

# **ENVIRONMENTAL AND SOCIAL SAFEGUARDS MONITORING REPORT**

**PANGEA GREEN ENERGY PHILIPPINES, INC. –  
Landfill Gas Energy Project**

**October 2018**

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## **Project Overview and Purpose of Document**

The Quezon City Controlled Disposal Facility is a controlled sanitary landfill, situated on a 22-hectare land located in Barangay Payatas, Quezon City. It started receiving municipal solid waste from Metro Manila, as an open dumpsite from 1973 until 2000 when it was prematurely closed due to a tragic trash slide. The landslide (of trash) tragedy struck the site in 2000, in which 218 people were killed, most of them scavengers in the area. The open-dumpsite mountain, which used to have a steep 70-degree slope, has since been bevelled down into a 40-degree slope. The open dumpsite was converted into a sanitary landfill in 2011. Concession for over-all operation of the Payatas sanitary landfill was granted to the Isabelita P. Mercado (IPM) Environmental Services, Inc.

To mitigate the anticipated impacts from methane production associated with the operation of a controlled sanitary landfill, the Quezon City government undertook a partnership with Pangea Green Energy Philippines, Inc. (PGEP) for the installation and operation of a Biogas Facility at the landfill site. In exchange for PGEP's investment in the project, PGEP was granted the rights to the methane gas generated or extracted from the site, for a minimum of 10 years. The memorandum of agreement was signed on February 14, 2007; on February 01, 2008, the project was registered as a Clean Development Mechanism (CDM) project by the executive board of the United Nations Framework Convention for Climate Change (UNFCCC).

PGEP provides the technical capability and advice for the operation of Biogas Facility installed at the landfill site. The said facility was put up to reduce methane emissions from the Payatas controlled dumpsite, and involves the capture, collection, processing, and flaring of landfill gas (LFG), including the conversion of methane into electricity. LFG is generated from the decomposition of solid waste in the landfill and is approximately 50% methane gas. Methane gas is a greenhouse gas established to have a global warming potential 25 times that of carbon dioxide.

An Environmental Management Plan (EMP) document was prepared for this project (signed accountability statement dated June 05, 2017), as part of the requirements of the Safeguards Framework for CDM projects implemented under the Carbon Finance Support Fund (CFSF) of the Land Bank of the Philippines (LANDBANK), under which this Landfill Gas Energy Project is

being implemented. This Environmental and Social Safeguards Monitoring Report is prepared, completed, and submitted to World Bank as part of LANDBANK's obligation as stated in the EMP for this project. This report covers performance for the first semester of 2018.

For a comprehensive description of the features and components of this project, please refer to the corresponding EMP.

### Environmental Safeguards Compliance

The Landfill Gas Energy Project complies with relevant national and local environmental laws. As per the Revised Guidelines for Coverage Screening and Standardized Requirements Under the Philippines Environmental Impact System (PEISS), issued by the Environmental Management Bureau (EMB) as Memorandum Circular 005 on July 2014 (also known as **MC 2014-005**), the Project— considered as a waste-to-energy power project with a declared total generating capacity of 2.5 MW— falls under the category of covered projects, and is therefore required to secure an Environmental Compliance Certificate (ECC) for its continued operation. Details of this ECC are recorded in **Table 1**.

As part of this environmental safeguards monitoring exercise, a review of relevant environmental documents and permits pertaining to project operations was conducted, through a site visit at PGEP Biogas Facilities offices located at No. 68, Zamboanga Street, Area B, Barangay Payatas, Quezon City, Philippines. Said site visit was conducted on September 28, 2018, as part of regular environmental and social safeguards monitoring of the plant. Site visit was conducted by Amelito Segarra Jr. (Program Assistant) and Paolo Marcelino Joven (CFSF Consultant), of LANDBANK, with assistance of staff and personnel at the PGEP plant.

**Table 1** lists the various permits and environmental documents furnished by PGEP for the environmental safeguards monitoring exercise performed:

**Table 1:** Environmental Permits and other related documents presented by PGEP.

Permit	Permit Code / No.	Issuing Agency	Date Issued	Validity	Details
<b>Environmental Compliance Certificate</b>	ECC-OL-NCR-2018-0135	Department of Environment and Natural Resources – Environmental Management Bureau	July 03, 2018		As per MC 2014-005
<b>Certificate of Accreditation for Pollution Control Officer</b>	2016-NCR-321	DENR-EMB-NCR	March 9, 2016	Until March 9, 2019	
<b>Permit to Operate Air Pollution Source Installations</b>	18-POA-B-137406-678	Department of Environment and Natural Resources – Environmental Management Bureau, National Capital Region	February 27, 2018	Until February 08, 2023	For Four (4) Units – 320 Kw Methane Gas Engine Generator Set; One (1) unit High Temperature Combustion Unit for Flaring Excess LFG from 61 Vertical Wells at Disposal Site; and One (1) Unit – 200 Kw IVECO LFG-Fired Generator

PGEP has also been diligently submitting to the DENR-EMB Self-Monitoring Reports quarterly, as follows:

- Quarterly Self-Monitoring Report – 2<sup>nd</sup> Quarter (April 01, 2018 to June 30, 2018); and
- Quarterly Self-Monitoring Report – 1<sup>st</sup> Quarter (January 01, 2018 to March 31, 2018).

As per environmental safeguards monitoring previously conducted for this project, PGEP has submitted a total of twelve (12) sets of Self-Monitoring Reports in compliance with DENR-EMB environmental regulations, the latest of which was the Quarterly Self-Monitoring Report – 4<sup>th</sup> Quarter (October 01, 2017 to December 31, 2017).

