
WASTEWATER MANAGEMENT PLAN**PURPOSE SCOPE**

This Management Plan has been developed in accordance with SPV policies, with the commitments undertaken by SPV in the ESA, with Turkish regulatory framework, with IFC Performance Standards, IFC EHS General and Sector Specific Guidelines, EBRD Performance Requirements, OPIC Environmental and Social Policy Statement and EDC. The purpose of the plan is to implement the mitigation measures for wastewater generated during the site construction phase in such a manner as to minimize impacts to human health and the environment.

This Plan includes guidelines and minimum requirements for EPC Contractor for defining its own plans/procedures appropriate to the nature and scale of the Project Construction phase.

APPLICATION

This Management Plan applies to the Project Construction phase only. It applies to construction work activities under the control of SPV, of EPC Contractor and to all KİP employees.

DEFINITIONS

Kocaeli or SPV:	Kocaeli Hastane Yatırım ve Sağlık Hizmetleri A.Ş.
Kocaeli Integrated Health Campus Project (or "KİP" or simply "Project"):	Kocaeli Integrated Health Campus Project, being executed by SPV or its affiliates
EPC Contractor (or simply EPC):	Gama – Türkerler Kocaeli Adi Ortaklığı & Gama Türkerler Dubai
Site Management:	All key managerial roles involved in the Construction Site management, mainly referring to the EPC Contractor's personnel
Environmental and Social Management System (ESMS)	The complete set of documents (including but not limited to: policies, manuals, plans, procedures, work instruction and records) developed to address, manage, monitor, audit and review the environmental, social, health and safety aspects of the KİP, aimed at mitigating potential ESHS risks and impacts and improving ESHS performance
Guidelines to EPC Contractor	Guidelines to EPC Contractor for the development of its own ESMS and associated EPC Contractor Procedures appropriate to the nature and scale of the Project are contained in SPV ESMS documentation. SPV ESMS documentation, identify also minimum requirements and specific responsibilities for EPC Contractor in line with the EPC contract
Construction Site	The Construction Site includes all areas impacted in any manner by the construction activities.
Environmental and Social Management Plans (ESMPs)	Plans issued by SPV addressing significant Environmental and Social aspects (as identified in the ESA) by defining specific management methods, mitigation measures, monitoring activities, reporting, auditing and review.
EPC Contractor Procedure	A procedure to be prepared by EPC Contractor, to be used by EPC Contractor to describe how the mitigation and monitoring measures/actions outlined in SPV ESMPs are actually implemented.

WASTEWATER MANAGEMENT PLAN**ACRONYMS**

KİP	Kocaeli Integrated Health Campus Project
SPV	Kocaeli Hastane Yatırım ve Sağlık Hizmetleri A.Ş.
Golder	Golder Associates Turkey Ltd. Şti.
BAT	Best Available Technology
EBRD	European Bank for Reconstruction and Development
EDC	Export Development Canada
EHS	Environmental, Health and Safety
EPC	Engineering Procurement and Construction
EPRP	Emergency Preparedness and Response Plan
ES	Environmental and Social
ESHS	Environmental, Social Health and Safety
ESA	Environmental and Social Assessment
ESMP(s)	Environmental and Social Management Plan(s)
ESMS	Environmental and Social Management System
ESAP	Environmental and Social Action Plan
EU	European Union
GHG	Greenhouse Gas
GIIP	Good International Industry Practice
HS (or OHS)	(Occupational) Health and Safety
IFC	International Finance Corporation
ISO	International Organization for Standardization
KPI	Key Performance Indicators
SDS	Safety Data Sheet
OHSAS	Occupational Health and Safety Assessment Scheme
OPIC	Overseas Private Investment Corporation
PR	Performance Requirement (issued by EBRD)
PS	Performance Standard (issued by IFC)
QRA	Quantitative Risk Analysis
SEP	Stakeholder Engagement Plan
WHO	World Health Organization

