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HAZARDOUS MATERIALS MANAGEMENT AND MONITORING 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 manage hazardous materials during the Construction phase, in order to avoid or, when avoidance is not possible, minimize and control the release of hazardous materials and the pollution from Construction activities.

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

APPLICATION

This Management Plan applies to the Project Construction phase only; the Operation phase aspects will be addressed in separate documents. It applies to construction work activities under the control of SPV, of EPC Contractor and to all KIP employees.

DEFINITIONS

Kocaeli or SPV:	Kocaeli Hastane Yatırım ve Sağlık Hizmetleri A.Ş.
Kocaeli Integrated Health Campus Project (or "KIP" or simply "Project"):	Kocaeli Integrated Health Campus Project, being executed by Kocaeli 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 KIP, 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.

HAZARDOUS MATERIALS MANAGEMENT AND MONITORING 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

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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. 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 hazardous materials and to define the actions to be implemented to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials during the Site construction and comply with Turkish legislation and/or IFC and EBRD requirements.

The plan defines the requirements for safe handling, storage, use and transport of hazardous materials during the Site construction activities of SPV Integrated Health Campus Project.

The overall objective is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials (i.e., handling, storage and use) during the Construction phase. This objective can be achieved by the implementation of measures in order to:

- Prevent uncontrolled spills of hazardous materials to the environment through a correct design of the storage areas and use of engineering controls (containment, vents, valves and alarms);
- Define specific storage, transport and use conditions based on hazardous materials chemical-physical properties and amount;
- Inform workers about precautions and risks when handling of hazardous materials (training) and provide necessary tools to avoid/minimize risks (e.g. protective clothing, ventilation, etc.);
- Implement management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures;
- 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 applies to normal operating conditions during the Site construction activities and does not specifically address any emergency situation and spill contingency; this is addressed in the Spill Response Plan and in the Emergency Preparedness and Response Plan, which are prepared separately.

1.1 *List of hazardous materials by groups of substances*

Hazardous materials are defined as all those materials that represent a risk to human health, property or the environment due to their physical or chemical characteristics (i.e. flammable or combustible liquids/solids, compressed gases, oxidizing substances, toxic materials, corrosive materials), as detailed below.

This management plan has been prepared specifically for the following categories of hazardous substances that will be used during the Construction phase:

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- **diesel fuels**, used for vehicles and equipment refueling at the refueling area and through mobile refueling vehicles (used for large size vehicles and equipment refueling);
- **brake fluids**, used in the brake hydraulic system;
- **lubricant oils**, such as engine, transmission and hydraulic fluids, used during planned and occasional maintenance activities of all vehicles and equipment processes;
- **paints, solvents** and other organic chemicals (e.g. used during equipment painting and cleaning);
- **cement additives**;
- inorganic **acids** and **bases** (e.g. acids for batteries);
- **gas cylinders** containing, i.e. acetylene, oxygen, natural gas and LPG;
- **bitumen** and bitumen products;
- **synthetic mineral fibers**, used as insulation material;
- **cleaning compounds and sanitizing chemicals**;
- **Refrigerating gases and coolants**.

No **radioactive materials** are expected to be used during construction activities.

Hazardous wastes management is detailed in the Waste Management Plan.

The list provided above is not exhaustive. In case other categories of hazardous materials could be introduced at the Site during construction works, this management plan provides reference and guidelines to manage these materials according to the applicable standards.

HAZARDOUS MATERIALS MANAGEMENT AND MONITORING PLAN**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 below, derived from ESA commitments, Turkish legislation and/or IFC, EBRD and EHS Guidelines as well as from GIIP.

