

 ENVIRONMENTAL MONITORING AND CONTROL OVER CONSTRUCTION PROJECTS	Doc. No	QU-EMS-FGSD-SOP-08
	Revision No	00
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ACTIVITY	ROLE / NAME	DATE	SIGNATURE
Preparation	Environmental & Sustainability Specialist	01.03.2022	Mays Abdalla
Review	Environmental & Sustainability Section Head	01.03.2022	Madawi Al-Shafi
Endorsement	Project Manager	01.03.2022	Khalid Halabi
Approval	Director of Capital Projects Department	01.03.2022	Ibrahim Fakhro
Approval	Director of Facilities and General Services Department	01.03.2022	Mai Fetais

REVISION HISTORY

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1. PURPOSE

The purpose of this procedure is to set up requirements for the Contractors / Design and Construction Supervision Consultants on monitoring and control of environmental impacts during the construction phase of the design and build projects to ensure compliance and adherence of Contractor to Qatar environmental protection laws, regulations and QU procedures.

2. FIELD OF APPLICATION

The scope of this procedure covers all the design and build / construction projects under Capital projects Department.

3. REFERENCES AND ASSOCIATED DOCUMENTS

The standards or documents listed below are considered as references to this procedure:

Document Code	Document Designation
-	ISO Standard 14001:2015
QU-MNL-01	EMS Manual
-	Qatar Construction Specifications, 2014
-	Qatar Law of the Environment Protection #30, 2002
QU-EMS-PRO-06	Environmental Aspects and Associated Impacts Procedure
QU-EMS-FGSD-SOP-02	Monitoring and Control of Outdoor Air Quality Procedure
QU-EMS-FGSD-SOP-06	Biodiversity Conservation Procedure

4. DEFINITIONS AND ABBREVIATIONS

Abbreviations	Definition
QU	Qatar University
EMS	Environmental Management Systems

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ES Specialist	Environmental and Sustainability Specialist
CP	Capital Projects Department
HSE	Health, Safety and Environment
Contractor	The company which was awarded the contract for execution of construction project
Design and Construction Supervision Consultant (DCSC)	The company which was awarded the contract for design and construction supervision services for the purpose of availing service / consultancy by providing comprehensive services for the detailed design of all disciplines and implementation, including day to day supervision, monitoring and management of the works, ensuring standards of quality assurance in executing the works, completion of the work within the stipulated time limit for construction, adhering to the respective contracts execution of work as per the approved drawings, specifications and contract documents.
CEMP	Construction Environmental Management Plan
MECC	Ministry of Environment and Climate Change

5. RESPONSIBILITY

Title	Responsibilities
CP Project Manager	<ul style="list-style-type: none"> - contact ES Specialist at least 1 month prior to the Project execution to inform about the Project date of commencement and the Project Area - send CEMP to Environment and Sustainability Section - send “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if applicable) to ES Specialist - approve “Environmental Inspections Plan” - forward approved “Environmental Monthly Report” to ES Specialist - approve Environmental Audit Plan

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	- forward the Environmental Audit action plan to ES Specialist
Contractor	<ul style="list-style-type: none"> - develop the CEMP for each executed project and submit to DCSC for review and approval within 30 days of the award of contract - review and update the CEMP as appropriate but no less than quarterly - determine the environmental aspects and their associated impacts, considering a life cycle perspective - submit “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if applicable) to QU ES Specialist before the project commencement along with the application for the work permit - implement best practices to ensure minimization of waste generation/ provision of specifically organized waste collection area/ segregation of waste/recycling - ensure a provision of municipal waste transportation company/ hazardous waste transportation company/ construction waste transportation company along with provision of collection of recyclables - take all the possible measures to prevent spills of oil/chemicals on site - ensure provision of Spill Response Plan/spill kits/appropriate trainings - ensure provision of Material Safety Data Sheets - in case of spill accident, Contractor shall prepare an accident report - create a checklist and carry daily site inspections to monitor environmental performance and keep a record of the same - create a checklist/inspection report template and carry out weekly inspections and keep a record of the same - prepare the “Environmental Monthly Report” and submit to DCSC - create the action plan for Environmental Audit findings rectification - ensure calibration of monitoring and measurement equipment and register the same in their own Equipment Calibration Register - create and monitor the Legal and Other Requirements/Compliance Register
Design and	- review and approve the CEMP, or, otherwise, provide comments to the Contractor

