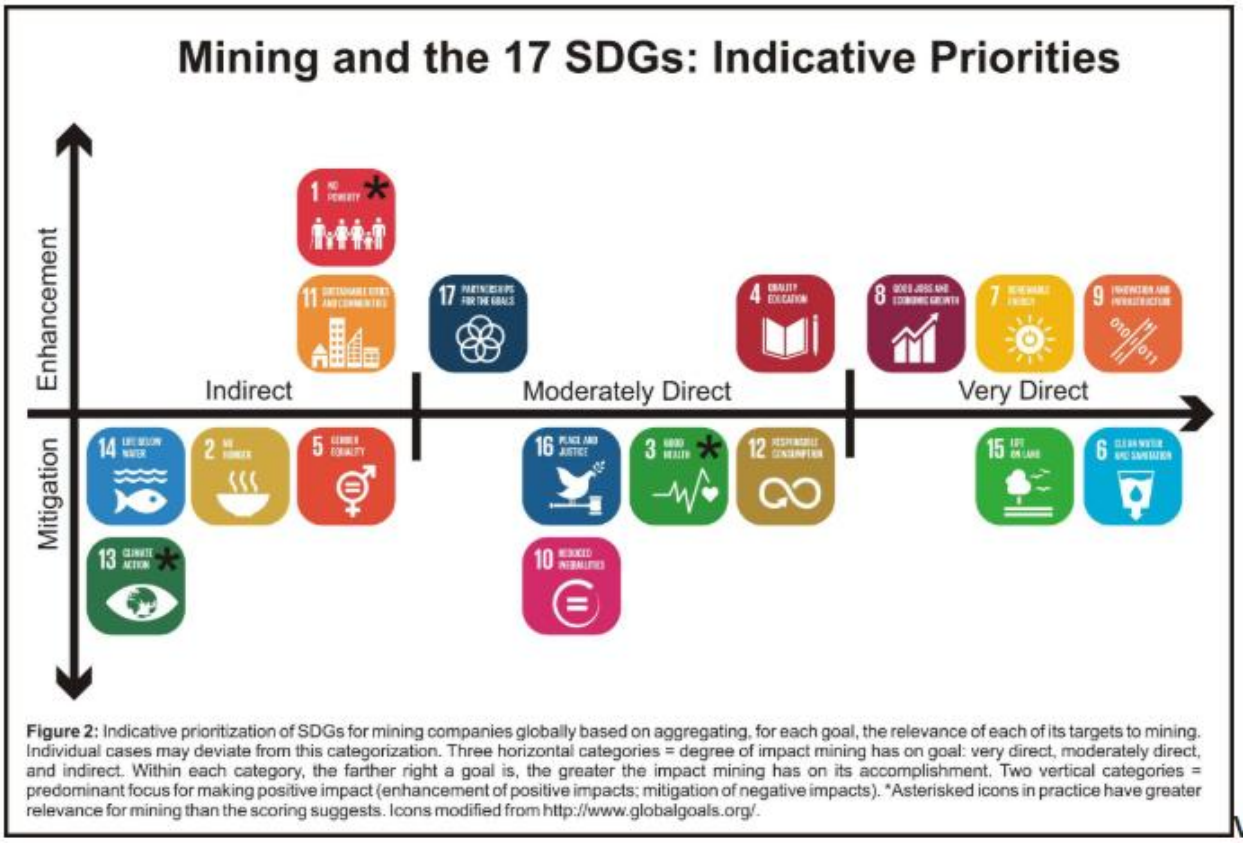


Figure 2: Indicative prioritization of SDGs for mining companies globally based on aggregating, for each goal, the relevance of each of its targets to mining. Individual cases may deviate from this categorization. Three horizontal categories = degree of impact mining has on goal: very direct, moderately direct, and indirect. Within each category, the farther right a goal is, the greater the impact mining has on its accomplishment. Two vertical categories = predominant focus for making positive impact (enhancement of positive impacts; mitigation of negative impacts). *Asterisked icons in practice have greater relevance for mining than the scoring suggests. Icons modified from http://www.globalgoals.org/.

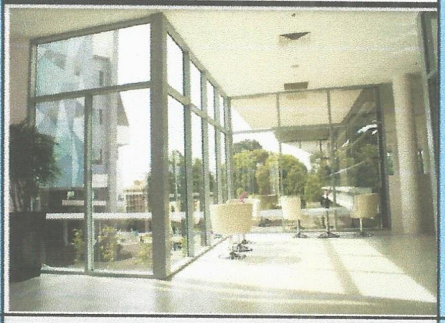
LIST OF APPENDICES:

APPENDIX NO.	TITLE
A	Environmental Management System Document No. EMSG-06 (Guidelines on Power Consumption)
B	Certificate of Approval of Annual Environmental Protection and Enhancement Program (AEPEP) given to Benguet Corporation-Acupan Contract Mining Project (ACMP)
B-1	Certificate of Approval of Annual Environmental Protection and Enhancement Program (AEPEP) given to BMC Forestry Corporation-Irisan Lime Project (ILP)
C	DRCS-09 (Summary of Risk and Opportunities)
D	Environmental Management System Document No. EMSG-03 (Guidelines on Diesel, Oil and Grease Handling, Transport and Storage)
E	Environmental Management System Document No. EMSG-12 (Guidelines on Contaminated Water)
F	Report of Greentek Environmental Engineering Services on Source Emission Test Result (BC-ACMP)
F-1	Report Certification of BSI Environmental Management Service Provider on Source Emission Test Result 1st Sem-ILP FR-25 316-1-83S
F-2	Report of BSI on Source Emission Test Result (BFC-ILP) 2nd Sem
G	Ambient Air Quality and Noise Monitoring Report of Greentek Environmental Engineering Services (BC-ACMP)
G-1	Ambient Air Quality and Noise Monitoring Report of BSI (BFC-ILP)
H	Environmental Management System Document No. EMSG-07-A (Guidelines on Hazardous Waste Management – Used Oil, Oil and Grease, and Contaminated Items)
I	Environmental Compliance Certificate (BC-ACMP)
I-1	Environmental Compliance Certificate (BFC-ILP)
J	Registry of Compliance Obligations
K	Certificate of Approval of Amended 2025 Safety and Health Program (BC-ACMP)
K-1	Certificate of Approval of 2025 Safety and Health Program (BFC-ILP)
L	Certificate of Approval of Annual Social Development and Management Program (ASDMP) of BC-ACMP
L-1	Certificate of Approval of Annual Social Development and Management Program (ASDMP) of BFC-ILP

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Power Conservation				
Document Code	DRCS-12-06_EMSG_PC	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Electrical, All Departments			Page Number	Page 1 of 1
Prepared by: GP AYSON	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

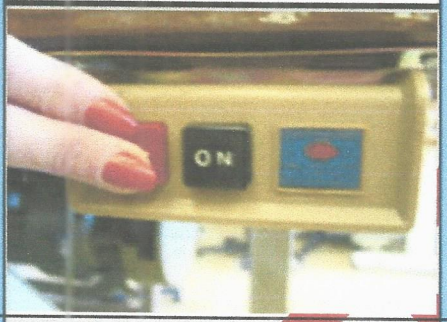
INDOORS/OFFICE

Use natural light whenever possible



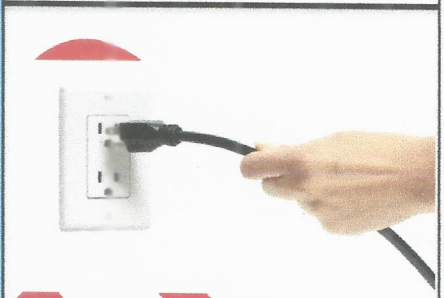
INDOORS/OFFICE

Turn off lights, machinery, computers, & appliances whenever possible



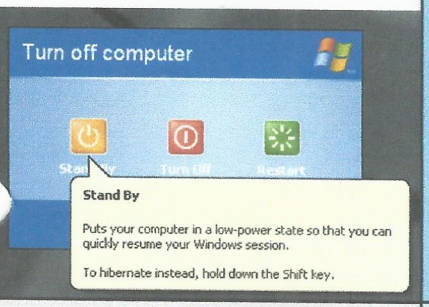
INDOORS/OFFICE

Unplug electrical appliances and chargers when they are not in use



INDOORS/OFFICE

Avoid leaving computers on standby when leaving the office for the day



INDOORS/OFFICE

Use air-conditioning only when necessary

INDOORS/OFFICE

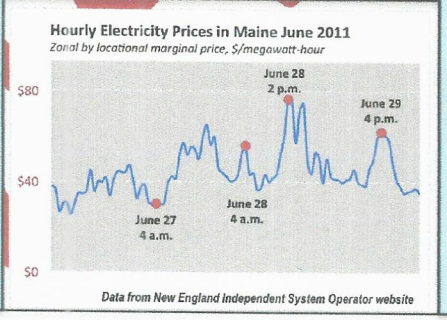
Shutdown all computers at break, when leaving the office for the day

INDUSTRIAL AREA

Make sure to turn off outside/outpost lamps first thing in the morning

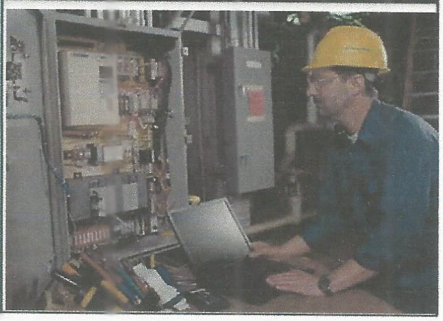
INDUSTRIAL AREA

Operating big tanks on hours with lower power rates



INDUSTRIAL AREA

Proper maintenance of equipment to maximize power efficiency



APPENDIX A

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang St., Baguio City 2600
Tel. No. 63 74 442 6392; Fax No. 63 74 304 2596;
E-mail: car@mgb.gov.ph; car_mgb@yahoo.com; mgb.cordillera@gmail.com
Website: www.car.mgb.gov.ph
REGISTERED: ISO 14001:2015, ISO 9001:2015, ISO 45001:2018

BAGONG PILIPINAS

December 26, 2024

BENGUET CORPOR... RECEIVED JAN 08 2025 By: OFFICE OF THE GE...

MR. VALERIANO B. BONGALOS, JR.
Vice President - Resident Manager
Benguet Corporation – Benguet Gold Operations
Balatoc, Virac, Itogon, Benguet

Dear Bongalos:

This is to furnish a copy of the Certificate of Approval No. 2025-03-CAR of your CY 2025 Annual Environmental Protection and Enhancement Program (AEPEP) with a budget of PhP 15,692,299.08 for your Benguet Corporation-Acupan Contract Mining Project.

Please take note of the conditions stipulated therein to ensure the effective implementation of your program.

Please be guided accordingly.

Very truly yours,

Department of Environment and Natural Resources
Mines and Geosciences Bureau
Cordillera Administrative Region
Office of the Regional Director
12/27/24-CAR-56229
Letter
2:26 PM 12/27/2024

FAY W. APIL
Regional Director and
Chair, MRFC-BCACMP

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang St., Baguio City 2600
Tel. No. 63 74 442 6392; Fax No. 63 74 304 2596;
E-mail: car@mgb.gov.ph; car_mgb@yahoo.com; mgb.cordillera@gmail.com
Website: www.car.mgb.gov.ph
REGISTERED: ISO 14001:2015, ISO 9001:2015, ISO 45001:2018

BAGONG PILIPINAS

ANNUAL ENVIRONMENTAL PROTECTION AND ENHANCEMENT PROGRAM (AEPEP)

CERTIFICATE OF APPROVAL
No. 2025-03-CAR

BENGUET CORPORATION-ACUPAN CONTRACT MINING PROJECT
PC-ACMP-002-CAR

The Mines and Geosciences Bureau - Cordillera Administrative Region (MGB-CAR) as Chair of the Mine Rehabilitation Fund Committee for Benguet Corporation-Acupan Contract Mining Project (MRFC-ACMP) that evaluated and approved the company's 2025 Annual Environmental Protection and Enhancement Program (AEPEP), hereby grants this Certificate of Approval of said AEPEP to **BENGUET CORPORATION-ACUPAN CONTRACT MINING PROJECT (BC-ACMP)** for its Patented Mining Claims-ACMP-002-CAR located at Barangay Virac, Itogon, Benguet after complying substantially with the requirements as mandated under DENR Administrative Order (DAO) No. 2010-21.

This Certificate is being issued subject to the pertinent provisions of the above-mentioned DAO and to the following conditions:

1. This Certificate is valid only for the Programs/Projects/Activities (P/P/As) stipulated in the submitted 2025 AEPEP with a total budget of **PhP 15,692,299.08** reviewed and approved by the MRFC BC-ACMP;

2. The Company shall submit a *quarterly accomplishment report within 30 calendar days after the end of each quarter and annual accomplishment report within 30 calendar days after the end of each calendar year* to MGB-CAR; and

3. Additional conditions may be imposed to implement the approved AEPEP effectively and efficiently should the results of monitoring by the Multipartite Monitoring Team (MMT) for BC-ACMP warrant them.

Non-compliance with the above conditions shall be sufficient ground for the cancellation, revocation or termination of this Certificate or suffer the penalty prescribed in the Penal Provisions of Republic Act No. 7942, the Philippine Mining Act of 1995.

Given this 5th day of December 2024 at MGB-CAR, Baguio City, Philippines.

FAY W. APIL
Regional Director
MGB-CAR

Department of Environment and Natural Resources
Mines and Geosciences Bureau
Cordillera Administrative Region
Baguio City
122724-CAR-56230
Certificate of Approval

"MINING SHALL BE PRO-PEOPLE AND PRO-ENVIRONMENT
IN SUSTAINING WEALTH CREATION AND IMPROVED QUALITY OF LIFE."

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang St., Baguio City 2600
Tel. No. 63 74 442 6392; Fax No. 63 74 304 2596;
E-mail: car@mgb.gov.ph; car_mgb@yahoo.com; mgb.cordillera@gmail.com
Website: www.car.mgb.gov.ph
REGISTERED: ISO 14001:2015, ISO 9001:2015, ISO 45001:2018

BAGONG PILIPINAS

ANNUAL ENVIRONMENTAL PROTECTION AND ENHANCEMENT PROGRAM (AEPEP)

CERTIFICATE OF APPROVAL
No. 2025-01-CAR

BMC FORESTRY CORPORATION
Mineral Processing Permit No. 01C-2022-CAR

The Mines and Geosciences Bureau - Cordillera Administrative Region (MGB-CAR) as Chair of the Mine Rehabilitation Fund Committee for BMC Forestry Corporation-Irisan Lime Project (MRFC BFC-ILP) that evaluated and approved the company's 2025 Annual Environmental Protection and Enhancement Program (AEPEP), hereby grants this Certificate of Approval of said AEPEP to **BMC FORESTRY CORPORATION-IRISAN LIME PROJECT (BFC-ILP)** for its Mineral Processing Project located at Barangay Irisan, Baguio City under its Mineral Processing Permit No. 01C-2022-CAR, after complying substantially with the requirements as mandated under DENR Administrative Order (DAO) No. 2010-21.

This Certificate is being issued subject to the pertinent provisions of the above-mentioned DAO and to the following conditions:

1. This Certificate is valid only for the Programs/Projects/Activities (P/P/As) stipulated in the submitted 2025 AEPEP with a total budget of **PhP 2,441,951.00** reviewed and approved by the MRFC BFC-ILP;

2. The Company shall submit a quarterly accomplishment report within 30 calendar days after the end of each quarter and annual accomplishment report within 30 calendar days after the end of each calendar year to MGB-CAR; and

3. Additional conditions may be imposed to implement the approved AEPEP effectively and efficiently should the results of monitoring by the Multipartite Monitoring Team (MMT) for BFC-ILP warrant them.

Non-compliance with the above conditions shall be sufficient ground for the cancellation, revocation or termination of this Certificate or suffer the penalty prescribed in the Penal Provisions of Republic Act No. 7942, the Philippine Mining Act of 1995.

Given this 29th day of November 2024 at MGB-CAR, Baguio City, Philippines.

FAY W. APIL
Regional Director
MGB-CAR

APPENDIX "C"

BenguetCorp	Document Title	**SUMMARY OF RISKS**		
	Document Code	DRCS-09_EMS_SR		
	Revision	09	Effective Date	March 9, 2024
Prepared By: CAROLYN G. CRUZ	Reviewed by: BGO EMS		Approved by: VALERIANO B. BONGALOS, JR.	

DEPARTMENT	PROCESS	RISK IDENTIFICATION				RISK ASSESSMENT
		RISK CATEGORY	DESCRIPTION	CAUSE	CONSEQUENCE	RISK RATING
Claims	Demolition of structures	Security and Safety	Safety being compromised while performing the said activity.	Hostile environment	Physical safety and attending legal issues	Moderate
ComRel	Implementation, monitoring and validation of approved SDMP Projects, Programs and Activities of host and neighboring Barangays	Operational	Failure to comply with SDMP Programs	LGU's late submission of SDMP Project proposals and approval of budget	May compromise company operations and lead to penalties, and cancellation of permits and/or ECCs	High
Construction	Infrastructure construction	Financial	Failure in implementing the project	No materials to be used	The project will be waiting	Moderate
Finance	Bookkeeping (making entries on various company transactions to come up with financial reports required by management and	Technical & Architectural / Operational/ Technology	Possible loss of data stored in cloud technology	Emergency and/or unscheduled power interruptions will disrupt the operations of our computerized accounting system; and cyber-attack and/or	No access to own computerized accounting system.	High

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BenguetCorp	Document Title	SUMMARY OF RISKS		
	Document Code	DRCS-09_EMS_SR		
	Revision	09	Effective Date	March 9, 2024

DEPARTMENT	PROCESS	RISK IDENTIFICATION				RISK ASSESSMENT
		RISK CATEGORY	DESCRIPTION	CAUSE	CONSEQUENCE	RISK RATING
	external users)			password theft (program hacking)		
GeoEx	Geologic Interpretation and Resource Estimation	Operational	Erroneous resource estimation	Inadequate training	If interpretation of geologic data is incorrect, there is a risk of mining unprofitable areas	Moderate
MEPEO	Implementation of environmental programs	Regulatory	Failure to implement the established environmental programs	Delayed approval of funds	Issuance of Notice of Violation (NOV) from the regulatory agencies, and eventual issuance of Cease-and-Desist Order (CDO)	Moderate
				Natural disasters & Pandemic	Imposition of penalties	
				Community resistance		
Procurement	Processing procurement documents, licenses, and permits	Operational	Lengthy process/method or system	inconsistencies of required documents/attachments	delayed approval of the required certificate, license and/or permit of explosives to operate.	Moderate
				change/revise authorize signatory		

MASTER COPY

BenguetCorp	Document Title	SUMMARY OF RISKS		
	Document Code	DRCS-09_EMS_SR		
	Revision	09	Effective Date	March 9, 2024

DEPARTMENT	PROCESS	RISK IDENTIFICATION				RISK ASSESSMENT
		RISK CATEGORY	DESCRIPTION	CAUSE	CONSEQUENCE	RISK RATING
Safety	Underground and Surface Inspection	Operational	Failure to conduct full safety underground and surface inspection	Lack of manpower	Higher incident rate	Moderate
	Implementation of Safety Policy	Operational	Failure to implement the Company's Safety Policy	Inappropriate standard PPEs	Higher incident rate	
Special Project	Underdrain Tunnel/Penstock Failure; Piping	Safety and Risk	Structural failure of the stopper boards leading to piping	Structural Failure	Downstream Community being submerged through tailings	Moderate
		Regulatory	Work Stoppage	Non-compliant	Penalties and cease of operations	

BenguetCorp	Document Title	**SUMMARY OF OPPORTUNITIES**		
	Document Code	DRCS-10_EMS_SO		
	Revision	07	Effective Date	March 9, 2024
Prepared By: JS REY	Reviewed by: BGO EMS		Approved by: VALERIANO B. BONGALOS JR.	

NO.	DEPARTMENT	PROCESS	DESCRIPTION OF OPPORTUNITY	OPPORTUNITY RATING	ACTION
1	**Assay**	Assaying	Rendering Assaying services from external sources	Excellent	Opportunity shall be pursued immediately
2	**ComRel**	Development of SDMP Projects, Programs and Activities of host and neighboring Barangays	The company can create better partnership with the community in implementing environmental programs.	Excellent	Opportunity shall be pursued immediately
		Implementation, monitoring and validation of approved SDMP Projects, Programs and Activities of host and neighboring Barangays	Environmental awareness could be raised through community projects and programs.	Excellent	Opportunity shall be pursued immediately
		Administrative works	Cost saving measures from efficient use of energy, paper and other resource	Excellent	Opportunity shall be pursued immediately
3	**Construction & Civil Works**	Planning of proposed projects, drafts, and evaluation of project cost for construction/ repair/ rehabilitation projects.		Excellent	Opportunity shall be pursued immediately
4	**Electrical**	Energy Monitoring	Everyone will be energy conserving conscious and should participate in earth hour	Excellent	Opportunity shall be pursued immediately

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BenguetCorp	Document Title	SUMMARY OF OPPORTUNITIES		
	Document Code	DRCS-10_EMS_SO		
	Revision	07	Effective Date	March 9, 2024

NO.	DEPARTMENT	PROCESS	DESCRIPTION OF OPPORTUNITY	OPPORTUNITY RATING	ACTION
5	**GeoEx**	Mapping	Extend assistance such as geo-hazard mapping to other private and government entities	Excellent	Opportunity shall be pursued immediately
6	**Met Lab**	Metallurgical Tests	Optimization of plant operating parameters will result to higher gold production with the least operating cost (reagent and power consumption).	Excellent	Opportunity shall be pursued immediately
7	**Mill**	Carbon-in-Leach	Usage of other leaching reagents that are environmentally friendly and will produce higher gold recovery.	Excellent	Opportunity shall be pursued immediately
8	**Mill Mechanical**	Enhancement of the filtering of used hydraulic oil 68 for PMS lubrications.	Design a filtering device to be used for the filtering process of hydraulic oil 68.	Excellent	Opportunity shall be pursued immediately
9	**Mines**	Drilling and blasting	Worn out drill steel can be recycled and fabricated to pinch bars and claw bars	Excellent	Opportunity shall be pursued immediately
		Maintenance of track rails and cleaning at haulage roadways and drainage canal.	Worn out track rails can be used as ground support in underground	Excellent	Opportunity shall be pursued immediately
10	**Safety**	Emergency response	The company's Emergency Response Team (ERT) acts as volunteers during rescue operations within and nearby communities	Excellent	Opportunity shall be pursued immediately

BenguetCorp	Document Title	SUMMARY OF OPPORTUNITIES		
	Document Code	DRCS-10_EMS_SO		
	Revision	07	Effective Date	March 9, 2024

NO.	DEPARTMENT	PROCESS	DESCRIPTION OF OPPORTUNITY	OPPORTUNITY RATING	ACTION
11	**Security**	Administrative work	Cost saving measures from efficient use of energy, paper and other resources	Excellent	Opportunity shall be pursued immediately
12	**Warehouse**	Distribution of Inventory lists, Notice of Arrivals, & other documents to concerned department heads & end users (e-mailed instead of duplicating/xeroxing)	Cost saving measures from efficient use of energy, paper & other resources	Excellent	Opportunity shall be pursued immediately

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Diesel – Handling, Transport and Storage				
Document Code	DRCS-12-03_EMSG_HTSD	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Motorpool, Mine Mechanical, Mill Mechanical			Page Number	Page 1 of 2
Prepared by: FOR SALACO B. PAMPANICO	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

STORAGE

Long Term Storage: Steel Tanks

STORAGE

Short Term/Transport: Plastic Car Buoys

STORAGE

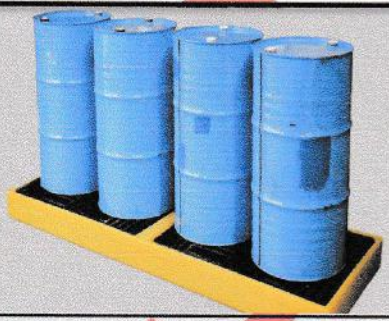
Short Term/Transport: Plastic/Steel Drums

STORAGE

Storage 6-12 months at an ambient temp higher than

STORAGE

Required secondary container



STORAGE

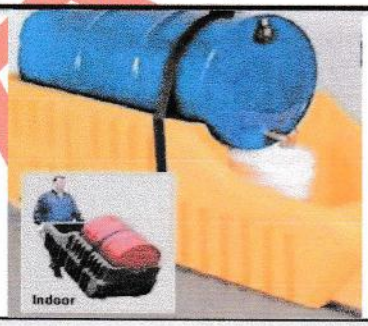
Proper GHS label on the containers

HANDLING

Use proper PPE

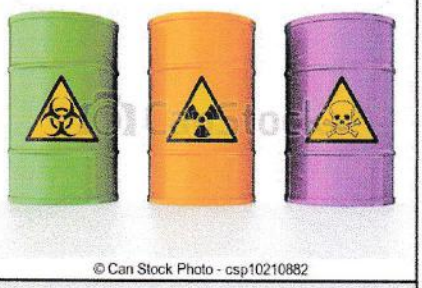
HANDLING

Secondary catchment when refilling/transferring container



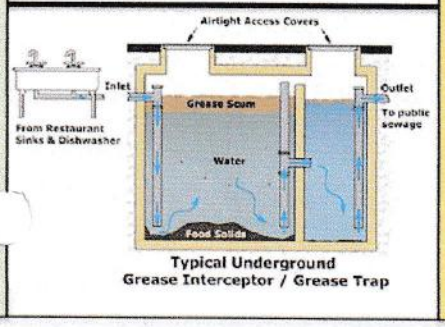
HANDLING

Oil-soaked materials are disposed separately



OIL RECOVERY

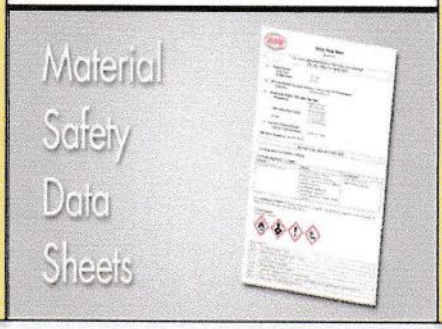
Oil-Water Separator



Typical Underground Grease Interceptor / Grease Trap

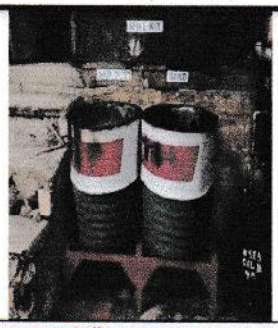
EMERGENCY

MSDS available



EMERGENCY

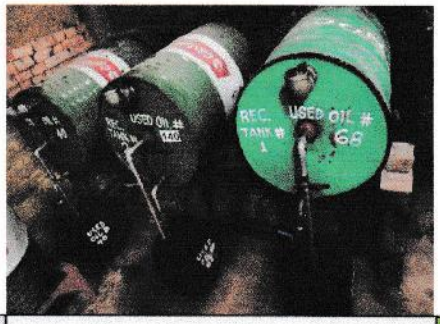
Spill Kit Nearby



MASTER COPY

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Diesel – Handling, Transport and Storage				
Document Code	DRCS-12-03_EMSG_HTSD	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Motorpool, Mine Mechanical, Mill Mechanical			Page Number	Page 2 of 2
Prepared by: FOR SALACO B. PAMPANICO		Reviewed by: BGO EMS		Approved by: VB BONGALOS JR.	

Use of Oil-Settling Tanks



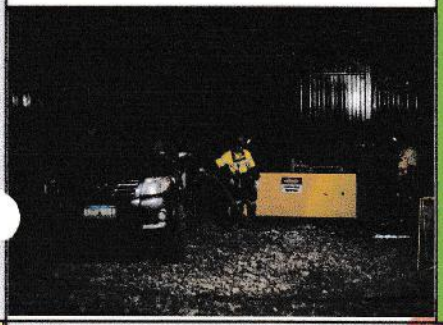
Monitoring and recording of consumption

REFUELING

Only authorized personnel are allowed to refuel diesel containers

REFUELING

Designated underground refuelling stations will be assigned



HANDLING

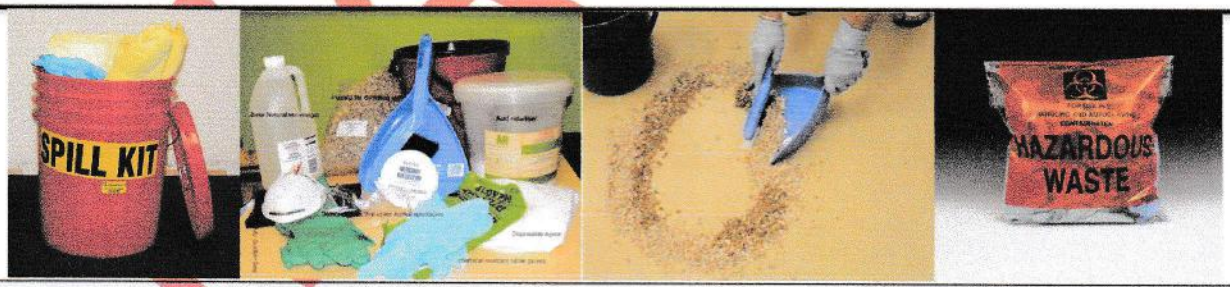
Use mine cars when transporting diesel underground

EMERGENCY

All vehicles are required to bring spill kit for emergency spills on site

EMERGENCY

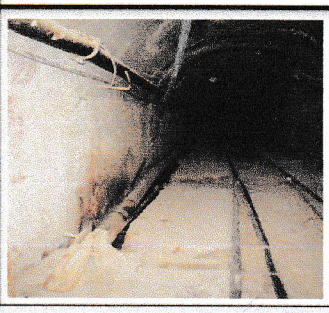
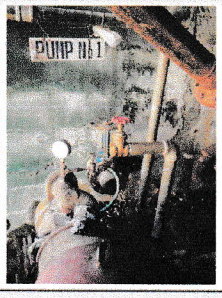
Spill Kit: contains SAND, hand shovel, small dustpan, rags, plastic bag (labeled "Toxic Waste"). After soaking the spill using sand, collect the contaminated sand into a labeled plastic bag. Dispose accordingly



Document Title	EMS GUIDELINES			BenguetCorp	
Process	Contaminated Water				
Document Code	DRCS-12-12_EMSG_CW	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Mill, Mine, Mill and Mine Mechanical, Motor Pool, Envi			Page Number	Page 1 of 2
Prepared by: CG CRUZ	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

MINES

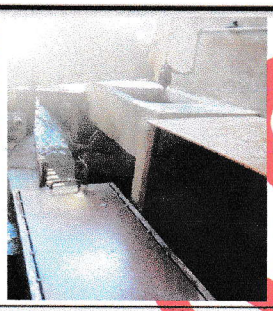
Built underground drainage systems and canals to drain run-off water. These canals are drained by pump station near the portal, where a settling dam is installed before being discharged in the river. Some water are pumped to the mill (recycled)



MOTORPOOL

Oil-water separator built in motor pool workshop/garage that "de-contaminates" used water. Collected used oil from separator is stored in a hazard waste container to be disposed appropriately

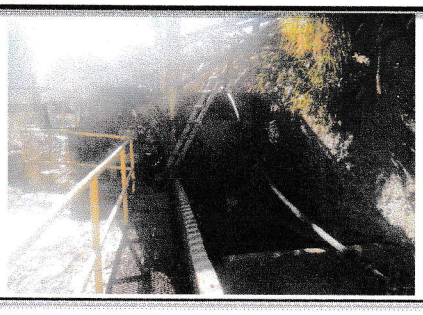
MINE MECHANICAL

Oil-water separator built in mechanical workshop that "de-contaminates" used water. Collected used oil from separator is stored in a hazard waste container to be disposed appropriately




MILL

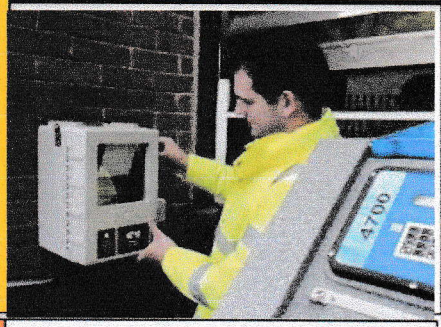
All discharge (pulp, tails, contaminated water) from the mill (from crushing, grinding to refining and smelting) goes into the Tails Treatment Facility. The solution is treated with SMBS before being pumped to Tails Storage Facility




Document Title	EMS GUIDELINES			BenguetCorp	
Process	Contaminated Water				
Document Code	DRCS-12-12_EMSG_CW	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Mill, Mine, Mill and Mine Mechanical, Motor Pool, Envi			Page Number	Page 2 of 2
Prepared by: CG CRUZ	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

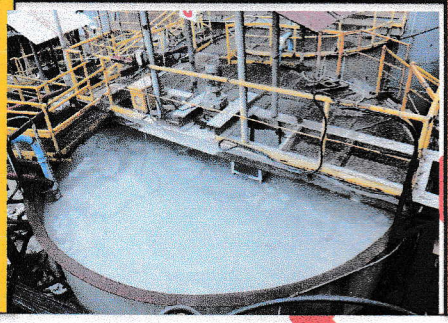
MONITORING

Effluent Monitoring



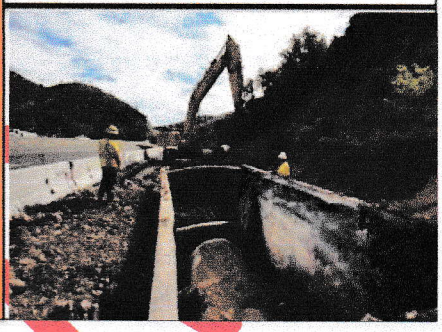
MONITORING

Monitor tanks to avoid overflow



MAINTENANCE

Regular cleanup of canal/drain



MAINTENANCE

Regular check of discharge valves pipes and connections

SOURCE EMISSION TEST REPORT

PARTICULATE MATTER (PM) AND LEAD

One (1) unit Electric Cupellation Furnace 1
One (1) unit Electric Cupellation Furnace 2

Reference No.: GEPC-SST-2510-092

Prepared for:

BENGUET CORPORATION
ACUPAN CONTRACT MINING PROJECT
(BC-ACMP ASSAY LABORATORY)

Balatoc, Virac, Itogon, Benguet

Sampling Date: **October 9, 2025**

Report Date: **November 4, 2025**

REPORT CERTIFICATION

BENGUET CORPORATION
ACUPAN CONTRACT MINING PROJECT
(BC-ACMP ASSAY LABORATORY)
Balatoc, Virac, Itogon, Benguet

SOURCE EMISSION TEST REPORT
Reference No. GEPC-SST-2510-092

One (1) unit Electric Cupellation Furnace 1
One (1) unit Electric Cupellation Furnace 2

The sampling performed for this report was carried out under my direction and supervision. The analytical results that were performed by subcontracted, recognized laboratories have been verified and found to be in order.

Thus, I hereby certify, to the best of my knowledge, that this test report is authentic and accurate.

Prepared and Signed By:

ANGELO V. GUEVARRA
QAQC MANAGER
SAT No. 2023-152

Date Signed: November 4, 2025

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LIST OF APPENDICES

SECTION 1.0

INTRODUCTION

Benguet Corporation - Acupan Contract Mining Project (BC-ACMP Assay Laboratory) contracted **Greentek Environmental Phils. Co.** to conduct stationary stack emission test on two (2) units Electric Cupellation Furnace 1 and 2 in their facility located at Balatoc, Virac, Itogon, Benguet. The emission testing involved three runs to measure particulate matter (PM) and Lead (Pb) emissions. The said activity is part of their environmental program and in determination of the facility's compliance as compared to emission limits defined in the Philippine Clean Air Act of 1999 (PCAA) and Implementing Rules and Regulations (IRR). A list of participants in the project is included in Appendix F.

A summary and discussion of the test results are provided in Section 2. The source description, test procedures, and quality assurance activities are described in the subsequent sections. All supporting field data, analytical reports, calibration records, testing participants, test plans, and a copy of the facility permit are provided in the appendices.

SECTION 2.0

SUMMARY OF DISCUSSION

Table 2-1 and Table 2-2 present the summary of the test results for the sources tested in comparison to the National Emission Standards identified in IRR Part VII Rule XXV Table 2. Detailed descriptions of the specific run information and the example calculations used to calculate the tabular summary are attached in Appendix A. The raw field data used to prepare the run summary information in Appendix A is included in Appendix B. Emissions have been corrected to the standard conditions of 250°C and 760 mmHg on a dry basis (unless otherwise indicated).

The Greentek monitoring logsheets, filled out by the facility's representative, show that the One (1) unit Electric Cupellation Furnace 1 and 2 were installed on May 28, 2011 and August 23, 2020, respectively, when the Philippine Clean Air Act (PCAA) and Implementing of Rules and Regulations (IRR) were already being implemented. The applicable standards under the PCAA/IRR categorize each unit as *new sources: other stationary source* located in an industrial area under the PCAA/IRR standards.

The result of testing indicates that the average PM and Pb concentrations for the furnaces are within the applicable IRR standards. The measured concentrations have been adjusted using the standard oxygen correction factor (13% *for Steel Smelting Furnace (Electric Arc and Induction Furnace)* as outlined in EMB Memorandum Circular No. 2021-15. Particulate matter (PM) and Lead (Pb) samples were submitted to Ostrea Mineral Laboratories, Inc. An attachment of the laboratory results is included in Appendix D of this report.

A description of any method deviations and quality assurance assessments is included in Sections 4 and 5 of this report. Based on a review of the sampling data, facility operating information, test method description, and quality assurance results, the average of the three test runs is judged to be representative of the source and suitable for comparison to the regulatory limits.

TABLE 2-1

SUMMARY OF TEST RESULTS
Electric Cupellation Furnace 1
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC-ACMP- ASSAY LABORATORY)
Virac, Itogon, Benguet

Run Number Sampling Date Sampling Time	RUN 1 9-Oct-25 0935H-1050H	RUN 2 9-Oct-25 1115H-1336H	RUN 3 9-Oct-25 1354H-1509H	Average	CAA Limit mg / Ncm
Source Data					
Volumetric Flow Rate (dry std), Ncmm	9	9	9	**9**	
Volumetric Flow Rate (actual), Ncmm	10	11	11	**11**	
Moisture Content, %	1.8	2.4	2.5	**2.2**	
Stack Gas Temperature, °C	28	29	31	**29**	
Carbon Dioxide Concentration, %	0.0	0.0	0.0	**0.0**	
Oxygen Concentration, %	20.0	20.0	20.0	**20.0**	
Process Rate Information					
% of capacity during test	100%	100%	100%	**100%**	
Grams of Ore Samples during sampling	601	601	601	**601**	
Hours of operation per year	2,976.36	2,976.36	2,976.36	**2,976.36**	
Particulate Matter (PM) Emissions					
Concentration, mg/Ncm	23	22	18	**21**	
Mass Emission Rate, kg/hr	0.01281	0.01208	0.00993	0.01161	**200**
Annual Emission Rate, MT/yr*	0.03813	0.03597	0.02957	0.03455	
Lead (Pb) Emissions					
Concentration, mg/Ncm	2.87997	2.59921	4.25051	**3.24323**	
Mass Emission Rate, kg/hr	0.001608	0.001454	0.002406	0.001823	**10**
Annual Emission Rate, MT/yr*	0.004786	0.004328	0.007163	0.005426	
DENR Classification	Other Stationary Sources (New Source)				

** Annual emissions are presented as metric tons (MT) per year based on the reported plant operating hours per year*

Remarks:

a. Particulate matter (PM) Emissions	*Within the standard of mg/Ncm*
b. Lead (as Pb) Emissions	*Within the standard of mg/Ncm*

Parameters:	***Sampling Method:***	***Analysis Method:***
a. Particulate matter (PM)	*USEPA Method 5*	*Gravimetric*
b. Lead (as Pb) Emissions	*USEPA Method 29*	*Inductively Coupled Plasma*

TABLE 2-2

SUMMARY OF TEST RESULTS
Electric Cupellation Furnace 2
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC- ACMP- ASSAY LABORATORY)
Virac, Itogon, Benguet

Run Number Sampling Date Sampling Time	RUN 1 9-Oct-25 1618H-1733H	RUN 2 9-Oct-25 1777H-1900H	RUN 3 9-Oct-25 1932H-2047H	Average	CAA Limit mg / Ncm
Source Data					
Volumetric Flow Rate (dry std), Ncmm	68	70	69	**69**	
Volumetric Flow Rate (actual), Ncmm	79	80	79	**80**	
Moisture Content, %	3.0	2.3	2.4	**2.6**	
Stack Gas Temperature, °C	29	30	32	**31**	
Carbon Dioxide Concentration, %	0.0	0.0	0.0	**0.0**	
Oxygen Concentration, %	20.0	20.0	20.0	**20.0**	
Process Rate Information					
% of capacity during test	100%	100%	10%	**100%**	
Grams of Ore samples during sampling	960.00	960.00	960.00	**960.00**	
Hours of operation per year	5,694.80	5,694.80	5,694.80	**5,694.80**	
Particulate Matter (PM) Emissions					
Concentration, mg/Ncm	53	46	37	**45**	**200**
Mass Emission Rate, kg/hr	0.2169	0.1925	0.1539	0.1878	
Annual Emission Rate, MT/yr*	1.2354	1.0965	0.8762	1.0694	
Lead (Pb) Emissions					
Concentration, mg/Ncm	3.51128	3.39125	5.32163	**4.07472**	**10**
Mass Emission Rate, kg/hr	0.01443	0.01420	0.02190	0.01684	
Annual Emission Rate, MT/yr*	0.08218	0.08086	0.12472	0.09592	
DENR Classification	Other Stationary Source (New Source)				

** Annual emissions are presented as metric tons (MT) per year based on the reported plant operating hours per year.*

Remarks:
a. Particulate matter (PM) Emissions — Within the standard of 200 mg/Ncm
b. Lead (as Pb) Emissions — Within the standard of 10 mg/Ncm

Parameters:	***Sampling Method:***	***Analysis Method:***
a. Particulate matter (PM)	*USEPA Method 5*	*Gravimetric*
b. Lead (as Pb) Emissions	*USEPA Method 29*	*Inductively Coupled Plasma*

SECTION 3.0

PROCESS DESCRIPTION AND OPERATION

Benguet Corporation - Acupan Contract Mining Project (BC-ACMP Assay Laboratory) operates and maintains two (2) units Electric Cupellation Furnace 1 and 2 in their facility located at Balatoc, Virac, Itogon, Benguet. There was lead fume scrubber as an air pollution control device installed in each unit.

The **Electric Cupellation Furnace 1** operated at 100% load and used electricity during sampling. According to the facility representative, the furnace 1 produced an average of 601 grams of ore samples throughout the entire day of operation. They also indicated that this furnace typically operates for an estimated 2,976.36 hours per year.

The **Electric Cupellation Furnace 2** operated at 100% load and used electricity during sampling. According to the facility representative, the furnace 2 produced an average of 960 grams of ore samples throughout the entire day of operation. They also indicated that this furnace typically operates for an estimated 5,694.80 hours per year.

The monitoring logsheets, process facility data completed by a Benguet Corporation - Acupan Contract Mining Project (BC-ACMP Assay Laboratory) facility representative during sampling, and the photos for documentation were collected by Greentek Environmental Phils Co. Personnel are included in Appendix C.

SECTION 4.0

SAMPLING AND ANALYTICAL PROCEDURES

All sampling and analytical procedures were those recommended by the Philippines Department of Environmental and Natural Resources (DENR) and the United States Environmental Protection Agency (EPA). This section provides brief descriptions of the sampling and analytical procedures with the focus primarily on any clarifications, deviations, or modifications to the stated test methods.

The test team utilized the following EPA Reference Methods:

Method 1: Sample and Velocity Traverse Point Locations
Method 2: Stack Gas Velocity and Volumetric Flow Rate (S-type Pitot)
Method 3: Gas Analysis for Determination of Dry Molecular Weight
Method 4: Determination of Moisture Content in Stack Gases
Method 5: Determination of Particulate Matter Emissions from Stationary Sources
Method 29: Determination of Metals Emissions from Stationary Source

METHODS 1-2 - STACK VELOCITY

A Sampling Points

The number and location of the sampling points were determined according to the procedures outlined in EPA Method 1. The furnace 1 and 2 have two test ports were present in the same horizontal plane, forming two sampling axes at 90° to each other. A total of 24 points were sampled for furnace 1 and 2 with 12 points on each axis. Details of the number and location of sample points are included in the field data sheets in Appendix B.

B Cyclonic Flow Check

A type-S pitot tube assembly, a liquid manometer, and a universal protractor (angle finder) were used to determine the rotation angles at each of the sampling or velocity traverse points. The pitot tube was positioned at each point so that the planes of the face openings of the pitot tube were perpendicular to the cross-sectional plane, and the rotational angles were determined by rotating the pitot tube until a null reading was

obtained on the manometer. When the null angle reading was obtained the yaw angle of the pitot tube was recorded. the test location's average absolute value of the rotation angle was less than 20°, which met the Method 1 criteria.

C Flue Gas Velocity

The flue gas velocity and volumetric flow rate were determined according to the procedures outlined in EPA Method 2. Velocity head measurements (delta P) were made using type-S pitot tubes conforming to the geometric specifications outlined in EPA Method 2. Accordingly, each has been assigned a coefficient of 0.84. Differential pressures were measured with an inclined manometer. Flue gas temperatures were measured with chrome-alumel thermocouples equipped with digital readouts.

METHOD 3 – FLUE GAS COMPOSITION

The flue gas composition and molecular weight were determined using the EPA method 3. An integrated flue gas sample was collected from each particulate test point at a constant rate into a tedlar bag during EPA Method 5 and 6 sampling run. The sample was collected using a separate sample line attached to the Method 5 probe and using orsat sample pump, separate from the primary Method 5 pump, located in the Method 5-meter console. A small polyethyene knockout, maintained at ambient temperature, was place immediately before the gas sample entered the sample pump to remove any significant moisture. An fyrite analyzer was used to determine the concentration of oxygen and carbon dioxide in the sample. The same bag sample was also used for the carbon monoxide analysis by Method 10.

METHOD 4 – FLUE GAS MOISTURE CONTENT

The moisture content was determined by EPA Method 4 in conjunction with EPA Method 5 and 6, which was discussed in the following section.

METHODS 5/29 – PARTICULATE MATTER AND HEAVY METALS

A Sample Collection

Samples were withdrawn isokinetically from the source using an EPA Method 5/29 sampling train. The sampling train consisted of a borosilicate glass nozzle, a heated glass probe inserts with a type-S pitot tube attached, a heated filter, seven chilled impingers and a metering console. The 1st and 2nd impinger each contained 5%

HNO3 / 10% H2O2 solution, the 3rd remained empty and the 4th impinger contained pre-weighed silica gel. Each of the impingers was labeled and weighed. All glassware (nozzle, probe liner, filter holder, glass connectors, and impingers) were soaked in 0.1N of HNO3 solutions for a minimum of 4 hours prior to being used to remove any potential contaminants. Three (3) test run were conducted for approximately 72 minutes per boiler.

B Sample Recovery

Sample recovery was performed inside a clean recovery area (laboratory) in accordance with Method 5/29 sample recovery procedure. The filter was removed from the filter holder and placed in a glass petri dish. The volume of the water vapor condensed in the impingers and the volume of the water vapor collected in the silica gel were summed up and used in the moisture content calculation. The nozzle, probe, and front half of the filter holder were rinsed with acetone in a 500ml glass bottles. A glass collection flask with a socket was attached to the ball end of the sample probe (opposite the nozzle) to facilitate cleaning the inside of the probe. The interior of the probe and nozzle were brushed repeatedly to remove any adhering PM from the inside surfaces. The brushes and interior surfaces were rinsed again into the flask and then combined with the rinses into the 500ml clear glass bottle. The volume of the water vapor condensed in the impingers and the volume of the water vapor collected in the silica gel were summed up and used in the moisture content calculation. These were rinsed with 100 ml 0.1 N HNO3 for three times and put it in a 250-ml glass sample bottle. The 1st, 2nd and 3rd impingers were recovered and placed in a 1000ml sample bottle. The back half, connecting glassware, moisture trap, and the 1st, 2nd and 3rd impingers were rinsed with 100 ml 0.1 N HNO3 three times and was added to the sample bottle. The silica gel after weighing was put back to its original container.

C Sample Analysis

EPA Method 5 analytical procedures were used to analyze the filter and front-half acetone rinse for filterable particulate matter. USEPA Method 29 analytical procedures were used to analyze the sample extracted from the stack. Samples were digested with acid prior to the use of Inductively Coupled Plasma (ICP) or alternatively, Atomic Absorption Spectrophotometer (AAS). Spectrophotometer was calibrated to ensure the

linearity response to the standard. Blank samples of the acetone, 0.1N HNO3, distilled deionized water and filter to determine potential contamination or bias from the sampling media were submitted to the laboratory for analysis together with the stack.

SECTION 5.0

QA/QC PROCEDURES AND RESULTS

The objective of an internal quality assurance and quality control (QA/QC) program is to assure that the precision and accuracy of all data generated are scientifically sound and documented to be "in control". To accomplish this, standardized methods or procedures were used. They must be validated for their intended use, rigorously followed, and data reported with quality indicators (precision, accuracy, completeness, representativeness, etc.).

As a guide, Greentek uses the EPA document Quality Assurance Handbook for Air Pollution Measurement System, Volume III (EPA-600/4-77-027b). The Greentek QA/QC plan has incorporated certain considerations into the production of quality data in all its sampling programs, regardless of the scope and purpose of the testing. These considerations include:

- Planning the individual test programs by preparation and submission of a Source Specific Test Plan to (DENR-EMB (included in Appendix G)
- Using reliable and well-maintained calibrated equipment.
- Using appropriate forms for recording sampling data (Appendix B),
- Using calibration and audit gases traceable to the National Institute of Standards and Technology (NIST),
- Controlling errors by checking data input and performing redundant calculations,
- Analyzing audit materials, and
- Adhering to the established Test Plan.

5.1 Particulate Matter Sampling Procedures

Particulate matter (PM) was determined according to EPA Method 5 in *"Determination of Particulate Emissions from Stationary Sources". The appropriate* performance of this test method includes the performance of EPA Methods 1, 2, 3, and 4. The following items describe the primary quality control measures that The Greentek used to ensure a representative sample that met the method precision and bias criteria, was collected:

- Measurements of the upstream and downstream disturbances (to the velocity at the test location) and selection of the appropriate number of sampling test points to determine a representative stack gas velocity.
- Performance of a cyclonic flow check
- Calibration and QA/QC checks of the dry gas meter, thermocouples, pitot tubes, nozzles, temperature display, and manometer assembly,
- Leak checks of the entire Method 5 sampling train were performed before and after each sampling run. All leak checks and leakage rates were documented on the relevant field test data sheets. The acceptance criteria for the Method 5 train post-sample leak check are a leak rate of <0.00057 m^3/minute at the highest vacuum obtained during the test run.
- Maintenance of the chilled impinger system below 20^{o}C (measured at the silica gel outlet),
- Collection of an integrated Tedlar bag sample for oxygen, carbon dioxide, and carbon monoxide
- Maintenance of the isokinetic sampling rate at 90–110% of the actual gas stream velocity.
- Maintenance of the heating system for the filter and sampling probe at 120^{o}C (±14^{o}C),
- Proper recovery of the sample.
- Accurate gravimetric analysis of samples.
- Collection and analysis of representative “blank” samples.

Equipment calibration procedures are described below.

5.2 Particulate Matter Sampling Equipment

A Barometer

Barometric pressure values for the testing period were recorded from a calibrated digital barometer on-site at the platform level. A digital barometer was calibrated in Swichtek Measurements Systems located at 4th Floor Northridge Plaza, Annex A, 12 Congressional Ave., Bahay Toro, Quezon City, 1100, Philippines. A copy of the barometer calibration form is in Appendix E.

B Probe Nozzle

The probe nozzles used in this test were calibrated initially by the manufacturer and prior to use by the field sampling crew by checking for dimension roundness. This was done by making three separate measurements using alternative inside diameters and calculating the average. A micrometer with a minimum tolerance of 0.025mm was used for measuring. If a deviation of more than 0.1mm is found between any measurements, the nozzle is either discarded or repaired and re-measured. A copy of the nozzle calibration forms is in Appendix E.

C Pitot Tube

Each pitot tube used in sampling meets the design specifications for Type S pitot tubes in EPA Method 2. Therefore, in accordance with Method 2 procedures, a baseline coefficient (C_p) of 0.84 was assigned to each pitot tube. Calibration at the manufacturer for pitot face-opening alignment included measuring the external tubing diameter (dimension D_t) and the base-to-opening misalignment angles, with all terms as described in Figures 2-2 and 2-3 of EPA Method 2. Pitot tubes were visually inspected at the completion of the test to ensure structural integrity. A copy of the calibration check is included in Appendix E.

D Calibration Meter and Metering System

The meter console dry gas meter calibration was performed in accordance with EPA Method 5, Section 16, using critical orifices. The meter is allowed to warm up and is leak checked using the specifications in Method 5 of no detectable leak for a period of one minute. The dry gas meter is calibrated with five orifices with orifice values that ranged 14.50 to 116.0mm of water. For each critical orifice, the meter coefficient (γ or gamma) and the orifice pressure differential (delta H@) were calculated. The criterion for the gamma difference for each point is not to exceed ±0.02 of the average of all the points. The orifice pressure differential that equates to 0.0212 m3/min at standard conditions (Delta H@) was then calculated for each point and averaged. A copy of the metering system calibration is included in Appendix E.

E Post-Test Meter Calibration

Post-test meter calibrations to determine the γ (or Yqa) were conducted on the dry gas meter after the test to check their accuracy against the original pretest calibration. This post-test calibration was made using the alternative procedure defined by the EPA as

ALT-009. This procedure is performed on site using the data collected for each of the test runs. It is preferred by EPA over the post-test procedure identified in Method 5 because it 1) eliminates the question of possible meter damage during transport after the emission test; and 2) because the calibration data are available in the field immediately following the test, it eliminates the costly travel, remobilization, and scheduling of a retest should the meter fail the post-test calibration. A copy of the post-test calibration is included in Appendix E of this test report. A complete copy of EPA ALT-009 is available on the EPA website.

F Thermocouples and Digital Temperature Indicators

Thermocouples were calibrated by comparing them against an ASTM-3F mercury-in-glass thermometer at approximately 0^{o}C (ice water), ambient temperature, and approximately 100^{o}C (boiling water). A post-test calibration was performed in accordance with EPA ALT-011 using a single point calibration against an ASTM mercury-in-glass thermometer in addition to a continuity check of the thermocouple. The continuity check involved verifying that the thermocouple read-out trended in the appropriate direction when exposed to a temperature change. A copy of the original calibration and the ALT-011 post-test QA check is included in Appendix E. A complete copy of EPA ALT-011 is available on the EPA website.

Digital indicators were checked by introducing a series of millivolt signal strengths to the input and comparing the indicator reading with the actual signal strength. Acceptable calibration error does not exceed 1.5 percent when temperatures are expressed in ^{o}K.

5.3 Particulate Matter Analysis

The primary quality control procedures involved in the particulate matter analysis include use of a properly calibrated analytical balance, use of appropriately specified sampling media (filters and acetone) and following the Method 5 analytical procedures. The laboratory followed the procedures specified in the method and calibrated the analytical balance using Class S weights. A routine calibration log is maintained at the laboratory with the analytical balance. The acetone probe rinse was taken to dryness at ambient temperature in a laboratory fume hood. Pre- and post-measurements were made until replicate analyses at least 6 hours apart agreed within 0.5 mg. The summary gravimetric analysis data sheet presents the final measurement results, while any intermediate measurements are maintained in a sample log at the laboratory.

“APPENDIX A”

SUMMARY OF RESULTS AND EXAMPLE COMPUTATIONS

APPENDIX TABLE
TEST RESULTS
PARTICULATE MATTER & LEAD
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC-ACMP- ASSAY LABORATORY)
Virac, Itogon, Benguet
Electric Cupellation Furnace 1

	RUN NUMBER	RUN 1	RUN 2	RUN 3	
	RUN DATE	9-Oct-25	9-Oct-25	9-Oct-25	**AVERAGE**
	RUN TIME	0935H-1050H	1115H-1336H	1354H-1509H	
	MEASURED DATA				
(Y)	Meter Box, Y	1.0098	1.0098	1.0098	
(Delta H)	Avg Delta H, mm H_2O	25.7	29.7	30.2	
(Pbar)	Barometric Pressure, mm Hg	692.9	689.4	687.6	
(Vm)	Meter Volume,m^3	1.1690	1.2468	1.2508	
(Tm)	Avg Meter Temp, ^oC	29	33	34	
(Pg)	Static Pressure, mm H_2O	-0.2	-0.2	-0.2	
(Ts)	Avg Stack Temp, ^oC	28	29	31	
(Vlc)	Water Collected, mg	14.7	20.1	20.7	
(%CO_2)	Carbon Dioxide, %	0.0	0.0	0.0	0.0
(%O_2)	Oxygen, %	20.0	20.0	20.0	20.0
(%N_2)	Nitrogen, %	80.0	80.0	80.0	
(Cp)	Pitot Tube Coefficient	0.84	0.84	0.84	
(sqrtDeltaP)avg	Avg Sqrt Delta P, (mm H2O)½	0.684	0.692	0.704	
(time)	Sample Time, min	72	72	72	
(Dn)	Nozzle Diameter, mm	12.130	12.130	12.130	
	CALCULATED DATA				
(An)	Nozzle Area, m^2	1.16E-04	1.16E-04	1.16E-04	
(Vmstd)	Standard Meter Volume, Ncm	1.0636	1.1157	1.1114	
(Ps)	Stack Pressure, mm Hg	692.9	689.3	687.6	
(%H_2Omeas)	Moisture (measured), %	1.8	2.4	2.5	2.2
(%H_2Osat)	Moisture (at saturation), %	4.0	4.4	4.9	
(%H_2O)	Moisture (actual), %	1.8	2.4	2.5	2.2
(Vwstd)	Standard Water Vapor Volume, Ncm	0.020	0.027	0.028	
(Mfd)	Dry Mole Fraction	0.982	0.976	0.975	
(MWd)	Molecular Weight-dry, gm/gm-mole	28.80	28.80	28.80	
(MWs)	Molecular Weight-wet, gm/gm-mole	28.60	28.54	28.53	
(Vs)	Velocity, m/s	2.5	2.5	2.6	2.5
(A)	Stack Area, m^2	0.07	0.07	0.07	
(%EA)	Percent Excess Air, %	126	126	126	126
Qa (act)	Actual Volumetric Flow, acmm	10	11	11	11
Qs (std)	Standard Volumetric Flow, dscmm	9	9	9	9
(I)	Isokinetic Rate, %	97.1	101.6	100.0	
	PARTICULATE EMISSIONS DATA				
(mg)	Mass, mg	24	24	20	23
(mg/Ncm)	Concentration, mg/Ncm	23	22	18	21
(kg/hr)	Emission Rate, kg/hr	0.01	0.01	0.01	0.01
	LEAD (Pb) EMISSIONS DATA				
(mg)	Mass, mg	3.06300	2.9000	4.7240	3.5623
(mg/Ncm)	Concentration, mg/Ncm	2.8800	2.5992	4.2505	3.2432
(kg/hr)	Emission Rate, kg/hr	0.00161	0.00145	0.00241	0.00182

EXAMPLE CALCULATIONS
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC-ACMP- ASSAY LABORATORY)
Electric Cupellation Furnace 1
RUN 1

VOLUME OF DRY GAS SAMPLED AT STANDARD CONDITIONS

$$Vmstd = Y * 0.392 * Vm * \frac{Pbar + (Delta\ H / 13.6)}{(273 + Tm)}$$

$$Vmstd = 1.0098 * 0.392 * 1.1690 * \frac{692.9 + (25.7 / 13.6)}{(273 + 29)} = \mathbf{1.0636\ Ncm}$$

VOLUME OF WATER VAPOR AT STANDARD CONDITIONS

$$Vwstd = 0.001358 * Vlc$$

$$Vwstd = 0.001358 * 14.7 = \mathbf{0.020\ Ncm}$$

PERCENT MOISTURE, BY VOLUME, AS MEASURED IN FLUE GAS

$$\%H_2O = \left(\frac{Vwstd}{Vwstd + Vmstd} \right) x\ 100$$

$$\%H_2O = \left(\frac{0.020}{0.020 + 1.0636} \right) x\ 100 = \mathbf{1.8\ \%}$$

ABSOLUTE FLUE GAS PRESSURE

$$Ps = Pbar + \frac{Pg}{13.6}$$

$$Ps = 692.9 + \frac{-0.2}{13.6} = \mathbf{692.9\ mm\ Hg}$$

DRY MOLE FRACTION OF FLUE GAS

$$Mfd = 1 - \frac{\%H_20}{100}$$

$$Mfd = 1 - \frac{1.8}{100} = \mathbf{0.982\ (unitless)}$$

PERCENT EXCESS AIR

$$\%EA = (\%O_2 - 0.5 * \%CO)/[0.264 * \%N2 - (\%O_2 - (0.5 * \%CO)] x\ 100\ \%$$

$$\%EA = (20 - 0.5 * 0.0)/[0.264 * 80 - (20 - (0.5 * 0.0)] x\ 100\ \%$$

$$\%EA = \mathbf{126\ \%\ excess\ air}$$

DRY MOLECULAR WEIGHT OF FLUE GAS

$$MWd = (\%CO_2 * \frac{44}{100}) + (\%O_2 * \frac{32}{100}) + 100.0 - \%CO_2 - \%O_2 * \frac{28}{100}$$

$$MWd = (0.0 * \frac{44}{100}) + (20.0 * \frac{32}{100}) + 100.0 - 0.0 - 20.0 * \frac{28}{100}$$

$$MWd = \mathbf{28.80\ g/g\text{-}mole}$$

WET MOLECULAR WEIGHT OF FLUE GAS

$$MWs = (MWd * Mfd) + fwtH_2O * \%H_2O / 100$$

$$MWs = (28.80 * 0.982) + 18 * \frac{1.8}{100} = \mathbf{28.60\ g/g\text{-}mole}$$

AVERAGE FLUE GAS VELOCITY

$$Vs = 34.97 * Cp * (DeltaP)avg * \frac{\frac{Ts}{Ps} + \frac{273}{MWs}}{}$$

$$Vs = 34.97 * 0.84 * 0.684 * \frac{\frac{28}{692.9} + \frac{273}{28.60}}{} = \mathbf{2.5\ m/s}$$

VOLUMETRIC FLUE GAS FLOW RATE AT ACTUAL CONDITIONS (wet basis)

$$Qa(act) = 60 * Vs * A$$

$$Qa(act) = 60 * 2.5 * 0.07 = \mathbf{10\ acmm}$$

VOLUMETRIC FLUE GAS FLOW RATE AT STANDARD CONDITIONS (dry standard basis)

$$Qs(std) = 60 * Mfd * Vs * A * \frac{298}{273 + Ts} * \frac{Ps}{Pstd}$$

$$Qs(std) = 60 * 0.982 * 2.5 * 0.07 * \frac{298}{273 + 28} * \frac{692.9}{760} = \mathbf{9\ dscmm}$$

PERCENT ISOKINETIC OF SAMPLING RATE

$$I = \frac{Pstd}{Tstd} * \frac{100}{60} * \frac{Ts + 273}{Ps} * \frac{Vmstd}{Vs * Mfd * time * An}$$

$$I = \frac{760}{298} * \frac{100}{60} * \frac{28 + 273}{692.9} * \frac{1.0636}{2.5 * 0.982 * 72 * 0.000116}$$

$$I = \mathbf{97.1\ \%}$$

PARTICULATE CONCENTRATION

$$mg/Ncm = \frac{mg_{particulate}}{Ncm}$$

$$mg/Ncm = \frac{24.4}{1.0636} = \mathbf{22.9\ mg/Ncm}$$

PARTICULATE MASS EMISSION RATE

$$kg/hr = \frac{60}{10\text{^}6} * \frac{C\ mg}{Ncm} * Qs$$

$$kg/hr = \frac{60}{10\text{^}6} * 22.9 * 9 = \mathbf{0.013\ kg/hr}$$

LEAD CONCENTRATION

$$mg/Ncm = \frac{mg\ Pb}{Ncm}$$

$$mg/Ncm = \frac{3.0630}{1.0636} = \mathbf{2.8800\ mg/Ncm}$$

LEAD MASS EMISSION RATE

$$kg/hr = \frac{60}{10\text{^}6} * \frac{C\ mg}{Ncm} * Qs$$

$$kg/hr = \frac{60}{10\text{^}6} * 2.8800 * 9 = \mathbf{0.00161\ kg/hr}$$

APPENDIX TABLE
TEST RESULTS
PARTICULATE MATTER & LEAD
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC- ACMP- ASSAY LABORATORY)
Virac, Itogon, Benguet
Electric Cupellation Furnace 2

	RUN NUMBER	RUN 1	RUN 2	RUN 3	
	RUN DATE	9-Oct-25	9-Oct-25	9-Oct-25	**AVERAGE**
	RUN TIME	1618H-1733H	1777H-1900H	1932H-2047H	
	MEASURED DATA				
(Y)	Meter Box, Y	1.0098	1.0098	1.0098	
(Delta H)	Avg Delta H, mm H_2O	17.3	17.8	17.5	
(Pbar)	Barometric Pressure, mm Hg	687.8	688.6	689.4	
(Vm)	Meter Volume,m^3	0.9674	0.9472	0.9424	
(Tm)	Avg Meter Temp, ^oC	30	30	28	
(Pg)	Static Pressure, mm H_2O	-0.4	-0.4	-0.4	
(Ts)	Avg Stack Temp, ^oC	29	30	32	
(Vlc)	Water Collected, mg	19.8	14.9	15.5	
(%CO_2)	Carbon Dioxide, %	0.0	0.0	0.0	0.0
(%O_2)	Oxygen, %	20.0	20.0	20.0	20.0
(%N_2)	Nitrogen, %	80.0	80.0	80.0	
(Cp)	Pitot Tube Coefficient	0.84	0.84	0.84	
(sqrtDeltaP)avg	Avg Sqrt Delta P, (mm H2O)½	0.532	0.540	0.532	
(time)	Sample Time, min	72	72	72	
(Dn)	Nozzle Diameter, mm	12.130	12.130	12.130	
	CALCULATED DATA				
(An)	Nozzle Area, m^2	1.16E-04	1.16E-04	1.16E-04	
(Vmstd)	Standard Meter Volume, Ncm	0.8715	0.8546	0.8559	
(Ps)	Stack Pressure, mm Hg	687.8	688.6	689.3	
(%H_2Omeas)	Moisture (measured), %	3.0	2.3	2.4	2.6
(%H_2Osat)	Moisture (at saturation), %	4.4	4.7	5.2	
(%H_2O)	Moisture (actual), %	3.0	2.3	2.4	2.6
(Vwstd)	Standard Water Vapor Volume, Ncm	0.027	0.020	0.021	
(Mfd)	Dry Mole Fraction	0.970	0.977	0.976	
(MWd)	Molecular Weight-dry, gm/gm-mole	28.80	28.80	28.80	
(MWs)	Molecular Weight-wet, gm/gm-mole	28.48	28.55	28.54	
(Vs)	Velocity, m/s	1.9	2.0	1.9	2.0
(A)	Stack Area, m^2	0.68	0.68	0.68	
(%EA)	Percent Excess Air, %	126	126	126	126
Qa (act)	Actual Volumetric Flow, acmm	79	80	79	80
Qs (std)	Standard Volumetric Flow, dscmm	68	70	69	69
(I)	Isokinetic Rate, %	103.8	100.0	101.9	
	PARTICULATE EMISSIONS DATA				
(mg)	Mass, mg	46	39	32	39
(mg/Ncm)	Concentration, mg/Ncm	53	46	37	45
(kg/hr)	Emission Rate, kg/hr	0.22	0.19	0.15	0.19
	LEAD (Pb) EMISSIONS DATA				
(mg)	Mass, mg	3.06000	2.8980	4.5550	3.5043
(mg/Ncm)	Concentration, mg/Ncm	3.5113	3.3912	5.3216	4.0747
(kg/hr)	Emission Rate, kg/hr	0.01443	0.01420	0.02190	0.01684

EXAMPLE CALCULATIONS
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC- ACMP- ASSAY LABORATORY)
Electric Cupellation Furnace 2
RUN 1

VOLUME OF DRY GAS SAMPLED AT STANDARD CONDITIONS

$$Vmstd = Y * 0.392 * Vm * \frac{Pbar + (Delta\ H / 13.6)}{(273 + Tm)}$$

$$Vmstd = 1.0098 * 0.392 * 0.9674 * \frac{687.8 + (17.3 / 13.6)}{(273 + 30)} = \mathbf{0.8715\ Ncm}$$

VOLUME OF WATER VAPOR AT STANDARD CONDITIONS

$$Vwstd = 0.001358 * Vlc$$

$$Vwstd = 0.001358 * 19.8 = \mathbf{0.027\ Ncm}$$

PERCENT MOISTURE, BY VOLUME, AS MEASURED IN FLUE GAS

$$\%H_2O = \left(\frac{Vwstd}{(Vwstd + Vmstd)}\right) x\ 100$$

$$\%H_2O = \left(\frac{0.027}{(0.027 + 0.8715)}\right) x\ 100 = \mathbf{3.0\ \%}$$

ABSOLUTE FLUE GAS PRESSURE

$$Ps = Pbar + \frac{Pg}{13.6}$$

$$Ps = 687.8 + \frac{-0.4}{13.6} = \mathbf{687.8\ mm\ Hg}$$

DRY MOLE FRACTION OF FLUE GAS

$$Mfd = 1 - \frac{\%H_20}{100}$$

$$Mfd = 1 - \frac{3.0}{100} = \mathbf{0.970\ (unitless)}$$

PERCENT EXCESS AIR

$$\%EA = (\%O_2 - 0.5 * \%CO) / [0.264 * \%N2 - (\%O_2 - (0.5 * \%CO))] x\ 100\ \%$$

$$\%EA = (20 - 0.5 * 0.0) / [0.264 * 80 - (20 - (0.5 * 0.0))] x\ 100\ \%$$

$$\%EA = \mathbf{126\ \%\ excess\ air}$$

DRY MOLECULAR WEIGHT OF FLUE GAS

$$MWd = (\%CO_2 * \frac{44}{100}) + (\%O_2 * \frac{32}{100}) + 100.0 - \%CO_2 - \%O_2 * \frac{28}{100}$$

$$MWd = (0.0 * \frac{44}{100}) + (20.0 * \frac{32}{100}) + 100.0 - 0.0 - 20.0 * \frac{28}{100}$$

$$MWd = \mathbf{28.80\ g/g\text{-}mole}$$

WET MOLECULAR WEIGHT OF FLUE GAS

$$MWs = (MWd * Mfd) + fwtH_2O * \%H_2O / 100$$

$$MWs = (28.80 * 0.970) + 18 * \frac{3.0}{100} = \mathbf{28.48\ g/g\text{-}mole}$$

AVERAGE FLUE GAS VELOCITY

$$Vs = 34.97 * Cp * (DeltaP)avg * \frac{Ts}{Ps} + \frac{273}{MWs}$$

$$Vs = 34.97 * 0.84 * 0.532 * \frac{29}{687.8} + \frac{273}{28.48} = \mathbf{1.9\ m/s}$$

VOLUMETRIC FLUE GAS FLOW RATE AT ACTUAL CONDITIONS (wet basis)

$$Qa(act) = 60 * Vs * A$$

$$Qa(act) = 60 * 1.9 * 0.68 = \mathbf{79\ acmm}$$

VOLUMETRIC FLUE GAS FLOW RATE AT STANDARD CONDITIONS (dry standard basis)

$$Qs(std) = 60 * Mfd * Vs * A * \frac{298}{273 + Ts} * \frac{Ps}{Pstd}$$

$$Qs(std) = 60 * 0.970 * 1.9 * 0.68 * \frac{298}{273 + 29} * \frac{687.8}{760} = \mathbf{69\ dscmm}$$

PERCENT ISOKINETIC OF SAMPLING RATE

$$I = \frac{Pstd}{Tstd} * \frac{100}{60} * \frac{Ts + 273}{Ps} * \frac{Vmstd}{Vs * Mfd * time * An}$$

$$I = \frac{760}{298} * \frac{100}{60} * \frac{29 + 273}{687.8} * \frac{0.8715}{1.9 * 0.970 * 72 * 0.000116}$$

$$I = \mathbf{103.8\ \%}$$

PARTICULATE CONCENTRATION

$$mg/Ncm = \frac{mg_{particulate}}{Ncm}$$

$$mg/Ncm = \frac{46.0}{0.8715} = \mathbf{52.8\ mg/Ncm}$$

PARTICULATE MASS EMISSION RATE

$$kg/hr = \frac{60}{10\text{^}6} * \frac{C\ mg}{Ncm} * Qs$$

$$kg/hr = \frac{60}{10\text{^}6} * 52.8 * 68 = \mathbf{0.217\ kg/hr}$$

LEAD CONCENTRATION

$$mg/Ncm = \frac{mg\ Pb}{Ncm}$$

$$mg/Ncm = \frac{3.0600}{0.8715} = \mathbf{3.5113\ mg/Ncm}$$

LEAD MASS EMISSION RATE

$$kg/hr = \frac{60}{10\text{^}6} * \frac{C\ mg}{Ncm} * Qs$$

$$kg/hr = \frac{60}{10\text{^}6} * 3.5113 * 69 = \mathbf{0.01444\ kg/hr}$$

“APPENDIX B”

FIELD DATA SHEETS

GREENTEK
Environmental Perks Co.

METHOD 1

TRAVERSE POINT LOCATIONS

Facility Name	BENGUET CORP - ACUPAN CONTRACTMINING PROJECT
Town/Province	ITOGON, BENGUET
Source Tested	ELECTRIC CONVERTATION FURNACE I
Personnel	AVH, BCB, AMC, RSP, RST Date 10/9/25

Type of Stack		Circular ✓	Rectangle
Ports	No. of ports available		2
	No. of ports used		2
	Port inside dia., cm		10

Dimensions	Far wall to end of port, cm (a)	41
Draw a diagram of the test location on the back of the sheet	Port length, cm (b)	11
	Stack Dia. or depth, cm (a-b)	30
	Stack width (if rectangle), cm	=
	Equivalent Stack Diameter, cm	=
	Area of stack, m^2	0.071

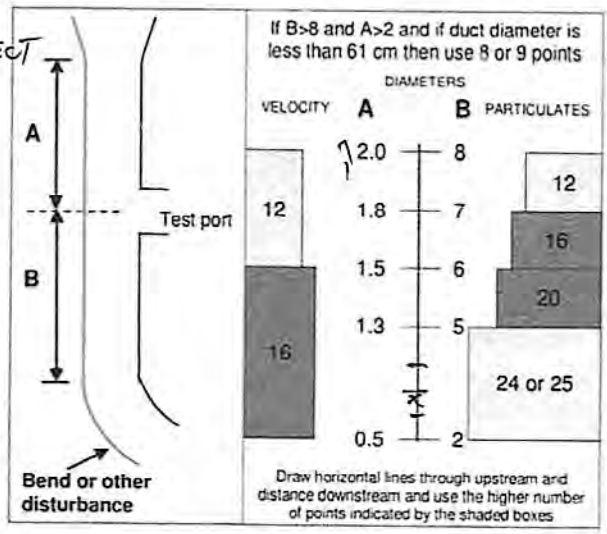
Distance to flow disturbance	Meters	Diameters
Upstream (A)	2.02	6.7D
Downstream (B)	1.03	3.4D

Minimum # of traverse points required:			
		Particulate traverse	24
		Velocity traverse	24
# of ports used	2	# points/port	12
		Number of traverse points used	24

Point #	Fraction of stack diameter	Dist. From inside wall	Port Length	Dist. From edge of port
1	0.021	1.3	10	11.3
2	0.067	2.0	10	12.0
3	0.118	3.5	10	13.5
4	0.177	5.3	10	15.3
5	0.250	7.5	10	17.5
6	0.356	10.7	10	20.7
7	0.644	19.3	10	29.3
8	0.750	22.5	10	32.5
9	0.823	24.7	10	34.7
10	0.882	26.5	10	36.5
11	0.933	28.0	10	38.0
12	0.971	29.7	10	38.7

*- for stacks having dia. bet. 30 to 61 cm, no traverse points shall be within 1.3cm of the stack walls.
*- for stacks having dia. greater than 61cm, no traverse point shall be within 2.5cm of the stack walls.

Note: When using 4 points in a circular duct, the probe is marked with only the points for the first half of the full diameter traverse.



Equivalent diameter for rectangular duct:	
$D_e = 2 \times \text{depth} \times \text{width} \div (\text{depth} + \text{width})$	
$D_e = 2 \times (\quad) \times (\quad) \div (\quad + \quad) =$	

LOCATION OF POINTS IN CIRCULAR STACK OR DUCTS
Fraction of stack diameter from inside wall

	2	4	6	8	10	12
1	0.146	0.067	0.044	0.032	0.026	0.021
2	0.854	0.250	0.146	0.105	0.082	0.067
3		0.750	0.296	0.194	0.146	0.118
4		0.933	0.704	0.323	0.266	0.177
5			0.854	0.677	0.342	0.250
6			0.956	0.806	0.658	0.356
7				0.895	0.774	0.644
8				0.958	0.854	0.750
9					0.918	0.823
10					0.974	0.882
11						0.933
12						0.979

LOCATION OF POINTS IN RECTANGULAR STACKS OR DUCTS
Fraction of stack diameter from inside wall

	2	3	4	5	6	7	8	9	10	11	12
1	.250	.167	.125	.100	.083	.071	.063	.056	.050	.045	.042
2	.750	.500	.375	.300	.250	.214	.188	.167	.150	.136	.125
3		.833	.525	.500	.417	.357	.313	.278	.250	.227	.208
4			.875	.700	.583	.500	.438	.389	.350	.318	.292
5				.900	.750	.643	.563	.500	.450	.409	.375
6					.917	.786	.688	.611	.550	.500	.458
7						.929	.813	.722	.650	.591	.542
8							.938	.833	.750	.682	.625
9								.944	.850	.773	.708
10									.950	.864	.792
11										.955	.875
12											.958

ACCEPTABLE MATRICES FOR SQUARE DUCTS

3 x 3	4 x 5	6 x 6
3 x 4	5 x 5	6 x 7
4 x 4	5 x 6	7 x 7

Team Leader / Date: NOEL D. SALAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

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SAT No. 2023-152

GREENTEK
Environmental Phils. Co

EPA METHOD 1 & 2

GAS VELOCITY and CYCLONIC FLOW CHECK

Facility	BENGUET CORP. - ACUPAN CONTRACTOR MINING PROJECT			Assume Values
Town/Province	ITOGON, BENGUET			
Source	ELECTRIC CUPELLATION FURNACE 1			%BWS = 7%
Personnel	AVG, BCB, RSD, ANB, RST	Bar. Pressure, inHg	27.28	MD = 30
Date / Time	10/9/25	Pitot Coefficient	0.84	TM = 24

Pitot Tube Leak Check, mmH_2O 240/80

Static Pressure, mmH_2O -0.2

Measured at which traverse point B-6

Traverse Point	Velocity Pressure (mmH_2O)	Temperature (°C)	Angle Which Yields Null (Degrees)
A-12	0.6	25	5
11	0.6	26	4
10	0.6	24	6
9	0.6	27	3
8	0.6	26	5
7	0.6	27	2
6	0.4	28	1
5	0.4	28	3
4	0.4	27	6
3	0.4	27	4
2	0.4	26	4
1	0.4	26	5
B-12	0.6	26	3
11	0.6	27	2
10	0.6	26	1
9	0.6	27	5
8	0.6	27	6
7	0.4	28	4
6	0.4	29	6
5	0.4	29	5
4	0.4	28	3
3	0.4	27	2
2	0.4	26	5
1	0.4	25	4
Average:	0.492	26.833	4.042
Ave. √:	0.698		

Team Leader / Date: NOEL D. SALAS 10/9/25

QAQC / DATE: ANGELO V. GUEVARRA 10/9/25

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METHOD 3

FYRITE ANALYSIS FIELD DATA

Facility	BENGUET CORP. ACUPAN CONTRACT MINING PROJECT	Fuel Type	ELECTRIC
Town/Province	BENGUET, ITOGON	Fyrite ID	GBP-01
Source	ELECTRIC COPPELLATION FURNACE	Analysis Location	ON-SITE

Run No. 1 Bag ID: HEPC1032-F1-M3-R1 Operator (name & sign): BCB

Run Date	Date of Analysis	% CO_2	% O_2	% N_2
10/9/25	10/9/25			
Run Time	Time of Analysis	Reading (A)	Reading (B)	100-(A+B)
Start 0935	Start 0947	0	20.0	
		0	20.0	
Stop 1050	Stop 0950	0	20.0	
Leak check ☒	Average	0	20.0	80.0

Run No. 2 Bag ID: — Operator (name & sign): BCB

Run Date	Date of Analysis	% CO_2	% O_2	% N_2
10/9/25	10/9/25			
Run Time	Time of Analysis	Reading (A)	Reading (B)	100-(A+B)
Start 1115	Start 1107	0	20.0	
		0	20.0	
Stop 1336	Stop 1110	0	20.0	
Leak check ☒	Average	0	20.0	80.0

Run No. 3 Bag ID: — Operator (name & sign): BCB

Run Date	Date of Analysis	% CO_2	% O_2	% N_2
10/9/25	10/9/25			
Run Time	Time of Analysis	Reading (A)	Reading (B)	100-(A+B)
Start 1354	Start 1348	0	20.0	
		0	20.0	
Stop 1509	Stop 1351	0	20.0	
Leak check ☒	Average	0	20.0	80.0

Team Leader / Date : NOEL D. SALAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 11/9/25

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METHOD 4

MOISTURE ANALYSIS DATA SHEET

Facility	BENGUET, CORP. ACUPAN CONTRACT MINING PROJECT	Sample Method	29
Town/Province	ITOGON, BENGUET	Recovery Location	ON SITE
Source	ELECTRIC CUPELLATION FURNACE ONE 1	Personnel	RSP, AVG, RCB AMC, RST

Run Number	1	2	3	
Test Date	10-9-25	10-29-25	10-9-25	
Recovery Date	10-9-25	10-9-25	10-9-25	
Recovered By	RSP, AVG, RCB	RSP, AVG, RCB	RSP, AVG, RCB	
Impinger 1 100ml 5% HNO_3 / 10% H_2O_2 SOLUTION				
Final Weight, g	625.3	624.0	632.6	
Initial Weight, g	619.2	623.4	625.6	
Net Weight, g	6.1	0.6	7.0	
Impinger 2 100ml 5% HNO_3 / 10% H_2O_2 SOLUTION				
Final Weight, g	635.6	647.9	642.5	
Initial Weight, g	633.4	638.2	636.4	
Net Weight, g	2.2	9.7	6.1	
Impinger 3 EMPTY				
Final Weight, g	514.9	542.3	545.6	
Initial Weight, g	514.4	538.9	542.9	
Net Weight, g	0.5	3.4	2.7	
Impinger 4 200g, 300g	SILICA GEL			
Final Weight, g	752.4	712.4	757.0	
Initial Weight, g	746.5	706.0	752.1	
Net Weight, g	5.9	6.4	4.9	
Impinger 5 _____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 6 _____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 7 _____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				

Total Catch, g	14.7	20.1	20.7	
Silica Gel Spent, %	10%	10%	10%	
Filter ID #	0825S44	0825S43	0825S46	
Filter Wt.	0.2536	0.2532	0.2520	

Team Leader / Date: NOEL D. SALVAS 10/9/25

QAQC / Date: ~~ANGELO V. GUEVARRA~~ 10/9/25

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ISOKINETIC FIELD DATA SHEET

METHOD(S) 5/29

Facility Name	BENGUET CORP. - ACUPAN CONTRACT MINING PROJECT	Run Number	1
Town/Province	ITOGON, BENGUET	Type of APCD Installed	LEAD FUMES SCRUBBER
Source	ELECTRIC COPELLATION FURNACE 1	Test Date	10/9/25
Test Personnel	HUG, RCB, RSP, AMG, RST	Operator Signature	

Filter ID	Tare(s)	Barometric Pressure (In Hg)	Static Pressure (mmHg)	Meterbox ID #	Meterbox Gamma	Meterbox Delta H@	Nozzle ID#	Nozzle Diameter	Pitot Tube/Probe ID #	Pitot Tube/Probe Cp	Probe Material
0825944	0.2536	27.20	-0.2	GMC-03	1.0096	51.00	GANTI-07	12.13	GP-2.5	0.84	GLASS

Sample Train Leak Checks						Fyrites		
			Initial	Interim	Final	Time	%CO_2	%O_2
K Factor	54.893	Vacuum, inHg	15.0		1.5	0850	0	20.9
Pitot Leak Checks		Leak Rate, m^3/m	0		0	—	—	—
240/02	Pre-test	Start Volume	11733930		1174.5632	Fyrite System Leak Check		O/K
240/80	Post-test	Stop Volume	1173.3938		1174.5632	Bag ID	—	

Port & Point	Time: Clock (24-hr)	Time: Test (mins)	DGM Reading (cu. Meter)	Pitot Reading (mmH_2O)	Delta H calc. (mmH_2O)	Delta H Actual (mmH_2O)	Gauge Vacuum (In Hg)	Temperature °C: Stack	DGM	Probe	Filter	Imp. Exit
12	0935	0	1173.3938	0.6	32.930	32.0	1.5	26	25	116	120	16
11	0938	3	1173.4436	0.6	32.930	32.0	1.5	26	25	120	120	17
10	0941	6	1173.4980	0.6	32.930	32.0	1.5	27	26	122	119	15
9	0944	9	1173.5576	0.6	32.930	32.0	1.5	28	26	119	120	14
8	0947	12	1173.6110	0.6	32.930	32.0	1.5	28	26	118	119	13
7	0950	15	1173.6648	0.4	21.953	22.0	1.0	29	27	123	117	13
6	0953	18	1173.7100	0.4	21.953	22.0	1.0	29	27	128	121	12
5	0956	21	1173.7552	0.4	21.953	22.0	1.0	28	28	118	120	12
4	0959	24	1173.8008	0.4	21.953	22.0	1.0	28	28	115	120	11
3	1002	27	1173.8472	0.4	21.953	22.0	1.0	27	29	117	120	11
2	1005	30	1173.8936	0.4	21.953	22.0	1.0	27	29	121	119	10
1	1008	33	1173.9390	0.4	21.953	22.0	1.0	26	29	122	121	10
12	1014	36	1173.9840	0.4	21.953	22.0	1.0	27	27	117	120	12
11	1017	39	1174.0296	0.6	32.930	32.0	1.5	27	30	124	120	12
10	1020	42	1174.0822	0.6	32.930	32.0	1.5	28	30	122	121	11
9	1023	45	1174.1354	0.6	32.930	32.0	1.5	28	30	117	120	12
8	1026	48	1174.1884	0.6	32.930	32.0	1.5	29	31	119	120	13
7	1029	51	1174.2416	0.6	32.930	32.0	1.5	29	31	122	120	13
6	1032	54	1174.2962	0.4	21.953	22.0	1.0	30	32	121	119	14
5	1035	57	1174.3492	0.4	21.953	22.0	1.0	30	32	118	121	14
4	1038	60	1174.3950	0.4	21.953	22.0	1.0	29	33	117	119	15
3	1041	63	1174.4412	0.4	21.953	22.0	1.0	27	33	123	120	15
2	1044	66	1174.4864	0.4	21.953	22.0	1.0	26	33	123	120	16
1	1047	69	1174.5312	0.2	10.977	11.0	1.0	26	33	118	121	16
0	1050	72	1174.5628									

Run Time	Total Volume	RMS Delta P
72.	1.169	0.694

Delta H Ave.	High Vac.	Ts Ave.	Tm Ave.
25.708	1.5	27.708	29.590

Isokinetic %
97.124

Team Leader / Date: NOEL D. SORIANO 10/9/25

QAQC / Date: ANGUEVO V. GUEVARRA 10/9/25

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Source Emission Testing Firm
SAT No. 2023-151
SAT No. 2023-152

SST-FD-001 rev 09
Effectivity Date: Feb. 01, 2023

GREENTEK Environmental Phils. Co.

