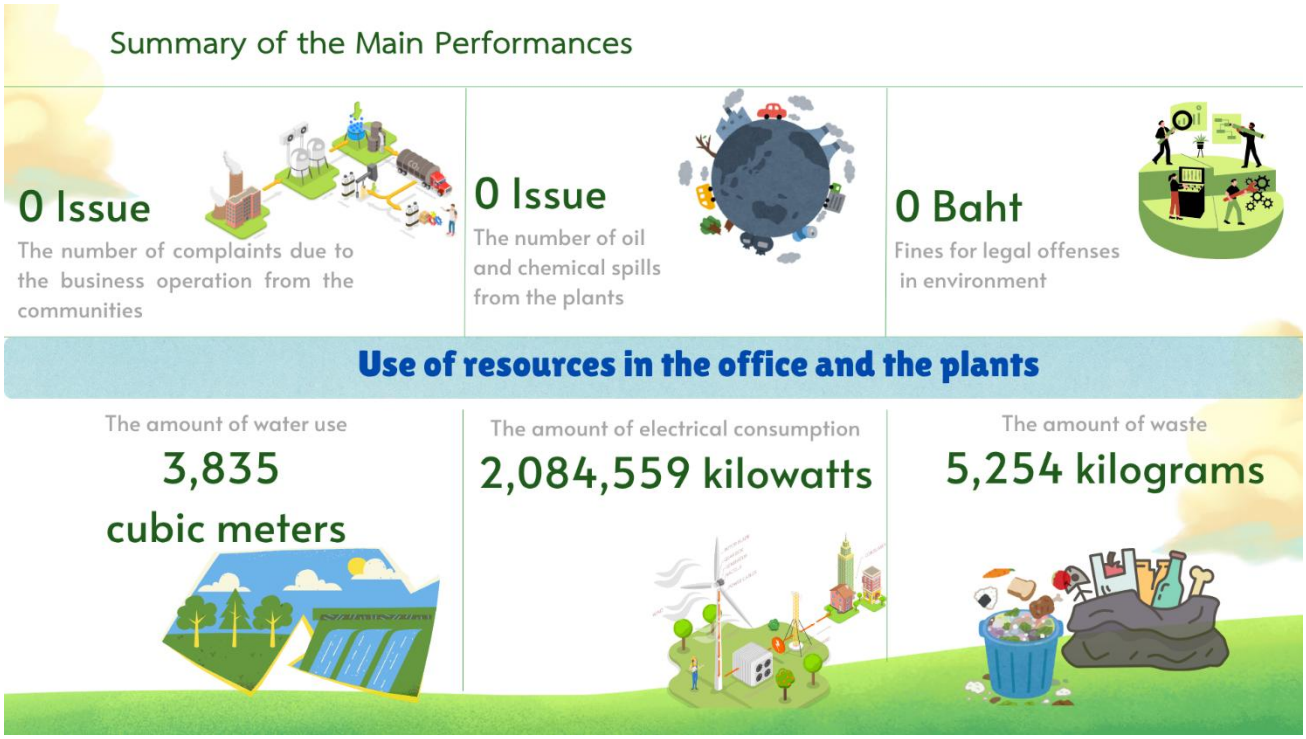
Sustainability Management in the Environmental Dimension



Environmental Management Policy

The Company is committed to business operation with considerations in environment, cost-effective use of resources, promotion to develop community quality of life, and social responsibility by taking into account all stakeholders in order to lead to continuous and sustainable development. This policy is applied to all departments of the Company. The senior executives must be responsible for ensuring that the implementation must be in the same direction, and the management at all levels must be a model by complying to the company's guidelines and good corporate governance as well as to support and drive for strict practice. All employees must understand and be compliant to this policy in all work procedures. "The Quality, Security, Safety, Health, and Environment (QSHE) Policy" of the Company is publicized on the Company's official website. https://www.uac.co.th/storage/content/corporate-governance/policy/qshe-en.pdf

Environmental operating results

Energy management plan

The company recognizes the importance of using energy resources efficiently. Therefore, it is committed to promoting energy conservation practices among all employees, encouraging everyone to participate and act in alignment with the same guidelines. This collective effort aims to reduce the company's operating costs while supporting energy-saving initiatives in accordance with government policy.