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<p>Construction Supervision Consultant</p>	<p>for the rectification</p> <ul style="list-style-type: none"> - send CEMP to CP Project Manager - review and approve the accident report in case of spill accident - reviewed and approve Spill Response Plan - review and approve “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if applicable) - ensure that mitigation measures stipulated in “Environmental Aspects and Associated Impacts Assessment Register” are implemented and maintained by Contractor - approve daily environmental inspections checklist - approve weekly environmental inspections checklist/ inspection report template - create an “Environmental Inspections Plan” with provision on by-weekly inspections - create an “Inspection Report” and keep record of the same - in case on any non-conformance, raise a “Non-Conformance Report” and track resolution of the same until the closure of non-conformance - review and approve “Environmental Monthly Report” or, otherwise, provide comments to the Contractor for the rectification - submit approved “Environmental Monthly Report” to CP Project Manager - approve the action plan for Environmental Audit findings rectification - track resolution of audit findings until the closure - verified evidence of the calibration - verify the Legal and Other Requirements/Compliance Register and the compliance against it at least biannually
<p>ES Specialist</p>	<ul style="list-style-type: none"> - visit the Project Area and assess the need of any native or other plants replantation - review and approve the CEMP - review and approve “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if

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	<p>applicable)</p> <ul style="list-style-type: none"> - review and approve “Environmental Monthly Report” - if the report does not meet the reporting requirements, issue comments to CP Project Manager for the further communication with the DCSC and Contractor - conduct quarterly Environmental Audit against DCSC - share Environmental Audit Form with CP Project Manager for the further sharing with DCSC /Contractor to create an action plan for rectification of findings (if applicable) - endorse the action plan for Environmental Audit findings rectification - verify closure of audit findings during the next audit - verify Calibration Register during the Environmental Audits - verify Legal and Other Requirements/Compliance Register during the Environmental Audits
ES Section Head	- approve Environmental Audit Plan

6. PROCEDURE

6.1. General

- a. To evaluate the Contractor’s impact on the environment and to identify preventive and corrective measures, CP has developed the monitoring system which ensures planning and reporting of the construction activities which negatively impact the environment.
- b. Based on the reporting of the monitoring data by the Contractor, DCSC, CP in coordination with QU Environmental and Sustainability Section shall coordinate on the actions needed to improve the environmental performance of the Contractors in order to protect the environment.
- c. Contractor shall implement all the possible measure to prevent the impact on the environment and implement “3R” approach (reduce/ reuse/ recycle).

6.2. Biodiversity Conservation Considerations

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To promote biodiversity conservation within QU facilities and to comply with Biodiversity Conservation Procedure (QU-EMS-FGSD-SOP-06), CP shall ensure:

- a. The Project Engineer shall contact ES Specialist by e-mail/call at least 1 month prior to the Project execution to inform about the Project date of commencement and the Project Area.
- b. ES Specialist shall visit the Project Area and assess the need of any native or other plants replantation and follow other requirements disclosed in Biodiversity Conservation Procedure (QU-EMS-FGSD-SOP-06).

6.3. Construction Environmental Management Plan

- a. For the effective monitoring and control of the construction activities impact on the environment within the QU boundaries, Constructor shall develop the “Construction Environmental Management Plan” (CEMP) for each executed project, covering all the environmental protection requirements stipulated in QSC 2014, Law No.30, 2002, QU Procedures and other regulations.
- b. The CEMP shall be prepared by third-party consultant approved by MECC and shall cover following areas based on the project nature, but not limited to:
 - Air quality monitoring (QU-EMS-FGSD-SOP-02 - Monitoring and Control of Outdoor Air Quality Procedure can be used for guidance)
 - Waste management monitoring
 - Noise monitoring
- c. Contractor shall submit the CEMP for review and approval by DCSC within 30 days of the award of contract.
- d. DCSC shall review and approve the CEMP, or, otherwise, provide comments to the Contractor for the rectification. The timeframe for the review and rectification shall be within the timeframe stipulated in the awarded contract.
- e. Upon approval by DCSC, the CEMP shall be submitted to the QU CP Project Manager to further submission to QU Environmental and Sustainability Section for review and approval.
- f. QU Environmental and Sustainability Section shall assign the ES Specialist who shall review and approve the CEMP within 5 working days and communicate it back to QU CP Project Manager

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for further communication to DCSC and Contractor. The same ES Specialist shall be assigned for the further environmental monitoring and control of the Project.

- g. The Contractor shall review and update the CEMP as appropriate but no less than quarterly. A record of the review and any recommendations shall be produced and retained on file by the Contractor.

6.4. Environmental Aspects and Associated Impacts Assessment

- a. Contractor shall determine the environmental aspects of their activities and services that they can control, and those that they can influence and their associated environmental impacts, considering a life cycle perspective.
- b. To execute the same Contractor shall follow the requirements and steps disclosed in Environmental Aspects and Associated Impacts Procedure (QU-EMS-PRO-06).
- c. “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if applicable) shall be submitted to DCSC for review and approval.
- d. Upon approval, DCSC shall submit “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if applicable) to the Project Engineer for the further forwarding to QU ES Specialist for review and approval.
- e. “Environmental Aspects and Associated Impacts Assessment Register” and “Significant Environmental Aspects Mitigation Plan Form” (if applicable) shall be submitted to QU ES Specialist before the project commencement along with the application for the work permit.
- f. DCSC is responsible to ensure that mitigation measures stipulated in “Environmental Aspects and Associated Impacts Assessment Register” are implemented and maintained by Contractor.

