Contract No. EP/SP/61/10 Organic Resources Recovery Centre (Phase 1)

One Hundred and Ninth Monthly EM&A Report (June 2024)

PREPARED FOR
OSCAR Bioenergy Joint Venture

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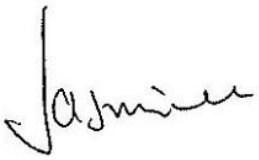

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EXECUTIVE SUMMARY

The construction works of ***No. EP/SP/61/10 Organic Resources Recovery Centre Phase 1 (the Project)*** commenced on 21 May 2015. This is the 109th Monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 30 June 2024 in accordance with the EM&A Manual. Substantial completion of the construction works was confirmed on 3 December 2018. In the meantime, the operation phase EM&A programme had commenced in March 2019. Substantial Completion in respect of substantial part of the Works was confirmed on 24 February 2020. The construction phase EM&A programme was completed in the end of February 2020.

SUMMARY OF WORKS UNDERTAKEN DURING THE REPORTING MONTH

Works undertaken in the reporting month included:

- Operation of the Project, including organic waste reception, and operation of the pre-treatment facilities, anaerobic digesters, composting facilities, air pollution control systems, on-line emission monitoring system for the Centralised Air Pollution Control Unit (CAPCS), Co-generation Units (CHP)s and Ammonia Stripping Plant (ASP), and the wastewater treatment plant;
- CHP fine-tuning (will continue into next month); and
- PT Line 1 overhaul (will continue into next month).

ENVIRONMENTAL MONITORING AND AUDIT PROGRESS

AIR QUALITY MONITORING

Non-compliance of emission limits of NO_x and SO_2, from CHP1; NO_x from CHP2; NO_x from CHP3; and NO_x, SO_2, and NH_3, from the ASP were recorded during the reporting period.

WATER QUALITY

All analytes from the outlet chamber of the effluent storage tank were recorded to be in compliance with discharge limits during the reporting period.

All analytes of Petrol Interceptor 2 sampling were recorded to be in compliance with discharge limits during the reporting period. Petrol Interceptor 1 sample was collected on 26 June 2024, however the laboratory report and results are still pending as at the date of this report submission.

WASTE MANAGEMENT

Waste generated from the operation of the Project includes chemical waste, waste generated from pre-treatment process and general refuse.

1,200L of chemical waste (spent lube oil) was disposed of at CWTC in June 2024.

1,190.02 tonnes of waste generated from pre-treatment process from the operation of the Project were disposed of at landfill. Among the waste generated from pre-treatment process from the operation of the Project, 0.000 tonnes of metals, 0.000 tonnes of papers/cardboard packing and 0.000 tonnes of plastics were sent to recyclers for recycling during the reporting period.

Around 4.080 tonnes of general refuse from the operation of the Project were disposed of at landfill. Among the general refuse from the operation of the Project, 0.002 tonnes of metals, 0.010 tonnes of papers/cardboard packing and 0.040 tonnes of plastics were sent to recyclers for recycling during the reporting period.

FINDINGS OF ENVIRONMENTAL SITE AUDIT

A summary of the monitoring activities undertaken in this reporting period is listed below:

- Joint Environmental Site Inspections 1 time

1 monthly joint environmental site inspection was carried out by the representatives of the Contractor and the MT. The IEC was also present at the joint inspections on 28 June 2024. The environmental control/ mitigation measures (related to air quality, water quality, waste (including land contamination prevention), hazard-to-life and landscape and visual) recommended in the approved EIA Report and the EM&A Manual were properly implemented by the Contractor during the reporting month.

ENVIRONMENTAL EXCEEDANCE/ NON-CONFORMANCE, COMPLAINT, SUMMONS AND PROSECUTION

Exceedances for the air emission limits for CHPs and the ASP were recorded during the reporting period.

No complaint was received during the reporting period.

FUTURE KEY ISSUES

Activities to be undertaken in the next reporting month include:

- Operation of the Project;
- Completion of CHP fine-tuning;
- Completion of PT Line 1 overhaul; and
- Pretreatment maintenance.

1. INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by OSCAR Bioenergy Joint Venture (the Contractor) as the Environmental Team (ET) to undertake the construction Environmental Monitoring and Audit (EM&A) programme for the ***Contract No. EP/SP/61/10 of Organic Waste Treatment Facilities Phase I,*** which the project name has been updated to ***Organic Resources Recovery Centre (Phase I) (the Project)*** since November 2017. ERM was also appointed by the Contractor to undertake the operation EM&A programme starting 1 March 2019.

1.1 PURPOSE OF THE REPORT

This is the 109th EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from **1** to **30 June 2024**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

SECTION 1: INTRODUCTION

It details the scope and structure of the report.

SECTION 2: PROJECT INFORMATION

It summarises the background and scope of the Project, site description, project organisation and status of the Environmental Permits (EP)/licences.

SECTION 3: ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

It summarises the environmental monitoring requirements including monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event/Action Plans, as well as environmental audit requirements as recommended in the EM&A Manual and approved EIA report.

SECTION 4: MONITORING RESULTS

It summarises monitoring results of the reporting period.

SECTION 5: SITE AUDIT

It summarises the audit findings of the environmental as well as landscape and visual site audits undertaken within the reporting period.

SECTION 6: ENVIRONMENTAL NON-CONFORMANCE

It summarises any exceedance of environmental performance standard, environmental complaints and summons received within the reporting period.

SECTION 7: FURTHER KEY ISSUES

It summarises the impact forecast for the next reporting month.

SECTION 8: CONCLUSIONS

2. PROJECT INFORMATION

2.1 BACKGROUND

The Organic Resources Recovery Centre (ORRC) Phase I development (hereinafter referred to as "the Project") is to design, construct and operate a biological treatment facility with a capacity of about 200 tonnes per day and convert source-separated organic waste from commercial and industrial sectors (mostly food waste) into compost and biogas through proven biological treatment technologies. The location of the Project site is shown in *Annex A*.