ISOKINETIC FIELD DATA SHEET

METHOD(S) 5/29

Facility Name	BENGUET CORP. ACUPAN CONTRACT MINING PROJECT	Run Number	2
Town/Province	ITOGON, BENGUET	Type of APCD Installed	WEAD FUME SCRUBBER
Source	ELECTRIC CUPELLATION FURNACE 1	Test Date	10/9/25
Test Personnel	AHI, BOB, RSP, AMG, AST	Operator Signature	[signature]

Filter ID	Tare(s)	Barometric Pressure (In Hg)	Static Pressure (mmHg)	Meterbox ID #	Gamma	Delta H@	Nozzle ID#	Diameter	Pitot Tube/Probe ID #	Cp	Probe Material
0825543	0.2537	27.14	-0.2	GMC-03	1.0040	51.00	GGNT-07	12.13	GP-9.5	0.84	GL455

		Sample Train Leak Checks	Initial	Interim			Final	Fyrites Time	%CO_2	%O_2
K Factor	66.830	Vacuum, inHg	15.0				2.0	1110	0	20.0
Pitot Leak Checks		Leak Rate, m^3/m	0				0	—	—	—
240/82	Pre-test	Start Volume	1174.5704				1175.8180	Fyrite System Leak Check		OK
240/80	Post-test	Stop Volume	1174.5706				1175.8180	Bag ID	—	

Port & Point	Time Clock (24-hr)	Test (mins)	DGM Reading (cu. Meter)	Pitot Reading (mmH_2O)	Delta H calc. (mmH_2O)	Delta H Actual (mmH_2O)	Gauge Vacuum (In Hg)	Stack °C	DGM °C	Probe °C	Filter °C	Imp. Exit °C
A-12	1115	0	1174.5710	0.4	24.334	24.4	1.5	27	32	108	121	10
11	1118	3	1174.6194	0.6	36.501	36.0	1.5	28	32	119	120	14
10	1121	6	1174.6744	0.6	36.501	36.0	1.5	28	32	125	119	15
9	1124	9	1174.7304	0.6	36.501	36.0	1.5	29	32	127	120	14
8	1127	12	1174.7868	0.6	36.501	36.0	1.5	30	32	126	120	13
7	1130	15	1174.8432	0.6	36.501	36.0	1.5	30	33	120	120	13
6	1133	18	1174.8994	0.4	24.334	24.4	1.0	31	33	110	120	12
5	1136	21	1174.9496	0.4	24.334	24.4	1.0	30	33	115	120	12
4	1139	24	1174.9940	0.4	24.334	24.4	1.0	30	34	118	120	10
3	1142	27	1175.0494	0.4	24.334	24.4	1.0	29	34	123	120	11
2	1145	30	1175.0914	0.4	24.334	24.4	1.0	28	34	122	121	11
1	1148	33	1175.1388	0.4	24.374	24.4	1.0	27	35	118	120	10
B-12	~~1151~~ 1300	36	1175.1876	0.6	36.501	36.0	2.0	28	32	106	120	12
11	1303	39	1175.2432	0.6	36.501	36.0	2.0	28	32	107	120	13
10	1306	42	1175.3012	0.6	36.501	36.0	2.0	29	32	112	120	13
9	1309	45	1175.3564	0.6	36.501	36.0	2.0	29	32	115	120	14
8	1312	48	1175.4128	0.6	36.501	36.0	2.0	29	32	120	120	15
7	1315	51	1175.4694	0.6	36.501	36.0	2.0	30	33	121	120	15
6	1318	54	1175.5270	0.4	24.334	24.4	1.5	31	33	120	120	16
5	1321	57	1175.5740	0.4	24.334	24.4	1.5	31	33	119	120	16
4	1324	60	1175.6242	0.4	24.334	24.4	1.5	31	33	121	120	17
3	1327	63	1175.6726	0.4	24.334	24.4	1.5	30	34	119	120	17
2	1330	66	1175.7210	0.4	24.334	24.4	1.5	28	34	117	120	18
1	1333	69	1175.7696	0.4	24.334	24.4	1.5	26	34	110	119	18
0	1336	72	1175.8178									

Run Time	Total Volume	RMS Delta P	Delta H Ave.	High Vac.	Ts Ave.	Tm Ave.	Isokinetic %
72	~~1.17~~ 1.247	0.696	29.717	2.0	29.0	32.917	101.056

Team Leader / Date: NOEL D. SALVAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

DENR ACCREDITED Source Emission Testing Firm SAT No. 2023-151 SAT No. 2023-152

GREENTEK
Environmental Pollution Control

ISOKINETIC FIELD DATA SHEET

METHOD(S) 5/24

Facility Name	BENGUET CORP. - ACUPAN CONTRACT MINING PROJECT	Run Number	3
Town/Province	KOGON, BENGUET	Type of APCD Installed	LEAD FUME SCRUBBER
Source	ELECTRIC CUPELLATION FURNACE #1	Test Date	10/9/25
Test Personnel	HUH, BCB, RSD, HMC, RST	Operator Signature	

Filter ID	Tare(s)	Barometric Pressure (In Hg)	Static Pressure (mmHg)	Meterbox ID #	Meterbox Gamma	Meterbox Delta H@	Nozzle ID#	Nozzle Diameter	Pitot Tube/Probe ID #	Pitot Tube/Probe Cp	Probe Material
0B25546	0-2520	27.07	-0.2	BMC-03	1.0098	51.08	HANTI-07	12.13	GP-2-25	0.84	GLASS

Sample Train Leak Checks			Initial	Interim	Final	Fyrites Time	Fyrites %CO2	Fyrites %O2
K Factor	0.7571	Vacuum, inHg	15.0		2.0	1351	0	20.0
Pitot Leak Checks		Leak Rate, m³/m ~~1175.0200~~			0			
240/00	Pre-test	Start Volume	1175.0209		1175.0722	Fyrite System Leak Check		OK
240/02	Post-test	Stop Volume	1175.0209		1175.0722	Bag ID	–	

Port & Point	Time Clock (24-hr)	Time Test (mins)	DGM Reading (cu. Meter)	Pitot Reading (mmH_2O)	Delta H calc. (mmH_2O)	Delta H Actual (mmH_2O)	Gauge Vacuum (In Hg)	Temperature °C Stack	DGM	Probe	Filter	Imp. Exit
A-12	1354	0	1175.8210	0.6	36.454	36.0	2.0	29	33	108	120	10
11	1357	3	1175.0760	0.6	36.454	36.0	2.0	30	33	112	121	17
10	1400	6	1175.9336	0.6	36.454	36.0	2.0	30	33	107	120	15
9	1403	9	1175.9870	0.6	36.454	36.0	2.0	31	33	121	120	15
8	1406	12	1176.0454	0.6	36.454	36.0	2.0	31	33	123	120	14
7	1409	15	1176.1024	0.6	36.454	36.0	2.0	32	33	121	120	13
6	1412	18	1176.1606	0.4	24.303	24.4	1.5	32	34	116	120	13
5	1415	21	1176.2004	0.4	24.303	24.4	1.5	33	34	122	120	12
4	1418	24	1176.2564	0.4	24.303	24.4	1.5	32	34	124	120	11
3	1421	27	1176.3050	0.4	24.303	24.4	1.5	30	34	120	140	11
2	1424	30	1176.3624	0.4	24.303	24.4	1.5	29	34	115	120	11
1	1427	33	1176.4004	0.4	24.303	24.4	1.5	27	35	120	120	10
A-12	~~1430~~ 1433	36	1176.4478	0.6	36.454	36.0	2.0	28	34	114	120	12
11	1436	39	1176.4972	0.6	36.454	36.0	2.0	30	35	113	120	13
10	1439	42	1176.5562	0.6	36.454	36.0	2.0	31	35	115	120	13
9	1442	45	1176.6134	0.6	36.454	36.0	2.0	32	35	121	120	13
8	1445	48	1176.6686	0.6	36.454	36.0	2.0	32	35	118	120	14
7	1448	51	1176.7250	0.6	36.454	36.0	2.0	33	35	120	120	14
6	1451	54	1176.7828	0.4	24.303	24.4	2.0	34	35	123	120	15
5	1454	57	1176.8302	0.4	24.303	24.4	1.5	34	35	122	120	15
4	1457	60	1176.8834	0.4	24.303	24.4	1.5	32	35	121	120	16
3	1500	63	1176.9274	0.4	24.303	24.4	1.5	31	35	114	120	16
2	1503	66	1176.9750	0.4	24.303	24.4	1.5	30	35	120	120	17
1	1506	69	1177.0236	0.4	24.303	24.4	1.5	29	35	124	121	18
0	1509	72	1177.0718									

Run Time	Total Volume	RMS Delta P
72	1.251	0.704

Delta H Ave.	High Vac.	Ts Ave.	Tm Ave.
30.2	2.0	~~34.25~~ 30.917	34.25

Isokinetic %
100.057

Team Leader / Date: NOEL D. SALVAS 10/9/25

QAQC / Date: ANGELITO V. GUEVARRA 10/9/25

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SAT No. 2023-152

GREENTEK
Environmental Phils Co

METHOD 1

TRAVERSE POINT LOCATIONS

Facility Name	BENGUET CORP. - ACUPAN CONTRACT MINING PROJECT
Town/Province	ITOGON, BENGUET
Source Tested	ELECTRIC CONFLAGRATION FURNACE #2
Personnel	AHG, BCB, BSP, AMG, RST Date: 10/9/25

Type of Stack	Circular ✓	Rectangle
Ports	No. of ports available	2
	No. of ports used	2
	Port inside dia., cm	10

Dimensions		
Draw a diagram of the test location on the back of the sheet	Far wall to end of port, cm (a)	41
	Port length, cm (b)	11
	Stack Dia. or depth, cm (a-b)	30
	Stack width (if rectangle), cm	—
	Equivalent Stack Diameter, cm	—
	Area of stack, m^2	0.071

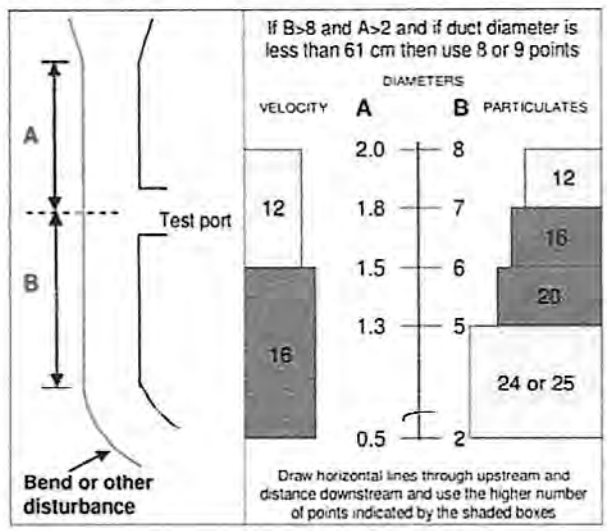
Distance to flow disturbance	Meters	Diameters
Upstream (A)	2.02	6.70
Downstream (B)	1.03	3.40

Minimum # of traverse points required:			
		Particulate traverse	24
		Velocity traverse	24
# of ports used	~	# points/port	12
		Number of traverse points used	24

Point #	Fraction of stack diameter	Dist. From inside wall	Port Length	Dist. From edge of port
1	0.021	1.3	10	11.3
2	0.067	2.0	16	12.0
3	0.118	3.5	10	13.5
4	0.177	5.3	10	15.3
5	0.250	7.5	10	17.5
6	0.356	10.7	10	20.7
7	0.644	19.3	10	29.3
8	0.750	22.5	10	32.5
9	0.823	24.7	10	34.7
10	0.882	26.5	10	36.5
11	0.933	28.0	10	38.0
12	0.971	29.1	10	39.1

*- for stacks having dia. bet. 30 to 61 cm, no traverse points shall be within 1.3cm of the stack walls.
*- for stacks having dia. greater than 61cm, no traverse point shall be within 2.5cm of the stack walls.

Note: When using 4 points in a circular duct, the probe is marked with only the points for the first half of the full diameter traverse.



Equivalent diameter for rectangular duct:	
$D_e = 2 \times \text{depth} \times \text{width} \div (\text{depth} + \text{width})$	
$D_e = 2 \times (\quad) \times (\quad) \div (\quad + \quad) =$	

LOCATION OF POINTS IN CIRCULAR STACK OR DUCTS
Fraction of stack diameter from inside wall

	2	4	6	8	10	(12)
1	0.146	0.067	0.044	0.032	0.026	0.021
2	0.854	0.250	0.146	0.105	0.082	0.067
3		0.750	0.296	0.194	0.146	0.118
4		0.933	0.704	0.323	0.266	0.177
5			0.854	0.677	0.342	0.250
6			0.956	0.806	0.658	0.356
7				0.895	0.774	0.644
8				0.958	0.854	0.750
9					0.918	0.823
10					0.974	0.882
11						0.933
12						0.979

LOCATION OF POINTS IN RECTANGULAR STACKS OR DUCTS
Fraction of stack diameter from inside wall

	2	3	4	5	6	7	8	9	10	11	12
1	.250	.167	.125	.100	.083	.071	.063	.056	.050	.045	.042
2	.750	.500	.375	.300	.250	.214	.188	.167	.150	.136	.125
3		.833	.525	.500	.417	.357	.313	.278	.250	.227	.208
4			.875	.700	.583	.500	.438	.389	.350	.318	.292
5				.900	.750	.643	.563	.500	.450	.409	.375
6					.917	.786	.688	.611	.550	.500	.458
7						.929	.813	.722	.650	.591	.542
8							.938	.833	.750	.682	.625
9								.944	.850	.773	.708
10									.950	.864	.792
11										.955	.875
12											.958

ACCEPTABLE MATRICES FOR SQUARE DUCTS

3 x 3	4 x 5	6 x 6
3 x 4	5 x 5	6 x 7
4 x 4	5 x 6	7 x 7

Team Leader / Date: NOEL D. SALVAS 10/9/25

QAQC / Date: ANGELO H. GUEVARRA 10/9/25

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SAT

GREENTEK
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EPA METHOD 1 & 2

GAS VELOCITY and CYCLONIC FLOW CHECK

				Assume Values
Facility	BENGUET CORP. - ALUPAN CONTRACT MINING PROJECT			
Town/Province	ITOGON BENGUET			
Source	ELECTRIC CONFLAGRATION FURNACE #2			%BWS = 3 %
Personnel	AUG, BCB, RSB, RST, JMC	Bar. Pressure, inHg	27.08	MD = 20
Date / Time	10/9/25	Pitot Coefficient	0.84	TM = 29

Pitot Tube Leak Check, mmH_2O 240/02

Static Pressure, mmH_2O -0.4

Measured at which traverse point A-7

Traverse Point	Velocity Pressure (mmH_2O)	Temperature (°C)	Angle Which Yields Null (Degrees)
A-12	0.4	27	5
11	0.4	27	7
10	0.4	28	4
9	0.4	28	6
8	0.4	28	5
7	0.2	28	0
6	0.2	29	9
5	0.2	29	2
4	0.2	29	3
3	0.2	28	5
2	0.2	27	8
1	0.2	27	6
B-12	0.4	28	7
11	0.4	28	4
10	0.4	29	5
9	0.4	30	3
8	0.4	30	2
7	0.4	29	4
6	0.2	30	7
5	0.2	31	4
4	0.2	30	3
3	0.2	29	8
2	0.2	27	5
1	0.2	28	4
Average:	0.292	28.5	5.250
Ave. √:	0.532		

Team Leader / Date: NOEL D. SALAS 10/9/25

QAQC / DATE: ANGELO V. GUEVARRA 10/9/25

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METHOD 3

FYRITE ANALYSIS FIELD DATA

Facility	BENGUET CORP - ACUPAN CONTRACT MINING PROJECT	Fuel Type	ELECTRIC
Town/Province	ITOGON, BENGUET	Fyrite ID	GBF-01
Source	ELECTRIC CUPELLATION FURNACE #2	Analysis Location	ON-SITE

Run No. 1 Bag ID: — Operator (name & sign): BCB

Run Date	Date of Analysis	% CO_2	% O_2	% N_2
10/9/25	10/9/25			
Run Time	Time of Analysis	Reading (A)	Reading (B)	100-(A+B)
Start 1618	Start 1552	0	20.0	
		0	20.0	
Stop 1733	Stop 1555	0	20.0	
Leak check ☑				
	Average	0	20.0	80.0

Run No. 2 Bag ID: — Operator (name & sign): BCB

Run Date	Date of Analysis	% CO_2	% O_2	% N_2
10/9/25	10/9/25			
Run Time	Time of Analysis	Reading (A)	Reading (B)	100-(A+B)
Start 1747	Start 1738	0	20.0	
		0	20.0	
Stop 1900	Stop 1741	0	20.0	
Leak check ☑				
	Average	0	20.0	80.0

Run No. 3 Bag ID: — Operator (name & sign): BCB

Run Date	Date of Analysis	% CO_2	% O_2	% N_2
10/9/25	10/9/25			
Run Time	Time of Analysis	Reading (A)	Reading (B)	100-(A+B)
Start 1932	Start 1927	0	20.0	
		0	20.0	
Stop 2047	Stop 1930	0	20.0	
Leak check ☑				
	Average	0	20.0	80.0

Team Leader / Date : NOEL D. SALAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

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GREENTEK
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METHOD 4

MOISTURE ANALYSIS DATA SHEET

Facility	BENGUET CORP. ACUPAN CONTRACT MINING PROJECT.	Sample Method	29
Town/Province	ITOGON, BENGUET	Recovery Location	ONSITE
Source	ELECTRIC CUPELLATION FURNACE TWO(2)	Personnel	RSP, AVG, BCB AMC, RST

Run Number	1	2	3	
Test Date	10-9-25	10-9-25	10-9-25	
Recovery Date	10-9-25	10-9-25	10-9-25	
Recovered By	RSP, AVG, BCB	RSP, AVG, BCB	RSP, AVG, BCB	
Impinger 1 100mL 5%	HNO_3 / 10%	H_2O_2		
Final Weight, g	628.6	626.0	630.2	
Initial Weight, g	622.8	623.6	627.3	
Net Weight, g	5.8	2.4	2.9	
Impinger 2 100mL 5%	HNO_3 / 10% H_2O_2			
Final Weight, g	643.4	643.0	645.5	
Initial Weight, g	636.1	637.0	639.1	
Net Weight, g	7.3	6.0	6.4	
Impinger 3 EMPTY				
Final Weight, g	541.7	515.5	544.4	
Initial Weight, g	539.0	512.5	541.5	
Net Weight, g	2.7	3.0	2.9	
Impinger 4 200g-300g	SILICA GEL			
Final Weight, g	716.4	760.5	719.5	
Initial Weight, g	712.4	757.0	716.2	
Net Weight, g	4.0	3.5	3.3	
Impinger 5 _____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 6 _____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 7 _____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				

Total Catch, g	19.8	14.9	15.5	
Silica Gel Spent, %	10%	10%	10%	
Filter ID #	0825503	0825515	0825518	
Filter Wt.	0.2520	0.2580	0.2595	

Team Leader / Date: NIÑEL D. SALAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

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Environmental Philippines

ISOKINETIC FIELD DATA SHEET

METHOD(S) 5/29

Facility Name	BENGUET CORP. ACUPAN CONTRACT MININGPROJECT	Run Number	1
Town/Province	ITOGON, BENGUET	Type of APCD Installed	LEAD FUME SCRUBBER
Source	ELECTRIC COBELLATION FURNACE #2	Test Date	10/9/25
Test Personnel	AVG, BCB, RSP, AMC, RSP	Operator Signature	

Filter ID	Tare(s)	Barometric Pressure (In Hg)	Static Pressure (mmHg)	Meterbox ID #	Meterbox Gamma	Meterbox Delta H@	Nozzle ID#	Nozzle Diameter	Pitot Tube/Probe ID #	Pitot Tube/Probe Cp	Probe Material
0825503	6.2520	27.08	-0.4	GMC03	1.0049	51.08	SSN#03	12.13	AP-25	0.84	GLASS

Sample Train Leak Checks			Initial	Interim	Final	Fyrites Time	Fyrites %CO_2	Fyrites %O_2
K Factor	59.456	Vacuum, inHg	15.0		1.5	1555	0	20.0
Pitot Leak Checks		Leak Rate, m^3/m	0		0	—	—	—
280/194	Pre-test	Start Volume	1177.0732		1178.0412	Fyrite System Leak Check		OK
230/178	Post-test	Stop Volume	1177.0732		1178.0412	Bag ID	—	

Port & Point	Time Clock (24-hr)	Time Test (mins)	DGM Reading (cu. Meter)	Pitot Reading (mmH_2O)	Delta H calc. (mmH_2O)	Delta H Actual (mmH_2O)	Gauge Vacuum (In Hg)	Temperature °C Stack	DGM	Probe	Filter	Imp. Exit
A-12	1610	6	1177.0736	0.4	23.702	23.8	1.5	27	28	106	120	10
11	1621	3	1177.1204	0.4	23.702	23.8	1.5	27	28	114	120	16
10	1624	6	1177.1700	0.4	23.702	23.8	1.5	28	29	121	121	15
9	1627	9	1177.2208	0.4	23.702	23.8	1.5	29	28	120	121	14
8	1630	12	1177.2606	0.4	23.702	23.8	1.5	32	28	127	120	13
7	1633	15	1177.3154	0.4	23.702	23.8	1.5	30	29	116	120	13
6	1636	18	1177.3604	0.2	11.891	11.8	1.0	31	29	117	121	12
5	1639	21	1177.3934	0.2	11.891	11.8	1.0	31	29	121	120	12
4	1642	24	1177.4254	0.2	11.891	11.8	1.0	30	29	123	120	11
3	1645	27	1177.4592	0.2	11.891	11.8	1.0	30	30	94	120	10
2	1648	30	1177.4902	0.2	11.891	11.8	1.0	28	30	122	120	10
1	1651	33	1177.5222	0.2	11.891	11.8	1.0	28	30	120	120	10
B-12	1654/1657	34	1177.5548	0.4	23.702	23.8	1.5	28	30	112	120	12
11	1700	39	1177.6020	0.4	23.702	23.8	1.5	29	30	111	120	12
10	1703	42	1177.6500	0.4	23.702	23.8	1.5	30	30	112	120	12
9	1706	45	1177.6908	0.4	23.702	23.8	1.5	31	30	115	120	13
8	1709	48	1177.7464	0.4	23.702	23.8	1.5	31	31	120	120	13
7	1712	51	1177.7964	0.2	11.891	11.8	1.0	30	31	121	120	14
6	1715	54	1177.8432	0.2	11.891	11.8	1.0	30	31	121	120	14
5	1718	57	1177.8754	0.2	11.891	11.8	1.0	29	31	118	120	15
4	1721	60	1177.9084	0.2	11.891	11.8	1.0	28	31	120	120	15
3	1724	63	1177.9422	0.2	11.891	11.8	1.0	29	31	120	120	16
2	1727	66	1177.9744	0.2	11.891	11.8	1.0	28	31	118	120	16
1	1730	69	1179.0074	0.2	11.891	11.8	1.0	27	31	120	120	16
0	1735	72	1178.0410									

Run Time	Total Volume	RMS Delta P
72	0.967	0.532

Delta H Ave.	High Vac.	Ts Ave.	Tm Ave.
17.3	1.5	29.125	29.750

Isokinetic %
103.09

Team Leader / Date: NOEL D. SALCAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

DENR ACCREDITED
Source Emission Testing Firm
SAT No. 2023-151
SAT No. 2023-152

GREENTEK Environmental Drills Co.

ISOKINETIC FIELD DATA SHEET

METHOD(S) 5/29

Facility Name	BENGUET CORP. ACUPAN CONTRACT MINING PROJECT	Run Number	2
Town/Province	ITOGON BENGUET	Type of APCD Installed	LEAD FUME SCRUBBER
Source	ELECTRIC CUPELLATION FURNACE # 2	Test Date	10/9/25
Test Personnel	AVG, BCB, RSP, AMC, RS	Operator Signature	[signature]

Filter ID	Tare(s)	Barometric Pressure (In Hg)	Static Pressure (mmHg)	Meterbox ID #	Meterbox Gamma	Meterbox Delta H@	Nozzle ID#	Nozzle Diameter	Pitot Tube/Probe ID #	Pitot Tube/Probe Cp	Probe Material
002575	0.2580	27.11	-0.4	AMC-03	1.0098	51.00	EGNT-17	12.13	GP-2.5	0.84	GLASS

Sample Train Leak Checks			Initial	Interim			Final	Fyrites Time	%CO_2	%O_2
K Factor	59.495	Vacuum, inHg	15.0	/	/	/	1.5	1741	0	20.0
Pitot Leak Checks		Leak Rate, m^3/m	0				0	—	—	—
240/80	Pre-test	Start Volume	1178.0434	/	/	/	1178.9910	Fyrite System Leak Check		OK
230/76	Post-test	Stop Volume	1178.0434	/	/	/	1178.9916	Bag ID	—	

Port & Point	Time: Clock (24-hr)	Time: Test (mins)	DGM Reading (cu. Meter)	Pitot Reading (mmH_2O)	Delta H calc. (mmH_2O)	Delta H Actual (mmH_2O)	Gauge Vacuum (In Hg)	Temperature °C: Stack	DGM	Probe	Filter	Imp. Exit
A-12	1747	0	1178.0440	0.4	23.798	23.8	1.5	29	30	115	121	19
11	1750	3	1178.0904	0.4	23.798	23.8	1.5	30	30	119	120	17
10	1753	6	1178.1432	0.4	23.798	23.8	1.5	31	30	120	120	16
9	1756	9	1178.1866	0.4	23.798	23.8	1.5	31	30	120	120	16
8	1759	12	1178.2314	0.4	23.798	23.8	1.5	30	29	117	120	15
7	1802	15	1178.2804	0.4	23.798	23.8	1.5	30	29	118	121	14
6	1805	18	1178.3210	0.2	11.899	11.8	1.0	31	30	117	120	13
5	1808	21	1178.3542	0.2	11.899	11.8	1.0	32	30	120	121	13
4	1811	24	1178.3870	0.2	11.899	11.8	1.0	30	29	120	120	12
3	1814	27	1178.4200	0.2	11.899	11.8	1.0	30	29	120	121	12
2	1817	30	1178.4548	0.2	11.899	11.8	1.0	29	29	120	120	11
1	1820	33	1178.4862	0.2	11.899	11.8	1.0	28	29	121	120	11
B-12	~~1823~~ 1824	36	1178.5190	0.4	23.798	23.8	1.5	29	29	121	119	13
11	1827	39	1178.5734	0.4	23.798	23.8	1.5	30	29	113	120	13
10	1830	42	1178.6116	0.4	23.798	23.8	1.5	31	30	110	120	14
9	1833	45	1178.6632	0.4	23.798	23.8	1.5	32	30	111	120	13
8	1836	48	1178.7060	0.4	23.798	23.8	1.5	32	30	118	120	12
7	1839	51	1178.7520	0.4	23.798	23.8	1.5	33	30	120	120	13
6	1842	54	1178.7964	0.2	11.899	11.8	1.0	32	30	121	120	14
5	1845	57	1178.8310	0.2	11.899	11.8	1.0	32	31	120	120	14
4	1848	60	1178.8634	0.2	11.899	11.8	1.0	31	30	120	121	15
3	1851	63	1178.8968	0.2	11.899	11.8	1.0	30	30	119	120	16
2	1854	66	1178.9280	0.2	11.899	11.8	1.0	29	30	120	120	16
1	1857	69	1178.9610	0.2	11.899	11.8	1.0	27	30	119	120	17
0	1900	72	1178.9912									

Run Time	Total Volume	RMS Delta P
72	0.947	0.540

Delta H Ave.	High Vac.	Ts Ave.	Tm Ave.
17.8	1.5	30.376	29.708

Isokinetic %
99.948

Team Leader / Date: NOEL D. SALAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

GREENTEK Environmental Phils. Co.

ISOKINETIC FIELD DATA SHEET

METHOD(S) 5/29

Facility Name	BENGUET CORP ACUPAN CONTRACT MINING PROJECT	Run Number	3
Town/Province	ITOGON BENGUET	Type of APCD Installed	LEAD FUME SCRUBBER
Source	ELECTRIC CUPELLATION FURNACE # 2	Test Date	10/9/25
Test Personnel	AVG, BLB, RSP, AMC, RST	Operator Signature	[signature]

Filter ID	Tare(s)	Barometric Pressure (In Hg)	Static Pressure (mmHg)	Meterbox ID #	Meterbox Gamma	Meterbox Delta H@	Nozzle ID#	Nozzle Diameter	Pitot Tube/Probe ID #	Cp	Probe Material
08255B	0.2595	27.14	-0.4	GMC-03	1.0098	51.00	GENT-04	12.13	GP-2.5	0.84	GLASS

		Sample Train Leak Checks	Initial	Interim	Interim	Interim	Final	Fyrites Time	%CO_2	%O_2
K Factor	59.920	Vacuum, inHg	15.0		-		1.0	1930	0	20.0
Pitot Leak Checks		Leak Rate, m^3/m	0				0	—	—	—
230/00	Pre-test	Start Volume	1178.9942				1179.9378	Fyrite System Leak Check		OK
230/30	Post-test	Stop Volume	1178.9942				1179.9378	Bag ID	—	

Port & Point	Time Clock (24-hr)	Time Test (mins)	DGM Reading (cu. Meter)	Pitot Reading (mmH_2O)	Delta H calc. (mmH_2O)	Delta H Actual (mmH_2O)	Gauge Vacuum (In Hg)	Temperature °C Stack	DGM	Probe	Filter	Imp. Exit
A-12	1932	0	1178.9952	0.4	23.968	24.0	1.0	30	27	106	121	18
11	1935	3	1179.0414	0.4	23.968	24.0	1.0	31	27	114	120	18
10	1938	6	1179.0902	0.4	23.968	24.0	1.0	32	27	122	120	16
9	1941	9	1179.1366	0.4	23.968	24.0	1.0	32	27	126	120	15
8	1944	12	1179.1810	0.4	23.968	24.0	1.0	33	27	123	120	15
7	1947	15	1179.2280	0.4	23.968	24.0	1.0	34	27	114	120	14
6	1950	18	1179.2746	0.2	11.984	12.0	1.0	33	27	114	119	13
5	1953	21	1179.3080	0.2	11.984	12.0	1.0	32	27	119	120	12
4	1956	24	1179.3404	0.2	11.984	12.0	1.0	32	27	126	120	12
3	1959	27	1179.3734	0.2	11.984	12.0	1.0	30	28	115	120	11
2	2002	30	1179.4064	0.2	11.984	12.0	1.0	30	28	116	120	11
1	2005	33	1179.4398	0.2	11.984	12.0	1.0	29	28	118	120	10
B-12	~~2008~~ 2011	36	1179.4776	0.4	23.968	24.0	1.0	31	28	118	120	12
11	2014	39	1179.5164	0.4	23.968	24.0	1.0	32	28	117	120	13
10	2017	42	1179.5644	0.4	23.968	24.0	1.0	33	28	120	119	13
9	2020	45	1179.6114	0.4	23.968	24.0	1.0	34	29	121	120	14
8	2023	48	1179.6584	0.4	23.968	24.0	1.0	34	29	122	120	14
7	2026	51	1179.7060	0.2	11.984	12.0	1.0	35	29	110	120	15
6	2029	54	1179.7396	0.2	11.984	12.0	1.0	34	29	117	120	15
5	2032	57	1179.7720	0.2	11.984	12.0	1.0	33	29	117	120	16
4	2035	60	1179.8056	0.2	11.984	12.0	1.0	32	29	122	120	16
3	2038	63	1179.8394	0.2	11.984	12.0	1.0	32	29	123	120	17
2	2041	66	1179.8720	0.2	11.984	12.0	1.0	31	29	118	121	18
1	2044	69	1179.9040	0.2	11.984	12.0	1.0	30	29	116	120	18
0	2047	72	1179.9376									

Run Time	Total Volume	RMS Delta P
72	0.942	0.532

Delta H Ave.	High Vac.	Ts Ave.	Tm Ave.
17.5	1.0	32.042	28.0

Isokinetic %
101.093

Leader / Date: NOEL D. SALAS 10/9/25

QAQC / Date: ANGELO V. GUEVARRA 10/9/25

DENR ACCREDITED Source Emission Testing Firm No. 2023-151 No. 2023-152

SST

SST-FD-001 rev.06
Effectivity Date: Feb. 01 2023

“APPENDIX C”

PROCESS DATA

GREENTEK MONITORING LOGSHEET

Facility Information

FACILITY NAME	BENGUET CORPORATION - ACUPAN CONTRACT MINING PROJECT
LOCATION	Balatoc, Virac, Itogon Benguet
PCO NAME	Ms. Jemimah R. Salayog
TELEPHONE/FAX NUMBER	✓
EMAIL ADDRESS	
DATE OF SAMPLING	OCT. 9, 2025
STACK TEST PERSONNEL	AVG, BCB, RSP, AMC, RCT

Source Description

SOURCE TESTED (ID or NAME used by Facility)	FURNACE # 1
SOURCE TYPE (Genset, Boiler, etc.)	Furnace (Electric Cupellation)
BRAND (Made by)	✓ DFC Ceramics
RATED CAPACITY (with units: BHp, MW, MT/hr., etc.)	✓ 25KVA
DATE CONSTRUCT STARTED (on source) month/year	✓ MAY 28, 2011
DATE OF ANY MODIFICATION (that increased emissions)	N/A
HAS THE SOURCE BEEN MOVED (Specify Date)	YES / (NO) If Yes, Date Moved:
EXISTING (const. before 11/25/00) or NEW (or modified) SOURCE	EXISTING SOURCE / NEW SOURCE
OPERATION (estimated hours per year for source)	✓ 2,976 - 36 HRS.
TYPE OF APCD* (baghouse, ESP, cyclone, scrubber, etc.)	Lead Fume Scrubber
DATE OF APCD INSTALLED	✓ MARCH 28, 2017
TOTAL STACK HEIGHT (m, ft., etc.)	± 5M
STACK ORIENTATION	~~VERTICAL~~ / HORIZONTAL ___w/___w/o Cover

APCD – Air Pollution Control Device

This item is critical for determining the standards that apply to the emission point

Fuel Information

TYPE OF FUEL USED, %S (during sampling)	Electricity
ORIGINAL FUEL USED, %S	Electricity
DATE FUEL CHANGE?	N/A
ACTUAL FUEL CONSUMPTION DURING SAMPLING (liters, kg, etc.)	N/A

Provide Certificate of Fuel Analysis for strict compliance with DENR

Process Information

OPERATING RATE DURING TESTING?	100%
IS THE APCD OPERATING DURING SAMPLING?	YES / NO
IS PROCESS LOGSHEET PROVIDED BY THE PLANT?	YES / NO
PRODUCTION OUTPUT DURING SAMPLING	✓ 601 grams of ore samples

NOTES:

Information recorded/gathered by:

ANGELO V. GUEVARRA

Name and signature of GEPC personnel on site

Information supplied by:

JEMIMAH R. SALAYOG

Name and signature of facility representative

DENR ACCREDITED
Source Emission Testing Firm
SAT No. 2023-151
SAT No. 2023-152

GREENTEK MONITORING LOGSHEET

Facility Information

FACILITY NAME	BENGUET CORPORATION - ACUPAN CONTRACT MINING PROJECT
LOCATION	Balatoc, Yirac, Itogon Benguet
PCO NAME	Ms. Jemiman R. Salayog
TELEPHONE/FAX NUMBER	
EMAIL ADDRESS	
DATE OF SAMPLING	OCT. 9, 2025
STACK TEST PERSONNEL	AVG, BCB, RSP, AMC, RCT

Source Description

SOURCE TESTED (ID or NAME used by Facility)	FURNACE # 2
SOURCE TYPE (Genset, Boiler, etc.)	Furnace (Electric Cupellation)
BRAND (Made by)	✓ DFC ceramics
RATED CAPACITY (with units: BHp, MW, MT/hr., etc.)	✓ 25kVA
DATE CONSTRUCT STARTED (on source) month/year	✓ AUGUST 23, 2020
DATE OF ANY MODIFICATION (that increased emissions)	N/A
HAS THE SOURCE BEEN MOVED (Specify Date)	YES / (NO) If Yes, Date Moved:
EXISTING (const. before 11/25/00) or NEW (or modified) SOURCE	EXISTING SOURCE / NEW SOURCE
OPERATION (estimated hours per year for source)	✓ 15,694.80 HRS
TYPE OF APCD* (baghouse, ESP, cyclone, scrubber, etc.)	Lead Fume scrubber
DATE OF APCD INSTALLED	✓ MARCH 28, 2017
TOTAL STACK HEIGHT (m, ft., etc.)	~3
STACK ORIENTATION	VERTICAL / HORIZONTAL ___ w/ ___ w/o Cover

APCD – Air Pollution Control Device

*** This item is critical for determining the standards that apply to the emission point***

Fuel Information

TYPE OF FUEL USED, %S (during sampling)	Electricity
ORIGINAL FUEL USED, %S	Electricity
DATE FUEL CHANGE?	N/A
ACTUAL FUEL CONSUMPTION DURING SAMPLING (liters, kg, etc.)	N/A

Provide Certificate of Fuel Analysis for strict compliance with DENR

Process Information

OPERATING RATE DURING TESTING?	100%
IS THE APCD OPERATING DURING SAMPLING?	(YES) / NO
IS PROCESS LOGSHEET PROVIDED BY THE PLANT?	YES (NO)
PRODUCTION OUTPUT DURING SAMPLING	✓ 960 grams of Sample

NOTES:

Information recorded/gathered by:

ANGELO V. GUEVARRA

Name and signature of GEPC personnel on site

Information supplied by:

JEMIMAH R. SALAYOG

Name and signature of facility representative

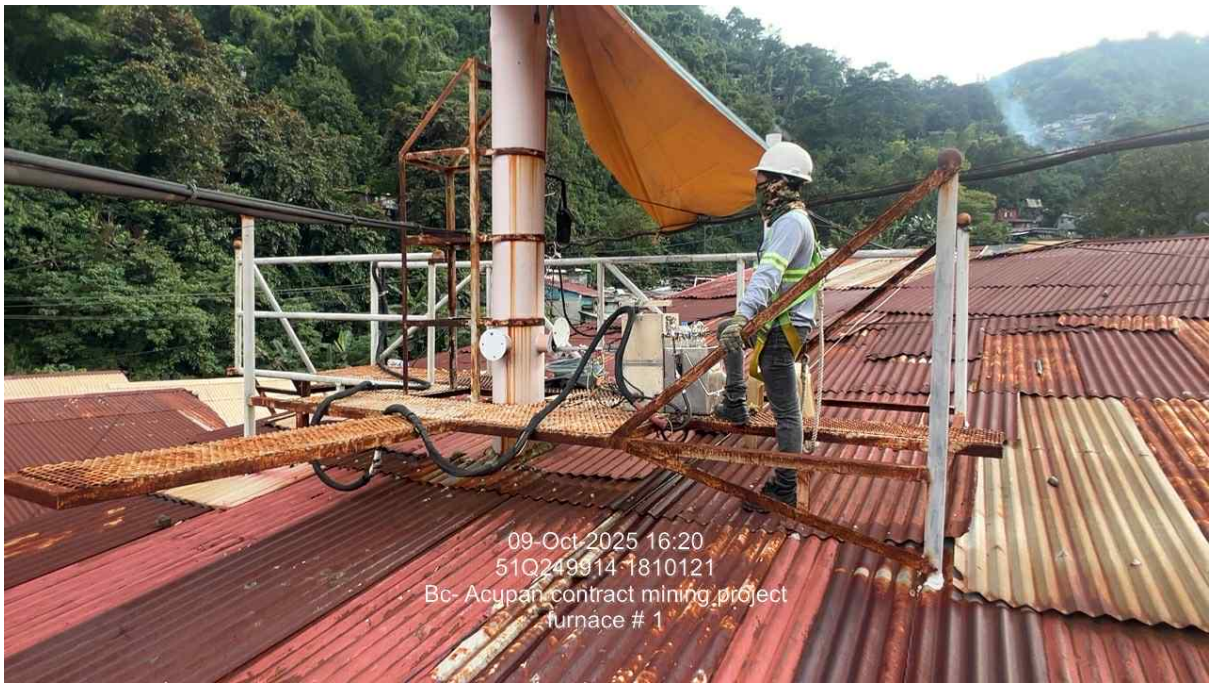
DENR ACCREDITED
Source Emission Testing Firm
SAT No. 2023-151
SAT No. 2023-152

One (1) unit Electric Cupellation Furnace 1

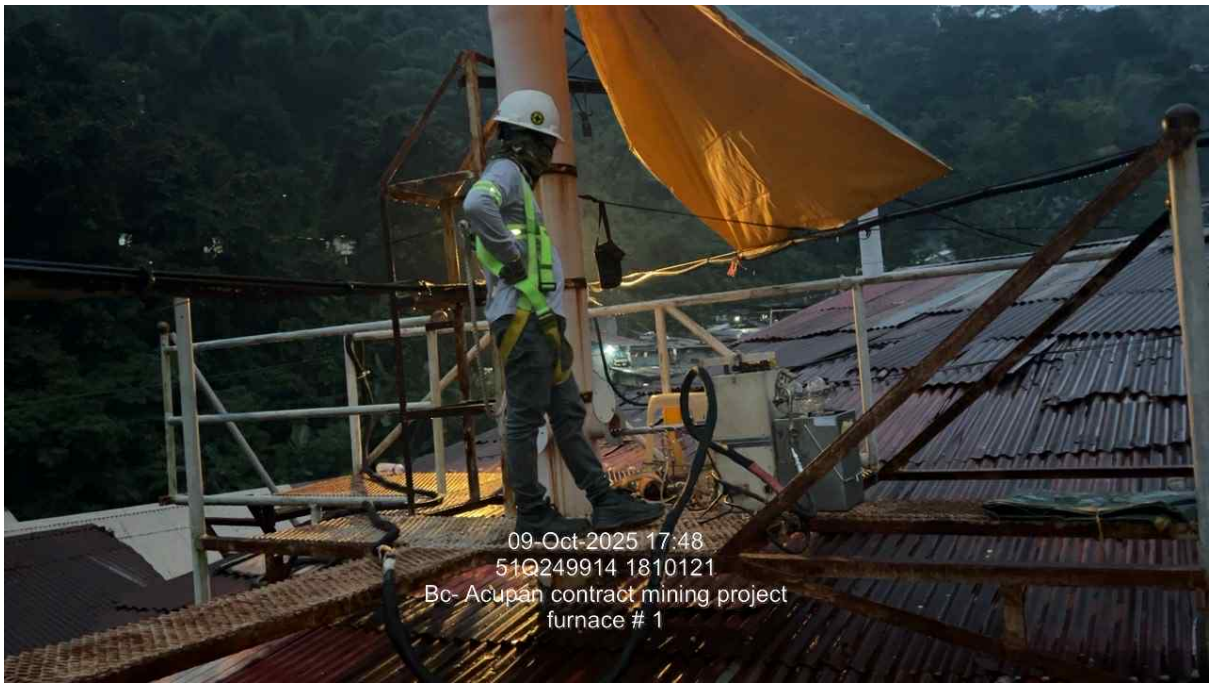
One (1) unit Electric Cupellation Furnace 1

One (1) unit Electric Cupellation Furnace 1

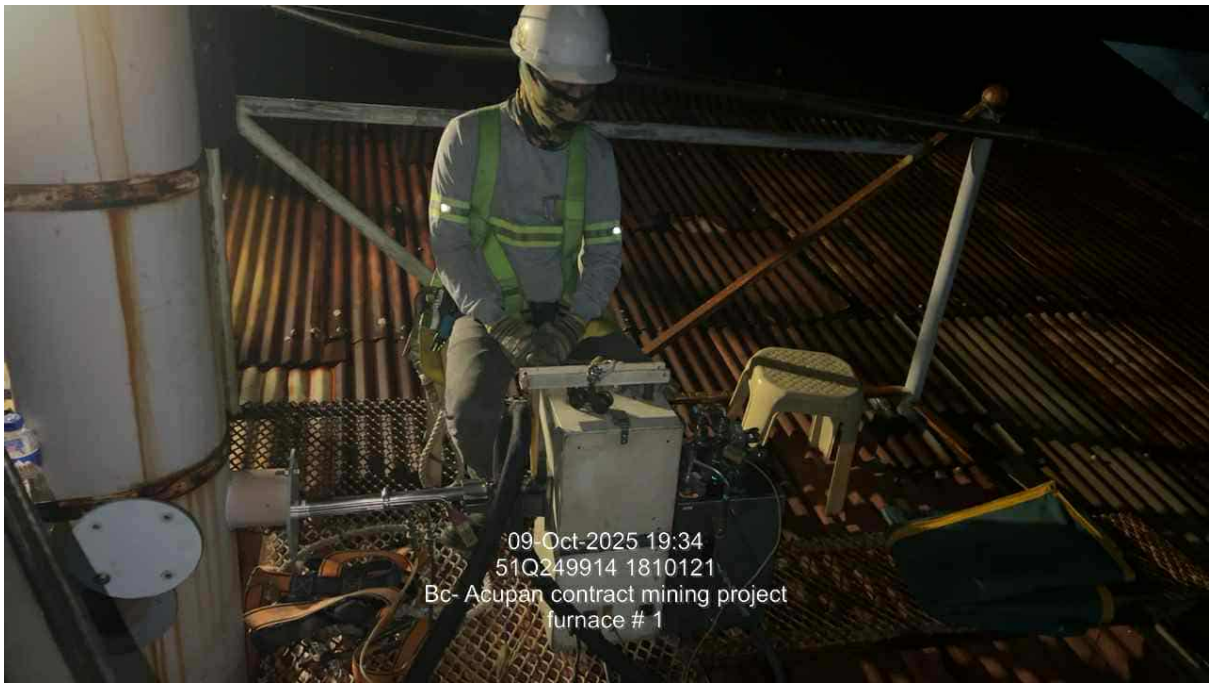
One (1) unit Electric Cupellation Furnace 2



One (1) unit Electric Cupellation Furnace 2



One (1) unit Electric Cupellation Furnace 2



“APPENDIX D”

ANALYTICAL DATA

OSTREA MINERAL LABORATORIES, Inc.
Assaying and Environmental Testing Specialist
Barangay Road, Bo. Mamplasan, Biñan, Laguna, Philippines 4024
Telefax (02) 889-9058, (049) 539-0102; (02) 848-6951
Email customer.service@ostrealabs.com.ph

USEPA METHOD 5
ANALYTICAL DATA SHEET

Source: 25kVA DFC Ceramics Furnace 1
RAN No.: B-43741
Date Analyzed: October 20 - 23, 2025

Analytical Balance: KERN & Sohn ABJ 220-4NM
Sensitivity: 0.1mg

SAMPLE ID	Units	Run 1	Run2	Run 3
FILTER ANALYSIS				
Filter ID		0825S44	0825S43	0825S46
Filter appearance/observations		Gray particulates		
Initial weight	g	0.2536	0.2532	0.2520
Final weight	g	0.2988	0.2980	0.2885
Particulate Mass filter, m_f	g	0.0452	0.0448	0.0365
ACETONE RINSE ANALYSIS				
Dried PM rinse appearance		Gray Particulates		
Acetone rinse, volume, A_r	mL	100	100	100
Beaker ID		SP53	SP54	SP55
Initial weight, beaker	g	66.7200	66.3110	67.9180
Final weight, beaker	g	66.7232	66.3143	67.9250
Particulate Mass, acetone rinse, m_a	g	0.0032	0.0033	0.0070
ACETONE REAGENT BLANK				
Acetone blank volume, A_b	mL	20	20	20
Acetone blank mass, A_m *	g	18.0711	18.0711	18.0711
Beaker ID		SP74	SP74	SP74
Initial weight, beaker	g	65.4190	65.4190	65.4190
Final weight, beaker	g	65.4230	65.4230	65.4230
Particulate Mass, blank, m_b	g	0.0040	0.0040	0.0040
$C_b = m_b/A_b$	g/mL	2.00000E-04	2.00000E-04	2.00000E-04
Acetone blank, $W_b = C_b \times A_r$	g	0.0200	0.0200	0.0200
Acetone Residue, <0.001	%	0.0006	0.0006	0.0006

* Density of acetone 0.7857 g/mL

** Acetone residue should be less than 0.001% otherwise apply corresponding correction factor from Total PM.

Acetone residue, % - $m_b / a_m \times 100$

Total PM = $m_f + m_{ar} - W_b$	mg	44.4	44.1	39.5

Analyzed by: Lyka S. Diaz **Reviewed by:** Kemberly M. Caraig **Certified correct by:** Ma. Cristina F. Referente

OSTREA MINERAL LABORATORIES, INC.
Assaying and Environmental Testing Specialist
Barangay Road, Bo. Mamplasan, Biñan, Laguna, Philippines 4024
Telefax (02) 869-9058, (049) 539-0102; (02) 843-6951
Email customer.service@ostrealabs.com.ph

ANALYTICAL DATA SHEET
USEPA METHOD 29

Source: 25kVA DFC Ceramics Furnace 1
RAN No.: B-43741
Date Analyzed: October 13 - 30, 2025

SAMPLE ID	Sample Absorbance	Sample Volume (mL)	Dilution	Sample Concentration (ug)	Total Mass Lead (Pb) in sample, mg
Run 1	0.0228	250	16.12	3062.84	3.063
Run 2	0.0216	250	16.10	2899.59	2.900
Run 3	0.0341	250	16.7	4724.34	4.724

Filter Blank Absorbance: 0.0000
Nitric Blank Absorbance: 0.0000
Intercept: -0.0003
Slope: 0.0304

Analyzed by: Errendy M. Estipona Jr. **Reviewed by:** Kemberly M. Caraig **Certified correct by:** Ma. Cristine F. Referente

OSTREA MINERAL LABORATORIES, Inc.
Assaying and Environmental Testing Specialist
Barangay Road, Bo. Mamplasan, Biñan, Laguna, Philippines 4024
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USEPA METHOD 5
ANALYTICAL DATA SHEET

Source: 25kVA DFC Ceramics Furnace 2
RAN No.: B-43742
Date Analyzed: October 20 - 23, 2025

Analytical Balance: KERN & Sohn ABJ 220-4NM
Sensitivity: 0.1mg

SAMPLE ID	Units	Run 1	Run2	Run 3
FILTER ANALYSIS				
Filter ID		0825S03	0825S15	0825S18
Filter appearance/observations		Gray particulates		
Initial weight	g	0.2520	0.2580	0.2595
Final weight	g	0.2988	0.2980	0.2885
Particulate Mass filter, m_f	g	0.0468	0.0400	0.0290
ACETONE RINSE ANALYSIS				
Dried PM rinse appearance		Gray Particulates		
Acetone rinse, volume, A_r	mL	100	100	100
Beaker ID		SP53	SP54	SP55
Initial weight, beaker	g	66.7200	66.3110	67.9180
Final weight, beaker	g	66.7232	66.3143	67.9250
Particulate Mass, acetone rinse, m a	g	0.0032	0.0033	0.0070
ACETONE REAGENT BLANK				
Acetone blank volume, A_b	mL	20	20	20
Acetone blank mass, A_m *	g	18.0711	18.0711	18.0711
Beaker ID		SP74	SP74	SP74
Initial weight, beaker	g	65.4190	65.4190	65.4190
Final weight, beaker	g	65.4230	65.4230	65.4230
Particulate Mass, blank, m_b	g	0.0040	0.0040	0.0040
$C_b = m_b/A_b$	g/mL	2.00000E-04	2.00000E-04	2.00000E-04
Acetone blank, $W_b = C_b \times A_r$	g	0.0200	0.0200	0.0200
Acetone Residue, <0.001	%	0.0006	0.0006	0.0006

* Density of acetone 0.7857 g/mL

** Acetone residue should be less than 0.001% otherwise apply corresponding correction factor from Total PM.

Acetone residue, % - $m_b / a_m \times 100$

Total PM = $m_f + m_{ar} - W_b$	mg	46.0	39.3	32.0

Analyzed by: Lyka S. Diaz Reviewed by: Kemberly M. Caraig Certified correct by: Ma. Cristina F. Referente

OSTREA MINERAL LABORATORIES, INC.
Assaying and Environmental Testing Specialists
Barangay Road, Bo. Mamplasan, Biñan, Laguna, Philippines 4024
Telefax (02) 889-9058, (049) 539-0102; (02) 648-6951
Email customer.service@ostrealabs.com.ph

ANALYTICAL DATA SHEET
USEPA METHOD 29

Source: 25kVA DFC Ceramics Furnace 2
RAN No.: B-43742
Date Analyzed: October 13 - 30, 2025

SAMPLE ID	Sample Absorbance	Sample Volume (mL)	Dilution	Sample Concentration (ug)	Total Mass Lead (Pb) in sample, mg
Run 1	0.0228	250	16.11	3060.37	3.060
Run 2	0.0216	250	16.09	2897.79	2.898
Run 3	0.0341	250	16.1	4554.61	4.555

Filter Blank Absorbance: 0.0000
Nitric Blank Absorbance: 0.0000
Intercept: -0.0003
Slope: 0.0304

Analyzed by: Jhrendy M. Estipona Jr. **Reviewed by:** Kemberly M. Caraig **Certified correct by:** Ma. Cristina F. Referente

GREENTEK ENVIRONMENTAL ENGINEERING SERVICES

CHAIN OF CUSTODY, RECORD AND SAMPLE LOG

Name of firm: GREENTEK ENVIRONMENTAL ENGINEERING SERVICES — Tested by QAQC & Team Leader: BRYAN C. BADON

Address: 2430 LAURA STREET PANDACAN, MANILA — Type of fuel used by the facility during sampling: Electricity

Source:25kVA DFC Ceramics Furnace 1

Sample ID	Sample ID No. & Description			Sample Date	Sample Type	Type of Container	Analysis Requested
	Sample Method	Run #	Train Fraction				
BCACMP- F1 - M5/M29 - C2							PM AND LEAD
BCACMP- F1 - M5/M29 - C2							
BCACMP- F1 - M5/M29 - C2	M5/M29	1	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F1 - M5/M29 - C1	M5/M29	1	FILTER	9-Oct-25	FILTER	PETRI DISH	
BCACMP- F1 - M5/M29 - C2							
BCACMP- F1 - M5/M29 - C2							
BCACMP- F1 - M5/M29 - C2	M5/M29	2	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F1 - M5/M29 - C1	M5/M29	2	FILTER	9-Oct-25	FILTER	PETRI DISH	
BCACMP- F1 - M5/M29 - C2							
BCACMP- F1 - M5/M29 - C2	M5/M29	3	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F1 - M5/M29 - C2	M5/M29	3	FILTER	9-Oct-25	FILTER	PETRI DISH	
BCACMP- F1 - M5/M29 - C1							
BCACMP- F1 - M29 - C7	M5/M29	BLANK	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F1- M29 - C12	M5/M29	BLANK	FILTER	9-Oct-25	FILTER	PETRI DISH	

To be assigned by the laboratory staff

RAN# (Request for Analysis Number) _____

Submitted by: Anthony M. Cabungcal
Signature and Date

Received by: _____
Signature and Date

GREENTEK ENVIRONMENTAL ENGINEERING SERVICES

CHAIN OF CUSTODY, RECORD AND SAMPLE LOG

Name of firm: GREENTEK ENVIRONMENTAL ENGINEERING SERVICES — Tested by QAQC & Team Leader: BRYAN C. BADON

Address: 2430 LAURA STREET PANDACAN, MANILA — Type of fuel used by the facility during sampling: Electricity

Source:25kVA DFC Ceramics Furnace 2

Sample ID	Sample ID No. & Description			Sample Date	Sample Type	Type of Container	Analysis Requested
	Sample Method	Run #	Train Fraction				
BCACMP- F2 - M5/M29 - C2							PM AND LEAD
BCACMP- F2 - M5/M29 - C2							
BCACMP- F2 - M5/M29 - C2	M5/M29	1	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F2 - M5/M29 - C1	M5/M29	1	FILTER	9-Oct-25	FILTER	PETRI DISH	
BCACMP- F2 - M5/M29 - C2							
BCACMP- F2 - M5/M29 - C2							
BCACMP- F2 - M5/M29 - C2	M5/M29	2	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F2 - M5/M29 - C1	M5/M29	2	FILTER	9-Oct-25	FILTER	PETRI DISH	
BCACMP- F2 - M5/M29 - C2							
BCACMP- F2 - M5/M29 - C2	M5/M29	3	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F2 - M5/M29 - C2	M5/M29	3	FILTER	9-Oct-25	FILTER	PETRI DISH	
BCACMP- F2 - M5/M29 - C1							
BCACMP- F2 - M29 - C7	M5/M29	BLANK	FH ACETONE	9-Oct-25	ACETONE	PE BOTTLE	
BCACMP- F2 - M29 - C12	M5/M29	BLANK	FILTER	9-Oct-25	FILTER	PETRI DISH	

To be assigned by the laboratory staff

RAN# (Request for Analysis Number) _____

Submitted by: Anthony M. Cabungcal
Signature and Date

Received by: _____
Signature and Date

“APPENDIX E”

EQUIPMENT CALIBRATION RECORDS

METER BOX POST TEST CALIBRATION CHECK
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC-ACMP- ASSAY LABORATORY)
Virac, Itogon, Benguet
Electric Cupellation Furnace 1

Calculate Yqa for each test run using the following equation:

$$Y_{qa} = \frac{\theta}{V_m}\sqrt{\frac{0.0011\,T_m}{\Delta H_@\,(P_b + \frac{\Delta H_{avg}}{13.6})}\frac{29}{M_d}}\;(\sqrt{\Delta H})_{avg}$$

where:

Yqa	dry gas meter calibration check value, dimensionless.
θ	total run time, min.
Vm	total sample volume measured by dry gas meter, dcm.
Tm	absolute average dry gas meter temp., °K.
Pb	barometric pressure, mm Hg.
0.00115	= (760/298)(21.2/1000)^2 (mm Hg/°K) m^3/min$^{2.}$
ΔHavg	average orifice meter differential, mm H20.
$\Delta H_@$	orifice meter calibration coefficient, mm H2O.
Md	dry molecular weight of stack gas, gm/gm-mole.
29	dry molecular weight of air, gm/gm mole.
13.6	specific gravity of mercury.

After each test run series, do the following:

Average the three or more Yqa's obtained from the test run series and compare this average with the dry gas meter calibration factor, Y. The average Yqa must be within 5 percent of Y.

If the average Yqa does not meet the +/- 5 percent criterion, recalibrate the meter over the full range of orifice settings, as detailed in Section 5.3.1 of Method 5. Then follow the procedure in Section 5.3.3 of Method 5.

	RUN 1	RUN 2	RUN 3	Average
Meter Box	**GMC-03**	**GMC-03**	**GMC-03**	
time	72	72	72	
Vm - total	1.1690	1.2468	1.2508	
Tm avg, deg C	29	33	34	
Tm, degrees K	302	306	307	
Barometric, mm Hg	692.9	689.4	687.6	
DH_{avg}, mm H_2O	25.7	29.7	30.2	
DH@, mm H_2O	51.1	51.1	51.1	
Md stack gas, g/g-mole	28.80	28.80	28.80	
Md Air, g/g-mole	29.00	29.00	29.00	
Meter Box Gamma	1.0098	1.0098	1.0098	1.0098
QA Gamma	0.9547	0.9922	1.0006	0.9825
Difference:	5.5%	1.7%	0.9%	2.7%
Average Difference within +/-5%				**PASS***

The difference is based on the average QA gamma of the three test runs

METER BOX POST TEST CALIBRATION CHECK
BENGUET CORPORATION- ACUPAN CONTRACT MINING PROJECT (BC- ACMP- ASSAY LABORATORY)
Virac, Itogon, Benguet
Electric Cupellation Furnace 2

Calculate Yqa for each test run using the following equation:

$$Y_{qa} = \frac{\theta}{V_m}\sqrt{\frac{0.0011\,T_m}{\Delta H_@\left(P_b + \frac{\Delta H_{avg}}{13.6}\right)}\frac{29}{M_d}}\;\left(\sqrt{\Delta H}\right)_{avg}$$

where:

Yqa	dry gas meter calibration check value, dimensionless.
θ	total run time, min.
Vm	total sample volume measured by dry gas meter, dcm.
Tm	absolute average dry gas meter temp., °K.
Pb	barometric pressure, mm Hg.
0.00115	= (760/298)(21.2/1000)^2 (mm Hg/°K) m^3/min$^{2.}$
ΔHavg	average orifice meter differential, mm H20.
$\Delta H_@$	orifice meter calibration coefficient, mm H2O.
Md	dry molecular weight of stack gas, gm/gm-mole.
29	dry molecular weight of air, gm/gm mole.
13.6	specific gravity of mercury.

After each test run series, do the following:

Average the three or more Yqa's obtained from the test run series and compare this average with the dry gas meter calibration factor, Y. The average Yqa must be within 5 percent of Y.

If the average Yqa does not meet the +/- 5 percent criterion, recalibrate the meter over the full range of orifice settings, as detailed in Section 5.3.1 of Method 5. Then follow the procedure in Section 5.3.3 of Method 5.

	RUN 1	RUN 2	RUN 3	Average
Meter Box	**GMC-03**	**GMC-03**	**GMC-03**	
time	72	72	72	
Vm - total	0.9674	0.9472	0.9424	
Tm avg, deg C	30	30	28	
Tm, degrees K	303	303	301	
Barometric, mm Hg	687.8	688.6	689.4	
DH_{avg}, mm H_2O	17.3	17.8	17.5	
DH@, mm H_2O	51.1	51.1	51.1	
Md stack gas, g/g-mole	28.80	28.80	28.80	
Md Air, g/g-mole	29.00	29.00	29.00	
Meter Box Gamma	1.0098	1.0098	1.0098	1.0098
QA Gamma	0.9547	0.9965	0.9898	0.9804
Difference:	5.5%	1.3%	2.0%	2.9%
Average Difference within +/-5%				**PASS***

The difference is based on the average QA gamma of the three test runs

GREENTEK Environmental Phils. Co.

CERTIFICATE OF CALIBRATION

GREENTEK ENVIRONMENTAL ENVIRONMENTAL PHILS. CO.

DRY GAS METER 5 POINT CALIBRATION

Meter Console Model:	XC-572-OV
Meter Console ID Number :	GMC-03
Dry Gas Meter Model:	XC-572-OV
Dry Gas Meter Serial Number:	181045

Pressure Side Leak Check :	OK
Vacuum Side Leak Check :	OK

Date and Time of Calibration :	03-Jul-25	1500
Critical Orifice Model Number :	ST 40-73	
Theo. Critical Vacuum For Orifice :	16	in Hg
Barometric Pressure :	753.6	mmHg

IMPORTANT!!!!

**For the individual dry gas meter calibration factor, Yi, the allowed variation is 0.02 from the average value.

**For the individual Dh@ values, the orifice setting that equates to 21.2 lpm, the allowed variation is 0.2 in. (5.1mm) from the average value.

**Acceptable range for the average Dh@ value is 46 7± 6.4 mmH2O (1.84 ± 0.25 inH2O).

Run No.	Orifice ID No.	Dry Gas Meter Volume (m^3)			Dry Gas Meter Temp.T_m (^oC)			Amb. Temp.	Time	Orifice Rdg.	Pump Vac.
		Initial	Final	Diff., V_m	Initial	Final	Ave ^oK	$T_{amb.}$ ^oK	min.	mmH_2O	in.Hg
1	ST40	1033.8872	1033.9278	0.0406	26	25	299	298.5	5.0	8.2	16
2	ST48	1033.9278	1033.9996	0.0718	25	25	298	295.6	6.0	16.4	16
3	ST55	1033.9996	1034.1138	0.1142	25	25	298	295.5	7.0	30.0	16
4	ST63	1034.1138	1034.2856	0.1718	24	25	298	295.6	8.0	52.0	16
5	ST73	1034.2856	1034.5484	0.2628	25	26	299	295.6	9.0	92.0	15

Run No.	Orifice ID No.	K' Factor $X 10^{-4}$
1	ST40	1.8710
2	ST48	2.7427
3	ST55	3.7262
4	ST63	4.8509
5	ST73	6.8143

RESULTS

Vmstd dscm	Vcrstd dscm	DGM Calib. Factor Y_i	Variation ($\leq \pm 0.02$)	Dh@ mmH_2O	Variation ($\leq \pm 5.1$)
0.0402	0.0408	1.0145	-0.005	55.0	-3.9
0.0713	0.0721	1.0115	-0.002	50.9	0.2
0.1136	0.1144	1.0069	0.003	50.6	0.5
0.1715	0.1701	0.9918	0.018	52.0	-0.9
0.2625	0.2688	1.0241	-0.014	46.9	4.2
Average ---->		1.0098	Average ---->		51.080

I certify that the above Dry Gas Meter was calibrated in accordance with EPA Method 5, Paragraph 7.2 CFR 40, Part 60, using Critical Orifice as calibration standard. From these results, I assign a value for the following parameters :

As the average value of the individual results.

Y_i ----> 1.0098 & $DH_@$ --> 51.080 mmH_2O

Calibrated by:

BRYAN C. BADON
Team Leader

Noted by:

Angelo V. Guevarra
QA/QC Manager

GREENTEK Environmental Phils.Co.

GREENTEK ENVIRONMENTAL ENVIRONMENTAL PHILS. CO.
CRITICAL ORIFICE COEFFICIENT CALCULATION

Dry Gas Meter Model Number:	XC-572-OV	Calibration Date and Time	03-Jul-25 1343H
Dry Gas Meter Serial Number :	181045	Barometric Pressure :	761.400 mmHg
Critical Orifice Model Number:	ST 40-73	Theo. Critical Vacuum For Orifice:	16 inHg
Critical Orifice Calibration Factor, Yc :	1.0000	Leak Check :	OK

Run No.	Orifice ID No.	Dry Gas Meter Volume (m^3)			Dry Gas Meter Temp. T_m (°C)			Amb. Temp.	Time	Orifice Rdg.	Pump Vac.
		Initial	Final	Diff., V_m	Initial	Final	Ave °K	$T_{amb.}$ °K	min.	mmH_2O	in.Hg
1	ST 40	1032.5536	1032.5942	0.0406	21	21	294.0	296.8	5	8.20	16
2	ST 40	1032.5942	1032.6350	0.0408	21	22	294.5	297.3	5	8.20	16
1	ST 48	1032.6350	1032.7068	0.0718	22	22	295.0	297.1	6	16.4	16
2	ST 48	1032.7068	1032.7786	0.0718	22	23	295.5	296.7	6	16.4	16
1	ST 55	1032.7786	1032.8928	0.1142	23	23	296.0	296.7	7	30.0	16
2	ST 55	1032.8928	1033.0068	0.1140	23	24	296.5	296.5	7	30.0	16
1	ST 63	1033.0068	1033.1768	0.1700	25	25	298.0	298.6	8	52.0	16
2	ST 63	1033.1768	1033.3468	0.1700	25	26	298.5	298.4	8	52.0	16
1	ST 73	1033.3468	1033.6160	0.2692	26	27	299.5	298.8	9	92.0	15
2	ST 73	1033.6160	1033.8852	0.2692	27	27	300.0	297.2	9	92.0	15

IMPORTANT !!!
**For valid results, the actual vacuum should be 1 to 2 in. Hg greater than the theoretical critical vaccum.
**The average value for the K' FACTOR should not vary by more than ±0.5% from the individual results.
**The times should not differ by more than 3 seconds for each run.
**The unit for critical orifice coefficient is in m^3*K^0.5/(mmHg*min).

RESULTS

Run No.	Orifice ID No.	K' Factor $X10^{-4}$	Average $X10^{-4}$	Variation (≤ ± 0.5%)
1	ST 40	1.8672	1.8710	0.20%
2	ST 40	1.8747	1.8710	-0.20%
1	ST 48	2.7459	2.7427	-0.12%
2	ST 48	2.7394	2.7427	0.12%
1	ST 55	3.7333	3.7262	-0.19%
2	ST 55	3.7192	3.7262	0.19%
1	ST 63	4.8558	4.8509	-0.10%
2	ST 63	4.8460	4.8509	0.10%
1	ST 73	6.8291	6.8143	-0.22%
2	ST 73	6.7995	6.8143	0.22%

Calibrated by:

BRYAN C. BADON
Team Leader

Noted by:

Angelo V. Guevarra
QA/QC Manager

GREENTEK
Environmental Phils. Co.

CERTIFICATE OF CALIBRATION
GREENTEK ENVIRONMENTAL PHILS. CO.
TEMPERATURE DISPLAY CALIBRATION

Meter Console No.:	GMC – 03	**Operator:**	BCB
Model:	XC-572-OV	**Calibration Date:**	July 3, 2025
Serial No.:	181045	**Calibration Due:**	January 2, 2026

TC Channel ID	Reference Temp 1,°C	Temp. Reading 1,°C	Criteria	Criteria Met	Reference Temp 1,°C	Temp. Reading 1,°C	Criteria	Criteria Met
Probe	**0**	1	0.4	YES	**50**	50	0	YES
Filter	**0**	1	0.4	YES	**50**	51	-0.3	YES
Exit	**0**	0	0	YES	**50**	49	0.3	YES
Stack	**0**	0	0	YES	**50**	49	0.3	YES
Stack	**200**	200	0	YES	**250**	249	0.2	YES

TC Channel ID	Reference Temp 1,°C	Temp. Reading 1,°C	Criteria	Criteria Met	Reference Temp 1,°C	Temp. Reading 1,°C	Criteria	Criteria Met
Probe	**100**	101	-0.3	YES	**150**	149	0.2	YES
Filter	**100**	99	0.3	YES	**150**	149	0.2	YES
Exit	**100**	101	-0.3	YES	**150**	149	0.2	YES
Stack	**100**	101	-0.3	YES	**150**	149	0.2	YES
Stack	**350**	351	-0.2	YES	**450**	450	0	YES

Criteria: *Percent difference between the Reference temperature and the Average Temperature can be only ±1.5% °K*

Equation: $$\frac{[(\text{Ref. Temp.} + 273) - (\text{Temp. Reading} + 273)] \times 100}{(\text{Ref. Temp.} + 273)}$$

Reference used in calibration					
Type	**Model**	**Serial No.**	**Calibration Date**	**Certificate No.**	**Issuing Lab/Traceability**
Thermocouple Simulator	ALTEK Series 22	107173	May 16, 2025	100-10-15397-2.25	Switchtek Measurement System

Calibrated by:

Bryan C. Badon
Team Leader

Checked by:

Angelo V. Guevarra
QA/QC Manager

CERTIFICATE OF CALIBRATION
GREENTEK ENVIRONMENTAL PHILS. CO.
NOZZLE CALIBRATION

Date of Calibration: August 4, 2025 **Calibration Due:** February 3, 2026

Nozzle Box ID: GGN-T1 **Calibrated By:** BCB
Nozzle Type: GLASS NOZZLE

Nozzle ID	D_1 (mm)	D_2 (mm)	D_3 (mm)	D (mm)	Average (mm)
GGNT1-01	4.66	4.66	4.65	0.01	4.66
GGNT1-02	4.80	4.80	4.79	0.01	4.80
GGNT1-03	6.41	6.40	6.41	0.01	6.41
GGNT1-04	7.65	7.65	7.64	0.01	7.65
GGNT1-05	9.557	9.56	9.56	0.01	9.56
GGNT1-06	11.08	11.08	11.08	0	11.08
GGNT1-07	12.13	12.13	12.12	0.01	12.13

Note:

D_1, D_2, and D_3 = Nozzle Diameter, measured different diameter. Tolerance = 0.0125mm
D = maximum difference in any two measurements. Tolerance = 0.1mm
Average = Average of D_1, D_2, and D_3.

Equipment used in calibration					
Type	**Model**	**Serial No.**	**Calibration Date**	**Certificate No.**	**Issuing Lab/Traceability**
Digital Caliper	MITUTOYO CD-6" ASX	A22099212	Dec. 9, 2024	10 0000.01-14353-1.24	Switchtek Measurement Systems

Calibrated by:

Bryan C. Badon
Team Leader

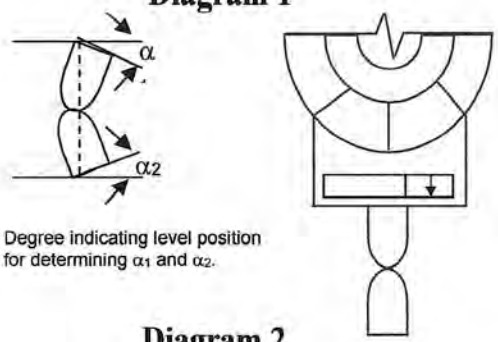
Checked by:

Danilo M. Palaypay Jr.
QA/QC Manager

GREENTEK ENVIRONMENTAL PHILS. CO.
PITOT TUBE INSPECTION DATA SHEET

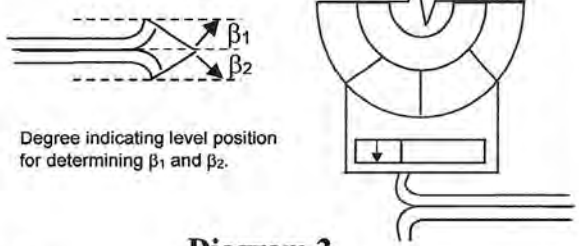
Pitot Number: GP-04C Date: August 4, 2025

Diagram 1



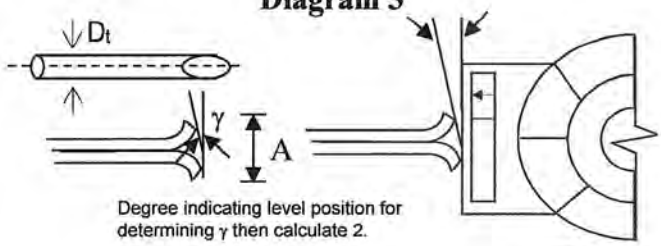
Degree indicating level position for determining α_1 and α_2.

Diagram 2

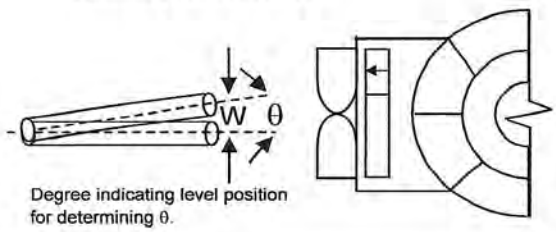


Degree indicating level position for determining β_1 and β_2.

Diagram 3



Degree indicating level position for determining γ then calculate 2.



Degree indicating level position for determining θ.

Level? =	YES
Obstructions? =	NO
Damaged? =	NO
Diagram 1	
$-10° < \alpha_1 < +10°$ =	1°
$-10° < \alpha_2 < +10°$ =	0°
Diagram 2	
$-5° < \beta_1 < +5°$ =	0°
$-5° < \beta_2 < +5°$ =	0°
Diagram 3	
γ =	0°
θ =	0°
A =	2.36
$1.05\ D_t < P_a < 1.5\ D_t$ =	1.18
$1.05\ D_t < P_b < 1.5\ D_t$ =	1.18
$0.48\ cm \leq D_t \leq 0.95$ =	0.94
A tan $\Upsilon < 0.32$ cm =	0
A tan $\theta < 0.08$ cm =	0
$P_a = P_b$ =	1.18

Comments: _____

The pitot tube/probe meets or exceeds all specifications criteria and/or applicable design features and is hereby assigned a pitot tube calibration factor of ***0.84***.

Equipment used in calibration					
Type	**Model**	**Serial No.**	**Calibration Date**	**Certificate No.**	**Issuing Lab/Traceability**
Digital Caliper	MITUTOYO CD-6" ASX	A22099212	Dec. 9, 2024	10.0000.01-14353-1.24	Switchtek Measurement Systems

Calibrated by:

Bryan C. Badon
Team Leader

Reviewed by:

Angelo V. Guevarra
QA/QC Manager

CERTIFICATE OF CALIBRATION
GREENTEK ENVIRONMENTAL PHILS. CO.
TEMPERATURE SENSOR CALIBRATION

Thermocouple No. **GP-04C** **Date:** **August 4, 2025**
Ambient Temperature: **29.9 °C**

Reference Point Number	Source (Specify)	Reference Thermometer Temperature °C	Thermocouple Display Temperature °C	Absolute Temperature Difference %
1	COLD WATER	2.6	3.0	-0.163
2	TAP WATER	27.2	27.5	-0.111
3	HOT WATER	100.5	100.2	0.087

Criteria: *Percent difference between the Reference temperature and the Average Temperature can be only* ***±1.5% °K***

Equation: $$\frac{[(\text{Ref. Temp.} + 273) - (\text{Temp. Reading} + 273)] \times 100}{(\text{Ref. Temp.} + 273)}$$

Reference used in calibration					
Type	**Model**	**Serial No.**	**Calibration Date**	**Certificate No.**	**Issuing Lab/Traceability**
Digital Thermometer w/ probe	FLUKE 52 J/K	5505853	Dec. 12, 2024	100.10-14453-3.24	Switchtek Measurement Systems

Calibrated by: Bryan C. Badon
Team Leader

Checked by: Angelo V. Guevarra
QAQC Manager

Switchtek
Measurement Systems

A Division of Switchtek Construction Corporation

4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1106, Philippines
Tel Nos.:84420560 / 89282869 / 83517471 Fax No:. 89287769
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	**2000.07-14453-1.24**	**Calibration of**		**Pipette**		
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**					
Job:	P1	Test and Calibration				
Fin.acc:	32	Certificate of Calibration				
Done.....:	December 16, 2024	Initials...:	CAC			
Categories	Calibration	**Men**	**Hours**		**Total cost**	**Type**
Cal Officer		1		1.0	-	Certificate

CERTIFICATE OF CALIBRATION - PIPETTE

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**
Address: **2353 RJ PLACE UNIT 3A SELYA STREET BRGY. 860 PANDACAN, MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):

Instrument:	Pipette
Brand:	PYREX
Model No.:	No.7085
Serial No.:	No record
Range:	0 to 10 ml
Graduation:	0.1 ml
Calibration Date:	December 9, 2024
Calibration Due:	December 8, 2025

CALIBRATOR INFORMATION:

Instrument:	Digital weighing scale
Brand:	KERN
Model No.:	EG4200-2NM
Serial No.:	sms4200
Range:	4200.0 g
Calibration Due:	August 2025
Traceability:	PTB-Germany with calibration certificate No.: 32636 and/or Sirim berhad Calibration Certificate No.: NML/199/M/08

Environmental Condition:
Condition: DRY/BASIC/NEUTRAL
Relative Humidity: 56 ±5%, 1007 hPa

Ambient Temp. (Deg C): 22.5 ±2

Calibration Method:

By comparative technique, volume was carefully weighed using a High Precision Balance with a laboratory distilled water at a temperature of 20.0 Deg. C at planned intervals. The volumes contained or delivered by this articfact cannot be adjusted or modified by ordinary means accordingly, the values presented below should be considered as found and as left values. Procedures of calibration conform to the requirements and guidelines of NIST & ISO/IEC Guide 17025.

During calibration the unit under test was found to have a standard error of ± 0.035 ml with a confidence level of not less than 95.0 %. Uncertainty of measurement is ± 0.067 ml. Calculations were taken using the standard deviation formula.

Results:

NO. OF TEST	REFERENCE (ml)	UUT VOLUME (ml)	ERROR IN READING (ml)	STANDARD DEVIATION	REMARKS
1.000	0	0.000	0.000	0.0000	The user should dtermine the suitability of the instrument for its intended use.
2.000	0.9988	1.0	0.001	0.0008	
3.000	4.9517	5.0	0.048	0.0342	
4.000	9.9518	10.0	0.048	0.0341	

Temperature of water is @ 20.0 Deg. C

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid without seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 9, 2024

Certified By: A.R. SAINDOC
Date: December 16, 2024

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1106, Philippines
Tel Nos.:84420560 / 89282869 / 83517471 Fax No:. 89287769
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	**2000.05-14453-1.24**	**Calibration of**			**Graduated Cylinder**	
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**					
Job:	P1	Test and Calibration				
Fin.acc:	32	Certificate of Calibration				
Done.....:	**December 10, 2024**	Initials...:	**CAC**			
Categories	Calibration	**Men**	**Hours**	**Total cost**		**Type**
Cal Officer		1	1.0	-		Certificate

CERTIFICATE OF CALIBRATION - GRADUATED CYLINDER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**
Address: **2353 RJ PLACE UNIT 3A SELYA STREET BRGY. 860 PANDACAN, MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):

Instrument:	Graduated Cylinder
Brand:	PYREX
Model No.:	3025
Serial No.:	No record
Range:	0 to 1000.0 ml
Graduation:	10 ml
Calibration Date:	December 9, 2024
Calibration Due:	December 8, 2025

CALIBRATOR INFORMATION:

Instrument:	Digital weighing scale
Brand:	KERN
Model No.:	EG4200-2NM
Serial No.:	sms4200
Range:	4200.0 g
Calibration Due:	August 2025
Traceability:	PTB-Germany with calibration certificate No.: 32636 and/or Sirim berhad Calibration Certificate No.: NML/199/M/08

Environmental Condition:
Condition: DRY/BASIC/NEUTRAL
Relative Humidity: 55 ±5%, 1008 hPa

Ambient Temp. (Deg C): 22.5 ±2

Calibration Method:

By comparative technique, volume was carefully weighed using a High Precision Balance with a laboratory distilled water at a temperature of 20.0 Deg. C at planned intervals. The volumes contained or delivered by this articfact cannot be adjusted or modified by ordinary means accordingly, the values presented below should be considered as found and as left values. Procedures of calibration conform to the requirements and guidelines of NIST & ISO/IEC Guide 17025.

During calibration the unit under test was found to have a standard error of ± 11.43 ml with a confidence level of not less than 95.0 %.
Uncertainty of measurement is ± 11.0 ml. Calculations were taken using the standard deviation formula.

Results:

NO. OF TEST	REFERENCE (ml)	UUT VOLUME (ml)	ERROR IN READING (ml)	STANDARD DEVIATION	REMARKS
1.000	100.00	108	8.000	5.6569	The user should dtermine the suitability of the instrument for its intended use.
2.000	500.000	510	10.000	7.0711	
3.000	900.000	910	10.000	7.0711	

Temperature of water is @ 20.1 Deg. C

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid without seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 9, 2024

Certified By: A.R. CAINDOC
Date: December 10, 2024

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Bahay Toro,Quezon City, 1106, Philippines
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email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	**2000.05-14453-2.24**	**Calibration of**	**Graduated Cylinder**
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**		
Job:	P1	Test and Calibration	
Fin.acc:	32	Certificate of Calibration	
Done.....:	**December 10, 2024**	Initials...:	**CAC**
Categories	Calibration	**Men** / **Hours** / **Total cost**	**Type**
Cal Officer		1 / 1.0 / -	Certificate

CERTIFICATE OF CALIBRATION - GRADUATED CYLINDER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**
Address: **2353 RJ PLACE UNIT 3A SELYA STREET BRGY. 860 PANDACAN, MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):

Instrument:	Graduated Cylinder
Brand:	BOMEX
Model No.:	No record
Serial No.:	No record
Range:	0 to 250.0 ml
Graduation:	2 ml
Calibration Date:	December 9, 2024
Calibration Due:	December 8, 2025

CALIBRATOR INFORMATION:

Instrument:	Digital weighing scale
Brand:	KERN
Model No.:	EG4200-2NM
Serial No.:	sms4200
Range:	4200.0 g
Calibration Due:	August 2025
Traceability:	PTB-Germany with calibration certificate No.: 32636 and/or Sirim berhad Calibration Certificate No.: NML/199/M/08

Environmental Condition:
Condition: DRY/BASIC/NEUTRAL
Relative Humidity: 56 ±5%, 1007 hPa

Ambient Temp. (Deg C): 22.5 ±2

Calibration Method:

By comparative technique, volume was carefully weighed using a High Precision Balance with a laboratory distilled water at a temperature of 20.0 Deg. C at planned intervals. The volumes contained or delivered by this articfact cannot be adjusted or modified by ordinary means accordingly, the values presented below should be considered as found and as left values. Procedures of calibration conform to the requirements and guidelines of NIST & ISO/IEC Guide 17025.