WASTEWATER MANAGEMENT PLAN

TABLE of CONTENTS

PURPOSE SCOPE 1
APPLICATION 1
DEFINITIONS 1
ACRONYMS 2
1.0 PURPOSE AND SCOPE OF THE PLAN 4
 1.1 *Wastewater identification* 4
2.0 BACKGROUND POLICIES AND STANDARDS..... 5
 2.1 *National standards and regulations* 5
 2.2 *International standards* 6
 2.3 *Source documents* 6
3.0 ROLES AND RESPONSIBILITIES..... 7
 3.1 *EPC Contractor & Subcontractors* 7
 3.2 *SPV* 7
4.0 MANAGEMENT METHODS AND MITIGATION MEASURES 8
 4.1 *General management criteria* 8
 4.2 *Specific management methods and mitigation measures* 8
5.0 MONITORING 12
6.0 AUDIT AND REVIEW 14
7.0 REPORTING 14

WASTEWATER MANAGEMENT PLAN

1.0 PURPOSE AND SCOPE OF THE PLAN

This Management Plan has been developed in accordance with SPV policies, with the commitments undertaken by SPV in the ESA, with Turkish regulatory framework, with EBRD Performance Requirements (in particular PR3), with IFC Performance Standards (in particular PS3) and IFC General and Sector Specific EHS Guidelines, OPIC Environmental and Social Policy Statement and EDC. Where no national regulation or international standard/guideline applies, it considers the adoption of Good International Industry Practices (GIIP).

The purpose of the plan is to manage wastewater and impact on ambient water arising from project construction activities including the appropriate control of emissions and residues, in order to minimize impacts to human health and the environment. The plan defines the requirements for safe handling, discharge of wastewater and management of ambient water during the Site construction activities of KIP in Kocaeli, Turkey in an environmentally sound manner.

The overall objective is to reduce the amount of wastewater generation and to avoid, minimize, and control adverse impacts to human health, safety and to the environment, surface water and groundwater. This objective can be achieved by the implementation of specific measures such as:

- Reducing the amount of wastewater generation;
- Monitor the quality and quantity of wastewater generated at the Construction site and discharged;
- Inform workers about precautions and risks when handling chemicals and hazardous waste (training) and provide necessary tools to avoid/minimize risks (e.g. protective clothing);
- Report the results of the periodic Site inspections and audits and provide for corrective actions, if necessary, in order to reach the plan objectives.

This management plan includes guidelines and minimum requirements for EPC Contractor for defining its own plan/procedure appropriate to the nature and scale of the Project Construction phase.

1.1 *Wastewater identification*

This Management Plan has been prepared specifically for the following categories of wastewater and ambient water generated during the construction phase:

Wastewater

- **Sanitary wastewater** from construction camps; sources of sanitary wastewater will primarily be from the water usage for domestic purposes (sinks, toilets, showers, food service, laundry facilities, wastewater from medical infirmaries, etc.);
- **Wastewater from the construction works**; sources of non-sanitary wastewater from potentially contaminated areas (e.g. machinery refueling areas, concrete plants and workshop areas) and wheel washing;
- **Storm water** runoff resulting from precipitation;

WASTEWATER MANAGEMENT PLAN

- **Non-contaminated construction water stream** associated with dewatering activities, drilling, well development, etc.

The list provided above is not comprehensive. In case other categories of wastewater could be generated at the Site during construction works, this management plan provides reference and guidelines to manage them according to the applicable standards.

2.0 BACKGROUND POLICIES AND STANDARDS

This section includes all those policies, standards and requirements of reference for this plan that are applicable for, but not limited to, the Project during Construction phase.

A number of qualitative performance parameters have been identified in Section 4 and 5 below, derived from ESA commitments, Turkish legislation and/or IFC, EBRD and EHS Guidelines, OPIC as well as from GIIP.