The environmental acceptability of the construction and operation of the Project had been confirmed by findings of the associated Environmental Impact Assessment (EIA) Study completed in 2009. The Director of Environmental Protection (DEP) approved this EIA Report under the *Environmental Impact Assessment Ordinance* (EIAO) (Cap. 499) in February 2010 (Register No.: AEIAR-149/2010) (hereafter referred to as the approved EIA Report). Subsequent Report on Re-assessment on Environmental Implications and Report on Re-assessment on Hazard to Life Implications were completed in 2013, respectively.

An Environmental Permit (EP) (No. EP-395/2010) was issued by the DEP to the EPD (Project Team), the Permit Holder, on 21 June 2010 and varied on 18 March 2013 (No. EP-395/2010/A) and 21 May 2013 (No. EP-395/2010/B), respectively. The Design Build and Operate Contract for the ORRC Phase 1 (Contract No. EP/SP/61/10 Organic Resources Recovery Centre (Phase 1) (the Contract)) was awarded to SITA Waste Services Limited, ATAL Engineering Limited and Ros-Roca, Sociedad Anonima jointly trading as the OSCAR Bioenergy Joint Venture (OSCAR or the Contractor). A Further EP (No. FEP-01/395/2010/B) was issued by the DEP to the OSCAR on 16 February 2015. Variation to both EPs (Nos. EP-395/2010/B and FEP-01/395/2010/B) were made in December 2015. The latest EPs, Nos. EP-395/2010/C and FEP-01/395/2010/C, were issued by the DEP on 21 December 2015.

Under the requirements of Condition 5 of the EP (No. FEP-01/395/2010/C), an Environmental Monitoring and Audit (EM&A) programme as set out in the approved EM&A Manual (hereinafter referred to as EM&A Manual) is required to be implemented during the construction and operation of the Project. ERM-Hong Kong, Ltd (ERM) has been appointed by OSCAR as the Environmental Team (ET) for the construction phase EM&A programme and the Monitoring Team (MT) for the operation phase EM&A programme for the implementation of the EM&A programme in accordance with the requirements of the EP and the approved EM&A Manual.

The construction works commenced on 21 May 2015. The construction phase EM&A programme was completed in the end of February 2020. The operation phase of the EM&A programme commenced on 1 March 2019 [(1)].

2.2 GENERAL SITE DESCRIPTION

The Project Site is located at Siu Ho Wan in North Lantau with an area of about 2 hectares. The

(1) As some of the minor items are yet to be closed out in March 2019, the construction phase EM&A programme and Operation Phase EM&A programme were undertaking in parallel in March 2019.

layout of the Project Site is illustrated in *Annex A*. The facility received an average of 171.70 tonnes and treated an average of 132.03 tonnes of source separated organic waste per day during the reporting month.

2.3 MAJOR ACTIVITIES UNDERTAKEN

A summary of the major activities undertaken in the reporting period is shown in *Table 2.1*.

TABLE 2.1 SUMMARY OF ACTIVITIES UNDERTAKEN IN THE REPORTING PERIOD

Activities Undertaken in the Reporting Period
• Systems being operated – waste reception, pre-treatment, CAPCS extraction, the digesters, the centrifuge, the composting tunnels, the de-sulphurisation, the standby flare, the CHPs, the ASP, and the biological wastewater treatment plant (171.70t/d SSOW received); • CHP fine-tuning ongoing (will continue into next month); • PT Line 1 overhaul ongoing (will continue into next month).

2.4 PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

The project organisation chart and contact details are shown in *Annex B*.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the valid permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

TABLE 2.2 SUMMARY OF ENVIRONMENTAL LICENSING, NOTIFICATION AND PERMIT STATUS

Permit/ Licences/ Notification	**Reference**	**Validity Period**	**Remarks**
Environmental Permit	FEP-01/395/2010/C	Throughout the Contract	Permit granted on 21 December 2015
Effluent Discharge Licence	WT00038391-2021	7 July 2021 – 30 June 2026	Approved on 7 July 2021
Chemical Waste Producer Registration	WPN 5213-961-O2231-02	Throughout the implementation of the Project	Approved on 10 November 2017
Waste Disposal Billing Account	Account number: 702310	Throughout the Contract	-

3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

3.1 ENVIRONMENTAL MONITORING

The air quality (including odour) monitoring to be carried out during the commissioning and operation phase of the Project are described below. Although water quality monitoring is not required for the operation phase under the EM&A programme, there are water quality monitoring requirement under the Water Discharge Licence of the plant under the *Water Pollution Control Ordinance* (WPCO). As part of this EM&A programme, the monitoring results will be reviewed to check the compliance with the WPCO requirements.

3.1.1 AIR QUALITY

According to the EM&A Manual and EP requirements, stack monitoring is required during the commissioning and operation phase of the Project.

On-line monitoring using continuous environmental monitoring system (CEMS) shall be carried out for the Centralised Air Pollution Unit (CAPCS), cogeneration units (CHPs) and the ammonia stripping plant (ASP) during the commissioning and operation phase. The most recent sensor calibration for the CAPCS system was carried out on 15 January 2024 for VOCs and 19 January 2024 for H_2S. The most recent span calibrations for the CEMS systems (CHP1, CHP2, CHP3, and ASP) were carried out on 28 May 2024. Annual CAPCS calibration was carried out from 10 to 12 October 2023.

The monitoring data is transmitted instantaneously to EPD (Regional Office) by telemetry system.

When the on-line monitoring for certain parameter cannot be undertaken, monitoring will be carried out using the following methodology approved by the EPD.