During calibration the unit under test was found to have a standard error of ± 2.12 ml with a confidence level of not less than 95.0 %.
Uncertainty of measurement is ± 1.8 ml. Calculations were taken using the standard deviation formula.

Results:

NO. OF TEST	REFERENCE (ml)	UUT VOLUME (ml)	ERROR IN READING (ml)	STANDARD DEVIATION	REMARKS
1.000	0	0.000	0.000	0.0000	The user should dtermine the suitability of the instrument for its intended use.
2.000	100.0	102	2.000	1.4142	
3.000	200.0	202	2.000	1.4142	
4.000	230.0	232	2.000	1.4142	

Temperature of water is @ 20.0 Deg. C

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid without seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 9, 2024

Certified By: A.R. CAINDOC
Date: December 10, 2024

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
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Tel Nos.:84420560 / 89282869 / 83517471 Fax No:. 89287769
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	**2000.05-14453-3.24**	**Calibration of**			**Graduated Cylinder**	
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**					
Job:	P1	Test and Calibration				
Fin.acc:	32	Certificate of Calibration				
Done.....:	**December 12, 2024**	Initials...:	**CAC**			
Categories	Calibration	**Men**	**Hours**	**Total cost**		**Type**
Cal Officer		1	1.0	-		Certificate

CERTIFICATE OF CALIBRATION - GRADUATED CYLINDER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**
Address: **2430 LAURA STREET BRGY. 862 PANDAN MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):

Instrument:	Graduated Cylinder
Brand:	PYREX
Model No.:	No 70075
Serial No.:	No record
Range:	0 to 100 ml
Graduation:	1 ml
Calibration Date:	December 9, 2024
Calibration Due:	December 8, 2025

CALIBRATOR INFORMATION:

Instrument:	Digital weighing scale
Brand:	KERN
Model No.:	EG4200-2NM
Serial No.:	sms4200
Range:	4200.0 g
Calibration Due:	August 2025
Traceability:	PTB-Germany with calibration certificate No.: 32636 and/or Sirim berhad Calibration Certificate No.: NML/199/M/08

Environmental Condition:
Condition: DRY/BASIC/NEUTRAL
Relative Humidity: 58 ±5%, 1010 hPa

Ambient Temp. (Deg C): 23 ±2

Calibration Method:

By comparative technique, volume was carefully weighed using a High Precision Balance with a laboratory distilled water at a temperature of 20.0 Deg. C at planned intervals. The volumes contained or delivered by this articfact cannot be adjusted or modified by ordinary means accordingly, the values presented below should be considered as found and as left values. Procedures of calibration conform to the requirements and guidelines of NIST & ISO/IEC Guide 17025.

During calibration the unit under test was found to have a standard error of ± 0.279 ml with a confidence level of not less than 95.0 %. Uncertainty of measurement is ± 0.64 ml. Calculations were taken using the standard deviation formula.

Results:

NO. OF TEST	ACTUAL VOLUME (ml)	UUT VOLUME (ml)	ERROR IN READING (ml)	STANDARD DEVIATION	REMARKS
1.000	0	0.000	0.000	0.0000	The user should dtermine the suitability of the instrument for its intended use.
2.000	10.0055	10.5	0.495	0.3497	
3.000	50.0030	50.1	0.097	0.0686	
4.000	99.9990	99.8	-0.199	0.1407	

Temperature of water is @ 20.0 Deg. C

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid without seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 9, 2024

Certified By: A.R. CANDOC
Date: December 12, 2024

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
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Tel Nos.:84420560 / 89282869 / 83517471 Fax No.:89282869
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	**200.13-14453-1.24**	**Calibration of**	**Digital Vacuum Gauge**
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**		
Job:	P1	Test and Verification	
Fin.acc:	32	Certificate of Calibration	
Done.....:	**December 10, 2024**	Initials...:	**CAC**
Categories	Calibration	**Men** / **Hours** / **Total cost** / **Type**	
Cal Officer		1 / 1.0 / - / Certificate	

CERTIFICATE OF CALIBRATION - PRESSURE

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**
Address: **2353 RJ PLACE UNIT 3A SELVA STREET BRGY. 860 PANDACAN, MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):

Instrument:	Digital Vacuum Gauge
Brand:	DWYER
Model No.:	DPGA-00
Serial No.:	No record
Range:	30 inHg to 0.0 in Hg
Resolution :	0.01 in Hg
Calibration Date:	December 9, 2024
Calibration Due:	December 8, 2025

CALIBRATOR INFORMATION:

Instrument:	Master gauge
Brand:	LA
Model No.:	No record
Serial No.:	E8090001
Range:	0 to 30.0 in Hg
Accuracy:	0.25%
Calibrated Against:	ASME B40.1, UKAS

Environmental Condition:

Condition:	DRY/BASIC/NEUTRAL
Relative Humidity:	55± 5%, 1010 hPa

Ambient Temp. (Deg C): 23.3 ±2

Calibration Method:

By comparison technique, test pressures were applied at the port, at planned intervals, by a Standard Pressure Calibrator. Procedures of test conducted conform to the requirements of UKAS and NIST in compliance with IEC/ISO Guide 17025. Data were gathered and tabulated.

During calibration, the unit was found to have a standard error of ± 0.16 inHg with a confidence level of not less than 95%. Uncertainty of measurement is ± 0.32 in Hg. Calculations were taken using the Standard Deviation Formula.

Reading:

APPLIED PRESSURE (inHg)	UNIT UNDER TEST READING (in Hg)	ERROR IN READING	STANDARD DEVIATION
0.00	0.0	0.000	0.0000
10.00	9.85	-0.150	0.1061
15.00	14.83	-0.170	0.1202
30.00	30.13	0.130	0.0919

Remarks:
All data pertain only to the unit described obtained at the time of test. This certificate is not valid without seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 9, 2024

Certified By: A.R. CAINDOC
Date: December 10, 2024

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Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1100, Philippines
Tel Nos.:84420560 / 89282869 / 89287769 Fax No.:84537694
email Address: switchtekbilers@yahoo.com
www.switchtek.com.ph

Certificate No.:	**100.10-14453-1.24**	**Calibration of**	**Probe Heater Temperature Controller**
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**		
Job:		Test and Calibration	
Fin.acc:	P1	Certificate of Calibration	
Done.....:	32	Initials....: CAC	
Categories	December 13, 2024	Men / Hours / Total cost / Type	
Cal Officer	Calibration	1 / 1.0 / - / Certificate	

CERTIFICATE OF CALIBRATION - TEMPERATURE

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**
Address: **2353 RJ PLACE UNIT 3A SELYA STREET BRGY.860 PANDACAN, MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):
- **Instrument:** Probe Heater Temperature Controller
- **Temp. controller:** FOX-1CH
- **Calibration Date:** December 11, 2024
- **Calibration Due:** December 10, 2025

CALIBRATOR INFORMATION:
- **Instrument:** SPRT, Standard Platinum resistance thermometer
- **Instrument:** Process Calibrator
- **Manufacturer:** FLUKE
- **Model No.:** 726
- **Serial No.:** 3266078
- **Traceability:** NIST

Environmental Condition:
- **Condition:** DRY/BASIC/NEUTRAL
- **Relative Humidity:** 52.3 ±5%, 1011 hPa

Ambient Temp. (Deg C): 25 ±2

Calibration Method:

By comparison technique, test temperatures were measured from the unit under test at fixed point method in reference with a Multi-function Calibrator, SPRT, NIST and ITS 1990. Procedures of test conform to the requirements of ISO/IEC Guide 17025. Data were gathered and tabulated.

During calibration the unit under test was found to have a standard error of ± 6 °C with a confidence error of not less than 95%. Uncertainty of unceasurement is ± 2.88 °C. Calculations were taken using the standard deviation formula.

Results:

REFERENCE READING (ACTUAL TEMP.)	UUT SETTING	CORRECTION	STANDARD DEVIATION	REMARKS
°C	°C	°C	°C	
30.00	36	6.000	4.2426	The user should determine the suitability of the instrument of its intended use.
50.00	59	9.000	6.3640	
80.00	89	9.000	6.3640	
100.00	109	9.000	6.3640	
120.00	129	9.000	6.3640	
150.00	159	9.000	6.3640	
180.00	189	9.000	6.3640	
200.00	209	9.000	6.3640	

Remarks:
All data pertain only to the unit described obtained at the time of test. This certificate is not valid without seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 11, 2024

Certified By: A.R. CHINDO
Date: December 13, 2024

Switchtek
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4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro, Quezon City, 1100, Philippines
Tel Nos.02 4267593 / 9282869 / 9287769 Fax No.4537694
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	280.09-14453-1.24	Calibration of	3 IN1 (barometer function)			
Identification:	GREENTEK ENVIRONMENTAL PHILS., CO					
Job:	P1	Test and Verification				
Fin.acc:	32	Certificate of Calibration				
Done.....:	December 7, 2024	Initials...:	CAC			
Categories	Calibration	Men	Hours	Total cost	Type	
Cal Officer		2	1.00	-	Certificate	

CERTIFICATE OF CALIBRATION - 3 IN 1 (Barometer Function)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued to: GREENTEK ENVIRONMENTAL PHILS., CO
Address: 2353 RJ PLACE UNIT 3A SELYA STREET BRGY.860 PANDACAN, MANILA, PHILIPPINES

UNIT UNDER TEST (UUT):

Instrument:	3 IN1 (barometer function)
Brand:	LUTRON
Model No.:	PHB-318
Serial No.:	No record
ID code:	No record
Range:	Temp. (0-50 Deg. C)
	Humidity (10 to 95%)
	Dewpoint (-25.3 to 48.9 Deg. C)
	Barometer (10 to 999.9 hPa)
Resolution:	Temp. (0.1 Deg. C)
	Humidity (0.1 %)
	Dewpoint (0.1 Deg. C)
	Barometer (1 hPa)
Accuracy:	
Temperature:	± 0.8 /1.5 °C °F
%RH	≧ ± (3% reading + 1% RH).
	< 70% RH - 3% RH.± 3% RH.
Barometric pressure	10.0 to 999.9 (± 1.5 hPa)
	1000 to 1100 (± 2 hPa)
Calibration Date:	December 5, 2024
Calibration Due:	December 4, 2025

CALIBRATOR INFORMATION:

Instrument:	Barigo, precision barometer
Instrument:	Druck, pressure calibrator
Instrument:	Lumel temp and humidity transmitter
Instrument:	Temperature and Humidity chamber
Model No.:	XB-OTS-34
Serial No.:	20130803
Traceability:	CNAS

Environmental Condition:

Condition:	DRY/BASIC/NEUTRAL	Ambient Temp. (Deg C):	24.4 ±2
Relative Humidity:	55.6 ±5%, 1007 hPa		

Calibration Method:

By comparison technique, unit under test was placed in a Chamber with a Standard precision barometer, Temperature and Humidity calibrator. Procedures of calibration and test conform to the requirements of NPL, NIST and ISO/IEC Guide 17025. Data were gathered and plotted against an ideal curve.

Standard error and uncertainty of measurement are written on the attached sheet.

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 5, 2024

Certified By: A.R. CARIDOC
Date: December 7, 2024

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1100, Philippines
Tel Nos.02 4267593 / 9282869 / 9287769 Fax No.4537694
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.: 200.09-14453-1.24 **Calibration of** 3 IN1 (barometer function)
Identification: GREENTEK ENVIRONMENTAL PHILS., CO
Address: 2353 RI PLACE UNIT 3A SELYA STREET BRGY.860 PANDACAN, MANILA, PHILIPPINES

CERTIFICATE OF CALIBRATION - 3 IN 1 (Barometer Function)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument: 3 IN1 (barometer function)
Brand: LUTRON
Model No.: PHB-318
Serial No.: No record
Range: Temp. (0-50 Deg. C)
Humidity (10 to 95%)
Dewpoint (-25.3 to 48.9 Deg. C)
Barometer (10 to 999.9 hPa)
Resolution: Temp. (0.1 Deg. C)
Humidity (0.1 %)
Dewpoint (0.1 Deg. C)
Barometer (1 hPa)
ID code: No record

Calibration Date: December 5, 2024
Calibration Due: December 4, 2025
Calibrated By: C.A. CASADO

Results:

Barometer

REFERENCE READING (hPa)	UNIT UNDER TEST READING (hPa)	ERROR IN READING (hPa)	STANDARD DEVIATION	REMARKS
1009.0	1003.0	6.00	4.2426	The user should determine the suitablity of the instrument for its intended use
1005.0	1000.0	5.00	3.5355	
1000.0	995.0	5.00	3.5355	
990.0	984.0	6.00	4.2426	

Standard error: ± 7.78 hPa
Uncertainty: ± 6.09 hPa

“APPENDIX F”

TEST PARTICIPANTS

TEST PARTICIPANTS

BENGUET CORPORATION - ACUPAN CONTRACT MINING PROJECT (BC-ACMP ASSAY LABORATORY)

Ms. Jemimah R. Salayog	-	Pollution Control Officer & Facility Representative

GREENTEK ENVIRONMENTAL PHILS. CO.

Mr. Angelo V. Guevarra	-	Technical Head & QA/QC Manager
Mr. Bryan C. Badon	-	Team Leader - Trainee
Mr. Reynaldo S. Pile	-	Field Technician / Driver
Mr. Rolando S. Tolenada, Jr.	-	Field Technician / Driver
Mr. Anthony M. Cabungcal	-	Field Technician

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Visayas Avenue, Diliman, Quezon City

SAT No. 2025 – 167

CERTIFICATE OF ACCREDITATION

Pursuant to DENR Administrative Order No. 26 Series of 2013 of the Department of Environment and Natural Resources having substantially met all the requirements prescribed therein,

GREENTEK ENVIRONMENTAL PHILS. CO.

2430-B Laura St., Pandacan, Manila City

is hereby duly accredited as

SOURCE EMISSION TESTING FIRM

As such, the following are authorized as:

QA/QC Manager
Danilo M. Palaypay, Jr.

Team Leader
Noel D. Salas

This certification shall allow the above firm and personnel to conduct stack testing limited to the following methods and parameters

1. **US-EPA Method 1 to 5 – PM**
2. **US-EPA Method 6/8 – SO_2**
3. **US-EPA Method 7 – NO_x**
4. **US-EPA Method 10 – CO**

Granted this FEB 12 2025, and valid until FEB 12 2028.

JACQUELINE A. CAANCAN, *CESO III*
OIC – Assistant Secretary for Environment
and Concurrent EMB Director

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Visayas Avenue, Diliman, Quezon City

SAT No. 2023 – 151

CERTIFICATE OF ACCREDITATION

Pursuant to DENR Administrative Order No. 26 Series of 2013 of the Department of Environment and Natural Resources having substantially met all the requirements prescribed therein,

GREENTEK ENVIRONMENTAL PHILS. CO.

#2430 Laura St., Pandacan Manila

is hereby duly accredited as

SOURCE EMISSION TESTING FIRM

As such, the following are authorized as:

QA/QC Manager
Danilo M. Palaypay, Jr.

Team Leader
Aaron Jonathan R. Regilme

This certification shall allow the above firm and personnel to conduct stack testing limited to the following methods and parameters:

1. US-EPA Method 1 to 5 – PM
2. US-EPA Method 6/8 – SO_2
3. US-EPA Method 7 – NO_x
4. US-EPA Method 10 – CO

Granted this December 22, 2023 and valid until December 22, 2026.

GILBERT C. GONZALES, CESO III
Director and concurrent
Assistant Secretary for Field Operations

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Visayas Avenue, Diliman, Quezon City

SAT No. 2023 – 152

CERTIFICATE OF ACCREDITATION

Pursuant to DENR Administrative Order No. 26 Series of 2013 of the Department of Environment and Natural Resources having substantially met all the requirements prescribed therein,

GREENTEK ENVIRONMENTAL PHILS. CO.

#2430 Laura St., Pandacan Manila

is hereby duly accredited as

SOURCE EMISSION TESTING FIRM

As such, the following are authorized as:

QA/QC Manager
Angelo V. Guevarra

Team Leader
Daniel L. Navidad, Jr.

This certification shall allow the above firm and personnel to conduct stack testing limited to the following methods and parameters:

1. US-EPA Method 1 to 5 – PM
2. US-EPA Method 6/8 – SO_2
3. US-EPA Method 7 – NO_x
4. US-EPA Method 10 – CO

Granted this **December 13, 2023** and valid until **December 13, 2026**.

GILBERT C. GONZALES, CESO III
Director and concurrent
Assistant Secretary for Field Operations

“APPENDIX G”

SOURCE SPECIFIC TEST PLAN
AND
FACILITY PERMIT

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Cordillera Administrative Region

BAGONG PILIPINAS

October 3, 2025

ENGR. VALERIANO B. BONGALOS, JR.
VP / Resident Manager
Benguet Corporation
Acupan Contract Mining Project
Virac, Itogon, Benguet

Attention : **MS. JEMIMAH R. SALAYOG**
Pollution Control Officer

Dear ***Engr. Bongalos, Jr.***:

This has reference to your letter dated September 18, 2025 received through electronic mail on September 24, 2025 requesting for the approval of the TEST PLAN on the proposed conduct of source emission test for the *one (1) unit LEAD FUME SCRUBBER SYSTEM (Cap.: 35 m3/min.; Description: Spray Chamber)* of the BC-ACMP (Assay Laboratory) located at the above address to be tested by a DENR Accredited Third-Party Source Emission Testing Firm, Greentek Environmental Phils. Co. (Greentek Environmental Engineering Services).

In this regard, please be informed that the conduct of stack/source emission test for the Lead Fume Scrubber System which is scheduled on ***October 9-10, 2025*** is hereby **approved** with directive to conform to the approved sampling methods as indicated in Table 2 (NESSAP), Section 1, Rule XXV, Part VII of DENR Administrative Order No. 2000-81 (IRR of R.A. 8749). The Parameters or Source Specific Air Pollutants to be sampled from the Lead Fume Scrubber System is Particulate Matter (PM) and Lead (Pb). Please coordinate with this Office to confirm the technical personnel who will be present to observe the conduct of actual sampling and the condition of the facility/equipment to be tested.

In pursuant to Memorandum Circular No. 2016-008 (Clarificatory Guidelines on the Conduct of Stack Emission Tests by DENR-EMB and its Accredited Third-Party Source Emission Testing Firms), the minimum required load/operating capacity for the combustion source during the stack sampling test shall be **90%**. Per the Test Plan and attached documents, the following are the accredited personnel of the said Testing Firm to conduct the stack testing:

A. QA/QC Manager – Mr. Danilo M. Palaypay, Jr., and
   Team Leader – Mr. Aaron Jonathan R. Regilme, (SAT No. 2023-151);
B. QA/QC Manager – Mr. Angelo V. Guevarra, and
   Team Leader – Mr. Daniel L. Navidad, Jr. (SAT No. 2023-152); and
C. QA/QC Manager – Mr. Danilo M. Palaypay, Jr., and
   Team Leader – Mr. Noel D. Salas, (SAT No. 2025-167).

The Test Report shall be submitted to this Office one (1) month after the conduct of actual sampling or in special cases, a maximum of two (2) months pursuant to Section 8-b of DENR Administrative Order No. 2006-03 (Guidelines for DENR Accreditation of Third-Party Source Emission Testing Firms). Relative thereto, please coordinate with the Greentek Environmental Phils. Co. for the inclusion of the following information in the Test Report:

i. Flue Gas Temperature and Velocity;
ii. Mass Emission Rate;
iii. Dry Standard Volumetric Flow Rate; and
iv. Stack Height and Diameter.

Pursuant to EMB Memorandum dated July 25, 2022 re *Instruction to Require Video Recordings of Actual Stack Testing of all Firms, Industries and Commercial Establishments Required to Conduct Source Emission Stack Testing*, please be advised to take video recordings covering the view of the following:

1. Stack with visible stack tip, sampling port and sampling train;
2. Console with visible gauge and meter readings;
3. Air Pollution Source Installation (APSI) being tested;
4. Air Pollution Control Device (APCD), if applicable;
5. Fuel tanks and gauges; and
6. Control panel or logbook with visual recording of the operating capacity of the APSI during stack testing loading or operation of the APCD, if applicable/possible.

The said video recordings must be submitted to this Office through the DENR Accredited Third-Party Source Emission Testing Firm, Greentek Environmental Phils. Co., at **recordscar@emb.gov.ph** not later than **October 24, 2025**.

For your guidance and strict compliance.

Very truly yours,

ENGR. JEAN C. BORROMEO
OIC-Regional Director

cc: Greentek Environmental Phils. Co.

jbl/lgb/rgc/JCB

18 September 2025

ENGR. JEAN C. BORROMEO
OIC, Regional Director
Environmental Management Bureau
Cordillera Administrative Region
DENR Compound, Gibraltar Road,
Baguio City

Dear Director Borromeo:

We have contracted **GREENTEK ENVIRONMENTAL PHILS. CO**. to conduct Source Emission Test of the following:

1. **TWO (2) UNITS ELECTRIC CUPELLATION FURNACE WITH ONE (1) UNIT LEAD FUME SCRUBBER**
2. **THREE (3) STATIONS AMBIENT AIR (TSP, NO2, SO2 & NOISE LEVEL MEASUREMENT)**

The facility plant is located at **Benguet Corporation – Acupan Contract Mining Project (BC-ACMP Assay Laboratory), Balatoc, Virac, Itogon Benguet**. The purpose of this test is for our compliance to the terms and conditions of the issued Permit to Operate.

We therefore submit the attached source specific test plan which was prepared by **GREENTEK ENVIRONMENTAL PHILS. CO**. for your review and approval that the test will be accepted by EMB for the above purposes.

The proposed date of testing is on **October 9 & 10, 2025,** and each of the unit will be tested with a load of at least 90% of our rated capacity.

Thank you for your consideration on this request.

Respectfully yours,

JEMIMAH R. SALAYOG
Pollution Control Officer

VALERIANO B. BONGALOS JR.
VP / Resident Manager
Benguet Gold Operation

GREENTEK ENVIRONMENTAL PHILS. CO.
2353 RJ PLACE BLDG. UNIT 3A SELYA ST. PANDACAN MANILA
2430 LAURA ST. PANDACAN MANILA
Tel no: (028)7425743, (027)5052335, (0917) 5139249

SITE SPECIFIC STACK EMISSION TEST PLAN

Name of Establishment:	**BENGUET CORPORATION – ACUPAN CONTRACT MINING PROJECT**
Location of Facility:	**BALATOC, VIRAC, ITOGON BENGUET**
Sources to be tested:	**2 UNITS ELECTRIC CUPELLATION FURNACE with LEAD FUME SCRUBBER SYSTEM**

INTRODUCTION :

GREENTEK ENVIRONMENTAL PHILS. CO. was contracted by **BENGUET CORPORATION – ACUPAN CONTRACT MINING PROJECT** to conduct source emission testing of **Two (2) units ELECTRIC CUPELLATION FURNACE with LEAD FUME SCRUBBER SYSTEM** at their plant facility located at the above address.

The purpose of the test is to determine the compliance of the above sources with the emission standards. This test plan is prepared for review and approval by the **DENR-EMB - CAR** so that the results of the emission tests can be used as basis of their accomplishment of self-monitoring report and compliance to permit conditions of their permit to operate.

The parameters to be test are Particulate Matter (PM) & LEAD (Pb) the test will be conducted in three (3) runs.

FACILITY INFORMATION:

The above testing activity will be performed at the facility specified below with the following contact information:

BENGUET CORPORATION – ACUPAN CONTRACT MINING PROJECT
ITOGON, BENGUET

Contact Person:	**MS. JEMIMAH R. SALAYOG** **POLLUTION CONTROL OFFICER**	**MR. VALERIANO B. BONGALOS JR.** **VP/ RESIDENT MANAGER** **BENGUET GOLD OPERATION**
Contact Number:	**0917-136-1496**	

BRIEF DESCRIPTION OF THE SOURCE TO BE TESTED:

BENGUET CORPORATION – ACUPAN CONTRACT MINING PROJECT, is a mining and has maintained and operates **Two (2) units ELECTRIC CUPELLATION FURNACE with LEAD FUME SCRUBBER SYSTEM.**

Emission testing will be conducted with a load of at least 90% of the rated capacity per unit.

TEST METHODOLOGIES:

The sampling will be conducted in three sampling runs per source. The following DENR Standard Procedure (US-EPA Reference Methods) will be used in this stack-sampling program. These procedures are based on the US-EPA 40 CFR 60, Appendix A – Reference Methods for Emission Testing of Stationary Sources:

Method 1 Sample and velocity traverses
Method 2 Stack gas velocity and volumetric flowrate
Method 3 Gas analysis for O2 and CO2 and dry molecular weight
Method 4 Determination of moisture content
Method 5 Determination of particulate emission
Method 29. Determination of Metals emission

Methods 1 - 4 will be conducted in conjunction with Methods which requires isokinetic emission sampling. **GREENTEK ENVIRONMENTAL PHILS. CO** will use stainless steel probe liner and sampling nozzle which is an accepted alternative of the USEPA (DENR approved) methods.

The table below describes the implementation of the above sampling procedures:

TABLE 1 – Sampling Matrix

Parameter	Abbr.	Test Method	Test Duration	Notes
Volumetric Flow Rate	VFR	EPA Method 1-4	Minimum of 60 minutes per run (3 Runs)	Performed concurrent with M5 test
Particulate Matter	PM	EPA Method 5	Minimum of 60 minutes per run (3 Runs)	Performed concurrent with M5 test Run
Metals	Pb (LEAD)	EPA Method 29	Maximum of 12 minutes per run (3Runs)	Performed concurrent with M5 test

The facility should operate the unit source continuously during the actual testing.

TEST SCHEDULE AND IMPLEMENTATION PLAN:

TABLE 2 – Sampling Schedule:

Date	Source	**Test Activities**	Notes
October 9 & 10, 2025	2 units ELECTRIC CUPELLATION with LEAD FUME SCRUBBER	3 runs	Duration of sampling is 8 to 10 hours includes sampling set-up and actual testing for each boiler.

The actual run date and time may vary based on the facility process conditions, weather and testing logistics. The Test Team leader will coordinate the specific run plans with the designated facility representative.

TEST PERSONNELS:

Any of the following persons will be involved in the testing:

Danilo M. Palaypay Jr.	-	QA/QC MANAGER
Noel D. Salas	-	TEAM LEADER
Aaron Jonathan R. Regilme	-	TEAM LEADER
Angelo V. Guevarra	-	QA/QC MANAGER
Daniel L. Navidad Jr	-	TEAM LEADER

Sampling Personnel (any of the following)

Leo R. Toca	Anthony M. Cabungcal
Reynaldo S. Pile	Rolando S. Tolenada
Bryan C. Badon	John Rey Cabanillas
Emerbill G. Justo	Isagani C. Entor

Prepared by:

DANILO M. PALAYPAY JR.
QA/QC MANAGER
SAT NO: 2023-151/2025-167

ANGELO V. GUEVARRA
QA/QC MANAGER
SAT NO: 2023-152

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Cordillera Administrative Region (CAR)
Cordillera Administrative Region DENR Compound,Gibraltar Baguio City
Tel No: (074) 446-64-40/ 6652904/ 6652905

Permit No: PTO-OL-CAR-2025-05926-R
Application Type: Renewal

Date Issued: 26 Aug 2025
Date Expiration: 26 Aug 2029

PERMIT TO OPERATE
Air Pollution Source and Control Installations

Pursuant to Part IV, Rule XIX of the Rules and Regulations of R.A. 8749, authority is hereby granted to:

BENGUET CORPORATION - ACUPAN CONTRACT MINING PROJECT (BC-ACMP ASSAY LABORATORY) — BALATOC, VIRAC, ITOGON, BENGUET

subject to the following terms and conditions:

TERMS AND CONDITIONS

1. This Permit is issued for the permittee to operate the following ***installations/equipment*** installed at the *Fire Assay Area of the Assay Laboratory (geolocation: 16.359362°N, 120.658865°E)* described below at the permittee's establishment located at the above-mentioned address:
   - Air Pollution Source Installations for the purposes of fire assaying the ore samples:
     - ***One (1) unit ELECTRIC CUPELLATION FURNACE, No. 1 (Cap.: 25 kVA; Make: DFC CERAMICS; Model: 810B; S/N: 892)***, and
     - ***One (1) unit ELECTRIC CUPELLATION FURNACE, No. 2 (Cap.: 25 kVA; Make: DFC CERAMICS; Model: 810B44036ST10; S/N: 1062)***; and
   - Air Pollution Control Device for the collection/control of the air pollutants generated from the above-mentioned Air Pollution Source Installations:
     - ***One (1) unit LEAD FUME SCRUBBER SYSTEM (Cap.: 35 m3/min.; Description: Spray Chamber)***, geolocation of stack - 249919.37 m E, 1810118.52 m N, 51 Q.
2. This Permit shall be **valid until JUNE 27, 2030 (PLEASE DISREGARD THE EXPIRATION DATE INDICATED ABOVE)** unless suspended or revoked by the Bureau.
3. During the **period of validity (JUNE 27, 2025 to JUNE 27, 2030, connected to previous validity)**, the Bureau may modify the Permit by amending any existing condition or imposing any new or additional condition, subject to the provisions of Rule XIX of the Implementing Rules and Regulations (IRR) of the Republic Act No. 8749 (RA 8749).
4. An application for **renewal** of this Permit shall be **filed not less than thirty (30) days before the expiry date as indicated on condition nos. 2 and 3**.
5. This Permit shall be posted in a conspicuous location at the premises and shall be adequately framed or otherwise protected against damage.
6. The operation of any installation, process activity at this establishment that produces, generates, captures, treats, reduces, controls, emits, releases or disperse air pollutants without a valid Permit to Operate, or in violation of any of the conditions of this Permit, shall be subject to penalties pursuant to Rule LVI of the IRR of RA 8749.
7. The installations, processes or activities at this establishment shall be operated, conducted and managed by the permittee, and the associated plant and equipment shall be maintained and operated by the permittee, so that emissions of air pollutants are kept to a practicable minimum. The permittee shall be responsible for ensuring that any emissions of air pollutants from abnormal or unexpected events, do not cause air pollution in the surrounding air environment or have adverse effects on persons in that environment.

Filing Fee	: Php 600.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
Permit Fee	: Php 3360.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
PD1856	: Php 10.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
Documentary Stamp Tax	: Php 30.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025

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8. Without limiting the generality of the previous condition, the permittee shall ensure that the emissions from the permitted installations or processes comply with:
   - the National Emission Standards for Source Specific Air Pollutants as specified in Rule XXV of the IRR of RA 8749; and
   - the National Ambient Air Quality Standards for Source Specific Air Pollutants from Industrial Sources/Operations as specified in Rule XXVI of the IRR of RA 8749.
9. The permittee **shall submit Self-Monitoring Reports** to the Bureau on a quarterly basis in accordance with DENR Administrative Order No. 27 (Series of 2003) and any written instructions by the Bureau based on the following schedule:

Quarter	Coverage	Submission	Quarter	Coverage	Submission
First	Jan - Mar	1-15 Apr	Third	Jul - Sep	1-15 Oct
Second	Apr - Jun	1-15 Jul	Fourth	Oct - Dec	1-15 Jan

10. The permittee shall at all times have an accredited Pollution Control Officer (PCO) who shall be the day-by-day contact person between the Bureau and the establishment. The permittee shall ensure that the PCO is familiar with the operations and activities undertaken at the establishment, and the relevant emission sources and air pollution control devices and equipment. The permittee shall give the PCO the necessary authority to take or to direct corrective action in the event of a malfunction, accident, breakdown or other abnormal event that results in excessive emissions or emissions that do not comply with relevant Permit conditions, emission standards or ambient air quality standards.
11. The permittee shall seek accreditation of his/her appointed/designated PCO pursuant to Section 8 of DAO 2014-02 (Revised Guidelines for Pollution Control Officer Accreditation).
12. In case of the resignation or termination of the services of the PCO, the Managing Head shall appoint/designate a new PCO. He/she shall inform, in writing, the concerned EMB Regional Office within fifteen (15) days and seek accreditation for the new PCO within thirty (30) days from the date of resignation or termination. Meantime, the Managing Head shall immediately assume the responsibilities as interim PCO until such time that a new PCO shall have been accredited.
13. The permittee shall report in writing to the Bureau any malfunction, accident, breakdown, leak, spill or other abnormal or unexpected event which results in emissions to atmosphere that do not comply with relevant Permit conditions, emission standards or ambient quality standards, or in any other abnormal or unexpected releases of air pollutants. The report shall indicate the nature of the incident or event, its impact on emissions, the time period involved, and any actions or measures taken to control the emissions or releases, remedy any air pollution problems that may have occurred, and minimize the probability of reoccurrence of the event or the release.
14. The permittee shall at all times allow authorized or accredited officers of the Department or the Bureau entry to the establishment and access to any part of the establishment to conduct inspections, gather information, test emissions or take samples. The permittee and its personnel shall not obstruct such officers in the performance of these functions, and shall furnish any information or materials requested by them that is reasonable for them to have. The permittee shall obey any lawful instruction or direction given by the Department or the Bureau at all times.
15. The permittee shall not make or allow any alterations or modifications to operations, activities, installations, processes, plant or equipment at the establishment that might substantially change the nature or quantity of the associated emissions without obtaining the approval of the Bureau, including the obtaining of any necessary Permit to Operate.

Note: This Permit is connected to the previous permit validity. The Permit Fee paid is Php 4,200.00, for the period of five (5) years.

Recommended by:

ENGR. MARIE PINA L. RODAS
Chief, Clearance and Permitting Division

Approved by:

ENGR. JEAN C. BORROMEO
OIC, Regional Director

Filing Fee	: Php 600.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
Permit Fee	: Php 3360.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
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Annex

Non Fuel Burning					
ID	**APSI**	**Capacity**	**Brand name**	**Material**	**APCD**
568995	Electric Cupellation Furnace 1	25.0 Kilowatt	DFC Ceramics		Wet Scrubber (35.0 m^3/min)
568996	Electric Cupellation Furnace 2	25.0 Kilowatt	DFC Ceramics		Wet Scrubber (35.0 m^3/min)

APCD-APSI Mapping			
ID	**APCD**	**Connected APSIs (<name> (id))**	**Connected APCDs (<name> (id))**
90088	Wet Scrubber (1)	Electric Cupellation Furnace 1 (2); Electric Cupellation Furnace 2 (3)	---

Filing Fee	: Php 600.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
Permit Fee	: Php 3360.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
PD1856	: Php 10.00	O.R. No. : 4257051 & 4255425	Date : July 21, 2025
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BERKMAN SYSTEMS INC.
Environmental Management Service Provider

18 August 2025

Ref. No.: LT-25-316-1-83

MS. NARHY C. POMILBAN
Pollution Control Officer
BMC FORESTRY CORPORATION
Km. 5, Naguilian Rd., Irisan, Baguio City

Subject: ***Source Emission Monitoring Report***

Dear Ms. Pomilban:

We are pleased to submit the final report of the source emission monitoring as a result of our visit to your facility in Irisan, Baguio City on July 24, 2025.

We hope that this report addresses your requirements.

Very truly yours,

EMMANUEL R. ALTAREJOS
Executive Vice President

ERA/*ldm*

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan, Metro Manila, Philippines
Tel No. (632) 863-6129• Fax (632) 727-9831
Email: info@bsienv.com

SOURCE EMISSION MONITORING REPORT

One (1) Unit 1.08 MT/hr Vertical Shaft Kiln

BMC FORESTRY CORPORATION

Irisan, Baguio City

DENR SOURCE EMISSION TESTING FIRM
ACCREDITATION NO: SAT NO. 2022-72

2nd Floor, VAG Building
Ortigas Avenue, Greenhills, San Juan,
Metro Manila, Philippines

SOURCE EMISSION MONITORING REPORT
(July 24, 2025)

BMC FORESTRY CORPORATION
Irisan, Baguio City

Prepared for:

BMC Forestry Corporation
Km. 5, Naguilian Rd., Irisan, Baguio City
Tel. No.: (074) 445-7180

Prepared by:

BSI
2nd Floor VAG Building, Ortigas Avenue
Greenhills, San Juan, Metro Manila
Tel. No.: (02) 863 6129; Fax. No.: (02) 727 9831

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LIST OF TABLES

LIST OF ANNEXES

Emission Test Report Certification

The emission sampling reported herein was performed under the direction and supervision of Mr. Edindo C. Fernando of BSI. The analyses of samples were conducted under the direction and supervision of Mr. Renato M. Gofredo, Jr. of ELARSI, Inc., a DENR-recognized Environmental Laboratory

I certify that the information contained in this report is authentic and accurate to the best of my knowledge.

Signed:.....

Edindo C. Fernando
BSI
DENR Accredited QA/QC Manager

Date: 18 AUG 2025

1. INTRODUCTION

This report presents the procedures and results of the source emission monitoring conducted on July 24, 2025 at BMC Forestry Corporation situated in Irisan, Baguio City. BSI was commissioned to conduct the monitoring wherein Mr. Halcy Lemon P. Orquina led the team that administered the source emission sampling with Mr. Edindo C. Fernando as QA/QC Manager. Meanwhile, Ms. Narhy C. Pomilban, Pollution Control Officer of BMC Forestry Corporation, served as site contact person during sampling.

The pollutants considered for the source emission monitoring were: particulate matter (PM), sulfur oxides (as SO_2), nitrogen oxides (as NO_2) and carbon monoxide (CO) at one (1) unit 1.08 MT/hr vertical shaft kiln exhaust stack. The source was tested for three runs.

1.1 Process Description and Operation

BMC Forestry Corporation – BC ILP is an enterprise in the Philippines, with the main office in Baguio City. It operates in the Crop Production Industry *(https://www.emis.com/php/company-profile/PH/Bmc_Forestry_Corporation_en_3256166.html)* and a producer and supplier of burnt lime. Its Kiln plant located at Km. 5 Naguilian Road, Irisan, Baguio City operates three (3) vertical shaft kilns, three (3) gas scrubbers, two (2) cyclone dust collectors and one (1) jaw crusher.

One (1) unit of 1.08 MT/hr *Vertical Shaft Kiln No. 2* was operated at a minimum of 95% operating rate was tested during sampling, and used low sulfur fuel oil/regular fuel oil as fuel source.

This report covers the source emission monitoring of the vertical shaft kiln no. 2 only.

1.2 Reason for Testing

The purpose of the monitoring was to verify the company's compliance with the source emission standards of the Department of Environment and Natural Resources (DENR) Administrative Order No. 81 Series of 2000 (Implementing Rules and Regulations of the Philippine Clean Air Act of 1999).

1.3 Facility Operating Conditions during the Test

The equipment information and operating conditions of the facility monitored were summarized in *Tables 1* and *2*, respectively.

Table 1. Equipment Information

Stationary Source Information		Vertical Shaft Kiln No. 2
Brand Name		N/A
Rated Capacity		1.08 MT/hr
PTO Date Issued		October 30, 2021
Year Installed*		August 1940
Exhaust Stack	Diameter	36 cm
	Height**	8.5 m
	Orientation	Vertical
Air Pollution Control Device*		Wet Gas Scrubber
GPS Coordinates		16° 25 ' 9.11"N; 120° 33' 28.52"E

**Based from previous sampling records*
***Measured from the ground to the tip of the stack*

Table 2. Operating Conditions

Stationary Source Information	Vertical Shaft Kiln No. 2
Minimum Load During Sampling	95%
Fuel Used	LSFO/Regular Fuel Oil
Fuel Sulfur Content	No Fuel Analysis Provided
Fuel Consumption	No Information Provided
Annual Operating Hours	No Information Provided

2. SUMMARY OF RESULTS

Table 3 presents the summary of test results of the vertical shaft kiln no. 2 exhaust stack. The test results were compared with the National Emission Standards identified in IRR Part VII Rule XXV Table 2. A detailed description of the test run information and sample calculations used to derive the values in the tabular summary were attached in *Annex A*.

Three test runs were performed to collect: PM, SOx (as SO_2), NOx (as NO_2) and CO at vertical shaft kiln no. 2 exhaust stack. Three trial tests per run were conducted to collect samples of nitrogen oxides (as NO_2). The raw field data used to prepare the summary reports in *Annex A* was included in *Annex B*. Emissions have been corrected to the standard conditions of 25°C and 760 mmHg on dry basis (unless otherwise indicated). Moreover, the emissions are not applicable for the corrected oxygen factor since the source is not included in the list of equipment under DENR EMB Memorandum Circular No. 2021-15.

Table 3. Vertical Shaft Kiln No. 2 Emission Test Results

		Run 1	Run 2	Run 3		
Sampling date		24-Jul-25	24-Jul-25	24-Jul-25		
Begin sampling time		0930H	1100H	1225H		
End sampling time		1035H	1205H	1330H		
Parameter	**Units**				**Average**	**DENR Standard**
Average stack temperature	°C	201.7	201.7	202.1	201.8	
CO_2 measured in stack gas	%	5.0	5.0	5.0	5.0	
Oxygen measured in stack gas	%	16.0	16.0	16.0	16.0	
Stack gas moisture content	%	12.04	11.53	12.24	11.94	
Flue gas velocity	m/s	24.53	24.50	24.74	24.59	
Actual volumetric flow	m^3/min	184.9	184.7	186.5	185.4	
Dry volumetric flow at STP	dsm^3/min	86.8	87.2	87.2	87.1	
Isokinetic flow rate	%	100.3	99.5	99.3		
Particulate matter data						
Concentration	mg/Nm^3	69.5	30.9	109.1	69.8	***150***
Annual emission rate	tons/yr	3.2	1.4	5.0	3.2	
Sulfur oxides data						
Concentration (as SO_2)	mg/Nm^3	42.8	76.5	75.1	64.8	***1500***
Annual emission rate	tons/yr	2.0	3.5	3.4	3.0	
Nitrogen oxides data						
Concentration (as NO_2) *	mg/Nm^3	39.6	43.3	51.4	44.8	***1000***
Annual emission rate	tons/yr	1.8	2.0	2.4	2.0	
Carbon monoxide data						
Concentration	mg/Nm^3	240.5	219.8	209.5	223.3	***500***
Annual emission rate	tons/yr	11.0	10.1	9.6	10.2	

Annual emission rates were based on one (1) year continuous operation.
**Average of three (3) trial tests*
Emissions are not applicable for the corrected oxygen factor since the source is not included in the list of equipment under DENR EMB Memorandum Circular No. 2021-15.

2.1 Conclusions

A description of any method deviations and quality assurance assessment was included in *Sections 3* and *4* of this report. Based on a review of the sampling data, facility operating information, test method description and quality assurance results, the concentration values presented in *Table 3* have passed the criteria to be considered as representative emission test results of the source and are suitable for comparison with the regulatory limits.

Under the Implementing Rules and Regulations of the Clean Air Act (CAA), the standards applicable to vertical shaft kiln no. 2 are as "*existing fuel-burning equipment; other stationary source*".

In conclusion, the test results indicate that the average emissions from vertical shaft kiln no. 2 exhaust stack:

- comply with the applicable standard for PM emissions;
- comply with the applicable standard for SOx (as SO_2) emissions;
- comply with the applicable standard for NO_X (as NO_2) emissions; and
- comply with the applicable standard for CO emissions.

3. SAMPLING AND ANALYTICAL PROCEDURES

All sampling were undertaken in accordance with US EPA standard methods, viz:

Method 1	Sample and Velocity Traverse Point Locations
Method 2	Stack Gas Velocity and Volumetric Flow Rate (S-type Pitot Tube)
Method 3	Gas Analysis for Determination of Dry Molecular Weight
Method 4	Determination of Moisture Content in Stack Gases
Method 5	Determination of Particulate Matter Emissions from Stationary Sources
Method 6	Determination of Sulfur Dioxide Emissions from Stationary Sources
Method 7	Determination of Nitrogen Oxide Emissions from Stationary Sources
Method 10	Determination of Carbon Monoxide Emissions from Stationary Sources

3.1 Methods 1 and 2 – Traverse Point and Stack Velocity

3.1.1 Sampling points

For the vertical shaft kiln no. 2 exhaust stack, the number and location of the sampling points were determined using the procedures of US EPA Method 1 since the equivalent stack diameter was measured to be greater than 30 cm.

The vertical shaft kiln no. 2 was sampled at a total of twenty-four (24) traverse points. Having two (2) available portholes that are 90° apart, twelve (12) traverse points were sampled for each.

Some of the traverse points of the exhaust stack were less than the criterion of Method 1 for allowable distance from the stack wall of stacks with diameter less than 0.61 meters. These points were relocated 1.3 cm (0.5 in) away from the stack wall.

3.1.2 Cyclonic Flow Check

For each sampling point, the rotation angle was determined using an "S-type" pitot tube assembly, liquid manometer and angle finder in accordance with section 2.4 of US EPA Method 1.

For each test point, the average absolute value of the rotation angle was less than the 20 degrees criterion of Method 1.

3.1.3 Flue Gas Velocity

The procedures of US EPA Method 2 were employed to determine the flue gas velocity and volumetric flow rate using an "S-type" pitot tube in making velocity head measurements (Δp). The "S-type" pitot tube conforms to the geometric specifications of Method 2 and has therefore been assigned a coefficient of 0.84. An inclined manometer built onto the meter console box was used to measure the differential pressures, while flue gas temperatures were measured with chromel-alumel thermocouples equipped with digital readouts.

3.2 Method 3 – Flue Gas Composition

US EPA Method 3 procedures were used to determine the flue gas composition and molecular weight. An "Orsat" sample pump was operated continuously at a constant rate during each Method 5/6 (Modified) sampling run to collect an integrated flue gas sample into a tedlar bag through a separate sample line attached to the probe. Moisture was removed from the sample by passing it through a small impinger charged with silica gel.

The content of each tedlar bag was analyzed using a Fyrite analyzer to determine the concentration of oxygen and carbon dioxide in the sample.

The same bag samples were also used for the carbon monoxide analysis by Method 10.

3.3 Method 4 – Flue Gas Moisture Content

The moisture content of the flue gas was determined using the US EPA Method 4 procedures in conjunction with Method 5/6 (Modified).

3.4 Method 5/6 (Modified) – Particulate Matter and Sulfur Oxides

3.4.1 Sample Collection

A US EPA Method 5/6 (Modified) sampling train was used to extract samples isokinetically from the stack which comprised the following elements:

- a stainless steel nozzle;
- a heated stainless steel probe with "S-type" pitot tube;
- a glass fibre filter maintained at 120°C ± 14 °C;
- four chilled impingers:
  - 1st and 2nd containing 100 mL 3% H_2O_2;
  - 3rd left empty; and
  - 4th containing 200 to 300 grams of silica gel; and
- a metering console.

Each of the impingers was labeled and weighed.

Three test runs were conducted at the available sampling ports. The actual sampling time was 60 minutes per run.

3.4.2 Sample Recovery

Sample recovery was undertaken at the sheltered area near the source of emission. The filter was removed from the filter holder and placed on a petri dish. The volume of water vapor condensed in the impingers was measured to determine the volume of water vapor collected.

The nozzle, probe and front half of the filter holder were rinsed with acetone, and the interior of the probe and nozzle were rinsed and brushed repeatedly to remove any adhering PM from the inside surfaces. All rinses were collected into a 250 mL glass bottle.

The contents of the impingers 1, 2 and 3 were transferred to a 1000 mL polyethylene sample bottle. The glass sample line between the heated filter holder and the first impinger, the first three impingers and connecting glasswares were all rinsed with distilled deionized water and the rinse was added into the sample bottle.

3.4.3 Sample Analysis

The filter and sample bottles, together with the blank samples of acetone and H_2O_2, were submitted to a DENR-recognized laboratory.

The mass of filterable particulate matter collected on the filter and in the acetone rinse was determined in accordance with US EPA Method 5 analytical procedures.

The mass of sulfur oxides in the impinger contents and rinse water was determined in accordance with US EPA Method 6 analytical procedures.

3.5 Method 7 – Nitrogen Oxides

3.5.1 Sample Collection

The sampling of the flue gas to determine the concentration of nitrogen oxides was undertaken in accordance with US EPA Method 7 using a nominal 2 L glass collection flask containing 25 mL of NO_X absorbing reagent (Sulfuric Acid-Hydrogen Peroxide) connected to a Borosilicate glass probe sufficiently heated to avoid condensation and equipped with a glass wool filter at the end for particulate matter screening.

During the Method 7 testing, a flask was evacuated to an absolute pressure of 76 mmHg (3 inHg) at most less than the barometric pressure, and the initial flask temperature and pressure were recorded. The sampling train was then checked for leakage not exceeding 10 mmHg (0.4 inHg) in 1 min. The probe was inserted into the stack, connected to the flask and after purging the probe, a sample was drawn into the flask. The flask was then shaken for five minutes. This procedure was carried out thrice for three test runs resulting in the collection of nine samples for the exhaust stack.

3.5.2 Sample Recovery

The NO_x flasks were set at least 16 hours, shaken for two minutes and then the final flask temperature and pressure were measured. The contents of each flask were transferred to a leak-free polyethylene bottle and rinsed twice with 5 mL portions of deionized distilled water, and the rinse water was added into the bottle. Prior to analysis, the pH was adjusted to a value within 9 to 12 by adding 1N NaOH.

3.5.3 Sample Analysis

The sample preparation procedures of US EPA Method 7 were applied and each sample was then subjected to colorimetric analysis.

3.6 Method 10 – Carbon Monoxide

3.6.1 Sample Collection

The integrated samples that were collected into tedlar bags were used for the determination of CO in accordance with US EPA Method 10.

3.6.2 Sample Recovery

The tedlar bags were sealed and transported for analysis.

3.6.3 Sample Analysis

The sample was analyzed using a non-dispersive infrared (NDIR) analyzer. The analyzer was flushed with nitrogen and zero setting confirmed. The tedlar bag was attached to the sample input and the gas sample was introduced at a flow rate of about 0.5 L/min by applying gentle pressure to the tedlar bag. The concentration was recorded when the value indicated on the display stabilized.

4. QA PROCEDURES

The US EPA "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III Stationary Source-Specific Methods" was used as a guide to achieve the quality assurance objectives of producing data that are complete, representative and of known precision and accuracy.

4.1 Particulate Matter and Sulfur Oxides (as SO_2)

4.1.1 Sampling Procedure

US EPA Method 5/6 (Modified) was employed to determine the concentration of particulate matter in the gas stream. This method requires the use of Methods 1 to 4 to determine sampling port locations, sample traverse points within the stack, as well as the flow rate, molecular weight and moisture content of the flue gas.

The quality of the emission test was assured by:

- Ensuring that the test port is located sufficiently distant from both upstream and downstream flow disturbances (such as bends and changes in stack diameter).
- Ensuring that stack gas flow is essentially parallel to the stack walls by conducting a cyclonic flow check.

- Determination of a representative stack gas velocity by the selection of sampling test points appropriate to the stack diameter in accordance with the method.
- Leak testing of the sampling train before and after each sampling run.
- Testing and calibration of the dry gas meter, thermocouples and temperature displays, pitot tubes, nozzles, and manometer assembly.
- Ensuring that the temperature of the impinger system is maintained below 20°C.
- Maintaining the filter and sampling probe temperature at 120°C (±14°C).
- Sampling at between 90 - 110% of the actual gas stream velocity (isokinetic sampling).

The procedure for sampling SOx (as SO_2) was combined with US EPA Method 5 as described in *Section 3.4*. The quality of the test was assured by:

- The use of freshly-prepared chemical solutions;
- Care in the recovery of the sample;
- Attention to detail in the analysis of samples in accordance with the US EPA Method 6;
- The collection and analysis of representative "blank" samples; and
- Proper calibration and QA/QC checks of all elements of the sampling system.

4.1.2 Sampling Equipment

Copies of various calibration and test certificates were included in *Annex E*.

Barometer

A calibrated digital barometer was used to measure atmospheric pressure at the platform level.

Probe Nozzle

The probe nozzles were calibrated by the manufacturer and were inspected and checked for roundness before use to ensure that they met the specifications of the method.

Pitot Tube

The pitot tube meets the EPA Method 2 design specifications for "S-type" pitot tubes and was therefore assigned a baseline coefficient of 0.84. After each test, the pitot tube was visually inspected for damage.

Metering System

The meter box was leak checked and a calibration was carried out using five (5)-point calibrating orifices in accordance with EPA Method 5.

Post-Test Meter Calibration

A post-test meter calibration was made using the data collected for each of the test runs in accordance with the procedure set out in EPA ALT-009.

Temperature Sensors

An ethanol-filled thermometer with NIST traceable calibration was used to calibrate thermocouples at approximately 0°C in iced water, ambient temperature and approximately 100°C in boiling water. At the completion of each test, the thermocouples were compared to the ethanol-in-glass thermometer at ambient temperature and a continuity check was performed to ensure that the thermocouple read-out trended in the correct direction when subjected to a temperature change.

4.1.3 Analysis

Filters and acetone used in the emission test met the required specifications and Method 5 analytical procedures were employed using a properly calibrated analytical balance.

The mass of sulfur oxides in the impinger contents and rinse water were determined in accordance with US EPA Method 6 analytical procedures.

4.2 Nitrogen Oxides (as NO_2)

The procedure for sampling NO_X (as NO_2) was described in *Section 3.5*. The quality of the test was assured by:

- The use of freshly-prepared chemicals;
- Care in the recovery of the sample;
- Attention to detail in the analysis of samples in accordance with the US EPA Method 7;
- Calibration and verification of linearity of the spectrophotometer; and
- Proper calibration and QA/QC checks of all elements of the sampling system.

4.3 Carbon Monoxide

The procedure for sampling CO was described in *Section 3.6*. The quality of the test was assured by:

- Care in the collection of the gas samples to ensure that they are representative of the emission;
- Maintenance of a leak-free bag at all stages of sampling and analysis;
- Calibration of the analytical instrument prior to analysis; and
- Attention to detail in the analysis of samples in accordance with the US EPA Method 10.

ANNEX A

SOURCE EMISSION MONITORING SUMMARY OF RESULTS

EMISSION TEST RESULTS SUMMARY

BMC FORESTRY

BAGUIO CITY

VERTICAL SHAFT KILN #2

			Run 1	Run 2	Run 3	
	Sampling date		24-Jul-25	24-Jul-25	24-Jul-25	
	Begin sampling time		0930H	1100H	1225H	
	End sampling time		1035H	1205H	1330H	
Symbol	**Parameter**	**Units**				**Average**
Y	Meter box gamma	none	0.9794	0.9794	0.9794	
ΔH	Average ΔH	mm H_2O	46.7	47.3	47.3	
P_{bar}	Barometric pressure	mm Hg	645.2	645.2	645.2	
V_m	Metered sample gas volume	m^3	1.3608	1.3688	1.3670	
T_m	Average meter temperature	°C	27.2	29.8	30.0	
P_g	Static pressure	mm H_2O	10.6	10.6	10.6	
T_s	Average stack temperature	°C	201.7	201.7	202.1	201.8
Ds	Stack diameter	cm	40	40	40	
V_{lc}	Volume of water collected	mL	114.1	108.4	115.7	
$\%CO_2$	CO_2 measured in stack gas	%	5.0	5.0	5.0	5.0
$\%O_2$	Oxygen measured in stack gas	%	16.0	16.0	16.0	16.0
C_p	Pitot tube coefficient	none	0.84	0.84	0.84	
$\sqrt{\Delta P}$	Average of square roots of ΔP	$(mm\ H_2O)^{½}$	*5.159*	*5.159*	*5.199*	
θ	Sampling run time	min	60	60	60	
D_n	Nozzle diameter	mm	5.88	5.88	5.88	
A_n	Nozzle area	m^2	*2.72E-05*	*2.72E-05*	*2.72E-05*	
$V_{m(std)}$	Metered gas volume at STP	Nm^3	*1.1287*	*1.1257*	*1.1233*	
P_s	Stack pressure	mm Hg	*645.98*	*645.98*	*645.98*	
B_{ws}	Stack gas moisture content	%	*12.04*	*11.53*	*12.24*	11.94
$V_{w(std)}$	Water vapour volume at STP	Nm^3	*0.155*	*0.147*	*0.157*	
M_{fd}	Dry mole fraction of flue gas	none	*0.880*	*0.885*	*0.878*	
M_d	Dry molecular weight	g/g-mole	*29.44*	*29.44*	*29.44*	
M_s	Wet molecular weight	g/g-mole	*28.06*	*28.12*	*28.04*	
v_s	Flue gas velocity	m/s	*24.53*	*24.50*	*24.74*	24.59
A_s	Stack area	m^2	*0.126*	*0.126*	*0.126*	
$Q_{a(act)}$	Actual volumetric flow	m^3/min	*184.9*	*184.7*	*186.5*	185.4
$Q_{s(std)}$	Dry volumetric flow at STP	dsm^3/min	*86.8*	*87.2*	*87.2*	87.1
I	Isokinetic flow rate	%	*100.3*	*99.5*	*99.3*	
AOH	Annual operating hours	hrs/yr	8,760	8,760	8,760	
	Particulate matter data					
M_{part}	Measured mass	mg	78.4	34.8	122.5	
C_{part}	Concentration	mg/Nm^3	69.5	30.9	109.1	69.8
	Mass emission rate	kg/hr	0.36	0.16	0.57	0.36
	Annual emission rate	tons/yr	3.2	1.4	5.0	3.2
	Sulphur oxides data					
M_{SOx}	Measured mass	mg	48.29	86.15	84.31	
C_{SOx}	Concentration	mg/Nm^3	42.8	76.5	75.1	64.8
	Mass emission rate	kg/hr	0.22	0.40	0.39	0.34
	Annual emission rate	tons/yr	2.0	3.5	3.4	3.0
	Nitrogen oxides data					
C_{NOx}	Concentration	mg/Nm^3	39.6	43.3	51.4	44.8
	Mass emission rate	kg/hr	0.21	0.23	0.27	0.23
	Annual emission rate	tons/yr	1.8	2.0	2.4	2.0
	Carbon monoxide data					
C_{COppm}	Concentration	ppm	210.0	192.0	183.0	
C_{COmg}	Concentration	mg/Nm^3	240.5	219.8	209.5	223.3
	Mass emission rate	kg/hr	1.25	1.15	1.10	1.17
	Annual emission rate	tons/yr	11.0	10.1	9.6	10.2

Notes: *Italics indicates calculated value*

Annual emission rates were based on one (1) year continuous operation.

Emissions are not applicable for the corrected oxygen factor since the source is not included in the list of equipment under DENR EMB Memorandum Circular No. 2021-15.

NITROGEN OXIDES (as NO_2) EMISSIONS DATA
BMC FORESTRY
BAGUIO CITY
VERTICAL SHAFT KILN #2

RUN 1

Sample Collection

Barometric Pressure, $P_{bar(i)}$ (in Hg): 25.42

Sample ID	Flask ID	Flask Volume	Evacuated Pressure	Initial Absolute Pressure	Flask Temp	Flask Temp	Collection Time
		V_f	P_{gf}	P_i		T_i	
		mL	in Hg	(in Hg)	°C	°K	
S1R1T1	BSI T2-F1	2230	23.10	2.32	29.6	302.75	0950H
S1R1T2	BSI T2-F2	2230	23.20	2.22	29.7	302.85	1000H
S1R1T3	BSI T2-F3	2250	23.20	2.22	29.0	302.15	1010H

Date Collected: 24-July-2025

Sample Recovery

Barometric Pressure, $P_{bar(f)}$ (in Hg): 29.50

Sample ID	Flask ID	Final Pressure	Final Absolute Pressure	Flask Temp	Flask Temp
		P_{gf}	P_f	Temp	T_f
		in Hg	in Hg	°C	°K
S1R1T1	BSI T2-F1	0.30	29.20	31.2	304.35
S1R1T2	BSI T2-F2	0.50	29.00	30.7	303.85
S1R1T3	BSI T2-F3	0.30	29.20	30.6	303.75

Date Recovered: 25-July-2025

Concentration Calculation

Volume at STP	Mass Catch	NO_x Conc.
V_{sc}	M_{NO2}	C_{NO2}
mL	µg	mg/Nm^3
1938.6	87.3	45.0
1935.0	72.0	37.2
1967.4	72.0	36.6
	Average	**39.6**

RUN 2

Sample Collection

Barometric Pressure, $P_{bar(i)}$ (in Hg): 25.42

Sample ID	Flask ID	Flask Volume	Evacuated Pressure	Initial Absolute Pressure	Flask Temp	Flask Temp	Collection Time
		V_f	P_{gf}	P_i		T_i	
		mL	in Hg	(in Hg)	°C	°K	
S1R2T1	BSI T2-F4	2230	23.30	2.12	29.7	302.85	1120H
S1R2T2	BSI T2-F5	2230	23.10	2.32	29.3	302.45	1130H
S1R2T3	BSI T2-F6	2250	23.30	2.12	29.7	302.85	1140H

Date Collected: 24-July-2025

Sample Recovery

Barometric Pressure, $P_{bar(f)}$ (in Hg): 29.50

Sample ID	Flask ID	Final Pressure	Final Absolute Pressure	Flask Temp	Flask Temp
		P_{gf}	P_f	Temp	T_f
		in Hg	in Hg	°C	°K
S1R2T1	BSI T2-F4	0.30	29.20	31.4	304.55
S1R2T2	BSI T2-F5	0.50	29.00	30.7	303.85
S1R2T3	BSI T2-F6	0.40	29.10	30.3	303.45

Date Recovered: 25-July-2025

Concentration Calculation

Volume at STP	Mass Catch	NO_x Conc.
V_{sc}	M_{NO2}	C_{NO2}
mL	µg	mg/Nm^3
1951.8	72.0	36.9
1927.5	42.9	22.3
1969.9	139.4	70.8
	Average	**43.3**

RUN 3

Sample Collection

Barometric Pressure, $P_{bar(i)}$ (in Hg): 25.46

Sample ID	Flask ID	Flask Volume	Evacuated Pressure	Initial Absolute Pressure	Flask Temp	Flask Temp	Collection Time
		V_f	P_{gf}	P_i		T_i	
		mL	in Hg	(in Hg)	°C	°K	
S1R3T1	BSI T2-F7	2230	23.40	2.06	29.3	302.45	1230H
S1R3T2	BSI T2-F8	2240	23.40	2.06	29.1	302.25	1240H
S1R3T3	BSI T2-F9	2250	23.20	2.26	29.2	302.35	1250H

Date Collected: 24-July-2025

Sample Recovery

Barometric Pressure, $P_{bar(f)}$ (in Hg): 29.50

Sample ID	Flask ID	Final Pressure	Final Absolute Pressure	Flask Temp	Flask Temp
		P_{gf}	P_f	Temp	T_f
		in Hg	in Hg	°C	°K
S1R3T1	BSI T2-F7	0.50	29.00	31.2	304.35
S1R3T2	BSI T2-F8	0.50	29.00	30.6	303.75
S1R3T3	BSI T2-F9	0.40	29.10	31.4	304.55

Date Recovered: 25-July-2025

Concentration Calculation

Volume at STP	Mass Catch	NO_x Conc.
V_{sc}	M_{NO2}	C_{NO2}
mL	µg	mg/Nm^3
1942.9	124.1	63.9
1955.8	70.5	36.0
1951.7	105.7	54.2
	Average	**51.4**

SAMPLE CALCULATIONS

BMC FORESTRY

BAGUIO CITY

VERTICAL SHAFT KILN #2

VOLUME OF DRY GAS SAMPLED AT STANDARD CONDITIONS

$$V_{m(std)} = Y \times 0.3921 \times V_m \times \frac{P_{bar} + (\Delta H \div 13.6)}{(273 + T_m)}$$

$$V_{m(std)} = 0.9794 \times 0.3921 \times 1.3608 \times \frac{645.2 + (46.7 \div 13.6)}{(273 + 27.2)} = 1.1287 \ Nm^3$$

VOLUME OF WATER VAPOUR AT STANDARD CONDITIONS

$$V_{w(std)} = 0.001356 \times V_{lc}$$

$$V_{w(std)} = 0.001356 \times 114.1 = 0.155 \ Nm^3$$

PERCENT MOISTURE IN FLUE GAS

$$B_{ws} = \frac{V_{w(std)}}{(V_{w(std)} + V_{m(std)})}$$

$$B_{ws} = \frac{0.155}{(0.155 + 1.1287)} = 12.04 \ \%$$

ABSOLUTE FLUE GAS PRESSURE

$$P_s = P_{bar} + \frac{P_g}{13.6}$$

$$P_s = 645.2 + \frac{10.6}{13.6} = 645.98 \ mm\ Hg$$

DRY MOLECULAR WEIGHT OF FLUE GAS

$$M_d = (\%CO_2 \times 0.44) + (\%O_2 \times 0.32) + [\{ 100 - (\%CO_2 + \%O_2) \} \times 0.28]$$

$$M_d = (5.0 \times 0.44) + (16.0 \times 0.32) + [\{ 100 - (5.0 + 16.0) \} \times 0.28] = 29.44 \ g/g\ mole$$

WET MOLECULAR WEIGHT OF FLUE GAS

$$M_s = M_d \times (1 - B_{ws}) + (\frac{mol.wt.}{H_2O} \times B_{ws})$$

$$M_s = 29.44 \times (1 - 0.1204) + (18 \times 0.1204) = 28.06 \ g/g\ mole$$

AVERAGE FLUE GAS VELOCITY

$$v_s = 34.97 \times C_p \times \sqrt{\Delta P} \times \sqrt{\{\frac{T_s + 273}{P_s \times M_s}\}}$$

$$v_s = 34.97 \times 0.84 \times 5.159 \times \sqrt{\{\frac{201.7 + 273}{646.0 \times 28.06}\}} = 24.53 \ m/s$$

ACTUAL WET FLUE GAS FLOW RATE

$$Q_a = 60 \times v_s \times A_s$$

$$Q_a = 60 \times 24.53 \times 0.126 = 184.9 \ m^3/min$$

DRY, NORMAL FLUE GAS FLOW RATE

$$Q_s = Q_a \times M_{fd} \times \frac{298}{273 + T_s} \times \frac{P_s}{760}$$

$$Q_s = 184.9 \times 0.880 \times \frac{298}{273 + 201.7} \times \frac{646.0}{760} = 86.8 \ dsm^3/min$$

SAMPLE CALCULATIONS

BMC FORESTRY

BAGUIO CITY

VERTICAL SHAFT KILN #2

ISOKINETIC FLOW RATE

$$I = \frac{P_{std}}{T_{std}} \times \frac{100}{60} \times \frac{T_s + 273}{P_s} \times \frac{V_{m(std)}}{v_s \times M_{fd} \times \theta \times A_n}$$

$$I = \frac{760}{298.15} \times \frac{100}{60} \times \frac{201.7 + 273}{645.98} \times \frac{1.1287}{24.53 \times 0.88 \times 60 \times 2.72E\text{-}05} = 100.3\%$$

PARTICULATE MATTER CONCENTRATION

$$C_{part} = \frac{M_{part}}{V_{m(std)}}$$

$$C_{part} = \frac{78.4}{1.1287} = 69.5 \text{ mg/Nm}^3$$

SULPHUR OXIDES CONCENTRATION

Concentration of SO_x as SO_2

$$C_{SOx} = \frac{M_{SO2}}{V_{m(std)}}$$

$$C_{SOx} = 42.8 \text{ mg/Nm}^3$$

NITROGEN OXIDES CONCENTRATION

Concentration of NO_x as NO_2

$$C_{NOx} = \frac{M_{NO2}}{V_{sc}} \times 1000$$

$$C_{NOx} = 45.0 \text{ mg/Nm}^3$$

CONVERSION OF CO IN ppm TO mg/Nm^3

$$C_{CO(mg)} = \frac{C_{CO(ppm)} \times \text{mol. wt. CO}}{24.5}$$

$$C_{CO(mg)} = \frac{210.0 \times 28.01}{24.5} = 240.5 \text{ mg/Nm}^3$$

ANNEX B

SOURCE EMISSION MONITORING FIELD DATA

MONITORING LOGSHEET

Facility Information

Facility Name	BMC FORESTRY CORPORATION - IRISAN LIME PROJECT
Facility Address	KM. 5, MAGUILIMI ROAD, IRISAN, BAGUIO CITY
Name of Pollution Control Officer	MS. NARRY POMILBAN
Maintenance Supervisor / Engineer	
Telephone and Fax Number	

Source Description

Source Type	VERTICAL SHAFT KILN # 2
Source ID	
Manufacturer / Brand of Equipment / Serial No.	PJ 5 316 SI
Equipment Capacity (BHp,MW,MT/hr)	1.176 MT / HR
Date of Installation (month/year)	
Date of Modification (that may increase emissions)	
Operational Hours per Year (hrs/year)	
Operating rate (%)	90-95 %

Air Pollution Control Device

Is there an Air Pollution Control Device (APCD) attached to the source?	____ YES ____ NO
Type of APCD	
Date of Installation	
APCD parameters (flowrate,gpm,delta P,etc)	
Is the APCD operating during emission sampling	____ YES ____ NO

Fuel Analysis / Information

Type of Fuel used during emission sampling (%S)	RFO
Original Fuel used	
Date of Fuel change	RFO
Daily Fuel Consumption (Liters/day)	
Is the Fuel Analysis Available?	____ YES ____ NO
Will the company provide the Fuel Analysis	____ YES ____ NO

Please attach the following
- -Fuel Analysis
- -Permit to Operate
- -APCD Process Logsheet
- -Source Process Logsheet

FRANCIS FLAVIER

Signature over printed name of Facility Representative

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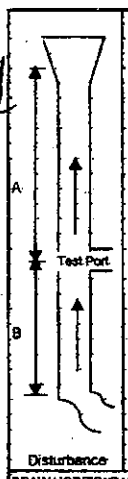
METHOD 1 - TRAVERSE POINT LOCATIONS

Facility Name	BMLC FORESTRY CORPORATION
Address	NAGUILIAN ROAD, TRISAN, BAGUIO CITY
Source	108MT/HR VERTICAL SHAFT KILN NO. 2
Personnel / Date	E.C. FERNANDO MSL CASE JBT / 24 JULY 25

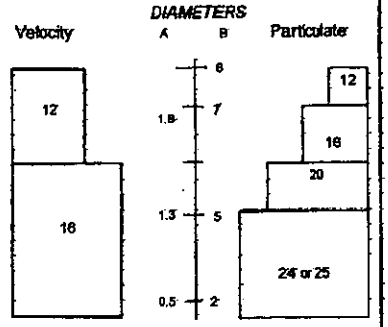
Stack / Ports				
	Type of Stack	Circular		Rectangle
	No. of Ports Available			2
	No. of Ports Used			2
	Port Inside Diameter, cm			8

Dimensions		
	Far Wall to Outside of Port,cm(a)	99
	Port length, cm (b)	9
Put diagram of test location (a) on back of this sheet	Stack Diameter or Depth,cm (a-b)	90
	Stack Width (if rectangle), cm	
	Stack Length (if rectangle), cm	
	Equivalent Stack Diameter, cm	
	Area of Stack, cm^2	



If more than 8 and 2 diameters and if duct diameter is less than 610 mm, use 8 or 9 points

DIAMETERS



DRAW HORIZONTAL LINES THROUGH UPSTREAM AND DOWNSTREAM DIAMETERS AND USE THE HIGHER NUMBER OF POINTS

Distance to Flow Disturbances	Distance, cm	Diameters
Upstream (A)	135	4.5
Downstream (B)	140	2.5D

Number of Traverse Points			Minimum # Required
		Particulate Traverse	24
		Velocity Traverse	16
# of Ports used	2	# Points / Port	12
		Number of Traverse Points Used	24

Equivalent Diameter (for rectangular ducts):
De = 2 * Depth * Width / Depth + Width)
De = 2 * ( ) * ( ) / ( ) + ( ) =

Point No.	Fraction of Stack Dia.	Dist. From Inside Wall	Port Length	Dist. From Edge of Port
† 1	0.024	6.84	9	9 .84
2	0.067	2.68	9	11 .68
3	0.118	4.72	9	13 .72
4	0.177	7.08	9	16 .08
5	0.25	10.0	9	19 .0
6	0.356	14.24	9	23 .24
7	0.444	25 .71	9	24 .71
8	0.750	30 .0	9	39 .0
9	0.823	32.92	9	41 .92
10	0.882	35.28	9	44 .28
11	0.933	37.32	9	46 .32
† 12	0.979	39.16	9	48 .16
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Note: when using 4 ports in a circular duct, the probe is marked with only the points for the first half of the full diameter traverse.

LOCATION OF POINTS IN CIRCULAR STACKS OR DUCTS

(Fraction of stack diameter from inside wall to traverse point)

	2	4	6	8	10	12
1	.146	.067	.044	.032	.026	.021
2	.854	.250	.146	.105	.082	.067
3		.750	.296	.194	.146	.118
4		.933	.704	.323	.226	.177
5			.854	.677	.342	.250
6			.956	.806	.658	.356
7				.895	.774	.644
8				.968	.854	.750
9					.918	.823
0					.974	.882
11						.933
12						.979

LOCATION OF POINTS IN RECTANGULAR STACKS OR DUCTS

(Fraction of stack diameter from inside wall to traverse point)

	2	3	4	5	6	7	8	9	10	11	12
1	.250	.167	.125	.100	.083	.071	.063	.056	.050	.045	.042
2	.750	.500	.375	.300	.250	.214	.188	.167	.150	.136	.125
3		.833	.625	.500	.417	.357	.313	.278	.250	.227	.208
4			.875	.700	.583	.500	.438	.389	.350	.318	.292
5				.900	.750	.643	.563	.500	.450	.409	.375
6					.917	.786	.688	.611	.550	.500	.458
7						.928	.813	.722	.650	.591	.542
8							.938	.833	.750	.682	.625
9								.944	.850	.773	.708
10									.950	.864	.792
11										.955	.875
12											.958

Notes/Remarks: † adjusted pt.

Team Leader / Date: H.P. DRIBINA / 24 JULY 25

QA/QC / Date: E.C. FERNANDO / 24 JULY 25

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EPA METHODS 1 & 2
GAS VELOCITY and CYCLONIC FLOW CHECK

Facility	BMC FORESTRY CORPORATION	Thermocouple ID	TMC-T2
Town/Province	NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Manometer ID	MID-T2
Source	4.08 MT/HR VERTICAL SHAFT KILN NO. 2	P barometer, mm Hg	695.2
Personnel	EAF HPO MSL CAS WBT	Pitot ID	PT-T2
Date	24 JULY 2015	Pitot Coefficient	0.84

Pitot Tube Leak Check: 30/11.6

Static Pressure, mm H_2O: 10.6

Measured at which Traverse Pt: @ B-5

Traverse Point	Velocity Pressure (mm H_2O)	Temperature (Degrees C)	Angle Which Yields Null (degrees)
A - 12	25	200	12
11	25	200	12
10	25	200	10
9	30	200	10
8	30	205	8
7	30	205	8
6	30	205	8
5	25	205	10
4	25	200	10
3	25	200	10
2	25	200	12
1	25	200	12
B - 12	25	200	12
11	25	200	12
10	25	200	10
9	25	200	10
8	30	205	10
7	30	205	8
6	30	205	8
5	30	205	8
4	25	200	8
3	25	200	10
2	25	200	12
1	25	200	12
Average	5.159	201.67	

Y = 0.9794 ; ΔH@ = 47.4149

Note: %O_2 16.0 ; %CO_2 = 4.0 ; BWS = 8.0 ; Tm = 20 ; ΔH = 5.88 (T2 VS-3) ; 1.744

Team Leader/Date: H. P. ORDUNA / 24 JUL 15 QA/QC / Date: E.C. FERNANDO / 24 JULY 2015

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METHOD 3
FYRITE ANALYSIS DATA SHEET

Facility	BMC FORESTRY CORPORATION	**Fuel Type**	
Town/Province	NAGUILIAN ROAD, LOISAN, BAGUIO CITY	**Fyrite ID**	FB-T2
Test Location	1.0B MT/hr VERTICAL SHAFT KILN #2	**Analysis Location**	INSITU

Run No. 1 Date: 24 JULY 2025 Bag ID R125 316 S1R1 Operator (Signature)

Run Time	Time of Analysis	% CO_2 Reading (A)	% O_2 Value (B-A)	% N_2 Value (100-C)
Start 0953/4	10384	5	16	
	10414	5	15	
Stop 1053/4	10454	5	16	
Leak Check ☐				
	Avg	5.0	16.0	79.0

Run No. 2 Date: 24 JULY 2025 Bag ID R125 316 S1R2 Operator (Signature)

Run Time	Time of Analysis	% CO_2 Reading (A)	% O_2 Value (B-A)	% N_2 Value (100-C)
Start 1180/+	12684	5	15	
	12721	5	16	
Stop 1205/+	12764	5	16	
Leak Check ☑				
	Avg	5.0	16.0	79.0

Run No. 3 Date: 24 JULY 2025 Bag ID R125 316 S1R3 Operator (Signature)

Run Time	Time of Analysis	% CO_2 Reading (A)	% O_2 Value (B-A)	% N_2 Value (100-C)
Start 1325/+	13394	5	16	
	13394	5	15	
Stop 1350/+	13434	5	16	
Leak Check ☐				
	Avg	5	16	79.0

Team Leader/Date: H.P. ORDIÑA / 24 JUL 25 **QA/QC / Date:** E.C. FERNANDO / 24 JULY 2025

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METHOD 4 - MOISTURE ANALYSIS DATA SHEET

Facility	BMC FORESTRY CORPORATION - IRISAN LIME PROJECT			
Address	KM. 5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY			
Source	1.08 MT/hr VERTICAL SHAFT KILN # 2			
Recovery Location	SERVICE VEHICLE (INSITU)			
Run Number	% MOISTURE	PM-1	PM-2	PM-3
Test Date	24 JULY 2025	24 JULY 2025	24 JULY 2025	24 JULY 2025
Recovery Date	JULY 2025	JULY 2025	JULY 2025	JULY 2025
Recovered By	ECF HPO MSL CAS	ECF HPO MSL CAS	ECF HPO MSL CAS	ECF HPO MSL CAS
Impinger 1 100 mL	D.I. H2O	3% H2O2	3% H2O2	3% H2O2
Final Weight, g	748.3	767.3	746.8	748.3
Initial Weight, g	714.6	715.6	716.2	714.8
Net Weight, g	33.7	51.7	50.6	53.5
Impinger 2 100 mL	D.I. H2O	3% H2O2	3% H2O2	3% H2O2
Final Weight, g	722.9	743.9	742.5	744.6
Initial Weight, g	708.3	707.9	709.8	707.9
Net Weight, g	14.6	35.6	32.7	36.7
Impinger 3 EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
Final Weight, g	616.5	629.9	621.6	624.8
Initial Weight, g	612.8	614.3	611.8	613.8
Net Weight, g	3.7	15.6	9.8	11.0
Impinger 4 200-300 g	SILICA GEL	SILICA GEL	SILICA GEL	SILICA GEL
Final Weight, g	810.4	824.6	841.9	845.1
Initial Weight, g	800.6	810.4	826.6	830.6
Net Weight, g	9.8	16.2	15.3	14.5
Impinger 5				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 6				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 7				
Final Weight, g				
Initial Weight, g				
Net Weight, g				

Total Catch, g	61.8	114.1	97.3	110
Silica Gel Spent, %				

Team Leader / Date: H.R. ORDINA / 24JUL.25 QA/QC/Date: E.C. FERNANDO / 24 JULY 2025

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ISOKINETIC FIELD DATA SHEET
METHOD(s) 4

Facility Name	BMC FORESTRY CORPORATION - TRISAN LIME	Test Date	24 JULY 2025
Address	KM.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Job Number	PJ25 316 S1 M4
Source	1.08 MT/HR. VERTICAL SHAFT KILN #2	Year Installed	
Control device		Field Personnel	ECF HPM MCL CAS JBT
Contact Person	MS. NARHY C. PAMILLAN	Operators Signature	[signature]

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Gamma	DeltaH @	Nozzle ID#	Dia.	Pitot Tube ID#	Cp	Probe ID#
		646.2	10.6	BS-12	0.9794	47.4149	N-43	5.80	PT-4MT2	0.84	CDA 4MT-2

		Sample Train Leak Checks	Initial	Interim				Final	Pyrites Time	$\%O_2$	$\%CO_2$
Run No.	M4										
K Factor	1	Vacuum, mm Hg	15.0					15	0424	16	5
Pitot Leak Checks		Leak rate, m^3/m	0					0	0934	16	5
Pretest	116/118	Start Volume	571.3850					572.6100	ORSAT Leak Check		OK
Post-test	120/140	Stop Volume	571.3850					572.0180	Tedlar Bag ID		S1-M4

Ports & Points	Time Clock (24-hr)	Test (min)	DGM reading (m^3)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Temperature °C Stack	DGM	Probe	Filter	Imp. Exit
@A-4	0840H	0	571.3886	40		40	5.0	205	22	116	116	15
	0845H	5	571.4916	40		40	5.0	205	22	120	118	17
	0850H	10	571.5934	30		40	5.0	205	22	121	120	17
	0855H	15	571.4997	40		40	5.0	205	22	120	120	14
	0900H	20	571.7804	30		40	5.0	205	22	120	117	16
	0905H	25	571.9022	30		40	5.0	205	22	117	118	15
Final	0910H	30	572.0013									

Run Time	Total Volume	RMS Delta P
30	0.6132	5.477

Delta H Avg	High Vac.	TS Stack Avg	Tmeter Avg
40	5.0	205	22

Team Leader / Date: H.P. MORVINA 24-JUL-25

QA/QC / Date: E.C. FERNANDO | 24 JULY 2025

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ISOKINETIC FIELD DATA SHEET
METHOD(s) 5/6

Facility Name	BMC FORESTRY CORPORATION	Test Date	24 JULY 2025
Address	KM. 6, NAGUILIAN RD, IRISAN, BAGUIO CITY	Job Number	PJ25 316 S1 KILN 2
Source	1.08 MT/HR. VERTICAL SHAFT KILN # 2	Year Installed	
Control device		Field Personnel	ECF HPO/MSL CAS JBT
Contact Person	MS. NARRY C. POMILBAN	Operators Signature	[signature]

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Meterbox Gamma	Meterbox DeltaH @	Nozzle ID#	Nozzle Dia.	Pitot Tube ID#	Pitot Tube Cp	Probe ID#
		645.2	0.6	BSI-T26	.9794	42.9147	NS-T2-3	5.88	PT-T2-6A	0.84	SPL-T2-6

		Sample Train Leak Checks	Initial	Interim			Final	Fyrites Time	%O_2	%CO_2
Run No.	1									
K Factor	1.744	Vacuum, mm Hg	15.0					0938H	16	5
Pitot Leak Checks		Leak rate, m³/m	0				0	1021H	16	5
Pretest	116/120	Start Volume.	572.0150				573.3850	ORSAT Leak Check		
Post-test	132/124	Stop Volume	572.0150				573.3850	Tedlar Bag ID	PJ25 316 S1 R1 CO	

Ports & Points	Time Clock (24-hr)	Time Test (min)	DGM reading (m³)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Stack °C	DGM °C	Probe °C	Filter °C	Imp. Exit °C
A - 12	0930H	0	572.0188	25.	43.2	44	5.0	200	26.	116	117	18
11			572.0612	25.	43.6	44	5.0	200	26.	117	112	16
10	0935H	5	572.1300	25.	43.2	44	5.0	200	26.	120	124	17
9			572.1826	25.	43.2	44	5.0	200	26.	120	120	16
8	0940H	10	572.2414	30.	52.32	52	5.0	205	27	120	120	16
7			572.2982	30.	52.32	52	5.0	205	27	124	120	17
6	0945H	15	572.3508	30.	52.32	52	5.0	205	27	120	121	17
5			572.4070	30.	52.32	52	6.0	205	27	120	120	17
4	0950H	20	572.4726	25.	43.6	44	6.0	200	27	117	117	17
3			572.5200	25.	43.6	44	6.0	200	27	120	116	17
2	0955H	25	572.5718	25.	43.6	44	6.0	200	27	120	113	17
1			572.6340	25	43.6	44	7.0	200	27	120	120	16
	1000H	30	572.6982									
STOP												
B - 12	1000H	30	572.6982	25	43.2	44	6.0	200	27	117	115	17
11			572.7216	25	43.2	44	6.0	200	27	116	113	17
10	1005H	35	572.7822	25	43.2	44	6.0	200	27	112	124	17
9			572.8306	25	43.32	44	6.0	200	27	124	120	17
8	1010H	40	572.8722	30	52.32	52	6.0	205	28.	120	120	17
7			572.9344	30	52.32	52	8.0	205	28.	120	121	17
6	1015H	45	572.9902	30	52.32	52	8.0	205	28.	117	120	17
5			573.0506	30	52.32	52	8.0	205	28.	117	120	18
4	1020H	50	573.1182	25	43.6	44	7.2	200	28.	112	113	18
3			573.1744	25	43.2	44	8.0	200	28.	124	124	17
2	1025H	55	573.2482	25	43.2	44	8.0	200	28.	120	120	17
1			573.3036	25	43.6	44	8.0	200	28.	117	117	16
END	1030H	60	573.3794									

Run Time	Total Volume	RMS Delta P
60	1.3403	5.159

Delta H Avg	High Vac.	TS Stack Avg	Tmeter Avg
45.42	8.0	201.67	27.17

Team Leader / Date: H.P. ORQUINA / 24 JULY 2025

QA/QC / Date: E.C. FERNANDO / 24 JULY 2025

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ISOKINETIC FIELD DATA SHEET
METHOD(s) 5/6

Facility Name	BMC FORESTRY CORPORATION - IRISAN LIME	Test Date	24 JULY 2025
Address	KM.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Job Number	P125 316 S1 RUN 2
Source	1.08 MT/hr. VERTICAL SHAFT KILN # 2	Year Installed	
Control device		Field Personnel	PCF HPO MSL CAS JBT
Contact Person	MS. NARHY C. POMILBAN	Operators Signature	

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Meterbox Gamma	Meterbox DeltaH @	Nozzle ID#	Nozzle Dia.	Pitot Tube ID#	Pitot Tube Cp	Probe ID#
		645.7	10.4	BSI-T2	0.9994	47.4149	NS-T2-3	5.88	PT-T2-GPT	0.84	SPL-T2-GPT

Run No:	2	Sample Train Leak Checks	Initial	Interim			Final	Fyrites Time	Fyrites %O_2	Fyrites %CO_2
K Factor	1.773	Vacuum, mm Hg	15.0				10	1104H	16	5.0
Pitot Leak Checks		Leak rate, m^3/m	0				0	1137H	16	5.0
Pretest	45/12	Start Volume	573.391				574.7700	ORSAT Leak Check		
Post-test	50/13	Stop Volume	573.391				574.7700	Tedlar Bag ID	P125	316 S1 R2 CO

Ports & Points	Time: Clock (24-hr)	Time: Test (min)	DGM reading (m^3)	Pitot Reading (mm H_2O)	Delta H: Calc. (mm H_2O)	Delta H: Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Temperature °C: Stack	DGM	Probe	Filter	Imp. Exit
A - 12	1100 H	0	573.396	25	44.32	44	6.0	200	29	116	117	18
11			573.457	25	44.32	44	6.0	200	29	117	122	18
10	1105 H	5	573.475	25	44.32	44	6.0	200	29	121	113	18
9			573.575	25	44.32	44	6.0	200	29	120	114	18
8	1110 H	10	573.636	30	53.19	54	6.0	205	29	117	120	16
7			573.643	30	53.19	54	6.0	205	29	130	112	16
6	1115 H	15	573.732	30	53.19	54	6.0	205	30	120	117	16
5			573.787	30	53.19	54	6.0	205	30	117	111	16
4	1120 H	20	573.843	25	44.32	44	6.0	200	30	117	117	17
3			573.904	25	44.32	44	6.0	200	30	121	113	17
2	1125 H	25	573.961	25	44.32	44	8.0	200	30	118	120	17
1			574.022	25	44.32	44	8.0	200	30	120	117	16
STOP	1130 H	30	574.0940									
B - 12	1135 H	30	574.094	25	44.32	44	8.0	200	30	117	116	17
11			574.153	25	44.32	44	8.0	200	30	118	124	17
10	1140 H	35	574.200	25	44.32	44	8.0	200	30	121	120	16
9			574.272	25	44.32	44	8.0	200	30	117	122	16
8	1145 H	40	574.337	30	53.19	54	8.0	205	30	116	117	17
7			574.391	30	53.19	54	8.0	205	30	121	113	16
6	1150 H	45	574.457	30	53.19	54	8.0	205	30	117	120	17
5			574.500	30	53.19	54	9.0	205	30	118	120	17
4	1155 H	50	574.563	25	44.32	44	9.0	200	30	120	120	16
3			574.618	25	44.32	44	9.0	200	30	120	120	16
2	1200 H	55	574.664	25	44.32	44	9.0	200	30	121	117	17
1			574.718	25	44.32	44	9.0	200	30	120	116	17
END	1205 H	60	574.765									

Run Time	Total Volume	RMS Delta P
60	1.3688	5.159

Delta H °Avg	High Vac.	TS Stack Avg	Tmeter Avg
47.3	9.0	201.67	29.7

Team Leader / Date: H.P. ORDINA / 24 JULY 2025

QA/QC / Date: E.C. FERNANDO / 24 JULY 2025

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan City, Metro Manila, Philippines
Tels. 863-6229 Fax (632) 727-9831

Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER

BSI
BERKMAN SYSTEMS INC.
Environmental Management Service Provider

ISOKINETIC FIELD DATA SHEET
METHOD(s) 5/6

Facility Name	BMC FORESTRY CORPORATION	Test Date	24 JULY 2025
Address	KM.6, NAGUILIAN, ROAD, IRISAN, BAGUIO CITY	Job Number	R12.6 316 S1 RUN 3
Source	1.00 MT/HR. VERTICAL SHAFT KILN # 2	Year Installed	
Control device		Field Personnel	ECF HPO MSL CAS-JBT
Contact Person	MS. MARIA C. POMILBAN	Operators Signature	

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Meterbox Gamma	Meterbox DeltaH @	Nozzle ID#	Nozzle Dia.	Pitot Tube ID#	Pitot Tube Cp	Probe ID#
		646.3	10.4	BSI-T2	0.9934	4.4149	NS-T2-3	0.88	PT-T2-C	0.84	SPI-T2-C

Sample Train Leak Checks							Fyrites		
Run No.	3		Initial	Interim		Final	Time	$\%O_2$	$\%CO_2$
K Factor	1.760	Vacuum, mm Hg	15.0			0	12:32/1	16	5
Pitot Leak Checks		Leak rate, m^3/m	0			0	13:36	14	4
Pretest	118/120	Start Volume	574.771.0			575.1510	ORSAT Leak Check		
Post-test	140/150	Stop Volume	574.721.0			576.1510	Tedlar Bag ID	R145	316 S1 R3 CO

Ports & Points	Time Clock (24-hr)	Time Test (min)	DGM reading (m^3)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Temperature °C Stack	DGM	Probe	Filter	Imp. Exit
A-12	12:54	0	574.7810	25	44.0	44	6.0	200	29	116	112	19
11			574.7920	25	44	44	5.0	200	29	117	117	19
10	12:59	5	574.9004	25	44	44	5.0	200	29	120	120	19
9			574.9620	25	44	44	5.0	200	29	120	126	19
8	13:04	10	575.0219	30	52	52	5.0	205	30	120	120	19
7			575.0790	30	52	52	5.0	205	30	124	120	19
6	13:09	15	575.1370	30	52	52	5.0	205	30	120	124	19
5			575.1900	30	52	52	4.8	205	30	117	120	19
4	13:14	20	575.2520	30	52	52	6.0	205	30	118	120	19
3			575.3110	25	44	44	6.0	200	30	120	124	19
2	13:19	25	575.3732	25	44	44	6.0	200	30	120	117	19
1			575.4316	25	44	44	6.0	200	30	117	112	16
STOP	13:24	30	575.4820									
B-12	13:00	30	575.4820	25	44	44	6.0	200	30	120	120	17
11			575.5410	25	44	44	6.0	200	30	112	116	17
10	13:05	35	575.6060	25	44	44	6.0	200	30	120	120	16
9			575.6570	25	44	44	6.0	200	30	120	120	17
8	13:10	40	575.7120	30	52	52	7.0	205	30	120	120	17
7			575.7782	30	52	52	7.0	205	30	120	117	17
6	13:15	45	575.8314	30	52	52	7.0	205	30	120	118	18
5			575.8982	30	52	52	7.0	205	30	117	117	19
4	13:20	50	575.9416	30	52	52	7.0	205	31	117	120	19
3			576.0000	25	44	44	8.0	200	31	121	116	19
2	13:25	55	576.0624	25	44	44	8.0	200	31	120	120	18
1			576.0982	25	44	44	8.0	200	31	117	117	17
END	13:30	60	576.1483									

Run Time	Total Volume	RMS Delta P
60	1.3470	.195

Delta H *Avg	High Vac.	TS Stack Avg	Tmeter Avg
43.33	7.0	202.08	30

Team Leader / Date: H.P. ORDINA 24 JULY 25

QA/QC / Date: E.C. FERNANDO 24 JULY 25

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Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER

ESI
Environmental Management Service Provider

METHOD 7 FLASK SAMPLE AND RECOVERY DATA

Facility: BMC FORESTRY CORPORATION
Address: KM. 5, MACILLIAN ROAD, IRISAN, BAGUIO CITY
Source: 1.0B MT/HR. VERTICAL SHAFT KILN #2
Personnel: ECF HPO MSL CAS JBT
Test Date: 24 JULY 2025

Absorbing Solution Volume, ml: 25 mL
Heated Probe? (check) Yes ✓ No ____ *If No, explain in "Remarks"
Filter Used? (check) Yes ✓ No ____ *If No, explain in "Remarks"
Remarks: ____

Sample Collection Information
Barometric Pressure, Pbar (in Hg) 25.42 / 25.42 / 25.46
Date Performed: 24 JULY 2025 By: ECF HPO MSL CAS JBT

Sample ID	Run Number	Flask ID Number	Flask Volume (ml)	Leak Check (<0 4"Hg/min)	Evacuated Pressure Pgi (in Hg)	Flask abs. Press Initial Pi, Pbar-Pgi (in Hg) [1]	Flask Temp °C	Flask Temp, Ti (°K)	Sample Collection Time[2] 24hour	Shaken for 5min
P	R1 T1	B5/F1	2230	—	23.10	2.32	29.2	302.75	0945H	—
J	T2	F2	2230	—	23.20	2.22	29.7	302.25	0800H	—
2	T3	F3	2250	—	23.20	2.22	29.0	302.15	1010H	—
5	R2 T1	F4	2230	—	23.30	2.12	29.7	302.85	1240H	—
-	T2	F5	2250	—	23.10	2.32	29.3	302.45	1130H	—
3	T3	F6	2250	—	23.30	2.12	29.7	302.85	1140H	—
1	R3 T1	F7	2230	—	23.4	2.06	29.3	302.45	1230H	—
6	T2	F8	2250	—	23.4	2.06	29.1	302.25	1240H	—
S1	T3	F9	2250	—	23.2	2.26	29.2	302.35	1250H	—

Sample Collection Information
Barometric Pressure, Pbar (in Hg) 29.50
Date Performed: 25 JULY 2025 By: ECF HPO MSL CAS JBT

Shaken for 2min	Sample Recovered Time[3] 24hour	Final Pressure Pgf (in Hg)	Flask abs. Press Initial Pi, Pbar-Pgi (in Hg)	Flask Temp °C	Flask Temp Tf °K	Sample pH Adjusted (9 - 12)
✓	0900H	0.30	29.20	31.2	304.35	—
✓	0905H	0.50	29.0	30.7	303.85	—
✓	0910H	0.30	29.20	30.4	303.75	—
✓	0915H	0.30	29.20	31.4	304.55	—
✓	0920H	0.50	29.0	30.7	303.85	—
✓	0925H	0.40	29.10	30.3	303.45	—
✓	0930H	0.50	29.0	31.2	304.35	—
✓	0935H	0.50	29.0	30.4	303.75	—
✓	0940H	0.40	29.10	31.4	304.55	—

Source Oxygen Concentration? %O2 = 15.0
Was additional oxygen introduced to the Flask? Yes____ No____ ✓

[1] Pi = Pbar - Pg. Flask must be evacuated to within 3 inches of mercury (Hg) of the absolute pressure (barometric pressure).
[2] Additional oxygen should be introduced to the flask if the source O_2 is below 3%
[3] Flask must stand for 16 hours or greater after sampling before recovery can be performed.