Details of setting goals for electricity and/or fuel management

Target(s)	Base year(s)	Target year(s)
Reduction of electricity purchased for consumption	2024 : purchased electricity for consumption 996,767.00 Kilowatt-hour	2025 : Reduced by 10%

Performance and outcomes of energy management

Electrical Energy Consumption

Table to show the compared amount of the electrical energy consumption (3 years)

(Unit: kilowatts)

Electrical Consumption	2023	2024	2025
Head Office (H/O)	193,110.00	206,375.00	237,574.00
Mae Tang Power Plant	102,128.00	80,292.00	83,016.00
Petroleum Production Plant (PPP)	967,680.00	710,100.00	1,763,970.00
Total	1,262,918.00	996,767.00	2,084,559.00

In 2025, electricity consumption from external sources increased compared to 2024 due to a temporary malfunction of the power generator caused by age-related deterioration of spare parts. As a result, the company was unable to generate electricity for its own use as usual and therefore needed to purchase electricity from the external grid to ensure continuity of operations.

The company has undertaken repairs and efficiency improvements to the generator, along with a review of the preventive maintenance plan and the stocking of critical spare parts, in order to prevent similar incidents in the future and to continuously manage energy consumption efficiently.

Energy Management Performance Results

- Energy preservation project
- The petroleum production plant used natural gas remaining from sending to Sao Thien Power Plant to produce electrical energy used in the plant.
- Control to turn off lights in the areas where electricity was not used at night.
- Control of the air-conditioning temperature at 25 C
- Emphasizing the employees in the organizations to turn off light when it was not in use during lunch break and after work.
- Turning off the computer screens when they were not in use.
- Install solar rooftop lights in the factory area
- Ensure continuous maintenance of the machinery and conduct inspections for potential leaks.

Energy Conservation Activity – Electrical Energy

Measure Name: Reducing Exhaust Fan Operation Based on Ambient Temperature

Equipment Improved: Exhaust Fan of the Gas Generator System

Location of Improvement: Gas Generator Area

Reason for Improvement: Previously, all 10 exhaust fans were operated manually without temperature-based control.

Details of Improvement Implementation: The operation of exhaust fans in the gas generator system has been optimized by reducing the number of operating units from 10 to 6, based on the ambient temperature conditions.

Item	Energy Consumption Before Improvement	Energy Consumption After Improvement
Kilowatt-hour/year	126,000.00	75,600.00
Cost (THB/year)	776,361.60	465,816.96
Cost Savings	**310,544.64 THB/year**	

Energy management: Fuel consumption

	2023	2024	2025
Jet fuel (Litres)	0.00	0.00	0.00
Diesel (Litres)	23,736.94	23,669.06	31,219.00
Gasoline (Litres)	3,724.16	5,739.58	17,812.00
Fuel oil (Litres)	0.00	0.00	0.00
Crude oil (Barrels)	0.00	0.00	0.00
Natural gas (Standard cubic feet)	297.31	220.60	341.77
Steam (Metric tonnes)	0.00	0.00	0.00
Coal (Metric tonnes)	0.00	0.00	0.00

Information on water management

The company consistently conducts its business with consideration for the community and the environment. It utilizes water from various sources depending on each area and strictly controls the quality of wastewater discharged into external water bodies to ensure full compliance with legal requirements

Use of Water Resource

Table to show the compared amount of the water resource use (3 years)

(Unit : Cubic meters)

Use of Water Resource	2023	2024	2025	Notes
Head Office	-	-	-	No information because the water meters are combined and calculated together with the office rent.
Mae Tang Plant	-	-	-	Natural water use
PPP	5,943.00	4,460.00	3,835.00	Groundwater use
Total	5,943.00	4,460.00	3,835.00	

Details of setting goals for water management

Target(s)	Base year(s)	Target year(s)
Reduction of water withdrawal	2024 : Water withdrawal 4,460.00 Cubic meters	2025 : Reduced by 10%

In 2025, the Company's total water consumption amounted to 3,835.00 cubic meters, representing a decrease from 4,460.00 cubic meters in 2024. This reflects a reduction of 625.00 cubic meters, or approximately 14.0%. As a result, the Company successfully achieved its target of reducing water consumption by 10%, as established.