TABLE 3.1 SAMPLING AND LABORATORY ANALYSIS METHODOLOGY

Parameters	Method	Stacks to be Monitored
Gaseous and vaporous organic substances (including methane)	USEPA Method 18	• CAPCS • CHP • ASP
Particulate	USEPA Method 5	• CAPCS • CHP • ASP
Carbon monoxide (CO)	USEPA Method 10	• CHP • ASP
Nitrogen oxides (NO_x)	USEPA Method 7E	• CHP • ASP
Sulphur dioxide (SO_2)	USEPA Method 6	• CHP • ASP
Hydrogen chloride (HCl)	USEPA Method 26A	• CHP • ASP
Hydrogen fluoride (HF)	USEPA Method 26A	• CHP • ASP
Oxygen (O_2)	USEPA Method 3A	• CAPCS • CHP

Parameters	Method	Stacks to be Monitored
		• ASP
Velocity and Volumetric Flow	USEPA Method 2	• CAPCS • CHP • ASP
Ammonia (NH_3)	USEPA CTM 027	• ASP
Odour (including NH_3 and H_2S)	EN 13725	• ASP
Water vapour content (continuous measurement of the water vapour content should not be required if the sample exhaust gas is dried before the emissions are analysed)	USEPA Method 4	• CAPCS • CHP • ASP
Temperature	USEPA Method 4	• CAPCS • CHP • ASP

With reference to the EM&A Manual, the air emission of the stacks shall meet the following emission limits as presented in *Tables 3.2* to *3.5*.

TABLE 3.2 EMISSION LIMIT FOR CAPCS STACK

Parameter	Emission Level (mg/Nm^3) [a]
VOCs (including methane)	680
Dust (or Total Suspended Particulates (TSP))	6
Odour (including NH_3 & H_2S)	220 [b]

Notes:
(a) Hourly average concentration
(b) The odour unit is OU/Nm^3

TABLE 3.3 EMISSION LIMIT FOR CHP STACK

Parameter	Maximum Emission Level (mg/Nm^3) [a] [b]
Dust (or Total Suspended Particulates)	15
Carbon Monoxide	650
NO_x	300
SO_2	50
NMVOCs [c]	150
VOCs (including methane) [d]	1,500
HCl	10
HF	1

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 6% and dry basis.
(b) Hourly average concentration
(c) NMVOCs should be monitored by gas sampling and laboratory analysis at an agreed interval. For the first 12 months (starting from August 2019), monitoring should be carried out at quarterly intervals. The monitoring frequency should then be reduced to half-yearly for next 12 months (starting from August 2020). The monitoring of NMVOCs ended in August 2021.
(d) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.

TABLE 3.4 EMISSION LIMIT FOR ASP STACK

Parameter	Maximum Emission Level (mg/Nm^3) [a] [b]
Dust (or Total Suspended Particulates)	5
Carbon Monoxide	100
NOx	200
SO_2	50
VOCs (including methane) [c]	20
NH_3	35
HCl	10
HF	1

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 11% and dry basis.
(b) Hourly average concentration
(c) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.

TABLE 3.5 EMISSION LIMIT FOR STANDBY FLARING GAS UNIT [2]

Parameter	Maximum Emission Level (mg/Nm^3) [a] [b]
Dust (or Total Suspended Particulates)	5
Carbon Monoxide	100
NO_x	200
SO_2	50
VOCs (including methane) [c]	20
HCl	10
HF	1

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 11% and dry basis.
(b) Hourly average concentration
(c) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.

3.1.2 ODOUR

To determine the effectiveness of the proposed odour mitigation measures and to ensure that the operation of the ORRC1 will not cause adverse odour impacts, odour monitoring of the CAPCS stack (see *Section 3.1.1*), and odour patrol will be carried out.

Odour patrol shall be conducted by independent trained personnel/ competent persons in summer months (i.e. from July to September) for the first two operational years of ORRC1 at monthly intervals along an odour patrol route at the Project Site boundary as shown in *Annex*

([2]) A standby facility; only operates when the CHPs are not in operation or when the biogas generated exceeded the utilisation rate of the CHPs.

A [3].

The perceived odour intensity is divided into 5 levels. *Table 3.6* describes the odour intensity for different levels.

TABLE 3.6 ODOUR INTENSITY LEVEL

Level	Odour Intensity
0	Not detected. No odour perceived or an odour so weak that it cannot be easily characterised or described
1	Slight identifiable odour, and slight chance to have odour nuisance
2	Moderate identifiable odour, and moderate chance to have odour nuisance
3	Strong identifiable, likely to have odour nuisance
4	Extreme severe odour, and unacceptable odour level

Table 3.7 shows the action level and limit level to be used for odour patrol. Should any exceedance of the action and limit levels occurs, actions in accordance with the event and action plan in *Table 3.8* should be carried out.

TABLE 3.7 ACTION AND LIMIT LEVELS FOR ODOUR NUISANCE

Parameter	Action Level	Limit Level
Odour Nuisance (from odour patrol)	When one documented compliant is received [a], or Odour Intensity of 2 is measured from odour patrol.	Two or more documented complaints are received (a) within a week; or Odour intensity of 3 or above is measured from odour patrol.

Note:

(a) Once the complaint is received by the Project Proponent (EPD), the Project Proponent would investigate and verify the complaint whether it is related to the potential odour emission from the ORRC1 and its on-site wastewater treatment unit.

TABLE 3.8 EVENT AND ACTION PLAN FOR ODOUR MONITORING

Event	Action by Person-in-charge of Odour Monitoring:	Action by Project Proponent: [a]
Action Level		
Exceedance of action level (Odour Patrol)	1. Identify source/reason of exceedance; 2. Repeat odour patrol to confirm finding.	1. Carry out investigation to identify the source/reason of exceedance. Investigation should be completed within 2 weeks; 2. Rectify any unacceptable practice; 3. Implement more mitigation measures if necessary; 4. Inform Drainage Services Department (DSD) or the operator of the Siu Ho Wan Sewage Treatment Works (SHWSTW) if

(3) The odour patrol route was changed during this reporting period to include sampling points that are frequently visited by visitors and eliminate sampling points that are not visited by visitors.