Checked By: .....
QA/QC / Date: E. C. FERNANDO / 25 JULY 2025

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
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Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER

ANNEX C

PERMIT TO OPERATE
AND
FACILITY PROCESS DATA

MONITORING LOGSHEET

Facility Information

Facility Name	BMC FORESTRY CORPORATION - IRISAN LIME PROJECT
Facility Address	KM. 5, MAGUILIAN ROAD, IRISAN, BAGUIO CITY
Name of Pollution Control Officer	MS. MARRY POMILBAN
Maintenance Supervisor / Engineer	
Telephone and Fax Number	

Source Description

Source Type	VERTICAL SHAFT KILN # 2
Source ID	PJAS 316 S1
Manufacturer / Brand of Equipment / Serial No.	
Equipment Capacity (BHp,MW,MT/hr)	1.08 MT / HR
Date of Installation (month/year)	
Date of Modification (that may increase emissions)	
Operational Hours per Year (hrs/year)	
Operating rate (%)	90-95 %

Air Pollution Control Device

Is there an Air Pollution Control Device (APCD) attached to the source?	____ YES ____ NO
Type of APCD	
Date of Installation	
APCD parameters (flowrate,gpm,delta P,etc)	
Is the APCD operating during emission sampling	____ YES ____ NO

Fuel Analysis / Information

Type of Fuel used during emission sampling (%S)	RFO
Original Fuel used	RFO
Date of Fuel change	
Daily Fuel Consumption (Liters/day)	
Is the Fuel Analysis Available?	____ YES ____ NO
Will the company provide the Fuel Analysis	____ YES ____ NO

Please attach the following
- -Fuel Analysis
- -Permit to Operate
- -APCD Process Logsheet
- -Source Process Logsheet

FRANCIS FUNTER

Signature over printed name of Facility Representative

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Cordillera Administrative Region (CAR)
Cordillera Administrative Region DENR Compound,Gibraltar Baguio City
Tel No: (074) 446-64-40

Permit No: PTO-OL-CAR-2021-09103-R
Application Type: Renewal

Date Issued: 30 Oct 2021
Date Expiration: 30 Oct 2026

PERMIT TO OPERATE
Air Pollution Source and Control Installations

Pursuant to Part IV, Rule XIX of the Rules and Regulations of R.A. 8749, authority is hereby granted to:

BMC Forestry Corporation (Irisan Lime Kiln) **Km. 5 Naguilian Road, Irisan, Baguio City, Benguet**

subject to the following terms and conditions:

TERMS AND CONDITIONS

1. This Permit is issued for the permittee to operate the following facilities/equipment described below at the permittee's establishment located at the above-mentioned address (geolocation of entrance gate: 16.419336°, 120.557358°):
   - **Air Pollution Source Installations/Equipment:**
     - *Three (3) units Vertical Shaft Kiln (Cap.: 1.08 MT/hr; Fuel used: Regular Fuel Oil or Bunker Oil)* - for the purpose of calcinations of limestones (geolocation of kiln plant building 16.419198°, 120.557922°);
     - *One (1) unit Jaw Crusher (Cap.: 1 MT/hr; With Conveyors)* - for the purpose of pulverizing the quicklimes;
     - *One (1) unit Lime Storage Silo (Cap.: 90 MT)*;
     - *One (1) unit Aboveground Fuel Storage Tank (Cap.: 60,000 liters; Fuel: Regular Fuel Oil or Bunker Oil; Vertical Cylinder)*;
     - *Seven (7) units Aboveground Fuel Storage Tanks (Cap.: 15,000 liters each; Fuels: Regular Fuel Oil of Bunker Oil; Horizontal Cylinders)*;
     - *One (1) unit Standby Generator Set (Cap.: 200 kW / 250 kVA; Make: SEALEY; Model: SLC250GF; S/N: 151118001; P.F. = 0.8; Silent-type): Alternator/Generator (Make: MBH; Model: XN274G; S/N: 31512006; Cap.: 180 kW / 225 kVA, continuous; P.F. = 0.8) primed by Diesel Engine (Make Chongqing Cummins; Model: NT855-GA; S/N: 41226017; Cap.: 257 kW @ 1800 RPM, max)*;
     - *One (1) unit Standby Generator Set (Cap.: 75 kW; Open-type): Alternator/Generator (Make: Caterpillar) primed by Diesel Engine (Make: Isuzu; Model: E120; S/N: 202587)*; and
     - *One (1) unit Standby Generator Set (Cap.: 200 kW / 250 kVA; Make: DCA; Model: 200DC; S/N: 8221-002; P.F. = 0.8; Open-type): Alternator/Generator (Make: DCA; Model: 200DC; S/N: A73281AC; Cap.: 200 kW / 250 kVA, standby; P.F. = 0.8) primed by Diesel Engine (Make: Cummins; Model: NT-855-G; S/N: 30104629)* - all generator sets are installed in the Powerhouse with geolocation of 16.419050°, 120.557809°; and
   - **Air Pollution Control Facilities:**
     - *Three (3) units Gas Scrubber Systems (Cap.: 66 m3/min; Wet-type; 1-unit scrubber is exclusively connected to 1-unit shaft kiln)*; and
     - *One (1) unit Dust Collector and Scrubber System (Cap.: 505.84 m3/min; composed of 1-unit 12,850 CFM Cyclone Dust Collector interconnected to 1-unit 5,000 CFM Cyclone Dust Collector with their bottom open and submerged on Water-bed Scrubber)* - for the purpose of controlling the airborne particulates/dusts from the sorting, crushing and loading areas (geolocation: 16.419132°, 120.557396°).

2. This Permit shall be valid until **SEPTEMBER 10, 2026** **(PLEASE DISREGARD THE EXPIRATION DATE INDICATED ABOVE)** unless suspended or revoked by the Bureau.

3. The Bureau may modify the Permit by amending any existing condition or imposing any new or additional condition from the date of issuance (as indicated above) until its expiration on **SEPTEMBER 10, 2026**, subject to the provisions of Rule XIX of the Implementing Rules and Regulations (IRR) of the Republic Act No. 8749.

Filing Fee	: Php 600.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
Permit Fee	: Php 47300.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
PD1856	: Php 10.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
Documentary Stamp Tax	: Php 30.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021

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4. An application for renewal of this Permit shall be filed not less than thirty (30) days before the expiry date the **expiry date - SEPTEMBER 10, 2026.**

5. This Permit shall be posted in a conspicuous location at the premises and shall be adequately framed or otherwise protected against damage.

6. The operation of any installation, process activity at this establishment that produces, generates, captures, treats, reduces, controls, emits, releases or disperse air pollutants without a valid Permit to Operate, or in violation of any of the conditions of this Permit, shall be subject to penalties pursuant to Rule LVI of the IRR of RA 8749.

7. The installations, processes or activities at this establishment shall be operated, conducted and managed by the permittee, and the associated plant and equipment shall be maintained and operated by the permittee, so that emissions of air pollutants are kept to a practicable minimum. The permittee shall be responsible for ensuring that any emissions of air pollutants from abnormal or unexpected events, do not cause air pollution in the surrounding air environment or have adverse effects on persons in that environment.

8. Without limiting the generality of the previous condition, the permittee shall ensure that the emissions from the permitted installations or processes comply with:
   - the National Emission Standards for Source Specific Air Pollutants as specified in Rule XXV of the IRR of RA 8749; and
   - the National Ambient Air Quality Standards for Source Specific Air Pollutants from Industrial Sources/Operations as specified in Rule XXVI of the IRR of RA 8749.

9. The permittee shall submit Self-Monitoring Reports to the Bureau on a quarterly basis in accordance with DENR Administrative Order No. 27 (Series of 2003) and any written instructions by the Bureau based on the following schedule:

Quarter	Coverage	Submission	Quarter	Coverage	Submission
First	Jan. - Mar.	1-15 Apr.	Third	Jul. - Sep.	1-15 Oct.
Second	Apr. - Jun.	1-15 Jul.	Fourth	Oct. - Dec.	1-15 Jan.

10. The permittee shall at all times has an accredited Pollution Control Officer (PCO) who shall be the day-by-day contact person between the Bureau and the establishment. The permittee shall ensure that the PCO is familiar with the operations and activities undertaken at the establishment, and the relevant emission sources and air pollution control devices and equipment. The permittee shall give the PCO the necessary authority to take or to direct corrective action in the event of a malfunction, accident, breakdown or other abnormal event that results in excessive emissions or emissions that do not comply with relevant Permit conditions, emission standards or ambient air quality standards.

11. The Permittee shall seek accreditation of his/her appointed/designated PCO pursuant to Section 8 of DAO 2014-02 (Revised Guidelines for Pollution Control Officer Accreditation).

12. In case of the resignation or termination of the services of the PCO, the Managing Head shall appoint/designate a new PCO. He/she shall inform, in writing, the concerned EMB Regional Office within fifteen (15) days and seek accreditation for the new PCO within thirty (30) days from the date of resignation or termination.

13. The permittee shall report in writing to the Bureau any malfunction, accident, breakdown, leak, spill or other abnormal or unexpected event which results in emissions to atmosphere that do not comply with relevant Permit conditions, emission standards or ambient quality standards, or in any other abnormal or unexpected releases of air pollutants. The report shall indicate the nature of the incident or event, its impact on emissions, the time period involved, and any actions or measures taken to control the emissions or releases, remedy any air pollution problems that may have occurred, and minimize the probability of reoccurrence of the event or the release.

14. The permittee shall at all times allow authorized or accredited officers of the Department or the Bureau entry to the establishment and access to any part of the establishment to conduct inspections, gather information, test emissions or take samples. The permittee and its personnel shall not obstruct such officers in the performance of these functions, and shall furnish any information or materials requested by them that is reasonable for them to have. The permittee shall obey any lawful instruction or direction given by the Department or the Bureau at all times.

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Permit Fee	: Php 47300.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
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15. The permittee shall not make or allow any alterations or modifications to operations, activities, installations, processes, plant or equipment at the establishment that might substantially change the nature or quantity of the associated emissions without obtaining the approval of the Bureau, including the obtaining of any necessary Permit to Operate.

SPECIFIC CONDITION

16. The permittee shall conduct emission testing for the three (3) units Vertical Shaft Kilns through a DENR accredited third party Source Emission Testing Firm twice each year for each year of operation with three (3) sampling runs to verify its compliance pursuant to Memorandum Circular No. 2007-003 (Policy on Compliance and Permitting for Industrial Facilities Relating to Air Quality). However, considering that each kiln is operated in a period of six (6) to eight (8) months, each kiln shall be subjected to two (2) emission testing within that period. The Test Reports will be a part of the requirements for the renewal of this Permit.

Recommended by:

ENGR. MARIE PIA L. RODAS
OIC-Chief, Clearance & Permitting Division

Approved by:

MA. VICTORIA V. ABRERA
Regional Director

Filing Fee	: Php 600.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
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Annex

Fuel Burning					
ID	APSI	Capacity	Brand name	Type of Fuel	APCD
130795	Vertical Shaft Kiln No. 1	1.08 MT/hr/equipment	N/A	Regular Fuel Oil	Gas Scrubber No. 1 (66.0 m^3/min)
130797	Vertical Shaft Kiln No. 2	1.08 MT/hr/equipment	N/A	Regular Fuel Oil	Gas Scrubber No. 2 (66.0 m^3/min)
130799	Vertical Shaft Kiln No. 3	1.08 MT/hr/equipment	N/A	Regular Fuel Oil	Gas Scrubber No. 3 (66.0 m^3/min)
140793	Standby Generator Set	250.0 kVA	DCA/CUMMINS	Diesel	—
140794	Standby Generator Set	200.0 kW	SEALEY/Cummins	Diesel	—
140795	Standby Generator Set	75.0 kW	Caterpillar/Isuzu	Diesel	—

Non Fuel Burning					
ID	APSI	Capacity	Brand name	Material	APCD
130801	Jaw Crusher	1.0 MT/hr/equipment	N/A		Dust Collector Collector System (505.84 m^3/min)
140796	Lime Storage Silo	90.0 MT	N/A		—
140797	Aboveground/Overhead Fuel Storage Tank	60000.0 Liters	N/A		—
140800	Aboveground/Overhead Fuel Storage Tank	15000.0 Liters	N/A		—
140801	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		—
140802	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		—
140803	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		—
140804	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		—
140805	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		—
140806	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		—

APCD-APSI Mapping			
ID	APCD	Connected APSIs (<name> (id))	Connected APCDs (<name> (id))
19030	Gas Scrubber No. 1 (1)	Vertical Shaft Kiln No. 1 (4)	—
19907	Gas Scrubber No. 2 (8)	Vertical Shaft Kiln No. 2 (5)	—
19908	Gas Scrubber No. 3 (9)	Vertical Shaft Kiln No. 3 (6)	—
19909	Dust Collector Collector System (10)	Jaw Crusher (7)	—

Filing Fee	: Php 600.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
Permit Fee	: Php 47300.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
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ANNEX D

ANALYTICAL DATA

ELARSI, INC.

Unit 201/202/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**	Lab. Report No.	: 252122-SA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila	Date/Time Sampled	: 07-24-25 1420H
		Date Received	: 07-25-25
Contact Number	: 8863-6129	Date Analyzed	: 07-30-25 to 08-01-25
Nature of Sample/s	: Stationary Source Emission	Date Reported	: 08-05-25
No. of Sample/s Submitted	: Three (3)		

[REPORT OF ANALYSES]

Sample No.	Sample ID	PM (with acetone rinse), mg[a]	Analysis Date/Time
ES-2509717	PJ 25 316 S1R1	78.4	07-30-25 1630H
ES-2509718	PJ 25 316 S1R2	34.8	07-30-25 1630H
ES-2509719	PJ 25 316 S1R3	122.5	07-30-25 1630H

[a] - Method 5 / Gravimetric

Reference:
CFR 40 Part 60 Revised as of December 20, 2020

Note: Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:

BERNADETH MAE M. ASUZANO, RChT
Laboratory Chemical Technician
PRC Lic. No. 0011907

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR RECOGNIZED LABORATORY C.R. No. 005/2024

PAB ACCREDITED TESTING LABORATORY PNS ISO/IEC 17025:2017 LA-2023-436A

Test results reflect the quality of the samples as received.

ELARSI, INC.

Particulate Matter (PM) (METHOD 5) ANALYTICAL DATA SHEET (EI-APA-15)

Project No. :	PJ 25 316	**Lab Report No. :**	252122-59
Nature of Sample :	SSE	**Date Received:**	7 | 25 | 25
Analytical Balance:	EI-EQPTREC- 252	**Date Analysis Started:**	7 | 30 | 25 4:30PM
Sensitivity:	0.1 mg		
Detection Limit:	0.1 mg	**Date Analysis Finished:**	8 | 1 | 25 0930H
		Temperature (°C)	24.3 °C
		Relative Humidity(%)	41.83 %

	Units				
Sample ID		S1R1	S1R2	S1R3	
Sample No.		ES-250 9217	ES 250 9718	ES 250 9719	
Filter Analysis					
Filter ID		506 - 152	506 - 151	506 - 153	
Filter Appearance		LIGHT BROWN	LIGHT BROWN	GRAY	
Initial Weight	g	0.3553	0.3548	0.3545	
Final Weight	g	0.4308	0.3849	0.4751	
Particulate Mass Filter, m_f	mg	75.5	30.1	120.6	
Acetone Rinse Analysis					
Dried PM Rinse Appearance			GRAY DUST		
Acetone Rince Volume , V_{ar}	ml	28	54	36	
Beaker ID		PM 15	PM 17	PM 19	
Initial Weight, Beaker	g	106.8625	112.7054	110.0575	
Final Weight, Beaker	g	106.8654	112.7066	110.0594	
Particulate Mass, Acetone Rinse, m_{ar}	mg	2.9	4.7	1.9	
Acetone Reagent Blank					
Acetone Blank Volume, V_a	ml	100	100	100	
Beaker ID		BLK	BLK	BLK	
Initial Weight, Beaker	g	106.7523	106.7523	106.7523	
Final Weight, Beaker	g	106.7523	106.7523	106.7523	
Blank Residue Mass, m_a	mg	0.0000	0.0000	0.0000	
$C_a = m_a / V_a$	mg/ml	0.0000	0.0000	0.0000	
Acetone Blank, $W_a = C_a \times V_{ar}$	mg	0.0000	0.0000	0.0000	
Max Blank Corr. Allowed, W_m*	mg				
Acetone Blank Value Used **	mg	0.0000	0.0000	0.0000	

** Maximum Acetone Blank is 0.001% A_r mass, W_m = Var x 0.7857x 0.00001 (where 0.7857 g/ml is acetone density @ 25° C)*

*** Maximum Mass of Acetone Blank Correction should be less than 0.001% of the Ar mass, otherwise use, W_m.*

Total PM = m_f + m_{ar} - W_a	mg	78.4	34.8	122.5	
or **Total PM = m_f + m_{ar} - Wm**			ND (Not Detected)		

Analyzed by BMA
Date&Time 8-1-25 1455H

Checked by JBJ
Date&Time 8/5/25 1041H

Approved by RMG
Date&Time 8/5/25 5PM

EI_LABAIRFORM_15

ELARSI, INC.

Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**	Lab. Report No.	: 252123-SA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila	Date/Time Sampled	: 07-24-25 1420H
		Date Received	: 07-25-25
Contact Number	: 8863-6129	Date Analyzed	: 08-01-25
Nature of Sample/s	: Stationary Source Emission	Date Reported	: 08-04-25
No. of Sample/s Submitted	: Four (4)		

[REPORT OF ANALYSES]

Sample No.	Sample ID	SO_2, mg[a]	Analysis Date/Time
ES-2509720	PJ 25 316 S1R1	48.29	08-01-25 1000H
ES-2509721	PJ 25 316 S1R2	86.15	08-01-25 1000H
ES-2509722	PJ 25 316 S1R3	84.31	08-01-25 1000H
ES-2509723	PJ 25 316 S1 Blank	< 1.90	08-01-25 1000H

[a] - Method 6 / Barium – Thorin Titration

Reference:
CFR 40 Part 60 Revised as of August 3, 2017

Note: Date and time of sampling for "As Received" samples were provided by client

Analyzed By:

DESIREE MAE M. PAGADDU, RChT
Laboratory Chemical Technician
PRC Lic. No. 0011745

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR
RECOGNIZED
LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

REAGENTS STANDARDIZATION for SOx ANALYSIS (EI-APA-14)

Project No. : P325316
Lab Report No. 252123-1A

Date Received: 7/25/25
Date & Time Analysis Started: 8/1/25 1000H
Date & Time Analysis Finished: 8/1/25 1140H

Computations:

Standardization of 0.0100 ± 0.0002 N BaCl2:				
Trial No.	Volume (ml)	Normality (N)	Volume (ml)	Normality (N)
	H_2SO_4	H_2SO_4	$BaCl_2$	$BaCl_2$
1	25 ~~0.4665~~	0.00994[illegible]	24.9	0.009978[illegible]
2	25		24.9	
			average	0.009978[illegible]

$$N_{BaCl2} = \frac{N_{H2SO4}\,V_{H2SO4}}{V_{BaCl2}}$$

Standardization of 0.0100 ± 0.0002 N H2SO4:				
Trial No.	Volume (ml)	Normality (N)	Volume (ml)	Normality (N)
	NaOH	NaOH	H_2SO_4	H_2SO_4
1	25.0	0.00987167844	25	0.00987167844
2	25.3		25	0.00999[illegible]
			average	0.00994[illegible]

$$N_{H2SO4} = \frac{N_{NaOH}\,V_{NaOH}}{V_{H2SO4}}$$

Standardization of NaOH:				
Trial No.	Weight (g)	Weight (g)	Volume (ml)	Normality (N)
	NaOH	KHP	NaOH	NaOH
1	0.4004	0.1007	50.3	0.0098[illegible]
2	0.4003	0.1005	49.6	0.0099212147
			average	0.0098[illegible]

$$N_{NaOH} = \frac{\text{Weight of KHP}}{0.20423 \times V_{NaOH}}$$

Analyzed by DMP
Date&Time 8/1/25 1155H

Checked by JW
Date&Time 8/4/25 1004

Approved by RWG
Date&Time 8/4/25 5Pm

ELARSI, INC.

SOx (METHOD 6/METHOD 8) ANALYTICAL DATA SHEET (EI-APA-14)

Project No. :	PJ 25 316	**Lab Report No. :**	257123-5A
Nature of Sample :	13E	**Date Received:**	7/25/25
N BaCl2 used :	0.009970+9167	**Date Analysis Started:**	8/11/25 1000H
IPA (used for titration) :	F2-5742	**Date Analysis Finished:**	8/11/25 1140H
Detection Limit/s :	SO2 (1.90 mg)		
	SO3 (2.37 mg) ; H2SO4 (4.09 mg)		

Computations:

IPA Check (Abs @ 352nm) — IPA LOT No. 41343 — Blank 0.00 — IPA 0.02

Mass H2SO4 (mg) = [(49.04) (N_{BaCl_2}) (V_{soln} - $V_{[illegible]}$)$V_{[illegible]}$ / V_a]

Mass SO2 (mg) = [(32.03) (N_{BaCl_2}) (V_{av} - $V_{[illegible]}$) V_{soln} / V_a]

Mass SO3 (mg) = mass H2SO4 (mg) x MWSO3 (80.061) / MW H2SO4 (98.079)

where: V_{soln} [illegible]; V_a [illegible]; $V_{[illegible]}$ [illegible]; V_{av} [illegible]

ND (Not Detected)

Sample No.	Sample ID	V_{soln}	V_a	Titrant Volume (ml) Buret Reading (Final - Initial)	Trial 1	(Final - Initial)	Trial 2	V_{av}	SO_2 Mass (mg)
	IPA Blank	100	10	0.00 - 0.00	0.00	0.00 - 0.00	0.02	0.00	<1.90
EF-2507720	S1R1	630	10	2.30	2.30	2.50	2.50	2.40	48.29
21	S1R2	650	10	4.10	4.10	4.20	4.20	4.15	86.15
22	S1R3	480	10	5.50	5.50	5.50	5.50	5.50	84.31
23	S1 Blank	110	10	0.00	0.00	0.00	0.00	0.00	<1.90

REMARKS:

Reagent & Standard Code/s:

0.0100 N Barium Standard Solution: F25742

Thorin Indicator: F25534

Isopropanol Brand/Lot: ~~F25893~~ chem supply 1427432 WC 8/11/25

Analyzed by: DMP Date&Time: 8/11/25 1415H

Checked by: JOJ Date&Time: 8/4/25 1000H

Checked by: RMG Date&Time: 8/4/25 5pm

EI_LABAIRFORM_14(A)

ELARSI, INC.
Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT : **BSI**
ADDRESS : 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila
Contact Number : 8863-6129
Nature of Sample/s : Stationary Source Emission
No. of Sample/s Submitted : Nine (9)

Lab. Report No. : 252125-SA
Date/Time Sampled : 07-24-25 1420H
Date Received : 07-25-25
Date Analyzed : 07-25-25 to 08-01-25
Date Reported : 08-04-25

[REPORT OF ANALYSES]

Sample No.	Sample ID	NO_x (as NO_2), mg[a]	Analysis Date/Time
ES-2509727	PJ 25 316 S1R1T1	0.0873	07-31-25 0800H
ES-2509728	PJ 25 316 S1R1T2	0.0720	07-31-25 0800H
ES-2509729	PJ 25 316 S1R1T3	0.0720	07-31-25 0800H
ES-2509730	PJ 25 316 S1R2T1	0.0720	07-31-25 0800H
ES-2509731	PJ 25 316 S1R2T2	0.0429	07-31-25 0800H
ES-2509732	PJ 25 316 S1R2T3	0.1394	07-31-25 0800H
ES-2509733	PJ 25 316 S1R3T1	0.1241	07-31-25 0800H
ES-2509734	PJ 25 316 S1R3T2	0.0705	07-31-25 0800H
ES-2509735	PJ 25 316 S1R3T3	0.1057	07-31-25 0800H

[a] - Method 7 / Phenoldisulfonic Acid

Reference:
CFR 40 Appendix A-4 Part 60 as of May 31, 2023

Note: Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:
DESIREE MAE M. PAGADDU, RChT
Laboratory Chemical Technician
PRC Lic. No. 0011745

Checked By:
JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:sss
RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR RECOGNIZED LABORATORY C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

STANDARD CALIBRATION for NOx ANALYSIS (EI-APA-10)

Project No.: PJ 25 316
Lab Report No.: 250125 - 14
Spectrophotometer: EI-EQPTREC - 296
Wavelength (nm): 456
Date of Optimum Wavelength Determination: On or Before: September 11 2025

Date Received: 7/25/25
Date Analysis Started: 7/31/25 0[illegible]
Date Analysis Finished: 7/31/25 1[illegible]

Calibration Number	Standard Actual Concentration (µg)	Measured Absorbance	Corrected Absorbance a	Calculated Concentration (µg) b	Concentration (% difference) c
Blank	0	0.022			
1	100	0.157	0.135	103.39	-3.39
2	200	0.274	0.252	192.99	3.51
3	300	0.409	0.387	296.38	1.21
4	400	0.551	0.529	405.13	-1.28
QC	200	0.289	0.267	204.48	-2.24

% Rec = 102.24

Computations:

a = Corrected absorbance for A1 through A4 is blank corrected
b = Corrected absorbance x Kc
c = Concentration % difference should [illegible]

Calibration Factor (Kc) = $\frac{a_1 + 2a_2 + 3a_3 + 4a_4}{a_1^2 + a_2^2 + \ldots}$ x 100 = 765.8324517

% difference = $\frac{\text{actual concentration} - \text{calculated concentration}}{\text{actual concentration}}$ x 100

REMARKS:
Reagent & Standard Codes

1N NaOH	N25129	Std. KNO3 Solution	N25130
Phenoldisulfonic Acid Reagent	N25126	Std. KNO3 Solution (QC)	N25131
Conc. H_2SO_4	L403	Working Std. KNO3 Solution	N25132
Ammonium Hydroxide	3407	Working Std. KNO3 Solution (QC)	N25133

Prepared by: DMP

Analyzed by: Rosa

Reviewed by: JDJ

ELARSI, INC.

NOx (METHOD 7) ANALYTICAL DATA SHEET (EI-APA-10)

Project No. : PJ 25 316
Nature of Sample : SSE
Aliquot Factor : 2
Calibration Factor (K_c) : 765.8324517
Detection Limit : 0.0033 mg (EI-EQPTREC-296)

ND (Not Detected)

Sample No.	Sample ID	Sample Absorbance	Blank Adjusted Absorbance (A')	Dilution Factor (F)	Total Mass of Nox as NO2 in Sample (mg) m
	BLANK	0.022	0.000	1	<0.0033
ES-25097727	S1R1 T1	0.079	0.057	1	0.0873
28	T2	0.069	0.047		0.0720
29	T3	0.069	0.047		0.0720
30	S1R2 T1	0.069	0.047		0.0720
31	T2	0.050	0.028		0.0429
32	T3	0.113	0.091		0.1394
33	S1R3 T1	0.103	0.081		0.1241
34	T2	0.068	0.046		0.0705
35	T3	0.091	0.069		0.1057

Sample No.	Sample ID	Sample Absorbance	Blank Adjusted Absorbance (A')	Dilution Factor (F)	Mass, µg	%Recovery	%Diff.
	QC (200µg)	0.289	0.267	1	204.38	102.24	-2.24

Sample ID	Mass, µg	%Recovery	%Diff.
QC (200µg)			

(A') = Sample Absorbance - Blank Absorbance

$$m = \frac{2K_c A^1 F}{1x10^3}$$

Note: If other than a 25 mL aliquot is used for analysis, the factor 2 must be replaced by a corresponding factor, i.e., volume solution divided by the volume aliquot evaporated

Analyzed by DMP
Date & Time 8/1/25 1525H

Checked by JW
Date & Time 8/4/25 10AM

Approved by RMG
Date & Time 8/4/25 1PM

ELARSI, INC.

Unit 201/202//406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**	Lab. Report No.	: 252124-SA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila	Date/Time Sampled	: 07-24-25 1420H
		Date Received	: 07-25-25
Contact Number	: 8863-6129	Date Analyzed	: 07-30-25 to 08-04-25
Nature of Sample/s	: Stationary Source Emission	Date Reported	: 08-05-25
No. of Sample/s Submitted	: Three (3)		

[REPORT OF ANALYSES]

Sample No.	Sample ID	Carbon Monoxide (CO), ppm[a]	Analysis Date/Time
ES-2509724	PJ 25 316 S1R1	210	07-30-25 1300H
ES-2509725	PJ 25 316 S1R2	192	07-30-25 1300H
ES-2509726	PJ 25 316 S1R3	183	07-30-25 1300H

[a] - Method 10 / NDIR

Reference:
US Environmental Protection Agency

Note: Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:

DESIREE MAE M. PAGADDU, RChT
Laboratory Chemical Technician
PRC Lic. No. 0011745

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

Test results reflect the quality of the samples as received.

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY FORM

ELARSI, INC.
Unit 201-204 & 406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 , 8994-3443 * Fax No. 8929-48-24* E-mail : info@elarsi.com

FOR LABORATORY USE ONLY Inv # ____ OR# ____ Lab. Report No. 252122-25 SA

Company : BSI
Address : ORTIGAS AVE
Contact Person : H-R ORQUINA
Contact No./s 0956-TX-0664

Submitted by: (Printed Name/Signature) Date/Time: 25 July 25
Reviewed by: MDD (Printed Name/Signature) Date/Time: 25JUL25 1500H
Approved by: Jonina Jacinto (Printed Name/Signature) Date/Time: 7/28/25 BA4

Method of Transport
✓ Walk-in ___ Courier ___ Pick-up ___ Others

Sample Condition Upon Received
✓ Sealed / Container Intact
✓ Chilled/Frozen
✓ Room Temp
✓ Preserved

Container Type
✓ Plastic Bottle
✓ Glass/Sterile Glass
___ TEDLAR Bag
___ Others Filter

Turn Around Time
___ Urgent/Rush (3-5 Working Days)
✓ Routine (7-12 Working Days)

Nature of Sample (PLEASE CHECK)[1]

Water: ___ Drinking Water ___ Wastewater ___ Others
Metals: ___ Water ___ Air ___ Others
Air: ✓ Stack Source Emission ___ Ambient Air Sample ___ Work Env Measurement ___ Others
Solids: ___ Soil ___ Sludge ___ Sediment ___ Others

FOR LAB. USE ONLY Sample No.	Sample Identification	Analyses Requested	Method of Analysis	Date of Sampling/Time	No. of Samples	Remarks
	RJX-31L			24 July		
PM				2025		
ES-25097717-19	S1 R1	PM, Atm Wast	Gravimetric		4	
	R2	SOx	Barium thorin-titration	14204	3	
SOX	R3	CO	NDIR		3	
ES-25097720-23					(12)	W/Blank
CO						
ES-2509724-26						
	S1 R1 T1-T3	NOx			3	
NOX	R2 T1-T3				3	
ES-25097727-35	R3 T1-T3		~~NDIR (NNO)~~ MT		3	
			6 7/28/25		(9)	

[1] USE ONE(1) COC FOR EACH NATURE OF SAMPLE
[2] Unless otherwise requested, all samples will be disposed four (4) weeks after analysis.
[3] Use HRAFORM_56 waiver form if Sample condition & requirements are not met.

EI_HRAFORM_03

Serial No. 1191

ANNEX E

EQUIPMENT CALIBRATION CERTIFICATES

BSI

Environmental Management Service Provider

TEAM NO. 1 - CRITICAL ORIFICE

USING FIVE CRITICAL ORIFICES

Console Model Number	XC572-QC6V	**Date**	23-Apr-25	**Time**	1100H	**Std Temp**	298 °K
Console Serial Number	1404036	**Barometric Pressure**	756.1 mm Hg			**Std Press**	760 mm Hg
DGM Model Number	G1.6	**Theoretical Critical Vacuum**	357mm Hg or 14in Hg			K_1	0.3858
DGM Serial Number	2012-014438	**Calibration Technician**	HPO			**Previous calibration**	0.9754

Metering Console							Critical Orifice					
Elapsed Time	DGM Orifice ΔH	Volume			Outlet Temp.		Serial #	Coef. x10⁴	Ambient Temp.		Critical Vacuum	Actual Vacuum
		Initial	Final	Dif	Initial	Final			Initial	Final		
θ	P_m	V_{mi}	V_{mf}	V_m	t_{mi}	t_{mf}		K'	t_{amb}	t_{amb}	in Hg or mm Hg	*1-2in or 25-50mm > Critical*
min	mm H_2O	m^3	m^3	>0.14m^3	°C	°C		metric units	°C	°C		
17.0	10.0	486.5030	486.6636	0.161	24.0	24.0	40	2.09135	26.5	26.7	15.0	17.0
11.0	20.0	486.6650	486 8182	0.153	24 0	24.0	48	3 07109	26.7	26.8	15.0	17.0
9.0	32.0	486.8208	486.9842	0.163	24.0	25.0	55	3.99787	26.8	26.1	15.0	16.0
7.0	54.0	486.9870	487.1510	0.164	25.0	25.0	63	5.16510	26.1	26.4	15.0	16.0
5.0	94.0	487.1550	487.3148	0.160	25.0	25.0	73	7.06219	26.4	26.4	15.0	16.0

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate	$\Delta H_@$	
				Value	Var'n	Std & Corr	0.0212 m^3_{std}/min	Variation
$V_{m(std)}$	$Q_{m(std)}$	$V_{cr(std)}$	$Q_{cr(std)}$	Y	ΔY	$Q_{m(std)(corr)}$	$\Delta H_@$	$\Delta\Delta H_@$
m^3	m^3/min	m^3	m^3/min		±2%	m^3/min	mm H_2O	±5.1mm Hg
0.1579	0.0093	0.1553	0.0091	0.9836	0.43	0.0091	52.3276	4.9
0.1508	0.0137	0.1475	0.0134	0.9786	-0.09	0.0134	48.6511	1.2
0.1607	0.0179	0.1572	0.0175	0.9782	-0.12	0.0175	45.9182	-1 5
0.1614	0.0231	0.1580	0.0226	0.9793	-0.02	0.0226	46.5114	-0.9
0.1579	0.0316	0.1543	0.0309	0.9775	-0.20	0.0309	43.6661	-3.7
			Y Average	**0.9794**			$\Delta H_@$ Average	**47.4149**

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Method 5.

Signature: HALCY LEMON P. ORQUINA / JANS CHOLO E. CHUA / EDINDO C. FERNANDO Date: 23-Apr-25

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan City, Metro Manila Philippine
Tels (632) 863-6129• Fax (632) 727-9931
Email: info@bsi-env.com.ph

Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER
Certificate No: SAT NO. 2022-72

BSI

Environmental Management Service Provider

TEAM NO. 1 - CRITICAL ORIFICE

DETERMINATION OF ORIFICE COEFFICIENT K'

Console Model Number	XC572-QC6V	**Date**	23-Apr-25	**Time**	0900H	**Std Temp**	298.15 °K
Console Serial Number	1404036	**Barometric Pressure**		756.1	mm Hg	**Std Press**	760 mm Hg
DGM Model Number	G1.6	**Theoretical Critical Vacuum**		357mm Hg or 14in Hg		K_1	0.3858
DGM Serial Number	2012-014438	**Calibration Technician**		HPO		**Previous calibration**	0.9754

Metering Console							Critical Orifice						
Run #	Elapsed Time θ min	DGM Orifice ΔH P_m mm H_2O	Volume Initial V_{mi} m^3	Volume Final V_{mf} m^3	Outlet Temp Initial t_{mi} °C	Outlet Temp Final t_{mf} °C	Orifice ID	Ambient Temp Initial t_{amb} °C	Ambient Temp Final t_{amb} °C	Critical Vacuum in Hg or mm Hg	Actual Vacuum *1-2in or 25-50mm > Critical*	Coeff. x10^3 K'	Diff % < ±0.5
1	5	10	485.5200	485.5672	22.0	22.0	40	27.5	27.2	15	17	2.08896	0.11
2	5	10	485.5672	485.6146	22.0	23.0	40	27.2	27.2	15	17	2.09374	0.11
											Average	**2.09135**	
1	5	20	485.6170	485.6866	23.0	23.0	48	27.4	27.5	15	17	3.07342	0.08
2	5	20	485.6866	485.7562	23.0	24.0	48	27.5	27.6	15	17	3.06875	0.08
											Average	**3.07109**	
1	5	32	485.7580	485.8488	24.0	24.0	55	27.6	27.5	15	16	4.00140	0.09
2	5	32	485.8488	485.9396	24.0	25.0	55	27.5	27.5	15	16	3.99434	0.09
											Average	**3.99787**	
1	5	54	485.9420	486.0594	25.0	25.0	63	27.1	27.3	15	16	5.16424	0.02
2	5	54	486.0594	486.1768	25.0	25.0	63	27.4	27.4	15	16	5.16596	0.02
											Average	**5.16510**	
1	5	94	486.1788	486.3386	25.0	25.0	73	27.2	27.2	15	16	7.05656	0.08
2	5	94	486.3386	486.4984	25.0	24.0	73	27.3	27.0	15	16	7.06783	0.08
											Average	**7.06219**	

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

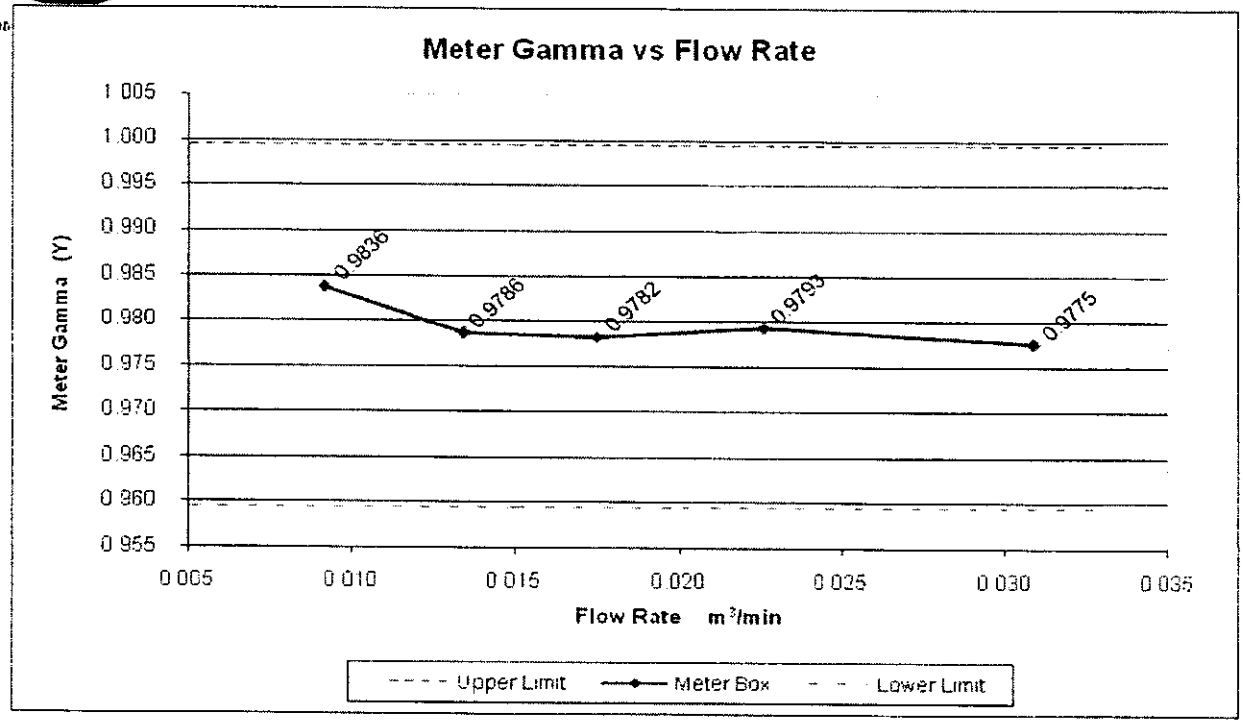
Checked By: Jans Cholo E. Chua
Signature over Printed Name

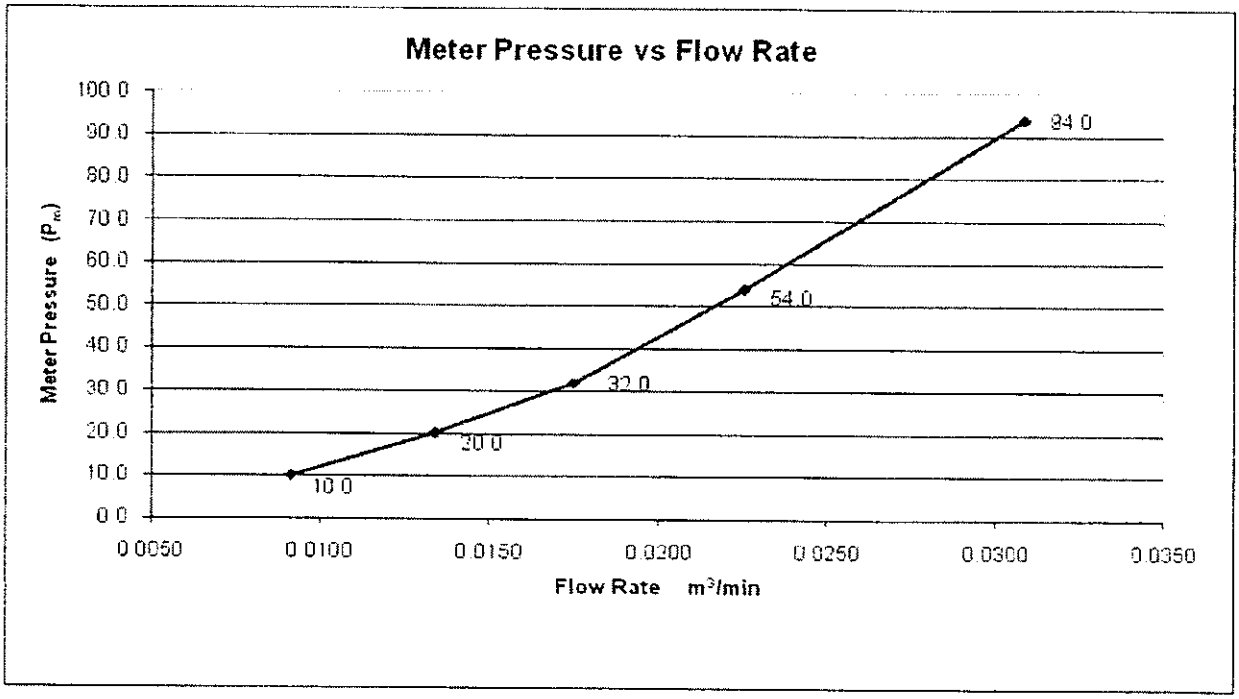
QA/QC: Edindo G. Fernando
Signature over Printed Name

Date: 25 April 2025

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan City, Metro Manila, Philippine
Tels (632) 863-6129• Fax (632) 727-9831
Email: info@bsiem.com.ph

Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER
Certificate No: SAT NO. 2022-72





Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 25 April 2025

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TEMPERATURE DISPLAY CALIBRATION

Meter Console No.	BSI - T2	**Personnel**	HPO, MSL, CAS
Reference Calibration Maker	PIE	**Pretest**	OK
Model	520B	**Posttest**	OK
Serial No.	223734	**Date**	24 April 2025

TC CHANNEL ID	Reference Temp. 1, °C	Temp. Reading 1, °C	Criteria	Criteria Met	Reference Temp. 2, °C	Temp. Reading 1, °C	Criteria	Criteria Met
PROBE	0	0	0	Y	50	49	0.310	Y
FILTER	0	0	0	Y	50	49	0.310	Y
EXIT	0	0	0	Y	50	49	0.310	Y
AUX	0	0	0	Y	50	49	0.310	Y
STACK	0	0	0	Y	50	48	0.619	Y
STACK	0	0	0	Y	250	247	0.574	Y

TC CHANNEL ID	Reference Temp. 3, °C	Temp. Reading 1, °C	Criteria	Criteria Met	Reference Temp. 4, °C	Temp. Reading 1, °C	Criteria	Criteria Met
PROBE	100	99	0.268	Y	150	148	0.473	Y
FILTER	100	99	0.268	Y	150	148	0.473	Y
EXIT	100	99	0.268	Y	150	149	0.236	Y
AUX	100	99	0.268	Y	150	149	0.236	Y
STACK	100	99	0.268	Y	150	149	0.236	Y
STACK	350	349	0.161	Y	450	447	0.415	Y

CRITERIA: Percent difference between the Reference Temperature and the average Temperature can be only ± 1.5%°K.

EQUATION: $\frac{[(\text{Ref. Temp.} + 273) - (\text{Temp. Reading} + 273)] \times 100}{(\text{Ref.Temp.} + 273)}$

Calibrated By: Halcy Lemon P. Orquina
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Date: 24 April 2025

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TEMPERATURE SENSOR CALIBRATION DATA SHEET

Date	24 April 2025	Thermocouple No.	**TMC – T2**
Personnel	**HPO, MSL, CAS**	Reference	AlcoholThermometer

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temp., °C	Thermocouple Display Temp., °C	Absolute Temperature Difference, %
24 Apr 2025	1	**HOT WATER**	**99.8**	**100**	**0.2**
	2	**AMBIENT**	**28.2**	**28**	**0.2**
	3	**ICE WATER**	**2**	**2**	**0**
25 Nov 2024	1	**HOT WATER**	**99.9**	**100**	**0.1**
	2	**AMBIENT**	**28.3**	**28**	**0.3**
	3	**ICE WATER**	**2**	**2**	**0**
18 Jan 2024	1	**HOT WATER**	**99.8**	**100**	**0.2**
	2	**AMBIENT**	**28.1**	**28**	**0.1**
	3	**ICE WATER**	**2.2**	**2**	**0.2**

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 24 April 2025

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POST TEST THERMOCOUPLE CALIBRATION CHECK

EPA Approved Alternative Method (Alt-011)
Single Point Calibration

Thermocouple ID	TMC- T2	**Probe / Pitot Tube ID**	SPA-6FT-2 / PT-6FT-2
Personnel	HPO, MSL, CAS	**Date**	24 April 2025

Sensor	Calibrated By:	Reference Temp. °C[1]	Thermocouple Temp. °C	Difference [2] (within ± 1°C)	Continuity Check [3]	PASS / FAIL
PROBE	HPO	30.2	30	0.2	OK	PASSED
FILTER	HPO	30.1	30	0.1	OK	PASSED
STACK	HPO	30.2	30	0.2	OK	PASSED
EXIT	HPO	30.2	30	0.2	OK	PASSED
OVEN	HPO	30.2	30	0.2	OK	PASSED
AUX.	HPO	30.1	30	0.1	OK	PASSED

[1] Reference Thermometer is mercury-in-glass and ASTM certified, unless otherwise noted.
[2] After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature. The temperature of the thermocouple and reference thermometers shall agree with ± 1 °C.
[3] The continuity check involves subjecting the tip of the thermocouple to a change in temperature to check the crimps, loose connections. Thermocouples with crimps and loose connections will not immediately respond to temperature changes, and those with wrong connections will show an opposite change in temperature.

Calibrated By: Halcy Lemon V. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 24 April 2025

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NOZZLE CALIBRATION SHEET

Date	24 April 2025	**Personnel**	HPO, MSL CAS
Nozzle Box ID	**NS – T2**	**Nozzle Type**	**Stainless Steel**

ID	D_1(mm)	D_2(mm)	D_3(mm)	D (mm)	Average (mm)
T2 NS-1	3.06	3.04	3.04	0.02	**3.05**
T2 NS-2	4.10	4.10	4.09	0.01	**4.10**
T2 NS-3	5.90	5.85	5.90	0.05	**5.88**
T2 NS-4	7.90	7.88	7.90	0.02	**7.89**
T2 NS-5	9.36	9.34	9.36	0.02	**9.35**
T2 NS-6	10.94	10.94	10.90	0.04	**10.93**
T2 NS-7	12.41	12.40	12.41	0.01	**12.41**

D = Maximum difference in any two measurements. Tolerance = 0.1 mm ;Average = Average of $D_{1,2,3}$

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Signature over Printed Name

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QA/QC: Edindo C. Fernando
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Date: 24 April 2025

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TYPE-S PITOT TUBE CALIBRATION

PITOT TUBE ID	**PT-T2-4FT**	**Probe Assembly ID**	**SPA-T2-4FT**
Calibrated by:	HPO, MSL, CAS	**Date Calibrated**	25 April 2025

PARAMETER	VALUE	ALLOWABLE RANGE
Assembly Level	**YES**	YES
Holes Damaged	**NO**	NO
Obstructed	**NO**	NO
$\alpha 1$	**0**	$-10^{\circ}<\alpha 1<+10^{\circ}$
$\alpha 2$	**0**	$-10^{\circ}<\alpha 2<+10^{\circ}$
$\beta 1$	**1**	$-5^{\circ}<\beta 1<+5^{\circ}$
$\beta 2$	**0**	$-5^{\circ}<\beta 2<+5^{\circ}$
Y	**1**	
θ	**1**	
A	**0.905**	For ¼" OD, 0.526 to 0.750" For $^3/_8$" OD, 0.788 to 1.125"
Z =A sin Y	**0.016**	Z = ≦ 0.125"
W = A sin 0	**0.016**	W = ≦ 0.031"
P_A	**0.469**	For ¼" OD, 0.263 to 0.375" For $^3/_8$" OD, 0.394 to 0.563"
P_B	**0.474**	For ¼" OD, 0.263 to 0.375" For $^3/_8$" OD, 0.394 to 0.563"
$P_A - P_B$	**-0.005**	-0.063 to 0.063"
D_T	**0.318**	0.188 to 0.375"

Where: $\alpha 1$& $\alpha 2$ = angles between the pitot tube opening and the horizontal plane when viewed from the end

$\beta 1$&$\beta 2$ = angles between the pitot tube opening and the horizontal plane when viewed from the side

Y= the angle measured when calculating the difference in length between the two pitot tube legs

θ = the angle measured when calculating the distance that the pitot tubes are rotated

A = the distance between the tips of the pitot tube opening

Z =The difference in length between the two pitot tube legs

W= the distance that the pitot tube legs are rotated

P_A&P_B= vertical distance between each pitot tube opening plane & the center line of the pitot tube

D_T = the tube external diameter

Certification

I certify that the Type S pitot tube meets or exceeds all specifications, criteria and / or applicable design features and is hereby assigned a pitot tube calibration factor (Cp) of 0.84.

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 25 April 2025

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Environmental Management Service Provider

TYPE-S PITOT TUBE CALIBRATION

PITOT TUBE ID	PT-T2-6FT	**Probe Assembly ID**	SPA-T2-6FT
Calibrated by:	HPO, MSL, CAS	**Date Calibrated**	25 April 2025

PARAMETER	VALUE	ALLOWABLE RANGE
Assembly Level	**YES**	YES
Holes Damaged	**NO**	NO
Obstructed	**NO**	NO
$\alpha 1$	**0**	$-10^{\circ}<\alpha 1<+10^{\circ}$
$\alpha 2$	**0**	$-10^{\circ}<\alpha 2<+10^{\circ}$
$\beta 1$	**1**	$-5^{\circ}<\beta 1<+5^{\circ}$
$\beta 2$	**0**	$-5^{\circ}<\beta 2<+5^{\circ}$
Y	**1**	
θ	**1**	
A	**0.935**	For ¼" OD, 0.526 to 0.750" For $^3/_8$" OD, 0.788 to 1.125"
Z =A sin Y	**0.016**	Z = ≦ 0.125"
W = A sin θ	**0.016**	W = ≦ 0.031"
P_A	**0.418**	For ¼" OD, 0.263 to 0.375" For $^3/_8$" OD, 0.394 to 0.563"
P_B	**0.433**	For ¼" OD, 0.263 to 0.375" For $^3/_8$" OD, 0.394 to 0.563"
$P_A - P_B$	**-0.015**	-0.063 to 0.063"
D_T	**0.320**	0.188 to 0.375"

Where: $\alpha 1$& $\alpha 2$ = angles between the pitot tube opening and the horizontal plane when viewed from the end

$\beta 1$&$\beta 2$ = angles between the pitot tube opening and the horizontal plane when viewed from the side

Y= the angle measured when calculating the difference in length between the two pitot tube legs

θ = the angle measured when calculating the distance that the pitot tubes are rotated

A = the distance between the tips of the pitot tube opening

Z =The difference in length between the two pitot tube legs

W= the distance that the pitot tube legs are rotated

P_A&P_B= vertical distance between each pitot tube opening plane & the center line of the pitot tube

D_T = the tube external diameter

Certification

I certify that the Type S pitot tube meets or exceeds all specifications, criteria and / or applicable design features and is hereby assigned a pitot tube calibration factor (Cp) of 0.84.

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
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Date: 25 April 2025

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FLASK CALIBRATION SHEET

Date	24 April 2025	**Personnel**	HPO, MSL, CAS
FLASK BOX ID	T2- M7 Flask-A	**Flask Type**	Glass

FLASK ID	1st Volume(mL)	2nd Volume(mL)	3rd Volume(mL)	Average Volume (mL)
BSI T2 – F1	2232	2227	2231	**2230**
BSI T2 – F2	2233	2231	2226	**2230**
BSI T2 – F3	2245	2251	2254	**2250**
BSI T2 – F4	2230	2227	2233	**2230**
BSI T2 – F5	2227	2231	2232	**2230**
BSI T2 – F6	2247	2253	2250	**2250**
BSI T2 – F7	2230	2232	2228	**2230**
BSI T2 – F8	2236	2243	2241	**2240**
BSI T2 – F9	2246	2254	2250	**2250**

*Note: The flask volumes are measured within +/- 10mL. All calibrations are at room temperature.

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 24 April 2025

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FLASK CALIBRATION SHEET

Date	24 April 2025	**Personnel**	HPO, MSL, CAS
FLASK BOX ID	T2- M7 Flask-B	**Flask Type**	Glass

FLASK ID	1st Volume(mL)	2nd Volume(mL)	3rd Volume(mL)	Average Volume (mL)
BSI T2 – F10	2200	2198	2202	**2200**
BSI T2 – F11	2194	2185	2191	**2190**
BSI T2 – F12	2202	2202	2196	**2200**
BSI T2 – F13	2199	2203	2198	**2200**
BSI T2 – F14	2199	2196	2205	**2200**
BSI T2 – F15	2192	2192	2186	**2190**
BSI T2 – F16	2202	2197	2201	**2200**
BSI T2 – F17	2198	2198	2204	**2200**
BSI T2 – F18	2200	2197	2203	**2200**

***Note: The flask volumes are measured within +/- 10mL. All calibrations are at room temperature.**

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

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Signature over Printed Name

QA/QC: Edindo C. Fernando
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Date: 24 April 2025

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FLASK CALIBRATION SHEET

Date	24 April 2025	**Personnel**	HPO, MSL, CAS
FLASK BOX ID	T2- M7 Flask-C	**Flask Type**	Glass

FLASK ID	1st Volume(mL)	2nd Volume(mL)	3rd Volume(mL)	Average Volume (mL)
BSI T2 – F19	2302	2298	2300	**2300**
BSI T2 – F20	2240	2238	2242	**2240**
BSI T2 – F21	2308	2310	2312	**2310**
BSI T2 – F22	2250	2252	2248	**2250**
BSI T2 – F23	2223	2221	2216	**2220**
BSI T2 – F24	2281	2277	2282	**2285**
BSI T2 – F25	2250	2250	2250	**2250**
BSI T2 – F26	2233	2230	2227	**2230**
BSI T2 – F27	2283	2278	2279	**2280**

***Note: The flask volumes are measured within +/- 10mL. All calibrations are at room temperature.**

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

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Date: 24 April 2025

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DIGITAL BALANCE CALIBRATION

Digital Balance ID	DB - T2	**Personnel**	HPO, MSL, CAS
Manufacturer	AND CO. LTD.	**Date**	24 April 2025
Model	EJ-1500	**Calibration Standard**	1000g
Serial Number	BA2826513	**Type**	Weights (1500g max)

Eccentricity Test		**Repeatability Test**	
Test Load	1000g	When Loaded up to 1500g (Using 1000g& 500g standard weights)	
Position	Balance Indication	Trial	Balance Indication
1	1000.0	1	1549.9
2	1000.0	2	1549.9
3	1000.0	3	1549.9
4	999.9	4	1549.9
5	1000.0	5	1549.9
Test Results	0.1	Standard Deviation	0

Linearity Test				
Nominal Load	**Unit under Test Reading**	**Deviation from Nominal**	**Coverage Factor**	**UE at 95% C.L**
Weights	g	g	k	g
0	0	0	2	0
200g	200	0	2	0
500g	500	0	2	0
1000g	1000	0	2	0
1500g	1499.9	0.1	2	0.16

[1]Acceptable EPA Method 4 tolerance must be less than 0.5 gram.
[2]Acceptable EPA Method 5 tolerance must less than 0.5 gram.

Equipment Description	**Equipment ID**	**Traceability Reference**
Standard Weight	1254	08-09-2022-BSI-T2

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
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Date: 24 April 2025

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Certificate No: SAT NO. 2022-72

Switchtek
Measurement Systems
A Division of Switchtek [illegible] Corporation
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Bahay Toro, Quezon City, 1100, Philippines
Tel Nos. 02 [illegible] Fax No. [illegible]
email Address: switchtek[illegible]@yahoo.com
www.[illegible]

Certificate No.:	4000.23-24681-3.25	Calibration of	3 IN1 (Anemometer, Barometer, %RH)
Identification:	BERKMAN SYSTEMS INCORPORATED		
Address:	Suite 208 VAG Bldg., Ortigas Avenue, Greenhills, San Juan, Metro Manila, Philippines		

CERTIFICATE OF CALIBRATION - 3 IN 1 (ANEMOMETER, BAROMETER, % RH)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument:	3 IN1 (Anemometer, Barometer, %RH)		
Brand:	LUTRON	Calibration Date:	March 14, 2025
Model No.:	ABH-4225	Calibration Due:	March 13, 2026
Serial No.:	AL79433	Calibrated By:	E.A. LASADO
Range:	Velocity (0.4-30.0 m/s)		
	Temp. (0-50 Deg. C)		
	Humidity (10 to 95%)		
	Dewpoint (-25.3 to 48.9 Deg. C)		
	10.0 to 999.9 hPa		
Resolution:	Velocity (0-30.0 m/s)/0.1 m/s		
	Temp. (0-50 Deg. C)/0.1 Deg. C		
	Humidity (10 to 95%)/0.1 %RH		
	Dewpoint (-25.3 to 48.9 Deg. C)/0.01 Deg. C		
	Barometric (10.0 to 999.9 hPa)/0.1		

MODE: THERMOHYGROMETER

Results

Barometric

REFERENCE READING (hPa)	UNIT UNDER TEST READING (hPa)	ERROR IN READING (hPa)	STANDARD DEVIATION	REMARKS
1016	1010	6.00	4.2426	The user should determine the suitability of the instrument for its intended use
1005	1001	4.00	2.8284	
1000	995	5.00	3.5355	

Standard error: ± 6.32 hPa
Uncertainty: ± 3.60 hPa

Velocity

REFERENCE READING (m/s)	UNIT UNDER TEST READING (m/s)	ERROR IN READING (m/s)	STANDARD DEVIATION	REMARKS
0.00	0.0	0.00	0.0000	The user should determine the suitability of the instrument for its intended use
5.20	5.1	0.10	0.0707	
9.50	9.3	0.20	0.1414	
15.10	15.0	0.10	0.0707	

Standard error: ± 0.14 m/s
Uncertainty: ± 0.58 m/s

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro, Quezon City, 1106, Philippines
Tel Nos.: 02 4267593 / 9282869 / 3287769 Fax No. 4533654
email Address: switchtekbuilders@yahoo.com

Certificate No.:	4000.23-24681-3.25	Calibration of	3 IN1 (Anemometer, Barometer, %RH)
Identification:	BEREMAN SYSTEMS INCORPORATED		
Address:	Suite 208 VAG Bldg., Ortigas Avenue, Greenhills, San Juan, Metro Manila, Philippines		

CERTIFICATE OF CALIBRATION - 3 IN 1 (ANEMOMETER, BAROMETER, % RH)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument:	3 IN1 (Anemometer, Barometer, %RH)		
Brand:	LUTRON	Calibration Date:	March 14, 2025
Model No.:	ABH-4225	Calibration Due:	March 13, 2026
Serial No.:	AI.79433	Calibrated By:	C.A. CASAEC
Range:	Velocity (0.80-30.0 m/s)		
	Temp. (0-50 Deg. C)		
	Humidity (10 to 95%)		
	Dewpoint (-25.3 to 48.9 Deg. C)		
	10.0 to 999.9 hPa		
Resolution:	Velocity (0-30.0 m/s) 0.1 m/s		
	Temp. (0-50 Deg. C) 0.1 Deg. C		
	Humidity (10 to 95%) 0.1 %RH		
	Dewpoint (-25.3 to 48.9 Deg. C) 0.01 Deg. C		
	Barometer (10.0 to 999.9 hPa) 0.1		

MODE: [illegible]

Results:

Temperature:

REFERENCE READING (°C)	UNIT UNDER TEST READING (°C)	ERROR IN READING (°C)	STANDARD DEVIATION	REMARKS
24.98	24.9	0.08	0.0566	The user should determine the suitability of the instrument for its intended use
25.00	24.9	0.30	0.0707	
35.00	34.6	0.40	0.0578	
35.14	34.7	0.44	0.0311	

Standard error: ± 0.56 °C

Uncertainty: ± 0.66 °C

Relative Humidity:

REFERENCE READING (% RH)	UNIT UNDER TEST READING (% RH)	ERROR IN READING (% RH)	STANDARD DEVIATION	REMARKS
79.10	74.90	4.80	3.3941	The user should determine the suitability of the instrument for its intended use
58.00	59.60	1.60	1.1314	
76.00	74.50	1.50	1.0607	
61.50	57.10	4.40	3.1113	

Standard error: ± 4.55 %RH

Uncertainty: ± 3.41 %RH

[illegible]

Switchtek
Measurement Systems

A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave., Bahay Toro, Quezon City, 1106, Philippines
Tel Nos. 02 4267593 / 9282869 / 9287769 Fax No. 4537694
email Address: switchtekboilers@yahoo.com
[illegible]

Certificate No.:	**4000.23-24681-3.25**	**Calibration of**	**3 IN1 (Anemometer, Barometer, %RH)**		
Identification:	**BERKMAN SYSTEMS INCORPORATED**				
Job:	P1	Test and Verification			
Fit.acc:	32	Certificate of Calibration			
Done ...:	**March 14, 2025**	Initials....:	**CAC**		
Categories	**Calibration**	**Men**	**Hours**	**Total cost**	**Type**
Cal Officer		2	1.00	-	Certificate

CERTIFICATE OF CALIBRATION - 3 IN 1 (ANEMOMETER, BAROMETER, % RH)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued to: BERKMAN SYSTEMS INCORPORATED
Address: Suite 208 VAG Bldg., Ortigas Avenue, Greenhills, San Juan, Metro Manila, Philippines

UNIT UNDER TEST (UUT):

Instrument:	3 IN1 (Anemometer, Barometer, %RH)
Brand	EXTECH
Model No.	ABH 4225
Serial No.	AI [illegible]
Range:	Velocity (0-30.0 m/s)
	Temp. (0-50 Deg. C)
	Humidity (10 to 95%)
	Dewpoint (-25.3 to 48.9 Deg. C)
	10.0 to 999.9 hPa
Resolution:	Velocity (0-30.0 m/s)/0.1 m/s
	Temp. (0-50 Deg. C)/0.1 Deg. C
	Humidity (10 to 95%)/0.1 %RH
	Dewpoint (-25.3 to 48.9 Deg. C)/0.01 Deg. C
	Barometeric (10.0 to 999.9 hPa) /0.1
Calibration Date:	March 14, 2025
Calibration Due:	March 14, 2026

CALIBRATOR INFORMATION:

Instrument:	Temperature and Humidity chamber
Model No.:	KS-DTS-34
Serial No.:	[illegible]
Traceability:	[illegible]
Instrument:	Rotating Vane Anemometer
Manufacturer:	EXTECH
Model No:	AM-4206M
Serial No.:	Q432206
Range:	0 to 30.0 m/s
	0 to 90.0 %
Calibrated Against:	[illegible] Doppler Anemometer
Instrument:	Range: Precision Barometer
Calibrated Against:	NIST

Environmental Condition:

Condition	[illegible]	Ambient Temp. (Deg C):	24 ± 12
Relative Humidity	[illegible]		

Calibration Method:

By comparison technique, unit under test was tested in reference with a Rotating vane anemometer, precision barometer, standard temperature and humidity calibrator. Procedures of calibration and test conform to the requirements of [illegible], NIST and ISO/IEC Guide [illegible]. Data were gathered and plotted against an ideal curve.

Standard error and uncertainty of measurement are written on the attached sheet.

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By	C.A. CASADO	Certified By	A.R. CANDE[illegible]
Date	March 14, 2025	Date	March 14, 2025

[illegible]

Making our world more productive

CERTIFICATE NUMBER : 90168754/D962229
REVISION NUMBER :
REVISION DATE :

CERTIFIED STANDARD

Certificate of Analysis

Material Number : S802100-AE-C6 **Customer Tag :**

Customer : LINDE PHILIPPINES INC.
Job Card : 90168754
Certification Date : 29-Nov-2021

PO Number : 9300463129
Order Date : 08-Nov-2021
SO Number : 128002321
Vcode : GM34242/10A/S BS4

CYLINDER NUMBER

D962229

SPECIFICATION

Component	Requested Concentration	Certified Concentration	Unit	Certified Uncertainty (% +/-)
NITROGEN			Balance	
CARBON MONOXIDE	200	200	ppm	2

The Certified uncertainty is relative unless specified "abs" as absolute with a confidence level of 95% (coverage factor K=2).

CYLINDER 10L ALUM
VALVE BS4 BRASS

Content 1,494 M3 **Pressure** 150 Bar(a) **Reference Temperature** 20'C
Shelf Life 36 Month **UN Number** 1956 **Min. Usage Pressure** 5 BAR G
Recommended Storage and Usage Temperature 10 to 40'C

TRACEBILITY

Category	Traceabiltiy Type	Traceable To	Reference Procedure
PROCESS	WEIGHT	National Metrology Centre(NMC)	ISO6142:2001

METHOD OF CERTIFICATION
Method Gravimetric

INSTRUMENTATION
Method of Analysis
LS71704

REMARKS

Certified By

LINDE GAS SINGAPORE 15 DEC 2021 KT HAN

Checked By

LINDE GAS SINGAPORE 15 DEC 2021 JONATHAN YOON

Product filled gravimetrically using high-load high-accuracy, weight traceable to National Metrology Centre (NMC) standards. Linde Gas Singapore has obtained a corporate License complying to ISO 9001 standard.

Linde Gas Singapore Pte. Ltd
50 Jurong Island Highway
Singapore 627877
Phone +65 6867 8998
Fax +65 6896 7745
Co Reg No 199303758R

5 Tuas Basin Link
Jurong Industrial Estate
Singapore 638759
Phone +65 6867 8998 Fax +65 6861 5610
www.linde.com.sg

Making our world more productive

CERTIFICATE NUMBER : 90168756/D962122
REVISION NUMBER :
REVISION DATE :

CERTIFIED STANDARD

Certificate of Analysis

Material Number : S823400-AE-C6 **Customer Tag :**

Customer : LINDE PHILIPPINES INC.
Job Card : 90168756
Certification Date : 22-Nov-2021

PO Number : 9300463129
Order Date : 08-Nov-2021
SO Number : 128002321
Vcode : GM34553/10A/S BS4

CYLINDER NUMBER

D962122

SPECIFICATION

Component	Requested Concentration	Certified Concentration	Unit	Certified Uncertainty (% +/-)
NITROGEN			Balance	
CARBON MONOXIDE	500	500	ppm	2

The Certified uncertainty is relative unless specified "abs" as absolute with a confidence level of 95% (coverage factor K=2).

CYLINDER 10L ALUM
VALVE BS4 BRASS

Content 1.470 M3 **Pressure** 150 Bar(a) **Reference Temperature** 20'C
Shelf Life 36 Month **UN Number** 1956 **Min. Usage Pressure** 5 BAR G
Recommended Storage and Usage Temperature 10 to 40'C

TRACEBILITY

Category	Traceabiltiy Type	Traceable To	Reference Procedure
PROCESS	WEIGHT	National Metrology Centre(NMC)	ISO6142:2001

METHOD OF CERTIFICATION
Method Gravimetric

INSTRUMENTATION
Method of Analysis

REMARKS

Certified By

LINDE GAS SINGAPORE 22 NOV 2021 JONATHAN VOON

Checked By

LINDE GAS SINGAPORE 22 NOV 2021 KT HAN

Product filled gravimetrically using high-load high-accuracy, weight traceable to National Metrology Centre (NMC) standards. Linde Gas Singapore has obtained a corporate License complying to ISO 9001 standard.

Linde Gas Singapore Pte. Ltd.
50 Jurong Island Highway
Singapore 627877
Phone +65 6867 8998
Fax +65 6896 7745
Co Reg. No 199303758R

5 Tuas Basin Link
Jurong Industrial Estate
Singapore 638759
Phone +65 6867 8998 Fax +65 6861 5610
www.linde.com.sg

Making our world more productive

CERTIFICATE NUMBER : 90168755/D962087
REVISION NUMBER :
REVISION DATE :

CERTIFIED STANDARD

Certificate of Analysis

Material Number : S803400-AE-C6 **Customer Tag :**

Customer : LINDE PHILIPPINES INC.
Job Card : 90168755
Certification Date : 22-Nov-2021

PO Number : 9300463129
Order Date : 08-Nov-2021
SO Number : 128002321
Vcode : GM23712

CYLINDER NUMBER

D962087

SPECIFICATION

Component	Requested Concentration	Certified Concentration	Unit	Certified Uncertainty (% +/-)
NITROGEN			Balance	
CARBON MONOXIDE	800	800	ppm	2

The Certified uncertainty is relative unless specified "abs" as absolute with a confidence level of 95% (coverage factor K=2).

CYLINDER 10L AL
VALVE BS4 BRASS

Content 1.494 M3 **Pressure** 150 Bar(a) **Reference Temperature** 20'C
Shelf Life 36 Month **UN Number** 1956 **Min. Usage Pressure** 5 BAR G
Recommended Storage and Usage Temperature 10 to 40'C

TRACEBILITY

Category	Traceabiltiy Type	Traceable To	Reference Procedure
PROCESS	WEIGHT	National Metrology Centre(NMC)	ISO6142:2001

METHOD OF CERTIFICATION
Method Gravimetric

INSTRUMENTATION
Method of Analysis

REMARKS

Certified By

LINDE GAS SINGAPORE 22 NOV 2021 JONATHAN YEOH

Checked By

LINDE GAS SINGAPORE 22 NOV 2021 KT HAN

Product filled gravimetrically using high-load high-accuracy, weight traceable to National Metrology Centre (NMC) standards. Linde Gas Singapore has obtained a corporate License complying to ISO 9001 standard.

Linde Gas Singapore Pte. Ltd.
50 Jurong Island Highway
Singapore 627877
Phone +65 6867 8998
Fax +65 6896 7745
Co Reg No 199303758R

5 Tuas Basin Link
Jurong Industrial Estate
Singapore 638759
Phone +65 6867 8998 Fax +65 6861 5610
www.linde.com.sg

ANNEX F

DENR ACCREDITATION

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Visayas Avenue, Diliman, Quezon City

SAT No. 2022-72

CERTIFICATE OF ACCREDITATION

Pursuant to DENR Administrative Order No. 26 Series of 2013 of the Department of Environment and Natural Resources having substantially met all the requirements prescribed therein,

BERKMAN SYSTEMS INCORPORATED (BSI)

208 VAG Building, Ortigas Ave.,
Greenhills, San Juan City, Metro Manila

is hereby duly accredited as

SOURCE EMISSION TESTING FIRM

As such, the following are authorized as:

QA/QC Manager
Edindo C. Fernando

Team Leader
Halcey Lemon P. Orquina

This certification shall allow the above firm and personnel to conduct stack testing limited to the following methods and parameters:

1. US-EPA Method 1 to 5 - PM
2. US-EPA Method 6/8 - SO_2
3. US-EPA Method 7 - NO_X
4. US-EPA Method 10 - CO

Granted this 14th day of July 2022 and valid until July 14, 2025.

Digitally signed by Cuñado William Purgatorio
DN: cn=Cuñado William Purgatorio, serialNumber=001006000462A, ou=Environmental Management Bureau, o=Department of the Environment and Natural Resources, c=PH

ENGR. WILLIAM P. CUÑADO
Director

ANNEX G

TEST PARTICIPANTS

TEST PARTICIPANTS

BMC FORESTRY CORPORATION

Ms. Narhy C. Pomilban	-	Pollution Control Officer

BSI

Mr. Halcy Lemon P. Orquina	-	DENR Accredited Team Leader / Field Engineer
Mr. Marvin S. Llarena	-	Field Technician
Mr. Christian A. Soleta	-	Field Technician
Mr. Jimuel B. Torrelino	-	Sampling Aide/Driver
Mr. Edindo C. Fernando	-	DENR Accredited QA/QC Manager

ANNEX H

TEST PLAN

July 7, 2025

ENGR. JEAN C. BORROMEO
OIC, Regional Director
DENR – Environmental Management Bureau
Cordillera Administrative Region (CAR)
DENR Compound, Gibraltar Road, Baguio City

CC: ENGR. RAUL G. CUBANGAY
OIC Chief, Environmental Monitoring and Enforcement Division

Subject: **Test Plan for BMC Forestry Corporation – Irisan Lime Project**

Dear Director Borromeo:

We are pleased to submit the test plan for our proposed Source Emission Test to be conducted by Berkman Systems, Inc., an accredited third-party tester at **BMC Forestry Corporation – Irisan Lime Project** located at **Km. 5 Naguilian Road, Irisan, Baguio City.**

We hope this addresses your requirements.

Thank you.

Very truly yours,

BMC FORESTRY CORPORATION
By:

NARHY C. POMILBAN
Pollution Control Officer

Noted by:

FRANCISCO O. FLAVIER
Resident Manager

BERKMAN SYSTEMS INC.
Environmental Management Service Provider

BSI-2022-72-25-033

July 9, 2025

ENGR. JEAN C. BORROMEO
OIC, Regional Director
CC : ENGR. RAUL G. CUBANGAY
Chief, Environmental Monitoring and Enforcement Division
ENVIRONMENTAL MANAGEMENT BUREAU
CORDILLERA ADMINISTRATIVE REGION (CAR)
DENR Forestry Compound, Pacdal District
Baguio City, Benguet

Subject: Test Plan for BMC Forestry Corporation - Irisan Lime Project

Dear Dir. Borromeo:

We are pleased to submit the test plan for our proposed Source Emission Monitoring to be conducted at BMC Forestry Corporation - Irisan Lime Project located at Km.5, Naguilian Road, Irisan, Baguio City.

We hope that this addresses your requirements.

Very truly yours,

BSI

EDNDO C. FERNANDO
Field Operations Manager
DENR Accredited QA/QC Manager
SAT No. 2022-72

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan City, Metro Manila, Philippines
Tels. (632) 663-6129 • Fax (632) 727-9831
Email: info@bsienv.com.ph

Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER
Certificate No: SAT NO. 2022-72

SOURCE SPECIFIC TEST PLAN

This document is the Source Specific Test Plan of **BSI (Berkman Systems, Inc.)** that describes the emission testing that will be completed at BMC Forestry Corporation - Irisan Lime Project located at Km.5, Naguilian Road, Irisan, Baguio City.