6.5. Waste Management Requirements

- a. Contractor shall implement best practices to ensure minimization of waste generation.
- b. Contractor shall ensure a provision of specifically organized waste collection area with provision of temporary hazardous waste storage.
- c. Contractor shall ensure segregation of waste and shall have a provision of waste skips for the separate waste collection. Waste skips shall be clearly labeled.

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- d. Municipal Waste shall be segregated and all possible recycling opportunities shall be considered as follows, but not limited to:
- Paper
 - Plastic
 - Green waste
- e. Hazardous waste shall be collected and disposed separately. Recycling opportunities shall be taken into consideration for the electronic and electrical waste.
- f. Construction waste shall be collected and disposed separately and provision of no dust generation shall be made.
- g. Contractor shall ensure a provision of municipal waste transportation company/ hazardous waste transportation company/ construction waste transportation company along with provision of collection of recyclables. Each waste transportation company shall be approved/licensed by the governmental authorities.
- h. Proper periods for the waste collection shall be established to minimize nuisance and impact on the environment.
- i. Contractor shall keep a record for the waste management:
- o Total amount of waste produced by type:
 - ♣ General (municipal);
 - ♣ Hazardous;
 - ♣ Excavated Material/Construction Waste;
 - ♣ Metals;
 - ♣ Liquid.
 - o Total amount of waste disposed of by type to:
 - ♣ Landfill;
 - ♣ Recycling;
 - ♣ Recovery/reuse;

6.6. Spill Response Preparedness

- a. Contractor shall take all the possible measures to prevent spills of oil/chemicals on site.

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- b. Contractor shall ensure provision of Spill Response Plan and spill kits to be ready to clean the spill with the minimum impact on the environment. Spill Response Plan shall be reviewed and approved by DCSC.
- c. Spill Response Team shall be established and trained accordingly. Training records shall be kept on site.
- d. Spill Response Plan shall consider proper reporting channels and investigation mechanisms in case of accident.
- e. The Contractor shall periodically test, review and update spill response preparedness and response plan.
- f. A copy of the Material Safety Data Sheets and an inventory for all the chemicals and their types and quantity used on the project site shall be kept at each site office.
- g. In case of spill accident, within 5 working days, Contractor shall prepare an accident report which shall contain an investigation and root cause analysis to prevent recurrence and shall submit it to DCSC for review and approval. Upon approval, DCSC shall submit the same to the CP Project Manager for the further submission to appointed ES Specialist for review and approval.

6.7. Environmental Inspections

6.7.1. Contractor's Inspections

(1) Daily Site Inspections

- a. The Contractor shall carry daily site inspections to monitor environmental performance in accordance with the CEMP. The inspections should include, but not be limited to, checking that:
 - All waste is appropriately segregated/stored/removed on time;
 - Waste skips are covered to prevent windblown litter;
 - All chemicals/fuels are stored with appropriate containment/bunds/cover;
 - Construction noise is within permitted limits and does not create a nuisance;
 - Activities which include dust generation are conducted with provision of dust emissions suppression and the dust level is within permitted limits and does not create a nuisance;
 - Activities which may cause spill are carried out with provision of spill prevention and spill kits are present;

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- b. Contractor shall create a checklist for the daily inspections, shall obtain the approval of the checklist from DCSC and shall keep a record of daily inspections.

(2) Weekly Inspections

- a. The Contractor shall carry out weekly inspections to monitor environmental performance in accordance with the CEMP. The inspections should include, but not be limited to checking that:
- Daily checklists have been completed;
 - Waste storage areas have been checked and there is no build - up of waste materials;
 - Spill kits have been checked and contain all relevant materials;
 - The performance of all pollution control equipment has been checked and the equipment is working effectively;
 - Septic tanks are not overfull/discharging.
- b. The Contractor shall create a checklist/inspection report template for the weekly inspections, shall obtain the approval of the checklist/inspection report template from DCSC and shall keep a record of weekly inspections.

6.7.2. DCSC’s Inspections

- a. DCSC shall create an “Environmental Inspections Plan” with provision on by-weekly inspections to verify the contractor’s compliance to CEMP.
- b. DCSC shall submit “Environmental Inspections Plan” to the CP Project Manager for approval.
- c. Based on the results of conducted inspections, DCSC shall create an “Inspection Report” and keep record of the same.
- d. In case on any non-conformance by Contractor detected, DCSC shall raise a “Non-Conformance Report” and track resolution of the same until the closure of non-conformance.