2.1 National standards and regulations

Title	Turkish Reg. Gaz. Date
Regulation on Septic Tanks to be installed where a Sewer System is not Available	13783, 19/03/1971
Regulation on Control of Water Pollution	25687, 31/12/2004
Regulation on Control of Pollution Caused by Dangerous Substances in Water and its Environment	26005, 26/11/2005
Regulation on Urban Wastewater Treatment	26047, 08/01/2006
Regulation on Water Conservation against Pollution Caused by Nitrates from Agricultural Sources	25377, 18/02/2004
Regulation on Quality of Drinking Water to be Obtained or Planned to be Obtained from Surface Water	28338, 29/06/2012
Regulation on Prevention of Groundwater from Contamination and Degradation	28257, 07/04/2012
Regulation on Surface Water Quality	28483, 30/11/2012
Regulation on Protection of Wetlands	28962, 04/04/2014
Regulation on Landfills (Regular Storage of Wastes)	27533, 26/03/2010
Regulation on Waste Management	29314, 02/04/2015
Regulation on Control of Soil Pollution and Point Source Polluted Fields	27605, 08/06/2010
Law on Occupational Health And Safety - Law No. 6331, 20/06/2012	28339, 30/06/2012
Regulation on Personnel Protective Equipment	26361, 29/11/2006
Regulation on Preparation and Distribution of Material Safety Data Sheets on Hazardous Materials and Aids (hereinafter mentioned as "SDS").	27092, 26/12/2008
Regulation on Health and Safety Conditions regarding use of Work Equipment	28628, 25/04/2013
Regulation on Protection of Workers from the Risk of Explosive Media	28633, 30/04/2013
Regulation on Procedures and Principles of Health and Safety Training for Employees	28648, 15/05/2013
Regulation on Health and Safety at Construction Sites	28786, 05/10/2013
Regulation on Health and Safety Precautions Regarding Working with Chemicals	28733, 12/08/2013
Regulation on Health and Safety Signs	28762, 11/09/2013
Regulation on Use of Personnel Protective Equipment	28695, 02/07/2013

WASTEWATER MANAGEMENT PLAN**2.2 International standards**

Source	Document Title
The Equator Principles Association	The Equator Principles, June 2013
IFC - International Finance Corp.	IFC Performance Standards (PS) and Guidance Notes (GN)
IFC - International Finance Corp.	IFC PS3 and GN3: Resource Efficiency and Pollution Prevention
IFC - International Finance Corp.	IFC PS4 and GN4: Community Health, Safety and Security
IFC - International Finance Corp.	IFC General EHS Guidelines: Environmental
IFC - International Finance Corp.	IFC General EHS Guidelines: Occupational Health and Safety
IFC - International Finance Corp.	IFC General EHS Guidelines: Construction and Decommissioning
IFC - International Finance Corp.	IFC General EHS Guidelines: Health Care Facilities
EBRD – European Bank for Reconstruction and Development	EBRD PR 3: Resource Efficiency and Pollution Prevention and Control
EBRD – European Bank for Reconstruction and Development	EBRD PR 4: Health and Safety
EBRD – European Bank for Reconstruction and Development	EBRD Sub-sectoral Environmental and Social Guidelines: Health Services and Clinical Waste Disposal
OPIC - Overseas Private Investment Corporation	OPIC - Environmental and Social Policy Statement
International Organization for Standardization	ISO 14001:2004 - Environmental management systems -- Requirements with guidance for use
OHSAS Project Group	OHSAS 18001 - Occupational health and safety management systems – Requirements

2.3 Source documents

This section presents source documents, i.e. documents where SPV commitments are sourced from and that are the trigger for the development and implementation of the ESMP's and in general of the ESMS documentation. They are in turn based on Turkish regulatory framework, EBRD Performance Requirements, IFC Performance Standard and Guidelines and OPIC Environmental and Social Policy Statement.

Document ID	Document Title
ESA Report	Environmental Social Assessment (January, 2016)

WASTEWATER MANAGEMENT PLAN**3.0 ROLES AND RESPONSIBILITIES**

Principal roles and responsibilities for the implementation of this plan are outlined below.

3.1 EPC Contractor & Subcontractors

- EPC Contractor has to ensure sufficient and qualified resources are allocated on an ongoing basis to achieve effective implementation of this Management Plan.
- EPC Contractor have to ensure the effective implementation of this plan by issuing its own procedure addressing, detailing and customizing specific actions, measures and monitoring activities under the EPC Contractor's responsibility. The EPC Contractor Procedure has to include a description of allocated resources, responsibilities and communication procedures to relevant personnel.
- Contractor has to provide relevant monitoring data and monitoring reports to SPV as indicated in section 7 "Reporting" of this plan.
- If any Subcontractor is involved, it is responsible for duly implementing requirements included in EPC Contractor Procedure under the EPC Contractor supervision.