Section A: FACILITY INFORMATION

BMC Forestry Corporation - Irisan Lime Project
Irisan, Baguio City

Contact Person: **Narhy C. Pomilban**
Pollution Control Officer

Telephone: (074) 445-7180

Section B: PRODUCTION INFORMATION AND FACILITY REQUIREMENTS

The plant should operate the **one (1) unit of 1.08 MT/hr Vertical Shaft Kiln** set for at 90% or greater of permitted capacity during testing. The Implementing Rules and Regulations of the Philippine Clean Air Act specify that the operating capacity during emission testing shall be the basis for setting the maximum allowable operating capacity during permit application.

The facility must provide the following items:

- The client shall provide an on-site single phase **220VAC/60Hz**-power supply.
- The client shall provide at least **two (2)** sampling portholes based on the existing stack diameter and pipe length. Sampling platforms should be installed or constructed properly for the safety of the sampling personnel.
- Copy of latest Permit to Operate **(PTO)**
- Schematic diagram of the process
- Copy of the latest certificate of fuel analysis and delivery receipt.
- Copy of engine log sheet during sampling
- Photo documentation and Video coverage will be taken by the accredited sampling personnel during sampling activity.

Section C: SOURCE INFORMATION

The test will be at **one (1) unit of 1.08 MT/hr Vertical Shaft Kiln** set for 3 sampling runs to be conducted on December 12-14, 2024.

Parameters to be tested and duration – see Table 1.

TABLE 1 – TEST METHODOLOGY

Particulars	Parameter	Sampling Methodology	No. of Test runs/Duration	Notes
one (1) unit of 1.08 MT/hr Vertical Shaft Kiln	Volumetric Flow Rate **(VFR)**	EPA Method 1-4	3 one-hour run/ exhaust	Performed concurrent with PM test
	Oxygen / Carbon Dioxide	EPA Method 3 By Fyrite Method	3 runs / exhaust	Integrated Tedlar bag sample during M5 test
	Particulate Matter **(PM)**	EPA Method 5	3 one-hour run/ exhaust	Performed with Method 5 set-up
	Sulfur Oxides **(SOx)**	EPA Method 6 modified	3 one-hour run/ exhaust	Simultaneous with Method 5
	Nitrogen Oxide **(NOx)**	EPA Method 7	3 runs / exhaust	Three grab sample flasks collected per run
	Carbon Monoxide **(CO)**	EPA Method 10 By NDIR	3 runs / exhaust	Integrated Tedlar bag sample during M5 test

Section D: QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

Normal QA/QC procedures described in the Methods will be strictly followed.

Section E: SAMPLING DATE

July 23-5, 2025

The sampling team leader will coordinate the specific run plans with the abovementioned Plant representative. The sampling team will be at the Plant on or before 9:00 AM of the sampling date.

Section F: SAMPLING PERSONNEL

The proposed sampling team shall consist of the following personnel:

Team:

1. Halcy Lemon P. Orquina	-	Accredited Team Leader
2. Edindo C. Fernando	-	QA/QC Manager
3. Jose Arjay M. Santiago	-	QA/QC Manager (back up)
4. Anthony J. Adan	-	Field Engineer
5. Epifanio III V. Tovillo	-	Field Engineer
6. Sherwin C. Canales	-	Field Technician
7. Romeo M. Elsisura	-	Field Technician
8. Marvin S. Llarena	-	Field Technician
9. Eugene B. Salazar	-	Field Technician
10. Christian A. Soleta	-	Field Technician
11. Jimuel B. Torrelino	-	Driver / Technician
12. Joseph Dandy A. Quilet	-	Driver / Technician

Signed:

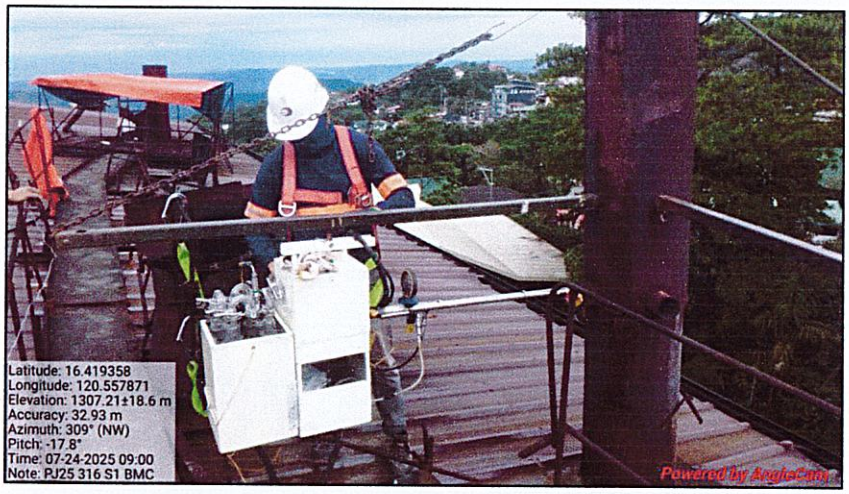
EDINDO C. FERNANDO
Field Operations Manager
DENR Accredited QA/QC Manager
SAT No. 2022-72

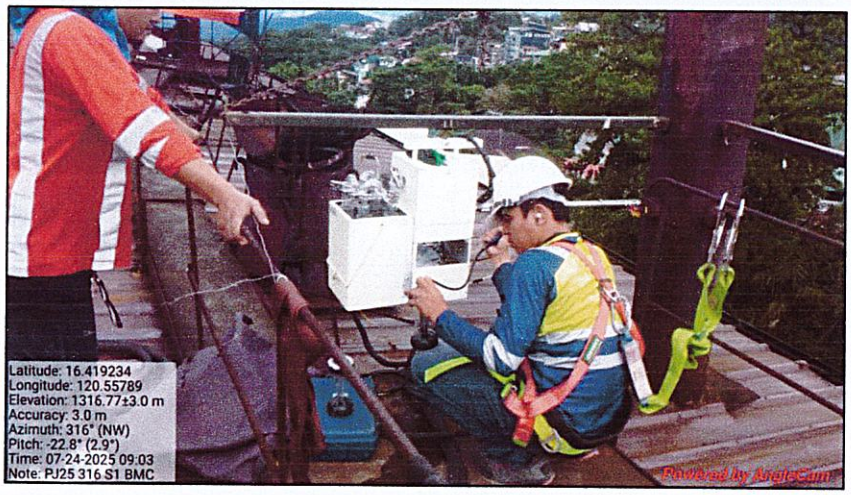
2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan, Metro Manila, Philippines
Tels. (632) 863-6129 • Fax (632) 727-9831
Email: info@bsienv.com.ph

ANNEX I

PHOTO DOCUMENTATION

PHOTO DOCUMENTATION





Vertical Shaft Kiln No. 2

BSI

Source Emission Monitoring
BMC FORESTRY CORPORATION
Irisan, Baguio City
July 24, 2025

BERKMAN SYSTEMS INC.
Environmental Management Service Provider

29 January 2026

Ref. No.: LT-25-541-1-83

MS. NARHY C. POMILBAN
Pollution Control Officer
BMC FORESTRY CORPORATION
Km. 5, Naguilian Rd., Irisan, Baguio City

Subject: ***Source Emission Monitoring Report***

Dear Ms. Pomilban:

We are pleased to submit the final report of the source emission monitoring as a result of our visit to your facility in Irisan, Baguio City on December 11, 2025.

We hope that this report addresses your requirements.

Very truly yours,

EMMANUEL R. ALTAREJOS
Executive Vice President

ERA/*ldm*

SOURCE EMISSION MONITORING REPORT

One (1) Unit 1.08 MT/hr Vertical Shaft Kiln

BMC FORESTRY CORPORATION

Irisan, Baguio City

DENR SOURCE EMISSION TESTING FIRM
ACCREDITATION NO: SAT NO. 2025-72

2nd Floor, VAG Building
Ortigas Avenue, Greenhills, San Juan,
Metro Manila, Philippines

SOURCE EMISSION MONITORING REPORT
(December 11, 2025)

BMC FORESTRY CORPORATION
Irisan, Baguio City

Prepared for:

BMC Forestry Corporation
Km. 5, Naguilian Rd., Irisan, Baguio City
Tel. No.: (074) 445-7180

Prepared by:

BSI
2nd Floor VAG Building, Ortigas Avenue
Greenhills, San Juan, Metro Manila
Tel. No.: (02) 863 6129; Fax. No.: (02) 727 9831

TABLE OF CONTENTS

CONTENTS PAGE

LIST OF TABLES

LIST OF ANNEXES

Emission Test Report Certification

The emission sampling reported herein was performed under the direction and supervision of Mr. Edindo C. Fernando of BSI. The analyses of samples were conducted under the direction and supervision of Mr. Renato M. Gofredo, Jr. of ELARSI, Inc., a DENR-recognized Environmental Laboratory

I certify that the information contained in this report is authentic and accurate to the best of my knowledge.

Signed:.....

Edindo C. Fernando
BSI
DENR Accredited QA/QC Manager

Date: 29 JAN 2026

1. INTRODUCTION

This report presents the procedures and results of the source emission monitoring conducted on December 11, 2025 at BMC Forestry Corporation situated in Irisan, Baguio City. BSI was commissioned to conduct the monitoring wherein Mr. Halcy Lemon P. Orquina led the team that administered the source emission sampling with Mr. Edindo C. Fernando as QA/QC Manager. Meanwhile, Ms. Narhy C. Pomilban, Pollution Control Officer of BMC Forestry Corporation, served as site contact person during sampling.

The pollutants considered for the source emission monitoring were: particulate matter (PM), sulfur oxides (as SO_2), nitrogen oxides (as NO_2) and carbon monoxide (CO) at one (1) unit 1.08 MT/hr vertical shaft kiln exhaust stack. The source was tested for three runs.

1.1 Process Description and Operation

BMC Forestry Corporation – BC ILP is an enterprise in the Philippines, with the main office in Baguio City. It operates in the Crop Production Industry *(https://www.emis.com/php/company-profile/PH/Bmc_Forestry_Corporation_en_3256166.html)* and a producer and supplier of burnt lime. Its Kiln plant located at Km. 5 Naguilian Road, Irisan, Baguio City operates three (3) vertical shaft kilns, three (3) gas scrubbers, two (2) cyclone dust collectors and one (1) jaw crusher.

One (1) unit of 1.08 MT/hr *Vertical Shaft Kiln No. 2* was operated at a minimum of 95% operating rate was tested during sampling, and used low sulfur fuel oil/regular fuel oil as fuel source.

This report covers the source emission monitoring of the vertical shaft kiln no. 2 only.

1.2 Reason for Testing

The purpose of the monitoring was to verify the company's compliance with the source emission standards of the Department of Environment and Natural Resources (DENR) Administrative Order No. 81 Series of 2000 (Implementing Rules and Regulations of the Philippine Clean Air Act of 1999).

1.3 Facility Operating Conditions during the Test

The equipment information and operating conditions of the facility monitored were summarized in *Tables 1* and *2*, respectively.

Table 1. Equipment Information

Stationary Source Information		Vertical Shaft Kiln No. 2
Brand Name		N/A
Rated Capacity		1.08 MT/hr
Year Installed*		August 1940
Exhaust Stack	Diameter	40 cm
	Height**	8.5 m
	Orientation	Vertical
Air Pollution Control Device*		No Information Provided
GPS Coordinates		16° 25 ' 9.11"N; 120° 33' 28.52"E

**Based from previous sampling records*
***Measured from the ground to the tip of the stack*

Table 2. Operating Conditions

Stationary Source Information	Vertical Shaft Kiln No. 2
Minimum Load During Sampling	95%
Fuel Used	LSFO/Regular Fuel Oil
Fuel Sulfur Content	No Fuel Analysis Provided
Fuel Consumption	No Information Provided
Annual Operating Hours	No Information Provided

2. SUMMARY OF RESULTS

Table 3 presents the summary of test results of the vertical shaft kiln no. 2 exhaust stack. The test results were compared with the National Emission Standards identified in IRR Part VII Rule XXV Table 2. A detailed description of the test run information and sample calculations used to derive the values in the tabular summary were attached in *Annex A*.

Three test runs were performed to collect: PM, SOx (as SO_2), NOx (as NO_2) and CO at vertical shaft kiln no. 2 exhaust stack. Three trial tests per run were conducted to collect samples of nitrogen oxides (as NO_2). The raw field data used to prepare the summary reports in *Annex A* was included in *Annex B*. Emissions have been corrected to the standard conditions of 25°C and 760 mmHg on dry basis (unless otherwise indicated). Moreover, the emissions are not applicable for the corrected oxygen factor since the source is not included in the list of equipment under DENR EMB Memorandum Circular No. 2021-15.

Table 3. Vertical Shaft Kiln No. 2 Emission Test Results

		Run 1	**Run 2**	**Run 3**		
Sampling date		11-Dec-25	11-Dec-25	11-Dec-25		
Begin sampling time		1025H	1300H	1435H		
End sampling time		1130H	1405H	1540H		
Parameter	**Units**				**Average**	**DENR Standard**
Average stack temperature	°C	157.4	175.3	183.5	*172.1*	
CO_2 measured in stack gas	%	6.0	6.0	6.0	*6.0*	
Oxygen measured in stack gas	%	15.0	15.0	15.0	*15.0*	
Stack gas moisture content	%	9.37	9.14	9.35	*9.28*	
Flue gas velocity	m/s	23.33	23.80	24.03	*23.72*	
Actual volumetric flow	m^3/min	175.9	179.4	181.2	*178.8*	
Dry volumetric flow at STP	dsm^3/min	95.5	93.8	92.8	*94.0*	
Isokinetic flow rate	%	99.3	99.9	101.0		
Particulate matter data						
Concentration	mg/Nm^3	35.6	38.0	21.9	31.8	***150***
Annual emission rate	tons/yr	1.8	1.9	1.1	1.6	
Sulfur oxides data						
Concentration (as SO_2)	mg/Nm^3	9.3	4.0	2.5	*5.3*	***1500***
Annual emission rate	tons/yr	0.5	0.2	0.1	*0.3*	
Nitrogen oxides data						
Concentration (as NO_2) *	mg/Nm^3	16.6	14.7	9.0	13.4	***1000***
Annual emission rate	tons/yr	0.8	0.7	0.4	0.7	
Carbon monoxide data						
Concentration	mg/Nm^3	17.2	16.0	13.7	15.6	***500***
Annual emission rate	tons/yr	0.9	0.8	0.7	0.8	

Annual emission rates were based on one (1) year continuous operation.
**Average of three (3) trial tests*
Emissions are not applicable for the corrected oxygen factor since the source is not included in the list of equipment under DENR EMB Memorandum Circular No. 2021-15.

2.1 Conclusions

A description of any method deviations and quality assurance assessment was included in *Sections 3* and *4* of this report. Based on a review of the sampling data, facility operating information, test method description and quality assurance results, the concentration values presented in *Table 3* have passed the criteria to be considered as representative emission test results of the source and are suitable for comparison with the regulatory limits.

Under the Implementing Rules and Regulations of the Clean Air Act (CAA), the standards applicable to vertical shaft kiln no. 2 are as "*existing fuel-burning equipment; other stationary source*".

In conclusion, the test results indicate that the average emissions from vertical shaft kiln no. 2 exhaust stack:

- comply with the applicable standard for PM emissions;
- comply with the applicable standard for SOx (as SO_2) emissions;
- comply with the applicable standard for NO_X (as NO_2) emissions; and
- comply with the applicable standard for CO emissions.

3. SAMPLING AND ANALYTICAL PROCEDURES

All sampling were undertaken in accordance with US EPA standard methods, viz:

Method 1	Sample and Velocity Traverse Point Locations
Method 2	Stack Gas Velocity and Volumetric Flow Rate (S-type Pitot Tube)
Method 3	Gas Analysis for Determination of Dry Molecular Weight
Method 4	Determination of Moisture Content in Stack Gases
Method 5	Determination of Particulate Matter Emissions from Stationary Sources
Method 6	Determination of Sulfur Dioxide Emissions from Stationary Sources
Method 7	Determination of Nitrogen Oxide Emissions from Stationary Sources
Method 10	Determination of Carbon Monoxide Emissions from Stationary Sources

3.1 Methods 1 and 2 – Traverse Point and Stack Velocity

3.1.1 Sampling points

For the vertical shaft kiln no. 2 exhaust stack, the number and location of the sampling points were determined using the procedures of US EPA Method 1 since the equivalent stack diameter was measured to be greater than 30 cm.

The vertical shaft kiln no. 2 was sampled at a total of twenty-four (24) traverse points. Having two (2) available portholes that are 90° apart, twelve (12) traverse points were sampled for each.

Some of the traverse points of the exhaust stack were less than the criterion of Method 1 for allowable distance from the stack wall of stacks with diameter less than 0.61 meters. These points were relocated 1.3 cm (0.5 in) away from the stack wall.

3.1.2 Cyclonic Flow Check

For each sampling point, the rotation angle was determined using an "S-type" pitot tube assembly, liquid manometer and angle finder in accordance with section 2.4 of US EPA Method 1.

For each test point, the average absolute value of the rotation angle was less than the 20 degrees criterion of Method 1.

3.1.3 Flue Gas Velocity

The procedures of US EPA Method 2 were employed to determine the flue gas velocity and volumetric flow rate using an "S-type" pitot tube in making velocity head measurements (Δp). The "S-type" pitot tube conforms to the geometric specifications of Method 2 and has therefore been assigned a coefficient of 0.84. An inclined manometer built onto the meter console box was used to measure the differential pressures, while flue gas temperatures were measured with chromel-alumel thermocouples equipped with digital readouts.

3.2 Method 3 – Flue Gas Composition

US EPA Method 3 procedures were used to determine the flue gas composition and molecular weight. An "Orsat" sample pump was operated continuously at a constant rate during each Method 5/6 (Modified) sampling run to collect an integrated flue gas sample into a tedlar bag through a separate sample line attached to the probe. Moisture was removed from the sample by passing it through a small impinger charged with silica gel.

The content of each tedlar bag was analyzed using a Fyrite analyzer to determine the concentration of oxygen and carbon dioxide in the sample.

The same bag samples were also used for the carbon monoxide analysis by Method 10.

3.3 Method 4 – Flue Gas Moisture Content

The moisture content of the flue gas was determined using the US EPA Method 4 procedures in conjunction with Method 5/6 (Modified).

3.4 Method 5/6 (Modified) – Particulate Matter and Sulfur Oxides

3.4.1 Sample Collection

A US EPA Method 5/6 (Modified) sampling train was used to extract samples isokinetically from the stack which comprised the following elements:

- a stainless steel nozzle;
- a heated stainless steel probe with "S-type" pitot tube;
- a glass fibre filter maintained at 120°C ± 14 °C;
- four chilled impingers:
  - 1st and 2nd containing 100 mL 3% H_2O_2;
  - 3rd left empty; and
  - 4th containing 200 to 300 grams of silica gel; and
- a metering console.

Each of the impingers was labeled and weighed.

Three test runs were conducted at the available sampling ports. The actual sampling time was 60 minutes per run.

3.4.2 Sample Recovery

Sample recovery was undertaken at the sheltered area near the source of emission. The filter was removed from the filter holder and placed on a petri dish. The volume of water vapor condensed in the impingers was measured to determine the volume of water vapor collected.

The nozzle, probe and front half of the filter holder were rinsed with acetone, and the interior of the probe and nozzle were rinsed and brushed repeatedly to remove any adhering PM from the inside surfaces. All rinses were collected into a 250 mL glass bottle.

The contents of the impingers 1, 2 and 3 were transferred to a 1000 mL polyethylene sample bottle. The glass sample line between the heated filter holder and the first impinger, the first three impingers and connecting glasswares were all rinsed with distilled deionized water and the rinse was added into the sample bottle.

3.4.3 Sample Analysis

The filter and sample bottles, together with the blank samples of acetone and H_2O_2, were submitted to a DENR-recognized laboratory.

The mass of filterable particulate matter collected on the filter and in the acetone rinse was determined in accordance with US EPA Method 5 analytical procedures.

The mass of sulfur oxides in the impinger contents and rinse water was determined in accordance with US EPA Method 6 analytical procedures.

3.5 Method 7 – Nitrogen Oxides

3.5.1 Sample Collection

The sampling of the flue gas to determine the concentration of nitrogen oxides was undertaken in accordance with US EPA Method 7 using a nominal 2 L glass collection flask containing 25 mL of NO_X absorbing reagent (Sulfuric Acid-Hydrogen Peroxide) connected to a Borosilicate glass probe sufficiently heated to avoid condensation and equipped with a glass wool filter at the end for particulate matter screening.

During the Method 7 testing, a flask was evacuated to an absolute pressure of 76 mmHg (3 inHg) at most less than the barometric pressure, and the initial flask temperature and pressure were recorded. The sampling train was then checked for leakage not exceeding 10 mmHg (0.4 inHg) in 1 min. The probe was inserted into the stack, connected to the flask and after purging the probe, a sample was drawn into the flask. The flask was then shaken for five minutes. This procedure was carried out thrice for three test runs resulting in the collection of nine samples for the exhaust stack.

3.5.2 Sample Recovery

The NO_X flasks were set at least 16 hours, shaken for two minutes and then the final flask temperature and pressure were measured. The contents of each flask were transferred to a leak-free polyethylene bottle and rinsed twice with 5 mL portions of deionized distilled water, and the rinse water was added into the bottle. Prior to analysis, the pH was adjusted to a value within 9 to 12 by adding 1N NaOH.

3.5.3 Sample Analysis

The sample preparation procedures of US EPA Method 7 were applied and each sample was then subjected to colorimetric analysis.

3.6 Method 10 – Carbon Monoxide

3.6.1 Sample Collection

The integrated samples that were collected into tedlar bags were used for the determination of CO in accordance with US EPA Method 10.

3.6.2 Sample Recovery

The tedlar bags were sealed and transported for analysis.

3.6.3 Sample Analysis

The sample was analyzed using a non-dispersive infrared (NDIR) analyzer. The analyzer was flushed with nitrogen and zero setting confirmed. The tedlar bag was attached to the sample input and the gas sample was introduced at a flow rate of about 0.5 L/min by applying gentle pressure to the tedlar bag. The concentration was recorded when the value indicated on the display stabilized.

4. QA PROCEDURES

The US EPA "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III Stationary Source-Specific Methods" was used as a guide to achieve the quality assurance objectives of producing data that are complete, representative and of known precision and accuracy.

4.1 Particulate Matter and Sulfur Oxides (as SO_2)

4.1.1 Sampling Procedure

US EPA Method 5/6 (Modified) was employed to determine the concentration of particulate matter in the gas stream. This method requires the use of Methods 1 to 4 to determine sampling port locations, sample traverse points within the stack, as well as the flow rate, molecular weight and moisture content of the flue gas.

The quality of the emission test was assured by:

- Ensuring that the test port is located sufficiently distant from both upstream and downstream flow disturbances (such as bends and changes in stack diameter).
- Ensuring that stack gas flow is essentially parallel to the stack walls by conducting a cyclonic flow check.

- Determination of a representative stack gas velocity by the selection of sampling test points appropriate to the stack diameter in accordance with the method.
- Leak testing of the sampling train before and after each sampling run.
- Testing and calibration of the dry gas meter, thermocouples and temperature displays, pitot tubes, nozzles, and manometer assembly.
- Ensuring that the temperature of the impinger system is maintained below 20°C.
- Maintaining the filter and sampling probe temperature at 120°C (±14°C).
- Sampling at between 90 - 110% of the actual gas stream velocity (isokinetic sampling).

The procedure for sampling SOx (as SO_2) was combined with US EPA Method 5 as described in *Section 3.4*. The quality of the test was assured by:

- The use of freshly-prepared chemical solutions;
- Care in the recovery of the sample;
- Attention to detail in the analysis of samples in accordance with the US EPA Method 6;
- The collection and analysis of representative "blank" samples; and
- Proper calibration and QA/QC checks of all elements of the sampling system.

4.1.2 Sampling Equipment

Copies of various calibration and test certificates were included in *Annex E*.

Barometer

A calibrated digital barometer was used to measure atmospheric pressure at the platform level.

Probe Nozzle

The probe nozzles were calibrated by the manufacturer and were inspected and checked for roundness before use to ensure that they met the specifications of the method.

Pitot Tube

The pitot tube meets the EPA Method 2 design specifications for "S-type" pitot tubes and was therefore assigned a baseline coefficient of 0.84. After each test, the pitot tube was visually inspected for damage.

Metering System

The meter box was leak checked and a calibration was carried out using five (5)-point calibrating orifices in accordance with EPA Method 5.

Post-Test Meter Calibration

A post-test meter calibration was made using the data collected for each of the test runs in accordance with the procedure set out in EPA ALT-009.

Temperature Sensors

An ethanol-filled thermometer with NIST traceable calibration was used to calibrate thermocouples at approximately 0°C in iced water, ambient temperature and approximately 100°C in boiling water. At the completion of each test, the thermocouples were compared to the ethanol-in-glass thermometer at ambient temperature and a continuity check was performed to ensure that the thermocouple read-out trended in the correct direction when subjected to a temperature change.

4.1.3 Analysis

Filters and acetone used in the emission test met the required specifications and Method 5 analytical procedures were employed using a properly calibrated analytical balance.

The mass of sulfur oxides in the impinger contents and rinse water were determined in accordance with US EPA Method 6 analytical procedures.

4.2 Nitrogen Oxides (as NO_2)

The procedure for sampling NOx (as NO_2) was described in *Section 3.5*. The quality of the test was assured by:

- The use of freshly-prepared chemicals;
- Care in the recovery of the sample;
- Attention to detail in the analysis of samples in accordance with the US EPA Method 7;
- Calibration and verification of linearity of the spectrophotometer; and
- Proper calibration and QA/QC checks of all elements of the sampling system.

4.3 Carbon Monoxide

The procedure for sampling CO was described in *Section 3.6*. The quality of the test was assured by:

- Care in the collection of the gas samples to ensure that they are representative of the emission;
- Maintenance of a leak-free bag at all stages of sampling and analysis;
- Calibration of the analytical instrument prior to analysis; and
- Attention to detail in the analysis of samples in accordance with the US EPA Method 10.

ANNEX A

SOURCE EMISSION MONITORING SUMMARY OF RESULTS

EMISSION TEST RESULTS SUMMARY

BMC
BAGUIO CITY
VERTICAL SHAFT KILN NO. 2

			Run 1	Run 2	Run 3	
	Sampling date		11-Dec-25	11-Dec-25	11-Dec-25	
	Begin sampling time		1025H	1300H	1435H	
	End sampling time		1130H	1405H	1540H	
Symbol	**Parameter**	**Units**				**Average**
Y	Meter box gamma	none	0.9832	0.9832	0.9832	
ΔH	Average ΔH	mm H_2O	59.0	55.0	57.0	
P_{bar}	Barometric pressure	mm Hg	657.1	657.1	657.1	
V_m	Metered sample gas volume	m^3	1.4806	1.4622	1.4708	
T_m	Average meter temperature	°C	33.7	33.5	35.3	
P_g	Static pressure	mm H_2O	10.6	10.6	10.6	
T_s	Average stack temperature	°C	157.4	175.3	183.5	172.1
Ds	Stack diameter	cm	40	40	40	
V_{lc}	Volume of water collected	mL	93.9	90.3	92.6	
$\%CO_2$	CO_2 measured in stack gas	%	6.0	6.0	6.0	6.0
$\%O_2$	Oxygen measured in stack gas	%	15.0	15.0	15.0	15.0
C_p	Pitot tube coefficient	none	0.84	0.84	0.84	
$\sqrt{\Delta P}$	Average of square roots of ΔP	$(mm\ H_2O)^{½}$	*5.239*	*5.239*	*5.239*	
θ	Sampling run time	min	60	60	60	
D_n	Nozzle diameter	mm	5.88	5.88	5.88	
A_n	Nozzle area	m^2	*2.72E-05*	*2.72E-05*	*2.72E-05*	
$V_{m(std)}$	Metered gas volume at STP	Nm^3	*1.2303*	*1.2155*	*1.2157*	
P_s	Stack pressure	mm Hg	*657.88*	*657.88*	*657.88*	
B_{ws}	Stack gas moisture content	%	*9.37*	*9.14*	*9.35*	9.28
$V_{w(std)}$	Water vapour volume at STP	Nm^3	*0.127*	*0.122*	*0.126*	
M_{fd}	Dry mole fraction of flue gas	none	*0.906*	*0.909*	*0.907*	
M_d	Dry molecular weight	g/g-mole	*29.56*	*29.56*	*29.56*	
M_s	Wet molecular weight	g/g-mole	*28.48*	*28.50*	*28.48*	
v_s	Flue gas velocity	m/s	*23.33*	*23.80*	*24.03*	23.72
A_s	Stack area	m^2	*0.126*	*0.126*	*0.126*	
$Q_{a(act)}$	Actual volumetric flow	m^3/min	*175.9*	*179.4*	*181.2*	178.8
$Q_{s(std)}$	Dry volumetric flow at STP	dsm^3/min	*95.5*	*93.8*	*92.8*	94.0
I	Isokinetic flow rate	%	*99.3*	*99.9*	*101.0*	
AOH	Annual operating hours	hrs/yr	8,760	8,760	8,760	
	Particulate matter data					
M_{part}	Measured mass	mg	43.8	46.2	26.6	
C_{part}	Concentration	mg/Nm^3	35.6	38.0	21.9	31.8
	Mass emission rate	kg/hr	0.20	0.21	0.12	0.18
	Annual emission rate	tons/yr	1.8	1.9	1.1	1.6
	Sulphur oxides data					
M_{SOx}	Measured mass	mg	11.50	4.84	3.06	
C_{SOx}	Concentration	mg/Nm^3	9.3	4.0	2.5	5.3
	Mass emission rate	kg/hr	0.05	0.02	0.01	0.03
	Annual emission rate	tons/yr	0.5	0.2	0.1	0.3
	Nitrogen oxides data					
C_{NOx}	Concentration	mg/Nm^3	16.6	14.7	9.0	13.4
	Mass emission rate	kg/hr	0.10	0.08	0.05	0.08
	Annual emission rate	tons/yr	0.8	0.7	0.4	0.7
	Carbon monoxide data					
C_{COppm}	Concentration	ppm	15.0	14.0	12.0	
C_{COmg}	Concentration	mg/Nm^3	17.2	16.0	13.7	15.6
	Mass emission rate	kg/hr	0.10	0.09	0.08	0.09
	Annual emission rate	tons/yr	0.9	0.8	0.7	0.8

Notes: *Italics indicates calculated value*
Annual emission rates were based on one (1) year continuous operation.
Emissions are not applicable for the corrected oxygen factor since the source is not included in the list of equipment under DENR EMB Memorandum Circular No. 2021-15.

NITROGEN OXIDES (as NO_2) EMISSIONS DATA

BMC

BAGUIO CITY

VERTICAL SHAFT KILN NO. 2

RUN 1

Sample Collection

Barometric Pressure, $P_{bar(i)}$ (in Hg): 25.88

Sample ID	Flask ID	Flask Volume	Evacuated Pressure	Initial Absolute Pressure	Flask Temp	Flask Temp	Collection Time
		V_f	P_{gi}	P_i		T_i	
		mL	in Hg	(in Hg)	°C	°K	
S1R1T1	BSI T2-F1	2230	24.50	1.38	30.6	303.75	1040H
S1R1T2	BSI T2-F2	2230	24.30	1.58	30.6	303.75	1050H
S1R1T3	BSI T2-F3	2250	24.20	1.68	31.1	304.25	1100H

Date Collected: 11-December-2025

Sample Recovery

Barometric Pressure, $P_{bar(f)}$ (in Hg): 25.90

Sample ID	Flask ID	Final Pressure	Final Absolute Pressure	Flask Temp	Flask Temp
		P_{gf}	P_f	Temp	T_f
		in Hg	in Hg	°C	°K
S1R1T1	BSI T2-F1	0.30	25.60	30.3	303.45
S1R1T2	BSI T2-F2	0.40	25.50	30.7	303.85
S1R1T3	BSI T2-F3	0.50	25.40	30.8	303.95

Date Recovered: 12-December-2025

Concentration Calculation

Volume at STP	Mass Catch	NO_x Conc.
V_{sc}	M_{NO2}	C_{NO2}
mL	µg	mg/Nm^3
1752.9	40.2	22.9
1728.7	26.3	15.2
1729.4	20.1	11.6
	Average	**16.6**

RUN 2

Sample Collection

Barometric Pressure, $P_{bar(i)}$ (in Hg): 25.90

Sample ID	Flask ID	Flask Volume	Evacuated Pressure	Initial Absolute Pressure	Flask Temp	Flask Temp	Collection Time
		V_f	P_{gi}	P_i		T_i	
		mL	in Hg	(in Hg)	°C	°K	
S1R2T1	BSI T2-F4	2230	24.30	1.60	31.7	304.89	1330H
S1R2T2	BSI T2-F5	2230	24.20	1.70	32.3	305.45	1340H
S1R2T3	BSI T2-F6	2250	24.40	1.50	32.6	305.75	1350H

Date Collected: 11-December-2025

Sample Recovery

Barometric Pressure, $P_{bar(f)}$ (in Hg): 25.90

Sample ID	Flask ID	Final Pressure	Final Absolute Pressure	Flask Temp	Flask Temp
		P_{gf}	P_f	Temp	T_f
		in Hg	in Hg	°C	°K
S1R2T1	BSI T2-F4	0.60	25.30	30.7	303.85
S1R2T2	BSI T2-F5	0.60	25.30	30.7	303.85
S1R2T3	BSI T2-F6	0.70	25.20	30.3	303.45

Date Recovered: 12-December-2025

Concentration Calculation

Volume at STP	Mass Catch	NO_x Conc.
V_{sc}	M_{NO2}	C_{NO2}
mL	µg	mg/Nm^3
1713.3	20.1	11.7
1706.3	17.0	10.0
1731.5	38.6	22.3
	Average	**14.7**

RUN 3

Sample Collection

Barometric Pressure, $P_{bar(i)}$ (in Hg): 25.86

Sample ID	Flask ID	Flask Volume	Evacuated Pressure	Initial Absolute Pressure	Flask Temp	Flask Temp	Collection Time
		V_f	P_{gi}	P_i		T_i	
		mL	in Hg	(in Hg)	°C	°K	
S1R3T1	BSI T2-F7	2230	24.50	1.36	32.4	305.55	1450H
S1R3T2	BSI T2-F8	2240	24.20	1.66	30.6	303.75	1500H
S1R3T3	BSI T2-F9	2250	24.30	1.56	30.0	303.15	1510H

Date Collected: 11-December-2025

Sample Recovery

Barometric Pressure, $P_{bar(f)}$ (in Hg): 25.90

Sample ID	Flask ID	Final Pressure	Final Absolute Pressure	Flask Temp	Flask Temp
		P_{gf}	P_f	Temp	T_f
		in Hg	in Hg	°C	°K
S1R3T1	BSI T2-F7	0.70	25.20	30.8	303.95
S1R3T2	BSI T2-F8	0.50	25.40	30.7	303.85
S1R3T3	BSI T2-F9	0.50	25.40	30.8	303.95

Date Recovered: 12-December-2025

Concentration Calculation

Volume at STP	Mass Catch	NO_x Conc
V_{sc}	M_{NO2}	C_{NO2}
mL	µg	mg/Nm^3
1723.0	21.6	12.5
1723.5	12.4	7.2
1737.8	12.4	7.1
	Average	**9.0**

SAMPLE CALCULATIONS

BMC

BAGUIO CITY

VERTICAL SHAFT KILN NO. 2

VOLUME OF DRY GAS SAMPLED AT STANDARD CONDITIONS

$$V_{m(std)} = Y \times 0.3921 \times V_m \times \frac{P_{bar} + (\Delta H \div 13.6)}{(273 + T_m)}$$

$$V_{m(std)} = 0.9832 \times 0.3921 \times 1.4806 \times \frac{657.1 + (59.0 \div 13.6)}{(273 + 33.7)} = 1.2303 \ Nm^3$$

VOLUME OF WATER VAPOUR AT STANDARD CONDITIONS

$$V_{w(std)} = 0.001356 \times V_{lc}$$

$$V_{w(std)} = 0.001356 \times 93.9 = 0.127 \ Nm^3$$

PERCENT MOISTURE IN FLUE GAS

$$B_{ws} = \frac{V_{w(std)}}{(V_{w(std)} + V_{m(std)})}$$

$$B_{ws} = \frac{0.127}{(0.127 + 1.2303)} = 9.37 \ \%$$

ABSOLUTE FLUE GAS PRESSURE

$$P_s = P_{bar} + \frac{P_g}{13.6}$$

$$P_s = 657.1 + \frac{10.6}{13.6} = 657.88 \ mm\ Hg$$

DRY MOLECULAR WEIGHT OF FLUE GAS

$$M_d = (\%CO_2 \times 0.44) + (\%O_2 \times 0.32) + [\{100 - (\%CO_2 + \%O_2)\} \times 0.28]$$

$$M_d = (6.0 \times 0.44) + (15.0 \times 0.32) + [\{100 - (6.0 + 15.0)\} \times 0.28] = 29.56 \ g/g\ mole$$

WET MOLECULAR WEIGHT OF FLUE GAS

$$M_s = M_d \times (1 - B_{ws}) + \left(\frac{mol.wt.}{H_2O} \times B_{ws}\right)$$

$$M_s = 29.56 \times (1 - 0.0937) + (18 \times 0.0937) = 28.48 \ g/g\ mole$$

AVERAGE FLUE GAS VELOCITY

$$v_s = 34.97 \times C_p \times \sqrt{\Delta P} \times \sqrt{\left\{\frac{T_s + 273}{P_s \times M_s}\right\}}$$

$$v_s = 34.97 \times 0.84 \times 5.239 \times \sqrt{\left\{\frac{157.4 + 273}{657.9 \times 28.48}\right\}} = 23.33 \ m/s$$

ACTUAL WET FLUE GAS FLOW RATE

$$Q_a = 60 \times v_s \times A_s$$

$$Q_a = 60 \times 23.33 \times 0.126 = 175.9 \ m^3/min$$

DRY, NORMAL FLUE GAS FLOW RATE

$$Q_s = Q_a \times M_{fd} \times \frac{298}{273 + T_s} \times \frac{P_s}{760}$$

$$Q_s = 175.9 \times 0.906 \times \frac{298}{273 + 157.4} \times \frac{657.9}{760} = 95.5 \ dsm^3/min$$

SAMPLE CALCULATIONS

BMC

BAGUIO CITY

VERTICAL SHAFT KILN NO. 2

ISOKINETIC FLOW RATE

$$I = \frac{P_{std}}{T_{std}} \times \frac{100}{60} \times \frac{T_s + 273}{P_s} \times \frac{V_{m(std)}}{v_s \times M_{fd} \times \theta \times A_n}$$

$$I = \frac{760}{298.15} \times \frac{100}{60} \times \frac{157.4 + 273}{657.88} \times \frac{1.2303}{23.33 \times 0.906 \times 60 \times 2.72E\text{-}05} = 99.3\%$$

PARTICULATE MATTER CONCENTRATION

$$C_{part} = \frac{M_{part}}{V_{m(std)}}$$

$$C_{part} = \frac{43.8}{1.2303} = 35.6 \text{ mg/Nm}^3$$

SULPHUR OXIDES CONCENTRATION

Concentration of SO_x as SO_2

$$C_{SOx} = \frac{M_{SO2}}{V_{m(std)}}$$

$$C_{SOx} = 9.3 \text{ mg/Nm}^3$$

NITROGEN OXIDES CONCENTRATION

Concentration of NO_x as NO_2

$$C_{NOx} = \frac{M_{NO2}}{V_{sc}} \times 1000$$

$$C_{NOx} = 22.9 \text{ mg/Nm}^3$$

CONVERSION OF CO IN ppm TO mg/Nm^3

$$C_{CO(mg)} = \frac{C_{CO(ppm)} \times \text{mol. wt. CO}}{24.5}$$

$$C_{CO(mg)} = \frac{15.0 \times 28.01}{24.5} = 17.2 \text{ mg/Nm}^3$$

ANNEX B

SOURCE EMISSION MONITORING FIELD DATA

MONITORING LOGSHEET

Facility Information

Facility Name	BMC FORESTRY CORPORATION - BC ILP
Facility Address	KM. 5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY
Name of Pollution Control Officer	MS NARITY C. PONLIBAN
Maintenance Supervisor / Engineer	
Telephone and Fax Number	(074) 445 7185 / 0917 634 2859

Source Description

Source Type	VERTICAL SHAFT KILN #2
Source ID	P125 541 S1
Manufacturer / Brand of Equipment / Serial No.	
Equipment Capacity (BHp,MW,MT/hr)	1.08 MT/hr
Total Stack Height (from ground to tip of stack/chimney)	
Date of Installation (month/year)	
Date of Modification (that may increase emissions)	
Operational Hours per Year (hrs/year)	
Operating rate (%)	90-95% Normal operation

Air Pollution Control Device

Is there an Air Pollution Control Device (APCD) attached to the source?	____ YES ____ NO
Type of APCD	
Date of Installation	
APCD parameters (flowrate,gpm,delta P,etc)	
Is the APCD operating during emission sampling	____ YES ____ NO

Fuel Analysis / Information

Type of Fuel used during emission sampling (%S)	
Original Fuel used	
Date of Fuel change	
Daily Fuel Consumption (Liters/day)	
's the Fuel Analysis Available?	____ YES ____ NO
'ill the company provide the Fuel Analysis	____ YES ____ NO

Please attach the following
- -Fuel Analysis
- -Permit to Operate
- -APCD Process Logsheet
- -Source Process Logsheet

EMB-CAR: Garth J. Raymundo
12/11/25

Signature over printed name of Facility Representative

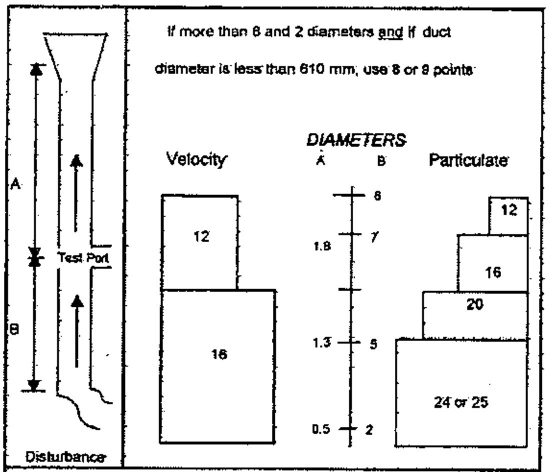
BSI
BERKMAN SYSTEMS INC.
Environmental Management Service Provider

METHOD 1 - TRAVERSE POINT LOCATIONS

Facility Name	BMC FORESTRY CORPORATION BC-TLF
Address	KM 5 NAGUILIAN ROAD, IRISAN, BAGUIO CITY
Source	1.08 MT/hr VERTICAL SHAFT KILN #2
Personnel / Date	EIF HPO SCC EBS JBT

Stack / Ports				
	Type of Stack	Circular ✓	Rectangle	
	No. of Ports Available			2
	No. of Ports Used			2
	Port Inside Diameter, cm			8

Dimensions		
	Far Wall to Outside of Port,cm(a)	49
	Port length, cm (b)	9
Put diagram of test	Stack Diameter or Depth,cm (a-b)	40
location (s) on back	Stack Width (if rectangle), cm	
	Stack Length (if rectangle), cm	
of this sheet	Equivalent Stack Diameter, cm	
	Area of Stack, cm^2	



DRAW HORIZONTAL LINES THROUGH UPSTREAM AND DOWNSTREAM DIAMETERS AND USE THE HIGHER NUMBER OF POINTS

Distance to Flow Disturbances	Distance, cm	Diameters
Upstream (A)	185	4.62
Downstream (B)	140	3.5

Number of Traverse Points			Minimum # Required
		Particulate Traverse	24
		Velocity Traverse	16
# of Ports used	2	# Points / Port	12
		Number of Traverse Points Used	24

Equivalent Diameter (for rectangular ducts):	
De = 2 * Depth * Width / Depth + Width)	
De = 2 * ( ) * ( ) / ( ) + ( ) =	

Point No.	Fraction of Stack Dia.	Dist. From Inside Wall	Port Length	Dist. From Edge of Port
1	0.021	0.84	9	9.84
2	0.067	2.68	9	11.68
3	0.118	4.72	9	13.72
4	0.177	7.08	9	16.08
5	0.25	10.0	9	19.0
6	0.356	14.24	9	23.24
7	0.644	25.76	9	34.76
8	0.750	30.0	9	39.0
9	0.823	32.92	9	41.92
10	0.882	35.28	9	44.28
11	0.933	37.32	9	46.32
12	0.979	39.6	9	48.6
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Note: when using 4 ports in a circular duct, the probe is marked with only the points for the first half of the full diameter traverse.

LOCATION OF POINTS IN CIRCULAR STACTS OR DUCTS
(Fraction of stack diameter from inside wall to traverse point)

	2	4	6	8	10	12
1	.146	.067	.044	.032	.026	.021
2	.854	.250	.146	.105	.082	.067
3		.750	.296	.194	.146	.118
4		.933	.704	.323	.226	.177
5			.854	.677	.342	.250
6			.956	.806	.658	.356
7				.895	.774	.644
8				.968	.854	.750
9					.918	.823
0					.974	.882
11						.933
12						.979

LOCATION OF POINTS IN RECTANGULAR STACKS OR DUCTS
(Fraction of stack diameter from inside wall to traverse point)

	2	3	4	5	6	7	8	9	10	11	12
1	.250	.167	.125	.100	.083	.071	.063	.056	.050	.045	.042
2	.750	.500	.375	.300	.250	.214	.188	.167	.150	.136	.125
3		.833	.625	.500	.417	.357	.313	.278	.250	.227	.208
4			.875	.700	.583	.500	.438	.389	.350	.318	.292
5				.900	.750	.643	.563	.500	.450	.409	.375
6					.917	.786	.688	.611	.550	.500	.458
7						.929	.813	.722	.650	.591	.542
8							.938	.833	.750	.682	.625
9								.944	.850	.773	.708
10									.950	.864	.792
11										.955	.875
12											.958

Notes/Remarks: @ adjusted PI.

Team Leader / Date: H.P. ORDONA / 11 DEC. 25

QA/QC / Date: E.C. FERNANDO / 11 DEC. 25

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EPA METHODS 1 & 2
GAS VELOCITY and CYCLONIC FLOW CHECK

Facility	BMC FORESTRY CORPORATION BC-ILP	Thermocouple ID	TMC-T2
Town/Province	Km.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Manometer ID	MID-T2
Source	1.08 MT/hr. VERTICAL SHAFT KILN #2	P barometer, mm Hg	656.50
Personnel	ECF HPO SCC EBC JBT	Pitot ID	PT-T2
Date	11 DECEMBER 2025	Pitot Coefficient	0.84

Pitot Tube Leak Check: 130/142

Static Pressure, mm H_2O: 10.6

Measured at which Traverse Pt: 8A-6

Traverse Point	Velocity Pressure (mm H_2O)	Temperature (Degrees C)	Angle Which Yields Null (degrees)
A - 12	25	120	12
11	25	120	12
10	25	120	10
9	25	120	9
8	30	125	8
7	30	125	8
6	30	125	9
5	30	125	10
4	30	125	10
3	30	125	10
2	25	120	10
1	25	120	12
B - 12	25	120	12
11	25	120	12
10	25	120	10
9	25	120	10
8	25	120	4
7	30	125	4
6	30	125	6
5	30	125	10
4	30	125	10
3	30	125	10
2	30	125	12
1	25	120	12
Average	√ΔPave = 5.239	122.5	[illegible]

to dryst! PL   Y = 0.9832 ; ΔH@ = 43.6064

Note: O_2 15.0, CO_2 = 6.0 Bws = 10.0 Ts = 22.0 An = 5.88 T2-18-3 = 2.157

Team Leader/Date: H.P. ORQUINA / 11 DEC. 25

QA/QC / Date: E.C. FERNANDO / 11 DEC. 25

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METHOD 3
FYRITE ANALYSIS DATA SHEET

Facility	BMC FORESTRY CORPORATION - BC-ILP	**Fuel Type**	SFO
Town/Province	KM.5 NAGUILIAN ROAD, IRISAN, BAGUIO CITY	**Fyrite ID**	FB - T2
Test Location	1.08 MT/HR. VERTICAL SHAFT KILN #	**Analysis Location**	INSITU

Run No. 1 Date: 09 DEC. 2025 Bag ID PJ25.541.S1.R1 Operator (Signature)

Run Time	Time of Analysis	% CO_2 Reading (A)	% O_2 Value (B-A)	% N_2 Value (100-C)
Start 1025H	1133H	6	14	
	1137H	6	14	
Stop 1130H	1142H	6	14	
Leak Check ☑				
	Avg	6.0	14.0	79.0

Run No. 2 Date: 09 DEC 2025 Bag ID PJ25 541 S1 R2 Operator (Signature)

Run Time	Time of Analysis	% CO_2 Reading (A)	% O_2 Value (B-A)	% N_2 Value (100-C)
Start 1350H	1410H	6	14	
	1414H	6	14	
Stop 1405H	1418H	6	14	
Leak Check ☐				
	Avg	6.0	14.0	79.0

Run No. 3 Date: 11 DEC. 2025 Bag ID PJ25 541 S1 R3 Operator (Signature)

Run Time	Time of Analysis	% CO_2 Reading (A)	% O_2 Value (B-A)	% N_2 Value (100-C)
Start 1437H	1543H	6	14	
	1547H	6	14	
Stop 1540H	1552H	6	14	
Leak Check ☐				
	Avg	6.0	14	79.0

Team Leader/Date: H.P. ORQUINA / 11 DEC. 2025 QA/QC / Date: E.C. FERNANDO / 11 DEC. 2025

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METHOD 4 - MOISTURE ANALYSIS DATA SHEET

Facility	BMC FORESTRY CORPORATION - BC ILP
Address	KM.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY
Source	1.08 MT/HR. VERTICAL SHAFT KILN #
Recovery Location	INSITU (SERVICE VEHICLE)

Run Number	% MOISTURE	PM-1	PM-2	PM-3
Test Date	DEC. 2025	DEC. 2025	DEC. 2025	DEC. 2025
Recovery Date	DEC. 2025	DEC. 2025	DEC. 2025	DEC. 2025
Recovered By	ECF HPO SCC EBS	ECF HPO SCC EBS	ECF HPO SCC EBS	ECF HPO SCC EBS
Impinger 1 100 mL	D.I. H2O	3% H2O2	3% H2O2	3% H2O2
Final Weight, g	747.8	756.8	729.9	758.6
Initial Weight, g	714.6	706.9	708.3	707.9
Net Weight, g	33.2	49.9	21.6	50.7
Impinger 2 100 mL	D.I H2O	3% H2O2	3% H2O2	3% H2O2
Final Weight, g	724.6	723.7	724.0	727.1
Initial Weight, g	708.3	701.1	704.2	703.6
Net Weight, g	16.3	22.6	19.8	23.5
Impinger 3 EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
Final Weight, g	614.2	617.2	616.8	616.3
Initial Weight, g	610.7	608.6	609.7	610.1
Net Weight, g	3.5	8.6	7.1	6.2
Impinger 4 200-800 g	SILICA GEL	SILICA GEL	SILICA GEL	SILICA GEL
Final Weight, g	816.7	823.7	835.5	847.4
Initial Weight, g	807.3	810.9	823.7	835.5
Net Weight, g	9.4	12.8	11.8	12.1
Impinger 5 ____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 6 ____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				
Impinger 7 ____				
Final Weight, g				
Initial Weight, g				
Net Weight, g				

Total Catch, g	62.4	93.9	90.3	92.5
Silica Gel Spent, %				

Team Leader / Date: _____ 11 DEC 25

QA/QC/Date: E.C. FERNANDO / 11 DEC 25

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ISOKINETIC FIELD DATA SHEET
METHOD(s) M5 ~~K~~ M4

Facility Name	BMC FORESTRY CORPORATION BC-ILP	Test Date	11 DECEMBER 2025
Address	KM. 5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Job Number	R125 541 S1 RUN M4
Source	1.08 MT/hr VERTICAL	Year Installed	
Control device		Field Personnel	ECF HPO SCC EBS JBT
Contact Person		Operators Signature	

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Meterbox Gamma	Meterbox DeltaH @	Nozzle ID#	Nozzle Dia.	Pitot Tube ID#	Pitot Tube Cp	Probe ID#
		657.5	10.6	BM-PV	0.9832	43.6064	T215-7	12.41	PT-9PTTP	0.84	SP-PT2

		Sample Train Leak Checks	Initial	Interim				Final	Fyrites Time	%O_2	%CO_2
Run No.	M4										
K Factor		Vacuum, mm Hg	15.0					15	09034	15	5
Pitot Leak Checks		Leak rate, m³/m	0					0	09234	15	5
Pretest	✓ OK	Start Volume	631.9950					632.5996	ORSAT Leak Check	OK	
Post-test	✓ OK	Stop Volume	631.9950					632.5996	Tedlar Bag ID		

Ports & Points	Clock (24-hr)	Test (min)	DGM reading (m³)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Stack	DGM	Probe	Filter	Imp. Exit
A 6	0900H	0	631.9950	30		40	6.0	120	28	119	120	17
	0905H	5	632.0980	30		40	5.0	127	29	123	127	12
	0910H	10	632.1996	30		40	5.0	127	30	126	130	19
	0915H	15	632.3100	30		40	5.5	129	30	127	130	16
	0920H	20	632.4206	30		40	6.0	132	32	127	133	17
	0925H	25	632.5210	30		40	6.0	134	32	126	130	19
Final	0930H	30	632.5996									

Run Time	Total Volume	RMS Delta P
30	0.6030	5.477

Delta H Avg	High Vac.	TS Stack Avg	Tmeter Avg
40	6.0	129.17	30.17

Team Leader / Date: H.P. OROVINA / 11 DEC 25

QA/QC / Date: E.C. FERNANDO / 11 DEC 25

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ISOKINETIC FIELD DATA SHEET
METHOD(s) M5-R-1

Facility Name	BMC FORESTRY CORPORATION BC ILP	Test Date	11 DECEMBER 2025
Address	KM.5 NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Job Number	PJ25 541 S1 RUN 1
Source	1.08 MT/HR. VERTICAL SHAFT KILN #2	Year Installed	
Control device		Field Personnel	ECF HPO SCC EBS JBT
Contact Person	MS. NARRY C. PAMILBAN	Operators Signature	

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Meterbox Gamma	Meterbox DeltaH @	Nozzle ID#	Nozzle Dia.	Pitot Tube ID#	Pitot Tube Cp	Probe ID#
		657.10	16.6	BSI-T1	0.9882	48.6064	NSI-T2-3	5.87	PT-T2-4	0.84	SPL-T2-4

		Sample Train Leak Checks						Fyrites		
Run No.	1		Initial	Interim			Final	Time	%O_2	%CO_2
K Factor	2.137	Vacuum, mm Hg	15.0				15	1038H	15	6
Pitot Leak Checks		Leak rate, m³/m	0				0	1126H	15	6
Pretest	148 / 206	Start Volume	632.6046				634.0930	ORSAT Leak Check	OK	
Post-test	130 / 132	Stop Volume	632.6046				634.0930	Tedlar Bag ID	PJ25 541 S1 RUN	

Ports & Points	Clock (24-hr)	Test (min)	DGM reading (m³)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Stack °C	DGM °C	Probe °C	Filter °C	Imp. Exit °C
A-12	1025H	0	632.6080	25.0	53.42	54	5.5	156	31	124	110	11
11			632.6694	25.0	53.42	54	5.5	159	31	126	112	7
10	1030H	5	632.7220	25.0	53.02	54	5.5	159	31	126	122	10
9			632.7816	25.0	53.42	54	5.5	159	31	124	118	11
8	1035H	10	632.8450	30	64.11	64	6.0	161	32	122	120	12
7			632.9058	30	64.11	64	6.0	161	32	122	117	12
6	1040H	15	632.9520	30	64.11	64	6.0	156	33	126	121	12
5			633.0248	30	64.11	64	6.0	156	33	127	118	12
4	1045H	20	633.0822	30	64.11	64	6.0	152	34	121	125	12
3			633.1440	30	64.11	64	6.0	156	34	122	125	12
2	1050H	25	633.2026	25	53.42	54	6.0	155	34	122	122	12
1			633.2662	25	53.42	54	6.0	155	34	122	122	11
STOP	1055H	30	633.3248									
B-12	1100H	30	633.3248	25	53.42	54	6.0	152	34	116	117	11
11			633.3910	25	53.42	54	6.5	156	35	117	120	12
10	1105H	35	633.4650	30	64.11	64	6.5	159	35	122	122	12
9			633.5316	30	64.4	64	6.5	155	35	122	117	12
8	1110H	40	633.5910	30	64.0	64	6.5	155	35	120	116	12
7			633.6518	30	64.0	64	6.5	159	35	121	117	12
6	1115H	45	633.7110	30	64.11	64	7.0	159	35	117	116	12
5			633.7780	30	64.11	64	7.0	159	35	120	121	12
4	1120H	50	633.8370	25	53.42	54	7.0	156	35	117	116	12
3			633.8990	25.0	53.42	54	7.0	156	35	117	116	14
2	1125H	55	633.9582	25.0	53.42	54	7.0	156	35	120	121	14
1			634.0226	25.0	53.42	54	7.0	156	35	117	118	14
END	1130H	60	634.0886									

Run Time	Total Volume	RMS Delta P
60	1.4806	5.239

Delta H Avg	High Vac.	TS Stack Avg	Tmeter Avg
59.0	7.0	157.46	33.70

Team Leader / Date: H.P. DRQUANA / 11 DEC. 2025

QA/QC / Date: E.C. FERNANDO / 11 DEC 2025

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ISOKINETIC FIELD DATA SHEET
METHOD(s) 5 - R2

Facility Name	BMC FORESTRY CORPORATION - BC ILP	Test Date	DECEMBER 2025
Address	KM.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Job Number	BJ25 541 S1 MSK
Source	1.08 MT/HR. VERTICAL SHAFT KILN #	Year Installed	
Control device		Field Personnel	ECF HPO SCC EBS JBT
Contact Person	MS. NARHY C. BAMILBAN	Operators Signature	

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Gamma	DeltaH @	Nozzle ID#	Dia.	Pitot Tube ID#	Cp	Probe ID#
		646.5	10.6	BSI-T2	0.9872	43.6044	T2 N23	5.87	PT-4 MTP	0.84	SMP-T2

		Sample Train Leak Checks	Initial	Interim			Final	Fyrites Time	%O_2	%CO_2
Run No.	2									
K Factor	.974	Vacuum, mm Hg	15.0				10	13 KHT	15	5
Pitot Leak Checks		Leak rate, m^3/m	0				0	13 4 HT	15	6
Pretest	130/120	Start Volume	634.1020				635.5690	ORSAT Leak Check		
Post-test	130/118	Stop Volume	634.1020				635.5690	Tedlar Bag ID	BJ25 541 S1 R1 (2)	

Ports & Points	Time Clock (24-hr)	Test (min)	DGM reading (m^3)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Stack °C	DGM °C	Probe °C	Filter °C	Imp. Exit °C
A - 6	1300H	0	634.1040	25	49.35	50	6.0	165	31	108	109	14
			634.1690	25	49.35	50	6.0	165	31	110	124	9
5	1305H	5	634.2208	25	49.35	50	6.0	170	31	105	124	7
			634.2880	25	49.35	50	6.0	170	32	126	127	8
4	1310H	10	634.3540	25	49.35	50	8.0	181	32	126	127	8
			634.3902	30	59.72	60	8.0	181	32	122	127	8
3	1315H	15	634.4770	30	59.72	60	8.0	181	32	125	125	9
			634.5334	30	59.72	60	8.0	181	32	122	117	9
2	1320H	20	634.5990	30	59.72	60	8.0	187	33	126	118	9
			634.6600	30	59.72	6.0	8.0	181	33	117	113	10
1	1325H	25	634.7226	30	59.72	6.0	8.0	181	34	120	117	10
			634.7884	25	49.35	5.0	8.0	170	34	117	116	10
STOP	1330H	30	634.8500									
B - 6	1330H	30	634.8500	25	49.35	5.0	8.0	170	34	112	118	12
			634.9118	25	49.35	5.0	9.0	170	34	111	108	10
5	1340H	35	634.9830	25	49.35	50	9.0	170	34	118	118	10
			635.0732	25	49.35	50	9.0	170	34	120	118	9.0
4	1345H	40	635.1322	30	59.72	60	9.0	180	35	126	118	10
			635.1494	30	59.72	60	9.0	180	35	126	118	10
3	1350H	45	635.2020	30	59.72	60	9.0	180	35	120	117	10
			635.2702	30	59.72	6.0	9.5	180	35	121	127	10
2	1355H	50	635.3282	30	59.72	60	9.5	180	35	122	126	11
			635.3896	30	59.72	60	9.5	180	35	117	116	11
1	1400H	55	635.4592	25	49.35	50	9.5	170	35	121	117	11
			635.5002	25	49.35	50	9.5	170	35	117	116	12
END	1405H	60	635.5690									

Run Time	Total Volume	RMS Delta P
60	1.4670	5.239

Delta H Avg	High Vac.	TS Stack Avg	Tmeter Avg
55	9.5	175.69	33.41

Team Leader / Date: H.P. ORQUINA / 11 DEC. 2025

QA/QC / Date: E.C. FERNANDO / 11 DEC. 2025

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ISOKINETIC FIELD DATA SHEET
METHOD(s) M5 R3

Facility Name	BMC FORESTRY CORPORATION - BC ILP	Test Date	11 DECEMBER 2025
Address	KM.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY	Job Number	PJ25-541 S1 RUN 3
Source	1.08 MT/HR. VERTICAL SHAFT KILN # 2	Year Installed	
Control device	3 UNITS GAS SCRUBBER SYSTEM & 1 WET SCRUBBER	Field Personnel	ECF HPO SOC EBS JBT
Contact Person	MC. NARHY C. PONILBAN	Operators Signature	

Filter ID	Tare(s)	Barometric (mm Hg)	Static (mm H_2O)	Meterbox ID#	Gamma	DeltaH @	Nozzle ID#	Dia.	Pitot Tube ID#	Cp	Probe ID#
		670	106	BSI-T2	0.9812	48.6064	NS-T2	5.83	PT-T2-6m	0.84	SPL-T2-6m

		Sample Train Leak Checks	Initial	Interim				Final	Fyrites Time	%O_2	%CO_2
Run No.	3										
K Factor	2.040	Vacuum, mm Hg	15.0					10	1438H	15	5
Pitot Leak Checks		Leak rate, m³/m	0					0	1519H	15	6
Pretest	16/32	Start Volume	635.5720					637.0550	ORSAT Leak Check		
Post-test	16/32	Stop Volume	635.5720					637.0550	Tedlar Bag ID	PJ25541 S1	

Ports & Points	Time Clock (24-hr)	Time Test (min)	DGM reading (m³)	Pitot Reading (mm H_2O)	Delta H Calc. (mm H_2O)	Delta H Actual (mm H_2O)	Gauge Vacuum (mm H_2O)	Stack °C	DGM °C	Probe °C	Filter °C	Imp. Exit °C
A - 12	1435H	0	635.5780	25	51	52	6.0	180	34	107	111	18
11			635.6320	25	51	53	6.0	180	34	114	112	10
10	1440H	5	635.6990	25	51	52	6.0	180	34	122	122	10
9			635.7518	30	61.2	62	6.0	187	34	126	122	9
8	1445H	10	635.8112	30	61.2	62	6.0	187	34	126	120	9
7			635.8700	30	61.2	62	6.5	187	34	125	126	11
6	1450	15	635.9320	30	61.2	62	6.5	187	34	122	120	11
5			635.9918	30	61.2	62	7.0	187	34	122	117	11
4	1455	20	636.0449	30	61.2	62	7.0	187	35	126	123	11
3			636.1006	25	51	52	7.0	180	35	119	123	12
2	1500H	25	636.1718	25	51	52	7.0	180	35	120	122	12
1			636.2314	25	51	52	7.0	180	35	117	126	12
STOP	1500H	30	636.2990									
			2990	0								
B - 12	1504	30	636.2990	25	51	52	7.0	180	35	122	122	18
11			636.3574	25	51	52	7.0	180	35	122	120	12
10	1509H	35	636.4226	30	61.2	62	7.0	187	36	123	120	13
9			636.4880	30	61.2	62	7.0	187	36	122	120	13
8	1510H	40	636.5458	30	61.2	62	7.0	187	36	126	127	13
7			636.6002	30	61.2	62	7.0	187	36	122	126	14
6	1514	45	636.6816	30	61.2	62	7.0	187	36	122	126	13
5			636.7438	30	61.2	62	8.0	187	36	120	117	16
4	1530H	50	636.8068	25	51	52	8.0	180	37	124	125	13
3			636.8718	25	51	52	8.0	180	37	124	125	14
2	1535H	55	636.9336	25	51	52	8.0	180	37	125	117	14
1			636.9932	25	51	52	8.0	180	38	124	117	15
END	1540H	60	637.0588									

Run Time	Total Volume	RMS Delta P
60	1.4708	1.239

Delta H Avg	High Vac.	TS Stack Avg	Tmeter Avg
57.0	8.0	183.5	35.29

Team Leader / Date: H.P. CORAVINA / 11 DEC. 2025

QA/QC / Date: E.C. FERNANDO / 11 DEC 25

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan City, Metro Manila, Philippines
Tels: 863-6129• Fax (632) 727-9831

Department of Environment and Natural Resources (DENR)
ENVIRONMENTAL MANAGEMENT BUREAU
ACCREDITED THIRD PARTY TESTER

Environmental Management Service Provider

METHOD 7 FLASK SAMPLE AND RECOVERY DATA

Facility: BMC FORESTRY CORPORATION-BC ILP
Address: KM.5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY
Source: 100 MT/hr. VERTICAL SHAFT KILN #
Personnel: ECF HPO SCC EBS JBT
Test Date: DECEMBER 2025

Absorbing Solution Volume, ml: 25 mL.
Heated Probe? (check) Yes ✓ No ____ *If No, explain in "Remarks"
Filter Used? (check) Yes ✓ No ____ *If No, explain in "Remarks"
Remarks: ____

Sample Collection Information
Barometric Pressure, Pbar (in Hg) 25.88 / 25.90 / 25.84
Date Performed: 11 DEC. 2025 By: ECF HPO SCC EBS JBT

Sample ID	Run Number	Flask ID Number	Flask Volume (ml)	Leak Check (<0.4"Hg/min)	Evacuated Pressure Pgi (in Hg)	Flask abs. Press Initial Pi, Pbar-Pgi (in Hg)[1]	Flask Temp °C	Flask Temp, Ti (°K)	Sample Collection Time[2] 24hour	Shaken for 5min
P	R1 T1	P1/F1	220	✓	24.5	1.38	30.6	303.75	1040	—
J	T2	P2/F2	220	—	24.3	1.58	30.6	303.75	1050H	—
2	T3	F3	250	—	24.2	1.68	31.1	304.25	1100H	✓
5	R2 T1	F4	220	✓	24.3	1.60	31.7	304.85	13304	—
-	T1	F5	220	—	24.2	1.70	323	305.45	13404	—
S	T3	F6	250	✓	24.40	1.50	32.6	305.75	13504	✓
4	R3 T1	F7	220	—	24.5	1.34	32.7	305.85	14504	—
1	T2	F8	210	—	24.20	1.60	30.4	303.75	15004	—
S1	T3	F9	250	✓	24.3	1.56	30.0	303.15	15104	✓

Sample Collection Information
Barometric Pressure, Pbar (in Hg) 25.90
Date Performed: 12 DEC. 2025 By: ECF HPO SCC EBS JBT

Shaken for 2min	Sample Recovered Time[3] 24hour	Final Pressure Pgf (in Hg)	Flask abs. Press Initial Pi, Pbar-Pgi (in Hg)	Flask Temp °C	Flask Temp Tf °K	Sample pH Adjusted (9 - 12)
✓	0830H	0.30	25.60	30.3	303.45	—
—	0805H	0.40	25.50	30.7	303.85	—
—	0810H	0.50	25.40	30.8	303.95	—
—	08 15H	0.60	25.30	30.7	303.85	—
—	08 20H	0.60	25.30	30.7	303.85	—
—	08 25H	0.7	25.20	30.3	303.45	—
—	08 30H	0.7	25.20	30.8	303.95	—
—	08 35H	0.5	25.40	30.7	303.85	—
—	08 40H	0.5	25.40	30.8	303.95	—

Source Oxygen Concentration? 3 0/0

Was additional oxygen introduced to the Flask? Yes____ No✓

[1]Pi = Pbar - Pgi, Flask must be evacuated to within 3 inches of mercury (Hg) of the absolute pressure (barometric pressure).
[2]Additional oxygen should be introduced to the flask if the source O_2 is below 3%
[3]Flask must stand for 16 hours or greater after sampling before recovery can be performed.

Checked By: .....

QA/QC / Date: E.C. FERNANDO / 12 DEC. 25

2nd Floor, VAG Bldg. Ortigas Ave., Greenhills
San Juan City, Metro Manila, Philippines
Tels. 403-6128 • Fax (632) 727-5651

ANNEX C

PERMIT TO OPERATE
AND
FACILITY PROCESS DATA

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Cordillera Administrative Region (CAR)
Cordillera Administrative Region DENR Compound,Gibraltar Baguio City
Tel No: (074) 446-64-40

Permit No: PTO-OL-CAR-2021-09103-R
Application Type: Renewal

Date Issued: 30 Oct 2021
Date Expiration: 30 Oct 2026

PERMIT TO OPERATE
Air Pollution Source and Control Installations

Pursuant to Part IV, Rule XIX of the Rules and Regulations of R.A. 8749, authority is hereby granted to:

BMC Forestry Corporation (Irisan Lime Kiln) **Km. 5 Naguilian Road, Irisan, Baguio City, Benguet**

subject to the following terms and conditions:

TERMS AND CONDITIONS

1. This Permit is issued for the permittee to operate the following facilities/equipment described below at the permittee's establishment located at the above-mentioned address (geolocation of entrance gate: 16.419336°, 120.557358°):
   - **Air Pollution Source Installations/Equipment:**
     - *Three (3) units Vertical Shaft Kiln (Cap.: 1.08 MT/hr; Fuel used: Regular Fuel Oil or Bunker Oil)* - for the purpose of calcinations of limestones (geolocation of kiln plant building 16.419198°, 120.557922°);
     - *One (1) unit Jaw Crusher (Cap.: 1 MT/hr; With Conveyors)* - for the purpose of pulverizing the quicklimes;
     - *One (1) unit Lime Storage Silo (Cap.: 90 MT);*
     - *One (1) unit Aboveground Fuel Storage Tank (Cap.: 60,000 liters; Fuel: Regular Fuel Oil or Bunker Oil; Vertical Cylinder);*
     - *Seven (7) units Aboveground Fuel Storage Tanks (Cap.: 15,000 liters each; Fuels: Regular Fuel Oil of Bunker Oil; Horizontal Cylinders);*
     - *One (1) unit Standby Generator Set (Cap.: 200 kW / 250 kVA; Make: SEALEY; Model: SLC250GF; S/N: 151118001; P.F. = 0.8; Silent-type): Alternator/Generator (Make: MBH; Model: XN274G; S/N: 31512006; Cap.: 180 kW / 225 kVA, continuous; P.F. = 0.8) primed by Diesel Engine (Make Chongqing Cummins; Model: NT855-GA; S/N: 41226017; Cap.: 257 kW @ 1800 RPM, max);*
     - *One (1) unit Standby Generator Set (Cap.: 75 kW; Open-type): Alternator/Generator (Make: Caterpillar) primed by Diesel Engine (Make: Isuzu; Model: E120; S/N: 202587);* and
     - *One (1) unit Standby Generator Set (Cap.: 200 kW / 250 kVA; Make: DCA; Model: 200DC; S/N: 8221-002; P.F. = 0.8; Open-type): Alternator/Generator (Make: DCA; Model: 200DC; S/N: A73281AC; Cap.: 200 kW / 250 kVA, standby; P.F. = 0.8) primed by Diesel Engine (Make: Cummins; Model: NT-855-G; S/N: 30104629)* - all generator sets are installed in the Powerhouse with geolocation of 16.419050°, 120.557809°; and
   - **Air Pollution Control Facilities:**
     - *Three (3) units Gas Scrubber Systems (Cap.: 66 m3/min; Wet-type; 1-unit scrubber is exclusively connected to 1-unit shaft kiln);* and
     - *One (1) unit Dust Collector and Scrubber System (Cap.: 505.84 m3/min; composed of 1-unit 12,850 CFM Cyclone Dust Collector interconnected to 1-unit 5,000 CFM Cyclone Dust Collector with their bottom open and submerged on Water-bed Scrubber)* - for the purpose of controlling the airborne particulates/dusts from the sorting, crushing and loading areas (geolocation: 16.419132°, 120.557396°).

2. This Permit shall be valid until **SEPTEMBER 10, 2026** **(PLEASE DISREGARD THE EXPIRATION DATE INDICATED ABOVE)** unless suspended or revoked by the Bureau.

3. The Bureau may modify the Permit by amending any existing condition or imposing any new or additional condition from the date of issuance (as indicated above) until its expiration on **SEPTEMBER 10, 2026**, subject to the provisions of Rule XIX of the Implementing Rules and Regulations (IRR) of the Republic Act No. 8749.

Filing Fee	: Php 600.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
Permit Fee	: Php 47300.00	O.R. No : 1809914 & 1810468	Date : Oct. 11, 2021
PD1856	: Php 10.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
Documentary Stamp Tax	: Php 30.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021

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4. An application for renewal of this Permit shall be filed not less than thirty (30) days before the expiry date the **expiry date - SEPTEMBER 10, 2026.**

5. This Permit shall be posted in a conspicuous location at the premises and shall be adequately framed or otherwise protected against damage.

6. The operation of any installation, process activity at this establishment that produces, generates, captures, treats, reduces, controls, emits, releases or disperse air pollutants without a valid Permit to Operate, or in violation of any of the conditions of this Permit, shall be subject to penalties pursuant to Rule LVI of the IRR of RA 8749.

7. The installations, processes or activities at this establishment shall be operated, conducted and managed by the permittee, and the associated plant and equipment shall be maintained and operated by the permittee, so that emissions of air pollutants are kept to a practicable minimum. The permittee shall be responsible for ensuring that any emissions of air pollutants from abnormal or unexpected events, do not cause air pollution in the surrounding air environment or have adverse effects on persons in that environment.

8. Without limiting the generality of the previous condition, the permittee shall ensure that the emissions from the permitted installations or processes comply with:
   - the National Emission Standards for Source Specific Air Pollutants as specified in Rule XXV of the IRR of RA 8749; and
   - the National Ambient Air Quality Standards for Source Specific Air Pollutants from Industrial Sources/Operations as specified in Rule XXVI of the IRR of RA 8749.

9. The permittee shall submit Self-Monitoring Reports to the Bureau on a quarterly basis in accordance with DENR Administrative Order No. 27 (Series of 2003) and any written instructions by the Bureau based on the following schedule:

Quarter	Coverage	Submission	Quarter	Coverage	Submission
First	Jan. - Mar.	1-15 Apr.	Third	Jul. - Sep.	1-15 Oct.
Second	Apr. - Jun.	1-15 Jul.	Fourth	Oct. - Dec.	1-15 Jan.

10. The permittee shall at all times has an accredited Pollution Control Officer (PCO) who shall be the day-by-day contact person between the Bureau and the establishment. The permittee shall ensure that the PCO is familiar with the operations and activities undertaken at the establishment, and the relevant emission sources and air pollution control devices and equipment. The permittee shall give the PCO the necessary authority to take or to direct corrective action in the event of a malfunction, accident, breakdown or other abnormal event that results in excessive emissions or emissions that do not comply with relevant Permit conditions, emission standards or ambient air quality standards.

11. The Permittee shall seek accreditation of his/her appointed/designated PCO pursuant to Section 8 of DAO 2014-02 (Revised Guidelines for Pollution Control Officer Accreditation).

12. In case of the resignation or termination of the services of the PCO, the Managing Head shall appoint/designate a new PCO. He/she shall inform, in writing, the concerned EMB Regional Office within fifteen (15) days and seek accreditation for the new PCO within thirty (30) days from the date of resignation or termination.

13. The permittee shall report in writing to the Bureau any malfunction, accident, breakdown, leak, spill or other abnormal or unexpected event which results in emissions to atmosphere that do not comply with relevant Permit conditions, emission standards or ambient quality standards, or in any other abnormal or unexpected releases of air pollutants. The report shall indicate the nature of the incident or event, its impact on emissions, the time period involved, and any actions or measures taken to control the emissions or releases, remedy any air pollution problems that may have occurred, and minimize the probability of reoccurrence of the event or the release.

14. The permittee shall at all times allow authorized or accredited officers of the Department or the Bureau entry to the establishment and access to any part of the establishment to conduct inspections, gather information, test emissions or take samples. The permittee and its personnel shall not obstruct such officers in the performance of these functions, and shall furnish any information or materials requested by them that is reasonable for them to have. The permittee shall obey any lawful instruction or direction given by the Department or the Bureau at all times.

Filing Fee	: Php 600.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
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15. The permittee shall not make or allow any alterations or modifications to operations, activities, installations, processes, plant or equipment at the establishment that might substantially change the nature or quantity of the associated emissions without obtaining the approval of the Bureau, including the obtaining of any necessary Permit to Operate.

SPECIFIC CONDITION

16. The permittee shall conduct emission testing for the three (3) units Vertical Shaft Kilns through a DENR accredited third party Source Emission Testing Firm twice each year for each year of operation with three (3) sampling runs to verify its compliance pursuant to Memorandum Circular No. 2007-003 (Policy on Compliance and Permitting for Industrial Facilities Relating to Air Quality). However, considering that each kiln is operated in a period of six (6) to eight (8) months, each kiln shall be subjected to two (2) emission testing within that period. The Test Reports will be a part of the requirements for the renewal of this Permit.

Recommended by:

ENGR. MARIE PIA L. RODAS
OIC-Chief, Clearance & Permitting Division

Approved by:

MA. VICTORIA V. ABRERA
Regional Director

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Annex

Fuel Burning					
ID	APSI	Capacity	Brand name	Type of Fuel	APCD
130795	Vertical Shaft Kiln No. 1	1.08 MT/hr/equipment	N/A	Regular Fuel Oil	Gas Scrubber No. 1 (66.0 m^3/min)
130797	Vertical Shaft Kiln No. 2	1.08 MT/hr/equipment	N/A	Regular Fuel Oil	Gas Scrubber No. 2 (66.0 m^3/min)
130799	Vertical Shaft Kiln No. 3	1.08 MT/hr/equipment	N/A	Regular Fuel Oil	Gas Scrubber No. 3 (66.0 m^3/min)
140793	Standby Generator Set	250.0 kVA	DCA/CUMMINS	Diesel	---
140794	Standby Generator Set	200.0 kW	SEALEY/Cummins	Diesel	---
140795	Standby Generator Set	75.0 kW	Caterpillar/Isuzu	Diesel	---

Non Fuel Burning					
ID	APSI	Capacity	Brand name	Material	APCD
130801	Jaw Crusher	1.0 MT/hr/equipment	N/A		Dust Collector Collector System (505.84 m^3/min)
140796	Lime Storage Silo	90.0 MT	N/A		---
140797	Aboveground/Overhead Fuel Storage Tank	60000.0 Liters	N/A		---
140800	Aboveground/Overhead Fuel Storage Tank	15000.0 Liters	N/A		---
140801	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		---
140802	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		---
140803	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		---
140804	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		---
140805	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		---
140806	Aboveground/Overhead Fuel Storage Tank	15000.0 liters	N/A		---

APCD-APSI Mapping			
ID	APCD	Connected APSIs (<name> (id))	Connected APCDs (<name> (id))
19030	Gas Scrubber No. 1 (1)	Vertical Shaft Kiln No. 1 (4)	---
19907	Gas Scrubber No. 2 (8)	Vertical Shaft Kiln No. 2 (5)	---
19908	Gas Scrubber No. 3 (9)	Vertical Shaft Kiln No. 3 (6)	---
19909	Dust Collector Collector System (10)	Jaw Crusher (7)	---

Filing Fee	: Php 600.00	O.R. No. : 1809914 & 1810468	Date : Oct. 11, 2021
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MONITORING LOGSHEET

Facility Information

Facility Name	BMC FORESTRY CORPORATION - BC ILP
Facility Address	KM. 5, NAGUILIAN ROAD, IRISAN, BAGUIO CITY
Name of Pollution Control Officer	MS NARITY C. PONILBAN
Maintenance Supervisor / Engineer	
Telephone and Fax Number	(074) 445 7185 / 0917 634 2859

Source Description

Source Type	VERTICAL SHAFT KILN #2
Source ID	P125 541 S1
Manufacturer / Brand of Equipment / Serial No.	
Equipment Capacity (BHp,MW,MT/hr)	1.08 MT/hr
Total Stack Height (from ground to tip of stack/chimney)	
Date of Installation (month/year)	
Date of Modification (that may increase emissions)	
Operational Hours per Year (hrs/year)	
Operating rate (%)	90-95% Normal operation

Air Pollution Control Device

Is there an Air Pollution Control Device (APCD) attached to the source?	___ YES ___ NO
Type of APCD	
Date of Installation	
APCD parameters (flowrate,gpm,delta P,etc)	
Is the APCD operating during emission sampling	___ YES ___ NO

Fuel Analysis / Information

Type of Fuel used during emission sampling (%S)	
Original Fuel used	
Date of Fuel change	
Daily Fuel Consumption (Liters/day)	
's the Fuel Analysis Available?	___ YES ___ NO
fill the company provide the Fuel Analysis	___ YES ___ NO

Please attach the following
- -Fuel Analysis
- -Permit to Operate
- -APCD Process Logsheet
- -Source Process Logsheet

EMB-CAR - Garth J. Raymundo
1/11/25

Signature over printed name of Facility Representative

ANNEX D

ANALYTICAL DATA

ELARSI, INC.
Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**		Lab. Report No.	:	253457-SA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila		Date/Time Sampled	:	12-11-25 0800H
			Date Received	:	12-12-25
Contact Number	: 8863-6129		Date Analyzed	:	12-19-25 to 12-22-25
Nature of Sample/s	: Stationary Source Emission		Date Reported	:	12-29-25
No. of Sample/s Submitted	: Three (3)				

[REPORT OF ANALYSES]

Sample No.	Sample ID	PM (with acetone rinse), mg[a]	Analysis Date/Time
ES-2516395	PJ 25 541 S1R1	43.8	12-19-25 0800H
ES-2516396	PJ 25 541 S1R2	46.2	12-19-25 0800H
ES-2516397	PJ 25 541 S1R3	26.6	12-19-25 0800H

[a] - Method 5 / Gravimetric

Reference:
CFR 40 Part 60 Revised as of December 20, 2020

Note: Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:

ANDRE KOBE A. OPEÑA, RChT
Laboratory Chemical Technician
PRC Lic. No. 0012707

Checked By:

JEMMA E. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR
RECOGNIZED
LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

Particulate Matter (PM) (METHOD 5) ANALYTICAL DATA SHEET (EI-APA-15)

Project No. :	PJ 25 574	**Lab Report No. :**	250457 458
Nature of Sample :	SSE	**Date Received:**	12-12-25
Analytical Balance:	EI-EQPTREC- 252	**Date Analysis Started:**	12-19-25 / 1500H
Sensitivity:	0.1 mg		
Detection Limit:	0.1 mg	**Date Analysis Finished:**	12-22-25 / 1100H
		Temperature (°C)	21.8
		Relative Humidity(%)	42

	Units				
Sample ID		S1 R1	S1 R2	S1 R3	
Sample No.		EI-2514395	EI-2514396	EI-2514397	
Filter Analysis					
Filter ID		V12-011	V12-032	V12-073	
Filter Appearance		GRAY	GRAY	GRAY	
Initial Weight	g	0.3548	0.3541	0.3582	
Final Weight	g	0.3969	0.3986	0.3829	
Particulate Mass Filter, m_f	**mg**	41.4	44.5	24.7	
Acetone Rinse Analysis					
Dried PM Rinse Appearance		BLACK DUST W/ YELLOW STAIN	BLACK DUST W/ YELLOW STAIN	BLACK DUST W/ YELLOW STAIN	
Acetone Rince Volume , V_{ar}	ml	46	43	47	
Beaker ID		PM 23	PM 25	PM 24	
Initial Weight, Beaker	g	113.6269	111.6424	109.6125	
Final Weight, Beaker	g	113.6293	111.6441	109.6144	
Particulate Mass, Acetone Rinse, m_{ar}	**mg**	2.4	1.7	1.9	
Acetone Reagent Blank					
Acetone Blank Volume, V_a	ml	100	100	100	
Beaker ID		BLANK	BLANK	BLANK	
Initial Weight, Beaker	g	108.8925	108.8925	108.8925	
Final Weight, Beaker	g	108.8925	108.8925	108.8925	
Blank Residue Mass, m_a	**mg**	0.0000	0.0000	0.0000	
$C_a = m_a / V_a$	mg/ml	0.0000	0.0000	0.0000	
Acetone Blank, $W_a = C_a \times V_{ar}$	mg	0.0000	0.0000	0.0000	
Max Blank Corr. Allowed, W_m*	mg	0.3614	0.3379	0.3693	
Acetone Blank Value Used **	**mg**	0.0000	0.0000	0.0000	

** Maximum Acetone Blank is 0.001% A, mass, W_m = Var x 0.7857x 0.00001 (where 0.7857 g/ml is acetone density @ 25°C)*

*** Maximum Mass of Acetone Blank Correction should be less than 0.001% of the Ar mass, otherwise use, W_m.*

Total PM = m_f + m_{ar} - W_a	**mg**	43.8	46.2	26.6	
or Total PM = m_f + m_{ar} - Wm		ND (Not Detected)			

Analyzed by MAO
Date&Time 12-22-25 / 1155H

Checked by JDJ
Date&Time 12/22/25 0902H

Approved by RNG
Date&Time 12/29/25 1PM

EI_LABAIRFORM_15

ELARSI, INC.
Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel No 8927-77-15 Fax No 8929-4824 Email info@elarsi.com

CLIENT	: **BSI**	Lab. Report No.	: 253458-SA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila	Date/Time Sampled	: 12-11-25 0800H
		Date Received	: 12-12-25
Contact Number	: 8863-6129	Date Analyzed	: 12-17-25 to 12-22-25
Nature of Sample/s	: Stationary Source Emission	Date Reported	: 12-22-25
No. of Sample/s Submitted	: Four (4)		

[REPORT OF ANALYSES]

Sample No.	Sample ID	SO_2, mg[a]	Analysis Date/Time
ES-2516398	PJ 25 541 S1R1	11.5	12-17-25 1310H
ES-2516399	PJ 25 541 S1R2	4.84	12-17-25 1310H
ES-2516400	PJ 25 541 S1R3	3.06	12-17-25 1310H
ES-2516401	PJ 25 541 S1 Blank	< 1.90	12-17-25 1310H

[a] Method 6 Barium – Thorin Titration

Reference:
CFR 40 Part 60 Revised as of August 3 2017

Note: Date and time of sampling for "As Received" samples were provided by client

Analyzed By:

BILLY FRED M. SINGSON, RChT
Laboratory Chemical Technician
PRC Lic. No. 0009167

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR
RECOGNIZED
LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

REAGENTS STANDARDIZATION for SOx ANALYSIS (EI-APA-14)

Project No. : PJ 25 S41
Lab Report No. 253458-SA

Date Received: 12/12/25
Date & Time Analysis Started: 12/17/25 ~~1300H~~ 1310H BMS 12/18
Date & Time Analysis Finished: 12/17/25 1710H

Computations:

Standardization of 0.0100 ± 0.0002 N BaCl2:				
Trial No.	Volume (ml)	Normality (N)	Volume (ml)	Normality (N)
	H_2SO_4	H_2SO_4	$BaCl_2$	$BaCl_2$
1	25	0.009999625716	24.8	0.010090267859
2			25.0	0.009999625716
			average	0.010039946788

$$N_{BaCl2} = \frac{N_{H2SO4} V_{H2SO4}}{V_{BaCl2}}$$

Standardization of 0.0100 ± 0.0002 N H2SO4:				
Trial No.	Volume (ml)	Normality (N)	Volume (ml)	Normality (N)
	NaOH	NaOH	H_2SO_4	H_2SO_4
1	25.1	0.009999625716	25	0.010039624219
2	24.9			0.009959627213
			average	0.009999625716

$$N_{H2SO4} = \frac{N_{NaOH} V_{NaOH}}{V_{H2SO4}}$$

Standardization of NaOH:				
Trial No.	Weight (g)	Weight (g)	Volume (ml)	Normality (N)
	NaOH	KHP	NaOH	NaOH
1	4.0584	0.1015	49.6	0.010019993325
2	4.0584	0.1017	49.9	0.009979931818
			average	0.009999625716

$$N_{NaOH} = \frac{\text{Weight of KHP}}{0.20423 \times V_{NaOH}}$$

Analyzed by BMS
Date&Time 12/17/25 1310H

Checked by JDJ
Date&Time 12/23/25 1500H

Approved by RMG
Date&Time 12/24/25 5PM

EI_LABAIRFORM_14(B)

ELARSI, INC.

