




EGM-HSE-EP-06

**Environmental Monitoring &
Evaluation of Compliance**

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|  | EGM-HSE-EP-06 | | | Environmental Monitoring & Evaluation of Compliance | | |
| | Version | 2.3 | Date | 7 th July 2021 | Next Review | 7 th July 2022 |

Document Information

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| 7 th November 2018 | 1.0 | Update to include water quality monitoring | Appendix 1 | MJS | MG |
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| 2 nd October 2020 | 2.1 | Reference to EP-10; Addition of sewer discharge monitoring to monitoring plan; ERA notifications procedure | 5.13, 5.2, 6.1, 7, 8.1 & 8.2 | CG | MG & MJS |
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| 7 th July 2021 | 2.3 | Addition of monitoring proposals for IGG and CEMS AST and QAL2 | 8 | CG | MG & MJS |



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1. PURPOSE OF THIS DOCUMENT

This procedure describes the overall requirements for the monitoring and measurements required to evaluate the compliance of ElectroGas Malta Limited operations and its Designated Contractors with applicable environmental regulations, standards and objectives and targets.

2. SCOPE

This procedure applies to all Significant Environmental Aspects, Environmental Instructions and Programmes established by ElectroGas Malta Limited.

3. REFERENCE DOCUMENTS

| | |
|-----------------|---|
| EGM-HSE-EMS | Environmental Management System Manual |
| EGM-HSE-EP-05 | Control of Documents |
| EGM-HSE-EP-08 | Control of Records |
| EGM-HSE-EP-10 | ES Committee & Interface with DPS operators |
| EGM-HSE-PRO-001 | Public Grievance Mechanism |
| EGM-HSE-EMR-05 | Environmental Reporting Schedule and Plan |


4. DEFINITIONS

| | |
|--------------|--|
| EGM | ElectroGas Malta Limited |
| ERA | Environment and Resources Authority |
| ES Committee | Environmental Steering Committee |
| HSE Manager | Health, Safety and Environmental Manager |

5. PROCEDURE

5.1 Procedure for determining monitoring requirements and evaluating compliance

- 5.1.1 As required by EGM-HSE-EP-10 ES committee & Interfaces with DPS operators, the HSE Manager, in consultation with the ES Committee and the executive responsible for the relevant function(s)/ department(s) as necessary, shall establish and monitor objectives and targets and the progress of programmes. This shall also include the control and monitoring of contractors' environmental performance.
- 5.1.2 Collection of monitoring data and the evaluation of compliance shall be coordinated with monitoring processes within the Designated Contractors' EMS, as may be applicable with respect to the various environmental aspects. This includes consideration of monitoring/ measuring frequency, responsibilities and records or reports that shall be kept as defined in the Monitoring Plan in Appendix 1 and the Environmental Reporting Schedule and Plan, EGM-HSE-EMR-05.

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5.1.3 The ES Committee holds regular meetings as described in EGM-HSE-EP-10, to:

- Discuss and review the achievement of the objectives and targets and the progress of relevant programmes;
- Review the monitoring data (e.g. inspection checklists) to check whether the monitoring and operational control procedures are implemented properly;
- Review information to evaluate whether EMS complies with applicable environmental legislation and other requirements as applicable;
- Review any environmental nonconformities, and the corresponding corrective action and preventive action.

Refer to EGM-HSE-EP-10 ES Committee & Interface with DPS operators, for a complete list of items discussed during ES Committee meetings.

5.1.4 In case of nonconformities, the provisions of procedure EGM-HSE-EP-01 shall be invoked.

5.1.5 Monitoring data requirements and related processes shall be:

- Reviewed and revised according to changes in legislative requirements,
- Coordinated with the monitoring procedures established by designated contractor's EMS, and
- Updated as required by changing internal and external issues, following the principle of continual improvement of environmental performance.

5.1.6 Whenever necessary, calibration of measuring equipment shall be defined clearly in terms of calibration methodology, calibration frequency, acceptance criteria and responsible personnel as defined in the calibration registers listed in section 8.1.

5.1.7 EGM shall record the results and maintain the records of the periodic evaluation of compliance and shall be considered at the management review as per EGM-HSE-EP-10.

5.1.8 EGM maintains an Environmental Reporting Schedule and Plan, EGM-HSE-EMR-05 to keep track of the required reports to be collected from the designated contractors, and reports to be submitted by EGM. Dates of report submission are recorded in this register.

5.2 Notifications procedure for environmental authority

5.2.1 Appendix 2 provides the IPPC permit conditions that describe the instances in which EGM is required to issue a notification to ERA.

5.2.2 A record of all the notifications issued is kept in the Register of Environmental Communication with Authorities EGM-HSE-EMR-08.