Copies of the abovementioned permits and environmental compliance documents are included in this report as attachments in the **Appendix Section**.

### **Social Safeguards Compliance**


On July 2017 EPWMD announced the temporary closure of the Payatas II landfill site for maintenance and rehabilitation actions due to reported hazards associated with thrash landslides and the onset of the rainy season. However, on August 02, 2017, the Environmental Management Bureau – National Capital Region (EMB-NCR) of the DENR ordered the closure of the landfill site, reiterating as reasons the site's susceptibility to landslides and in compliance with Section 37 of Republic Act 9003, or the Ecological Solid Waste Management Act of 2000, which mandated closure of open dumpsites by 2004 and of controlled dumpsites by 2006. The closure of the Payatas landfill site is reported to have displaced an estimated 2,000 waste pickers, which were deprived of their source of livelihood. This social safeguard concern has already been highlighted and discussed in the previous safeguards monitoring report for this project (covering second semester of 2017). The actions by the Quezon City government to address livelihood displacement concerns due to landfill site closure have been duly noted and documented. This concern is now considered closed.

No other social safeguards concern is highlighted for this period.


Prepared by:

  
**AMELITO L. SEGARRA JR.**  
Program Assistant, EPMD

Reviewed by:

  
**RIZALDO P. VARGAS**  
Program Officer, EPMD

Approved by:

  
**PRUDENCIO E. CALADO III**  
AVP, EPMD

# **APPENDIX A**

## **Environmental Compliance Certificate**



Republic of the Philippines  
Department of Environment and Natural Resource  
**ENVIRONMENTAL MANAGEMENT BUREAU**  
National Ecology Center, East Avenue, Diliman, Quezon City  
Telephone No. (02) 931-1331, (02) 931-2397, (02) 931-1834 Fax No. 781-0485  
necr@emb.gov.ph  
Visit us at <http://www.necr.emb.gov.ph/>

**ENVIRONMENTAL COMPLIANCE CERTIFICATE**  
(Issued under Presidential Decree 1586)  
**ECC-OL-NCR-2018-0135**

THIS IS TO CERTIFY THAT THE PROPONENT, **PANGEA GREEN ENERGY PHILIPPINES INC.**, represented by its General Manager, Anecito Sumalo, is granted this Environmental Compliance Certificate (ECC), for the proposed **WASTE TO ENERGY POWER PLANT** located in a 1,500 square-meter property in Area B, Payatas, Quezon City, 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:

**PROJECT DESCRIPTION**

The project is a Waste to Energy Power Plant with a generation capacity of 2.5 MW.

As per Annex "A" of EMB MC 005 Series of 2014, the project falls under item 3.2.8 and considered as Category B (Non-ECP)/IEE.

This Certificate is issued in compliance with the requirements of Presidential Decree No. 1586 in accordance to DENR Administrative Order (D.A.O.) No. 2003-30 and EMB Memorandum Circular 2014-005. 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. The EMB-NCR, however, is not precluded from reevaluating and correcting any deficiencies or errors that may be found after issuance of this Certificate.



Environmental Compliance Certificate  
PANGEA GREEN ENERGY PHILIPPINES  
AREA B, PAYATAS Quezon City, Metro Manila  
PANGEA GREEN ENERGY PHILIPPINES INC.

Issued at EMB-NCR, National Ecology Center, East Avenue, Diliman, Quezon City this July 3, 2018.

Recommending Approval:

**Wilfredo R. Rafanan**  
Chief, Clearance & Permitting Division

Approved:


  
**Atty. Domingo M. Clemente, Jr.**  
Regional Director



Environmental Compliance Certificate  
PANGEA GREEN ENERGY PHILIPPINES  
AREA B, PAYATAS Quezon City, Metro Manila  
PANGEA GREEN ENERGY PHILIPPINES INC.

**SWORN ACCOUNTABILITY STATEMENT**

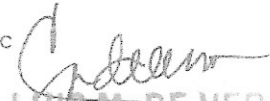
I, **Anecito Sumalo**, General Manager, representing **PANGEA GREEN ENERGY PHILIPPINES INC.** with office address located at 68 Zamboanga St., Area B, Payatas, Quezon City takes full responsibility in complying with all conditions in this Environmental Compliance Certificate (ECC).

  
JUL 11, 2018  
**ANECITO SUMALO**

TIN No. 212-397-745

Subscribed and sworn before me this JUL 17 2018, the above-named affiant taking oath presenting CTC, issued on 1/04/2018 at D.C.

Doc. No. 179  
Page No. 96  
Book No. XXX111  
Series of WIS

Notary Public   
**ATTY. LUIS M. DE VERA**  
Notary Public, Until Dec. 31, 2018  
Adm. Matter No. NF-101  
PTR No. 5520351 / 1 / 03 / 2018  
IBP No. 019124 / 12 / 20 / 2017  
Roll No. 20761  
5th MCLE No. 0009642 / 04 / 14 / 2016  
TIN No. 218-145-247



Environmental Compliance Certificate  
PANGEA GREEN ENERGY PHILIPPINES  
AREA B, PAYATAS Quezon City, Metro Manila  
PANGEA GREEN ENERGY PHILIPPINES INC.