2.1 National standards and regulations

TITLE	Turkish Reg. Gaz. Date
Regulation on Decreasing the Ozone Depleting Materials	27052, 12/11/2008
Regulation on Water Pollution Control (Turkish SKKY)	25687, 31/12/2004
Regulation on Control of Pollution Caused by Dangerous Substances in Water and its Environment	26005, 26/11/2005
Regulation on Radiation Safety	23999, 24/03/2000
Regulation on the Safely Transportation of Radioactive Materials	25869, 08/07/2005
Regulation on the Transportation of Dangerous Goods by Road ("Accord Dangerous Routier" – ADR)	28801, 24/10/2013
Regulation on Classification, Package and Labeling of the Hazardous Materials and Aids (still in force until 01/06/2016, hereinafter mentioned as "CLP").	27092, 26/12/2008
Regulation on Classification, Labeling, and Packaging of Materials and Mixtures	28848, 11/12/2013
Regulation on Preparation and Distribution of Safety Data Sheets on Hazardous Materials and Aids (still in force until 01/06/2016, hereinafter mentioned as "SDS").	27092, 26/12/2008
Regulation on Inventory and Control of the Chemicals (hereinafter mentioned as "Chem").	27092, 26/12/2008
Regulation on the Restrictions relating to the Production, Supply to the Market and Use of certain Hazardous Materials, Products and Goods (including asbestos and PCB, hereinafter mentioned as "HazMat").	27092, 26/12/2008 27880, 20/03/2011
Regulation on Control of Soil Pollution and Sites Contaminated by Point Sources	27605, 08/06/2010
Law No. 6331 on Occupational Health and Safety	28339, 30/06/2012
Occupational Health and Safety Risk Assessment Regulation	28512, 29/12/2012
Regulation on Personnel Protective Equipment	26361, 29/11/2006
Regulation on Health and Safety Precautions Regarding Working with Asbestos	28539, 25/01/2013
Regulation on Protection of Workers from the Risk of Explosive Media	28633, 30/04/2013
Regulation on Health and Safety Precautions Regarding Workplace Buildings	28710, 17/07/2013
Regulation on Health and Safety at Construction Sites	28786, 05/10/2013
Regulation on First Aid	24762, 22/05/2002
Regulation on Procedures and Principles of Health and Safety Training for Employees	28648, 15/05/2013
Regulation on Use of Personnel Protective Equipment in Workplaces	28695, 02/07/2013
Regulation on Health and Safety Precautions Regarding Working with Carcinogenic and Mutagenic Substances	28730, 06/08/2013
Regulation on Health and Safety Precautions Regarding Working with Chemicals	28733, 12/08/2013
Regulation on Health and Safety Signs	28762, 11/09/2013

HAZARDOUS MATERIALS MANAGEMENT AND MONITORING PLAN**2.2 International standards**

Source	Document Title
The Equator Principles Association	The Equator Principles, June 2013
IFC – International Finance Corp.	IFC PS 3: Resource Efficiency and Pollution Prevention
IFC – International Finance Corp.	IFC GN 3: Resource Efficiency and Pollution Prevention
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 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 ESMPs and in general of the ESMS documentation. They are in turn based on Turkish regulatory framework, EBRD Performance Requirements and IFC Performance Standard and Guidelines.

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

HAZARDOUS MATERIALS MANAGEMENT AND MONITORING 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 EPC Contractor Procedure addressing, detailing and customizing specific actions, measures and monitoring activities under EPC Contractor's responsibility. The EPC Contractor Procedure has to include a description of allocated resources, responsibilities and communication procedures to relevant personnel, implementation of the control measures in Section 4 and its own audit program. EPC Contractor Procedure is subject to approval of SPV before implementation.

EPC Contractor has to provide relevant monitoring data and monitoring reports to SPV as indicated in 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 under SPV's responsibility. SPV Management is responsible for:

- Management Plan and EPC Contractor Procedure final approval
- taking appropriate actions to address major Non-Conformities based on audit reports, performance monitoring reports and on HSE Manager proposed approach and actions.

SPV HSE Manager is responsible for:

- ensuring that this Management Plan is up to date and appropriate to the nature and scale of the KIP 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.

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- programming inspections and audit activities to ensure the correct implementation of this Management Plan and of EPC Contractor Plan.
- 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 EPC Contractor and providing summary results of such reports to SPV Management, to stakeholders and to the Lenders.