The company prioritizes efficient water usage and continues to take action as follows.

- Promotion for all departments to place importance in water use, and creation of positive awareness in treating waste water before releasing it to the public drainage system
- Public Relations for all employees to turn off water when it was not in use
- Checking leaks at different points of the waterpipe system

Information on waste management

The plants have the waste-sorting systems according to requirements and standards by dividing waste into 3 types. The waste disposal was implemented as follows.

1. General wet waste was collected and sent for disposal at the subdistrict administrative organization and the municipality.

2. Recyclable (non-hazardous) waste was collected and requested for disposal permission according to laws (Sor Kor 1, Sor Kor 2, and Sor Kor 3). The Company hired a company which is licensed from Department of Industrial Works for correct waste disposal.
3. Hazardous waste was collected and requested for disposal permission according to laws (Sor Kor 1, Sor Kor 2, and Sor Kor 3). The Company hired a company which is licensed from Department of Industrial Works for correct waste disposal.

Waste Management

The Petroleum Production Plant (PPP)

The plant did not send wastewater out of the plant because the plant installed the Corrugated Plate Interceptor (CPI) for disposing wastewater from the production process. From the wastewater-separating process, the small amount of wastewater contaminated with raw materials was sent to the Produced Water Separator and the CPI to separate oil from water. Water passing through the CPI was sent for collection at the waste water pond in the area of the plant. Therefore, wastewater was not released to public water sources or out of the plant. However, in the case with the large amount of wastewater, the plant requested for disposal permission according to laws (Sor Kor 1, Sor Kor 2, and Sor Kor 3) and hired a company which is licensed from Department of Industrial Works for correct waste disposal in compliance with the environmental management system (ISO 14001:2015). The plant was approved by this standard.

The Biogas Power Production Plant from Energy Crops at Mae Tang

The plant separated fermented water and grass residue (SIS) by using the Vertical Screw Separator. One part of the resulting fermented water was returned to the production process while the other part was used for agricultural benefits such as in field or horticultural crops. As fermented water contains minerals, nutrients and organic matters that are necessary for many plants while grass residue (SIS) was dried to remove moisture, they were used to make soil improvement materials (SIS).

The Exploration Land Plot of the Petroleum Production Source No. L11/43 at Burapha Production Base – A

The petroleum production source at Burapha Production Base A – did not drain produced water into public water sources or out of the production base. All produced water were compressed and returned to the disposal well through the Water Injection Pump. In the case of being unable to return water, the plant sent such water for disposal outside the production base by hiring legally licensed service providers of transportation and hazardous waste disposal.

Used Engine Oil and Batteries

The Petroleum Power Plant

The plant collected used engine oil and batteries, and requested for disposal permission according to laws (Sor Kor 1, Sor Kor 2, and Sor Kor 3). The Company hired a company which is licensed from Department of Industrial Works for correct waste disposal.

The Biogas Power Production Plant from Energy Crops at Mae Tang

The plant collected used engine oil and batteries, and requested for disposal permission according to laws (Sor Kor 1, Sor Kor 2, and Sor Kor 3) for correct waste disposal, and sold used engine oil to a company which is licensed from Department of Industrial Works. Deteriorate batteries were exchanged and returned to dealers.