SOx (METHOD 6/METHOD 8) ANALYTICAL DATA SHEET (EI-APA-14)

Project No. : RJ25 541
Nature of Sample : SSE
N BaCl2 used : 0.0100399467798
IPA (used for titration) : S25 069
Detection Limit/s : SO2 (1.90 mg)
SO3 (3.27 mg) ; H2SO4 (4.00 mg)

Lab Report No. : 253458-SA
Date Received: 12/12/25
Date Analysis Started: 12/17/25 1310H
Date Analysis Finished: 12/17/25 1710H

Computations:

IPA Check (Abs @ 352nm) IPA LOT No. 427430
Blank 0 IPA 0.023

Mass H2SO4 (mg) = $\left[\frac{(49.04)(N_{BaCl2})(V_{ave} - V_{IPAblank})V_{soln}}{V_a}\right]$

Mass SO2 (mg) = $\left[\frac{(2.03)(N_{BaCl2})(V_{ave} - V_{IPAblank})V_{soln}}{V_a}\right]$

Mass SO3 (mg) = mass H2SO4 (mg) x $\frac{MW SO3 (80.061)}{MW H2SO4 (98.078)}$

where: V_{soln} sample volume; V_a volume aliquot; $V_{IPAblank}$ volume of titrant used for IPA blank; V_{ave} average volume of titrant used for sample

ND (Not Detected)

Sample No.	Sample ID	V_{soln}	V_a	Titrant Volume (ml) Buret Reading (Final - Initial)	Trial 1	(Final - Initial)	Trial 2	V_{ave}	SO_2 Mass (mg)
	IPA Blank	0	10	0.00 - 0.00	0.00	0.00 - 0.00	0.00	0.00	< 1.90
ES-2516398	S1 R1	420	10	0.90 - 0.00	0.90	0.80 - 0.00	0.80	0.85	11.5
99	S1 R2	430	10	0.30 - 0.00	0.30	0.40 - 0.00	0.40	0.35	4.84
400	S1 R3	380	10	0.30 - 0.00	0.30	0.20 - 0.00	0.20	0.25	3.06
401	S1 BLANK	280	10	0.00 - 0.00	0.00	0.00 - 0.00	0.00	0.00	< 1.90

REMARKS:

Reagent & Standard Code/s:

0.0100 N Barium Standard Solution: S25 071
Thorin Indicator: S25 058
Isopropanol Brand/Lot#: 427430

Analyzed by BMS Date&Time 12/22/25 1629H

Checked by JOJ Date&Time 12/23/25 0340H

Checked by RMG Date&Time 12/23/25 5PM

ELARSI, INC.
Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT : **BSI**
ADDRESS : 2nd Flr., VAG Bldg Ortigas Ave. Greenhills
San Juan, Metro Manila
Contact Number : 8863-6129
Nature of Sample/s : Stationary Source Emission
No. of Sample/s Submitted : Ten (10)

Lab. Report No. : 253459-SA
Date/Time Sampled : 12-09-25 0900H
Date Received : 12-12-25
Date Analyzed : 12-18-25 to 12-22-25
Date Reported : 12-22-25

[REPORT OF ANALYSES]

Sample No.	Sample ID	NO_x (as NO_2), mg[a]	Analysis Date/Time
ES-2516402	PJ 25 541 S1R1T1	0.0402	12-18-25 1500H
ES-2516403	PJ 25 541 S1R1T2	0.0263	12-18-25 1500H
ES-2516404	PJ 25 541 S1R1T3	0.0201	12-18-25 1500H
ES-2516405	PJ 25 541 S1R2T1	0.0201	12-18-25 1500H
ES-2516406	PJ 25 541 S1R2T2	0.0170	12-18-25 1500H
ES-2516407	PJ 25 541 S1R2T3	0.0386	12-18-25 1500H
ES-2516408	PJ 25 541 S1R3T1	0.0216	12-18-25 1500H
ES-2516409	PJ 25 541 S1R3T2	0.0124	12-18-25 1500H
ES-2516410	PJ 25 541 S1R3T3	0.0124	12-18-25 1500H
ES-2516411	PJ 25 541 S1 Blank	< 0.0078	12-18-25 1500H

[a] - Method 7 / Phenoldisulfonic Acid

Reference
CFR 40 Appendix A-4 Part 60 as of May 31, 2023

Note: Date and time of sampling for "As Received" samples were provided by client

Analyzed By:

BILLY FRED M. SINGSON, RChT
Laboratory Chemical Technician
PRC Lic. No. 0009167

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

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LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

STANDARD CALIBRATION for NOx ANALYSIS (EI-APA-10)

Project No. : PT-25-241
Lab Report No. : 253459-SA
Spectrophotometer : EI-EQPTREC - 279
Wavelength (nm) : 409
Date of Optimum Wavelength Determination — On or Before : MARCH 11, 2026

Date Received : 12/12/25 1100H
Date Analysis Started: 12/18/25 1500H
Date Analysis Finished: 12/19/25 1635H

Calibration Number	Standard Actual Concentration (µg)	Measured Absorbance	Corrected Absorbance a	Calculated Concentration (µg) b	Concentration (% difference) c
Blank	0	0.024	0	0	0
1	100	0.150	0.126	97.36	2.64
2	200	0.291	0.267	206.30	-3.15
3	300	0.410	0.386	298.25	0.58
4	400	0.540	0.516	398.70	0.33
QC	200	0.293	0.269	207.85	-3.92

% REC = 103.92

Computations:

a = Corrected absorbance for A1 through A4 is blank corrected
b = Corrected absorbance x Kc
c = Concentration, % difference should be less than 7%

Calibration Factor (Kc) = $\frac{a_1 + 2a_2 + 3a_3 + 4a_4}{a_1^2 + a_2^2 + a_3^2 + a_4^2} \times 100$ = 772.664937691201

% difference = $\frac{\text{actual concentration} - \text{calculated concentration}}{\text{actual concentration}} \times 100$

REMARKS:
Reagent & Standard Code/s:

1N NaOH	N25 182	Std. KNO3 Solution	N25 130
Phenoldisulfonic Acid Reagent	N25 195	Std. KNO3 Solution (QC)	N25 131
Conc. H_2SO_4	6407	Working Std. KNO3 Solution	N25 196
Ammonium Hydroxide	2007	Working Std. KNO3 Solution (QC)	N25 197

Prepared by: BMS
Approved by: KAG
Reviewed by: JDS

ELARSI, INC.

NOx (METHOD 7) ANALYTICAL DATA SHEET (EI-APA-10)

Project No. : PJ 25 541

Nature of Sample : SSE

Aliquot Factor : 2

Calibration Factor (K_c) : 772.6649377691201

Detection Limit : 0.0033 mg (EI-EQPTREC-296)

0.0078 mg (EI-EQPTREC-279)

ND (Not Detected)

Sample No.	Sample ID	Sample Absorbance	Blank Adjusted Absorbance (A')	Dilution Factor (F)	Total Mass of Nox as NO2 In Sample (mg) m		
	BLANK	0.022	0.000	1	<0.0078		
ES-2516402	S1R1T 1	0.037	0.026	1	0.0402		
03	S1R1T 2	0.028	0.017	1	0.0263		
04	S1R1T 3	0.024	0.013	1	0.0201		
05	S1R2T 1	0.024	0.013	1	0.0201		
06	S1R2T 2	0.022	0.011	1	0.0170		
07	S1R2T 3	0.036	0.025	1	0.0386		
08	S1R3T 1	0.025	0.014	1	0.0216		
09	S1R3T 2	0.019	0.008	1	0.0124		
10	S1R3T 3	0.019	0.008	1	0.0124		
11	S1 Blank	0.011	0.000	1	<0.0078		
					Mass, µg	%Recovery	%Diff.
	QC (200µg)	0.293	0.269	1	207.85	103.92	-3.92
					Mass, µg	%Recovery	%Diff.
	QC (200µg)						

A' = Sample Absorbance - Blank Absorbance

$$m = \frac{2 K_c A' F}{1 x 10^3}$$

Note: If other than a 25 mL aliquot is used for analysis, the factor 2 must be replaced by a corresponding factor, i.e., volume solution divided by the volume aliquot evaporated

Analyzed by: BMC

Date & Time: 12/22/25 1000H

Checked by: JDJ

Date & Time: 12/22/25 1330H

Reviewed by: KML

Date & Time: 12/22/25 5pm

ELARSI, INC.
5th Floor Victoria One Bldg. 1670 Quezon Avenue. Quezon City
Tel. No. 8441-53-14 Email: info@elarsi.com

CLIENT	: **BSI**		Lab. Report No.	:	EI-250056-SA
ADDRESS	: 2nd Flr , VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila		Date/Time Sampled	:	12-11-25 1000H
			Date Received	:	12-12-25
Contact Number	: 8863-6129		Date Analyzed	:	12-15-25
Nature of Sample/s	: Stationary Source Emission		Date Reported	:	12-23-25
No. of Sample/s Submitted	: Nine (9)				

[REPORT OF ANALYSES]

Sample No.	Sample ID	Carbon Monoxide (CO), ppm[a]	Analysis Date/Time
ES-2500282-A	PJ 25 541 S1R1	15	12-15-25 0810H
ES-2500283-A	PJ 25 541 S1R2	14	12-15-25 0810H
ES-2500284-A	PJ 25 541 S1R3	12	12-15-25 0810H

[a] Method 10 / NDIR

Reference
US Environmental Protection Agency

Note: Date and time of sampling for "As Received" samples were provided by client

Analyzed By:

BILLY FRED M. SINGSON, RChT
Laboratory Chemical Technician
PRC Lic. No. 0009167

Checked By:

JEMMA B. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

ELARSI, INC.

CO ANALYTICAL DATA SHEET

Tedlar Bag Samples

Project No.	PJ 25 541	**Lab Report No:**	EI-250056-SA
Nature of Sample:	SSE	**Date Received:**	12/15/2025
Equipment Used:	Gas Analyzer	**Date and Time Analysis Started:**	12/15/2025 0810H
Detection Limit:	0.05 ppm	**Date and Time Analysis Finished:**	12/15/2025 0930H

Pre-Measurement Calibration					
Time	Cylinder No.	Gas Value (ppm)	CO reading (ppm)	% Difference (% span)	Status (≤ 2% span)
Zero Gas	N2 240403	0	0	0	PASS
Certified Gas 1	D962229	200	196	0.5	
Certified Gas 2	D962122	500	490	1.25	
Certified Gas 3	D962087	800	789	1.375	

CO Tedlar Bag Samples							
Sample No.	Sample ID	Time	CO reading (ppm)	Sample No.	Sample ID	Time	CO reading (ppm)
		0830H					
ES-250292-A	PJ 25 541 CIP 1		15				
293-A	2		14				
294-A	3		12				

Post-Measurement Calibration Drift Check					
Time 0920H	Gas Value (ppm)	Pre-Meas CO reading (ppm)	Post-Meas CO reading (ppm)	% Drift (% span)	Status (≤ 10 % span)
Zero Gas	0	0	0	0	PASS
Certified Gas 1	200	196	192	0.5	
Certified Gas 2	500	490	478	1.5	
Certified Gas 3	800	789	770	2.375	

Remarks: _____

% Span = $\frac{\text{Gas Value(ppm) - CO Response(ppm) x 100\%}}{\text{Span Value}}$ % Drift = $\frac{\text{Pre-Meas CO reading(ppm) - Post-Meas CO reading(ppm) x 100\%}}{\text{Span Value}}$

Analyzed By:	BMS	**Checked By:**	JDL	**Approved By:**	RML
Date and Time:	12/17/25 0900H	**Date and Time:**	12/18/25 AM	**Date and Time:**	12/18/25 AM

EI_LABAIRFORM_18-A

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY FORM

Unit 201-204 & 406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 , 8994-3443 * Fax No. 8929-48-24* E-mail : info@elarsi.com

FOR LABORATORY USE ONLY Inv # _____ OR# _____ Lab. Report No. 253457-59-SA

Company : BSI GREENHILLS
Address :
Contact Person : H.P. ORQUINA Contact No./s 88636129

Submitted by: H.P.ORQUINA (Printed Name/Signature) Date/Time: 12 DEC 25
Reviewed by: RAI (Printed Name/Signature) Date/Time: 12/12/25 - 13:55
Approved by: JAP (Printed Name/Signature) Date/Time: 12/16/25 11AM

Method of Transport
___ Walk-in ___ Courier ___ Pick-up ___ Others

Sample Condition Upon Received
✓ Sealed / Container Intact
✓ Chilled/Frozen
___ Room Temp
___ Preserved

Container Type
✓ Plastic Bottle
✓ Glass/Sterile Glass
___ TEDLAR Bag
___ Others FILTERS

Turn Around Time
___ Urgent/Rush (3-5 Working Days)
✓ Routine (7-12 Working Days)

Nature of Sample (PLEASE CHECK)[1]

Water		Metals
___	Drinking Water	___ Water
___	Wastewater	___ Air
___	Others	___ Others
Air		**Solids**
✓	Stack Source Emission	___ Soil
___	Ambient Air Sample	___ Sludge
___	Work Env. Measurement	___ Sediment
___	Others	___ Others

FOR LAB. USE ONLY Sample No.	Sample Identification	Analyses Requested	Method of Analysis	Date of Sampling/Time	No. of Samples	Remarks
	PJ25541					
PM EF-2516395-97	S1 R1 R2 R3	PM	US EPA M5	11 DEC. 2025 8AM-5PM	2 2 2	WITH ACETONE WASH
SOX EF-2516398-401	S1 R1 R2 R3	SOx as SO_2	US EPA M6	11 DEC. 2025 8AM-5PM	1 1 1	WITH BLANK
NOX EF-2516402-11	S1 R1 T1 T2 T3	NOx	US EPA M7	11 DEC. 2025 8AM 5PM	1 1 1	WITH BLANK
	S1 R2 T1 T2 T3	NOx	US EPA M7		1 1 1	
	S1 R3 T1 T2 T3	NOx	US EPA M7		1 1 1	

[1] USE ONE(1) COC FOR EACH NATURE OF SAMPLE
[2] Unless otherwise requested, all samples will be disposed four (4) weeks after analysis
[3] Use HRAFORM_56 waiver form if Sample condition & requirements are not met

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY FORM

ELARSI, INC.

5th Floor Victoria One Bldg. 1670 Quezon Avenue, Quezon City
Tel. No. 8441-5314 , 8994-3443 * Fax No. 8929-48-24* E-mail : info@elarsi.com

FOR LABORATORY USE ONLY
Inv # ____ OR# ____ Lab. Report No. El-250056-SA

Company : BSI
Address : Ortigas ave
Contact Person : R.P. Urbano
Contact No./s 09178779-0469

Submitted by: (Printed Name/Signature) Date/Time: 12-12-2025 / 1 couple
Reviewed by: RAI (Printed Name/Signature) Date/Time: 12/12/25 - 15:55
Approved by: (Printed Name/Signature) Date/Time:

Method of Transport
✓ Walk-in ____ Courier ____ Pick-up ____ Others

Sample Condition Upon Received
✓ Sealed / Container Intact
✓ Chilled/Frozen
✓ Room Temp
Preserved

Container Type
Plastic Bottle
Glass/Sterile Glass
TEDLAR Bag
✓ Others

Turn Around Time
___ Urgent/Rush (3-5 Working Days) ✓ Routine (9-12 Working Days)

Nature of Sample (PLEASE CHECK)[1]
Water: ___ Drinking Water ___ Wastewater ___ Others
Metals: ___ Water ___ Air ___ Others
Air: ___ Stack Source Emission ___ Ambient Air Sample ___ Work Env. Measurement ___ Others
Solids: ___ Soil ___ Sludge ___ Sediment ___ Others

FOR LAB USE ONLY Sample No.	Sample Identification	Analyses Requested	Method of Analysis	Date of Sampling/Time	No. of Samples	Remarks
	BSI-SC11					
ES-25002827 to 84-A	SAP-B	Co		11 Dec 2025 / 1300H	3	

[1] USE ONE(1) COC FOR EACH NATURE OF SAMPLE
[2] Unless otherwise requested, all samples will be disposed four (4) weeks after analysis.
[3] Use HRAFORM_58 waiver form if Sample condition & requirements are not met.

Confidentiality. Elarsi and Client agree that the COC, and all other information are the proprietary property of both parties and must not be disclosed to any person or organization verbally or in writing. No portion of the report and all other information may be reproduced without written authorization of ELARSI INC and the Client.

ANNEX E

EQUIPMENT CALIBRATION CERTIFICATES

METER BOX POST-TEST CALIBRATION CHECK

USEPA Approved Alternative Method ALT-009

BMC
BAGUIO CITY
VERTICAL SHAFT KILN NO. 2

Meter Box #: 2

Calibration	Date	$\Delta H_@$	Y
5-point orifice calibration	30-Oct-25	48.6069	0.9832

Calculate Y_{qa} for each test run using the following equation:

$$Y_{qa} = \frac{\theta}{V_m} \sqrt{\frac{0.0011503\,T_m}{\Delta H_@\left(P_b + \frac{\Delta H_{avg}}{13.6}\right)}} \times \frac{29}{M_d} \times \left(\sqrt{\Delta H}\right)_{avg}$$

where:

Y_{qa}	dry gas meter calibration check, value dimensionless.
θ	total run time, min.
V_m	total sample volume measured by dry gas meter, m^3.
T_m	absolute average dry gas meter temp., °K.
P_b	barometric pressure, mm Hg.
0.0011503	$=(760/298)\,(0.75 \times 0.0238)^2$ (mm Hg/°K) $(m^3/min)^2$
ΔH_{avg}	average orifice meter differential, mm H_2O.
$\Delta H_@$	orifice meter calibration coefficient, mm H_2O.
M_d	dry molecular weight of stack gas, gm/gm mole.
29	dry molecular weight of air, gm/gm mole.
13.6	specific gravity of mercury.

After each test run series, do the following:

Average the three or more values of Y_{qa} obtained from the test run series and compare this average with the dry gas meter calibration factor, Y. The average Y_{qa} must be within ±5% of Y.

If the average Y_{qa} does not meet the ±5% criterion, recalibrate the meter over the run full range of orifice settings, as detailed in Method 5. Then follow the subsequent procedure in Method 5.

METER BOX POST-TEST CALIBRATION CHECK				
		Run 1	Run 2	Run 3
Meter Box		Meter Box #: 2	Meter Box #: 2	Meter Box #: 2
Time, min	θ	60.0	60.0	60.0
Total volume, dry m^3	V_m	1.4806	1.4622	1.4708
Average meter temp, °C		33.71	33.46	35.29
Average meter temp, °K	T_m	306.86	306.61	308.44
Barometric pressure, mm Hg	P_b	657.10	657.10	657.10
ΔH_{avg}, mm H_2O		59.000	55.000	57.000
$\Delta H_@$, mm H_2O		48.6069		
Mol. wt. of stack gas, g/g-mole	M_d	29.56	29.56	29.56
QA gamma	Y_{qa}	1.0206	0.9975	1.0125
Average Yqa		1.0102		
Meter box gamma	Y	0.9832		
Difference to be within 5%		2.7% - PASS		

Environmental Management Service Provider

DETERMINATION OF ORIFICE COEFFICIENT K'

Console Model Number XC572-QC6V	**Date** 30-Oct-25	**Time** 0800H		**Std Temp**	298.15 °K
Console Serial Number 1404036	**Barometric Pressure**	756.2 mm Hg		**Std Press**	760 mm Hg
DGM Model Number G1.6	**Theoretical Critical Vacuum**	357mm Hg or 14in Hg		**K_1**	0 3858
DGM Serial Number 2012-014438	**Calibration Technician**	HPO		**Previous calibration**	0.9794

Metering Console							Critical Orifice						
Run #	Elapsed Time	DGM Orifice ΔH	Volume		Outlet Temp		Orifice ID	Ambient Temp		Critical Vacuum	Actual Vacuum	Coeff. x10⁴	Diff %
			Initial	Final	Initial	Final		Initial	Final		*1-2in or 25-50mm > Critical*		
	θ	P_m	V_{mi}	V_{mf}	t_{mi}	t_{mf}		t_{amb}	t_{amb}	in Hg or mm Hg		K'	< ±0.5
	min	mm H_2O	m^3	m^3	°C	°C		°C	°C				
1	5	10	587.7500	587.7970	21.0	22.0	40	26.8	26.9	15	17	2.09045	0.07
2	5	10	587.7970	587.8440	22 0	22.0	40	27.0	27.0	15	17	2 08742	0.07
											Average	**2.08894**	
1	5	20	587.8490	587.9166	22.0	22.0	48	27.4	27.4	15	17	3.00726	0.31
2	5	20	587.9166	587.9840	23.0	23.0	-48	27.4	27.6	15	17	2.98873	0.31
											Average	**2.99799**	
1	5	32	587.9900	588.0790	23.0	23.0	55	27.5	27.5	15	17	3.95114	0.17
2	5	32	588 0790	588.1680	24.0	24 0	55	27.5	27.4	15	17	3.93751	0.17
											Average	**3.94432**	
1	5	54	588.1720	588.2870	24.0	24.0	63	27.5	27.3	15	16	5.09821	0.08
2	5	54	588.2870	588.4020	24.0	25.0	63	27.4	27.5	15	16	5.09007	0.08
											Average	**5.09414**	
1	5	94	588.4080	588.5654	25.0	25.0	73	27.3	27.2	15	16	6.97965	0.08
2	5	94	588 5654	588.7230	25.0	25.0	73	27.3	27.5	15	16	6.99027	0.08
											Average	**6.98496**	

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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Department of Environment and Natural Resources (DENR)
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Certificate No: SAT NO. 2022-72

Environmental Management Service Provider

USING FIVE CRITICAL ORIFICES

Console Model Number	XC572-QC6V	Date	30-Oct-25	Time	1000H	Std Temp	298 °K
Console Serial Number	1404036	Barometric Pressure	756.5 mm Hg			Std Press	760 mm Hg
DGM Model Number	G1.6	Theoretical Critical Vacuum	357mm Hg or 14in Hg			K_1	0.3858
DGM Serial Number	2012-014438	Calibration Technician	HPO			Previous calibration	0.9794

Metering Console							Critical Orifice					
Elapsed Time	DGM Orifice ΔH	Volume			Outlet Temp.		Serial #	Coef. x10⁴	Ambient Temp.		Critical Vacuum	Actual Vacuum *1-2in or 25-50mm > Critical*
		Initial	Final	Dif	Initial	Final			Initial	Final		
θ	P_m	V_{mi}	V_{mf}	V_m	t_{mi}	t_{mf}		K'	t_{amb}	t_{amb}	in Hg or mm Hg	
min	mm H_2O	m^3	m^3	>0.14m^3	°C	°C		metric units	°C	°C		
17.0	10.0	588.7270	588.8868	0.160	23.0	23.0	40	2.08894	25.3	25.7	15.0	17.0
11.0	20.0	588.8880	589.0366	0.149	23.0	24.0	48	2.99799	25.7	26.0	15.0	17.0
9.0	32.0	589.0388	589.1990	0.160	24.0	24.0	55	3.94432	26.0	26.3	15.0	17.0
7.0	54.0	589.2020	589.3630	0.161	24.0	25.0	63	5.09414	26.2	26.2	15.0	16.0
5.0	94.0	589.3670	589.5246	0.158	25.0	25.0	73	6.98496	26.4	26.6	15.0	16.0

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate	$\Delta H_@$	
				Value	Var'n	Std & Corr	0.0212 m^3_{std}/min	Variation
$V_{m(std)}$ m^3	$Q_{m(std)}$ m^3/min	$V_{cr(std)}$ m^3	$Q_{cr(std)}$ m^3/min	Y	ΔY ±2%	$Q_{m(std)corr}$ m^3/min	$\Delta H_@$ mm H_2O	$\Delta H_@$ ±5 1mm Hg
0.1577	0.0093	0.1555	0.0091	0.9859	0.27	0.0091	52.4050	3.8
0.1466	0.0133	0.1443	0.0131	0.9847	0.15	0.0131	50.9578	2.4
0.1579	0.0175	0.1553	0.0173	0.9832	0.00	0.0173	47.1804	-1.4
0.1588	0.0227	0.1560	0.0223	0.9822	-0.10	0.0223	47.8630	-0.7
0.1558	0.0312	0.1527	0.0305	0.9802	-0.31	0.0305	44.6280	-4.0
			Y Average	0.9832		$\Delta H_@$ Average	48.6069	

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Method 5.

Signature: HALCY LEMON P. ORQUINA / JANS CHOLO E. CHUA / EDINDO C. FERNANDO Date: 30-Oct-25

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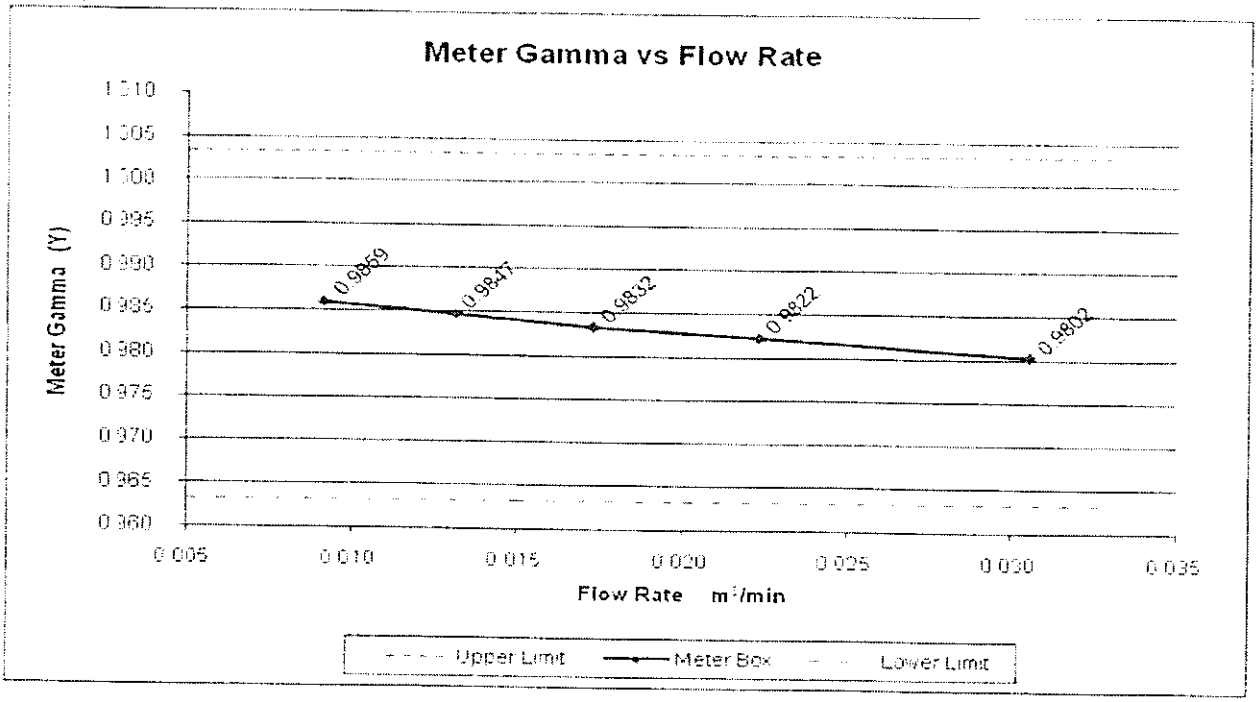

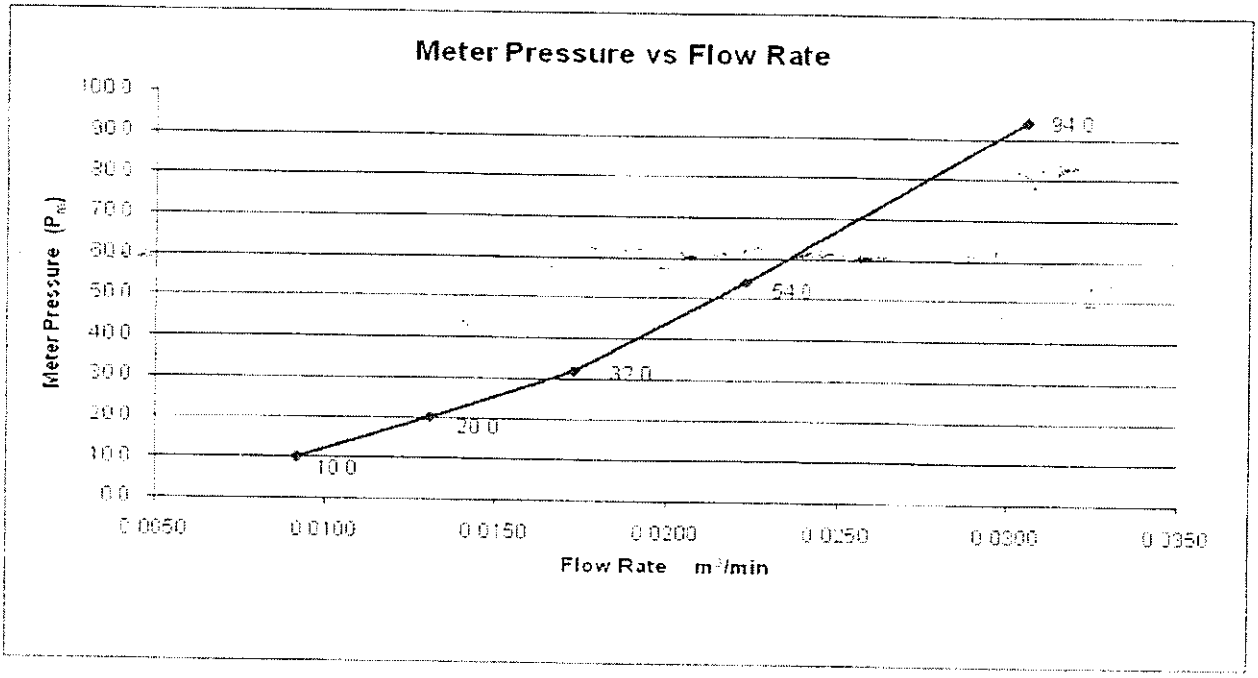

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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TEMPERATURE DISPLAY CALIBRATION

Meter Console No.	BSI - T2	**Personnel**	HPO, EBS
Reference Calibration Maker	PIE	**Pretest**	OK
Model	520B	**Posttest**	OK
Serial No.	223734	**Date**	30 October 2025

TC CHANNEL ID	Reference Temp. 1, °C	Temp. Reading 1, °C	Criteria	Criteria Met	Reference Temp. 2, °C	Temp. Reading 1, °C	Criteria	Criteria Met
PROBE	0	1	-0.366	Y	50	49	0.309	Y
FILTER	0	1	-0.366	Y	50	49	0.309	Y
EXIT	0	1	-0.366	Y	50	49	0.309	Y
AUX	0	1	-0.366	Y	50	49	0.309	Y
STACK	0	1	-0.366	Y	50	49	0.309	Y
STACK	0	1	-0.366	Y	250	249	0.191	Y

TC CHANNEL ID	Reference Temp. 3, °C	Temp. Reading 1, °C	Criteria	Criteria Met	Reference Temp. 4, °C	Temp. Reading 1, °C	Criteria	Criteria Met
PROBE	100	99	0.268	Y	150	149	0.236	Y
FILTER	100	99	0.268	Y	150	149	0.236	Y
EXIT	100	99	0.268	Y	150	149	0.236	Y
AUX	100	99	0.268	Y	150	149	0.236	Y
STACK	100	99	0.268	Y	150	149	0.236	Y
STACK	350	349	0.161	Y	450	449	0.138	Y

CRITERIA: Percent difference between the Reference Temperature and the average Temperature can be only ± 1.5%°K.

EQUATION: $\frac{[(\text{Ref. Temp.} + 273) - (\text{Temp. Reading} + 273)] \times 100}{(\text{Ref.Temp.} + 273)}$

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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TEMPERATURE SENSOR CALIBRATION DATA SHEET

Date	30 October 2025	Thermocouple No.	TMC – T2
Personnel	HPO, EBS	Reference	Alcohol Thermometer

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temp., °C	Thermocouple Display Temp., °C	Absolute Temperature Difference. %
30 Oct 2025	1	HOT WATER	99	99.0	0.0
	2	AMBIENT	28.9	29.0	0.1
	3	ICE WATER	1.9	2.0	0.1
24 Apr 2025	1	HOT WATER	99.8	100	0.2
	2	AMBIENT	28.2	28	0.2
	3	ICE WATER	2	2	0
25 Nov 2024	1	HOT WATER	99.9	100	0.1
	2	AMBIENT	28.3	28	0.3
	3	ICE WATER	2	2	0

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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POST TEST THERMOCOUPLE CALIBRATION CHECK

EPA Approved Alternative Method (Alt-011)
Single Point Calibration

Thermocouple ID	TMC- T2	**Probe / Pitot Tube ID**	SPA-6FT-2 / PT-6FT-2
Personnel	HPO, EBS	**Date**	30 October 2025

Sensor	Calibrated By:	Reference Temp. °C[1]	Thermocouple Temp. °C	Difference [2] (within ± 1°C)	Continuity Check [3]	PASS / FAIL
PROBE	HPO	30.0	30.0	0.0	OK	PASSED
FILTER	HPO	30.0	30.0	0.0	OK	PASSED
STACK	HPO	30.0	30.0	0.0	OK	PASSED
EXIT	HPO	30.0	30.0	0.0	OK	PASSED
OVEN	HPO	30.0	30.0	0.0	OK	PASSED
AUX.	HPO	30.0	30.0	0.0	OK	PASSED

[1] Reference Thermometer is mercury-in-glass and ASTM certified, unless otherwise noted.
[2]After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature. The temperature of the thermocouple and reference thermometers shall agree with ± 1 °C.
[3]The continuity check involves subjecting the tip of the thermocouple to a change in temperature to check the crimps, loose connections. Thermocouples with crimps and loose connections will not immediately respond to temperature changes, and those with wrong connections will show an opposite change in temperature.

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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TYPE-S PITOT TUBE CALIBRATION

PITOT TUBE ID	PT-T2-6FT	Probe Assembly ID	SPA-T2-6FT
Calibrated by:	HPO, EBS	Date Calibrated	30 October 2025

PARAMETER	VALUE	ALLOWABLE RANGE
Assembly Level	YES	YES
Holes Damaged	NO	NO
Obstructed	NO	NO
α1	0°	-10°<α1<+10°
α2	0°	-10°<α2<+10°
β1	0°	-5°<β1<+5°
β 2	+1°	-5°<β2<+5°
Y	+1°	
θ	1°	
A	0.911"	For ¼" OD, 0.526 to 0.750" For $^3/_8$" OD, 0.788 to 1.125"
Z =A sin Y	0.016"	Z = ≤ 0.125"
W = A sin θ	0.016"	W = ≤ 0.031"
P_A	0.504"	For ¼" OD, 0.263 to 0.375" For $^3/_8$" OD, 0.394 to 0.563"
P_B	0.470"	For ¼" OD, 0.263 to 0.375" For $^3/_8$" OD, 0.394 to 0.563"
P_A - P_B	0.033"	-0.063 to 0.063"
D_T	0.361"	0.188 to 0.375"

Where: α1& α2 = angles between the pitot tube opening and the horizontal plane when viewed from the end
β1&β2 = angles between the pitot tube opening and the horizontal plane when viewed from the side
Y= the angle measured when calculating the difference in length between the two pitot tube legs
θ = the angle measured when calculating the distance that the pitot tubes are rotated
A = the distance between the tips of the pitot tube opening
Z =The difference in length between the two pitot tube legs
W= the distance that the pitot tube legs are rotated
P_A&P_B= vertical distance between each pitot tube opening plane & the center line of the pitot tube
D_T = the tube external diameter

Certification

I certify that the Type S pitot tube meets or exceeds all specifications, criteria and / or applicable design features and is hereby assigned a pitot tube calibration factor (Cp) of 0.84.

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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BSI

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NOZZLE CALIBRATION SHEET

Date	30 October 2025	**Personnel**	HPO, EBS
Nozzle Box ID	**NS – T2**	**Nozzle Type**	**Stainless Steel**

ID	D_1(mm)	D_2(mm)	D_3(mm)	D (mm)	**Average** (mm)
T2 NS-1	3.04	3.06	3.04	0.02	**3.05**
T2 NS-2	4.10	4.09	4.10	0.01	**4.10**
T2 NS-3	5.85	5.90	5.90	0.05	**5.88**
T2 NS-4	7.90	7.90	7.88	0.02	**7.89**
T2 NS-5	9.34	9.36	9.36	0.02	**9.35**
T2 NS-6	10.94	10.90	10.94	0.04	**10.93**
T2 NS-7	12.41	12.41	12.41	0.00	**12.41**

D = Maximum difference in any two measurements. Tolerance = 0.1 mm ;Average = Average of $D_{1,2,3}$

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 October 2025

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FLASK CALIBRATION SHEET

Date	30 October 2025	**Personnel**	HPO, RME
FLASK BOX ID	T2- M7 Flask-A	**Flask Type**	Glass

FLASK ID	1st Volume(mL)	2nd Volume(mL)	3rd Volume(mL)	Average Volume (mL)
BSI T2 – F1	2232	2227	2231	2230
BSI T2 – F2	2233	2231	2226	2230
BSI T2 – F3	2245	2251	2254	2250
BSI T2 – F4	2230	2227	2233	2230
BSI T2 – F5	2227	2231	2232	2230
BSI T2 – F6	2247	2253	2250	2250
BSI T2 – F7	2230	2232	2228	2230
BSI T2 – F8	2236	2243	2241	2240
BSI T2 – F9	2246	2254	2250	2250

*Note: The flask volumes are measured within +/- 10mL. All calibrations are at room temperature.

Calibrated By: Haley Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edindo C. Fernando
Signature over Printed Name

Date: 30 Ocotber 2025

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DIGITAL BALANCE CALIBRATION

Digital Balance ID	DB - T2	**Personnel**	HPO, RME
Manufacturer	AND CO. LTD.	**Date**	30 October 2025
Model	EJ-1500	**Calibration Standard**	1000g
Serial Number	BA2826513	**Type**	Weights (1500g max)

Eccentricity Test		**Repeatability Test**	
Test Load	1000g	When Loaded up to 1500g (Using 1000g& 500g standard weights)	
Position	Balance Indication	Trial	Balance Indication
1	1000.0	1	1549.9
2	999.9	2	1549.9
3	1000.0	3	1549.9
4	999.9	4	1549.9
5	1000.0	5	1549.9
Test Results	0.1	Standard Deviation	0

Linearity Test				
Nominal Load	**Unit under Test Reading**	**Deviation from Nominal**	**Coverage Factor**	**UE at 95% C.L**
Weights	g	g	k	g
0	0	0	2	0
200g	200	0	2	0
500g	500	0	2	0
1000g	1000	0	2	0
1500g	1499.9	0.1	2	0.16

[1]Acceptable EPA Method 4 tolerance must be less than 0.5 gram.
[2]Acceptable EPA Method 5 tolerance must less than 0.5 gram.

Equipment Description	**Equipment ID**	**Traceability Reference**
Standard Weight	1254	08-09-2022-BSI-T2

Calibrated By: Halcy Lemon P. Orquina
Signature over Printed Name

Checked By: Jans Cholo E. Chua
Signature over Printed Name

QA/QC: Edinde C. Fernando
Signature over Printed Name

Date: 30 October 2025

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ANNEX F

DENR ACCREDITATION

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Visayas Avenue, Diliman, Quezon City

SAT No. 2025 – 72

CERTIFICATE OF ACCREDITATION

Pursuant to DENR Administrative Order No. 26 Series of 2013 of the Department of Environment and Natural Resources having substantially met all the requirements prescribed therein,

BERKMAN SYSTEMS INCORPORATED (BSI)

208 VAG Building, Ortigas Ave.,
Greenhills, San Juan City, Metro Manila

is hereby duly accredited as

SOURCE EMISSION TESTING FIRM

As such, the following are authorized as:

QA/QC Manager
Edindo C. Fernando

Team Leader
Halcy Lemon P. Orquina

This certification shall allow the above firm and personnel to conduct stack testing limited to the following methods and parameters

1. **US-EPA Method 1 to 5 - PM**
2. **US-EPA Method 6/8 - SO_2**
3. **US-EPA Method 7 - NO_x**
4. **US-EPA Method 10 - CO**

Granted this AUG 0 4 2025, and valid until AUG 0 4 2028.

JACQUELINE A. CAANCAN, *CESO III*
OIC – Assistant Secretary for Environment
and Concurrent EMB Director

ANNEX G

TEST PARTICIPANTS

TEST PARTICIPANTS

BMC FORESTRY CORPORATION

Ms. Narhy C. Pomilban	-	Pollution Control Officer

BSI

Mr. Halcy Lemon P. Orquina	-	DENR Accredited Team Leader / Field Engineer
Mr. Eugene B. Salazar	-	Field Technician
Mr. Sherwin C. Canales	-	Field Technician
Mr. Jimuel B. Torrelino	-	Sampling Aide/Driver
Mr. Edindo C. Fernando	-	DENR Accredited QA/QC Manager

ANNEX H

TEST PLAN

November 20, 2025

ENGR. JEAN C. BORROMEO
OIC, Regional Director
DENR – Environmental Management Bureau
Cordillera Administrative Region (CAR)
DENR Compound, Gibraltar Road, Baguio City

CC: ENGR. RAUL G. CUBANGAY
OIC Chief, Environmental Monitoring and Enforcement Division

Subject: **Test Plan for BMC Forestry Corporation – Irisan Lime Project**

Dear Director Borromeo:

We are pleased to submit the test plan for our proposed Source Emission Test, to be conducted by Berkman Systems, Inc., an accredited third-party tester, at BMC Forestry Corporation – Irisan Lime Project, located at **Km. 5, Naguilian Road, Irisan, Baguio City.**

We hope this addresses your requirements.

Thank you.

Very truly yours,

BMC FORESTRY CORPORATION
By:

NARHY C. POMILBAN
Pollution Control Officer

Noted by:

FRANCISCO O. FLAVIER
Resident Manager

BERKMAN SYSTEMS INC.
Environmental Management Service Provider

BSI-2025-72-25-047

November 25, 2025

ENGR. JEAN C. BORROMEO
OIC, Regional Director
CC : ENGR. RAUL G. CUBANGAY
Chief, Environmental Monitoring and Enforcement Division
ENVIRONMENTAL MANAGEMENT BUREAU
CORDILLERA ADMINISTRATIVE REGION (CAR)
DENR Forestry Compound, Pacdal District
Baguio City, Benguet

Subject: **Test Plan for BMC Forestry Corporation - Irisan Lime Project**

Dear Dir. Borromeo:

We are pleased to submit the test plan for our proposed Source Emission Monitoring to be conducted at BMC Forestry Corporation - Irisan Lime Project located at Km.5, Naguilian Road, Irisan, Baguio City.

We hope that this addresses your requirements.

Very truly yours,

BSI

EDINDO C. FERNANDO
Field Operations Manager
DENR Accredited QA/QC Manager
SAT No. 2025-72

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SOURCE SPECIFIC TEST PLAN

This document is the Source Specific Test Plan of **BSI (Berkman Systems, Inc.)** that describes the emission testing that will be completed at BMC Forestry Corporation - Irisan Lime Project located at Km.5, Naguilian Road, Irisan, Baguio City.

Section A: FACILITY INFORMATION

BMC Forestry Corporation - Irisan Lime Project
Irisan, Baguio City

Contact Person: **Narhy C. Pomilban**
Pollution Control Officer

Telephone No: (074) 445-7180

Section B: PRODUCTION INFORMATION AND FACILITY REQUIREMENTS

The plant should operate the **one (1) unit of 1.08 MT/hr Vertical Shaft Kiln** set for 90% or greater of permitted capacity during testing. The Implementing Rules and Regulations of the Philippine Clean Air Act specify that the operating capacity during emission testing shall be the basis for setting the maximum allowable operating capacity during permit application.

The facility must provide the following items:

- The client shall provide an on-site single phase **220VAC/60Hz**-power supply.
- The client shall provide at least **two (2)** sampling portholes for Furnace based on the existing stack diameter and pipe length. Sampling platforms should be installed or constructed properly for the safety of the sampling personnel.
- Copy of latest Permit to Operate (**PTO**)
- Schematic diagram of the process
- Copy of the latest certificate of fuel analysis
- Operational Log sheet during sampling

Section C: SOURCE INFORMATION

The test will be at **one (1) unit of 1.08 MT/hr Vertical Shaft Kiln** set for 3 sampling runs to be conducted on December 10 – 13, 2025

Parameters to be tested and duration is presented in Table 1

TABLE 1 – TEST METHODOLOGY

Particulars	Parameter	Sampling Methodology	No. of Test runs/Duration	Notes
one (1) unit of 1.08 MT/hr Vertical Shaft Kiln	Volumetric Flow Rate **(VFR)**	EPA Method 1-4	3 one-hour run / exhaust	Performed concurrent with PM test
	Oxygen / Carbon Dioxide	EPA Method 3 By Fyrite Method	3 one-hour run / exhaust	Integrated Tedlar bag sample during M5 test
	Particulate Matter **(PM)**	EPA Method 5	3 one-hour run per exhaust	Performed with Method 5 set-up
	Carbon Monoxide **(CO)**	EPA Method 10 By NDIR	3 runs / exhaust	Integrated Tedlar bag sample during M5 test
	Sulfur Oxides **(SOx)**	EPA Method 6 modified	3 one-hour run per exhaust	Simultaneous with Method 5
	Nitrogen Oxides **(NOx)**	EPA Method 7	3 runs per exhaust (3 trials/run)	Three grab sample flasks collected per run

Section D: QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

Normal QA/QC procedures described in the Methods will be strictly followed.

Section E: SAMPLING DATE

December 10 – 13, 2025

The sampling team leader will coordinate the specific run plans with the abovementioned Plant representative. The sampling team will be at the Plant on or before 9:30 AM of the sampling date.

Section F: SAMPLING PERSONNEL

The proposed sampling team shall consist of the following personnel:

Team:

1. Halcy Lemon P. Orquina	-	Accredited Team Leader
2. Edindo C. Fernando	-	QA/QC Manager
3. Jose Arjay M. Santiago	-	QA/QC Manager (back up)
4. Anthony J. Adan	-	Field Engineer
5. Epifanio III V. Tovillo	-	Field Engineer
6. Sherwin C. Canales	-	Field Technician
7. Romeo M. Elsisura	-	Field Technician
8. Eugene B. Salazar	-	Field Technician
9. Loreto N. Dao	-	Driver/Technician
10. Jimuel B. Torrelino	-	Driver/Technician
11. Joseph Dandy A. Quilet	-	Driver/Technician

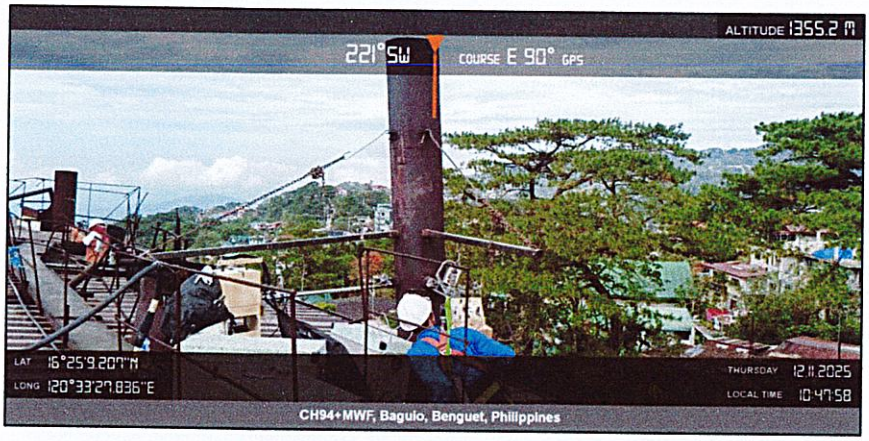
Signed:

EDINDO C. FERNANDO
Field Operations Manager
DENR Accredited QA/QC Manager
SAT No. 2025-72

ANNEX I

PHOTO DOCUMENTATION

PHOTO DOCUMENTATION



Vertical Shaft Kiln No. 2

BSI

Source Emission Monitoring
BMC FORESTRY CORPORATION
Irisan, Baguio City
December 11, 2025

AMBIENT AIR QUALITY AND NOISE LEVEL MEASUREMENT MONITORING REPORT

Reference No.: GEPC-AAQM-2512-059

Prepared for:

BENGUET CORPORATION ACUPAN CONTRACT MINING PROJECT

Balatoc, Virac, Itogon, Benguet

Sampling Date: December 20, 2025

Report Date: January 21, 2026

AMBIENT AIR QUALITY AND NOISE LEVEL MEASUREMENT MONITORING
REPORT CERTIFICATION

THREE (3) STATIONS AREA TESTS

PARAMETERS:

TOTAL SUSPENDED PARTICULATE **(TSP)**
SULFUR DIOXIDE **(SO_2)**
NITROGEN DIOXIDE **(NO_2)**
NOISE LEVEL MEASUREMENT

BENGUET CORPORATION ACUPAN CONTRACT MINING PROJECT

Balatoc, Virac, Itogon, Benguet

The ambient air monitoring and noise level measurement monitoring results reported herein were headed and performed by Mr. Danilo M. Palaypay, Jr. and his team. The laboratory analysis of the collected samples is conducted by Mach Union Laboratories Inc. and has been verified and found to be orderly.

I have certified that the information discussed in this report is accurate to the best of my knowledge.

Signed by:

DANILO M. PALAYPAY, JR.
SAT No. 2023-151
SAT No. 2025-167

Date Signed: January 21, 2026

AMBIENT AIR QUALITY MONITORING REPORT

FACILITY NAME: **Benguet Corporation Acupan Contract Mining Project**

FACILITY ADDRESS: Balatoc, Virac, Itogon, Benguet

1.0 INTRODUCTION

Greentek Environmental Phils. Co. was contracted by **Benguet Corporation Acupan Contract Mining Project** to conduct ambient air sampling for Three (3) stations within their plant facility as a requirement of their environmental permit and partly for their regular environmental monitoring.

Ambient air sampling was conducted on December 20, 2025, to analyze nitrogen dioxide (NO2), sulfur dioxide (SO2) and total suspended particulate (TSP) levels.

2.0 SAMPLING METHODOLOGY

The DENR standard ambient air sampling equipment and analytical procedures were used in the sampling activity. These equipment and procedures are specified below:

Total Suspended Particulate Matter (TSP)

Reference Procedure:	USEPA, 40 CFR 50, Appendix B
Sampling Equipment:	High Volume Sampler (1-Hour Air Sampler)
Method of Analysis:	Gravimetric Method

Sulfur dioxide (SO_2)

Reference Procedure:	USEPA, 40 CFR 50, Appendix A
Sampling Equipment:	Gas Bubbler Sampler (USEPA compliant)
Method of Analysis:	Pararosaniline Method

Nitrogen dioxide (NO_2)

Reference Procedure:	Air Pollution Monitoring Manual, EMB-1994
Sampling Equipment:	Gas Bubbler Sampler (USEPA compliant)
Method of Analysis:	Colorimetric, Griess Saltzman

The SO2 and NO2 samples were stored in an icebox, the TSP filters were placed in a clean envelope. All collected samples were then transported to the laboratory for analysis.

3.0 SAMPLING LOCATIONS

There are Three (3) sampling stations for ambient air monitoring. The table below shows the location and observations made during the sampling activity.

STN	LOCATION	OBSERVATION / ACTIVITY IN THE AREA DURING THE TIME OF SAMPLING
1	Along Keymens Road **(Upwind)**	The facility remained in operation during the sampling period. The sampling location was dry and cemented. A total of twenty-five (25) cars and twelve (12) motorcycles passed by.
2	Near at Gate 2 **(Downwind)**	The facility was operational during the sampling period. The sampling area was dry, with fifteen (15) cars passing by.
3	Near at Admin Office **(Downwind)**	The facility was operating normally during the sampling period. The sampling area was dry and cemented, with fifteen (15) cars passing by.

4.0 SUMMARY OF RESULTS

The summary results of the laboratory analysis are presented below for all sampling areas.

Table 1
Laboratory Analysis Results and Standard Limits for 60 minutes sampling

Stn	Location	Date / Time Sampling	TSP (ug / Nm^3)	SO_2 (ug / Nm^3)	NO_2 (ug / Nm^3)
1	Along Keymens Road **(Upwind)**	20-Dec-2025 1214H-1314H	280.6	10.8	20.2
2	Near at Gate 2 **(Downwind)**	20-Dec-2025 1349H-1449H	205.5	10.8	16.8
3	Near at Admin Office **(Downwind)**	20-Dec-2025 1508H-1608H	186.1	10.8	12.3
DENR NAAQ Standards for 60 minutes sampling			**300**	**340**	**260**

These data are measured to standardize the test results to 25°C and 760mmHg and for comparison purposes.

Table 2
Meteorological Monitoring Reading for 60 minutes sampling

STN	Location (GPS)	Date / Time Sampling	Barometric Pressure. (Inch Hg) Result Avg.	Ambient Temp.(˚C) Result Avg.	% Relative Humidity Result Avg.	Wind Speed Avg. (m/s)
1	Along Keymens Road **(Upwind)** N 16°21'35.124" E 120°39'33.33"	20-Dec-2025 1214H-1314H	27.02	29.0	54.9	0.4
2	Near at Gate 2 **(Downwind)** N 16°21'34.122" E 120°39'30.534"	20-Dec-2025 1349H-1449H	27.09	29.4	57.3	0.3
2	Near at Admin Office **(Downwind)** N 16°21'37.89" E 120°39'36.39"	20-Dec-2025 1508H-1608H	27.07	28.0	57.3	0.8

5.0 DISCUSSION OF RESULTS

The USEPA “Quality Assurance Handbook for Air Pollution Measurement Systems, Environmental Management Bureau, Department of Environment and Natural Resources, Philippine Environmental Policies, Laws, and Regulations handbook was used as a guide to achieve the quality assurance objectives of producing data that is complete, representative, and of known precision and accuracy.

The above results of analysis are compared to the National Ambient Air Quality Standards (NAAQS) for source-specific air pollutants from industrial operations. These standards are specified in the Implementing Rules and Regulations of the Philippine Clean Air Act of 1999.

During sampling on December 20, 2025, the weather from stations 1 was sunny while from stations 2 and 3 was cloudy with prevailing light to moderate wind blowing from the Northwest to Southeast while at Station 3 the wind direction was from Southeast to Northwest, respectively. *Thus, the results of* ***TSP, SO_2 and NO_2 concentrations are within the applicable CAA/IRR standard for 60 minutes of sampling.***

NOISE LEVEL MEASUREMENT MONITORING REPORT

FACILITY NAME: **Benguet Corporation Acupan Contract Mining Project**

FACILITY ADDRESS: Balatoc, Virac, Itogon, Benguet

INTRODUCTION

Environmental noise is the unwanted or harmful outdoor sound created by various activities and sources. On December 20, 2025, daytime noise level monitoring was conducted in Three (3) stations within the premises of their facility located at the above address. Noise level measurement was performed, and the measurement was conducted as part of their environmental monitoring and permit requirements.

OBJECTIVE OF THE MONITORING

The objective of noise monitoring is to provide data regarding the level of noise in a location so that it may be compared to the National Pollution Control Commission's (NPCC) noise limit standard. It is also to assess the impact of industrial activities on noise pollution and implement mitigation strategies to safeguard both workers well-being and the surrounding environment.

SAMPLING METHODOLOGY

A precision-type digital sound level meter was used for noise measurement. The said instrument is a LUTRON sound level meter, Model SL-4033SD. The sound level meter meets the IEC 61672 class 1 standard. The sound level meter that was used to measure the level was calibrated at Switchtek Measurement Systems with an acoustical calibrator (Lutron Sound Level). The noise was measured using an “A” weighting network and “slow response” with different limits for various times of the day and area categories. Noise measurement was performed for about 3 to 5 minutes per station after the 1-hour ambient sampling activity. The noise sampler was handheld at about thirty degrees (30°) from the plane directly pointing to the facility.

SAMPLING LOCATIONS

There are Three (3) sampling stations for noise level measurement monitoring. The table below shows the location and observations made during the sampling activity.

STN	LOCATION	OBSERVATION / DURING NOISE LEVEL MEASUREMENT
1	Along Keymens Road	The audible noise was generated by passing vehicles as well as ongoing operations within the plant.
2	Near at Gate 2	The audible noise was generated by ongoing plant operations as well as passing vehicles.
2	Near at Admin Office	The audible noise was generated by ongoing operations within the plant.

SUMMARY OF RESULTS

Table 3
Noise Level Measurement Monitoring Reading

Location	Time	Median (dBA)	Category of the Area	DENR Standard (dBA)
Along Keymens Road	1339H-1342H	52.4	Class C	70
Near at Gate 2	1456H-1459H	52.0	Class C	70
Near at Admin Office	1610H-1613H	55.4	Class C	70

Table 4
Environmental Noise Quality Standards in General Areas

Category of the Area	Maximum Allowable Noise (dBA)		
	Day Time 0900H to 2900H	Morning & Evening 0500H to 0900H / 2900H to 2200H	Nighttime 2200H to 0500H
AA	50	45	40
A	55	50	45
B	65	60	55
C	70	65	60
D	75	70	65

The Philippines standard for noise is categorized into Three (3) classes of sections, and the maximum allowable noise is classified in different time.

Description per Category

Class AA A section or contiguous area which requires quietness, such as areas within 100 meters from school sites, nursery schools, hospital, and special home for the aged.

Class A A section or contiguous area which is primarily used for residential purposes.

Class B A section or contiguous area which zoned or used as a commercial area.

Class C A section primarily zoned or used as a light industrial area.

Class D A section which is primarily reserved, zoned, or used as a heavy industrial area.

For areas directly facing a public transportation route or an urban traffic artery, the foregoing standards plus a correction factor equivalent to the following shall apply:

i- areas directly fronting or facing a four-lane road +5 dba

ii- areas directly fronting or facing a four-lane or wider road +10dba

DISCUSSION OF RESULTS

The environmental noise standards are based on Memorandum Circular No. 002 Series of 1980 of the National Pollution Control Commission. The noise was measured using an "A" weighting network and "slow response" with different limits for various times of the day and area categories. The location of Benguet Corporation Acupan Contract Mining Project is primarily zoned or used as a industrial area (Class C) with a DENR Daytime Noise Standard of 70 dBA.

The results of the noise level measurement reading show that the noise level in ***stations 1 to 3 were within the applicable DENR daytime limit of 70 dBA.*** The audible noise was detected from ongoing operation inside the plant and vehicle that passed by during sampling.

“APPENDIX A”

AMBIENT AIR MONITORING
FIELD DATAS

AMBIENT AIR MONITORING DATA
Benguet Corporation - Acupan Contract Mining Project
December 20, 2025

GPS Location: N 16°21'35.124"□ E 120°39'33.335"□

Station 1 *(Upwind)*	**Along Keymens Road**			Flowrate			
				TSP	NO2	SO2	Wind Speed
Time	Pbar inHg	Amb. Tmp. °C	RH%	m3/min	lpm	lpm	m/s
1214H-1224H	27.02	28.0	56.6	1.0	0.5	0.5	0.4
1224H-1234H	27.02	28.5	56.6	1.0	0.5	0.5	0.8
1234H-1244H	27.02	29.1	56.7	1.0	0.5	0.5	0.3
1244H-1254H	27.02	29.7	55.1	1.0	0.5	0.5	0.2
1254H-1304H	27.02	29.8	52.3	1.0	0.5	0.5	0.4
1304H-1314H	27.02	29.1	52.2	1.0	0.5	0.5	0.1
Average	27.02	29.0	54.9	1.0	0.5	0.5	0.4

GPS Location: N 16°21'34.122"□ E 120°39'30.534"□

Station 2 (*Downwind*)	**Near at Gate 2**			Flowrate			
				TSP	NO2	SO2	Wind Speed
Time	Pbar inHg	Amb. Tmp. °C	RH%	m3/min	lpm	lpm	m/s
1349H-1359H	27.09	29.3	56.8	1.0	0.5	0.5	0.2
1359H-1409H	27.08	29.2	57.8	1.0	0.5	0.5	0.1
1409H-1419H	27.09	29.2	57.6	1.0	0.5	0.5	0.3
1419H-1429H	27.08	29.6	54.8	1.0	0.5	0.5	0.2
1429H-1439H	27.09	29.4	58.5	1.0	0.5	0.5	0.4
1439H-1449H	27.08	29.4	58.5	1.0	0.5	0.5	0.3
Average	27.09	29.4	57.3	1.0	0.5	0.5	0.3

GPS Location: N 16°21'37.89"□ E 120°39'36.39"□

Station 3 *(Downwind)*	**Near at Admin Office**			Flowrate			
				TSP	NO2	SO2	Wind Speed
Time	Pbar inHg	Amb. Tmp. °C	RH%	m3/min	lpm	lpm	m/s
1508H-1518H	27.07	30.2	52.2	1.0	0.5	0.5	1.0
1518H-1528H	27.07	28.5	55.9	1.0	0.5	0.5	1.2
1528H-1538H	27.07	28.4	57.3	1.0	0.5	0.5	0.8
1538H-1548H	27.07	27.3	58.7	1.0	0.5	0.5	1.0
1548H-1558H	27.07	27.1	59.8	1.0	0.5	0.5	0.4
1558H-1608H	27.08	26.4	59.7	1.0	0.5	0.5	0.5
Average	27.07	28.0	57.3	1.0	0.5	0.5	0.8

NOISE LEVEL MEASUREMENT MONITORING RESULTS
Benguet Corporation - Acupan Contract Mining Project
December 20, 2025

Station 1	**Along Keymens Road**		
Time of Sampling (1339H- 1342H)			
50.2	58.7	55.8	59.8
52.9	56.8	56.7	57.4
53.7	56.2	53.2	53.4
56.7	52.7	54.7	56.7
58.9	53.7	58.9	58.9
57.7	56.8	57.8	54.5
58.4	57.4	59.7	55.7
Median =	***56.7***	***Average =***	***56.21***
Minimum =	***50.2***	***Maximum =***	***59.8***

Station 2	**Near at Gate 2**		
Time of Sampling (1456H - 1459H)			
50.2	54.8	53.7	56.7
51.4	59.3	54.8	58.7
53.7	54.8	55.8	54.8
56.8	55.7	54.7	55.7
57.8	57.4	58.7	53.4
55.4	58.7	56.4	56.7
59.7	56.8	57.4	58.1
Median =	***56.1***	***Average =***	***56.00***
Minimum =	***50.2***	***Maximum =***	***59.7***

Station 3	**Near at Admin Office**		
Time of Sampling (1610H - 1613H)			
54.7	54.7	54.8	55.4
54.2	58.7	55.7	56.5
55.7	59.8	56.7	57.4
56.7	56.8	58.4	58.5
58.8	54.9	59.7	58.4
53.7	57.8	58.4	57.7
56.8	56.8	57.4	56.8
Median =	***56.8***	***Average =***	***56.9***
Minimum =	***53.7***	***Maximum =***	***59.8***

AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING

Name of Facility: BENGUET CORPORATION, ACUPAN CONTRACT MINING PROJECT
Facility Address: ITOGON BENGUET
Facility Representative: MS. JEMIMAH R. SMA Personnel: JMC, ICE, MDS, CSJ, MCG

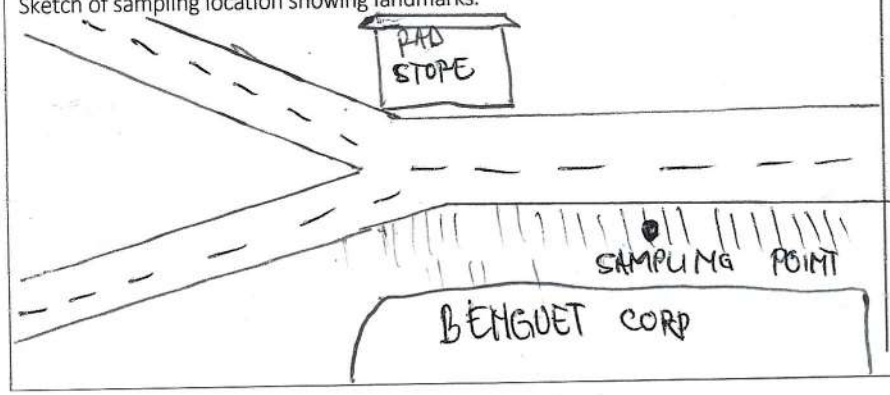
Station No.: #1UPWIND
Specific Location: ALONG KEYMENS ROAD
Sampling Date: 12-20-25 Coordinates: 16°21'25.124"N 120°39'33.3"E
Filter ID: 250381 Filter Weight: 2716.0

Time	pBar inHg	RH%	Ambient Temp., °C	TSP Flow Rate, lpm	NO2 Flow Rate, lpm	SO Flow Rate, lpm	Weather Condition	Wind Direction	Wind Speed m/s
1214-1224	27.02	56.4	28.0	1.0	0.5	0.5	SUNNY	NW-SE	2.4
1224-1234	27.02	56.6	28.5	1.0	0.5	0.5	SUNNY	NW-SE	2.5
1234-1244	27.02	56.7	29.1	1.0	0.5	0.5	SUNNY	NW-SE	1.4
1244-1254	27.02	55.1	29.7	1.0	0.5	0.5	SUNNY	NW-SE	2.8
1254 1304	27.01	52.3	29.8	1.0	0.5	0.5	SUNNY	NW-SE	1.4
1304-1314	27.01	52.2	29.1	1.0	0.5	0.5	SUNNY	NW-SE	1.7

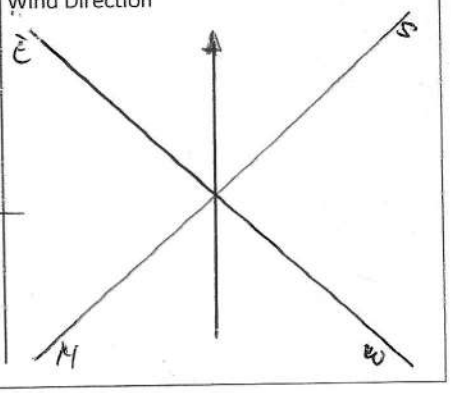
Description of the sampling location and observations: (*use separate sheet if necessary*)
THE FACILITY IS ONGIOMG OPERATION DURING SAMPLING PERIOD
THE SAMPLING LOCATION IS DRY AND CEMENTED

CAR - HH-HH-HH-HH-HH-
MOTORCYCLE - HH-HH-II

Sketch of sampling location showing landmarks.



Wind Direction



Noise Level Monitoring

Station No.: # 1 UPWIND Sampling Date: 12-20-25
Specific Location: ALONG KEYMENS ROAD

Time					Noise Source / Observation
1334	50.2	56.7	55.8	54.8	NOISE COME FROME PASSING UC AND ONGIOMG OPERATION INSIDE THE PLANTA
	52.4	56.8	56.7	57.4	
	53.7	54.2	53.2	53.4	
	56.7	52.7	54.7	56.7	
	58.9	53.7	58.9	58.9	
	57.7	56.8	57.8	54.5	
1342	58.4	54.4	54.7	55.7	

AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING

Name of Facility: BENGUET CORP, ACUPAN CONTRACT MINING PROJECT
Facility Address: ITOGON BENGUET
Facility Representative: Ms. JEMIMAH R. S Personnel: JMC, ICE, MDS, CJT, MCG

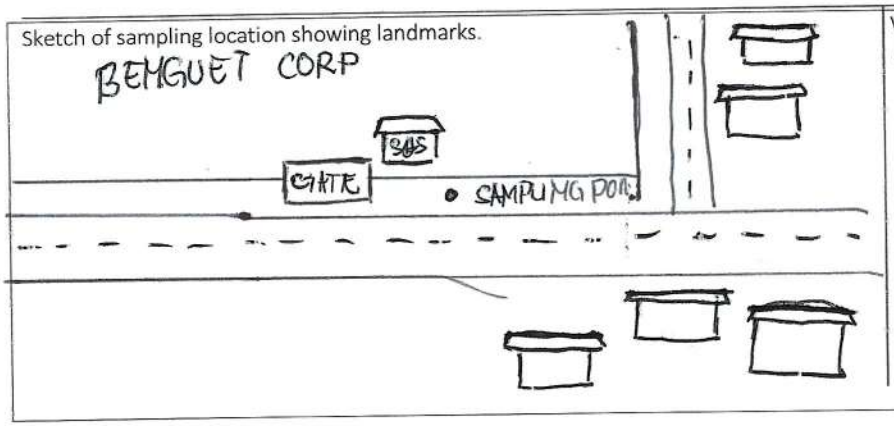
Station No.: #2
Specific Location: NEAR AT GATE 2
Sampling Date: 12-20-25 Coordinates: 16°21'34,122"N120°39'30.534"E
Filter ID: 250339 Filter Weight: 2.7265

Time	pBar inHg	RH%	Ambient Temp., °C	TSP Flow Rate, lpm	NO2 Flow Rate, lpm	SO Flow Rate, lpm	Weather Condition	Wind Direction	Wind Speed m/s
1349 - 1359	27.09	56.8	29.3	1.0	0.5	0.5	CLOUDY	NW - SE	2.4
1359 - 1409	27.08	57.8	29.2	1.0	0.5	0.5	CLOUDY	NW - SE	1.6
1409 - 1419	27.09	57.4	29.2	1.0	0.5	0.5	CLOUDY	NW - SE	2.3
1419 - 1429	27.08	59.8	29.4	1.0	0.5	0.5	CLOUDY	NW - SE	1.5
1429 - 1439	27.09	58.5	29.4	1.0	0.5	0.5	CLOUDY	NW - SE	1.4
1439 - 1449	27.08	58.5	29.4	1.0	0.5	0.5	CLOUDY	NW - SE	1.7

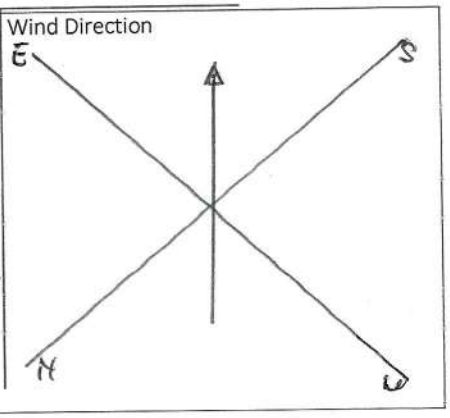
Description of the sampling location and observations: (*use separate sheet if necessary*)
THE FACILITY IS ONGOING OPERATION DURING SAMPLING PERIOD
THE SAMPLING LOCATION IS DRY

CAR - 1M - 1M - 1M -

Sketch of sampling location showing landmarks.



Wind Direction



Noise Level Monitoring

Station No.: #2 Sampling Date: 12-20-25
Specific Location: NEAR AT GATE 2

Time					Noise Source / Observation
1456	60.2	54.8	53.7	56.7	NOISE COME FROM ONGOING OPERATION INSIDE THE PLANT AND PASSING VC
	51.4	59.3	54.6	52.7	
	53.7	54.8	55.8	54.8	
	56.8	55.7	54.7	55.7	
	57.8	57.4	58.7	53.4	
	55.4	58.7	56.4	56.7	
1459	54.7	56.8	57.4	58.1	

AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING

Name of Facility: BENGUET CORP, ACUPAM CONTRACT MINING PROJECT
Facility Address: ITOGON BENGUET
Facility Representative: Ms. JEMIMAH R. SALAYOG Personnel: JMG, ICT, NDS, CJJ, MCG

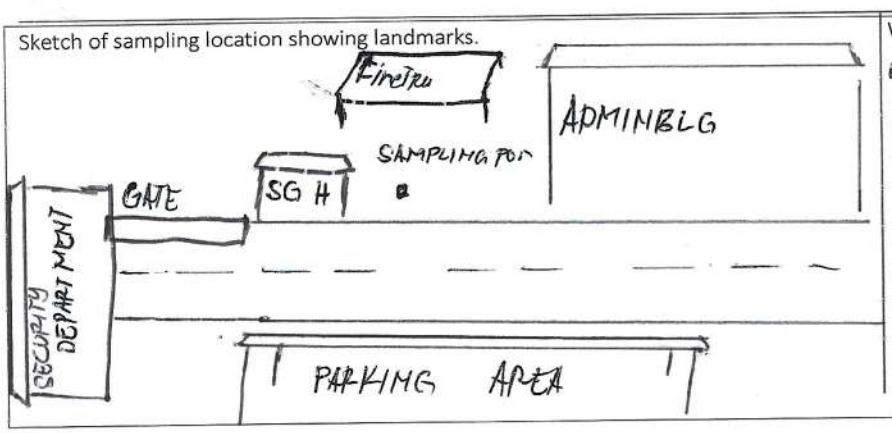
Station No.: #3 DOWN WIND
Specific Location: NEAR AT ADMIN OFFICE
Sampling Date: 12-20-25 Coordinates: 16°21'37.89"N 120°39'36.39"E
Filter ID: 250340 Filter Weight: 2.7228

Time	pBar inHg	RH%	Ambient Temp., °C	TSP Flow Rate, lpm	NO2 Flow Rate, lpm	SO Flow Rate, lpm	Weather Condition	Wind Direction	Wind Speed m/s
1508 - 1518	27.07	52.2	30.2	1.0	0.5	0.5	CLOUDY	SE - NW	2.4
1518 - 1528	27.07	55.9	28.5	1.0	0.5	0.5	CLOUDY	SE - NW	2.7
1528 - 1538	27.07	57.3	28.4	1.0	0.5	0.5	CLOUDY	SE - NW	2.6
1538 - 1548	27.07	58.7	27.3	1.0	0.5	0.5	CLOUDY	SE - NW	1.7
1548 - 1558	27.07	59.8	27.1	1.0	0.5	0.5	CLOUDY	SE - NW	1.6
1558 - 1608	27.08	59.7	26.4	1.0	0.5	0.5	CLOUDY	SE - NW	1.8

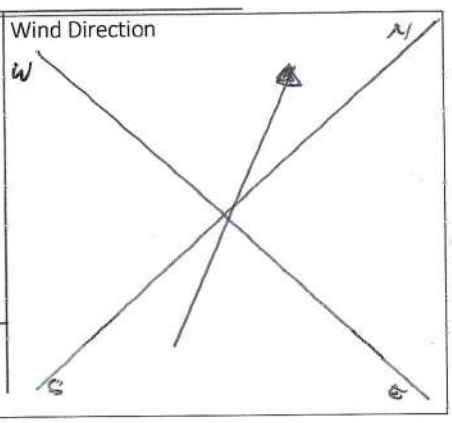
Description of the sampling location and observations: (*use separate sheet if necessary*)
THE FACILITY IS NORMAL OPERATION DURING SAMPLING PERIOD
THE SAMPLING LOCATION IS DRY AND CEMENTED

CAR - HM - HM - HM -

Sketch of sampling location showing landmarks.



Wind Direction



Noise Level Monitoring

Station No.: #3 DOWN WIND Sampling Date: 12-20-25
Specific Location: NEAR AT ADMIN OFFICE

Time					Noise Source / Observation
1610	54.7	54.7	54.8	58.4	NOISE COME FROME ONGOING OPERATION INSIDE THE PLANT
	54.2	58.7	55.7	54.5	
	55.7	59.8	56.7	57.4	
	56.7	56.8	58.4	58.6	
	58.8	54.9	57.7	58.4	
	53.7	57.8	58.4	57.7	
	56.8	56.8	57.4	56.8	

“APPENDIX B”

RESULTS OF LABORATORY ANALYSIS

AMBIENT AIR SAMPLING LABORATORY REPORT
Benguet Corporation - Acupan Contract Mining Project
December 20, 2025

Laboratory Data

Station #	TSP ug	SO2 ug	NO2 ug
Station 1	15,000	0.29	0.540
Station 2	11,000	0.29	0.450
Station 3	10,000	0.29	0.330

Computation

TSP = (concentration-ug)/((flowrate-1.0)*(298/(Tm-ave.+273))*((Pbar-ave.*25.4)/760))*60
SO2 = (concentration-ug)/((flowrate-0.5/1000)*(298/(Tm-ave.+273))*((Pbar-ave.*25.4)/760))*60
NO2 = (concentration-ug)/((flowrate-0.5/1000)*(298/(Tm-ave.+273))*((Pbar-ave.*25.4)/760))*60

Concentration at Standard Condition

Station #	TSP ug/Ncm	SO2 ug/Ncm	NO2 ug/Ncm
Station 1	280.6	10.8	20.2
Station 2	205.5	10.8	16.8
Station 3	186.1	10.8	12.3

MACH UNION LABORATORIES INC.

Main Office: Mach Union Building, 335 Alabang-Zapote Road, Talon 3, 1740 Las Piñas City, Philippines
Extension Office: ANFRA Bldg., FMC-LTO Cmpd., 314 Alabang-Zapote Road, Talon 1, 1740 Las Piñas City
Tel. No.: (02)8553-8381 / (02)8553-8382 / (02)8553-8879/ (02)8550-2573 Fax No.: (02) 8553-8878
Email: info@machunion.com • Website: www.machunion.com • http://www.facebook.com/MachUnion
Accredited: Philippine Accreditation Bureau (DTI-PAB) • Department of Health • Food & Drug Administration
Recognized: Department of Environment & Natural Resources (DENR-EMB) • Bureau of Animal Industry (DA-BAI)

PAB ACCREDITED
TESTING LABORATORY
PNS ISO/IEC 17025:2017
LA-2012-215C

CERTIFICATE OF ANALYSIS

Work Order : MU2514962 **Lab. Sample ID :** MU2514962-001 **Date Reported:** 01/16/2026

CUSTOMER : GREENTEK ENVIRONMENTAL PHILS., CO.

Sample Source : BCACMP AIR QUALITY MONITORING

LABORATORY TEST RESULTS

SAMPLE ID	PARAMETER	TEST METHOD	UNIT	RESULT
BCACMP – STN 1	Nitrogen dioxide	Griess Saltzman Method	ug	0.540
BCACMP – STN 1	Sulfur dioxide	Pararosaniline Method	ug	< 0.29
BCACMP – STN 1	Total Suspended Particulate	High Volume /Gravimetric Method	ug	15000
BCACMP – STN 2	Nitrogen dioxide	Griess Saltzman Method	ug	0.450
BCACMP – STN 2	Sulfur dioxide	Pararosaniline Method	ug	< 0.29
BCACMP – STN 2	Total Suspended Particulate	High Volume /Gravimetric Method	ug	11000
BCACMP – STN 3	Nitrogen dioxide	Griess Saltzman Method	ug	0.330
BCACMP – STN 3	Sulfur dioxide	Pararosaniline Method	ug	< 0.29
BCACMP – STN 3	Total Suspended Particulate	High Volume /Gravimetric Method	ug	10000

(*) Not PAB Accredited

Test Method Reference:

Code of Federal Regulations Title 40 Parts 50 to 51. USA. 1999.
Selected Methods of Measuring Air Pollutants. WHO. 1976.
Lodge, James P. Jr., Methods of Air Sampling and Analysis. ISC 3rd Edition.
US EPA Title 40 Code of Federal Regulations. Part 50 Standard of Performance for New Stationary Sources. Appendix A to O. 1991

Checked by:

Katrina U. Pagulayan, RCh
Chemist III
PRC#: 0013681

Certified by:

Marisa T. Manaor, RCh
Supervising Chemist
PRC#: 0005465

Approved for Release by:

Aladino M. Abulencia, ChE
Technical Manager
PRC License No. [illegible]

MACH UNION LABORATORIES INC.