## I. CONDITIONS

**ENVIRONMENTAL MANAGEMENT**

All commitments, mitigating measures and monitoring requirements, contained in the Initial Environmental Examination Checklist (IEEC) for the **WASTE TO ENERGY POWER PLANT**, particularly in the Environmental Management Plan/Environmental Monitoring Plan, including any modifications and/or additional information as approved by the EMB-NCR, 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. Conduct an effective Information, Education and Communication (IEC) Program to inform and educate all stakeholders, especially its contractors, workers, and local residents about the mitigating measures embodied in its IEEC, the conditions stipulated in this Certificate and the environmental and human safety features of the project for greater awareness, understanding and sustained acceptance of the project;
2. Implement a Comprehensive Social Development Program (SDP) and submit a separate report together with the Compliance Monitoring Report (CMR) to EMB-NCR on a semi-annual basis;
3. The planting of native tree species/ornamental plants shall be undertaken to mitigate greenhouse gas (GHG) emissions of the project in line with the DENR's thrust for GHG emissions reduction programs and National Greening Program;
4. Submit an Abandonment Plan to the EMB-NCR at least 30 days prior to the project's abandonment. The plan shall include rehabilitation measures/clean-up, remediation of areas affected by the project and proposed alternative projects in the area;

**GENERAL CONDITIONS**

5. That a billboard containing this message "Notice to the Public, This project, **WASTE TO ENERGY POWER PLANT** of **PANGEA GREEN ENERGY PHILIPPINES INC.**, has been issued Environmental Compliance Certificate by the Environmental Management Bureau - National Capital Region of the Department of Environment and Natural Resources" must be installed at the project site to inform the general public.
6. The operations shall conform with the applicable provisions of the following environmental laws:
  - 6.1 RA 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990);
  - 6.2 RA 8749 (Philippine Clean Air Act of 1999);
  - 6.3 RA 9003 (Ecological Solid Waste Management Act of 2000); and,
  - 6.4 RA 9275 (Philippine Clean Water Act of 2004);



Environmental Compliance Certificate  
 PANGEA GREEN ENERGY PHILIPPINES  
 AREA B, PAYATAS Quezon City, Metro Manila  
 PANGEA GREEN ENERGY PHILIPPINES INC.

7. That the Environmental Unit (EU) shall competently handle the environment-related aspects of the project. In addition to the monitoring requirements as specified in the Environmental Management Plan/ Environmental Monitoring Plan, the EU shall have the following responsibilities:
  - 7.1 Monitor actual project impacts vis-à-vis the predicted impacts and management measures in the IEEC;
  - 7.2 Recommend revisions to the EMP/EMoP, whenever necessary subject to the approval of EMB-NCR;
  - 7.3 Ensure that data gathered during monitoring activities are properly documented, assessed, evaluated and reported to EMB-NCR in accordance with the standard formats; and,
  - 7.4 Ensure that monitoring and submissions of Compliance Monitoring Report to the EMB-NCR are carried out as required;
8. That the project proponent shall allow EMB-NCR personnel with mission/travel order to monitor compliance with conditions and restrictions stated herein.

## II. RESTRICTIONS

9. No activities shall be undertaken other than what were stipulated in the IEEC. Should there be any expansion of the project beyond the project description or any change in the activity or transfer of location shall be subject to a new Environmental Impact Assessment; and
10. In case of transfer of ownership of this project, the new owner shall within thirty (30) days from such change apply for the amendment of this ECC.



Environmental Compliance Certificate  
PANGEA GREEN ENERGY PHILIPPINES  
AREA B, PAYATAS Quezon City, Metro Manila  
PANGEA GREEN ENERGY PHILIPPINES INC.

## 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, and by way of recommendation, forwarding these recommendations to the parties and authorities concerned for appropriate action.

OTHER REGULATORY REQUIREMENTS/CONDITIONS	CONCERNED GOVERNMENT AGENCIES/ENTITIES
<b>PANGEA GREEN ENERGY PHILIPPINES, INC.</b> shall:	
1. Ensure that a public consultation is undertaken with the local government units and stakeholders.	Local Government Unit Quezon City; Stakeholders
2. Ensure compatibility of the project vis-à-vis the existing land use.	Local Government Unit Quezon City
3. Implement segregation, collection, recycling, and disposal mechanism for solid waste.	Local Government Unit Quezon City
4. Construct an appropriate drainage system to mitigate/abate adverse impact (i.e. flooding) to the adjacent areas.	Local Government Unit Quezon City; Metro Manila Development Authority
5. Comply with the fire safety protection requirements of the Fire Code of the Philippines.	Bureau of Fire Protection
6. Implement safety rules and regulation in the project area.	Department of Labor and Employment
7. Implement emergency response plan and disaster preparedness program in case of emergencies.	Local Government Unit Quezon City
<b>ENVIRONMENTAL PLANNING RECOMMENDATIONS FOR THE PROPONENT</b>	
<b>PANGEA GREEN ENERGY PHILIPPINES, INC.</b> shall undertake close monitoring of the project to maintain a high level of safety and efficiency at all stages of the construction and operation, and to immediately address any environmental hazard/change that may take place. It is strongly recommended that the same be strictly complied.	

**Wilfredo R. Rafanan**  
Chief, Clearance & Permitting Division

**Atty. Domingo M. Clemente, Jr.**  
Regional Director



Environmental Compliance Certificate  
PANGEA GREEN ENERGY PHILIPPINES  
AREA B, PAYATAS Quezon City, Metro Manila  
PANGEA GREEN ENERGY PHILIPPINES INC.

## **APPENDIX B**

### **Certificate of Accreditation for Pollution Control Officer**

# CERTIFICATE OF ACCREDITATION

2016-NCR-321

Pursuant to Section 8 of Administrative Order No. 2014-02 dated February 3, 2014 of the Department of Environment and Natural Resources and having substantially met all the requirements prescribed therein,

**ANECITO P. SUMALO**

is hereby duly accredited as

**POLLUTION CONTROL OFFICER**  
(CATEGORY B)

of

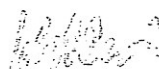
**Pangea Green Energy Phils. Inc.**

located at

**Zamboanga St., Area B, Brgy. Payatas, Quezon City**

Granted this 9<sup>th</sup> day of March, Twenty Hundred and Sixteen.