Details of setting goals for waste management

Target(s)	Base year(s)	Target year(s)	Waste management methods
Reduction of waste generation Waste type: Non-hazardous waste	2024 : non-hazardous waste 4,771.78 Kilograms / Kilometer	2026 : Reduced by 5%	• Landfilling

Operating Performance and Outcomes on Waste and Waste Management

The Company manages waste and by-products generated from its business operations in a systematic manner in accordance with the 3R principles (Reduce, Reuse, Recycle). An effective waste segregation system by type has been implemented, together with initiatives to raise awareness and encourage participation among relevant stakeholders, with the aim of reducing waste disposal through landfill.

Item	Quantity (Kilogram)	Disposal
Non-hazardous waste	115	Recycling companies / scrap material collectors
Used engine oil	4,400	Sent to a licensed waste disposal company

In 2025, the Company generated a total of 5,550 kilograms of waste and refuse and engaged a company licensed by the Department of Industrial Works to properly dispose of such waste in accordance with regulatory requirements.

In addition, the Company conducts environmental quality monitoring within the office premises and surrounding operational areas at least once a year. In 2025, the results indicated that the levels of air quality, odor, noise, and lighting were within the standard limits prescribed by law. Furthermore, no incidents of chemical leakage resulting from the Company's operations were reported.

Table to show the amount of flare gas and CO_2 emission (fuel consumption) mitigated from useless burning

The Petroleum Production Plant

Raw Materials	The Mitigated Amount of Flare Gas (MMBTU)	The Mitigated Amount of CO_2 Emission (Ton CO_2)	The Number of 10-year-old Trees Used for CO_2 Absorption (Tree)
PPP Plant	500,268.84	29,608.66	489,582
STN-A Plant	177,095.51	12,564.34	207,752
PTO-A Plant	39,971.62	2,365.74	39,118
Total	**717,335.97**	**44,538.74**	**736,452**

The Biogas Power Production Plant from Energy Crops at Mae Tang has promoted plantation of energy crops used in the electrical production process. For example, Napier grass with once planted can produce a harvest for 6-8 years, and it is helpful in reducing CO2 emission in the stages of preparing soil and stem cuttings, planting, and buying corn plants after harvest. CO2 emission could be mitigated as summarized in the table below.

Table to show the amount of CO_2 emission mitigated from the planting process and burning

The Biogas Power Production Plant from Energy Crops at Mae Tang

Raw Materials (Energy Crops)	Amount (Ton)	The Mitigated Amount of CO_2 (Ton CO_2)
Napier Grass	18,139.76	25.39
Corn Plants	13,110.29	5,448.63
Total	**31,250.05**	**5,474.02**

Use of Raw Materials

- **Raw Materials (Associated Gas) at the Petroleum Power Plant**

The Company has improved the production process and maintained the natural gas pipelines from the petroleum production sources of the PPT Exploration and Production Public Company Limited (PTTEP) to the Petroleum Production Plant in order to reduce environmental effects from burning gas into atmosphere.

(Unit : million standard cubic foot (MMSCF))

Raw Materials	2023	2024	2025
The amount of associated gas	297.31	220.60	341.77

- **Raw Material (Energy Crops) at the Biogas Power Production Plant from Energy Crops**

The plant bought raw materials of energy crops and agricultural produces from farmers such as Napier grass and corns continuously in unlimited number in order to generate electricity, promote sustainable income for farmers, and get raw materials for the plants to continuously distribute electricity to Provincial Electricity Authority.

(Unit: Ton)

Raw Materials	2023	2024	2025
Energy Crops	34,341.00	29,248.00	31,250.06

Effective Use of Resources

PPP Plant	MT Plant
The remaining natural gas from transmitting to Sao Thian Power Plant were used to generate electricity for internal use within the plant, totaling 5,121,557 kilowatts, reducing electricity purchase through the Provincial Electricity Authority's transmission system by 65.55 %.	Energy plants were used to generate 8,263,766 kilowatts of electricity, of which 7,070,380 kilowatts were sold to the Provincial Electricity Authority, and the remaining 1,193,386 kilowatts were used in the production process, reducing the electricity purchase through the Provincial Electricity Authority's transmission system by 14%. By-products from the production process are divided into: ● Water A total of 53,800 cubic meters of water generated from the production process was managed, of which approximately 27,700 cubic meters was reused within the system. Additionally, around 22,320 cubic meters was utilized for irrigating Napier grass fields, the factory's main raw material. This approach enables effective water reuse and significantly enhances water use efficiency. ● Residue from the production process was used as soil improvement substrates to reduce the use of chemical fertilizers in the agricultural sector.