Main Office: Mach Union Building, 335 Alabang-Zapote Road, Talon 3, 1740 Las Piñas City, Philippines
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Email: info@machunion.com • Website: www.machunion.com • http://www.facebook.com/MachUnion
Accredited: Philippine Accreditation Bureau (DTI-PAB) • Department of Health • Food & Drug Administration
Recognized: Department of Environment & Natural Resources (DENR-EMB) • Bureau of Animal Industry (DA-BAI)

CERTIFICATE OF ANALYSIS

Work Order : **MU2514962** **Lab. Sample ID :** **MU2514962-001** **Date Reported:** **01/16/2026**

Client ID : NCRMUL-000356

CUSTOMER : **GREENTEK ENVIRONMENTAL PHILS. CO.**
2353 RJ Place Bldg., Unit 3A, Selya St., Pandacan, Manila

Attention Liwayway P. Gaddi
09175139249
Jd.greentek@gmail.com

PROJECT DETAILS: BENGUET CORP ACUPAN CONTRACT MINING PROJECT
Itogon, Benguet

SAMPLE INFORMATION

Sample Type : Air Ambient
Identification : BCACMP AIR QUALITY MONITORING
Description : Air Ambient Sample in Absorbing Solution in 50mL HDPE and Filter Paper 8x10 and 47mm
Collection Date and Time : 12/20/2025 12:00 PM
Collected by : CUSTOMER

Storage Condition : Chilled and Ambient

Received Date and Time : 12/22/2025 09:00 AM
Analyzed Start Date and Time : 12/22/2025 09:05 AM
Analyzed End Date and Time : 01/16/2026 09:00 AM

Comments:

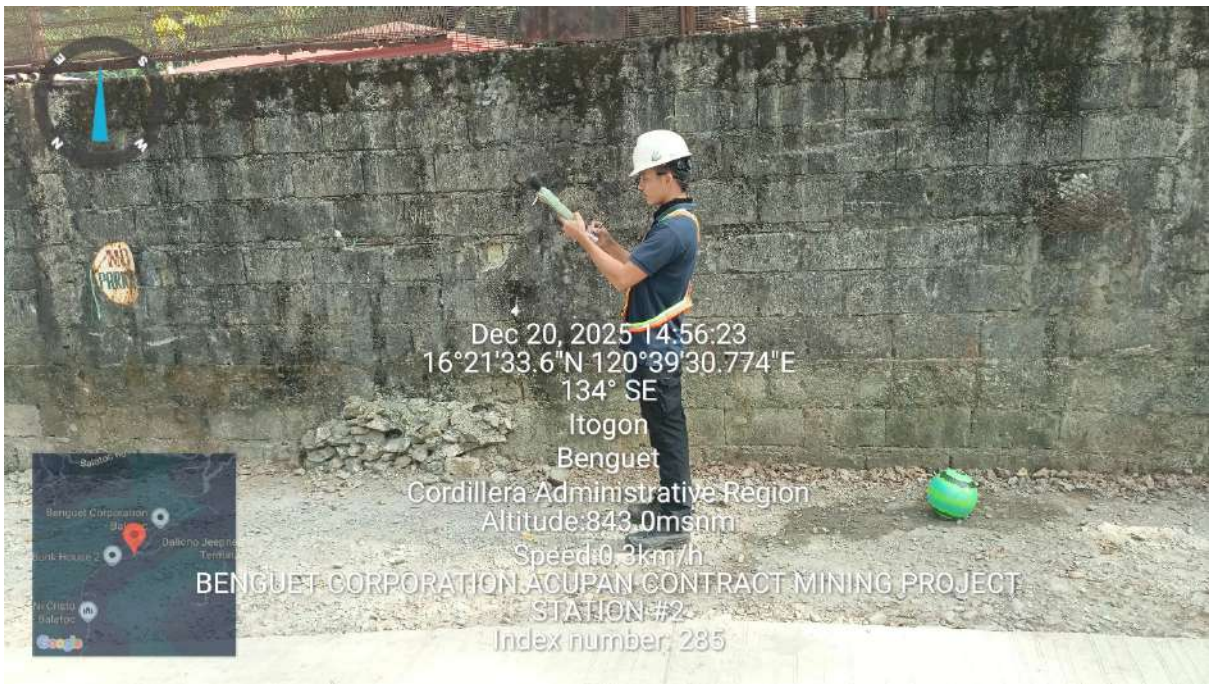
1 *All sample information stated herein are based on the details provided by the client. The results in this certificate of testing relates only to the samples submitted to and tested by the laboratory.*

"APPENDIX C"

SAMPLING ACTIVITY PHOTOS AND VICINITY MAP

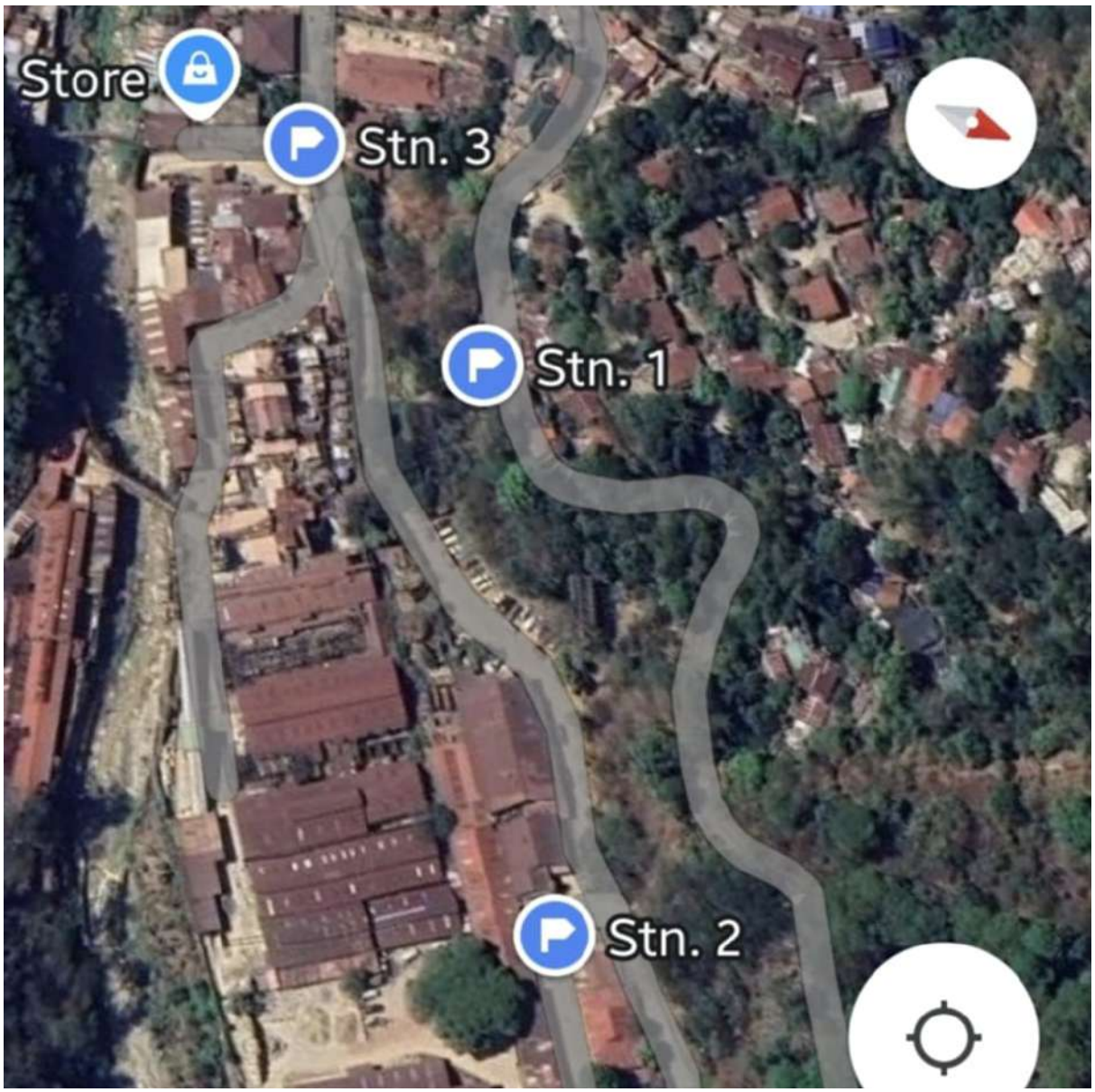
Station 1 - Along Keymens Road (Upwind)

Station 2 - Near Assay Laboratory & Gate 2 (Downwind)



Station 3 - Near at Admin Office (Downwind)

VICINITY MAP



“APPENDIX D”

AMBIENT AIR EQUIPMENT CALIBRATION CERTIFICATES

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro, Quezon City, 1100, Philippines
Tel Nos.02 4267593 / 9282869 / 9287769 Fax No.4537694
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	200.09-14453-1.24	Calibration of	3 IN1 (barometer function)
Identification:	GREENTEK ENVIRONMENTAL PHILS., CO		
Job:	P1	Test and Verification	
Fin.acc:	32	Certificate of Calibration	
Done.....:	December 7, 2025	Initials...:	CAC

Categories	Men	Hours	Total cost	Type
Cal Officer	2	1.00	-	Certificate

CERTIFICATE OF CALIBRATION - 3 IN 1 (Barometer Function)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued to: GREENTEK ENVIRONMENTAL PHILS., CO
Address: 2353 RJ PLACE UNIT 3A SELYA STREET BRGY.860 PANDACAN, MANILA, PHILIPPINES

UNIT UNDER TEST (UUT):

Instrument:	3 IN1 (barometer function)
Brand:	LUTRON
Model No.:	PHB-318
Serial No.:	No record
ID code:	No record
Range:	Temp. (0-50 Deg. C)
	Humidity (10 to 95%)
	Dewpoint (-25.3 to 48.9 Deg. C)
	Barometer (10 to 999.9 hPa)
Resolution:	Temp. (0.1 Deg. C)
	Humidity (0.1 %)
	Dewpoint (0.1 Deg. C)
	Barometer (1 hPa)
Accuracy:	
Temperature:	± 0.8 /1.5 °C °F
%RH	≧ ± (3% reading + 1% RH).
	< 70% RH - 3% RH.± 3% RH.
Barometric pressure	10.0 to 999.9 (± 1.5 hPa)
	1000 to 1100 (± 2 hPa)
Calibration Date:	December 5, 2025
Calibration Due:	December 4, 2026

CALIBRATOR INFORMATION:

Instrument:	Barigo, precision barometer
Instrument:	Druck, pressure calibrator
Instrument:	Lumel temp and humidity transmitter
Instrument:	Temperature and Humidity chamber
Model No.:	XB-OTS-34
Serial No.:	20130803
Traceability:	CNAS

Environmental Condition:

Condition:	DRY/BASIC/NEUTRAL	Ambient Temp. (Deg C):	24.4 ±2
Relative Humidity:	55.6 ±5%, 1007 hPa		

Calibration Method:

By comparison technique, unit under test was placed in a Chamber with a Standard precision barometer, Temperature and Humidity calibrator. Procedures of calibration and test conform to the requirements of NPL, NIST and ISO/IEC Guide 17025. Data were gathered and plotted against an ideal curve.

Standard error and uncertainty of measurement are written on the attached sheet.

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: December 5, 2024

Certified By: A.R. CANDOC
Date: December 7, 2024

Switchtek Measurement Systems

A Division of Switchtek Construction Corporation

4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1100. Philippines
Tel Nos 83517471 / 89282869 / 89287769 Fax No. 89828269
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	4000.05-5664-2.23. REV	Calibration of	Rotameter			
Identification:	GREENTEK ENVIRONMENTAL PHILS., CO					
Job:	P1	Test and Verification				
Fin.acc:	32	Certificate of Calibration				
Done...:	July 20, 2025	Initials...:	CAC			
Categories	Test and Calibration	Men	Hours	Total cost	Type	
Cal Officer		2	1.0	-	Certificate	

CERTIFICATE OF CALIBRATION - ROTAMETER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: GREENTEK ENVIRONMENTAL PHILS., CO
Address: 2430 LAURA STREET, PANDACAN, MANILA, PHILIPPINES

UNIT UNDER TEST (UUT):

Instrument:	Rotameter
Brand:	KIMOTO
Model No:	F94-40883
Serial No:	No record
Property ID:	No record
Range:	0.1 to 2.5 LPM
Graduation:	0.1 LPM
Calibration Date:	July 02, 2025
Calibration Due:	July 02, 2026

CALIBRATOR INFORMATION:

Instrument:	DWYER, Rotameter
Inert Gas:	Pure (N2) Nitrogen Gas
Standard Thermometer:	Heraeus, Standard platinum resistance thermometer
Standard Gauge:	Test Gauge. NABL,UKAS, Cert#SMS200.01
Instrument:	Primary DC DRYCAL
Brand:	BIOS
Serial No.:	4329
Traceability:	NIST, NPL and PTB Lab.

Environmental Condition:
Condition: DRY/BASIC/NEUTRAL
Relative Humidity: 48 ±5%, 1009 hPa
Ambient Temp. (Deg C): 19.8 ±2

Calibration Method:

By comparative technique, unit under test was tested and calibrated in referenced with a Standard Flowmeter at planned intervals using dried and filtered inert gas and in accordance with NIST, NPL and ISO/IEC Guide 17025. Data were gathered and tabulated.

During calibration, the unit was found to have a standard error of ± 0.0000 LPM with a confidence level of not less than 95%. Uncertainty of measurement is ± 0.058 LPM. Calculations were taken using Standard Deviation Formula.

Result:

NO. OF TEST	REFERENCE READING (LPM)	UNIT UNDER TEST READING (LPM)	ERROR IN READING (LPM)	STANDARD DEVIATION
1	0.000	0.00	0.000	0.0000
2	0.500	0.50	0.000	0.0000
3	1.000	1.00	0.000	0.0000
4	1.500	1.50	0.000	0.0000
5	2.000	2.00	0.000	0.0000

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

********** *NOTE MEASUREMENT INDICATOR IS AT THE UPPER PART OF THE FLOATER* **********

Calibrated By: C.A. CASADO
Date: July 02, 2024

Certified By: A.R. CAINOC
Date: July 02, 2024

Switchtek
Measurement Systems

A Division of Switchtek Construction Corporation

4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,

Bahay Toro,Quezon City, 1100, Philippines

Tel Nos.02 4267593 / 9282869 / 9287769 Fax No.4537694

email Address: admin@switchtek.com.ph

www.switchtek.com.ph

Certificate No.:	**400.01-S227-1.23**	**Calibration of**	**Sound Level Meter**			
Identification:	**GREENTEK ENVIRONMENTAL PHILS., CO**					
Job:	P1	Test and Verification				
Fin.acc:	32	Certificate of Calibration				
Done.....:	**June 4, 2025**	Initials...:	**CAC**			
Categories	**Calibration**	**Men**	**Hours**	**Total cost**	**Type**	
Cal Officer		2	1.0	-	Certificate	

CERTIFICATE OF CALIBRATION - SOUND LEVEL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: **GREENTEK ENVIRONMENTAL PHILS., CO**

Address: **2353 RJ PLACE UNIT 3A SELYA STREET BRGY. 860 PANDACAN, MANILA, PHILIPPINES**

UNIT UNDER TEST (UUT):

Instrument:	Sound Level Meter
Brand:	LUTRON
Model No:	SL-4033SD
Serial No:	I.433801
Range:	35 to 130 dB
ID Code:	No record
Calibration Date:	June 3, 2025
Calibration Due:	June 2, 2026

CALIBRATOR INFORMATION:

Instrument:	Sound Level Calibrator
Brand:	Lutron
Serial No:	I.278821
Model No:	SC-942
Traceability:	IEC 60942 Type II A Standard
	NIST and NPL

Environmental Condition:

Condition: DRY/BASIC/NEUTRAL

Relative Humidity: 41.2 ±5%, 1006 hPa

Ambient Temp. (Deg C): 23..7 ±2

Calibration Method:

By comparative technique, Standard Sound Generator was introduced at the unit under test at a constant value of 94.0 dB to 114 dB at a uniform frequency of 1000 Hz. Data were gathered and tabulated. Procedures of test conform to the requirements of OIML 88 Guidelines, IEC 60942 of the NIST and National Physical Laboratories.

During calibration, the unit was found to have a standard error of ± 0.00 dB with a confidence level of not less than 95%. Uncertainty of measurement is ±0.58 dB. Calculations were taken using the Standard Deviation Formula.

Results:

TRIALS	REFERENCE READING (dB)	UNIT UNDER TEST READING (dB)		ERROR IN READING	STANDARD DEVIATION	REMARKS
		AS FOUND	AS LEFT			
1	94.0	93.8	94.0	0.00	0.0000	Passed
2	114.0	114.0	114.3	0.30	0.2121	

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO

Date: June 3, 2024

Certified By: A.R. CAINDEC

Date: June 4, 2024

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1106, Philippines
Tel Nos: 3453-7694 ; 8928-2869 ; 8928-7769 Fax No.: 8426-7593
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	4000.05-8227-1.25	**Calibration of**	High Volume Sampler
Identification:	GREENTEK ENVIRONMENTAL PHILS., CO		
Job:	P1	Test and Verification	
Fin.acc:	32	Certificate of Calibration	
Done.....:	May 15, 2025	Initials...:	CAC
Categories		Men / Hours / Total cost	Type
Cal Officer		1 / 1.0 / -	Certificate

CERTIFICATE OF CALIBRATION - HIGH VOLUME SAMPLER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued To: GREENTEK ENVIRONMENTAL PHILS., CO
Address: 2353 RJ PLACE UNIT 3A SELYA STREET BRGY. 860 PANDACAN, MANILA, PHILIPPINES

UNIT UNDER TEST (UUT):

Instrument:	High Volume Sampler
Brand:	STAPLEX
Model No:	TFIA-2
Serial No:	25707T
Range:	0.5 to 2 m3/min.
Graduation:	0.1 m3
ID code:	No record
Calibration Date:	May 11, 2025
Calibration Due:	May 10, 2026

CALIBRATOR INFORMATION:

Instrument:	Rotating Vane Anemometer
Manufacturer:	LUTRON
Model No:	AM-4206M
Serial No:	Q432206
Range:	0 to 30.0 m/s 0 to 50.0 °C
Origin:	USA
Calibrated Against:	UKAS, thru Laser Doppler Anemometer

Environmental Condition:

Condition:	DRY/BASIC/NEUTRAL
Relative Humidity:	56 ±5%, 1011 hPa

Ambient Temp. (Deg C): 24.5 ±2

Calibration Method:

By comparative technique, unit under test was tested and calibrated in reference with a rotating vane anemometer at planned intervals using dried and filtered inert gas and with NIST, NPL and ISO/IEC Guide 17025. Data were gathered and tabulated.

During calibration, the unit was found to have a standard error of ± 0.008 m3/min. with a confidence level of not less than 95%. Uncertainty of measurement is ± 0. 062m3/min. Calculations were taken using Standard Deviation Formula.

Results:

NO. OF TEST	REFERENCE READING (m3/min.)	UNIT UNDER TEST READING (m3/min.)	ERROR IN READING (m3/min.)	STANDARD DEVIATION
1	1.00	1.0	0.000	0.0000
2	1.49	1.5	0.010	0.0071
3	2.01	2.0	-0.010	0.0071

Remarks:
All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C. CASADO
Date: May 11, 2025

Certified By: A. CAINDOG
Date: May 11, 2025

“APPENDIX E”

AMBIENT AIR TESTING PARTICIPANTS

AMBIENT AIR TESTING PARTICIPANTS

BENGUET CORPORATION ACUPAN CONTRACT MINING PROJECT

Ms. Jemimah R. Sala Yog	-	Facility Representative

GREENTEK ENVIRONMENTAL PHILS. CO.

Mr. Danilo M. Palaypay, Jr.	-	Technical Head and QA/QC Manager
Mr. Noel D. Salas	-	Team Leader
Mr. Isagani C. Entor	-	Field Technician / Driver
Mr. Christian Jay J. Jueves	-	Field Technician
Mr. Mark Gil C. Galicha	-	Field Technician
Mr. Johnrey M. Cabanellas	-	Field Technician

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Visayas Avenue, Diliman, Quezon City

SAT No. 2025 – 167

CERTIFICATE OF ACCREDITATION

Pursuant to DENR Administrative Order No. 26 Series of 2013 of the Department of Environment and Natural Resources having substantially met all the requirements prescribed therein,

GREENTEK ENVIRONMENTAL PHILS. CO.

2430-B Laura St., Pandacan, Manila City

is hereby duly accredited as

SOURCE EMISSION TESTING FIRM

As such, the following are authorized as:

QA/QC Manager
Danilo M. Palaypay, Jr.

Team Leader
Noel D. Salas

This certification shall allow the above firm and personnel to conduct stack testing limited to the following methods and parameters

1. **US-EPA Method 1 to 5 – PM**
2. **US-EPA Method 6/8 – SO_2**
3. **US-EPA Method 7 – NO_x**
4. **US-EPA Method 10 – CO**

Granted this FEB 12 2025, and valid until FEB 12 2028.

JACQUELINE A. CAANCAN, *CESO III*
OIC – Assistant Secretary for Environment
and Concurrent EMB Director

“APPENDIX F”

LABORATORY CERTIFICATES OF RECOGNITION

SCOPE OF RECOGNITION AND DENR RECOGNIZED SIGNATORIES ARE SPECIFIED AND CAN BE VERIFIED AT https://emb.gov.ph/denr-recognized-environmental-laboratory/ AND ARE INTEGRAL PARTS OF THIS CERTIFICATE.

ISSUE DATE: JULY 25, 2023
EXPIRY DATE: JULY 25, 2026

ELR LABORATORY CODE NO. NCR-29

Republic of the Philippines
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Visayas Avenue, Diliman, Quezon City

This

CERTIFICATE OF RECOGNITION

C.R. No. 040/2023

is hereby granted to

Mach Union Laboratories Inc.

Mach Union Bldg., 335 Alabang-Zapote Road, Talon Tres, Las Piñas City & ANFRA Bldg., FMC-LTO Compound 314 Alabang Zapote Road, Talon Uno, Las Piñas City

after having been assessed and found to comply with the documentation, analytical performance and other technical requirements of Administrative Order No. 63, series of 1998 (AO 63), Guidelines for the Designation of DENR Recognized Environmental Laboratories.

This certificate remains valid subject to continued compliance with the requirements of AO 63.

In testimony whereof, I have hereunto signed this Certificate at Quezon City, Philippines.

MARIA ANTONIA YULO LOYZAGA
Secretary

Expiry Date: July 25, 2026

Laboratory Head: Marisa T. Manaor

SCOPE OF RECOGNITION

(Exclusive of Sampling)

Water and Wastewater

PARAMETERS	ANALYTICAL METHODS	REFERENCES
Ammonia as NH_3-N	Ammonia – Selective Electrode Method	SMEWW 4500-NH_3 D
Ammonia as NH_3-N	Phenate Method	SMEWW 4500-NH_3 F
Arsenic	Electrothermal Atomic Absorption Spectrometric Method (Nitric Acid / Hotplate Digestion)	SMEWW 3113 (SMEWW 3030 E)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
	Manual Hydride Generation/ Atomic Absorption Spectrometric Method	SMEWW 3114 B
Barium	Direct Nitrous Oxide-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3111 D (SMEWW 3030 F)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
BOD	5-Day BOD Test	SMEWW 5210 B
Boron	Carmine Method	SMEWW 4500-B C
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Cadmium	Direct Air-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F)
	Electrothermal Atomic Absorption Spectrometric Method (Nitric Acid / Hotplate Digestion)	SMEWW 3113 (SMEWW 3030 E)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Chemical Oxygen Demand	Closed Reflux, Colorimetric Method	SMEWW 5220 D
	Open Reflux Method	SMEWW 5220 B
Chloride	Argentometric Method	SMEWW 4500-Cl^- B
	Ion Chromatography with Chemical Suppression of Eluent Conductivity	SMEWW 4110 B
Chromium as Hexavalent Chromium (Cr^{6+})	Colorimetric Method	SMEWW 3500-Cr B
Coliform, Fecal	Multiple Tube Fermentation Technique – Fecal Coliform Procedure	SMEWW 9221 E
Coliform, Total	Multiple Tube Fermentation Technique – Standard Total Coliform Fermentation Technique	SMEWW 9221 B
Color (Apparent)	Visual Comparison Method	SMEWW 2120 B

Color (True)	Visual Comparison Method	SMEWW 2120 B
Copper, Total	Direct Air-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F)
	Electrothermal Atomic Absorption Spectrometric Method (Nitric Acid / Hotplate Digestion)	SMEWW 3113 (SMEWW 3030 E)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Copper as Dissolved Copper	Direct Air-Acetylene Flame Method (Filtration; Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F with SMEWW 3030 B)
	Electrothermal Atomic Absorption Spectrometric Method (Filtration; Nitric Acid / Hotplate Digestion)	SMEWW 3113 (SMEWW 3030 E with SMEWW 3030 B)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Filtration; Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F with SMEWW 3030 B)
Cyanide as Free Cyanide	Cyanide – Selective Electrode (w/o distillation)	SMEWW 4500-CN^- F
Dissolved Oxygen	Iodometric Method – Azide Modification	SMEWW 4500-O C
	Membrane Electrode Method	SMEWW 4500-O G
Fluoride	Ion Chromatography with Chemical Suppression of Eluent Conductivity	SMEWW 4110 B
	Ion-Selective Electrode Method	SMEWW 4500-F^- C
Iron	Direct Air-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Lead	Direct Air-Acetylene Flame Method (Nitric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 E)
	Electrothermal Atomic Absorption Spectrometric Method (Nitric Acid / Hotplate Digestion)	SMEWW 3113 (SMEWW 3030 E)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Manganese	Direct Air-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Mercury	Cold – Vapor Atomic Absorption Spectrophotometric Method	SMEWW 3112 B
Nickel	Direct Air-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
Nitrate as NO_3-N	Ion Chromatography with Chemical Suppression of Eluent Conductivity	SMEWW 4110 B
	Nitrate Electrode Method	SMEWW 4500-NO_3^- D
	Colorimetric, Brucine	US EPA 352.1
Oil and Grease	Liquid-Liquid, Partition – Gravimetric Method	SMEWW 5520 B

pH	Electrometric Method	SMEWW 4500 – H^+ B
Phosphate as Phosphorus (Total, Reactive)	Stannous Chloride Method	SMEWW 4500-P D
	Vanadomolybdophosphoric Acid Colorimetric Method	SMEWW 4500-P C
Selenium	Electrothermal Atomic Absorption Spectrometric Method (Nitric Acid / Hotplate Digestion)	SMEWW 3113 (SMEWW 3030 E)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)
	Manual Hydride Generation/ Atomic Absorption Spectrometric Method	SMEWW 3114 B
Settleable Solids	Imhoff Cone Method	SMEWW 2540 F
Sulfate	Ion Chromatography with Chemical Suppression of Eluent Conductivity	SMEWW 4110 B
	Turbidimetric Method	SMEWW 4500-SO_4^{2-} E
Surfactants (Methylene Blue Active Substances)	Anionic Surfactants as MBAS	SMEWW 5540 C
Temperature	Laboratory and Field Methods	SMEWW 2550 B
Total Dissolved Solids	Gravimetric, Dried at 180°C	SMEWW 2540 C
Total Suspended Solids	Gravimetric, Dried at 103-105°C	SMEWW 2540 D
Zinc	Direct Air-Acetylene Flame Method (Nitric Acid – Hydrochloric Acid/ Hotplate Digestion)	SMEWW 3111 B (SMEWW 3030 F)
	Inductively Coupled Plasma – Emission Spectroscopy Method (Nitric Acid – Hydrochloric Acid / Hotplate Digestion)	SMEWW 3120 (SMEWW 3030 F)

Sediments

PARAMETERS	ANALYTICAL METHODS
Arsenic	Manual Hydride Generation / Atomic Absorption Spectrophotometric Method
Barium	Direct Nitrous Oxide – Acetylene Flame Method
Total Cadmium, Copper, Iron, Lead, Manganese, Nickel, Silver, Zinc	Atomic Absorption Spectrophotometric Method (Wet Ashing)
Total Mercury	Cold – Vapor Atomic Absorption Spectrophotometric Method

Ambient Air

PARAMETERS	ANALYTICAL METHODS
Nitrogen Dioxide	Gas Bubbler Griess-Saltzman Method
Sulfur Dioxide	Gas Bubbler and Pararosaniline Method
Suspended Particulate Matter-TSP	High Volume and Gravimetric Method
Suspended Particulate Matter-PM_{10}	High Volume with 10-micron particle size inlet; Gravimetric

PARAMETERS	ANALYTICAL METHODS
NOx	Phenoldisulfonic Acid Method
Particulates	Gravimetric Method
Sulfur Oxides as SO_2	Titration Method with Barium Chloride using Thorin as indicator

Wastes

PARAMETERS	ANALYTICAL METHODS
Antimony; Antimony compounds	US EPA Method 1311/ Hydride Generation AAS
Arsenic and its compounds	US EPA Method 1311/ Hydride Generation AAS
Barium and its compounds	US EPA Method 1311 / Flame AAS Method
Cadmium and its compounds	US EPA Method 1311 / Flame AAS Method
Chromium and its compounds	US EPA Method 1311 / Flame AAS Method
Fluoride and its compounds	US EPA Method 1311 / Ion Selective Electrode Method
Hexavalent chromium compounds	US EPA Method 1311 / Colorimetric Method
Lead compounds	US EPA Method 1311 / Flame AAS Method
Mercury and mercury compounds	US EPA Method 1311 / Cold-Vapor AAS Method
Silver and its compounds	US EPA Method 1311 / Flame AAS Method

DENR RECOGNIZED SIGNATORIES

NAME OF SIGNATORY	AREA/S OF RESPONSIBILITY/IES
Gino Franco P. Camposano	Physical-Chemical Analyses
Luchie S. Ignacio	Bacteriological Analysis
Marisa T. Manaor	All Analyses
Katrina U. Pagulayan	Air, Metals and Physical-Chemical Analyses
Liza Louise P. Perez	Bacteriological Analysis

BERKMAN SYSTEMS INC.
Environmental Management Service Provider

25 June 2025

Ref. No.: FR-25-216-25-83

MS. NARHY C. POMILBAN
Pollution Control Officer
BMC FORESTRY CORPORATION – BC ILP
Km. 5 Naguilan Road, Irisan, Baguio City

Subject: ***24-Hours Ambient Air Quality and Noise Level Monitoring Report***

Dear Ms. Pomilban,

We are pleased to submit the final report of the 24-hours ambient air quality and noise level monitoring as a result of our visit to your plant in Irisan, Baguio City on May 19 to 22, 2025.

We hope that this report addresses your requirements.

Very truly yours,

EMMANUEL R. ALTAREJOS
Executive Vice President

ERA/ldm

24-HOURS AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING REPORT

BMC FORESTRY CORPORATION – BC ILP

Km. 5 Naguilan Road, Irisan, Baguio City

BSI

Environmental Management Service Provider

2nd Floor, VAG Building
Ortigas Avenue, Greenhills,
San Juan, Metro Manila,
Philippines

PJ 25 216

24-HOURS AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING REPORT

(May 19 to 22, 2025)

BMC FORESTRY CORPORATION – BC ILP

Irisan, Baguio City

Prepared for:

BMC Forestry Corporation – BC ILP
Km. 5 Naguilan Road, Irisan, Baguio City
Tel. No.: (074) 445-7180; Fax No.: (074) 445-7185

Prepared by:

BSI
2nd Floor VAG Building, Ortigas Avenue
Greenhills, San Juan, Metro Manila
Tel. No.: (02) 863 6129 ; Fax. No.: (02) 727 9831

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1. INTRODUCTION

This report presents the procedures and results of the ambient air quality and noise level monitoring conducted on May 19 to 22, 2025 at BMC Forestry Corporation – BC ILP situated in Irisan, Baguio City. BSI was commissioned to conduct the monitoring wherein Mr. Edindo C. Fernando led the team that conducted the 24-hours ambient air quality and noise level monitoring. Meanwhile, Ms. Narhy C. Pomilban, Pollution Control Officer of BMC Forestry Corporation – BC ILP, served as site contact person during the activity.

The pollutants considered for the 24-hours ambient air quality monitoring were particulate matter less than 10 microns (PM_{10}), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) at three (3) designated sampling stations within the plant's vicinity (see *Annex A*). In addition, noise level measurements were also undertaken at the same stations.

2. OBJECTIVE OF THE MONITORING

The purpose of the monitoring was to verify the company's compliance with the ambient air quality guideline values of the Department of Environment and Natural Resources (DENR) Administrative Order No. 2000-81 *(Implementing Rules and Regulations of the Philippine Clean Air Act of 1999)*, and the noise level standards of the *National Pollution Control Commission (NPCC)* Memorandum Circular 002 Series of 1980.

3. METHODS OF SAMPLING AND ANALYSIS

3.1 24-Hours Ambient Air Quality Monitoring

The prescribed methods of sampling and analysis in DAO No. 2000-81 for PM_{10}, SO_2, and NO_2 were employed. The methodologies are discussed in this section and presented in *Table 1.*

Table 1. Methods of Ambient Air Sampling and Analysis

Parameter	Sampling Methodology / Analysis
Particulate Matter less than 10 microns (PM_{10})	Low Volume – Gravimetric Method
Sulfur Dioxide (SO_2)	Bubbler – Pararosaniline Method
Nitrogen Dioxide (NO_2)	Bubbler – Griess-Saltzman Reaction Method

Reference: USEPA 40 CFR, Part 50

3.1.1 Particulate Matter less than 10 microns

Sampling of PM_{10} was carried out by using a low volume PM_{10} sampler. Ambient air was drawn at a controlled flow rate into a specially-shaped cyclone inlet where the larger particulates are inertially separated from PM_{10} size range. Each size fraction in the PM_{10} size range is then collected on a pre-weighed glass microfiber filter over the specified sampling period. The filter paper with retained particles was recovered after sampling and desiccated for 24 hours in the laboratory followed by accurate weighing using a calibrated mass balance. The net weight (mass gain) from the initial and final masses of the filter paper corresponds to the amount of PM_{10} collected. The concentration of PM_{10} in ambient air was determined from the ratio of total mass of PM_{10} collected and the total normal volume of air sampled.

3.1.2 Sulfur Dioxide

Sulfur dioxide in the ambient air was sampled using a handy gas sampler by aspirating air at a controlled flowrate into a solution of 0.04 M sodium tetrachloromercurate (TCM) through a glass midget impinger over the specified sampling period. The solution was then treated in the laboratory with formaldehyde and with a specially purified acid-bleached pararosaniline to form an intensely colored pararosaniline methyl sulfonic acid. The color intensity was measured spectrophotometrically at 548 nm and is directly related to the amount of SO_2 collected. SO_2 concentration was determined from the difference between the absorbance of the sample and blank, multiplied by the calibration factor, and divided by the total normal volume of air sampled.

3.1.3 Nitrogen Dioxide

Nitrogen dioxide in the ambient air was determined using Griess-Saltzman Reaction Method. Air was drawn using a handy gas sampler at a controlled flowrate into an azo dye forming reagent through a glass midget impinger over a specified sampling period. The absorption reaction produces a stable red-violet color. The color intensity was read by a spectrophotometer in a laboratory at 550 nm and is directly related to the amount of NO_2 collected. NO_2 concentration was determined from the difference between the absorbance of the sample and blank, multiplied by the calibration factor, and divided by the total normal volume of air sampled.

3.2 Sampling Observations

Meteorological observations such as wind direction and speed were recorded during the duration of the activity in order to correlate the interpretation of the gathered concentrations.

3.2.1 Wind Direction

Wind direction is the direction from which the wind originates. It is reported in the cardinal directions. The wind direction in a certain station is determined by observing the motion of the wind from field observation of objects such as trees, grasses, smoke, etc. using a compass as a reference.

3.2.2 Wind Speed

Wind speeds were recorded during the sampling activity using the Beaufort Wind Scale as a guide. Devised by Britain's Admiral Sir Francis Beaufort, this was one of the first scales used to estimate and report wind speeds via visual observations. The scale starts with *0* and goes to a force of *12*. *Table 4* details the categorization of the Beaufort wind forces *0* to *4* only, along with the corresponding equivalent speeds, wind descriptions, and land observations.

Table 2. Modern Beaufort Wind Scale

Force	Equivalent Speed (m/s)	Description	Land Observation
BF0	0.0 - 0.2	Calm	• Calm • Smoke rises vertically
BF1	0.3 - 1.5	Light Air	• Direction of wind shown by smoke drift, but not by wind vanes
BF2	1.6 - 3.3	Light Breeze	• Wind felt on exposed skin • Leaves rustle • Wind vanes begin to move
BF3	3.4 - 5.4	Gentle Breeze	• Leaves and small twigs constantly moving • Light flags extended
BF4	5.5 - 7.9	Moderate Breeze	• Dust and loose paper raised • Small branches begin to move

Source: Encyclopedia of Coastal Science (2005)

3.2.3 Cloud and Rain Description

The systems used to describe sky condition and rain description during the sampling period are outlined in *Tables 3* and *4*, respectively. These terminologies were adopted and used by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA).

Table 3. Cloud Description

Sky Condition	Definition / Description
Clear or Sunny Skies	• State of the sky when it is cloudless, totally clear or with a few small light clouds visible. • Has a total cloud cover of less than one okta.
Partly Cloudy	• State of the sky is within 2-5 oktas total cloud cover or has between 30% to 70% cover of the celestial dome.
Partly Cloudy to at Times Cloudy	• Mostly partly cloudy but there are times when more than 70% of the celestial dome is covered with clouds.
Mostly or Mainly Cloudy	• The sky is mostly covered with clouds but with possible brief periods of sunshine. • The total cloud cover is between 6 to 8 oktas.
Cloudy	• The sky is covered with clouds between 6 to 8 oktas or has more than 70% cloud cover. • Predominantly more clouds than clear sky. • For a longer period during the day, the sun is obscured by clouds.
Overcast	• The sky is totally or completely covered with thick and opaque clouds, 8 oktas or around 100% cloud cover.

Source: PAGASA

Table 4. Rain Description

Rain Description	Definition / Description
Very Light Rains	• Scattered drops that do not completely wet an exposed surface regardless of duration.
Light Rains	• The rate of fall is from trace to 2.5 mm per hour. • Individual drops easily identified and puddles (small muddy pools) form slowly. • Small streams may flow in gutters.
Moderate Rains	• The rate of fall is between 2.5 mm to 7.5 mm per hour. • Puddles rapidly forming and down pipes flowing freely.
Heavy Rains	• The rate of fall is greater than 7.5 mm per hour. • The sky is overcast, there is a continuous precipitation. • Falls in sheets, misty spray over hard surfaces. • May cause roaring noise on roofs.
Monsoon Rains	• Heavy and continuous precipitation attributed to either the Southwest or Northeast Monsoon.
Occasional Rains	• Not frequent but is recurrent precipitation.
Widespread Rains	• Precipitation occurring extensively throughout an area.
Frequent rains	• Precipitation occurring regularly and often throughout the time duration.
Intermittent Rains	• Precipitation which ceases at times and re-occur again.

Source: PAGASA

3.3 24-Hours Ambient Noise Level Monitoring

A direct-reading sound level meter (in A-weighting network) was used to collect noise level data at each sampling station. A-weighted (dBA) scale was selected as required by the 1978 NPCC and the 1980 NPCC standards were also based on the same weighting network. A-weighting network most closely approximates the response of human ear to various sound frequencies.

The procedure used followed that of Wilson (1989), in which at least a total of fifty (50) readings were recorded in order to increase the confidence limits of the data. Procedures outlined by Wilson (1989) were adopted in the monitoring as the time interval, duration of sampling, size of data needed, and methods of noise level analysis were not specified in the 1978 NPCC.

According to the provision provided in the NPCC Memorandum Circular 002 (1980), the arithmetic median of seven (7) maximum-recorded noise levels is regarded as the noise level comparable to the standard. 24-Hours ambient noise levels were undertaken at four periods with the inclusive times as seen in *Table 5*. Field observations during the monitoring were also noted so as to identify the primary sources of noise in each area.

Table 5. Noise Monitoring Periods

Period	Time
Morning	5:00 AM - 9:00 AM
Daytime	9:00 AM - 6:00 PM
Evening	6:00 PM - 10:00 PM
Nighttime	10:00 PM - 5:00 AM

4. RESULTS AND DISCUSSION

4.1 24-Hours Ambient Air Quality Monitoring

Three (3) designated sampling stations were assessed with PM_{10}, SO_2 and NO_2. The pollutant concentrations, as presented in *Table 6*, were within the DENR National Ambient Air Quality Guideline Values (NAAQGV) for Criteria Pollutants of 150 µg/Ncm for PM_{10}, 180 µg/Ncm for SO_2, and 150 µg/Ncm for NO_2 based on 24 hours averaging time.

Table 6. 24-Hours Ambient Air Quality Monitoring Results

Station	Location	Date / Time of Sampling	PM_{10} (µg/Ncm)	SO_2 (µg/Ncm)	NO_2 (µg/Ncm)
A24-1	Basketball Area	May 19-20, 2025 / 1150H-1150H	0.28	< 0.17	0.41
A24-2	Front Of Bunkhouse	May 20-21, 2025 / 1230H-1230H	0.16	< 0.17	1.38
A24-3	Bamboo Plantation/ Near Purok 10	May 21-22, 2025 / 1300H-1300H	0.30	< 0.17	0.15
DENR National Ambient Air Quality Guideline Values for Criteria Pollutants based on 24 hours averaging time			**150**	**180**	**150**

Note: For the non-detect values, the detection limit in µg was divided by the total normal volume of air sampled.

Sampling observations during the monitoring as well as photo documentations are summarized in *Table 7.* Moreover, the summary of results including the gathered meteorological data, laboratory certificate of analyses, and calibration records of the equipment used were attached in *Annexes B, C,* and *D*, respectively.

Table 7. Field Observations and Photo Documentations during Sampling

Station	Field Observations	Photo Documentations
A24-1 Basketball Area May 19-20, 2025 / 1150H-1150H	The monitoring station is located on cement ground of the basketball court. Behind the station is a rocky terrain. The area is surrounded by trees and grass. Plant is at normal operation during the monitoring. Vehicles passed by during monitoring (22 light vehicles, 16 motorcycles and 5 heavy vehicles) Skies were clear to overcast with winds blowing from northeast at light air conditions. Light rainfall occurred between (0050H-0150H). Ambient air temperature ranged from 20.1°C to 29.7°C with hourly readings averaging to 23.8°C	
A24-2 Front Of Bunkhouse May 20-21, 2025 / 1230H-1230H	The monitoring station is located on gravelly ground partly covered with grass near Plant Barracks. The area is surrounded by trees and plants. Plant is at normal operation during the monitoring. Vehicles passed by during monitoring (11 light vehicles, 6 motorcycles and 4 heavy vehicles) Skies were clear to overcast with winds blowing from northeast at light air conditions. Light rainfall to Heavy rainfall occurred between (1630H-1730H). Ambient air temperature ranged from 20.1°C to 26°C with hourly readings averaging 22.5°C.	

Station	Field Observations	Photo Documentations
A24-3 Bamboo Plantation/ Near Purok 10 May 21-22, 2025 / 1300H-1300H	The monitoring station is located on an elevated and unpaved soil ground covered with grass. The area is surrounded by trees and small plants. Plant is at normal operation during the monitoring. Vehicles passed by during monitoring (11 motorcycles and 5 light vehicles) Skies were clear to cloudy with winds blowing from northeast at light air conditions. Light rainfall to Heavy rainfall occurred between (1600H-1700H). Ambient air temperature ranged from 20.3°C to 25.4°C with hourly readings averaging 22.8°C	 

4.2 24-Hours Ambient Noise Level Monitoring

The same three (3) ambient air quality stations were monitored for 24-hours ambient noise level and the results are presented in *Table 8*.

All stations are categorized under Class C areas (a section which is primarily reserved as a light industrial area). As per NPCC Memorandum Circular 002 Series of 1980, the applicable standards for Class C areas are 65 dBA for morning, 70 dBA for daytime, 65 dBA for evening, and 60 dBA for nighttime measurements.

Table 8. 24-Hours Ambient Noise Level Monitoring Results

Station	Location	Date / Time of Sampling	Period	Noise Level (dBA)	NPCC Standards Class C (dBA)
N24-1	Basketball Court Area	May 20, 2025 / 0555H-0605H	MORNING	48	**65**
		May 20, 2025 / 0948H-0958H	DAYTIME	51	**70**
		May 19, 2025 / 1800H-1810H	EVENING	49	**65**
		May 19, 2025 / 2220H-2225H	NIGHTTIME	48	**60**
N24-2	Front Of Bunkhouse	May 21, 2025 / 0520H-0530H	MORNING	49	**65**
		May 21, 2025 / 1130H-1140H	DAYTIME	52	**70**
		May 20, 2025 / 1803H-1813H	EVENING	49	**65**
		May 21, 2025 / 0050H-0100H	NIGHTTIME	48	**60**
N24-3	Bamboo Plantation/ Near Purok 10	May 22, 2025 / 0635H-0645H	MORNING	49	**65**
		May 22, 2025 / 0900H-0910H	DAYTIME	51	**70**
		May 21, 2025 / 1801H-1811H	EVENING	49	**65**
		May 22, 2025 / 0250H-0300H	NIGHTTIME	48	**60**

Class C - A section primarily reserved as a light industrial area

The results indicate that all stations complied with the 24-hours ambient noise level standards. The primary sources of noise are summarized in *Table 9*. The equipment calibration certificate of the noise meter used during the measurement is attached in *Annex D*.

Table 9. Sources of 24-Hrs Ambient Noise

Station	Location	Period	Sources of Noise
N24-1	Basketball Court Area	Morning	Compressor and Chirring insects
		Daytime	Plant operation and compressor
		Evening	Plant operation, compressor and chirping of birds
		Nighttime	Compressor and Chirring insects
N24-2	Front Of Bunkhouse	Morning	Plant Operation
		Daytime	Compressor and Chirring insects
		Evening	Compressor, Chirring insects and Chirping birds
		Nighttime	Compressor and Chirping birds
N24-3	Bamboo Plantation/ Near Purok 10	Morning	Plant Operation
		Daytime	Plant Operation
		Evening	Plant Operation
		Nighttime	Plant Operation

5. REFERENCES

DENR Administrative Order No. 2000-81. 1999. Implementing Rules and Regulations of the Philippine Clean Air Act of 1999.

National Pollution Control Commission. 1978. Rules and Regulations of the National Pollution Control Commission, Chapter IV Article I - Noise Control Regulations, Sections 74-79, Implementing Rules and Regulations, Presidential Decree No. 984 (National Pollution Control Decree of 1976). Manila: Official Gazette. June 1978, 4477-4479 pp.

National Pollution Control Commission. 1980. NPCC Memorandum Circular 002 Series of 1980 - Amendments to Article 1 (Noise Control Regulations), Chapter IV (Miscellaneous Regulations), Rules and Regulations of the National Pollution Control Commission. Manila: Official Gazette.

PAG-ASA. 2004. Definition and description of weather forecast terminologies used and adopted by PAG-ASA. http://kidlat.pagasa.dost.gov.ph/wb/terminology.html (Accessed November 2013).

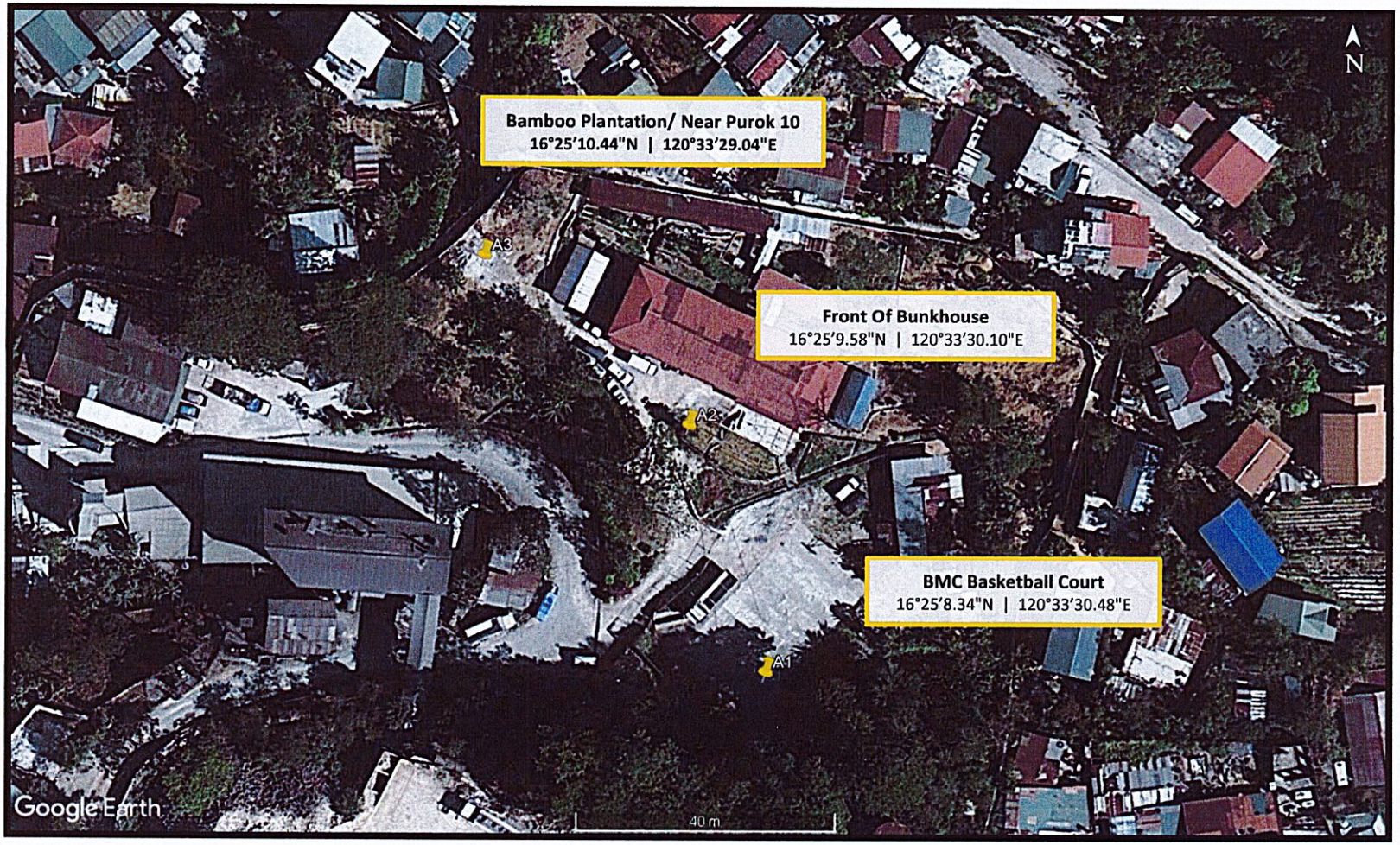
U.S. National Archives and Records Administration. Code of Federal Regulations. Title 40 Part 50. National Primary and Secondary Ambient Air Quality Standards. 2000.

Wilson, C. E. 1989. Noise Control: Measurements, Analysis, and Control of Sound and Vibration. New York: Harper & Row, Publishers, Inc.

ANNEX A

MAP OF AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING STATIONS

BMC FORESTRY CORPORATION – BC ILP
Irisan, Baguio City



BSI

MAP OF AMBIENT AIR QUALITY AND NOISE LEVEL MONITORING STATIONS

ANNEX B

AMBIENT AIR QUALITY MONITORING SUMMARY OF RESULTS

Ambient Air Quality Summary of Results for the 24-Hour Monitoring

Project No. : **PJ25-216**
Client : **BMC FORESTRY**
Location : **Baguio City**

Station Code	A24-1	A24-2	A24-3
Location	Basketball Area	Front Of Bunkhouse	Bamboo Plantation/ Near Purok 10
Date of Sampling	May 19-20, 2025	May 20-21, 2025	May 21-22, 2025
Time of Sampling	1150H-1150H	1230H-1230H	1300H-1300H

Particulate Matter less than 10 microns (PM_{10}) Data			
Volume of air for PM_{10} sampling, Ncm	1,363.1359	1,371.9955	1,367.7413
PM_{10} Weight, µg	383	218	406
PM_{10} Concentration, µg/Ncm	0.28	0.16	0.30

Sulfur Dioxide (SO_2) and Nitrogen Dioxide (NO_2) Data			
Volume of air for SO_2, NO_2 and HCl sampling, Ncm	1.2392	1.2473	1.2434
SO_2 Weight, µg	< 0.207	< 0.207	< 0.207
SO_2 Concentration, µg/Ncm	< 0.17	< 0.17	< 0.17
NO_2 Weight, µg	0.510	1.72	0.191
NO_2 Concentration, µg/Ncm	0.41	1.38	0.15

Average Temperature, °C	23.8	22.5	22.8
Clouds (Octa)	2/8 - 8/8	1/8 - 8/8	1/8 - 7/8
Prevailing Wind Direction	NE	NE	NE
Prevailing Wind Condition	BF1	BF1	BF1

Remarks:

BF	*Beaufort Force*	*BF1*	*Light Air (0.3 - 1.5 m/s)*	*BF3*	*Gentle Breeze (3.4 - 5.4 m/s)*
BF0	*Calm (0.0 - 0.2 m/s)*	*BF2*	*Light Breeze (1.6 - 3.3 m/s)*	*BF4*	*Moderate Breeze (5.5 - 7.9 m/s)*

ANNEX C

LABORATORY CERTIFICATES

ELARSI, INC.

Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**	Lab. Report No.	: 251357-AA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila	Date/Time Sampled	: 05-19-25 to 05-22-25 0827H
		Date Received	: 05-23-25
Contact Number	: 8863-6129	Date Analyzed	: 05-29-25 to 06-02-25
Nature of Sample/s	: Ambient Air Sample	Date Reported	: 06-03-25
No. of Sample/s Submitted	: Four (4)		

[REPORT OF ANALYSES]

Sample No.	Sample ID	PM_{10}, ug[a]	Analysis Date/Time
ES-2505941	PJ 25 216 A24-1	383	05-29-25 0827H
ES-2505942	PJ 25 216 A24-2	218	05-29-25 0827H
ES-2505943	PJ 25 216 A24-3	416	05-29-25 0827H

[a] - Method 501 / Gravimetric

Reference
James P. Lodge, Methods for Ambient Air Sampling & Analysis, 3rd edition

Note Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:

BERNADETH MAE M. ASUZANO, RChT
Laboratory Chemical Technician
PRC Lic. No. 0011907

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR
RECOGNIZED
LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**		Lab. Report No.	:	251359-AA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila		Date/Time Sampled	:	05-19-25 to 05-22-25
			Date Received	:	05-23-25
Contact Number	: 8863-6129		Date Analyzed	:	05-30-25 to 06-02-25
Nature of Sample/s	: Ambient Air Sample		Date Reported	:	06-03-25
No. of Sample/s Submitted	: Four (4)				

[REPORT OF ANALYSES]

Sample No.	Sample ID	SO_2, ug[a]	Analysis Date/Time
ES-2505948	PJ 25 216 A24-1	< 0.207	05-30-25 1330H
ES-2505949	PJ 25 216 A24-2	< 0.207	05-30-25 1330H
ES-2505950	PJ 25 216 A24-3	< 0.207	05-30-25 1330H
ES-2505951	PJ 25 216 A24-Blank	< 0.207	05-30-25 1330H

[a] - Pararosaniline Method / Colorimetric

Reference:
CFR 40 Appendix A2 to Part 50

Note: Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:

BILLY FRED M. SINGSON, RChT
Laboratory Chemical Technician
PRC Lic. No. 0009167

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR
RECOGNIZED
LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

ELARSI, INC.

Unit 201/202/204/406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 Fax No. 8929-4824 Email: info@elarsi.com

CLIENT	: **BSI**	Lab. Report No.	: 251358-AA
ADDRESS	: 2nd Flr., VAG Bldg Ortigas Ave. Greenhills San Juan, Metro Manila	Date/Time Sampled	: 05-19-25 to 05-22-25 1150H
		Date Received	: 05-23-25
Contact Number	: 8863-6129	Date Analyzed	: 05-23-25 to 06-02-25
Nature of Sample/s	: Ambient Air Sample	Date Reported	: 06-03-25
No. of Sample/s Submitted	: Four (4)		

[REPORT OF ANALYSES]

Sample No.	Sample ID	NO_2, ug[a]	Analysis Date/Time
ES-2505944	PJ 25 216 A24-1	0.510	05-23-25 1600H
ES-2505945	PJ 25 216 A24-2	1.72	05-23-25 1600H
ES-2505946	PJ 25 216 A24-3	0.191	05-23-25 1600H
ES-2505947	PJ 25 216 A24-Blank	< 0.072	05-23-25 1600H

[a] - Method 406 / Griess-Saltzman

Reference.
James P. Lodge, Methods for Ambient Air Sampling & Analysis, 3rd edition

Note: Date and time of sampling for "As Received" samples were provided by client.

Analyzed By:

BILLY FRED M. SINGSON, RChT
Laboratory Chemical Technician
PRC Lic. No. 0009167

Checked By:

JEMMA D. JACINTO, RCh
Laboratory Supervisor
PRC Lic. No. 0010872

Certified Correct By:

RENATO M. GOFREDO, JR., RCh
Laboratory Manager
PRC Lic. No. 0009824

DENR
RECOGNIZED
LABORATORY
C.R. No. 005/2024

Test results reflect the quality of the samples as received.

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY FORM

ELARSI, INC.
Unit 201-204 & 406 Rizalina Annex Bldg. 1677 Quezon Avenue, Quezon City
Tel. No. 8927-77-15 , 8994-3443 * Fax No. 8929-48-24* E-mail : info@elarsi.com

"FOR LABORATORY USE ONLY" Inv # _____ OR# _____ Lab. Report No. 25|357-59-AA

Company : BSI
Address : SAN JUAN CITY
Contact Person : SHERWIN C. CANALES Contact No./s 0968-329828

Submitted by: SHERWIN CANALES (Printed Name/Signature) Date/Time: 23-MAY-25 1334H
Reviewed by: Jenira Jacinto (Printed Name/Signature) Date/Time: 5/23/25 1337H
Approved by: Jenira Jacinto (Printed Name/Signature) Date/Time: 5/23/25 1335H

Method of Transport
✓ Walk-in ____ Courier ____ Pick-up ____ Others

Sample Condition Upon Received
✓ Sealed / Container Intact
____ Chilled/Frozen
✓ Room Temp
____ Preserved

Container Type
✓ Plastic Bottle
____ Glass/Sterile Glass
____ TEDLAR Bag
____ Others

Turn Around Time
____ Urgent/Rush (3-5 Working Days)
✓ Routine (7-12 Working Days)

Nature of Sample (PLEASE CHECK)[1]

Water	Metals
____ Drinking Water	____ Water
____ Wastewater	____ Air
____ Others	____ Others
Air	**Solids**
____ Stack Source Emission	____ Soil
✓ Ambient Air Sample	____ Sludge
____ Work Env. Measurement	____ Sediment
____ Others	____ Others

"FOR LAB. USE ONLY"

Sample No.	Sample Identification	Analyses Requested	Method of Analysis	Date of Sampling/Time	No. of Samples	Remarks
PM10 : E5-2505941-43	PJ25-216	PM10	Gravimetric	MAY 19, 20	3	
NO2 : E5-2505944-947	A1-24HRS	NO2 W/BLANK	Griess-Saltzman	20, 21	3	
SO2 : E5-2505948-951	A2-24HRS			21, 22	3	
	A3-24HRS	SO2	Pararosaniline	2025 (Time: 1100H) 1200H 1500H		

[1] USE ONE(1) COC FOR EACH NATURE OF SAMPLE
[2] Unless otherwise requested, all samples will be disposed four (4) weeks after analysis
[3] Use HRAFORM_56 waiver form if Sample condition & requirements are not met

Serial No. 1239

ANNEX D

EQUIPMENT CALIBRATION CERTIFICATES

CalibrationReport

TischTSPAirSampler

No.06012024TSP3868-10

Submittedby: EdindoC.Fernando
BSI(BerkmanSystemsInc.,)
Address: 2ndFloorVAGBldg.,Greenhills,SanJuan

Site		CalibratorMake/Model	
Location:	On-Site	Make:	ThermoAndersenOrifice
Date:	Jul1,2024	Model/S.N.:	TE-5025A/1524
Tech.:	RobertoL.Co	Qaslope:	1.96258
Sampler:	TE-WilburAirSampler	intercept	-0.02608
Serial#:	TSP-DSN:3868/475	coefficient	0.99995

Temp(°F):	--	Elevation(ft):	--
Ta(°K):	295	SLPress(inHg):	--
Ta(°C):	22	Pa(mmHg):	752

Plate Number	Orifice "H_2O	Qa m^3/min	Sampler "H_2O	Pf mmHg	Po/Pa	LookUp m^3/min	%of Diff
18	5.8	0.78	12.0	16.796	0.978	1.162	0.49
13	5.5	0.76	16.2	20.484	0.973	1.156	0.52
10	5.3	0.75	20.4	24.075	0.968	1.150	0.54
7	4.8	0.71	28.0	32.100	0.957	1.136	0.60

Remarks:

1. TheEPAguidelinesstatethatatleastthree(3)ofthesecalibratorflowrates shouldbebetweenl.ltol.7m^3(39to60CFM).

2. TheEPAguidelinesstatethatthepercentdifferenceshouldbewithin±3or4 %.Iftheyaregreaterthanthisaleakmayhavebeenpresentduringcalibration and the sampler should recalibrated.

Calculations

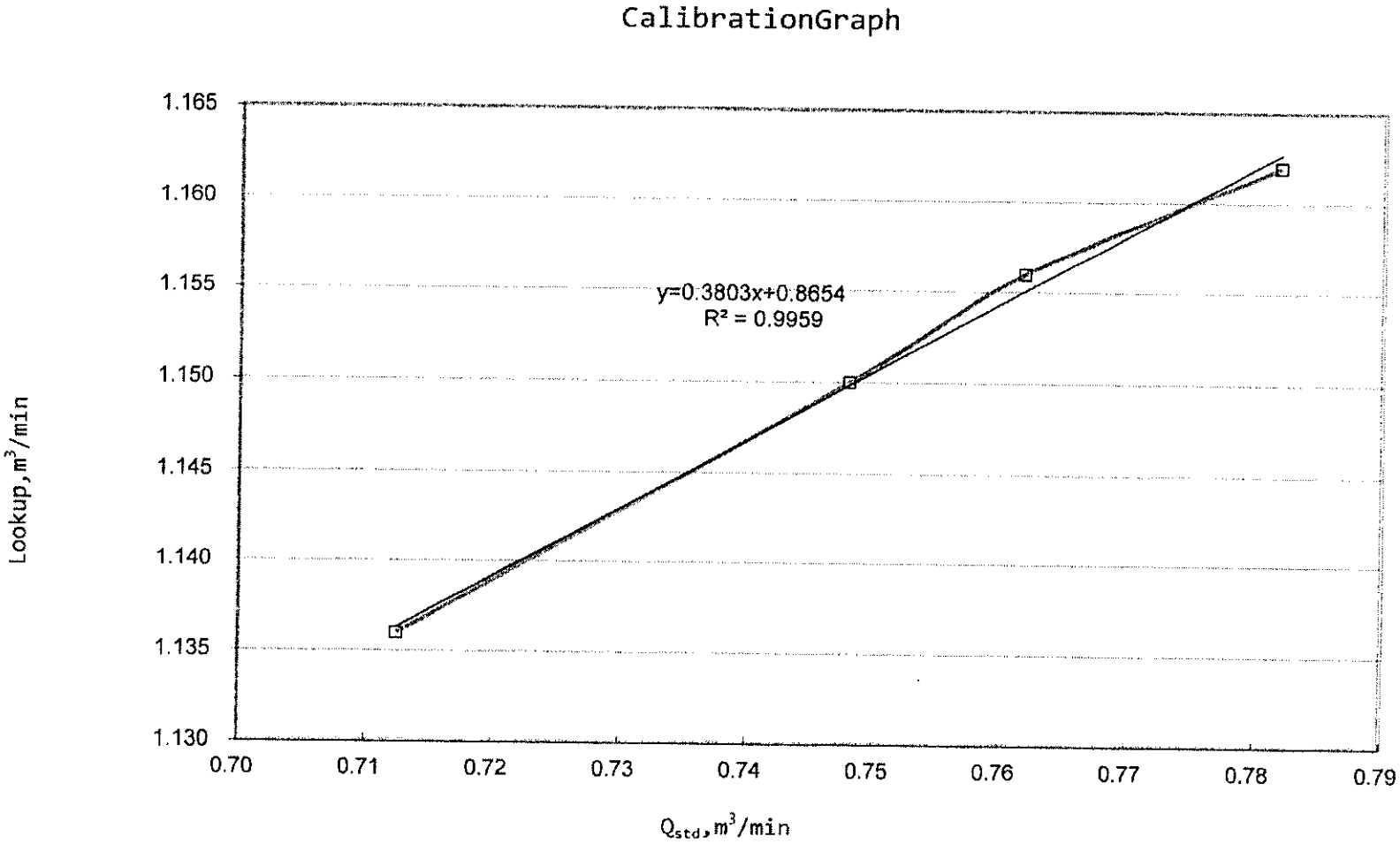
Calibrator Flow (Qa) = 1/Slope*(SQRT(H2O*(Ta/Pa))-Intercept)

Pressure Ratio (Po/Pa) = 1-Pf/Pa

%Difference=(LookUpFlow-CalibratorFlow)/CalibratorFlow*100

Calibratedby:

ROBERTOL.CO


CalibrationGraph
y=0.3803x+0.8654
R² = 0.9959
Lookup, m³/min
Qstd, m³/min
1.165
1.160
1.155
1.150
1.145
1.140
1.135
1.130
0.70
0.71
0.72
0.73
0.74
0.75
0.76
0.77
0.78
0.79

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1100, Philippines
Tel Nos.02 4267593 / 9282869 / 9287769 Fax No.4537694
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.: 4000.23-09692-1.24 **Calibration of** 3 IN1 (Anemometer, Barometer, %RH)
Identification: BERKMAN SYSTEMS INCORPORATED
Address: Suite 208 VAG Bldg., Ortigas Avenue, Greenhills, San Juan, Metro Manila, Philippines

CERTIFICATE OF CALIBRATION - 3 IN 1 (ANEMOMETER, BAROMETER, % RH)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument: 3 IN1 (Anemometer, Barometer, %RH)
Brand: LUTRON
Model No.: ABH-4225
Serial No.: AI.14914
Range: Velocity (0-30.0 m/s)
Temp. (0-50 Deg. C)
Humidity (10 to 95%)
Dewpoint (-25.3 to 48.9 Deg. C)
10.0 to 999.9 hPa
Resolution: Velocity (0-30.0 m/s)/0.1 m/s
Temp. (0-50 Deg. C)/0.1 Deg. C
Humidity (10 to 95%)/0.1 %RH
Dewpoint (-25.3 to 48.9 Deg. C)/0.01 Deg. C
Barometeric (10.0 to 999.9 hPa) /0.1

Calibration Date: June 10, 2024
Calibration Due: June 25, 2025
Calibrated By: C.A. CASADO

MODE: THERMOHYGROMETER

Results:

Barometric

REFERENCE READING (hPa)	UNIT UNDER TEST READING (hPa)	ERROR IN READING (hPa)	STANDARD DEVIATION	REMARKS
1012	1005	7.00	4.9497	The user should determine the suitablity of the instrument for its intended use
1000	994	6.00	4.2426	
995	989	6.00	4.2426	

Standard error: ± 7.76 hPa
Uncertainty: ± 7.26 hPa

Velocity

REFERENCE READING (m/s)	UNIT UNDER TEST READING (m/s)	ERROR IN READING (m/s)	STANDARD DEVIATION	REMARKS
0.00	0.00	0.00	0.0000	The user should determine the suitablity of the instrument for its intended use
5.20	5.30	-0.10	0.0707	
9.50	9.40	0.10	0.0707	
15.20	15.30	-0.10	0.0707	

Standard error: ± 0.11 m/s
Uncertainty: ± 0.58 m/s

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Certificate No.: 4000.23-09692-1.24 **Calibration of** 3 IN1 (Anemometer, Barometer, %RH)
Identification: BERKMAN SYSTEMS INCORPORATED
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CERTIFICATE OF CALIBRATION - 3 IN 1 (ANEMOMETER, BAROMETER, % RH)

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UNIT UNDER TEST (UUT):

Instrument: 3 IN1 (Anemometer, Barometer, %RH)
Brand: LUTRON
Model No.: ABH-4225
Serial No.: AI.14914
Range: Velocity (0-30.0 m/s)
Temp. (0-50 Deg. C)
Humidity (10 to 95%)
Dewpoint (-25.3 to 48.9 Deg. C)
10.0 to 999.9 hPa
Resolution: Velocity (0-30.0 m/s)/0.1 m/s
Temp. (0-50 Deg. C)/0.1 Deg. C
Humidity (10 to 95%)/0.1 %RH
Dewpoint (-25.3 to 48.9 Deg. C)/0.01 Deg. C
Barometeric (10.0 to 999.9 hPa) /0.1

Calibration Date: June 10, 2024
Calibration Due: June 25, 2025
Calibrated By: C.A. CASADO

MODE: THERMOHYGROMETER

Results:

Temperature:

REFERENCE READING (°C)	UNIT UNDER TEST READING (°C)	ERROR IN READING (°C)	STANDARD DEVIATION	REMARKS
9.0	9.2	-0.20	0.1414	The user should determine the suitablity of the instrument for its intended use
19.9	19.9	0.00	0.0000	
28.4	29.5	-1.10	0.7778	
40.7	39.7	1.00	0.7071	

Standard error: ± 0.81 °C
Uncertainty: ± 0.95 °C

Relative Humidity:

REFERENCE READING (% RH)	UNIT UNDER TEST READING (% RH)	ERROR IN READING (% RH)	STANDARD DEVIATION	REMARKS
71.00	68.0	3.00	2.1213	The user should determine the suitablity of the instrument for its intended use
52.00	47.6	4.40	3.1113	
50.00	46.0	4.00	2.8284	
45.00	41.0	4.00	2.8284	

Standard error: ± 5.44 % RH
Uncertainty: ± 3.38 % RH

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Tel Nos.02 4267593 / 9282869 / 9287769 Fax No.4537694
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	4000.23-09692-1.24	Calibration of	3 IN1 (Anemometer, Barometer, %RH)		
Identification:	BERKMAN SYSTEMS INCORPORATED				
Job:	P1	Test and Verification			
Fin.acc:	32	Certificate of Calibration			
Done......:	June 14, 2024	Initials...:	CAC		
Categories	Calibration	Men	Hours	Total cost	Type
Cal Officer		2	1.00	-	Certificate

CERTIFICATE OF CALIBRATION - 3 IN 1 (ANEMOMETER, BAROMETER, % RH)

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued to: BERKMAN SYSTEMS INCORPORATED
Address: Suite 208 VAG Bldg., Ortigas Avenue, Greenhills, San Juan, Metro Manila, Philippines

UNIT UNDER TEST (UUT):

Instrument:	3 IN1 (Anemometer, Barometer, %RH)
Brand:	LUTRON
Model No.:	ABH-4225
Serial No.:	AI.14914
Range:	Velocity (0-30.0 m/s) Temp. (0-50 Deg. C) Humidity (10 to 95%) Dewpoint (-25.3 to 48.9 Deg. C) 10.0 to 999.9 hPa
Resolution:	Velocity (0-30.0 m/s)/0.1 m/s Temp. (0-50 Deg. C)/0.1 Deg. C Humidity (10 to 95%)/0.1 %RH Dewpoint (-25.3 to 48.9 Deg. C)/0.01 Deg. C Barometeric (10.0 to 999.9 hPa) /0.1
Origin:	Taiwan
Calibration Date:	June 10, 2024
Calibration Due:	June 25, 2025

CALIBRATOR INFORMATION:

Instrument:	Temperature and Humidity chamber
Model No.:	XB-OTS-34
Serial No.:	20130803
Traceability:	CNAS
Instrument:	SMS Wind tunnel
Model No:	SMS4000.02
Serial No:	SMSQ432206
Calibrated Against:	UKAS, thru Laser Doppler
Instrument:	Barigo, Precision Barometer
Calibrated Against:	NIST

Environmental Condition:
Condition: DRY/BASIC/NEUTRAL
Relative Humidity: 55 ±5%, 1010 hPa
Ambient Temp. (Deg C): 25 ±2

Calibration Method:

By comparison technique, unit under test was tested in reference with a Rotating vane anemometer, precision barometer, Standard Temperature and Humidity calibrator. Procedures of calibration and test conform to the requirements of NPL, NIST and ISO/IEC Guide 17025. Data were gathered and plotted against an ideal curve.

Standard error and uncertainty of measurement are written on the attached sheet.

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: June 10, 2024

Certified By: A.R. [illegible]
Date: June 14, 2024

Temperature Pressure* Sound* Gas Detector/Analyzer *Flow *Volume* Weight* ... Conductivity *Resistivity *Conductivity *Voltage *Amperes *Barometer *Frequency Controller *Hygrometer *Glass & Bi-Metal Thermometer *PRV *URV *TPV *Relief Valve *Recorder *Thermostat *Torque Wrench *Calorimeter *Caliper* Micrometer* Durometer *Refractometer *Multi tester* Hydrometer* Capacitance & Inductance Meter *Sphygmomanometer *Low Ohm meter *Dial Test Gauge *Gauge Block* Ruler* Oxygen Meter* Psychrometer* ... Dielectric ... Transformer Turns Ratio* Hi Pot Meter* Capacitance& Dissipation

CALIBRATION REPORT
No. 12282024BSI_DGS-4-11

Instrument/Model: BSI Dual Gas Sampler
Serial Number: BSI DGS-4
Submitted by: Mr. Edindo Fernando
Address: Berkman System Inc
Barometric Pressure, mm Hg: 752

Standard Used: TetraCal Volume Air Flow Calibrator
Venturi Range: 0.10-6.00LPM (139/2 & 3)
Temp., °C: 25.0
Rel. Humidity, %: 55
Date: 28-Dec-24

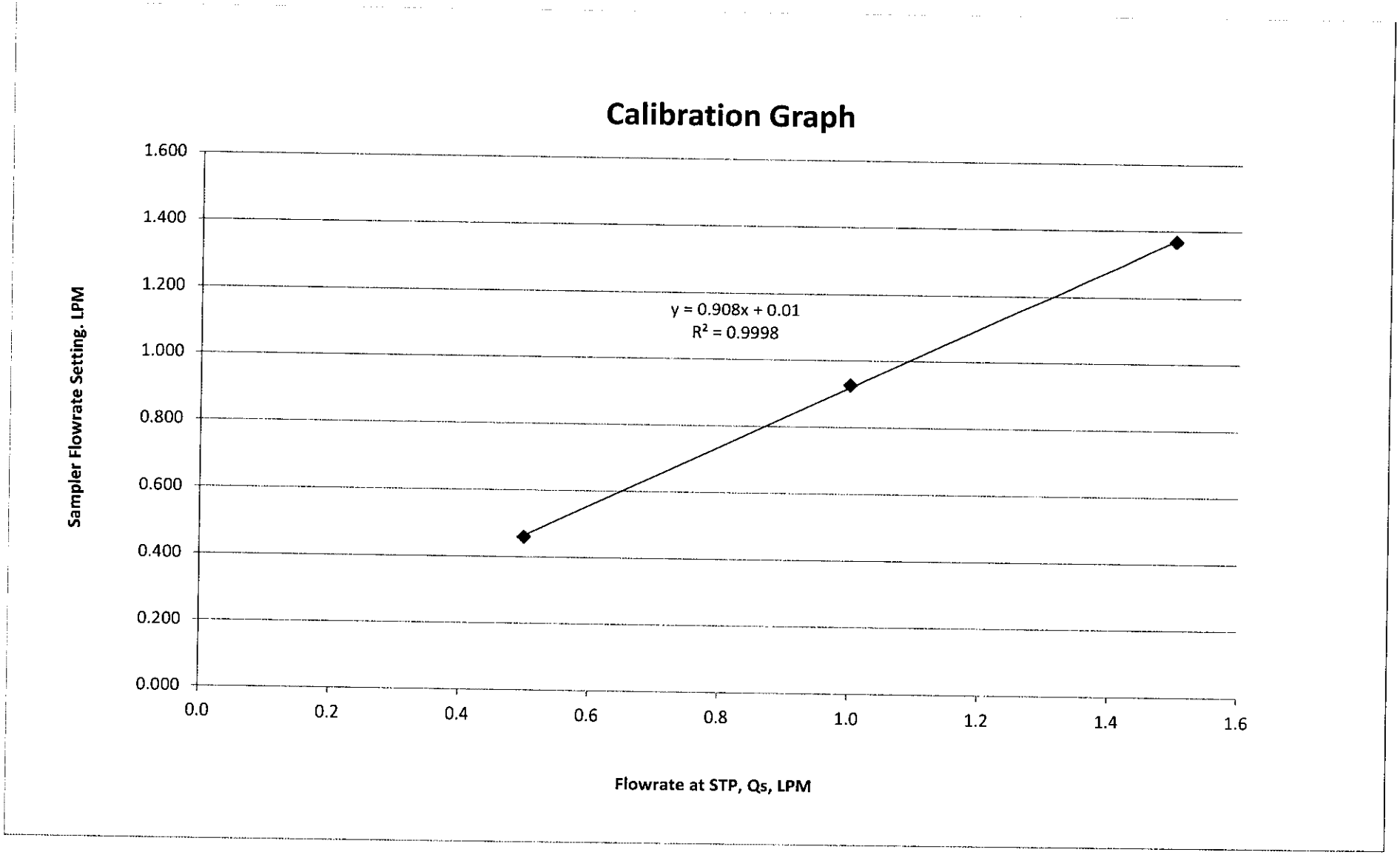
CALIBRATION DATA

Test Point	UUT Flowmeter Setting, LPM	Qa, Actual, LPM	Q_s, STP, LPM
1	0.5	0.486	0.460
2	1.0	0.964	0.926
3	1.5	1.447	1.368

Remarks: 1. The above values are those obtained at the time of test and refer only to the particular instrument submitted.

Calibrated By:

Roberto L. Co


Calibration Graph
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
y = 0.908x + 0.01
R² = 0.9998
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Sampler Flowrate Setting, LPM
Flowrate at STP, Qs, LPM

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Tel Nos: 3453-7694 ; 8928-2869 ; 8928-7769 Fax No.: 8426-7593
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	4000.23-9107-5.24	Calibration of	5 in 1 Environmental Meter		
Identification:	BERKMAN SYSTEMS, INC.				
Job:	P1	Test and Verification			
Fin.acc:		Certificate of Calibration			
Done.....:	July 6, 2024	Initials...:	CAC		
Categories		Men	Hours	Total cost	Type
Cal Officer		2	1.00	-	Certificate

CERTIFICATE OF CALIBRATION - 5 IN 1 ENVIRONMENTAL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

Issued to: BERKMAN SYSTEMS, INC.
Address: SUITE 208 VAG BLDG ORTIGAS AVENUE, GREENHILLS, SAN JUAN

UNIT UNDER TEST (UUT):

Instrument:	5 in 1 Environmental Meter
Brand:	EXTECH
Model No.:	EN 300
Serial No.:	A.094623
ID code:	No record
Calibration Date:	July 5, 2024
Calibration Due:	July 4, 2025

CALIBRATOR INFORMATION:

Instrument:	Sound Level Calibrator	Instrument:	SMS Wind tunnel
Brand:	Lutron	Model No:	SMS4000.02
Serial No:	I.278821	Serial No:	SMSQ432206
Model No:	SC-942	Calibrated Against:	UKAS, thru Laser Doppler Anemometer
Traceability:	IEC 60942 Type II A Standard NIST and NPL	Instrument:	Temperature and Humidity chamber
Instrument:	Osram Standard lamp	Model No.:	XB-OTS-34
Model No:	GPS01-SMS700	Serial No.:	20130803
Instrument:	Light Meter	Traceability:	CNAS
Model No:	LX-1102	Instrument:	Temperature and Humidity Transmit
Serial No:	Q292986	Model No.:	P18D-000E0
Traceability	NIST	Serial No.:	1309008
Instrument:	Process meter	Traceability:	National measurement standard of temperature maintained n GUM Poland with application of platinum resistance thermometer type WR-01 serial no. :534-51
Brand:	FLUKE		
Model No:	726		
Serial No:	3266078		
Traceability:	NIST		

Environmental Condition:

Condition:	DRY/BASIC/NEUTRAL	Ambient Temp. (Deg C):	21.2 ±2
Relative Humidity:	55.5 ±5%, 1010 hPa		

Calibration Method:

By comparison technique, unit under test was tested in reference with a Rotating vane anemometer, precision barometer, Standard Temperature and Humidity calibrator. Procedures of calibration and test conform to the requirements of NPL, NIST and ISO/IEC Guide 17025. Data were gathered and plotted against an ideal curve.

Standard error and uncertainty of measurement are written on the attached sheet.

Remarks:

All data pertain only to the unit described obtained at the time of test. This certificate is not valid w/out seal and signature. Unauthorized reproduction is prohibited.

Calibrated By: C.A. CASADO
Date: July 5, 2024

Certified By: ARL CAINDOC
Date: July 5, 2024

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1106, Philippines
Tel Nos: 3453-7694 ; 8928-2869 ; 8928-7769 Fax No.: 8426-7593
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.:	**4000.23-9107-5.24**	**Calibration of**	**5 in 1 Environmental Meter (Sound Mode)**
Identification:	**BERKMAN SYSTEMS, INC.**		
Address:	**SUITE 208 VAG BLDG ORTIGAS AVENUE, GREENHILLS, SAN JUAN**		

CERTIFICATE OF CALIBRATION - 5 IN 1 ENVIRONMENTAL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

SPECIFICATION:

A. HYGROMETER (TEMP./HUMIDITY:) MODE:

TEMPERATURE:

RANGE:	0 to 50 Deg. C
RESOLUTION:	0.1 Deg. C
ACCURACY:	±1.2 Deg. C)

HUMIDITY:

RANGE:	10 to 95% RH
RESOLUTION:	0.1 % RH
ACCURACY:	±4%RH of reading

B. TYPE K THERMOMETER:

RANGE:	-100 to 1300 Deg. C
RESOLUTION:	0.1 Deg. C
ACCURACY:	1% + 1 Deg. C of reading

C AIR VELOCITY:

RANGE:	0.4 to 30 m/s
RESOLUTION:	0.1 m/s
ACCURACY:	± 3%

RANGE:	0.0 to 50 Deg. C
RESOLUTION:	0.1 Deg.C
ACCURACY:	1.2 Deg. C

D. LIGHT:

RANGE:	0 to 20, 000.0 Lux
RESOLUTION:	1 Lux
ACCURACY:	± (5%rdg.+8digits)

E. SOUND

RANGE:	35 to 130dB
RESOLUTION:	0.1 dB
ACCURACY:	1.4 dB@1kHZ

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email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.: 4000.23-9107-5.24
Identification: BERKMAN SYSTEMS, INC.
Address: SUITE 208 VAG BLDG ORTIGAS AVENUE, GREENHILLS, SAN JUAN

Calibration of 5 in 1 Environmental Meter

CERTIFICATE OF CALIBRATION - 5 IN 1 ENVIRONMENTAL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument: 5 in 1 Environmental Meter
Brand: EXTECH
Model No.: EN 300
Serial No.: A.094623

Calibration Date: July 5, 2024
Calibration Due: July 4, 2025

Results: Lux

REFERENCE READING (Lux)	UNIT UNDER TEST READING (Lux)	ERROR IN READING (Lux)	STANDARD DEVIATION	REMARKS
0.0	0.0	0.00	0.0000	Passed.
77.5	73.0	4.50	3.1820	
100.0	92.0	8.00	5.6569	
300.0	288.0	12.00	8.4853	
500.0	490.0	10.00	7.0711	
1000.0	990.0	10.00	7.0711	
3000.0	2940.0	60.00	42.4264	
5000.0	4910.0	90.00	63.6396	

Standard error: ± 52 Lux
Uncertainty: ± 21 Lux

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email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.: 4000.23-9107-5.24
Identification: BERKMAN SYSTEMS, INC.
Address: SUITE 208 VAG BLDG ORTIGAS AVENUE, GREENHILLS, SAN JUAN

Calibration of 5 in 1 Environmental Meter

CERTIFICATE OF CALIBRATION - 5 IN 1 ENVIRONMENTAL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument: 5 in 1 Environmental Meter
Brand: EXTECH
Model No.: EN 300
Serial No.: A.094623

Calibration Date: July 5, 2024
Calibration Due: July 4, 2025

Results: Temp.

REFERENCE READING (Deg. C)	UNIT UNDER TEST READING (Deg. C)	ERROR IN READING (Deg. C)	STANDARD DEVIATION	REMARKS
-98.00	-101.0	3.00	2.1213	Passed.
-50.00	-50.5	0.50	0.3536	
0.00	-0.5	0.50	0.3536	
10.00	9.1	0.90	0.6364	
50.00	49.0	1.00	0.7071	
100.00	99.1	0.90	0.6364	
300.00	299.1	0.90	0.6364	
500.00	499.3	0.70	0.4950	
700.00	699.1	0.90	0.6364	
1000.00	999.4	0.60	0.4243	
1300.00	1299.3	0.70	0.4950	

Standard error: ± 1.70 Deg. C
Uncertainty: ± 0.39 Deg. C

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email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.: 4000.23-9107-5.24
Identification: BERKMAN SYSTEMS, INC.
Address: SUITE 208 VAG BLDG ORTIGAS AVENUE, GREENHILLS, SAN JUAN

Calibration of 5 in 1 Environmental Meter

CERTIFICATE OF CALIBRATION - 5 IN 1 ENVIRONMENTAL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument: 5 in 1 Environmental Meter
Brand: EXTECH
Model No.: EN 300
Serial No.: A.094623

Calibration Date: July 5, 2024
Calibration Due: July 4, 2025

Results:

Temp.

REFERENCE READING (Deg. C)	UNIT UNDER TEST READING (Deg. C)	ERROR IN READING (Deg. C)	STANDARD DEVIATION	REMARKS
10.00	10.2	-0.20	0.1414	Passed.
20.00	20.3	-0.30	0.2121	
27.30	27.5	-0.20	0.1414	
39.50	39.6	-0.10	0.0707	

Standard error: ± 0.24 Deg. C
Uncertainty: ± 0.11 Deg. C

Humidity:

REFERENCE READING (% RH)	UNIT UNDER TEST READING (%RH)	ERROR IN READING (%RH)	STANDARD DEVIATION	REMARKS
75.00	72.0	3.00	2.1213	Passed.
65.00	61.2	3.80	2.6870	
51.40	46.0	5.40	3.8184	
47.00	42.0	5.00	3.5355	

Standard error: ± 6.08 %RH
Uncertainty: ± 2.07 %RH

Switchtek
Measurement Systems
A Division of Switchtek Construction Corporation
4th Floor Northridge Plaza, Annex A, 12 Congressional Ave.,
Bahay Toro,Quezon City, 1106, Philippines
Tel Nos: 3453-7694 ; 8928-2869 ; 8928-7769 Fax No.: 8426-7593
email Address: admin@switchtek.com.ph
www.switchtek.com.ph

Certificate No.: 4000.23-9107-5.24
Identification: BERKMAN SYSTEMS, INC.
Address: SUITE 208 VAG BLDG ORTIGAS AVENUE, GREENHILLS, SAN JUAN

Calibration of 5 in 1 Environmental Meter

CERTIFICATE OF CALIBRATION - 5 IN 1 ENVIRONMENTAL METER

This report of calibration shall document that the instrument herein was examined and tested in compliance with ISO/IEC 17025 against NIST traceable reference standards and its co-equal standards.

UNIT UNDER TEST (UUT):

Instrument: 5 in 1 Environmental Meter
Brand: EXTECH
Model No.: EN 300
Serial No.: A.094623

Calibration Date: July 5, 2024
Calibration Due: July 4, 2025

Results:

Temp.