4.0 MANAGEMENT METHODS AND MITIGATION MEASURES

4.1 *General management criteria*

The correct management of hazardous materials is defined in the Safety Data Sheets (SDSs) which include information on:





1. Identification of the substance/mixture and of the company/undertaking;
2. Composition/information on ingredients;
3. Hazards identification;
4. First-aid measures;
5. Fire-fighting measures;
6. Accidental release measures;
7. Handling and storage;
8. Exposure controls/personal protection;
9. Physical and chemical properties;
10. Stability and reactivity;
11. Toxicological information;
12. Ecological information;
13. Disposal considerations;
14. Transport information;

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15. Regulatory information;

16. Other information.

In addition, hazardous materials must be labeled with abbreviations according to their chemical properties and hazards and pictograms as reported in the following table. (Ref: Turkish Regulation on Classification, Package, Use and Labeling of the Hazardous Materials and Aids; Official Gazette No. and date: 27092, 26/12/2008 and Regulation on Classification, Labeling, and Packaging of Materials and Mixtures; Official Gazette No. and date: 28848, 11/12/2013).

Abbreviation	Hazard	Symbol
T + Very toxic T – Toxic	Can cause grave lesions or death in case of inhalation, ingestion or contact with the skin	
Xn – Harmful	Harmful if swallowed, inhaled or contacted by skin Sensitizing through inhalation	
Xi – Irritant	In case of contact or of inhalation these products can cause an irritation of skin, an inflammation of eyes or an irritation of respiratory tracts and sensitizing through skin contact.	
C - Corrosive	Can exercise a destructive action on the live tissue (skin, eyes, mucous membrane).	

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Abbreviation	Hazard	Symbol
<p>F + - Extremely flammable</p> <p>F - Highly flammable</p> <p>Flammable</p>	<p>Solid, liquid or gas that in contact with the air can catch fire and continue to burn.</p> <ul style="list-style-type: none"> • F + products ignite very easily in the presence of a source of ignition below 0°C. • F products ignite easily in the presence of a source of ignition with ambient temperature (21°C). • Flammable products ignite at a high temperature (among 21°C and 55°C) 	
<p>O – Oxidizing</p>	<p>In contact with other products notably flammable, can favor or activate combustion</p>	
<p>Explosives</p>	<p>Liquids or solids able to explode under the effect of shock, friction, flame or heat</p>	
<p>N – Dangerous to the environment</p>	<p>Liquids or solids able to cause damages to the fauna or the flora and pollute waters.</p>	

HAZARDOUS MATERIALS MANAGEMENT AND MONITORING PLAN**4.2 Specific management methods and mitigation measures**

The following table details the management methods and mitigation measures/actions identified for hazardous material management 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 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”.