Waste management: Waste Generation

	2023	2024	2025
Total waste generated (Kilograms)	3,310.10	5,771.78	10,804.00
Total non-hazardous waste (kilograms)	1,310.10	4,771.70	5,254.00
Total hazardous waste (kilograms)	2,000.00	1,000.08	5,550.00

Climate Change

Greenhouse Gas Management

The Company places great importance on and has continuously undertaken activities to manage greenhouse gas emissions arising from its operations. However, external verification by a third party has not yet been conducted.

The Company operates under a vision and business approach that emphasizes responsibility and sustainable environmental stewardship, with the goal of reducing greenhouse gas emissions and managing the environment in a balanced manner. This is aligned with the Sustainable Development Goals (SDGs), specifically Goal 13: Climate Action taking urgent measures to combat climate change and its impacts and Goal 17: Partnerships for the Goals global partnerships for sustainable development. In 2025, the Company compiled data to prepare its organizational greenhouse gas emissions report. In 2026, external verification will be required, and by 2027, the Company will submit for certification from the Thailand Greenhouse Gas Management Organization (Public Organization).

In 2025, the company's organizational greenhouse gas emissions amounted to 9,502.36 tons of carbon dioxide equivalent (tCO_2 e). It was found that greenhouse gas emissions decreased by 1.90 percent compared to 2024; however, this reduction did not meet the target of 20 percent that had been set. The company continues to promote the use of electric vehicles as a key measure in its organizational greenhouse gas management plan, as this helps reduce greenhouse gas emissions from the direct use of fossil fuels and enhances energy efficiency. In addition, the installation of solar rooftop systems has been implemented. These actions are in line with the country's Nationally Determined Contribution (NDC) targets and the government's energy conservation policies, with the aim of achieving sustainable greenhouse gas emission reductions.

Details of setting other greenhouse gas reduction targets

Greenhouse gas emission scope	Base year(s)	Short-term target year	Long-term target year
Scope 1	2024 : Greenhouse gas emissions 7,224.15 tCO_2e	2030 : Reduced by 20% in comparison to the base year	-

Performance and outcomes of greenhouse gas management

1. **Switching from fuel powered vehicles to electric charging**

   The PPP factory has replaced its fleet of internal combustion engine vehicles with electric vehicles, transitioning from fuel-based transportation to clean electric energy.

Carbon Emissions (kgCO2eq)	Volume of gasoline consumption	Electricity consumption
	252.88 Liter	1,375.75 kWh
	10,386.88 $kgCO_2eq$	653.47 $kgCO_2eq$
Quantity of carbon dioxide emissions reduced = 9,733.41 kgCo2eq		

The warehouse has transitioned from fuel-powered forklifts to electric forklifts charged with electricity.

Carbon Emissions (kgCO2eq)	Volume of gasoline consumption	Electricity consumption
	4,642.60 Liter	2,100 kWh
	693.05 $kgCO_2eq$	997.50 $kgCO_2eq$

2. Solar rooftop Project

The rooftop solar cell installation project aims to reduce electricity purchases from external sources. In 2025, installation was completed in 3 out of the total 7 planned areas. The comparative results will be available in 2026, with details as follows.