Event	Action by Person-in-charge of Odour Monitoring:	Action by Project Proponent: [(a)]
		exceedance is considered to be caused by the operation of the SHWSTW. 5. Inform North Lantau Refuse Transfer Station (NLTS) operator if exceedance is considered to be caused by the operation of NLTS.
Exceedance of action level (Odour Complaints)	1. Identify source/reason of exceedance; 2. Carry out odour patrol to determinate odour intensity.	1. Carry out investigation and verify the complaint whether it is related to potential odour emission from the nearby SHWSTW; 2. Carry out investigation to identify the source/reason of exceedance. Investigation should be completed within 2 weeks; 3. Rectify any unacceptable practice; 4. Implement more mitigation measures if necessary; 5. Inform DSD or the operator of the SHWSTW if exceedance is considered to be caused by the operation of the SHWSTW. 6. Inform NLTS operator if exceedance is considered to be caused by the operation of NLTS.
Limit Level		
Exceedance of limit level	1. Identify source/reason of exceedance; 2. Inform EPD; 3. Repeat odour patrol to confirm findings; 4. Increase odour patrol frequency to bi-weekly; 5. Assess effectiveness of remedial action and keep EPD informed of the results; 6. If exceedance stops, cease additional odour patrol.	1. Carry out investigation to identify the source/reason of exceedance. Investigation should be completed within 2 weeks; 2. Rectify any unacceptable practice; 3. Formulate remedial actions; 4. Ensure remedial actions properly implemented; 5. If exceedance continues, consider what more/enhanced mitigation measures should be implemented; 6. Inform DSD or the operator of the SHWSTW if exceedance is considered to be caused by the operation of the SHWSTW.

Note:
(a) Project Proponent shall identify an implementation agent.

3.2 SITE AUDIT

Environmental mitigation measures (related to air quality, water quality, waste, land contamination, hazard-to-life, and landscape and visual) to be implemented during the operation phase of the Project are recommended in the approved EIA Report and EM&A Manual and are summarised in *Annex C*. Monthly site audits for operation phase will be carried out to check the implementation of these measures.

3.2.1 WATER QUALITY

Compliance audits are to be undertaken to ensure that a valid discharge licence has been issued by EPD prior to the discharge of effluent from the operation of the Project site. The audit shall be conducted to ensure that the effluent quality is in compliance with the discharge

licence requirements. As stipulated in the operation phase discharge licence, effluent discharge is to be sampled monthly from the outlet chamber of the Effluent Storage Tank, while effluent discharge is to be sampled bi-monthly from the Petrol Interceptors. The effluent quality shall meet the discharge limits as described in *Table 3.9* and *Table 3.10*.

TABLE 3.9 DISCHARGE LIMITS FOR EFFLUENT FROM THE OUTLET CHAMBER OF THE EFFLUENT STORAGE TANK

Parameter	Discharge Limit (mg/L)
Flow Rate (m^3/day) [(a)]	645
pH (pH units) [(b)]	6-10 [(c)]
Suspended Solids [(b)]	800
Biochemical Oxygen Demand (5 days, 20°) [(b)]	800
Chemical Oxygen Demand [(b)]	2,000
Oil & Grease [(b)]	40
Total Nitrogen [(b)]	200
Total Phosphorus [(b)]	50
Surfactants (total) [(b)]	25

Notes:
(a) Flow rate is not a parameter required to be monitored and reported by the Contractor in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(b) Parameters required to be monitored and reported by the Contractor in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(c) Range.

TABLE 3.10 DISCHARGE LIMITS FOR EFFLUENT FROM THE PETROL INTERCEPTORS

Parameter	Discharge Limit (mg/L)
Flow Rate (m^3/day)	245 [(a)]
Suspended Solids [(b)]	30
Chemical Oxygen Demand [(c)]	80
Oil & Grease [(c)]	20
Surfactants (total) [(b)]	15

Notes:
(a) The surface runoff flow rate limit was estimated by the overall yearly rainfall data. As the actual flowrate from the petrol interceptors depends on the weather condition instead of the performance of the petrol interceptor, monitoring and reporting of this parameter is not required. Hence this parameter is not reported in *Table 4.8* and *Table 4.9*.
(b) Parameter not required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(c) Parameters required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.

3.2.2 LANDSCAPE AND VISUAL

In accordance with EM&A Manual, the landscape and visual mitigation measures shall be implemented.

For operation phase, site inspection shall be conducted once a month for the first year of operation of the Project. All measures as stated in the implementation schedule of the EM&A Manual (see *Annex C*), including compensatory planting, undertaken by both the Contractor and the specialist Landscape Sub-Contractor during the first year of the operation phase shall be audited by a Registered Landscape Architect (RLA) to ensure compliance with the intended aims of the measures and the effectiveness of the mitigation measures. After the one-year maintenance period, the landscape maintenance and monitoring shall be carried out by the Contractor.

4. MONITORING RESULTS

4.1 AIR QUALITY

4.1.1 OPERATION PHASE MONITORING

The concentrations of concerned air pollutants emitted from the stacks of the CAPCS, CHPs, ASP, and the Standby Flaring Gas Unit during the reporting period are monitored on-line by the continuous environmental monitoring system (CEMS). During the reporting period, the Standby Flaring Gas Unit was not operated.

With reference to the emission limits shown in *Tables 3.2, 3.3*, *3.4,* and *3.5*, the hourly average concentrations and the number of exceedances of the concerned air emissions monitored for the CAPCS, CHPs, ASP and the Standby Flaring Gas Unit during this reporting period are presented in *Tables 4.1* to *4.6*.

It should be noted that measurements recorded under abnormal operating conditions, e.g. start up and stopping of stacks, unstable operation, test runs and interference of sensor, are disregarded.

TABLE 4.1 HOURLY AVERAGE OF PARAMETERS RECORDED FOR CAPCS

Parameter	Range of Hourly Average Conc. (mg/Nm^3)	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
VOCs (including methane) [a]	0 – 579	680	Nil	Nil
Dust (or TSP)	0 – 0	6	Nil	Nil
Odour (including NH_3 & H_2S) [b]	0 – 216	220	Nil	Nil

Notes:
(a) The VOCs emission limit includes methane as biogas is adopted, as fuel in the combustion process.
(b) The odour unit is ou/Nm^3.