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
Management controls						
HAZ-01	Turkish Reg. Gaz. No. 27092 of 26/12/08 (SDS, CLP) IFC PS3, EBRD PR3	Develop a specific Hazardous Materials Management Procedure including, at least the following information: <ul style="list-style-type: none"> • Types and amount of hazardous materials; • Storage, labeling, handling and use conditions according to the indications provided by the Safety Data Sheets (SDS); • designated persons to oversee operations related to hazardous materials; • first aid and firefighting measures; • spill response 	ongoing	n.a.	Procedure developed and effectively implemented	EPC Contractor
HAZ-02	IFC-EHS GL – Env. § 1.5 IFC PS3, EBRD PR3 Turkish Reg. on ODS: Gaz. No. 27052, 12/11/2008, Turkish Reg. Gaz. No. 27092, 26/12/2008 (HazMat, Chem) No. 28848, 11/12/2013	Avoid the presence and use of the following hazardous materials subject to both national international bans or phase-outs due to their harm to living organism and/or environment: <ul style="list-style-type: none"> • asbestos • PCBs/PCTs • Ozone Depleting Substances (ODSs) • Persistent organic Pollutants POPs, as defined by Aarhus Protocol • coal tar • very toxic (T+) substances (unless it is proved that it cannot be substituted with less hazardous substances) If refrigerating equipment containing ODSs are present, assess whether the use is in compliance with the conditions set by Turkish Regulation	ongoing	n.a.	Absence of listed substances	EPC Contractor
HAZ-03	IFC PS3, EBRD PR3 IFC-EHS GL – Env. § 1.5	Identify location of all hazardous materials storage areas and associated activities (i.e., loading/unloading areas) on a site layout . Layout must be updated upon any change of storage area location.	ongoing	n.a.	Layout developed, updated	EPC Contractor
HAZ-04	GIIP	No radioactive materials are expected to be used during construction activities. If the use of radioactive materials cannot be avoided, it have communicated to and explicitly authorized by SPV.	ongoing	n.a.	All conditions met	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-05	Turkish Reg. Gaz. No. 23999, 24/03/2000	<p>Avoid the presence of radioactive sources/materials. If use of radioactive sources cannot be avoided, identify all radioactive sources, provide specific and detailed information regarding the radioactive sources and assess that:</p> <ul style="list-style-type: none"> • all equipment and components are designed according to International Atomic Energy Agency (IAEA) and Turkish Atomic Energy Authority (TAEK) Safety Standards, in order to minimize occupational exposure; • all requested documentation in order to comply with Turkish Administration requirements has been provided; • Appropriate precautions in the handling and application of all equipment capable of radioactive exposure or contamination of personnel have been provided. 	ongoing	n.a.	All conditions met	EPC Contractor
HAZ-06	Turkish Reg. Gaz. No. 28801, 24/10/2013 IFC PS3, EBRD PR3	<p>Assess that transportation by road of hazardous materials occurs according to the following requirements:</p> <ul style="list-style-type: none"> • Transporters of dangerous goods have been authorized according to ADR standards; • Transporters are certified and have the human resources and appropriate technology for handling, transporting and managing hazardous materials. • Transporters by roads have procedures for hazardous material management and emergency response procedures in case of an accident; • Hazardous materials should only be moved or transferred within the Site areas by qualified, trained vehicle operators, using appropriate industrial forklifts or other vehicles. 	ongoing	n.a.	All conditions met	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-07	Turkish Reg. Gaz. No. 28801, 24/10/2013 IFC PS3, EBRD PR3	Assess that delivery and handling of hazardous materials occurs according to the following requirements: <ul style="list-style-type: none"> • Security personnel should be responsible for collaborating with Procurement and EHS department to ensure that all hazardous materials are checked in upon receipt and that quantities and material descriptions match associated shipping manifests; • Security personnel should be tasked with providing transporters specific directions on the final delivery location internal to the Site; • Security personnel should alert the Health, Safety and Environment (HSE) department, who will monitor the off-loading or staging of the delivered materials. 	ongoing	n.a.	All conditions met	EPC Contractor
HAZ-08	Turkish Reg. Gaz. No. 27092, 26/12/2008 (SDS, Chem, HazMat) No. 28848, 11/12/2013 IFC PS3, EBRD PR3 GIIP	Coordinate activities between the Procurement Department and HSE department in hazardous materials handling, as follows: <ul style="list-style-type: none"> • The Procurement department will ensure that the HSE department is advised of all hazardous materials procurements. • The Procurement department will also ensure that all hazardous materials are purchased with international SDS information, provided from either the distributor and/or the manufacturer. • Upon procurement of hazardous materials, the Procurement Department will route copies of all SDSs to the HSE department for retention in the Project SDS log book. 	ongoing	n.a.	All conditions met	EPC Contractor
HAZ-9	Turkish Reg. Gaz. No. 27092, 26/12/2008 (SDS, HazMat) No. 28848, 11/12/2013 IFC PS3, EBRD PR3 GIIP	Keep a Project SDS log book in the Site medical clinic, available for review and reference for all applicable Site personnel. Copies of SDS should be also kept at the following locations: <ul style="list-style-type: none"> • at the Fire Brigade/Emergency Response Team leaders and noted in the Project's Emergency Preparedness and Response Plan. • relevant SDSs should also be maintained in appropriate locations (i.e. hazardous materials storage areas). 	ongoing	n.a.	All conditions met	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
Training						
HAZ-10	Turkish Reg. Gaz. No. 28648, 15/05/13 Turkish Reg. Gaz. No. 28695, 02/07/13 Turkish Reg. Gaz. No. 28733, 12/08/13 Turkish Reg. Gaz. No. 27092, 26/12/2008 (SDS) IFC PS3, EBRD PR3	All workers handling/using hazardous materials must be informed and trained about: <ul style="list-style-type: none"> • hazardous materials management plan implementation; • SDSs for hazardous materials being handled; • Safe operating and materials handling procedures; • Use of Personal Protective Equipment (PPE). This equipment may include (but is not limited to): footwear, masks, protective clothing and goggles in appropriate areas, respirators, hoods, gloves, acid suits, or any combination necessary for prudent protection; • 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