Area	Capacity (kW)	Electricity production capacity (kWh/ Year)	Remark
BUR-A	100	167,460	Installation completed
ART-C	20	28,460	Installation completed
STN-A	30	42,190	Installation completed
PPP	190	267,280	To be completed in March 2026
MT2	150	169,510	To be completed in March 2026
WH	10	16,036	To be completed in March 2026
PPM	30	42,190	To be completed in March 2026

3. EV Charging Stations for Employees

The Company recognizes the importance of reducing greenhouse gas emissions and supporting the transition to clean energy. As part of its employee welfare program, the Company has installed EV Charging Stations within its premises to promote the use of electric vehicles as an alternative to fossil fuel-based transportation. This initiative contributes to reducing fossil fuel consumption and carbon dioxide (CO_2) emissions from the transportation sector. The initiative is aligned with the Company's Climate Action strategy and corporate decarbonization efforts, supporting its commitment to sustainable development.

Greenhouse gas management : Corporate greenhouse gas emission

	2023	2024	2025
Total greenhouse gas emissions (Metric tonnes of carbon dioxide equivalent)	76,506.49	9,685.30	9,502.36
Total greenhouse gas emissions - Scope 1 (Metric tonnes of carbon dioxide equivalent)	76,381.25	7,224.15	7,400.70
Total greenhouse gas emissions - Scope 2 (Metric tonnes of carbon dioxide equivalent)	96.53	508.92	1,044.59
Total greenhouse gas emissions - Scope 3 (Metric tonnes of carbon dioxide equivalent)	28.71	1,952.23	1,057.07

Greenhouse gas management: Verification of the company's greenhouse gas emissions over the past year

Plans, performance, and outcomes related to other environmental management

Pollution Management at PPP

The Company monitors the measurement of emissions to outside to comply with the law. The staff authorized by the Department of Industrial Works conduct the measurement twice a year. In 2025, the results of the measurement of air contaminant emissions showed that the amount of pollution released to the outside was within the standard. Air Pollution Air emission stack monitoring results.

Data Collection Point	Measurement Date	Standard Value	Measurement Results		Measurement Time
			NOx as NO_2 (ppm)	CO_2 (%)	
Hot oil Furnace	8 Mar 2025	200	3	6.42	08.30 - 08.35 a.m.
	30 Sep 2025	200	19	12.60	10.15 – 10.20 a.m.
Gas Engine	8 Mar 2025	200	7.91	6.43	09.10 – 09.25 a.m.
	30 Sep 2025	200	19	10.43	10.15 – 10.20 a.m.

Remark : Standards for the Quantity of Pollutants Discharged from Factories, Notification of Ministry of Industry B.E. 2549 (2006)

Results of ambient air quality measurements

Data Collection Area	Standard Value	Measurement Results PM-10
Moo 12 Ban Khlong Thai Wang	0.12 mg/m^3	0.009-0.013 mg/m^3
Moo 7 Ban Nai Dong	0.12 mg/m^3	0.012-0.042 mg/m^3
Moo 8 Ban Bo Plao	0.12 mg/m^3	0.010-0.020 mg/m^3

Remark : According to the Standards of the National Environment Board Notification No. 24 B.E. 2547 (2004) on the Determination of General Ambient Air Quality Standards.

Noise Pollution

Results of ambient noise level measurements

Data Collection Area	Measurement Date	Measurement Results (dB(A))	
		24-hour Standard Value 70 Leq	Maximum Standard Value 115 dB(A)
Moo 12 Ban Khlong Thai Wang	Mar 68	49.6-56.2	78.7-96.9
	Oct 68	50.7-55.1	80.1-93.2
Moo 7 Ban Nai Dong	Mar 68	59.3-61.8	87.8-100.8
	Oct 68	52.2-57.0	80.0-93.2
Moo 8 Ban Bo Plao	Mar 68	49.9-53.9	77.6-98.8
	Oct 68	53.8-56.3	78.2-89.2
Standard		70	115

Remark : - According to the Standard of the National Environment Board Notification No. 15 B.E. 2540 (1997) on the Determination of General Noise Level Standards

-The measurement results are average values.