5.2.3 Copies of the notifications sent are retained in the Communications folder.

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6. ROLES AND RESPONSIBILITIES

6.1 HSE Manager

The HSE Manager shall:

- Work with the ES Committee to define monitoring requirements and evaluation of compliance,
- Have the overall responsibility for ensuring that the requirements of this procedure are implemented.
- Be responsible for data collection from the designated contractors as defined in the Monitoring Plan and Report Schedule.
- Issue notifications to ERA when required.


6.2 Operations Personnel

The Operations Personnel as illustrated in the Environmental Management System Manual EGM-HSE-EMS, shall:

- Ensure that operational control procedures and instructions are followed by staff and contractors,
- Ensure that all monitoring requirements are implemented properly,
- Ensure that all nonconformities are reported to the HSE Manager.

7. RECORDS


| Record Description | Record Location/ Retention Responsibility | Minimum Retention Time |
|---|---|------------------------|
| Meeting minutes of the ES Committee meeting | Server folder '08. Meetings' | 10 years |
| Relevant records demonstrating the progress and achievement of objectives, targets and programmes. (Refer to relevant person-in-charge) | HSE Committee; Server folder '10. Objective Evidence' | 10 years |
| Monitoring data listed in section 8.1 | Refer to section 8.1 | 10 years |
| Environmental Reporting Schedule and Plan | EGM-HSE-EMR-05 | 10 years |
| Register of Environmental Communication with Authorities | EGM-HSE-EMR-08 | 10 years |
| Notifications and communication sent to ERA | Server folder '09. Communications' | 10 years |

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8. Appendices

8.1 Appendix 1 - Monitoring Plan

| No. | Item | Responsible person | Monitoring/ Reporting Frequency | Monitoring | Records/ Evidence |
|-----|---|---------------------------------------|--|---------------------------------|---|
| 1. | Register of Environmental Aspects | HSE manager | Annually or as required | As per EGM-HSE-EP-02 | EGM-HSE-EMR-02 |
| 2. | List of Legal & Other Requirements | Regulatory and Compliance Officer | Annually or as required | As per EGM-HSE-EP-03 | EGM-HSE-EMR-01 |
| 3. | Objectives & Targets and Programmes Performance | ES Committee | Monthly | As per EGM-HSE-EP-12 | EGM-HSE-EMR-03 |
| 4. | Emergency Preparedness & Response | HSE manager | Annually or as required | HSE audits and drills performed | EGM-HSE-ERP |
| 5. | Air emission monitoring from stacks | HSE manager, D4 designated contractor | Continuous | As per IPPC permit | EGM Website https://www.electrogas.com.mt/delimara-power-plant/cems/ |
| 6. | Air emission monitoring of auxiliary equipment including MCPs | HSE Committee | Every 3 years | As per IPPC permit | Monitoring result |
| 7. | Waste Management | HSE Committee | Monthly | Environmental audits | EGM-HSE-EMR-09 |
| 8. | Instrumentation calibration | HSE manager, Designated contractors | As specified in the registers | As per EOM recommendations | D4 Register of Calibration Instruments D4-10-RD-010 Regas Measuring Equipment Management RM M P 002 FSU PSM BASSnet GHG Instrument Register EGM-HSE-EP-11 Appendix D |
| 9. | Air emissions at Local Council | Coordinated with Enemalta | Monthly | Managed by Enemalta | BAMS reports |
| 10. | Noise monitoring | Coordinated with Enemalta | Annually | Managed by Enemalta | Noise monitoring report |
| 11. | Discharges to sea | Coordinated with Enemalta | Continuous/ Quarterly/ Every 6 months/ Annually | Managed by Enemalta | Discharge to sea analysis report/ Heavy metals report |
| 12. | Discharges to sea | D4 designated contractor | Continuous | As per IPPC permit | Data on PI |
| 13. | Marine Sediment Monitoring | Coordinated with Enemalta | Every 3 years | Managed by Enemalta | Marine sediment monitoring report |
| 14. | Marine Ecological Survey | Coordinated with Enemalta | Annually | Managed by Enemalta | Marine ecological survey report |
| 15. | Land and Ground monitoring | Coordinated with Enemalta | Annually, with each point analysed every 4 years | Managed by Enemalta | Land and Ground monitoring report |

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| 16. | Sewer Discharge Monitoring | HSE manager | Quarterly | As per Sewer Discharge Permit | Sewer Discharge analysis records |
| 17. | FSU Inert Gas Generator effluent discharge | FSU designated contractor | per tank inspection | Refer to proposal in Appendix 3 | Monitoring report |
| 18. | CEMS AST and QAL2 | D4 designated contractor | AST – annual QAL2 – max. every 5 years | Refer to proposal in Appendix 4 | AST report and QAL2 report |

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8.2 Appendix 2 – Notification procedure according to IPPC permit IP 0002/07/Gi

5 Notifications

This section is without prejudice to any other notification requirement in this permit.

5.1 The Operator shall notify the Authority without delay of:-

5.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;

5.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant pollution and/or a public health risk unless the quantity

emitted is so trivial that it would be incapable of causing significant pollution and/or a public health risk or incapable of being detected;

5.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution and /or a public health risk; and

5.1.4 any accident which has caused, is causing or has the potential to cause significant pollution and /or a public health risk.