HAZ-11	IFC- EHS GL – Env. § 1.5 IFC PS3, EBRD PR3	Keep records of employees training involved in hazardous materials handling and made records available for review.	Ongoing	n.a.	Records available	EPC Contractor
Storage conditions						
HAZ-12	Turkish Reg. Gaz. No. 27092 of 26/12/08 (SDS, CLP) IFC PS3, EBRD PR3	Avoid uncontrolled storage of hazardous materials (e.g., presence of unidentified material in the storage area and/or storage of hazardous materials outside the identified storage areas).	Ongoing	n.a.	No uncontrolled storages found	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-13	IFC- EHS GL – Env. § 1.5 IFC PS3, EBRD PR3 Turkish Reg. Gaz. No. 27092, 26/12/08 (SDS, Chem, HazMat) GIIP	Implement the following general storage conditions : <ul style="list-style-type: none"> • Storage areas must be paved and provided with adequate roofing preventing soil contamination (e.g. caused by rainwater) • Storage areas must be located with consideration of natural drainage systems • All hazardous materials and/or their containers must be identified and labelled • SDS, if not present at the storage area, must be readily accessible to all workers and in any case written in their local language • The storage areas must be located reasonably away from offices and trucks/vehicles main routes • The storage areas must have appropriate ventilation system. • Hazardous materials must be segregated according to their chemical-physical compatibility (e.g. store separately acid/bases) • Access roads and pathways to the storage area must be free of obstacles. • Signs must be posted advising the type of hazardous materials stored in, including pictograms and risk phrases • Access to storage areas must be restricted to authorized and qualified personnel • Storage areas must not be located in proximity of sensitive receptors (e.g. houses, surface water bodies) • Suitable spill clean-up materials must be kept close to the storage area and readily available • All storage areas must be provided with fire extinguishers according to the Emergency Preparedness and Response Plan. Location of fire extinguishers, first aid kits and clean-up materials must be clearly identified 	Ongoing	n.a.	All conditions met	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-14	IFC- EHS GL – Env. § 1.5 IFC PS3, EBRD PR3	Implement the following storage conditions for liquids : <ul style="list-style-type: none"> • All containers (tanks, drums, etc.) must be properly closed and adequately stable to avoid liquid overflow; • Materials and volume of containment basins must be properly selected and calculated; • All drainage valves of secondary containment must be kept closed and, in case of rainwater presence, opened only after checking the absence of chemicals/oils in water to be discharged; • maintenance of the mechanical integrity and operability of systems, equipment and tools aimed to prevent liquid overflow (gauges, hose and piping connections, valves) must be performed 	Ongoing	n.a.	All conditions met	EPC Contractor
HAZ-15	Turkish Reg. Gaz. No. 28633, 30/04/2013 Turkish Reg. Gaz. No. 27092, 26/12/08 (SDS) IFC PS3, EBRD PR3 GIIP	Implement the following storage conditions for gas cylinders : <ul style="list-style-type: none"> • Gas cylinders must be stored in a dedicated ventilated area, vertically, attached, protected from any risk of fall, repaired from direct sunlight and heat sources. • Each type of gas cylinders must be stored in separated groups, according to their content. • To avoid the risk of explosion, fuel and combustible gas cylinders must be stored in separate locations. • Signs must be posted to alert the type of gas cylinders stored (acetylene, oxygen, Argon, etc.) and signs must be also provided in order to identify the gas cylinder full and those empty. 	ongoing	n.a.	All conditions met	EPC Contractor
Spill Prevention Measures						
HAZ-16	ESA-App B-§ 4.2.1.3 GIIP	Avoid storage in Underground Storage Tanks (USTs).	Ongoing	n.a.	Absence of underground storage tanks	EPC Contractor
HAZ-17	IFC- EHS GL – Env. § 1.5	Provide all liquid storage areas with secondary containment basins . The required volume of the secondary containment is: <ul style="list-style-type: none"> • 110% of the volume of the larger tank (in case of more tanks per containment basin); or • 125% of the combined tank volumes in areas with ASTs with a total storage volume equal or greater than 1,000 liters. 	Ongoing	n.a.	All conditions met	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-18	GIIP	<p>Liquids spilled out from tanks and drums and collected within the secondary containments and any contaminated water must be pumped, collected and disposed of or discharged according to the Wastewater Management plan and the Waste Management Plan</p>	Ongoing	n.a.	All conditions met	EPC Contractor
HAZ-19	ESA-App B-§ 4.2.1.9	<p>Ensure that vehicles maintenance (e.g. oil changes operation) occur as follows:</p> <ul style="list-style-type: none"> • The maintenance process of the vehicles to be used in construction period of the project would be done in authorized services. If any waste oil is produced in the construction site area, the waste oil will be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. The oil collected would be given to a licensed waste oil recovery company according to the Regulation on Control of Waste Oil. 	Ongoing	n.a.	All conditions met	EPC Contractor
HAZ-20	GIIP	<p>Ensure that all vehicles refilling operation occur as follows:</p> <ul style="list-style-type: none"> • Refueling operations should be carried out at designated re-fuelling paved areas using retention tanks or drip trays (of appropriate volume) to collect leaks/spills • If refueling is carried out directly though tankers, retention tanks or drip trays (of appropriate volume) must be placed below to collect leaks/spills • Refueling activities on traffic routes must be avoided • Any hot work activity must be avoided in proximity of the refuel area • Tanker delivery hose must be checked for presence of residual fuel from last fuelling operation. If there is residual fuel, handle the delivery hose accordingly • Connect properly the delivery pipes and verify the integrity of all terminal connections • Operator must control refueling operation at all times 	Ongoing	n.a.	All conditions met	EPC Contractor