TABLE 4.2 HOURLY AVERAGE OF PARAMETERS RECORDED FOR CHP 1

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [a]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
Dust (or TSP)	0 – 2	15	Nil	Nil
Carbon Monoxide	0 – 35	650	Nil	Nil
NO_x	0 – 484	300	Identified [c]	System unstable (e.g. low efficiency)
SO_2	0 – 54	50	Identified [d]	System unstable (e.g. low efficiency)
VOCs (including methane) [b]	0 – 629	1,500	Nil	Nil
HCl	0 – 1	10	Nil	Nil
HF	0 – 0	1	Nil	Nil

Notes:

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [a]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks

(a) All values refer to an oxygen content in the exhaust gas of 6% and dry basis.
(b) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.
(c) Dates with NO_x exceedances (number of exceedances on that day) were identified on 1(24), 2(24), 3(13), 4(14), 5(20), 6(14), 7(18), 8(24), 9(24), 10(24), 11(24), 12(24), 13(24), 14(12), 15(12), 16(24), 17(2), 18(8), 19(21), 20(24), 21(24), 22(24), 23(24), 24(15), 25(24), 26(24), 27(23), 28(23), 29(24), and 30(23) June 2024.
(d) Date with SO_2 exceedances (number of exceedances on that day) was identified on 28(11) June 2024.

TABLE 4.3 HOURLY AVERAGE OF PARAMETERS RECORDED FOR CHP 2

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [a]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
Dust (or TSP)	0 – 4	15	Nil	Nil
Carbon Monoxide	0 – 490	650	Nil	Nil
NO_x	0 – 459	300	Identified [c]	System unstable (e.g. low efficiency)
SO_2	0 – 32	50	Nil	Nil
VOCs (including methane) [b]	0 – 525	1,500	Nil	Nil
HCl	0 – 10	10	Nil	Nil
HF	0 – 0	1	Nil	Nil

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 6% and dry basis.
(b) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.
(c) Dates with NO_x exceedances (number of exceedances on that day) were identified on 1(9), 2(3), 3(10), 4(11), 5(10), 6(10), 7(9), 8(15), 9(8), 10(5), 11(4), 12(3), 13(11), 14(1), 15(4), 16(2), 17(1), 18(8), 19(1), 20(5), 21(3), 22(6), 23(7), 24(9), 25(12), 26(6), and 27(12) June 2024.

TABLE 4.4 HOURLY AVERAGE OF PARAMETERS RECORDED FOR CHP 3

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [a]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
Dust (or TSP)	0 – 13	15	Nil	Nil
Carbon Monoxide	0 – 245	650	Nil	Nil
NO_x	0 – 463	300	Identified [c]	System unstable (e.g. low efficiency)
SO_2	0 – 50	50	Nil	Nil
VOCs (including methane) [b]	0 – 525	1,500	Nil	Nil
HCl	0 – 1	10	Nil	Nil

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [(a)]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
HF	0 – 1	1	Nil	Nil

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 6% and dry basis.
(b) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.
(c) Dates with NO_x exceedances (number of exceedances on that day) were identified on 20(1), 21(4), 22(14), 24(3), 25(2), 27(4), 28(14), 29(16), and 30(24) June 2024.

TABLE 4.5 HOURLY AVERAGE OF PARAMETERS RECORDED FOR ASP

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [(a)]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
Dust (or TSP)	0 – 3	5	Nil	Nil
Carbon Monoxide	0 – 95	100	Nil	Nil
NO_x	0 – 892	200	Identified [(c)]	System unstable (e.g. low efficiency)
SO_2	0 – 200	50	Identified [(d)]	System unstable (e.g. low efficiency)
VOCs (including methane) [(b)]	0 – 20	20	Nil	Nil
NH_3	0 – 219	35	Identified [(e)]	System unstable (e.g. low efficiency)
HCl	0 – 9	10	Nil	Nil
HF	0 – 1	1	Nil	Nil

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 6% and dry basis.
(b) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.
(c) Dates with NO_x exceedances (number of exceedances on that day) were identified on 1(5), 2(7), 3(8), 4(4), 5(5), 6(18), 7(12), 8(13), 9(22), 10(8), 11(22), 12(12), 13(3), 14(9), 15(15), 16(14), 17(7), 19(5), 21(3), 22(2), 23(1), 24(3), 25(1), 26(11), 27(3), 28(12), 29(7), and 30(6) June 2024.
(d) Dates with SO_2 exceedances (number of exceedances on that day) were identified on 1(1), 3(2), 4(1), 5(1), 7(1), 8(3), 15(9), 23(1), 28(14), 29(13), and 30(16) June 2024.
(e) Dates with NH_3 exceedances (number of exceedances on that day) were identified on 1(11), 3(3), 4(12), 5(6), 6(1), 7(2), 8(3), 10(7), 11(2), 14(3), 15(2), 18(14), 19(1), 20(1), 23(4), 24(5), 25(22), 26(11), 27(12), 28(8), 29(4), and 30(8) June 2024.

TABLE 4.6 HOURLY AVERAGE OF PARAMETERS RECORDED FOR THE STANDBY FLARING GAS UNIT

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [(a)] [(c)]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
Dust (or TSP)	0 – 0	5	Nil	Nil
Carbon Monoxide	0 – 0	100	Nil	Nil
NO_x	0 – 0	200	Nil	Nil
SO_2	0 – 0	50	Nil	Nil

Parameter	Range of Hourly Average Conc. (mg/Nm^3) [a] [c]	Emission Limit (mg/Nm^3)	Exceedance Identified	Remarks
VOCs (including methane) [b]	0 – 0	20	Nil	Nil
HCl	0 – 0	10	Nil	Nil
HF	0 – 0	1	Nil	Nil

Notes:
(a) All values refer to an oxygen content in the exhaust gas of 6% and dry basis.
(b) The VOCs emission limit include methane as biogas is adopted as fuel in the combustion process.