5.2 The Operator shall submit written confirmation to the Authority of any notification under condition 5.1, by sending:-

5.2.1 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and

5.2.2 the more detailed information listed in Part B of Schedule 1 as soon as practicable thereafter;

5.2.3 the information listed in Schedule 2 according to the timeframe specified in Condition 4.2;

and such information shall be in accordance with that Schedule.

5.3 The Operator shall give written notification as soon as practicable prior to any of the following:-

5.3.1 permanent cessation of the operation of part or all of the Permitted Installation;

5.3.2 cessation of operation of part or all of the Permitted Installation for a period likely to exceed 1 year; and

5.3.3 resumption of the operation of part or all of the Permitted Installation after a cessation notified under condition 5.3.2.

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5.4 The Operator shall notify the Authority, as soon as practicable, of any information concerning the state of the site which affects or updates that provided to the Authority as part of the Site Report submitted with the application for this Permit.

5.5 The Operator shall notify the following matters to the Authority in writing within 10 working days of their occurrence:-

5.5.1 Where the Operator is a registered company:-

5.5.1.1 any change in the Operator's trading name, registered name or registered office address;

5.5.1.2 any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary); and

5.5.1.3 any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up.

5.5.2 Where the Operator is a corporate body other than a registered company:

5.5.2.1 any change in the Operator's name or address; and


5.5.2.2 any steps taken with a view to the dissolution of the Operator.

5.5.3 In any other case: -

5.5.3.1 the death of the named Operator (where the Operator consists of more than one named individual);

5.5.3.2 any change in the Operator's name(s) or address(es);

5.5.3.3 any steps taken with a view to the Operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership.

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8.3 Appendix 3 – Proposed monitoring plan for IGG

The monitoring campaign that was conducted in March 2021 during the pre-tank inspection and the post-tank inspection for LNG tank 1 concluded that,


“The main conclusion from the present monitoring session is that the activities related to the deaeration of the IGG tank, during both the pre-tank inerting and post-tank inerting phases, have not had any appreciable effects on / did not result in changes to water quality, with respect to the parameters considered in the present assessment.”

In view of these results EGM is proposing that for every tank inspection, a water sample is collected one hour following start-up during the pre-tank inspection and a second water sample is collected one hour following start-up during the post-tank inspection. Samples will be taken from the discharge point on board the FSU.

The water samples would be analysed for the parameters listed in the below table.

Table 1 - Table providing a list of parameters for which the water samples should be tested, including the corresponding ELVs.

| Parameters | ELV |
|------------------------------|--|
| pH | 6-10 |
| Total suspended solids | 35 mg/L |
| Total petroleum hydrocarbons | 5 mg/L |
| | Maximum Allowable Concentration as per Directive 2013/39/EC |
| Benzo(a)pyrene | 0.027 µg/L |
| Benzo(b)fluor-anthene | 0.017 µg/L |
| Benzo(k)fluor-anthene | 0.017 µg/L |
| Benzo(g,h,i)-perylene | 8.2 x 10 ⁻⁴ µg/L |

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8.4 Appendix 4 – Proposed monitoring plan for CEMS AST and QAL2

The original design of D4 Plant consisted of one Continuous Emission Monitoring System (CEMS) installed on each main stack only since operation in open cycle was expected to be only for a very limited number of hours per year. Because of the time difference between Open Cycle (OC) taking over and Combined Cycle (CC) taking over, ERA had asked for CEMS readings on the bypass stacks as well during this period. This was achieved by having only one CEMS equipment but exhaust sampling switching over from main and bypass stack and gas sample conditioning system.

Back in July 2018, EGM asked ERA for a derogation from the IPPC permit to perform ASTs and QAL2 testing of the bypass stacks. In theory the emissions from the main stack and the bypass stack should be the same since there is no emission abatement equipment installed downstream the gas turbines and the only emission abatement technology used is the Dry Low NO_x Burners. This was verified through the ASTs that were performed on all stacks in January 2019. The results showed that with one correction curve in EMIDATE (software for collection and processing of raw emission data) the ASTs passed on both the main and bypass stacks. These results have been shared with ERA in April 2019.

EGM also points out that Open Cycle operation is very limited; 115hrs GT51, 88hrs GT52 and 113hrs GT53 (period Aug 2018 to Aug 2019). These are well below the 500hrs specified in Directive 2010/75/EU which states that “*Gas turbines and gas engines for emergency use that operate less than 500 operating hours per year are not covered by the emission limit values set out in this point. The operator of such plants shall record the used operating hours*”. Besides, to perform ASTs/QAL2 on bypass stacks EGM will have to operate in Open Cycle mode just for these tests. This has a negative impact not only on efficiency but also to the environment – more CO₂ emissions per unit of power dispatch, which could be avoided.