3.2 SPV

SPV Management has to ensure sufficient and qualified resources are allocated on an ongoing basis to achieve effective implementation of actions, measures and monitoring activities under SPV's responsibility. SPV Management is responsible for:

- ensuring that this Management Plan is up to date and appropriate to the nature and scale of the the Project and ensuring that this Management Plan is implemented effectively by EPC Contractor;
- ensuring that action/measures and monitoring activities directly under SPV responsibilities are carried out timely and adequately according to this Management Plan requirements;
- proposing to SPV Management, if necessary, amendments and/or updates to this Management Plan and issuing plan revisions;
- programming inspections and audit activities to ensure the correct implementation of this Management Plan and of EPC Contractor Procedure;
- addressing Non-Conformities through the definition of Preventive/Corrective actions;
- bringing major Non-Conformities immediately to the attention of SPV Management;
- collecting, organizing and reviewing monitoring data and performance monitoring reports from Contractor and providing summary results of such reports to SPV Management, to stakeholders and to the Lenders.

WASTEWATER MANAGEMENT PLAN

4.0 MANAGEMENT METHODS AND MITIGATION MEASURES

4.1 *General management criteria*

Wastewater and ambient water arising from project construction will be managed by the EPC Contractor as follows:

- Sanitary wastewater collected via septic tanks and directly Metropolitan Municipality's sanitary system;
- Storm water runoff and non-contaminated construction water, collected in a drainage system and treated in settlement clarification ponds;
- Any other wastewater generated during construction activities different from the ones indicated at paragraph 1.1, will be managed in order to reduce potential impact to the environment;

Appropriate permits need to be sought by EPC Contractor from the local authorities (the Kocaeli Metropolitan Municipality); notifications filed, and discharges need to be made within the conditions of the permit. Periodical monitoring may be a requirement of the permit conditions.

4.2 *Specific management methods and mitigation measures*

The following table details the management methods and mitigation measures/actions identified for waste management activities in the Construction phase.

For each method and measure/action identified, the table shows:

- The identification code (ID)
- the reference (or source) documents (i.e. ESA, Turkish Regulations, permits, IFC Performance Standards, EBRD Performance Requirements and EHS Guidelines, OPIC or other GIIP)
- frequency/timing of the measure/action, as applicable
- Key Performance Indicator (KPI), if applicable, and related quantitative target or qualitative acceptance criteria;
- related responsibility for implementing the measure/action.

For the measures, actions where no KPI can be identified the cells reports "n.a." (not applicable). In this case an on/off acceptance criteria will apply; in other words the acceptance criteria set is a qualitative one, such as "the measure/action has been implemented effectively".

WASTEWATER MANAGEMENT PLAN

ID.	SOURCE DOC.	MITIGATION ACTION/MEASURE DESCRIPTION	FREQUENCY/TIMING	KPI	TARGET/ACCEPTANCE CRITERIA	RESPONSIBILITIES
Management controls – Sanitary Wastewater						
WWM-01	GIIP Turkish Reg, Gaz. No. 25687, 31/12/2004	Sewage collecting wastewater will be managed in an appropriate manner to limit environmental contamination and protect human health. In particular tightness and integrity of the system will have to be ensured.	Pre-construction	n.a.	Tight system	EPC Contractor
WWM-02	GIIP Turkish Reg, Gaz. No. 13783, 19/03/1971	Impermeable septic tanks will be constructed in order to collect domestic wastewater created at the locations where a sewage connection cannot be reached. The tanks will be planned and constructed in accordance with the local requirements. A vehicle from the Municipality will take the domestic wastewater periodically and discharge to the sewage system. A receipt will be taken from the Municipality every time and kept for 5 years according to the legislation.	Pre-construction	n.a.	Tight system and collection of the receipts	EPC Contractor
Management controls – Wastewater from the construction works						
WWM-03	GIIP Turkish Reg, Gaz. No. 25687, 31/12/2004	The wastewater from concrete plants , which will be constructed in the project area and used during the construction phase, will be reused in concrete production after a settlement process. There will not be any wastewater discharged from the concrete plants.	Construction phase	n.a.	Construction of settlement ponds for the concrete plants and effective reuse of the wastewater	EPC Constructor
WWM-04	GIIP Turkish Reg, Gaz. No. 25687, 31/12/2004	It has to be evaluated how to manage any wastewater containing oil (potentially originated from workshop, washing areas, wheel washing, equipment maintenance, etc.) in order of priority disposed of as waste through tankers (See Waste Management Plan for hazardous waste disposal methods).	Before starting of construction activities	n.a.	Measure effectively implemented meeting regulatory requirements (technical and administrative)	EPC Contractor