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ID.	Source doc.	Mitigation Action/Measure Description	Frequency / Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-21	Turkish Reg. Gaz. No. 27605, 08/06/10 Turkish Reg. Gaz. No. 27092, 26/12/08 (SDS, HazMat) IFC PS3, EBRD PR3 GIIP	Ensure that the following spill prevention and response measures are in place: <ul style="list-style-type: none"> • Drains or valves in containment equipment must be sealed • Chemical & hydrocarbon storage vessels (e.g. drums & chemical cabinets) must be sealed and contained when being transported around site • Service trucks, re-fuelling trailers and other vehicles used for liquid substances transportation must be provided with spill kits and drip trays • Make effective spill clean-up material readily available at each work site where liquids are handled and on all mobile service trucks or vehicles • All the provisions of Regulation on Control of Soil Pollution and Point Source Polluted Fields should be respected. • Establishment of segregated and access-controlled storage areas with the means to collect or contain accidental releases • Outline responsibility for managing spills, releases, and other pollution incidents; including reporting and alerting mechanisms to ensure any spillage is reported promptly and personnel are informed to take appropriate action. • Secondary containment for ASTs and tanker truck loading and unloading areas must be provided • Specific tools/pumps must be in place in order to facilitate collection of accidental leaks and spills • Control and clean up any spills as per Spill Response Plan 	Ongoing	n.a.	All measures in place	EPC Contractor