This accreditation is valid until March 9, 2019 unless sooner revoked for cause. The accreditation shall be renewed not later than one (1) month prior to its expiration.

  
**VEZMINHA A. OSORIO**  
Regional Director

# **APPENDIX C**

## Permit to Operate Air Pollution Source Installations



Republic of the Philippines  
Department of Environment and Natural Resources  
**ENVIRONMENTAL MANAGEMENT BUREAU – NATIONAL CAPITAL REGION**  
National Ecology Center Compound, East Avenue, Diliman, Quezon City  
Tel. Nos. 931-2397, 931-2954, 931-1331

Date: 27 FEB 2018

POA No.: 18-POA-B-137406-678

**PERMIT TO OPERATE**  
Air Pollution Source Installations

Pursuant to Section 1, Rule XIX of the Implementing Rules and Regulations (IRR) of Clean Air Act (RA 8749) this Permit to Operate is hereby granted to **Pangea Green Energy Phils., Inc.** with office address located at Zamboanga St., Group 3, Area B, Payatas, Quezon City for its establishment:

**Pangea Green Energy Phils., Inc.**  
TIN No.: 247-296-829-000

Zamboanga St., Group 3, Area B  
Payatas, Quezon City

**Power Plant with the following installations:**

1. \*Four (4) units 320 kW Methane Gas Engine Generator Set; 2. One (1) unit High Temperature Combustion Unit for Flaring Excess Land Fill Gas (LFG) from 61 Vertical Wells of Disposal Site; and 3. One (1) unit 200 kW "Iveco" LFG-Fired Generator.

**Conditions:**

1. Submit Self-Monitoring Report (SMR) based on the following schedule:

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

2. Comply with emission standards:

Source Installation	NO <sub>x</sub> (mg/Ncm)	CO (mg/Ncm)
1	2,000	500

3. Source emission test (SET) report for the following installation shall be included in the SMR:

Source Installation	Frequency
1	Every fourth quarter of 2019, 2021 and 2023

4. Test should be done by a third party and in accordance with the prescribed Sampling Methodology in the IRR of RA 8749. SET consisting of three sampling runs is required for the above-mentioned installations.
5. Submit "Specific Source Test Plan" within two (2) weeks prior to the scheduled testing for approval of this Office. Test done without an approved "Specific Source Test Plan" shall render the same invalid.
6. Install a closed-circuit television (CCTV) camera on the stack of your (Gas Engine Generator) with receiver located in the control room. Said camera should be web-based and capable of real-time viewing with night vision and readily accessible by our Office, DENR-EMB. Submit proof of compliance by 8 August 2018.
7. This consolidates POA No. 13-POA-B-137406-678 issued on 15 July 2013.
8. The establishment and its Pollution Control Officer, shall strictly comply with all the above stipulations and shall be responsible for ensuring that any emission of air pollutants from abnormal or unexpected events, do not cause air pollution in the surrounding air environment or have adverse effects on the persons in that environment.
9. Allow the entry of our duly authorized representative(s) to conduct inspection within your premises.

Page 1 of 2  
Pangea Green Energy Philippines, Inc.  
Zamboanga Street, Group 3, Area B, Payatas, Quezon City



Republic of the Philippines  
Department of Environment and Natural Resources  
**ENVIRONMENTAL MANAGEMENT BUREAU - NATIONAL CAPITAL REGION**  
National Ecology Center Compound, East Avenue, Diliman, Quezon City  
Tel. Nos. 931-2397, 931-2954, 931-1331

10. This permit, together with the corresponding Official Receipts of Payment, shall be adequately framed & posted in a conspicuous place at the establishment.
11. The permit shall be renewed thirty (30) days prior to its expiration.

Reference No.: 18-0008 R  
CNC No.: CNC-NCR-1107-0068

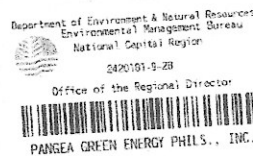
Renewal: 13-POA-B-137406-678  
\*13-POA-B-137406-678 (A)

This permit is valid up to 8 February 2023, unless revoked or suspended by this Office in writing.

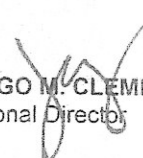
Non-compliance with the above conditions and/or any pertinent provision of RA 8749 otherwise known as "Clean Air Act", a corresponding penalty in the amount of P10,000-P100,000 per violation shall be imposed.

Recommended by:

  
**WILFREDO R. RAFANAN**  
Chief, Clearance & Permitting Division



Approved by:

  
**ATTY. DOMINGO M. CLEMENTE JR.**  
Regional Director

Filing Fee	Amount Php:	600.00
PD 1856	Amount Php:	10.00
DST	Amount Php:	15.00
Permit Fee	Amount Php:	16,400.00

O.R. No.:	0629486
O.R. No.:	0629486
O.R. No.:	0628956
O.R. No.:	23/9055

Date:	8 Jan. 2018
Date:	8 Jan. 2018
Date:	8 Jan. 2018
Date:	03/13/2018

# **APPENDIX D**

## Quarterly Self-Monitoring Reports

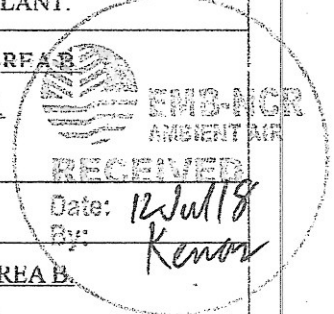
**Department of Environment and Natural Resources  
Environmental Management Bureau**