Groundwater quality analysis results

Analysis results	Data Collection Area					
	Moo 12 Ban Khlong Thai Wang		Groundwater at Wat Sing Thong		Standard	Unit
	Mar 2025	Oct 2025	Mar 2025	Oct 2025		
pH	7.7	7.0	7.0	8.0		
Temp.	31	31	35	31		C
Conductivity	650	110	300	170		seimens/cm
Total Hardness	69	30	85	49		mg/L as $CaCO_3$
TDS				213		mg/L
Chloride	2	4	<1	1		
Iron	1.54	0.568	0.086	0.075		
Manganese	0.011	0.032	0.001	0.005	0.5	
Arsenic	0.005	0.006	0.006	0.018	0.01	
Barium	0.092	0.172	0.095	0.141		
Lead	<0.002	<0.002	<0.002	0.018	0.01	
Cr^{6+}	0.005	<0.01	0.004	<0.01	0.05	
Mercury	0.0001	<0.0005	0.0001	<0.0005	0.001	

Remark : Notification of the National Environmental Board No. 20 (B.E. 2543) Re: Groundwater Quality Standards

Surface water quality analysis results

Analysis results	Data Collection Area					
	Khlong Puek area (Upstream) Moo 12 Ban Khlong Thai Wang		Khlong Puek area (Downstream Moo 3 Ban Pla Rang		Standard	Unit
	Mar 2025	Oct 2025	Mar 2025	Oct 2025		
pH	7.3	8.1	7.3	8.3	5.0-9.0	
Temp	32	30	34	31		C
Conduct.	180	100	240	110		Useimens/cm
Turbidity	12.97	66	28.92	96		NTU
TSS	16.7	57.8	22.4	61.9		mg/L
TDS						
DO	8.1	4.5	6.7	5.6		
BOD_5	2	<2	2	<2	2.0	
COD	<40	<40	<40	<40		
Cl^-	6	32	3	33		
As	<0.001	0.004	<0.001	0.009	0.01	
Pb	<0.002	<0.002	<0.002	<0.002	0.05	
Cr^{6+}	0.012	0.002	0.025	0.001	0.05	
NO_3^-	<0.1	<0.1	<0.1	<0.1	5.0	
PO_4^{2-}	8.53	35.1	14.2	30.3		
Hg	<0.0005	<0.0005	<0.0005	<0.0005	0.002	
TCB	13	400	23	330	20,000	MPN/100 mL
FCB	7.8	79	23	49	4,000	

Remark : Surface Water Quality Standards (Class 3), Notification of the National Environmental Board No. 8 (B.E. 2537)

Air Pollution from Energy Crops at Mae Tang

Parameter	Standard Value	Results of emission stack measurements from the power generator (Gas Engine)	Result
Sulfur Dioxide (ppm)	60	<1	Pass
Oxide of Nitrogen as Nitrogen Dioxide (ppm)	200	56	Pass
Total Suspended Particulate (mg/m^3)	120	1.78	Pass

Data Collection Area	Standard Value	Measurement Results (Min-Max)
1.Project area	0.12 mg/m^3	0.020 - 0.032 mg/m^3
2.No. 125, Moo 2, Mae Taeng Subdistrict, Mae Taeng District, Chiang Mai Province.	0.12 mg/m^3	0.008-0.018 mg/m^3

Remark : In compliance with the National Environmental Board Notification No. 24 (B.E. 2547): Ambient Air Quality Standards

Noise Pollution from Energy Crops at Mae Tang

Data Collection Area	Measurement Results (dB(A))	
	24-hour Standard Value 70 Leq	Maximum Standard Value 115 dB(A)
1. Project area	53.8	90.0
2. No. 124, Moo 2, Mae Taeng Subdistrict, Mae Taeng District, Chiang Mai Province.	55.9	94.4
3. No. 125, Moo 2, Mae Taeng Subdistrict, Mae Taeng District, Chiang Mai Province.	47.9	78.2

Remark : - In compliance with the National Environmental Board Notification No. 15 (B.E. 2540) on General Noise Standards, the measurement results are reported as average values.