REFERENCE READING (Deg. C)	UNIT UNDER TEST READING (Deg. C)	ERROR IN READING (Deg. C)	STANDARD DEVIATION	REMARKS
10.00	10.2	-0.20	0.1414	Passed.
20.00	20.3	-0.30	0.2121	
27.30	27.5	-0.20	0.1414	
39.50	39.6	-0.10	0.0707	

Standard error: ± 0.24 Deg. C
Uncertainty: ± 0.11 Deg. C

Humidity:

REFERENCE READING (% RH)	UNIT UNDER TEST READING (%RH)	ERROR IN READING (%RH)	STANDARD DEVIATION	REMARKS
75.00	72.0	3.00	2.1213	Passed.
65.00	61.2	3.80	2.6870	
51.40	46.0	5.40	3.8184	
47.00	42.0	5.00	3.5355	

Standard error: ± 6.08 %RH
Uncertainty: ± 2.07 %RH

ANNEX E

TEST PARTICIPANTS

TEST PARTICIPANTS

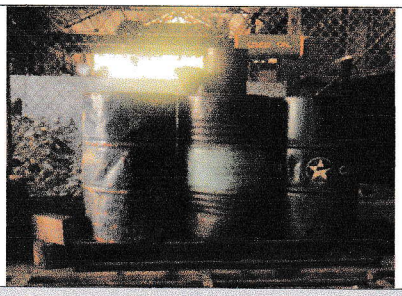
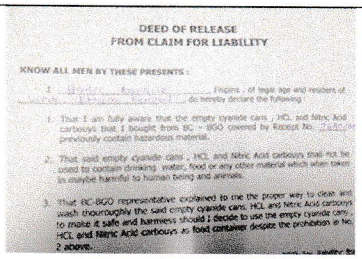
BMC FORESTRY CORPORATION – BC ILP

Ms. Narhy C. Pomilban	-	Pollution Control Officer

BSI

Mr. Edindo C. Fernando	-	QAQC Manager
Mr. Marvin S. Llarena	-	Field Technician
Mr. Sherwin C. Canales	-	Field Technician
Mr. Loreto N. Dao	-	Sampling Aide / Driver

Document Title	EMS GUIDELINES				
Process	Hazardous Waste Management (Used Oil, Oil and Grease Contaminated Items)				
Document Code	DRCS-12-07-A_EMSG_HWMCI	Revision No.	02	Effective Date	Jan. 2, 2024
Department	Mill, Mill Mechanical, Mine Mechanical, Motorpool, Warehouse, MEPEO Department			Page Number	Page **1** of **2**
Prepared by: CJ CHAPDIAN	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

USED OIL	USED OIL	USED OIL
Each department will assign a designated storage area for used oil	Use tightly sealed and properly labeled containers with secondary containment	When full, notify MEPEO Dept for proper inventory & documentation
		
USED OIL	**USED OIL**	**USED OIL**
Collected containers will be stored in a centralized temporary storage facility	Accumulated used oil will be sold to EMB-accredited buyer	A signed waiver will be issued to by the buyer to the company
		 DEED OF RELEASE FROM CLAIM FOR LIABILITY KNOW ALL MEN BY THESE PRESENTS :
USED OIL	**OIL CONTAMINATED**	**OIL CONTAMINATED**
Used oil from mill mechanical will be re-used	All contaminated items will be disposed in hazardous trash bin	When full, seal the container and notify MEPEO Dept. for inventory
		

MASTER COPY

OIL CONTAMINATED	OIL CONTAMINATED	OIL CONTAMINATED
Collected containers will be stored in a centralized temporary storage facility	Contact an EMB-accredited Treatment/Storage/Disposal Company	Used spill kit materials are disposed in the hazardous trash bin
		

MASTER COPY

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Hazardous Waste Management (Aerosol Cans)				
Document Code	DRCS-12-07-B_EMSG_HWM_AC	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Warehouse, Geology, Mine Technical Services (Survey), MEPEO Department			Page Number	Page 1 of 1
Prepared by: SV CAO-ROSARIO	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

AEROSOL CANS

Each department will be responsible for collecting all their empty cans

AEROSOL CANS

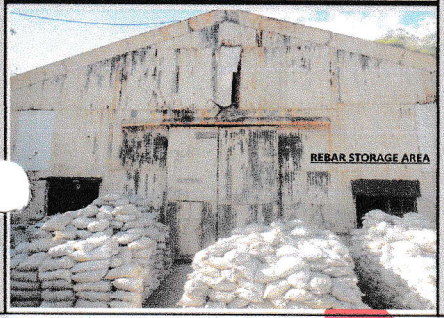
Empty cans will be stored in it's original box (labeled "empty")

AEROSOL CANS

When the box is full, seal the box & notify MEPEO Dept for inventory

AEROSOL CANS

Collected containers will be stored in a centralized temporary storage



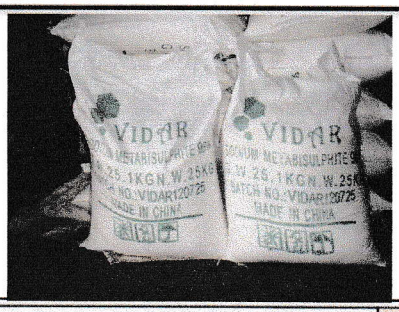
AEROSOL CANS

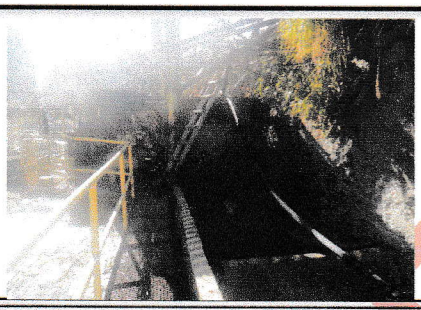
Contact an EMB-accredited Treatment/Storage/Disposal Company

Document Title	EMS GUIDELINES				
Process	Hazardous Waste Management – Mill Tailings (including Excess Metallurgic Samples, Sample Rejects)				
Document Code	DRCS-12-07-C_EMSG_HWM_MT	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Mill, Metallurgy Laboratory, MEPEO Department			Page Number	Page 1 of 1
Prepared by: CG CRUZ	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

MILL

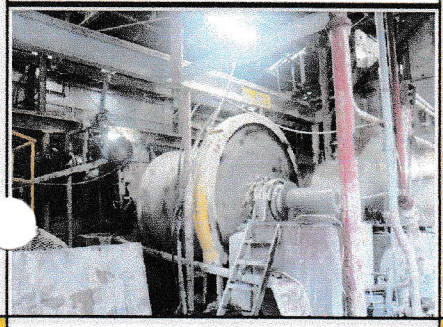
All discharge (pulp, tails, contaminated water) from the mill (from crushing, grinding to refining and smelting) goes into Tails Treatment Facility. The solution is treated with SMBS before being pumped to Tails Storage Facility (TSF)






MET LAB SAMPLES

All excess samples and rejects from Met Lab are returned to the Mill

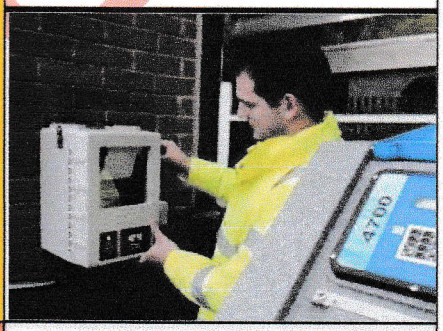


SPILL

Sluice all spill towards canals that are connected to the treatment facility

MONITORING

Discharge monitoring



MONITORING

Monitor tanks to avoid overflow

MONITORING

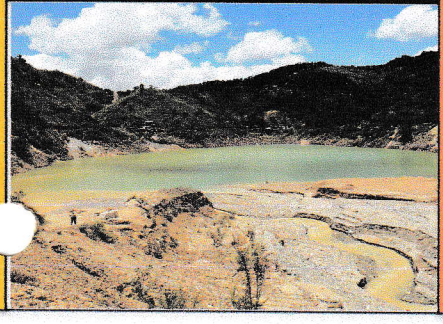
Regular cleanup of canal/drain

MAINTENANCE

Regular check of discharge valves pipes and connections

MONITORING

Regular monitoring of TSF

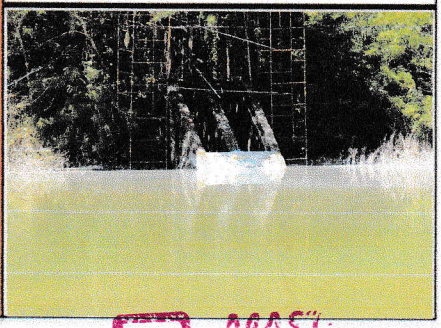


MAINTENANCE

Installation of piezometer to monitor TSF (dam's) strength

MAINTENANCE

Installation of stopper boards at TSF



Document Title	EMS GUIDELINES			BenguetCorp	
Process	Hazardous Waste Management – Cyanide Cans/Contaminated Plastic				
Document Code	DRCS-12-07-D_EMSG_HWM_CC	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Warehouse, Mill, Safety, and Enviro Department			Page Number	Page 1 of 1
Prepared by: JAM ALMEROL	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

CYANIDE CANS

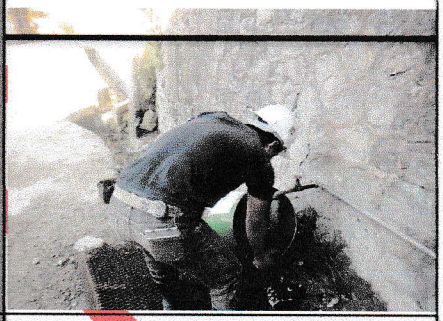
Mill will assign designated stockpile area for empty cyanide cans

CYANIDE CANS

Met Lab will collect all empty cans for re-use

CYANIDE CANS

All cans are washed properly with water and soap before reuse



CYANIDE CANS

Use designated wash area to control contaminated wash water

CYANIDE CANS

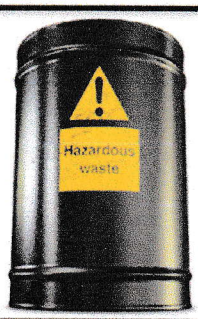
Puncture holes at the bottom to discourage reusing for any liquids

CYANIDE PLASTIC

All packaging from the cyanide crate are considered haz-waste

CYANIDE PLASTIC

All cyanide packaging will be disposed in the haz-waste trash bin

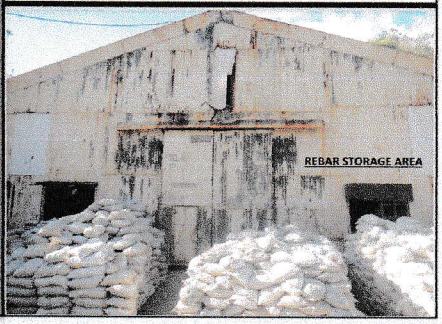


CYANIDE PLASTIC

When full, seal the container and notify MEPEO Dept for inventory

CYANIDE PLASTIC

Collected waste bags will be stored in a centralized temporary storage



CYANIDE PLASTIC

Contact an EMB-accredited Treatment/Storage/Disposal Company

MASTER COPY

Document Title	**EMS GUIDELINES**			BenguetCorp	
Process	**Hazardous Waste Management – Reagent/Chemical Sacks and Bags**				
Document Code	DRCS-12-07-E_EMSG_HWM_RS	**Revision No.**	01	**Effective Date**	Jan. 1, 2023
Department	Mill, Metallurgy Lab, Assay Lab, Warehouse, and MEPEO Department			**Page Number**	Page **1** of **1**
Prepared by: CG CRUZ	**Reviewed by:** BGO EMS			**Approved by:** VB BONGALOS JR.	

REAGENT SACKS/BAGS

All department users will assign designated area for empty sacks

REAGENT SACKS/BAGS

Accumulated sacks will be transferred to a centralized temporary storage

REAGENT SACKS/BAGS

Notify MEPEO Dept for proper inventory and documentation

REAGENT SACKS/BAGS

Contact an EMB-accredited Treatment/Storage/Disposal Company

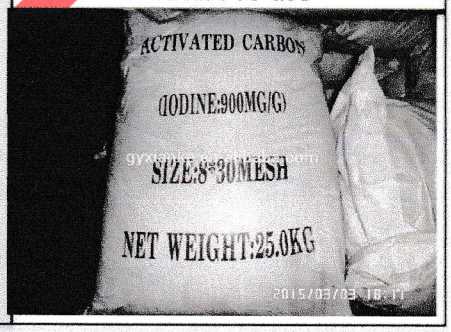
REAGENT SACKS/BAGS

The sacks from the following reagents are considered haz-waste

Caustic Soda
Borax
Soda Ash, Light
Litharge

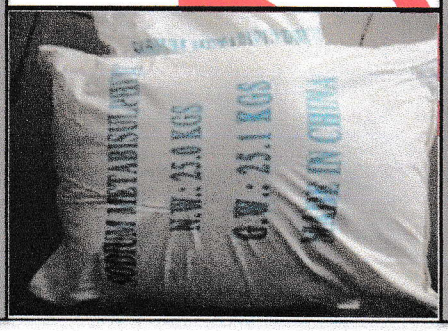
CARBON SACKS

Empty carbon sacks can be stored for future re-use



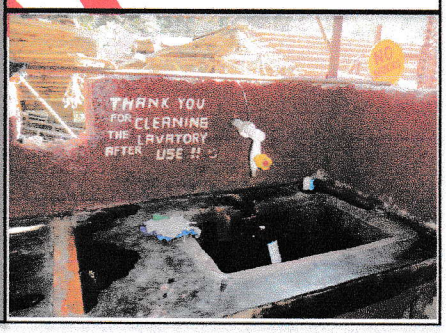
$Na_2S_2O_5$ BAGS

Empty sodium metabisulfite bags are washed for re-use



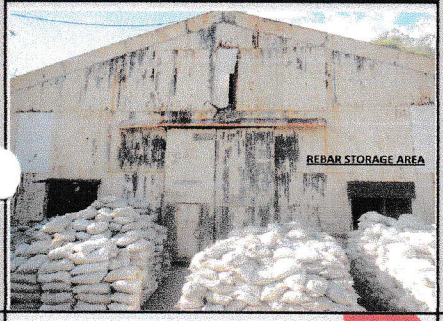
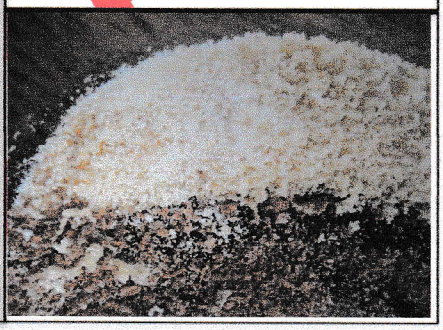
$Na_2S_2O_5$ BAGS

Use designated wash area to control contaminated wash water



Document Title	EMS GUIDELINES				
Process	Hazardous Waste Management (Laboratory/Mill Procedure Wastes – Slags, Used Bowl Clay, Crucibles and Cupels, Contaminated Lab Equipment/Tiles)				
Document Code	DRCS-12-07-F_EMSG_HWM_CLE	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Assay Lab, Metallurgy Lab, Mill, and MEPEO Department			Page Number	Page 1 of 1
Prepared by: CG CRUZ	Reviewed by: BGC EMS			Approved by: VB BONGALOS JR.	

BenguetCorp

LAB/MILL WASTE	Each department will be responsible for collecting their own lab waste Assay Laboratory Mill Metallurgy Laboratory	LAB/MILL WASTE	Assign designated temporary storage for collected waste per department 
LAB/MILL WASTE	Each lab waste is disposed separately, properly sealed and labeled 	LAB/MILL WASTE	Accumulated sacks will be transferred to a centralized temporary storage 
LAB/MILL WASTE	Notify ENVIRO Dept for proper inventory and documentation 	LAB/MILL WASTE	Maintain segregation for different lab waste (properly labeled) 
LAB/MILL WASTE	Contact an EMB-accredited Treatment/Storage/Disposal Company 	LAB/MILL WASTE	Chemical precipitates on the acid scrubber is dissolved before disposal 

Document Title	EMS GUIDELINES				
Process	Hazardous Waste Management (Acid Carbuoys)				
Document Code	DRCS-12-07-G_EMSG_HWM_AC	Revision No.	02	Effective Date	Jan. 2, 2024
Department	Assay Lab, Metallurgy Lab, Mill, Warehouse and MEPEO Department			Page Number	Page 1 of 1
Prepared by: CJ CHAPDIAN	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

BenguetCorp

HCL/HNO_3 CARBUOYS

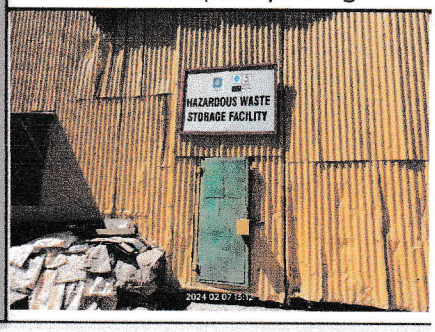
Each department will have a temporary space for empty carbuoy storage

HCL/HNO_3 CARBUOYS

When space is full, notify MEPEO for proper inventory & documentation

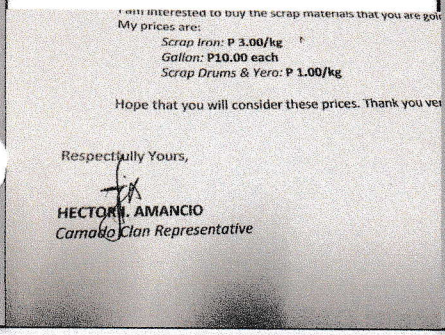
HCL/HNO_3 CARBUOYS

Collected carbuoys will be stored in a centralized temporary storage



HCL/HNO_3 CARBUOYS

Materials & Management Group will contact interested buyers



I am interested to buy the scrap materials that you are go
My prices are:
Scrap Iron: **P 3.00/kg**
Gallon: **P10.00 each**
Scrap Drums & Yero: **P 1.00/kg**

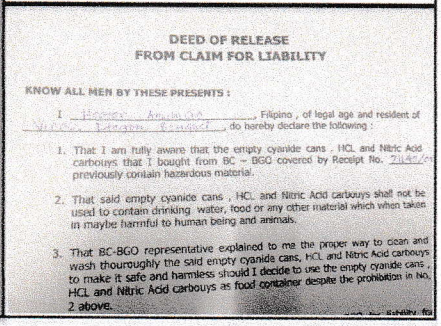
Hope that you will consider these prices. Thank you ve

Respectfully Yours,

HECTOR M. AMANCIO
Camodo Clan Representative

HCL/HNO_3 CARBUOYS

A signed waiver will be issued by the buyer to the company



DEED OF RELEASE
FROM CLAIM FOR LIABILITY

KNOW ALL MEN BY THESE PRESENTS :

I _____, Filipino , of legal age and resident of _____, do hereby declare the following :

1. That I am fully aware that the empty cyanide cans , HCL and Nitric Acid carbuoys that I bought from BC – BGO covered by Receipt No. _____ previously contain hazardous material.
2. That said empty cyanide cans , HCL and Nitric Acid carbuoys shall not be used to contain drinking water, food or any other material which when taken in maybe harmful to human being and animals.
3. That BC-BGO representative explained to me the proper way to clean and wash thouroughly the said empty cyanide cans, HCL and Nitric Acid carbuoys to make it safe and harmless should I decide to use the empty cyanide cans , HCL and Nitric Acid carbouys as food container despite the prohibition in no. 2 above.

MASTER COPY

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Hazardous Waste Management (Batteries)				
Document Code	DRCS-12-07-H_HWM_B	Revision No.	01	Effective Date	Jan. 1, 2023
Department	All Departments, Motorpool, Mine Mechanical, Electrical, Warehouse, and MEPEO Department			Page Number	Page 1 of 1
Prepared by: SV CAO-ROSARIO	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

VEHICLE BATTERY

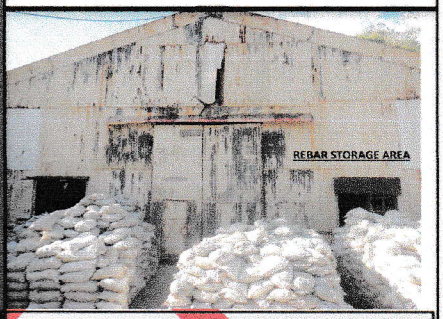
Motorpool will collect all unusable batteries in a designated space

VEHICLE BATTERY

When space is full, notify MEPEO for proper inventory & documentation

VEHICLE BATTERY

Collected batteries will be stored in a centralized temporary storage



VEHICLE BATTERY

Contact an EMB-accredited Treatment/Storage/Disposal Company

DRY CELL BATTERIES

Electrical Dept will collect all empty batteries from all departments

DRY CELL BATTERIES

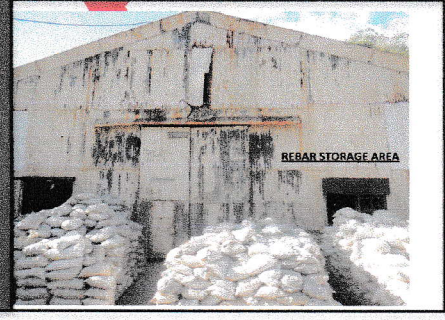
Collected batteries will be stored in a leak-proof waste container

DRY CELL BATTERIES

When bin is full, notify MEPEO for proper inventory & documentation

DRY CELL BATTERIES

Collected batteries will be stored in a centralized temporary storage



DRY CELL BATTERIES

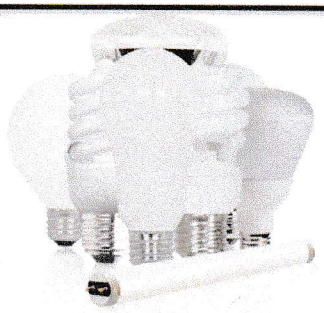
Contact an EMB-accredited Treatment/Storage/Disposal Company

MASTER COPY

Document Title	EMS GUIDELINES				
Process	Hazardous Waste Management – Fluorescent Lamps and Bulbs				
Document Code	DRCS-12-07-I_EMSG_HWM_FLB	Revision No.	02	Effective Date	Jan. 2, 2024
Department	All Departments, Electrical, Warehouse, and MEPEO			Page Number	Page 1 of 1
Prepared by: CJ CHAPDIAN	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

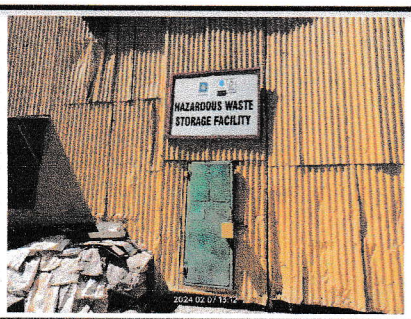
FLUORESCENT LAMPS/BULBS

All busted lamps and bulbs are collected by the Electrical Dept



FLUORESCENT LAMPS/BULBS

Collected lights/bulbs are stored in a centralized temporary storage



FLUORESCENT LAMPS/BULBS

Notify MEPEO Department for proper inventory & documentation

FLUORESCENT LAMPS/BULBS

Contact an EMB-accredited Treatment/Storage/Disposal Company

MASTER COPY

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Hazardous Waste Management – Medical Waste				
Document Code	DRCS-12-07-K_EMSG_HWM_MW	Revision No.	02	Effective Date	Jan. 2, 2024
Department	Clinic, Safety, MEPEO Department			Page Number	Page 1 of 1
Prepared by: CJ CHAPDIAN	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

MEDICAL WASTE

Medical waste is collected in a separate waste bin

MEDICAL WASTE

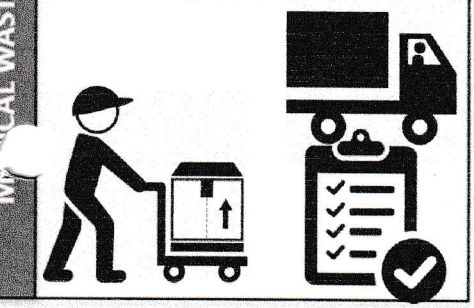
When bin is full, it is transferred to specially marked "biohazard" bags

MEDICAL WASTE

MEPEO Department is notified for proper inventory & documentation

MEDICAL WASTE

Clinic will coordinate with MEPEO & Motorpool for delivery logistics



MASTER COPY

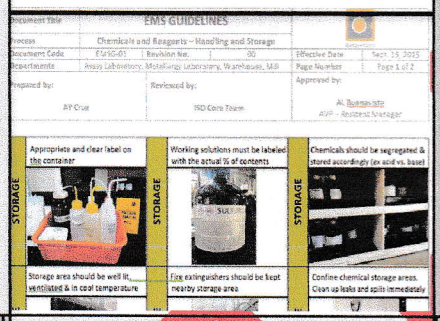
Document Title	EMS GUIDELINES				
Process	Hazardous Waste Management – Other Chemical/Reagent Containers (Crates, Boxes, & Bottles)				
Document Code	DRCS-12-07-L_EMSG_HWM	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Warehouse, Mill, Metallurgy Lab, Assay Lab, and MEPEO Department			Page Number	Page 1 of 1
Prepared by: CG CRUZ	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

ACID BOTTLES

Assign designated areas for temp storage of empty bottles per dept.

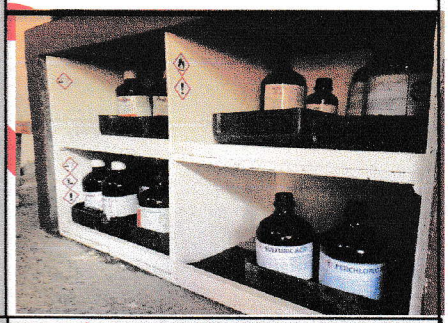
ACID BOTTLES

Segregate bottles and containers by following EMS guideline for chemicals



REAGENT CONTAINERS

Label designated areas properly

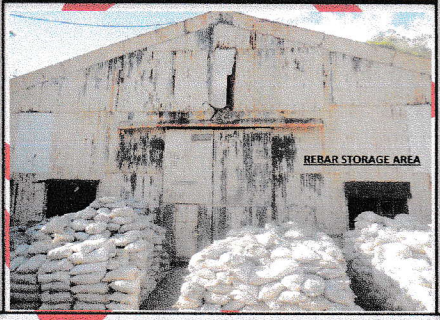


REAGENT CONTAINERS

When storage is full, notify Enviro for proper inventory& documentation

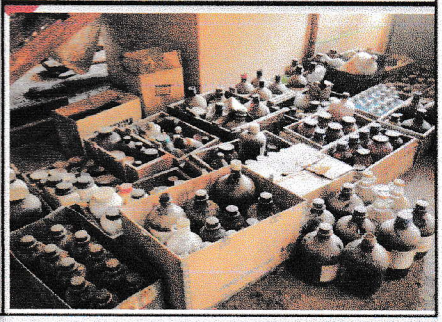
REAGENT CONTAINERS

Collected containers are stored in a centralized temporary storage



REAGENT CONTAINERS

Maintain segregation and labels in the central storage (rebar)



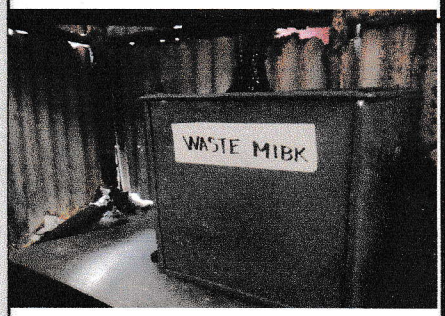
REAGENT CONTAINERS

Contact an EMB-accredited Treatment/Storage/Disposal Company

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Hazardous Waste Management – MIBK Waste				
Document Code	DRCS-12-07-M_EMSG_HWM_MW	Revision No.	01	Effective Date	Jan. 1, 2023
Department	Assay Lab, and MEPEO Department			Page Number	Page 1 of 1
Prepared by: CG CRUZ	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

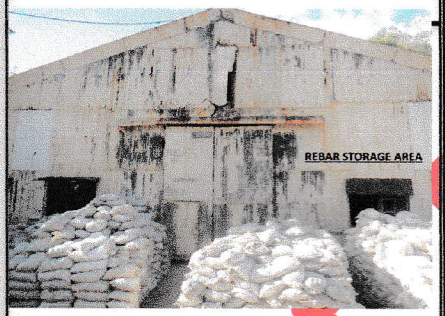
MIBK WASTE

Waste MIBK is stored back to it's original container for containment



MIBK WASTE

All filled up containers are sent to a centralized temporary storage



MIBK WASTE

Notify MEPEO Dept for proper inventory and documentation

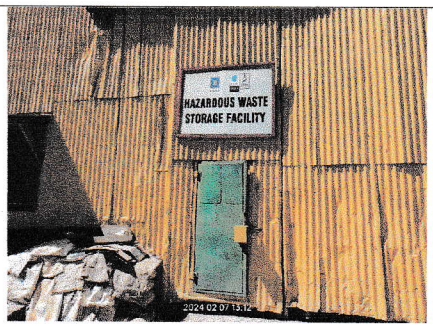
MIBK WASTE

In the central storage, all will be transferred in an approved steel drum

MIBK WASTE

Contact an EMB-accredited Treatment/Storage/Disposal Company

Document Title	EMS GUIDELINES			BenguetCorp	
Process	Hazardous Waste Management – Ink Cartridges / Bottles				
Document Code	DRCS-12-07-N_EMSG_HWMIC	Revision No.	02	Effective Date	Jan. 2, 2024
Department	MEPEO, All Departments			Page Number	Page 1 of 1
Prepared by: CJ CHAPDIAN	Reviewed by: BGO EMS			Approved by: VB BONGALOS JR.	

DISPOSAL	DISPOSAL	DISPOSAL
Empty printer ink cartridges/ bottles are collected from each department.	MEPEO Dept. is notified for proper inventory and documentation of the empty cartridges/ bottles that are disposable.	Collected empty cartridges/ bottles that are disposable are stored in the Hazardous Waste Storage Facility.
 		

DISPOSAL	RECYCLING
Contact an EMB-accredited Transporter and Treater for proper disposal	Collected empty cartridges/ bottles are turned over to the Procurement Dept. which handles the refilling.
	

MASTER COPY

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Cordillera Administrative Region
Baguio City

ENVIRONMENTAL COMPLIANCE CERTIFICATE

CAR 1012 – 174 – 2110 (Amended)

The Department of Environment and Natural Resources (DENR) thru the Environmental Management Bureau – Cordillera Administrative Region (EMB-CAR) hereby grants this Environmental Compliance Certificate (ECC) for the **Acupan Contract Mining Project (ACMP)** of **Benguet Corporation** located at the former Balatoc Power Station Area, Virac, Itogon, Benguet, after complying with the Environmental Impact Assessment (EIA) requirements as prescribed in the promulgated guidelines implementing section 3 (b) of P.D. 1586.

This Certificate is further specified as follows:

A. Scope:

1. This Certificate is valid only for the abovecited project with a rated milling capacity not to exceed 300 dry metric tons per day (300 DMT/Day) and/or as described in the submitted documents.

2. This Certificate does not exempt the project from the requirements of other concerned agencies;

B. Conditions:

1. The development and operation of the project shall be in accordance with the plans and specifications described in the submitted documents. Any major modification and/or expansion shall be subject to the Environmental Impact Statement (EIS) System requirement;

2. The proponent shall cause the implementation of the Environmental Management Plan (EMP) and all other BC commitments described in the submitted EIA documents;

3. Tailings and other wastes generated from the operation of the plant shall be contained and disposed-off properly in the designated pollution control facility(ies) as described in the submitted EIA documents;

4. Pond/plant effluent discharges shall conform with the standards set forth under RA 9275 otherwise known as the Clean Water Act of the Philippines and its implementing Rules and Regulations;

5. Piezometer monitoring station(s) shall be installed along strategic area(s) at tailings pond nos. 1 and 2 (TP #1 & TP #2) to monitor phreatic level stability;

6. The legal requirements pursuant to RA 6969 also known as the Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990, RA 9275 or the Philippine Clean Water Act of 2004 and, RA 8749 or the Philippine Clean Air Act of 1999 shall be secured consistent to the operations of the plant. Compliance to said requirements shall be coordinated with the EMB-CAR;

7. Should there be a breakdown in the pollution control appurtenances and/or major damage(s) incurred, the proponent shall voluntary cease its operation until such time that said damages incurred shall be rehabilitated or restored. Further, the proponent shall immediately inform the EMB, DENR-CAR of said damages and of the remedial measures undertaken;

8. The proponent shall submit to EMB-CAR one (1) year prior to the final shutdown of the plant a comprehensive abandonment plan. In relation, the EMB shall first review and approve the environmental aspects/components of the plan consistent with EMB functions prior to implementation;

9. To oversee the compliance of the proponent with the ECC conditions, the proponent shall maintain the operation of the established Sectoral Monitoring Team including the Environmental Monitoring Fund (EMF) to cover all costs attendant to the said monitoring.

10. The project is subject to on-the-spot monitoring/inspection at any reasonable time by the EMB-CAR which may be in coordination with concerned groups.

11. The proponent shall cause the implementation of any undertaking which may be imposed by the EMB-CAR as a result of Technical Conference/s called relative hereof;

12. This Certificate supersedes the Environmental Compliance Certificate (ECC) NO. CAR 0211-144-120 issued the project on November 29, 2002.

13. This Certificate shall be deemed automatically expired if the project is not implemented within five (5) years from the date of issuance; and

14. Any transfer of project proprietorship or project name carries the same conditions in this ECC for which notification to the EMB-CAR shall be made by the proponent within fifteen (15) days from such transfer.

Non-compliance with any of the above stipulations will be sufficient cause for the suspension or cancellation of this Certificate, administrative sanctions against the office head and/or imposition of fine in the amount not to exceed Fifty Thousand Pesos (₱

50,000.00) for every violations thereof, at the discretion of the DENR (Section 9 of P. D. 1586).

C. Recommendations (for the consideration of the project proponent, the PMRB-Benguet/MGB-CAR and, other concerned agencies in the issuance of applicable permits/authorities):

1. The recommendations cited in the Geotechnical Analysis of Dam and Review of the Hydrology for the Re-mining of Tailings from the BGO Tailings Ponds No. I, II, & III final report, where applicable, should be given preferential consideration under the requirements of the MGB-CAR;

2. Qualified local residents should be given priority employment during the development and operation of the project;

3. Construction works should be under the tight supervision of a technical personnel to ensure that standards and requirements of sound engineering, safety and health practices are strictly followed;

4. An emergency response and contingency plan in the event of failure of any of the project appurtenant facilities and/or during disaster/calamity; and

5. The appurtenant physical structures and equipment of the project, where applicable, are subject to the requirements of the National Building Code of the Philippines and the permitting requirements of MGB-CAR/LGU-concerned.

Issued this _____day of 15 DEC 2010, Year Two Thousand Ten.

RECOMMENDING APPROVAL:

NESTOR M. DONAAL
Chief, EIA Division

APPROVED:

PAQUITO T. MORENO, JR.
Regional Director

Amendment of ECC Condition ₱ 1,200.00 O.R. No. _____ Date _____
Legal Research Fee ₱ 240.00 O.R. No. _____ Date _____

NOTE: NOT VALID WITHOUT SEAL

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Cordillera Administrative Region
Baguio City

February 22, 2018

opd-087-18
Office of the Regional Director
EMB-CAR
RELEASED
By _____ Date 2/26

MR. FRANCISCO O. FLAVIER
Operations Manager
BMC Forestry Corporation
Km. 5, Naguilian Rd., Irisan, Baguio City

SUBJECT : AMENDMENT OF ECC NO. ECC-OL-CAR-2016-0058 ISSUED ON SEPTEMBER 15, 2016 TO BMC FORESTRY CORPORATION FOR THE IRISAN LIME PROCESSING PLANT LOCATED AT KM. 5, NAGUILIAN RD., IRISAN, BAGUIO CITY

Dear Mr. Flavier:

This has reference to the letter dated October 23, 2017 requesting for an amendment of the Environmental Compliance Certificate (ECC) numbered ECC-OL-CAR-2016-0058 issued on September 15, 2016 for maximizing the plant production capacity of the Irisan Lime Processing Plant.

After careful evaluation of the submitted documents and in consideration of the payment of PhP 2,035.00 under O.R. numbers 2673464 and 7643336 dated 11/23/2017, this office has decided to grant the ECC amendment. The project description of the ECC shall now read as follows:

ENVIRONMENTAL MANAGEMENT BUREAU
CORDILLERA ADMINISTRATIVE REGION

PROJECT DESCRIPTION

*The ECC covers the operation of the Irisan Lime Processing project with an annual production capacity of **19,420 MT** and the full operations of the three (3) vertical shaft kilns located within an 18,541sq. m. lot at Km. 5, Naguilian Rd., Irisan, Baguio City covered by the Transfer Certificate of Title numbered 018-2013000103 in the name of Ifaratoc Mineral Resources Corporation (IMRC). The project involves the processing of raw lime stones into quicklime and slaked lime through calcination process by subjecting the limestone feeds into continuous heat in vertical shaft kilns.*

All other provisions of the original ECC (No. ECC-OL-CAR-2016-0058 issued on September 15, 2016) not herein amended shall remain valid and existing. Consequently, non-compliance with the said conditions shall be sufficient cause for the imposition of fines in accordance with the penal provisions of PD 1586 and/or cancellation of the ECC.

This letter shall be attached to and shall form part of the aforementioned ECC.

For information and record.

Very truly yours,

REYNALDO S. DIGAMO
OIC, Regional Director

EMB-CAR RECORDS UNIT
IN: 2/26/18
ON: 2/26/18
OR:

DENR Cmpd., Gibraltar Rd.
Baguio City 2600
P.O. Box 1959

Telefax No. (074) 444-6440
Tel. No. (074) 442-2346/ 442-3896
(074) 446-2881/ 443-4909

Republic of the Philippines
Department of Environment and Natural Resource
ENVIRONMENTAL MANAGEMENT BUREAU
DENR Compound, Gibraltar, Baguio City
Telephone No.(074) 442-2346, (074) 446-2881, (074) 443-4909 Fax No.(074) 446-6440
car@emb.gov.ph
Visit us at http://www.emb.gov.ph/portal/car

September 15, 2016

ECC-OL-CAR-2016-0058

MR. FRANCISCO O. FLAVIER
Operations Manager
BMC Forestry Corporation
Km. 5, Naguilian Rd., Irisan, Baguio City

Subject: **ENVIRONMENTAL COMPLIANCE CERTIFICATE**

Dear **Mr. Flavier:**

This refers to the Environmental Compliance Certificate (ECC) application for the **Irisan Lime Kilns** operation at Km. 5, Naguilian, Irisan, Baguio City.

After satisfying the requirements of the said application, this Bureau has decided to grant an ECC for the above-mentioned project.

With the issuance of this ECC, you are expected to implement the measures presented in the Initial Environmental Examination Checklist (IEEC), intended to protect and mitigate the project's adverse impacts on community health, welfare and the environment. Environmental considerations shall be incorporated in all phases and aspects of the project. You may proceed with the project implementation after securing all the necessary permits from other pertinent Government agencies. This Office will be monitoring the project periodically to ensure your compliance with stipulations cited in the attached ECC.

Please be guided accordingly.

Very truly yours,

REYNALDO S. DIGAMO
OIC, Regional Director

Republic of the Philippines
Department of Environment and Natural Resource
ENVIRONMENTAL MANAGEMENT BUREAU
DENR Compound, Gibraltar, Baguio City
Telephone No.(074) 442-2346, (074) 446-2881, (074) 443-4909 Fax No.(074) 446-6440
car@emb.gov.ph
Visit us at http://www.emb.gov.ph/portal/car

ENVIRONMENTAL COMPLIANCE CERTIFICATE

(Issued under Presidential Decree 1586)

ECC-OL-CAR-2016-0058

THIS IS TO CERTIFY THAT the **BMC Forestry Corporation,** a subsidiary of Benguet Corporation, Inc., herein represented by its Operations Manager, **Francisco O. Flavier,** is granted this ECC for the operation of the **Irisan Lime Processing Plant,** by the Department of Environment and Natural Resources (DENR), through the Environmental Management Bureau (EMB).

SUBJECT ONLY to the conditions and restrictions set in this ECC and in the attached document labelled as Annexes A and B.

This Certificate is issued with the following details and supersedes the unnumbered ECC issued by the National Environmental Protection Council (NEPC) on December 2, 1982.

PROJECT DESCRIPTION

The ECC covers the operation of the Irisan Lime Processing project with an annual production capacity of 9,500 MT located within an 18,541 sq. m. lot at Km. 5, Naguilian Rd., Irisan, Baguio City covered by the Transfer Certificate of Title numbered 018-2013000103 in the name of Ifaratoc Mineral Resources Corporation (IMRC). The project involves the processing of raw lime stones into quicklime and slaked lime through calcination process by subjecting the limestone feeds into continuous heat in vertical shaft kilns. The details of the project components, amenities and facilities are found in Annex C hereof.

This Certificate is issued in compliance with the requirements of Presidential Decree No. 1586, and in accordance to DENR Administrative Order (D.A.O.) No. 2003-30. The EMB, however, is not precluded from reevaluating and correcting any deficiencies or errors that may be found after issuance of this Certificate.

Issued at EMB-CAR, DENR Compound, Gibraltar, Baguio City this September 15, 2016.

Recommending Approval:

NESTOR M. DONAAL
OIC-Chief, Clearance & Permitting Division

Approved:

REYNALDO S. DIGAMO

Environmental Compliance Certificate
IRISAN LIME KILNS
Km.5, Naguilian, Irisan Baguio City, Benguet
BMC FORESTRY CORPORATION

OIC, Regional Director

SWORN ACCOUNTABILITY STATEMENT

I, FRANCISCO O. FLAVIER, Operations Manager, representing the BMC FORESTRY CORPORATION with Office address at Km. 5, Naguilian Rd., Baguio City, takes full responsibility in complying with all conditions in this Environmental Compliance Certificate (ECC).

FRANCISCO O. FLAVIER
Signature

TIN No. 103-481-016

Subscribed and sworn before me this 16 SEP 2016, the above-named affiant taking oath presenting his CTC 13724959, issued on June 01, 2016 at Baguio City.

CRISTINA I. VALDEZ
Notary Public
My Commission Expires on 31 December 2016
Roll No. [illegible] 2013; Manila
IBP No. [illegible]; 01-07-16; Baguio-Benguet
PTR No. 2436102; 12-21-15; Baguio City

Notary Public

Doc. No. 31
Page No. 63
Book No. 19
Series of 2016

Annex A

I. CONDITIONS

ENVIRONMENTAL MANAGEMENT

All commitments, mitigating measures and monitoring requirements, contained in the Initial Environmental Examination Checklist Report for the lime processing plant project, particularly in the Environmental Management Plan/ Environmental Monitoring Plan, including any modifications and/or additional information as approved by the EMB, shall be instituted to minimize any adverse impact of the project to the environment throughout its implementation, which shall include among others, to wit:

1. Voluntary cease its operation in the event of any malfunction in any of the appurtenant facilities until the time that said damages are rehabilitated or restored, Further, the proponent shall immediately inform the EMB-CAR of said damages and of remedial measures undertaken;

2. Uncalcined limestone/discards shall be prevented from deposition to and along drainage/natural waterways and water bodies, and shall be disposed – off properly in an appropriate/designated disposal site(s) which shall be maintained in a stable and non-polluting condition;

3. Timely construction of adequate engineered earth retaining structures along affected and geologically unstable areas, especially in the stockyard of limestone and quarry areas, to protect adjacent properties/environment;

4. The proponent shall plant appropriate/indigenous tree species along the periphery of the project site to serve as buffer for dust and noise and improvement of aesthetics and in the support of the National Greening Program and climate change initiatives of the government;

GENERAL CONDITIONS

5. The legal requirements pursuant to RA 6969 or the Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990, RA 8749 or the Philippine Clean Air Act of 1999, RA 9003 or the Ecological Solid Waste Management Act of 2000 and RA 9275 or the Philippine Clean Water Act of 2004 shall be secured whenever applicable. Compliance with said requirements shall be coordinated with the Clearance and Permitting Division (CPD) of EMBCAR, DENR;

6. The proponent shall secure regularly necessary permit(s)/clearances/authority from concerned national and local offices relative to project implementation;

7. The proponent shall allow entry of EMB-CAR personnel into the project site at all times to conduct monitoring and to validate project's compliance with the ECC conditions stipulated therein and EMP Mitigating Measures;

8. The proponent shall submit to EMB-CAR within fifteen (15) days after every quarter a Self-monitoring Report (SMR) and a Compliance Monitoring Report (CMR) semi-annually;

9. The proponent shall cause the implementation of any undertaking which may be imposed by EMB-CAR as a result of Technical Conference/s called relative to environmental issues arising from the implementation of the project;

II. RESTRICTIONS

10. Limestone feed materials shall be strictly sourced out from the company's permitted quarry areas and/or other sources sanctioned by government authorities. Violation of this condition shall automatically cause the cancellation/revocation of this ECC or imposition of fine;

11. Project development shall be in accordance with the submitted documents. Major modifications and/or expansion shall be subject to a new Environmental Impact Assessment (EIA) requirement;

12. Any transfer of project ownership carries the same conditions and restriction in this ECC for which a written notification to the EMB-CAR shall be made by the transferee/transferor within fifteen (15) days from such transfer; and

13. The project shall undergo the requirements specified in the implementing guidelines of the Department Administrative Order No. 2003-30 if the project construction has stopped for a period of five (5) years.

Non-compliance with any of the provisions of this Certificate shall be a sufficient cause for the cancellation of this Certificate and/or imposition of a fine in an amount not to exceed Fifty Thousand Pesos (P50, 000.00) for every violation thereof without prejudice to imposition of fines and penalties under other environmental laws.

***NOTE:** *This Certificate **cancels** the ECC issued by the National Environmental Protection Council (NEPC) on December 2, 1982.*

Annex B

PROJECT ASSESSMENT PLANNING TOOL

For the assistance of the Proponent and the Government agencies concerned in the management of the Project and for better coordination in mitigation of the impacts of the Project on its surrounding areas and the environment, the following are recommended for appropriate action.

OTHER REGULATORY REQUIREMENTS/CONDITIONS	CONCERNED GOVERNMENT AGENCIES/ENTITIES
1. Compliance with the Labor Code of the Philippines	DOLE – Bureau of Working Condition
2. Compliance with the Sanitation Code of the Philippines	Department of Health (DOH)
3. Compliance with the Ecological Solid Waste Management Act.	LGU Concerned
4. Compliance to the Mining Act of the Philippines	MGB, DENR/LGU concerned
ENVIRONMENTAL PLANNING RECOMMENDATIONS FOR THE PROPONENT	
5. Priority of employment shall be given to qualified local residents. Adequate public information for jobs available to local residents in the affected areas shall be provided;	
6. Preservation of the existing trees be included as an essential part of the development/improvement scheme;	
7. Undertake project during reasonable time periods of the day so as not to cause undue disturbance;	
8. Strict supervision of project implementation by competent technical personnel to ensure that standards and requirements of sound engineering, safety and health practices are strictly followed; and	
9. Working areas should have appropriate warning signs, lighting during night time and barricade to prevent accident.	

Annex C

PROJECT COMPONENTS, AMENITIES AND FACILITIES

Processing Plant Components/Facilities
1. Three (3) units 2 m. x 4 m. high vertical shaft kilns 2. Three (3) units fuel oil pumps 3. Seven (7) units – 15,000-liter each capacity fuel oil tanks 4. One (1) unit – 60,000-liter capacity overhead fuel storage tank 5. One (1) unit – 90 MT silo storage 6. Two (2) units – 95 MT lime and limestone bins 7. Two (2) units lump lime discharge bins 8. Two (2) units crushed lime discharge bins 9. Two (2) units settling tanks 10. Three (3) units – 66 m^3/min each capacity gas scrubber 11. Three (3) units dust collector 12. Three (3) units standby generator sets • One (1) unit 50 KW capacity "CATERPILLAR" standby generator set • Two (2) units 200 KW each capacity "CUMMINS" standby generator set 13. One (1) unit-three (3) compartments oil-water separator 14. One (1) unit platform scale 15. One (1) unit air compressor 16. One (1) unit skip bucket elevator 17. One (1) unit belt conveyor 18. One (1) unit brick cutter 19. One (1) unit lime crusher
Buildings/Amenities/Others
1. Two-storey 489.75 sq. m. office building with one unit – two-chambered septic tank 2. Two-storey 520.0 sq. m. bunkhouse with two units – two-chambered septic tanks 3. One-storey 310.50 sq. m. staff house with one unit – two-chambered septic tank 4. 225 sq. m. parking area 5. 4,340 sq. m. stockyard (raw materials sourced-out from legal sources and from lot development activities) 6. A basketball court

NESTOR M. DONAAL
OIC-Chief, Clearance & Permitting Division

REYNALDO S. DIGAMO
OIC, Regional Director

BenguetCorp	Document Title	**REGISTRY OF COMPLIANCE OBLIGATIONS**		
	Document Code	DRCS-11_EMS_CO_03	**Revision**	10
	Department	COMREL	**Effective Date**	Oct. 16, 2025
Prepared by: CJ CHAPDIAN / OB BUGTONG		**Reviewed By:** BGO EMS		**Approved By:** VALERIANO B. BONGALOS JR.
In- charge: COMREL DEPARTMENT				

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
R.A. 7942 Philippine Mining Act of 1995						
DAO 2010-21 Implementing Rules & Regulations of RA 7942						
1	Section 134. Development of mining Community, Mining Technology and Geosciences, and Institutionalization of Public awareness and Education on Mining and Geosciences Section 136-B. Processing and Approval of the SDMP, and the Program on Developments of Mining Technology and Geosciences, IEC and CDP Section 136-D. Monitoring and Auditing of Annual SDMP and Annual Programs on Development Of Mining Technology and on IEC and CDP Section 137. Contribution to the Advancement of Mining Technology and Geosciences	Program for development	MGB	2025 Annual Social Development and Management Program (ASDMP)	**COMPLIANT**	Submitted on: March 4,2025 Complete copy is available at the COMREL Dept.
2	Section 136. Duties and Responsibilities of the Contractor/ Permit Holder/ Lessee on the Development of the Host and Neighboring Communities	Program for host & neighboring communities	MGB	2024 ASDMP Annual Accomplishment Report	**COMPLIANT**	Submitted on January 30, 2025
3				2025 2nd Qtr. ASDMP Accomplishment Report	**COMPLIANT**	Submitted on July 14, 2025

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
4	Section 136-C. Organization of Community Relations Office	Establishment of Community Relations Office	MGB	COMREL Table of Organization (TO)	**COMPLIANT**	Updated: June 2025
5				COMREL Manager	**COMPLIANT**	Duties and Resposibilities
6	Chapter XIV (Development of Mining Communities, Sciences and Mining Technology) of DENR Administrative Order No. 96-40, as Amended, the revised implementing rules and regulations of Republic Act No. 7942 otherwise known as the "Philippine Mining Act og 1995"		MGB	2025 Annual Social Development and Mangement Program (ASDMP)	**COMPLIANT**	Submitted on: March 4,2025 Complete copy is available at the COMREL Dept.

SUMMARY OF ENVIRONMENTAL COMPLIANCE OBLIGATIONS			
Total Number of Compliances	**6**	**Percentage**	
Number of Compliant	*6*	***100.00***	**%**
Number of Partialy- Compliant	*0*	***0.00***	**%**
Number of Non- Compliant	0	***0.00***	**%**

Compliance Obligation Indicators:	
COMPLIANT	Actions / requirements have been fully implemented, accomplished and approved.
PARTIALLY COMPLIANT	Actions have been taken to address the requirements, however, approval / implementation of the same is pending.
NON-COMPLIANT	No actions have been taken to address the requirements.

BenguetCorp	Document Title	REGISTRY OF COMPLIANCE OBLIGATIONS			
	Document Code	DRCS-11_EMS_CO_01	**Revision**	11	
	Department	MEPEO	**Effective Date**	October 16, 2025	
Prepared by: CJ CHAPDIAN		**Department Head:** JR SALAYOG	**Reviewed By:** BGO EMS	**Approved By:** VALERIANO B. BONGALOS JR.	

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
1	General Environment **PD 1586 Establishing an Environment Impact Statement System including other Environmental Manangement related measures and for other purposes** **DAO 2003-30** Implementing Rules and Regulations (IRR) for the Philippine Environmental Impact Statement (EIS) System	Securing ECC	DENR - EMB	ECC NO: CAR 1012 - 174 - 2110 (Amended - December 15, 2010)	**COMPLIANT**	Restricted to 300 tonnes per day
2	**DAO 2014-02- Revised Guidelines for Pollution Control Officer Accreditation**	Accreditation of Pollution Control Officer	*DENR - EMB*	Compliances\MEPEO\Accreditation of Pollution Control Officer-COA No. 2023-CAR-5329 Renewal.pdf	**COMPLIANT**	Accreditation is valid until April 17, 2026
3		*Training Course for Managing Head*		EMB CAR 419-2015 (Training Course for Managing Head)	**COMPLIANT**	Attended by VBB on Feb. 17, 2020
4	**DAO 2003-27** **Amending DAO 26, DAO 29 and DAO 81, Among others on the Submission of Self-Monitoring-Report (SMR)**	Preparation and Submission of Self Monitoring-Report (SMR)	DENR/ EMB	Self-Monitoring-Report 2nd Quarter of 2025	**COMPLIANT**	Submitted on July 14, 2025
5	**R.A. 9275 Philippine Clean Water Act of 2004;**			Discharge Permit of the FILTER DRAIN of the TAILINGS STORAGE FACILITY-PHASE II (TSF-II)	**COMPLIANT**	Expiry date: Nov. 19, 2026
6				Discharge Permit of Oil-Water Separator at Mine Mechanical Shop (DP-CAR-24-10617)	**PARTIALLY COMPLIANT**	Application for Discharge Permit (DP) is on Process
7				Discharge Permit of Oil-Water Separator at Motorpool Shop (DP-CAR-23-07804)	**PARTIALLY COMPLIANT**	Application for Discharge Permit (DP) is on Process

8	**DAO 2005-10 Implementing Rules & Regulations of RA 9275**	*Section 14: Discharge Permit*	DENR - EMB	Discharge Permit of one (1) unit 2-Chambered Septic Tank for the Administartion Building (DP-CAR-24-08775)	**PARTIALLY COMPLIANT**	Application for Discharge Permit (DP) is on Process
9				Discharge Permit of one (1) unit 2-Chambered Septic Tank for the Assay Laboratory Building (DP-CAR-24-12186)	**COMPLIANT**	Approved: Dec. 3, 2024 Valid Until: Dec. 3, 2025
10				Discharge Permit of one (1) unit 2-Chambered Septic Tank for the Metallurgy Laboratory (DP-CAR-24-11549)	**COMPLIANT**	Approved: Nov. 20, 2024 Valid Until: Nov. 20, 2025
11				Discharge Permit of one (1) unit 2-Chambered Septic Tank for the Motorpool Department (DP-CAR-24-08775)	**PARTIALLY COMPLIANT**	Application for Discharge Permit (DP) is on Process
12	**DAO 2016-08 Water Quality and General Effluent Standards 0f 2019**	Section 7: General Effluent Standards	DENR - EMB	Quarterly MMT Water Quality Sampling & Testing	**COMPLIANT**	Date sampled: September 23, 2025
13				Monthly water quality sampling & testing.	**COMPLIANT**	Date sampled: September 23, 2025
14				C. Motorpool Shop Oil-Water Separator water quality testing	**COMPLIANT**	Date sampled: October 9, 2025
15				D. Mine Mechanical Shop Oil-Water Separator water quality testing	**COMPLIANT**	Date sampled: October 9, 2025
16	***R.A. 8749 Philippine Clean Air Act of 1999; Article 4, Section 21-Pollution From Motor Vehicles Article 5, Section 24 Pollution From Other Sources DAO 2000-81 Implementing Rules & Regulations of RA 8749***	Permit to Operate of Air Polltion Sources	DENR - EMB	Permit to Operate 2-unit Thermo Digestion Chamber w/ 1-unit Scrubber at Assay Lab. PTO-OL-CAR-2021-03214-R	**COMPLIANT**	Date Issued: May 22, 2021 Date Expires: January 22, 2026
17				Permit to operate 2-unit Cupellation Furnace w/ 1-unit Lead fume scrubber system at Assay Lab. Permit No: PTO-OL-CAR-2023-00343-R	**COMPLIANT**	Date Issued: January 12, 2023 Date Expires: January 12, 2026
18				Permit to Operate Dust Collection Facility System (Application)	**COMPLIANT**	Date Issued: May 3, 2024 Date Expires: August 3, 2028
19				PTO-Two (2) Unit Acid Fume Scrubber System at Mill Refinery	**PARTIALLY COMPLIANT**	Renewal is on process: For payment (Request for payment was forwarded to the Accounting Dept.)
20				Permit to Operate Two Units 25 kVa Genarator Sets Permit No.: PTO-OL-CAR-2023-08042-R	**COMPLIANT**	Issued: June 21, 2023 Expires on June 20, 2027

21				Permit to Operate 12 units 15kgs/hr eavh Assing Vessels	**COMPLIANT**	Issued: July 2, 2024 Expires on April 2, 2029
R.A. 6969, Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990; DAO 1992-29 Implementing Rules & Regulations of RA 6969						
22	***DAO NO. 1997-39 Chemical Control Order for Cyanide and Cyanide Compounds***	*Securing CCO Reg. Cert.*	*DENR - EMB*	CCO Registaration Certificate for Cyanide and Cyanide Compounds *RCN: CCOr-CAR-CN-2020-00058*	**COMPLIANT**	Online registration Issued on March 4, 2020
23	***DAO NO. 2013-24 Chemical Control Order for Lead and Lead Compounds***	*Securing CCO Reg. Cert.*		CCO Registaration Certificate for Lead and Lead Compounds *RCN: CCOr-2024-00222*	**COMPLIANT**	Online registration Issued on Nov. 20, 2024
24	***DAO NO. 2004-01 Chemical Control Order for Polychlorrinated Biphenyls (PCBs)***	*Securing CCO Reg. Cert.*		CCO Registaration Certificate for Polychlorrinated Biphenyls (PCBs) *RCN: CCO-PCB-RCAR-BEN-32*	**COMPLIANT**	Online registration Issued on June 6, 2016
25	***DAO NO. 2019-17 Chemical Control Order for Arsenic and Arsenic Compound***	*Securing CCO Reg. Cert.*		CCO Registaration Certificate for Arsenic *RCN: CCOr-CEN-As-2024-00144*	**COMPLIANT**	Online registration Issued on August 5, 2025
26	***MEMORANDUM CIRCULAR NO. 2003 – 008 Series of 2003-Procedural and Reference Manual for DAO 2003-27***	*Quarterly SMR submission/s*		Quarterly Hazardous Waste Monitoring and Inventory	**COMPLIANT**	SMR 4th Qtr 2024- Module 2
27	**DAO 2013-22, Revised Procedures and Standards for the Management of Hazardous Waste (Revising DAO 2004-36)** **3.3 Requirement for Waste Generators**	*1. Hazardous Waste Genarator Registration Certificate*	*DENR - EMB*	Hazardous Waste Genarator Registration Certificate	**COMPLIANT**	Genarator ID No. OL-GR-CAR-11-000978
28	**DOA 136-14 Guidelines for the Implementation of Globally harmonized System (GHS) in Chemical safety Program in the Workplace**	*3. Comprehensive Emergency Contingy PlanS*		Contingency Program for Hazardous Waste- Benguet Corporation	**COMPLIANT**	Prepared by: JRS Reviewed by: GPG Approved by: VBB Jr.
29	**DAO 1992-29, Section 29. Hazardous Waste Storage and Labelling**	4. Storage and Labeling		*EMS Guidelines*	**COMPLIANT**	DRCS-12-01_EMSG_HSCR, DRCS 12-02_EMSG_HSDCC, DRCS-12-03_EMSG_HTSD, DRCS-12-03_EMSG_HTSD, DRCS-12-07-A_EMSG_HWMCI, DRCS-12-07-B_EMSG_HWMC_AC, DRCS-12-07-A_EMSG_HWM_MT, DRCS-12-07-D_EMSG_HWM_CC, DRCS 12-07-E_EMSG_HWM_CLE, DRCS-12-07-

	DOA 136-14 Guidelines for the Implementation of Globally harmonized System (GHS) in Chemical safety Program in the Workplace	Labeling requirements		EMS Guidelines	**COMPLIANT**	G_EMSG_HWM_AC, DRCS-12-07 I_EMSG_HWM_FLB, DRCS-12-07-J_EMSG_HWM_PCB, DRCS-12-07-K_EMSG_HWM_MW, DRCS-12-07-L_EMSG_HWM, DRCS-12-07-O_EMSG_HWMFM, DRCS-12-07-N_EMSG_HWMIC, DRCS-12-09_EMSG_SWM, DRCS-12-11-N_EMSG_ACF
30	***DAO 2013-22, 4.0 Governing Rules and Regulation for Hazardous Waste Transporter Section 26. Waste Generators***	Registered Waste Tranporters, Duly Authorized by DENR	*DENR - EMB*	All Waste Services, Inc. ECC	**COMPLIANT**	All Waste Services, Inc. ECC Amended Issued- March 18 2016
31	***DAO 2013-22, 4.0 Governing Rules and Regulation for Hazardous Waste Transporter Section 27 Waste Transporter***	Waste Generator ID	*DENR - EMB*	Transporter's Hazardous Wase Generator Registration Certificate	**COMPLIANT**	Genarator ID No.: OL-GR-R3-14-000183
32	***DAO 2013-22, 4.0 Governing Rules and Regulation for Hazardous Waste Transporter, 50 Governing Rules and Regulations for Hazardous Waste Treatment Storage and Disposal (TSD) Facilities.***	TSD Registration Certificate	*DENR - EMB*	TSD Registration Certificate	***PARTIALLY COMPLIANT***	The renewal is on process thru online registration of HWMS-EMB. Awaiting for the approval of the Discharge permit of the TSF 2 as it is one of the requirements for the releasing of the TSD Certificate HWMS Portal update
R.A. 7942 Philippine Mining Act of 1995 **DAO 2010-21 Implementing Rules & Regulations of RA 7942**						
33	Section 270. Reporting Requirements, m. Semi-annual Reports on Mine Waste and Tailings Generated	Mine Waste and Tailings Report	MGB	Semi-Annual Report on Mine Waste and Mill Tailings Produced, Contained and/ or Utilized for the Period of July-December 2024	**COMPLIANT**	Submitted at MGB-CAR: Aug. 18, 2025 Submitted at MGB-CENTRAL: Aug. 08, 2025
34	Section 166. General Provision for Environmental protection Section 168. Environmental Work Program (EWP)	Establishment of Environmental Protection Program	MGB	Environmental Protection and Enhance Program (EPEP)	**COMPLIANT**	Submitted: Nov. 08, 2019 (For 2025 revision)
35	Section 169. Environmental Protection and Enhancement Program			Annual Environmental Protection and Enhancement Program of Benguet Corp	**COMPLIANT**	Proposed AEPEPE Submited: Nov. 29, 2024

35	Section 171. Annual Environmental Protection and Enhancement Program			Enhancement Program of Benguet Corp-ACMP for 2025	COMPLIANT	Revised AEPEP Submitted: Jan. 15, 2025
36	Section 173. Organization of a Mine Environmental Protection and Enhancement Office (MEPEO)	Establishment of MEPEO as integral part of Mine Organization	MGB	Table of Organization of MEPEO Department	**COMPLIANT**	Updated: March 2025
37	Section 174. Environmental Monitoring Audit	Monitoring by MMT at least every quarter	MGB	2nd Quarter 2025 ACMP- MMT Compliance Monitoring and Validation Report (CMVR)	**COMPLIANT**	2025 2nd Qtr. MMT is Conducted on: June 3-6, 2025
38	Section 189. Mine Waste and Tailings Fess Reserve Fund Section 190. Mine Waste and Tailings Fees Section 191. Payment of Mine Waste and Tailings Fees Due	MWT payment semi-annually	MGB	Payment for BC - ACMP MWT Fee for January-June 2025	**COMPLIANT**	Awaiting for the verification report on the revision of the MWMT Report.
39	Section 270. Reporting Requirements: n. Semiannual Status Report on the Environmental Work Program DAO 2010-21 Revised Implementing Rules and Regulations of R.A. 7942, otherwise known as the Philippine Mining Act of 1995	Monthly, Quarterly and Integrated Annual Reporting	MGB	2nd Quarter Compliance Monitoring Report (CMR) / Accomplishment Report relative to the Annual Environmental Protection and Enhancement Program (AEPEP)	**COMPLIANT**	Submitted: July 14, 2025
40	DAO 2015-02 on the harmonization of the Philippine Environmental Impact System and the Philippine Mining Act of 1995 in relation to Mining Projects.			2024 AEPEP Annual Accomplishment Report	**COMPLIANT**	Submited: January 30, 2025
41	Executive Order 26 of 2011 and Executive Order 193 of 2015 - Enhanced National Greening Program	Implementation and Quarterly Submission of National Greening Program (NGP) Report	MGB/CENRO	NGP Report 2nd Qtr. 2025	**COMPLIANT**	Submitted: July 14, 2025
42	Administrative Order (DAO) No. 22, series of 1989 - Adopt-A-Tree Adopt-A-Mining Forest Program	Implementation and Semi Annual Submission of Mining Forest Program Report	MGB	Mining Forest Program 2nd Sem. 2024	**COMPLIANT**	Submitted: Jan. 15, 2025
43	MGB-MEMORANDOM dated July 10, 2020 - Establishment of Bamboo Plantation in Mining Areas	Submission Quarterly Accomplishment Report	MGB	2nd Quarter 2024 Bamboo Plantation Accomplishment Report	**COMPLIANT**	Submitted: July 14, 2025

44	DAO 02 Series of 2017- The Revise Procedural Manual for DENR Administrative Orders No. 30, Series of 2003 DENR-EMB-MEMORANDUM CIRCULAR NO. 2016-001	Submission of online Semestral Compliance Monitoring Report (CMR)	EMB	Online_CMR_2nd Sem_2024	**COMPLIANT**	Submitted: January 31, 2025

	SUMMARY OF ENVIRONMENTAL COMPLIANCE OBLIGATIONS		
	Total Number of Compliances	44	**Percentage**
	Number of Compliant	*38*	***86.36 %***
	Number of Partially- Compliant	*6*	***13.64 %***
	Number of Non- Compliant	0	***0.00 %***

	Compliance Obligation Indicators:	
	COMPLIANT	Actions / requirements have been fully implemented, accomplished and approved.
	PARTIALLY COMPLIANT	Actions have been taken to address the requirements, however, approval / implementation of the same is pending.
	NON-COMPLIANT	No actions have been taken to address the requirements.

BenguetCorp	Document Title	REGISTRY OF COMPLIANCE OBLIGATIONS			
	Document Code	DRCS-11_EMS_CO_04	**Revision**	10	
	Department	MTME	**Effective Date**	Oct. 16, 2025	

Prepared by:	**Reviewed By:**	**Approved By:**
CJ CHARDIAN / MA TALOSIG	BGO EMS	VALERIANO B. BONGALOS JR.

In- charge: MTME DEPARTMENT

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
R.A. 7942 Philippine Mining Act of 1995						
DAO 2010-21 Implementing Rules & Regulations of RA 7942						
1	DENR Administartive Order No. 2010-21 Chapter XXIX Section 270 Reporting Requirements MC N0. 2018-02	Monthly, Quarterly, Semi-Annual, and Annual Reports	MGB	BC-ACMP Monthly Report on Production, Sales, Inventory of Metallic Minerals and Employment Data for Gold	COMPLIANT	Report period: September 2025 Submitted: October 15, 2025
2				BC-ACMP Annual Mineral Resource/Ore Reserve Inventory Report for the CY 2024	COMPLIANT	Submitted: March 20, 2025
3				BC-ACMP Annual Report on Taxes, Fees and Royalties Paid for CY 2024	COMPLIANT	Submitted: Audited October 6, 2025
4				Integrated Annual Report of Metallic Minerals, Non-Metallic Minerals and Quarry Resources CY 2024	COMPLIANT	Submitted: February 28, 2025
5				Quarterly Drilling Report	COMPLIANT	Submitted: 3rd Quarter October 6, 2025
6				Quarterly Energy Consumption Report and Inventory of Foreigners	COMPLIANT	Submitted: 3rd Quarter October 15, 2025

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
7				Annual Land Use Report and Plan for the CY 2024	**COMPLIANT**	Submitted: February 28, 2025
8				BC-ACMP Semi-Annual Reconciliation Report on the Sales of Metallic Minerals	**COMPLIANT**	Submitted: First Semester October 15, 2025
9	DENR Administartive Order No. 2010-09			BC-ACMP- Annual Exploration and Geology Report with Assigned Permit No. PC-ACMP-002-CAR covering the CY 2024	**COMPLIANT**	Submitted: Jan. 14, 2025
10	R.A. 7942 Philippine Mining Act of 1995 R.A. 7920, New Electrical Enginering Law	Electrical/ Mechanical Installations Permit	MGB	Permit to Operate and Certificate of Electrical Inspection	**COMPLIANT**	**Certificate of Electrical Inspection** Issued Date: April 14, 2025 Expiry Date: February 10, 2026 **Permit to Operate Pressure Vessel** Issued Date: March 11-14, 2025 Expiry Date: February 29, 2026
11	PD No. 856, Code on Sanitation of the Philippines	Annual LGU Sanitary inspection (Municipal Health Office)	LGU	Sanitary Permit 2024	**COMPLIANT**	Sanitary Permit No: 2025-1990 Issued: Jan. 27, 2025 Expiration: Dec. 31, 2025
12	*Ordinance No. 06- 2016*		*LGU*	Business Permit or Permit to Operate 2025	**COMPLIANT**	Permit No: 2025-09-1932-R Plate No: B0250 Issued: Jan. 27, 2025 Valid until: Dec. 31, 2025
13	DAO 2010-21, the Revised Implementing Rules and Regulations of R.A. 7942, Chapter XII, Section 117. Ore Transport Permit	Ore Transport Permit	MGB	Ore Transport Permit	**COMPLIANT**	OTP-2025-100-GD 055-BC-PC-018 Permit is valid from September 16-30, 2025

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
14	R.A. 9514 Revised Fire Code of the Philippines of 2008	Compliance with the Fire Safety Conditions	*BFP*	Fire Safety Inspection Permit 2024	**COMPLIANT**	Issued Date: Feb. 11, 2025 Expiration date: Feb. 11, 2026

SUMMARY OF ENVIRONMENTAL COMPLIANCE OBLIGATIONS			
Total Number of Compliances	**14**	**Percentage**	
Number of Compliant	*14*	***100.00***	**%**
Number of Partialy- Compliant	*0*	***0.00***	**%**
Number of Non- Compliant	0	***0.00***	**%**

Compliance Obligation Indicators:	
COMPLIANT	Actions / requirements have been fully implemented, accomplished and approved.
PARTIALLY COMPLIANT	Actions have been taken to address the requirements, however, approval / implementation of the same is pending.
NON-COMPLIANT	No actions have been taken to address the requirements.

BanguetCorp	Document Title	REGISTRY OF COMPLIANCE OBLIGATIONS			
	Document Code	DRCS-11_EMS_CO_02	**Revision**	10	
	Department	SAFETY	**Effective Date**	February 28, 2025	
Prepared by: CJ CHAPDIAN	**Department Head:** GP GUINDALOS	**Reviewed By:** BGO EMS	**Approved By:** VALERIANO B. BONGALOS JR.		

In- charge: SAFETY DEPARTMENT

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
R.A. 7942 Philippine Mining Act of 1995; DAO 2010-21 Implementing Rules & Regulations of RA 7942 DAO 2000-98 Mine Safety and Health Standards						
1	Section 142. Responsibilities of a Contractor/ Permittee/ Lessee/ Permit Holder and Secvice contractor	Establishment of Safety and Health Program	MGB	Annual Safety & Health Program (ASHP) CY 2025 of BC-ACMP 2025 SHP Certificate of Approval	**COMPLIANT**	Received: Jan. 24, 2025
2	Section 270. Reporting Requirements	Monthly, Quarterly and Integrated Annual Reporting	MGB	RESPONSE REPORT to MGB-CAR Officials Safety and Health Inspection Report	**COMPLIANT**	Received: Feb. 14, 2025
3	Section 3, Rule 12 With Safety and Health Office (SHO)	Established SHO, Table of Organization under direct supervision of the Manager	MGB	Safety Department Table of Organization (TO)	**COMPLIANT**	Latest Update from SHP 2025
4	DAO 2010-21, Section 146. Registration of Safety Engineer and Safety Inspector	Registered Safety Engineer/Safety Inspector	MGB	MGB Registration of Safety Engineer (BC-ACMP)	**COMPLIANT**	No. of Safety Engr.: 2 (GPG & RBS)
5				MGB Registration of Safety Engineer (ACMP Contractors)	**COMPLIANT**	No. of Safety Engr.: 6 (GSB, IKSO, RDQ, AYAC, JGW & KJGJ)

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No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
6	DAO 2000-98Section 2, Rule 8-11, With Safety Engineer/ Inspector	Registered Safety Engineer/Safety Inspector		MGB Registration of Safety Inspectors (BC-ACMP)	**COMPLIANT**	No. of Safety Inspectors: 4 (JJSP, CAC, RJEA, RJEA & EDA)
7				MGB Registration of Safety Inspectors (ACMP-Contractors)	**COMPLIANT**	No. of Safety Inspectors: 11 (FTO, OTO, VSM, JMS Sr., JDP, AGA, AEC, RAT, DTD, BAT & MJTD)
8	Section 5, Rule 21.2 or Rule 27 With Central Safety and Health Committee (CSHC)	Central Safety and Health Committee established, verified through minutes of meetings/attendance/logbook/photo documentation	MGB	Central Safety Health and Environment Coucil (CSHEC) Committee	**COMPLIANT**	Latest Update: Feb. 26, 2025
9	Section 5, Rule 21.2 Safety and Health Policy	Safety & Health Policy Satement signed by highest official on Site/President & strategically located on all work areas	MGB	BC Safety Manual	**COMPLIANT**	MGB-CAR Received on: September 26, 2017 (The hard copy of the manual is available at the Safety Dept. Office)
10	Rule 1209 Submission of Fatal to RO concerned within 15 days after the date of accident (if applicable)	Investigation Report	MGB	Latest IPIC Meeting Details	**COMPLIANT**	IPIC Report for the Mill Refinery fire incident Conducted on: Jan. 20, 2025
11	Rule 30 Conduct of Monthly CSHC Meetings	CSHC monthly minutes of meetings	MGB	Latest CSHEC minute of the meeting	**COMPLIANT**	Conducted on: Feb. 26, 2025

No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
12	Rule 21.22 Conduct of Departmental Safety and Health Meetings/ Conduct of Pep talk or Toolbox Meetings	Departmental meetings on Safety and Health conducted regularly (monthly/quarterly as per SHP)/ Pep talk or Toolbox Meetings conductedRegularly (per shift/daily as per SHP)	MGB	Latest Monthly safety meeting	**COMPLIANT**	Conducted on: Feb. 27, 2025
13	Section 5, Rule 21.6 Presence of Safety and Health Rules and Regulations that includes Standard Operating Procedures and Protocols	Safety and Health Rules and Regulations manual/handbook, preferably with translation in local dialect and distributed every employee	MGB	BC Safety Manual	**COMPLIANT**	MGB-CAR Received on: September 26, 2017 (The hard copy of the manual is available at the Safety Dept. Office)
14	Section 49, Rule 637 Preparation/ Presence of Emergency Response and Preparedness Program	Emergency Response and Preparedness Program	MGB	**DRCS-13-08_EMSP_ERP (Emergency Response Program)**	**COMPLIANT**	EMS Mannual (Revision 06)
15	Section 49, Rule 637,c. i. Organization of crisis management group;	Emergency Response Team	MGB	Emergency Response Team (ERT) (Table of Organization)	**COMPLIANT**	EMS Mannual (Revision 10) DRCS-03_D

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No.	Governing Laws, Rules and Regulations	Applicable Requirement	Interested Parties	Evidence of Compliance	Status of Compliance	Remarks
16	Section 49, Rule 638 - The employer shall ensure thet an emergency drill be conducted quarterly, in order to test the effectiveness of the program. Section 49, Rule 639 - The employer shall be required to submit to the Bureau, copy furnished the Regional Office, a report on the conduct of the emergency drill as required in Rule 638.	Quarterly Emergency Drill Reports	MGB	2024 Quarterly Emergency Drill Reports to MGB	COMPLIANT	1st. Qtr. - Fire Evacuation and Fire Rescue Drill 2nd Qtr. - Earthquake Drill 3rd Qtr. - Earthquake Drill 4th Qtr. - Chimical Spill Drill

SUMMARY OF ENVIRONMENTAL COMPLIANCE OBLIGATIONS		
Total Number of Compliances	**16**	**Percentage**
Number of Compliant	*16*	***100.00 %***
Number of Partialy- Compliant	*0*	***0.00 %***
Number of Non- Compliant	0	***0.00 %***

Compliance Obligation Indicators:	
COMPLIANT	Actions / requirements have been fully implemented, accomplished and approved.
PARTIALLY COMPLIANT	Actions have been taken to address the requirements, however, approval / implementation of the same is pending.
NON-COMPLIANT	No actions have been taken to address the requirements.

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Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang St., Baguio City 2600
Tel. No. 63 74 442 6392; Fax No. 63 74 304 2596;
E-mail: car@mgb.gov.ph; car_mgb@yahoo.com; mgb.cordillera@gmail.com
Website: www.car.mgb.gov.ph
REGISTERED: ISO 14001:2015, ISO 9001:2015, ISO 45001:2018

BAGONG PILIPINAS

CERTIFICATE OF APPROVAL

SHP # 09-2025-CAR

The Mines and Geosciences Bureau-CAR, having evaluated the submitted 2025 Safety and Health Program (SHP) in accordance with the provisions of Department of Environment and Natural Resources Administrative Order (DAO) No. 2010-21, the Revised Implementing Rules and Regulations of Republic Act (RA) No. 7942, otherwise known as the "Philippine Mining Act of 1995", hereby grants this Certificate of Approval to **BENGUET CORPORATION-ACUPAN CONTRACT MINING PROJECT, PC-ACMP-002-CAR** located at Balatoc, Virac, Itogon, Benguet.

This Certificate is issued subject to the pertinent provisions of the abovementioned laws, rules and regulations, and to the following conditions:

1. This Certificate is valid only for programs, projects, and activities stipulated in the CY 2025 SHP;

2. The committed budget for the CY 2025 SHP is Eight Million Three Hundred Sixty-Four Thousand Eight Hundred Forty-Three Pesos (**PhP 8,364,843.00**);

3. The implementation of identified programs, projects and activities shall be subject to validation by the **MGB-CAR** and auditing of the **MGB Central Office (MGB-CO)**;

4. Benguet Corporation-Acupan Contract Mining Project (BC-ACMP), shall submit to **MGB-CAR** a quarterly accomplishment reports within 15 working days at the end of each quarter and an annual accomplishment report 30 days after the end of the calendar year;

5. The company shall notify the **MGB-CAR** of any amendment in the approved SHP. Provided that the amendments do not compromise the overall safety and health programs and conditions of the project; and

6. Additional conditions may be imposed to effectively implement the approved SHP should the results of the monitoring by the **MGB-CAR** or audit by the **MGB-CO** warrants them.

Non-compliance with the above conditions shall be sufficient ground for the penalties indicated in the Philippine Mining Act of 1995 and its implementing rules and regulations.

Given this 14th day of February 2025 at the Mines and Geosciences Bureau-CAR, Baguio City

FAY W. APIL
Regional Director

CONFORME:

ENGR. VALERIANO B. BONGALOS
VP/Resident Manager
Benguet Corporation-Acupan Contract Mining Project
Balatoc, Virac, Itogon, Benguet

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region

BAGONG PILIPINAS

ANNUAL SOCIAL DEVELOPMENT AND MANAGEMENT PROGRAM (ASDMP)

CERTIFICATE OF APPROVAL
ASDMP No. 2025-02-CAR (5th)

The Mines and Geosciences Bureau-Cordillera Administrative Region (MGB-CAR), having evaluated the 2025 Annual Social Development and Management Program (ASDMP), hereby grants this Certificate of Approval to **BENGUET CORPORATION (BC)** for its Acupan Contract Mining Project located in Barangay Virac, Municipality of Itogon, Province of Benguet, under Mining Patent No. PC-ACMP-002-CAR after substantially complying with the requirements as mandated under DENR Administrative Order No. 2010-21.

This Certificate is being issued subject to the pertinent provisions of the abovementioned DAO and to the following conditions:

1. This Certificate is valid only for the Programs/Projects/Activities (P/P/As) stipulated in the submitted 2025 ASDMP;

2. The budget allocation for this ASDMP amounts to **Three Million Six Hundred Eighty Thousand Three Hundred Fifty-Seven and 33/100 (Php 3,680,357.33),** which is equivalent to the 1.5% of the previous years' operating cost to implement the P/P/As stipulated in the Program which is broken down as follows:

2024 Operating Cost (Php)	Basis of Allocation	2025 ASDMP Total Amount (Php)
245,357,155.31	(75%) Development of Host and Neighboring Communities	2,760,268.00
	Balance	*674,978.98*
	(15%) Information, Education Campaign	552,053.60
	Balance	*40,962.10*
	(10%) Development of Mining Technology and Geosciences	368,035.73
	Balance	*147,767.96*
	Sub-Total	**3,680,357.33**
	Sub-total (*Balance from previous ASDMP*)	*863,709.04*
	GRAND TOTAL	**4,544,066.37**

3. The Company shall include the remaining balance *(Php 863,709.04)* from its previous ASDMP after determination of the 1.5% operating cost to implement

the P/P/As stipulated in the Program. Said balance shall be treated separately on accomplishment/monitoring reports;

4. The Company may incorporate any alterations and/or re-alignment of P/P/As and funds from the approved ASDMP. Provided that, such changes are the result of consultations with its host and neighboring communities, accompanied by supporting documents such as resolutions, and approved by the MGB RO;

5. The Company shall submit a quarterly monitoring report fifteen (15) calendar days after the end of each quarter to MGB RO. Likewise, the annual accomplishment report shall be submitted thirty (30) calendar days after the end of each calendar year to the MGB RO, copy furnished the MGB Central Office (CO); and

6. Additional conditions may be imposed to effectively and efficiently implement the approved SDMP should the results of monitoring by the MGB RO or audit by the MGB CO warrant them.

Non-compliance with the above conditions shall be sufficient ground for the cancellation, revocation or termination of this Certificate or suffer the penalty prescribed in the Penal Provisions of Republic Act No. 7942, the Philippine Mining Act of 1995.

Given this **6th** day of **December 2024** at the Mines and Geoscience Bureau-CAR, Baguio City, Philippines.

FAY W. APIL
Regional Director
MGB-CAR

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
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Tel. No. 63 74 442 6392; Fax No. 63 74 304 2596;
E-mail: car@mgb.gov.ph; car_mgb@yahoo.com; mgb.cordillera@gmail.com
Website: www.car.mgb.gov.ph
REGISTERED: ISO 14001:2015, ISO 9001:2015, ISO 45001:2018

BAGONG PILIPINAS

February 17, 2025

MR. FRANCISCO O. FLAVIER
Resident Manager
BMC-Forestry Corporation
Km.5, Naguilian Road, Irisan, Baguio City

Dear **Mr. Flavier:**

This is to acknowledge receipt of the submitted documents under MPP No. 01C-2022-CAR of BMC-Forestry Corporation:

Document	Date Received
4th Quarter of CY 2024 Accomplishment Report	January 08, 2025
2024 Annual SDMP Accomplishment Report	January 16, 2025
Sworn Statement of the Total Operating Cost (TOC)	January 27, 2025
Revised 2025 Annual SDMP (ASDMP)	February 10, 2025

The Revised 2025 ASDMP was found to have substantially complied with the comments/remarks stated in the Second (2nd) Evaluation. Attached is the amended 2025 ASDMP Certificate of Approval (CoA) using the Sworn Statement of the 2024 Total Operating Cost, and balance from the previous ASDMP.

Relative thereof, kindly submit eligible copy and an e-file copy (pdf format) of the Final 2025 ASDMP to this Office within five (5) days upon receipt of this letter.

The final copy of the 2025 ASDMP shall also be furnished to the concerned Local Government Units (LGUs) for their information and reference.

Very truly yours,

Department of Environment and Natural Resources
Mines and Geosciences Bureau
Cordillera Administrative Region
Office of the Regional Director
02/18/2025-CAR-57113
12:02 PM Letter 02/18/2025

FAY W. APIL
Regional Director

Rec. by: H.C. Pamilbdan
02/20/2025

MGB-CAR-FO-FAD-DCC-006 00 (08.24.18)

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region

BAGONG PILIPINAS

ANNUAL SOCIAL DEVELOPMENT AND MANAGEMENT PROGRAM (ASDMP)

CERTIFICATE OF APPROVAL
ASDMP No. 2025-01-CAR (4th)

The Mines and Geosciences Bureau-CAR, having evaluated the 2025 Annual Social Development and Management Program (ASDMP), hereby grants this Certificate of Approval to **BMC FORESTRY CORPORATION** for its Irisan Lime Project located at *Barangay Irisan, in the City of Baguio, Province of Benguet,* under Mineral Processing Permit (MPP) No. 01C-2022-CAR after substantially complying with the requirements as mandated under DENR Administrative Order (D.A.O) No. 2010-21.

This Certificate is being issued subject to the pertinent provisions of the abovementioned DAO and to the following conditions:

1. This Certificate is valid only for the Programs/Projects/Activities (P/P/As) stipulated in the submitted 2025 ASDMP;

2. The projected budget allocation for this ASDMP amounts to **Nine Hunded Forty-One Thousand Four Hundred Eighty-Five and 67/100 (Php 941,485.67),** which is equivalent to the 1.5% of the previous years' Total Operating Cost to implement the P/P/As stipulated in the Program which is broken down as follows:

2024 Operating Cost (Php)	Basis of Allocation	2025 ASDMP Total Amount (Php)
62,765,711.03	(75%) Development of Host and Neighboring Communities	706,114.25
	Balance	*0.00*
	(15%) Information, Education Campaign	141,222.85
	Balance	*0.00*
	(10%) Development of Mining Technology and Geosciences	94,148.57
	Balance	*18,042.50*
	Sub-Total	941,485.67
	Sub-total (Balance from previous ASDMP)	*18,042.50*
	GRAND TOTAL	**959,528.17**

3. The Company shall include the remaining balance ***(Php 18,042.50)*** from its previous ASDMP after determination of the 1.5% projected/operating cost to implement the P/P/As stipulated in the Program. Said balance shall be treated separately on accomplishment/monitoring reports;

4. The Company may incorporate any alterations and/or re-alignment of P/P/As and funds from the approved ASDMP. Provided that, such changes are the result of consultations with its host and neighboring communities, accompanied by supporting documents such as resolutions, and approved by the MGB RO;

5. The Company shall submit a quarterly monitoring report fifteen (15) calendar days after the end of each quarter to MGB RO. Likewise, the annual accomplishment report shall be submitted thirty (30) calendar days after the end of each calendar year to the MGB RO, copy furnished the MGB Central Office (CO); and

6. Additional conditions may be imposed to effectively and efficiently implement the approved SDMP should the results of monitoring by the MGB RO or audit by the MGB CO warrant them.

Non-compliance with the above conditions shall be sufficient ground for the cancellation, revocation or termination of this Certificate or suffer the penalty prescribed in the Penal Provisions of Republic Act No. 7942, the Philippine Mining Act of 1995.

Given this **28th** day of **November 2024** at the Mines and Geoscience Bureau-CAR, Baguio City, Philippines.

FAY W. APIL
Regional Director
MGB-CAR