**Reference No:**

(to be filled up by DENR only)

**GENERAL INFORMATION SHEET**

Name of the Establishment/Facility	PANGEA GREEN ENERGY PHILIPPINES INC. BIOGAS PLANT.		
Establishment/Facility Address (NOT the company of head office)	Street # & Street Name: <u>ZAMBOANGA ST. GROUP 3 AREA B</u> Barangay: <u>PAYATAS</u> City/Municipality: <u>QUEZON CITY</u> Province: _____		
Name of Owner/Company	PANGEA GREEN ENERGY PHILIPPINES INC.		
Address (if address is not the same as previous address)	Street # & Street Name: <u>ZAMBOANGA ST. GROUP 3 AREA B</u> Barangay: <u>PAYATAS</u> City/Municipality: <u>QUEZON CITY</u> Province: _____		
Phone Number	261-6653 / 261-6657	Fax Number	
e-mail address	<u>asu.pangeagreen@gmail.com</u>		
Type of Business/ Industry Classification	Philippine Standard Industry Classification Code No. <u>40100</u> Philippine Standard Industry Descriptor: <u>Generation, collection and distribution of electricity.</u>		
Responsible Officer/s:	CEO/President. <u>Ms JENNIFER FERNAN CAMPOS.</u> Tele Fax #: <u>261-6653 / Tel # 261-6657.</u> e-mail address: <u>jfe.pangeagreen@gmail.com</u> Plant Manager: <u>Mr. ANECITO P. SUMALO</u> Tele Fax #: <u>261-6653 / Tel # 261-6657</u> e-mail address: <u>asu.pangeagreen@gmail.com</u>		
Pollution Control Officer	Name. <u>Mr. ANECITO P. SUMALO</u> Tele Fax #: <u>261-6653 / Tel # 261-6657</u> e-mail address: <u>asu.pangeagreen@gmail.com</u>		
Legal Classification	<input type="checkbox"/> single proprietorship <input type="checkbox"/> partnership <input type="checkbox"/> private domestic corporation <input type="checkbox"/> government corporation <input type="checkbox"/> Multi-national <input type="checkbox"/> _____		



*We hereby certify that the above information are true and correct.*

Ms. CORNELIA A. FLORADA  
Name/Signature of Office Manager

Mr. ANECITO P. SUMALO  
Name/Signature of PCO

COA 2016-NCR-321

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

**Department of Environment and Natural Resources  
Environmental Management Bureau**

**QUARTERLY SELF-MONITORING REPORT**  
2<sup>nd</sup> Quarter (April. 01, 2018 to June 30, 2018)

**MODULE 1: GENERAL INFORMATION**

Name of the Plant	PANGEA GREEN ENERGY PHILIPPINES INC. BIOGAS PLANT
Please provide the necessary revised, corrected or updated information not contained in your <i>General Information Sheet</i>	
(use additional sheet/s if necessary)	

**DENR Permits/Licenses/Clearances**

Environmental Laws	Permits	Date of Issue	Expiry Date
P.D. 984	A/C No.		
	PO No.		
PD 1586	ECC 1	CNC - NCR - 1107- 0068	19 July 2011
	ECC 2	CNC - 0509 - 29 - 10	29 September 2005
	ECC 3		
RA 6969	DENR Registry ID	GR-13-74-1810	24 June 2013
	CCO Registry		
	Importer Clearance No		
	Permit to Transport		
RA 8749	A/C No.		
	PO No.	18- POA-B-137406-678	02/27/18 02/08/2023

JULY 9, 2018  
 STEPHEN OLIVERIA  
 ASISTENTE SUMARAL

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

**Operation**

	Operating hours/day	Operating days/week	# of shift/day
Average	24	7	2
Maximum	24	7	2

**Operation/Production/Capacity:**

Average Daily Production Output	18,956.58 kWh	Total Output this Quarter	1,725,049 kWh
Total Water Consumption this Quarter (cubic meters)	113.14 cubic meters	Total Electric Consumption this Quarter (KwH)	225,834 kWh

Please use additional sheet/s if necessary

STRAINS ALLIANCE  
JULY 9, 2018  
SUBITO SUMALO

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

## B. Hazardous Wastes Generator

### HW Generation:

HW No.	HW Class	HW Nature	HW Cataloguing	Remaining HW from Previous Report		HW Generated	
				Quantity	Unit	Quantity	Unit
I101	Used oil	LQ	T, F	1.189	Tons	2.013	Tons
I201	Empty steel drum	S		0.378	Tons	0.414	Tons
D07	Busted fluorescent lamp	S		0.00005	Tons	0.00005	Tons
D406	Used Battery	S		0.106	Tons	0.106	Tons
	Rugs	S		0.0005	Tons	0.001	Tons

### Waste Storage, Treatment and Disposal: (Please fill-up one table per HW)

HW Details	HW No.: I101 Qty of HW Treated: ____ Unit: TSD Location:
Storage	Name: Used oil Method: Sealed Steel Drum and put into designated Hazardous waste storage area
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal:	ID: _____ Name: _____ Date: _____ Date: _____

	HW No.: J201 Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: <u>Empty steel drum of oil</u> Method: <u>Secured and put into designated Hazardous waste storage area</u>
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

8102152109  
 01/11/2015  
 01/11/2015

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

	HW No.: D07 Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: <u>Busted Fluorescent bulb</u> Method: <u>Secured and put into designated Hazardous waste storage area</u>
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

	HW No.: D406 Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: <u>Used Battery</u> Method: <u>Secured and put into designated Hazardous waste storage area</u>
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

**On-Site Self Inspection of Storage Area:**

Date Conducted	Premises/Area Inspected	Findings & Observations	Corrective Action Taken (if any)
July. 6, 2018	Pangea Plant / used oil storage	Used oil store in sealed steel drum.	