6.8. Environmental Monthly Report

- a. As a result of monitoring activities conducted in line with CEMP, MECC Permits and other legal requirements, the Contractor shall prepare the “Environmental Monthly Report” capturing all the

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coverage areas. “Environmental Monthly Report” can be a separate report or a part of the HSE/progress monthly reporting.

- b. The “Environmental Monthly Report” shall contain the following information, but be not limited to:

1. INTRODUCTION	1.1 Environmental Monitoring Requirements 1.2 Brief on Construction Activities/Progress during the Month
2. CONTRACTOR ENVIRONMENTAL MONITORING	2.1 Monitoring Activities (locations, processes, events) 2.2 Monitoring Results/Statistics 2.3 Summary/Observations
3. ENVIRONMENTAL INSPECTIONS	3.1 Daily Environmental Inspections Summary 3.2 Weekly Environmental Inspections Summary
4. ENVIRONMENTAL EDUCATION	4.1 Monthly Environmental Training and Toolbox talks 4.2 Environmental Initiatives/Achievements 4.3 Plans for the Next Reporting Period
5. ENVIRONMENTAL ACCIDENTS / INCIDENTS / NEAR MISSES	5.1. Accidents 5.2. Incidents 5.3. Near Misses 5.4. Lessons Learned/Action Plan
6. APPENDICES	6.1. MOECC Environmental Permit 6.2. Waste Management Companies Licences/Approvals 6.3. Invoices from the Disposal/Recycling Facilities 6.4. Legal and Other Requirements/Compliance Register 6.5. Pictures

- c. The Contractor shall submit “Environmental Monthly Report” to DCSC for review and approval by 06th of the following month.
- d. Within 3 working days, DCSC shall review and approve the report or, otherwise, provide comments to the Contractor for the rectification.
- e. DCSC shall submit approved “Environmental Monthly Report” to CP Project Manager not later than by 15th of the following month.
- f. Within the same working day CP Project Manager shall forward the report to Environmental and Sustainability Section, where appointed ES Specialist shall receive, review and approve the report within 3 working days.

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- g. If the report does not meet the reporting requirements, ES Specialist shall issue comments by e-mail to CP Project Manager for the further communication with the DCSC and Contractor.
- h. In case consecutive 3 reports do not meet reporting requirements, ES Specialist shall communicate the same by e-mail to CP Project Manager for the further penalties against DCSC.

6.9. Environmental Audit

- a. Environmental and Sustainability Section shall establish a Plan for quarterly Environmental Audits against DCSC to verify the compliance of Contractor with CEMP and other legislative requirements.
- b. Environmental and Sustainability Section Head and CP Project Manager shall approve the Environmental Audit Plan.
- c. Environmental and Sustainability Section Team leading by appointed ES Specialist shall conduct quarterly Environmental Audit against DCSC. “Environmental Audit Form” (QU-EMS-ESS-FRM-27) shall be used for capturing of the audit findings.
- d. Environmental Audit Form (QU-EMS-ESS-FRM-27) shall be shared with CP Project Manager via e-mail, for the further communication with DCSC /Contractor to create an action plan for rectification of findings (if applicable).
- e. Within 3 working days after receipt of the “Environmental Audit Form” (QU-EMS-ESS-FRM-27) Contractor shall create the action plan and share it with DCSC for approval.
- f. DCSC shall approve and send the action plan to CP Project Manager via e-mail, for the further sharing with ES Specialist for endorsement.
- g. DCSC shall track resolution of audit findings until the closure.
- h. ES Specialist shall verify closure of audit findings during the next audit.
- i. 2 consecutive environmental audits which result in major findings shall lead to further penalties against DCSC.

6.10. Calibration of Monitoring & Measuring Equipment

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- a. Contractors who are responsible for keeping of their own monitoring and measurement equipment for environmental performance measurement purposes, shall ensure calibration is performed by approved bodies and register the same in their own Equipment Calibration Register.
- b. Evidence of the calibration shall be verified biannually by the DCSC.
- c. ES Specialist shall verify Calibration Register during the Environmental Audits.

6.11.Legal Register

- a. Contractors shall create and monitor the Legal and Other Requirements/Compliance Register, considering environmental legal and compliance obligations, attach as a part of CEMP and ensure the review on a regular basis.
- b. DCSC shall verify the Legal and Other Requirements/Compliance Register and the compliance against it at least biannually.
- c. ES Specialist shall verify Legal and Other Requirements/Compliance Register during the Environmental Audits.

7. RECORD:

S. No.	Record Name	Reference	Custodian
01	Environmental Audit Form	QU-EMS-ESS-FRM-27	ES Specialist