4.2 ODOUR

4.2.1 OPERATION PHASE MONITORING

No odour patrol was required to be conducted for this reporting period.

4.3 WATER QUALITY

4.3.1 OPERATION PHASE MONITORING

Effluent discharge is sampled from the outlet chamber of the Effluent Storage Tank monthly and from the Petrol Interceptor(s) bi-monthly as stipulated in the operation phase discharge licence. The results of the discharge samples from the outlet chamber of the Effluent Storage Tank are recorded in *Table 4.7* and the results from the Petrol Interceptors are recorded in *Tables 4.8 – 4.9*.

TABLE 4.7 RESULTS OF THE DISCHARGE SAMPLE FROM THE OUTLET CHAMBER OF THE EFFLUENT STORAGE TANK

Parameter	Discharged Effluent Concentration (mg/L)	Discharge Limit (mg/L)	Compliance with Discharge Limit
Flow Rate (m^3/day) [a]	0 – 316 [e]	645	Yes
pH (pH units) [b]	7.90 – 8.30 [e]	6 - 10 [c]	Yes
Suspended Solids [b] [d]	160 [d]	800	Yes
Biochemical Oxygen Demand (5 days, 20°) [b] [d]	16 [d]	800	Yes
Chemical Oxygen Demand [b] [d]	580 [d]	2,000	Yes
Oil & Grease [b] [d]	<5 [d]	40	Yes
Total Nitrogen [b] [d]	55.4 [d]	200	Yes
Total Phosphorus [b] [d]	29.2 [d]	50	Yes
Surfactants (total) [b] [d]	<1.0 [d]	25	Yes

Notes:
(a) Parameter not required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(b) Parameters required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(c) Daily Range.
(d) Effluent sample collected on 12 June 2024.

Parameter	Discharged Effluent Concentration (mg/L)	Discharge Limit (mg/L)	Compliance with Discharge Limit

(e) Data collected daily.

TABLE 4.8 RESULTS OF THE DISCHARGE SAMPLE FROM THE PETROL INTERCEPTOR 1

Parameter	Discharged Effluent Concentration (mg/L)	Discharge Limit (mg/L)	Compliance with Discharge Limit
Suspended Solids [b]	Pending [a]	30	Pending
Chemical Oxygen Demand [c]	Pending [a]	80	Pending
Oil & Grease [c]	Pending [a]	20	Pending
Surfactants (total) [b]	Pending [a]	15	Pending

Notes:
(a) Petrol Interceptor 1 sample collected on 26 June 2024, however the laboratory report and results are still pending as at the date of this report submission.
(b) Parameter not required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(c) Parameters required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.

TABLE 4.9 RESULTS OF THE DISCHARGE SAMPLE FROM THE PETROL INTERCEPTOR 2

Parameter	Discharged Effluent Concentration (mg/L)	Discharge Limit (mg/L)	Compliance with Discharge Limit
Suspended Solids [b]	19 [a]	30	Yes
Chemical Oxygen Demand [c]	53 [a]	80	Yes
Oil & Grease [c]	<5 [a]	20	Yes
Surfactants (total) [b]	<1.0 [a]	15	Yes

Notes:
(a) Petrol Interceptor 2 sample collected on 12 June 2024.
(b) Parameter not required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.
(c) Parameters required to be reported in accordance with Section B2 of the Effluent Discharge Licence under the WPCO.

4.4 WASTE MANAGEMENT

4.4.1 OPERATION PHASE MONITORING

Wastes generated from the operation of the Project include chemical waste, wastes generated from pre-treatment process and general refuse [4]. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (see *Annex D*). With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of

([4]) Public fill and construction waste may only be generated during maintenance works when there are civil or structural works.

waste generated from the operation of the Project in the reporting month are summarised in *Table 4.10*.

TABLE 4.10 QUANTITIES OF WASTE GENERATED FROM THE OPERATION OF THE PROJECT

Month / Year	Chemical Waste	Waste Generated from Pre-treatment Process		General Refuse	
	Disposed of at CWTC	Disposed of at Landfill [a]	Recycled [b]	Disposed of at Landfill [a]	Recycled [c]
June 2024	1,200 L [d]	1,190.02 tonnes	0.000 tonnes	4.080 tonnes [e] [f]	0.052 tonnes

Notes:
(a) Waste generated from pre-treatment process and general refuse other than chemical waste and recyclables were disposed of at NENT Landfill by sub-contractors.
(b) Among waste generated from pre-treatment process, 0.000 tonnes of metals, 0.000 tonnes of papers/cardboard packing and 0.000 tonnes of plastics were sent to recyclers for recycling during the reporting period.
(c) Among general refuse, 0.002 tonnes of metals, 0.010 tonnes of papers/cardboard packing and 0.040 tonnes of plastics were sent to recyclers for recycling during the reporting period.
(d) 1,200L of chemical waste (spent lube oil) was disposed of at CWTC in June 2024.
(e) It was assumed that four 240-litre bins filled with 80% of general refuse were collected at each collection. The general refuse density was assumed to be around 0.15 kg/L.
(f) June 2024 general refuse also includes ad-hoc disposal of 1.2 tonnes, in addition to 2.880 tonnes collected during regularly scheduled disposals, for a total of 4.080 tonnes.

5. SITE AUDIT

5.1 ENVIRONMENTAL SITE AUDIT

5.1.1 OPERATION PHASE

The monthly inspection for the operation phase of the Project on 28 June 2024 covered the operation phase environmental site audit. Joint site inspection was conducted by representatives of the Contractor, IEC, and the MT as required for the operation of the Project.

The audits checked the implementation of the recommended mitigation measures for air quality, landscape and visual, water quality, waste (land contamination) and hazard-to-life stated in the Implementation Schedule (see *Annex C*).