JULY 9, 2018  
 ANGELO SUMALOG

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

**MODULE 3: P.D. 984 (Water Pollution)**

**Water Pollution Data**

Domestic wastewater (cubic meters/day)	1.24	Process wastewater (cubic meters/day)	
Cooling water (cubic meters/day)		Others: _____ (cubic meters/day)	
Wash water, equipment (m <sup>3</sup> /day)		Wash water, floor (cubic meters/day)	

**Record of Cost of Treatment (Separate entries for separate facilities)**

	Month 1	Month 2	Month 3
Person employed, (# of employees)			
Person employed, (cost)			
Cost of Chemicals used by WTP			
Utility Costs of WTP (electricity & water)			
Administrative and Overhead Costs			
Cost of operating in-house laboratory			
New/Additional investments in WTP (Description)			
Cost of New/Add Investments			

**WTP Discharge Location**

Outlet Number	Location of the Outlet	Name of Receiving Water Body
1	Plant drainage canal (for domestic wastewater)	Calamiong Creek
2		
3		
4		
5		

STANIS ALDAN  
2102 '16 LMP

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

#### MODULE 4: R.A. 8749 (Air Pollution)

##### Summary of APSE/APCF

Summary of HSE/12-01

Process Equipment	Location	# of hrs of operations
1.		
2.		
3.		
4.		

Fuel Burning Equipment	Location	Fuel Used	Quantity Consumed	# of hrs of operations
1.) 200-kw LFG generator 1	Payatas, Quezon City	Landfill gas (LFG)	32.786 m <sup>3</sup> /hr.	24 hrs.
2.) High-temp enclosed flare	Payatas, Quezon City	Landfill gas (LFG)	0 m <sup>3</sup> /hr.	0 hrs.
3.) 320-kw LFG Generator 2	Payatas, Quezon City	Landfill gas (LFG)	294.94 m <sup>3</sup> /hr.	2,093 hrs.
4.) 320-kw LFG Generator 3	Payatas, Quezon City	Landfill gas (LFG)	192.36 m <sup>3</sup> /hr.	635 hrs.
5.) 320-kw LFG Generator 4	Payatas, Quezon City	Landfill gas (LFG)	290.72 m <sup>3</sup> /hr.	1,997 hrs.
6.) 320-kw LFG Generator 5	Payatas, Quezon City	Landfill gas (LFG)	261.85 m <sup>3</sup> /hr.	1,515 hrs.

Pollution Control Facility	Location	# of hrs of operations
1.		
2.		
3.		
4.		

##### Cost of Treatment

	Month 1	Month 2	Month 3
Cost of Person employed, (salary)			
Total Consumption of Water (cubic meters)			
Total Cost of chemicals used (e.g., activated carbon, KMnO <sub>4</sub> )			
Total Consumption of Electricity (KwH)			
Administrative and Overhead Costs			
Cost of operating in-house laboratory, if any			
Improvement or modification, if any. (Description)			
Cost of improvement or modification			

JULY 9, 2018  
 8:00 PM  
 ANGELO SUMALO  
 OLIO

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

### Other ECC Conditions

ECC Condition/s	Status of Compliance		Actions Taken
	Yes	No	
1.			
2.			
3.			
4.			
5.			
6.			

Please use additional sheet/s if necessary.

### Environmental Management Plan/Program

Enhancement/Mitigation Measures	Status of Implementation		Actions Taken
	Yes	No	
1.			
2.			
3.			
4.			
5.			
6.			

Please use additional sheet/s if necessary.

### Solid Waste Characterization/Information:

Average Quantity of Solid Wastes Generated per month	47 kg/month	Total Quantity of Solid Wastes Generated this Quarter	142 kg
Average Quantity of Solid Wastes Collected per month	33 kg/month	Total Quantity of Solid Wastes Collected this Quarter	99 kg
Entity in charge of collecting solid wastes	Local Government of Quezon City		
Brief Description of Solid Waste Management Plan (e.g., waste reduction, segregation, recycling)	Re-use of waste paper Collection of recyclables Collection of food wastes for animal food		

JULY 9, 2018  
 ANEITO SUMALO

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

## MODULE 6: OTHERS

### Accidents & Emergency Records


Date	Area/Location	Findings and Observation	Actions Taken	Remarks

### Personnel/Staff Training

Date Conducted	Course/Training Description	# of Personnel Trained

I hereby certify that the above information are true and correct.

Done this July 09, 2018 in Quezon City.