WASTEWATER MANAGEMENT PLAN

ID.	SOURCE DOC.	MITIGATION ACTION/MEASURE DESCRIPTION	FREQUENCY/TIMING	KPI	TARGET/ACCEPTANCE CRITERIA	RESPONSIBILITIES
Management controls – Storm water, construction run off water						
WWM-05	GIIP Turkish Reg. No. 25687, 31/12/2004	A drainage system and a discharging line to drain storm water and construction runoff waters from the working area have to be installed before the starting of the construction works. Water collection systems will be adequately sized to allow for the controlled release of storm flows Settling and clarification ponds will be constructed to limit the transportation of sediment.	During Site Preparation	n.a.	Measure effectively implemented	EPC Contractor
WWM-06	IFC EHS GL C&D § 4.1 EBRD PR3	Clean water runoff will be segregated or diverted to prevent the mixing with water containing a high solids content, to minimize the volume of water to be treated in the settling ponds prior to release.	On going	n.a.	Measure effectively implemented	EPC Contractor
WWM-07	IFC EHS GL Env. § 1.3 EBRD PR3	No oily water has to be discharged into the drainage system. If such waters are produced, oil/water separators have to be installed and maintained as appropriate (e.g. at workshops and wheels washing areas). Spill prevention and response measures for oil and chemicals have to be ensured (refers to "Hazardous Material Management Plan" and "Spill Response Plan") in workshops, equipment maintenance areas and fuel storage areas are in place.	On going	n.a.	No visible oil or grease in the streams	EPC Contractor
WWM-08	GIIP	Drilling residues and water resulting from wells development will be managed to limit environmental impact; it is suggested not to discharge them to the drainage system. Only biodegradable drilling fluids have to be used.	On going	n.a.	Measure effectively implemented	EPC Contractor
WWM-09	GIIP	Any possible runoff water arising from dewatering scheme has to be discharged to the drainage system, designed to reduce sediment transport.	On going	n.a.	Verification	EPC Contractor

WASTEWATER MANAGEMENT PLAN

ID.	SOURCE DOC.	MITIGATION ACTION/MEASURE DESCRIPTION	FREQUENCY/TIMING	KPI	TARGET/ACCEPTANCE CRITERIA	RESPONSIBILITIES
Training						
WWM-10	Turkish Reg. Gaz. No. 28648, 15/05/13 Turkish Reg. Gaz. No. 28695, 02/07/13 Turkish Reg. Gaz. No. 27092, 26/12/2008 (SDS)	All workers handling/using chemicals must be informed and trained about: <ul style="list-style-type: none"> • SDS's for hazardous materials being handled; • Use of Personal Protective Equipment (PPE); • Use of Collective Protective Equipment (CPE, i.e., emergency eyewash, showers, etc.); • Spill prevention and response measures. 	As per Training Procedure	Trained personnel %	90% (i.e. only motivated exceptions allowed, e.g. presence of personnel for which training is planned in the short term)	EPC Contractor
Other						
WWM-11	GIIP	A Site layout showing wastewater sources, drainage systems, septic tanks and discharges have to be prepared and updated on a regular basis. Discharge point where regulatory limits have to be met must be clearly identified.	Ongoing	n.a.	Updated layout available	EPC Contractor

WASTEWATER MANAGEMENT PLAN

5.0 MONITORING

The following table details the monitoring activities identified for waste management issues in the Construction phase.