Key observations during the reporting period are summarised as follows:

28 June 2024

- No particular observation during this inspection.

Other than the above observations, the Contractor has implemented environmental mitigation measures recommended in the approved EIA Report and EM&A Manual.

5.2 LANDSCAPE AND AUDIT

Inspection of the landscape and visual mitigation measures for the operation phase of the Project was performed on 28 June 2024.

It was confirmed that the necessary landscape and visual mitigation measures during the operation phase as summarised in *Annex C* were generally implemented by the Contractor. No specific observation was found during the joint site inspection on 28 June 2024. No non-compliance in relation to the landscape and visual mitigation measures was identified during the site audits in this reporting period and therefore no further actions are required. The ET/MT will keep track of the EM&A programme to check compliance with environmental requirements and the proper implementation of all necessary mitigation measures.

6. ENVIRONMENTAL NON-CONFORMANCE AND DEFICIENCIES

6.1 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE AND DEFICIENCIES

Non-compliance of emission limits of NO_x and SO_2, from CHP1; NO_x from CHP2; NO_x from CHP3; and NO_x, SO_2, and NH_3, from the ASP were recorded during the reporting period.

The Contractor has reviewed the organic waste treatment processes (i.e., waste reception, waste pre-treatment, anaerobic digesters, and composting processes) and found that they were operated normally during the reporting period. The Contractor has investigated the de-sulphurisation system, CHPs, and the ASP; the potential causes for the exceedances were identified.

The investigation reports of the above exceedances are presented in *Annex F*.

An overview of the various measures/ actions to be taken by the Contractor to address any exceedances is summarised in *Table 6.1*.

TABLE 6.1 IMPLEMENTATION OF MEASURES/ ACTIONS TO ADDRESS ANY EXCEEDANCES

Monitoring Location	Measures/ Actions to Address any Exceedances	Implementation Timeline & Status
Centralised Air Pollution Unit (CAPCS)	• To address the exceedances for Total Odour (ou/Nm^3) recorded in January 2024 and February 2024, the Contractor ordered a new H_2S / ORP sensor to replace the faulty one which was installed on 23 May 2024. • The cleaning of the ventilation pumps was conducted in April 2024.	• All measures have been implemented.
Cogeneration Unit 1 (CHP 1)	• To address the ongoing NO_x exceedances recorded from October 2023 – June 2024, the Contractor ordered 3 new cylinder heads from the supplier to replace the old ones and improve performance which were installed in May 2024. • To address the SO_2 exceedances recorded from October 2023 – June 2024, SO_2 sampling and testing was completed by a third-party laboratory that showed lower SO_2 values than those reported by the CEMS. The lower values measured by the laboratory was attributed to methane gas interference. Based on this study, it was proposed to implement a correction factor in the CEMS to adjust for the methane gas interference. After review by MT and IEC, the correction factor was implemented in May 2024. • To address the HCl exceedances recorded from October 2023 – April 2024, the Contractor implemented in May 2024 fine tuning measures such as reviewing the ignition temperature curve, spark plug condition check and adjusting the intake & exhaust valves on the cylinder to reduce the fluctuations in HCl emissions and keep within the permissible limit. • A CHP expert from Europe visited the ORRC1 facility from 20-24 May to review the performance of the CHPs.	• The new cylinder heads were installed in May 2024, and further works are ongoing. • The updated SO_2 correction factor was implemented on 17 May 2024. • The fine-tuning measures were implemented during May 2024. • The CHP expert visited in from 20-24 May 2024 and report submitted in June 2024; Contractor will begin reviewing the report in July 2024. • The Contractor will receive additional training in December 2024.

Monitoring Location	Measures/ Actions to Address any Exceedances	Implementation Timeline & Status
	• The Contractor will receive additional advanced training from the manufacturer for the operation and maintenance of the equipment.	
Cogeneration Unit 2 (CHP 2)	• To address the ongoing NO_x exceedances recorded from October 2023 – June 2024, fine tuning of CHP 2 such as reviewing the ignition temperature curve, spark plug condition check and adjusting the intake & exhaust valves on the cylinder was conducted to reduce the fluctuations in NO_x emissions and to keep within the permissible limit. • To address the SO_2 exceedances recorded from October 2023 – April 2024, SO_2 sampling and testing was completed by a third-party laboratory that showed lower SO_2 values than those reported by the CEMS. The lower values measured by the laboratory was attributed to methane gas interference. Based on this study, it was proposed to implement a correction factor in the CEMS to adjust for the methane gas interference. After review by MT and IEC, the correction factor was implemented in May 2024. • To address the HCl exceedances recorded from November 2023 and April 2024, the Contractor implemented fine tuning measures such as reviewing the ignition temperature curve, spark plug condition check and adjusting the intake & exhaust valves on the cylinder to reduce the fluctuations in HCl emissions and keep within the permissible limit. • A CHP expert from Europe visited the ORRC1 facility in May 2024 to review the performance of the CHPs. • The Contractor will receive additional advanced training from the manufacturer for the operation and maintenance of the equipment.	• The fine-tuning measures were implemented in May 2024, and further works are ongoing. • The updated SO_2 correction factor was implemented on 17 May 2024. • The CHP expert visited in from 20-24 May 2024 and report submitted in June 2024; Contractor will begin reviewing the report in July 2024. • The Contractor will receive additional training in December 2024.
Cogeneration Unit 3 (CHP 3)	• To address the ongoing NO_x exceedances, fine tuning measures of CHP 3 were implemented such as reviewing the ignition temperature curve, spark plug condition check and adjusting the intake & exhaust valves on the cylinder is being conducted to reduce the fluctuations in NO_x emissions and to keep within the permissible limit. • To address the SO_2 exceedances recorded from October 2023 – April 2024, SO_2 sampling and testing was completed by a third-party laboratory that showed lower SO_2 values than those reported by the CEMS. The lower values measured by the laboratory was attributed to methane gas interference. Based on this study, it was proposed to implement a correction factor in the CEMS to adjust for the methane gas interference. After review by MT and IEC, the correction factor was implemented in May 2024. • A CHP expert from Europe visited the ORRC1 facility in May 2024 to review the performance of the CHPs. • The Contractor will receive additional advanced training from the manufacturer for the operation and maintenance of the equipment.	• The fine-tuning measures were implemented in May 2024, and further works are ongoing. • The updated SO_2 correction factor was implemented on 17 May 2024. • The CHP expert visited in from 20-24 May 2024 and report submitted in June 2024; Contractor will begin reviewing the report in July 2024. • The Contractor will receive additional training in December 2024.