  
JULY 9, 2018  
ANECITO SUMALO  
Name/Signature of PCO


Ms. CORNELIA A. FLORADA  
Name/Signature of Office Manager

SUBSCRIBED AND SWORN before me, a Notary Public, this JUL 09 2018 day of \_\_\_\_\_, affiants exhibiting to me their Community Tax Receipts:

Name CTR No.  
CORNELIA A. FLORADA 22052653  
ANECITO P. SUMALO 22052655

Issued at  
Quezon City  
Quezon City

Issued on  
04 January 2018  
04 January 2018

  
ATTY. LUIS M. DE VERA  
Notary Public, Until Dec. 31, 2019  
Adm. Matter No. NP-101  
PTR No. 55258 / 14 / of / 2018  
IBP No. 010124 / 12 / 2017  
Roll No. 3761  
5th MOLE No. 000542 / 04/14/2016  
TIN No. 213-445-237

Module 5: P.D. 1686 (EIS System)

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Series of 718

**Department of Environment and Natural Resources  
Environmental Management Bureau**

**Reference No:**

(to be filled up by DENR only)

**GENERAL INFORMATION SHEET**

Name of the Establishment/Facility	PANGEA GREEN ENERGY PHILIPPINES INC. BIOGAS PLANT		
Establishment/Facility Address (NOT the company of head office)	Street # & Street Name: <u>ZAMBOANGA ST. , GROUP 3 AREA B</u> Barangay: <u>PAYATAS</u> City/Municipality: <u>QUEZON CITY</u> Province: _____		
Name of Owner/Company	PANGEA GREEN ENERGY PHILIPPINES INC.		
Address (if address is not the same as previous address)	Street # & Street Name: <u>ZAMBOANGA ST. , GROUP3 AREA B</u> Barangay: <u>PAYATAS</u> City/Municipality: <u>QUEZON CITY</u> Province: _____		
Phone Number	261-6653 / 261-6657	Fax Number	
e-mail address	<u>asu.pangeagreen@gmail.com</u>		
Type of Business/ Industry Classification	Philippine Standard Industry Classification Code No. <u>40100</u> Philippine Standard Industry Descriptor: <u>Generation, collection and distribution of electricity</u>		
Responsible Officer/s:	CEO/President. <u>Ms JENNIFER FERNAN CAMPOS</u> Tele Fax #: <u>261-6653 / Tel # 261-6657</u> e-mail address: <u>jfe.pangeagreen@gmail.com</u> Plant Manager: <u>Mr. ANECITO P. SUMALO</u> Tele Fax #: <u>261-6653 / Tel # 261-6657</u> e-mail address: <u>asu.pangeagreen@gmail.com</u>		
Pollution Control Officer	Name. <u>Mr. ANECITO P. SUMALO</u> Tele Fax #: <u>261-6653 / Tel # 261-6657</u> e-mail address: <u>asu.pangeagreen@gmail.com</u>		
Legal Classification	<input type="checkbox"/> single proprietorship <input type="checkbox"/> partnership <input type="checkbox"/> private domestic corporation <input type="checkbox"/> government corporation <input type="checkbox"/> Multi-national <input type="checkbox"/> _____		

*We hereby certify that the above information are true and correct.*

Ms. CORNELIA A. FLORADA  
Name/Signature of Office Manager

Mr. ANECITO P. SUMALO  
Name/Signature of PCO

COA 2016-NCR-321

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

**Department of Environment and Natural Resources  
Environmental Management Bureau**

**QUARTERLY SELF-MONITORING REPORT**  
1<sup>st</sup> Quarter (Jan. 01, 2018 to March 31, 2018)

**MODULE 1: GENERAL INFORMATION**

Name of the Plant	PANGEA GREEN ENERGY PHILIPPINES INC. BIOGAS PLANT
Please provide the necessary revised, corrected or updated information not contained in your <i>General Information Sheet</i>	
(use additional sheet/s if necessary)	

**DENR Permits/Licenses/Clearances**

Environmental Laws	Permits		Date of Issue	Expiry Date
P.D. 984	A/C No.			
	PO No.			
PD 1586	ECC 1	CNC – NCR - 1107- 0068	19 July 2011	
	ECC 2	CNC – 0509 – 29 - 10	29 September 2005	
	ECC 3			
RA 6969	DENR Registry ID	GR-13-74-1810	24 June 2013	
	CCO Registry			
	Importer Clearance No			
	Permit to Transport			
RA 8749	A/C No.			
	PO No.	18- POA-B-137406-678	02/27/18	02/08/2023

ANECIA SUMALO

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

**Operation**

	Operating hours/day	Operating days/week	# of shift/day
Average	24	7	2
Maximum	24	7	2

**Operation/Production/Capacity:**

Average Daily Production Output	19,055.55 kWh	Total Output this Quarter	1,715,000 kWh
Total Water Consumption this Quarter (cubic meters)	91 cubic meters	Total Electric Consumption this Quarter (KwH)	214,467 kWh

Please use additional sheet/s if necessary

ANIBERTO SUMALLO

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

## B. Hazardous Wastes Generator

### HW Generation:

HW No.	HW Class	HW Nature	HW Cataloguing	Remaining HW from Previous Report		HW Generated	
				Quantity	Unit	Quantity	Unit
I101	Used oil	LQ	T, F	0.624	Tons	1.189	Tons
J201	Empty steel drum	S				0.378	Tons
D07	Busted fluorescent lamp	S				0.00005	Tons
D406	Used Battery	S				0.106	Tons
	Rugs	S				0.0005	Tons

### Waste Storage, Treatment and Disposal: (Please fill-up one table per HW)

HW Details	HW No.: I101 Qty of HW Treated: ____ Unit: TSD Location:
Storage	Name: Used oil Method: Sealed Steel Drum and put into designated Hazardous waste storage area
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

	HW No.: J201 Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: <u>Empty steel drum of oil</u> Method: <u>Secured and put into designated Hazardous waste storage area</u>
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

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ANBEN

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

	HW No.: D07 Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: <u>Busted Fluorescent bulb</u> Method: <u>Secured and put into designated Hazardous waste storage area</u>
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

	HW No.: D406 Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: <u>Used Battery</u> Method: <u>Secured and put into designated Hazardous waste storage area</u>
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

ANGELO SUMALO  
 100920

**On-Site Self Inspection of Storage Area:**

Date Conducted	Premises/Area Inspected	Findings & Observations	Corrective Action Taken (if any)
March. 26, 2018	Pangea Plant / used oil storage	Used oil store in sealed steel drum.	