For each monitoring activity and measure/action identified, the table shows:

- The identification code (ID.)
- the reference (or source) documents (i.e. ESA, Turkish standard, permits, IFC Performance Standards and EHS Guidelines, EBRD Performance Requirements, OPIC or other GIIP);

WASTEWATER MANAGEMENT PLAN

ID.	SOURCE DOC.	MONITORING ACTION/MEASURE DESCRIPTION	FREQUENCY/ TIMING	KPI	TARGET/ ACCEPTANCE CRITERIA	RESPONSIBILITIES
WWM-12	GIIP	Recording of the amounts of domestic wastewater discharged to the sewage system.	Monthly	Quantity [m ³]	n.a.	EPC Contractor for providing aggregated monthly data SPV for collecting data
WWM-13	GIIP Turkish Reg, Gaz. No. 25687, 31/12/2004 Turkish Reg, Gaz. No. 13783, 19/03/1971	Visual sewage system, septic tank observation during daily audits.	Daily	Water quality	Compliance with legislation and impermeability/ no discharge to environment	EPC Contractor for audit activities Contractor for take actions in case of a problem SPV for collecting data
WWM-14	GIIP Turkish Reg, Gaz. No. 25687, 31/12/2004	Visual Storm water and Runoff observations: - Oil and grease: no visible film; - Foam: no visible presence.	Monthly (During/after rainfall or during construction activities which entail a large amount of water discharged)	Water quality	Compliance with discharge limits (visual observation)	EPC Contractor for audit activities Contractor for providing analyses in case of a non-compliant observation SPV for collecting data

WASTEWATER MANAGEMENT PLAN**6.0 AUDIT AND REVIEW**

The correct implementation of this Management Plan is verified through internal inspections and audits to be carried out according to the requirements included in section 6.5 “Internal audit” of the “ESMS Manual”.

The schedule, the frequency, the scope and objectives of the audit as well as the responsible internal auditors are indicated in the Audit Program that is developed and updated by SPV HSE Department.

Internal auditing will address:

- The correct implementation of this Management Plan;
- The correct development and implementation of EPC Contractor Procedure(s);
- The correct and timely implementation of an auditing and review system by the EPC Contractor;
- Each of the point indicated in the tables in section 4 (mitigation actions/measures) and 5 (monitoring/measurements) of this plan.

During the inspections, the audit team will address in particular:

- Sewage system and septic tanks have to be frequently inspected and compliance has to be verified;
- All wastewater stream generated and discharged to the sewage system will be inspected to verify the presence of contamination (oils, suspended solids etc.);
- Interviews with personnel should be also taking place in order to ensure that the personnel is qualified and trained.

SPV Management reviews results of inspections and audits and the progress of the Preventive/Corrective actions and takes additional appropriate actions if necessary according to the indications included in “Management Review” of the “ESMS Manual”.

7.0 REPORTING

Evidences and results of the monitoring (measurements) activities (detailed in section 5 of this plan) have to be described in detail in appropriate monitoring reports. This section of the plan provides instructions and requirements for this reporting activity.

Evidences of the implementation of the mitigation actions/measures (detailed in section 4 of this plan) and related results are collected through inspection and auditing activities as detailed in section 6 “Audit and Review” of this plan; these evidences are described in the audit reports.

Reporting activities for this management plan is mainly related to the amounts of wastes produced on site, and consist of:

WASTEWATER MANAGEMENT PLAN

- Recording of the amount of domestic wastewater generated on monthly basis (EPC Contractor);
- Collection of wastewater analysis results in case of a non-compliance (EPC Contractor);
- Communication of the data to SPV, including also QA/QC documentation (EPC Contractor);
- Collection, aggregation and recording of the data in the “Environmental data collection tool” (SPV).

These data together with the results of the inspection and audit activities will be summarized in a Report on a six monthly basis that will be made available to stakeholders which is under the responsibility of SPV. This report constitutes the basis for the monitoring report to be available for the Lenders.