Monitoring Location	Measures/ Actions to Address any Exceedances	Implementation Timeline & Status
Ammonia Stripping Plant (ASP)	• To address the ongoing NO_x exceedances recorded from October 2023 – June 2024, the Contractor conducted an overhaul of the ASP and arranged for a visit by the supplier to improve the reliability and performance of the system. • To address the ongoing SO_2 exceedances recorded from October 2023 – June 2024, SO_2 sampling and testing was completed by a third-party laboratory that showed lower SO_2 values than those reported by the CEMS. The lower values measured by the laboratory was attributed to methane gas interference. Based on this study, it was proposed to implement a correction factor in the CEMS to adjust for the methane gas interference. After review by MT and IEC, the correction factor was implemented in May 2024. • To address the ongoing NH_3 exceedances recorded from October 2023 – June 2024, the Contractor conducted an overhaul of the ASP and arranged for a visit by the supplier. • To address the HCl exceedances recorded from October 2023 – May 2024, the Contractor conducted an overhaul of the ASP and arranged for a visit by the supplier.	• The overhaul of the ASP was completed 6 May 2024 • The supplier could not visit in June 2024 as planned and will be rescheduled. • The updated SO_2 correction factor was implemented on 17 May 2024.

6.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting period.

6.3 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summon/prosecution was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex E*.

7. FUTURE KEY ISSUES

7.1 KEY ISSUES FOR THE COMING MONTH

Activities to be undertaken for the coming reporting period are:

- Operation of the Project;
- Completion of CHP fine-tuning;
- Completion of PT Line 1 overhaul; and
- Pretreatment maintenance.

8. CONCLUSIONS

This EM&A Report presents the EM&A programme undertaken during the reporting period from **1 to 30 June 2024** in accordance with the EM&A Manual (Version F) and requirements of EP (FEP-01/395/2010/C).

For the operation phase, exceedances of the emission limits for the CHPs and the ASP were recorded under normal operating conditions during the reporting period (see *Table 8.1*).

TABLE 8.1 EXCEEDANCES FOR STACK EMISSIONS

Stack	Exceedances During the Reporting Period
Cogeneration Unit 1 (CHP 1)	• Exceeded emission limit of NO_x on 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 June 2024. • Exceeded emission limit of SO_2 on 28 June 2024.
Cogeneration Unit 2 (CHP 2)	• Exceeded emission limit of NO_x on 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, and 27 June 2024.
Cogeneration Unit 3 (CHP 3)	• Exceeded emission limit of NO_x on 20, 21, 22, 24, 25, 27, 28, 29, and 30 June 2024.
Ammonia Stripping Plant (ASP)	• Exceeded emission limit of NO_x on 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 June 2024. • Exceeded emission limit of SO_2 on 1, 3, 4, 5, 7, 8, 15, 23, 28, 29, and 30 June 2024. • Exceeded emission limit of NH_3 on 1, 3, 4, 5, 6, 7, 8, 10, 11, 14, 15, 18, 19, 20, 23, 24, 25, 26, 27, 28, 29, and 30 June 2024.

Non-compliance of emission limits of NO_x and SO_2, from CHP1; NO_x from CHP2; NO_x from CHP3; and NO_x, SO_2, and NH_3, from the ASP were recorded during the reporting period. The exceedances of NO_x and SO_2 from the CHPs; and NO_x, SO_2, and NH_3, from the ASP, occurred due to system instability.

All analytes from the outlet chamber of the effluent storage tank were recorded to be in compliance with discharge limits during the reporting period.

All analytes from the Petrol Interceptor 2 sampling were recorded to be in compliance with discharge limits during the reporting period. Petrol Interceptor 1 sample was collected on 26 June 2024, however the laboratory report and results are still pending as at the date of this report submission.

The Contractor has reviewed the organic waste treatment processes (i.e. waste reception, waste pre-treatment, anaerobic digesters, and composting processes) and found that they were operated normally during the reporting period. The Contractor has investigated the de-sulphurisation system, CHPs, and the ASP; the potential causes for the exceedance were identified.

The environmental control /mitigation measures related to air quality, water quality, waste (including land contamination prevention), hazard-to-life and landscape and visual recommended in the approved EIA Report and the EM&A Manual were properly implemented by the Contractor during the reporting month.

Monthly landscape and visual monitoring were conducted in the reporting period. The necessary landscape and visual mitigation measures recommended in the approved EIA Report were generally implemented by the Contractor.

ANNEX A PROJECT LAYOUT

ANNEX B PROJECT ORGANISATION CHART WITH CONTACT DETAILS

ANNEX C IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

ANNEX D WASTE FLOW TABLE

ANNEX E ENVIRONMENTAL COMPLAINT, ENVIRONMENTAL SUMMONS AND PROSECUTION LOG

ANNEX F INVESTIGATION REPORT

ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

Argentina
Australia
Belgium
Brazil
Canada
China
Colombia
France
Germany
Ghana
Guyana
Hong Kong
India
Indonesia
Ireland
Italy
Japan
Kazakhstan
Kenya
Malaysia
Mexico
Mozambique
The Netherlands
New Zealand
Peru
Poland
Portugal
Puerto Rico
Romania
Senegal
Singapore
South Africa
South Korea
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