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

### MODULE 3: P.D. 984 (Water Pollution)

#### Water Pollution Data

Domestic wastewater (cubic meters/day)	0.48	Process wastewater (cubic meters/day)	
Cooling water (cubic meters/day)		Others: _____ (cubic meters/day)	
Wash water, equipment (m <sup>3</sup> /day)		Wash water, floor (cubic meters/day)	

#### Record of Cost of Treatment (Separate entries for separate facilities)

	Month 1	Month 2	Month 3
Person employed, (# of employees)			
Person employed, (cost)			
Cost of Chemicals used by WTP			
Utility Costs of WTP (electricity & water)			
Administrative and Overhead Costs			
Cost of operating in-house laboratory			
New/Additional Investments in WTP (Description)			
Cost of New/Add Investments			

#### WTP Discharge Location

Outlet Number	Location of the Outlet	Name of Receiving Water Body
1	Plant drainage canal (for domestic wastewater)	Calamiong Creek
2		
3		
4		
5		

ANED TO SIMPLIFIED

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

#### MODULE 4: R.A. 8749 (Air Pollution)

##### Summary of APSE/APCF

Process Equipment		Location		# of hrs of operations	
1.					
2.					
3.					
4.					
Fuel Burning Equipment	Location	Fuel Used	Quantity Consumed	# of hrs of operations	
1.) 200-kW LFG generator 1	Payatas, Quezon City	Landfill gas (LFG)	128.98 m <sup>3</sup> /hr.	203 hrs.	
2.) High-temp enclosed flare	Payatas, Quezon City	Landfill gas (LFG)	0 m <sup>3</sup> /hr.	0 hrs.	
3.) 320-kw LFG Generator 2	Payatas, Quezon City	Landfill gas (LFG)	268.30 m <sup>3</sup> /hr.	1,960 hrs.	
4.) 320-kw LFG Generator 3	Payatas, Quezon City	Landfill gas (LFG)	271.62 m <sup>3</sup> /hr.	2,100 hrs.	
5.) 320-kw LFG Generator 4	Payatas, Quezon City	Landfill gas (LFG)	266.47 m <sup>3</sup> /hr.	2,085 hrs.	
6.) 320-kw LFG Generator 5	Payatas, Quezon City	Landfill gas (LFG)	0 m <sup>3</sup> /hr.	0 hrs.	
Pollution Control Facility		Location		# of hrs of operations	
1.					
2.					
3.					
4.					

##### Cost of Treatment

	Month 1	Month 2	Month 3
Cost of Person employed, (salary)			
Total Consumption of Water (cubic meters)			
Total Cost of chemicals used (e.g., activated carbon, KMnO <sub>4</sub> )			
Total Consumption of Electricity (Kwh)			
Administrative and Overhead Costs			
Cost of operating in-house laboratory, if any			
Improvement or modification, if any. (Description)			
Cost of improvement of modification			

ANSWER SUMALO

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

### Other ECC Conditions

ECC Condition/s	Status of Compliance		Actions Taken
	Yes	No	
1.			
2.			
3.			
4.			
5.			
6.			

Please use additional sheet/s if necessary.

### Environmental Management Plan/Program

Enhancement/Mitigation Measures	Status of Implementation		Actions Taken
	Yes	No	
1.			
2.			
3.			
4.			
5.			
6.			

Please use additional sheet/s if necessary.

### Solid Waste Characterization/Information:

Average Quantity of Solid Wastes Generated per month	47 kg/month	Total Quantity of Solid Wastes Generated this Quarter	142 kg
Average Quantity of Solid Wastes Collected per month	33 kg/month	Total Quantity of Solid Wastes Collected this Quarter	99 kg
Entity in charge of collecting solid wastes	Local Government of Quezon City		
Brief Description of Solid Waste Management Plan (e.g., waste reduction, segregation, recycling)	Re-use of waste paper Collection of recyclables Collection of food wastes for animal food		

SUBMITTED TO SUMMUS

Name of Plant:

Pangea Green Energy Philippines Inc. Quezon City

Reference No:

## MODULE 6: OTHERS

### Accidents & Emergency Records


Date	Area/Location	Findings and Observation	Actions Taken	Remarks


### Personnel/Staff Training

Date Conducted	Course/Training Description	# of Personnel Trained

I hereby certify that the above information are true and correct.

Done this April 05, 2018 in Quezon City.


  
Ms. CORNELIA A. FLORADA  
Name/Signature of Office Manager

  
ANECITO SUMALO  
Name/Signature of PCO

SUBSCRIBED AND SWORN before me, a Notary Public, this 11 day of APR 11 2018, affiants exhibiting to me their Community Tax Receipts:

Name CTR No.  
CORNELIA A. FLORADA 22052653  
ANECITO P. SUMALO 22052655

Issued at Issued on  
Quezon City 04 January 2018  
Quezon City 04 January 2018

  
**ATTY. LUIS M. DE VERA**  
Notary Public, Until Dec. 31, 2019  
Adm. Matter No. 114-101

Module 5: P.D. 1586 (EIS System)

PTR No. 5520351 / 11/03/2018

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IBP No. 019124 / 12 / 20 / 2017

Roll No. 20761

5th MOLE No. 0009642 / 04/14/2016

TIN No. 218-145-247

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