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5.0 MONITORING

The following table details the monitoring (measurement) activities identified for hazardous materials management 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, EBRD Performance Requirements and EHS Guidelines or other GIIP)
- frequency/timing of the measurement,
- Key Performance Indicator (KPI), and related quantitative target, if the target consist of a regulatory limit this will be indicated;
- the related responsibility for implementing the monitoring activity.

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ID.	Source doc.	Monitoring Action/Measure description	Frequency/ Timing	KPI	Target/ Acceptance criteria	Responsibilities
HAZ-22	GIIP	Record and aggregate data on amounts of hazardous materials entering on site: <ul style="list-style-type: none"> • Diesel oils • Brake fluids • Lubricating oils • Paints and Solvents and other organic substances; • Cement additives; • acids and bases; • bitumen and bitumen products; • synthetic mineral fibers • gas cylinders (detailed for substance, i.e., acetylene, oxygen, natural gas and LPG) • other hazardous materials 	Monthly	Amounts [kg] Number and volume [L]	N.A.	EPC Contractor for providing aggregated monthly data SPV for collecting data
HAZ-23	Turkish Reg. Gaz. No. 28633, 30/04/2013 Turkish Reg. Gaz. No. 27092, 26/12/08 (SDS) IFC PS3, EBRD PR3 GIIP	Daily check of all storage areas including: <ul style="list-style-type: none"> • evidences of past/current spills (major staining, sign of stressed vegetation, pool of liquids, shining on water surfaces) • SDS available for chemicals • Proper and adequate firefighting equipment • Restricted access • Safety signs in place • Sufficient ventilation • Suitable spill clean-up materials in place • All containers (tanks, drums, etc.) properly closed and adequately stable to avoid liquid overflow • Gas cylinders stored in a dedicated ventilated area, vertically, attached, protected from any risk of fall, repaired from direct sunlight and heat sources. • Each type of gas cylinders stored in separated groups, according to their content. • Fuel and combustible gas cylinders must be stored in separate locations. • Condition of the secondary containments. 	Daily	n.a.	No spills, all conditions are met	EPC Contractor

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HAZ-24	GIIP	<p>Operator must control refueling operation at all times and monitor;</p> <ul style="list-style-type: none"> • Refueling operations are carried out at designated re-fuelling paved areas using retention tanks or drip trays (of appropriate volume) to collect leaks/spills • If refueling is carried out directly through tankers, retention tanks or drip trays (of appropriate volume) is placed below to collect leaks/spills • Refueling activities on traffic routes is avoided • Any hot work activity is avoided in proximity of the refuel area • Tanker delivery hose must be checked for presence of residual fuel from last fuelling operation. If there is residual fuel, handle the delivery hose accordingly • Connect properly the delivery pipes and verify the integrity of all terminal connections 	Ongoing	n.a.	All conditions are met	EPC Contractor/Subcontractor Operators
HAZ-25	<p>Turkish Reg. Gaz. No. 28801, 24/10/2013 IFC PS3, EBRD PR3</p>	<p>Delivery and handling of hazardous materials,</p> <ul style="list-style-type: none"> • Security personnel for collaborating with Procurement and EHS department to ensure that all hazardous materials are checked in upon receipt and that quantities and material descriptions match associated shipping manifests; • Security personnel tasked with providing transporters specific directions on the final delivery location internal to the Site; • Security personnel alert the Health, Safety and Environment (HSE) department, who will monitor the off-loading or staging of the delivered materials. 	Ongoing	n.a.	All conditions are met	EPC Contractor
HAZ-26	<p>Turkish Reg. Gaz. No. 27092, 26/12/2008 (SDS, Chem, HazMat) No. 28848, 11/12/2013 IFC PS3, EBRD PR3 GIIP</p>	<p>Coordinate activities between the Procurement Department and HSE department in hazardous materials handling, as follows:</p> <ul style="list-style-type: none"> • The Procurement department will ensure that the HSE department is advised of all hazardous materials procurements. • The Procurement department will also ensure that all hazardous materials are purchased with international SDS information, provided from either the distributor and/or the manufacturer. • Upon procurement of hazardous materials, the Procurement Department will route copies of all SDSs to the HSE department for retention in the Project SDS log book. 	Ongoing	n.a.	All conditions are met	EPC Contractor

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HAZ-27	Turkish Reg. Gaz. No. 27092, 26/12/2008 (SDS, HazMat) No. 28848, 11/12/2013 IFC PS3, EBRD PR3 GIIP	Keep a Project SDS log book in the Site medical clinic, available for review and reference for all applicable Site personnel. Copies of SDS should be also kept at the following locations: <ul style="list-style-type: none"> • at the Fire Brigade/Emergency Response Team leaders and noted in the Project's Emergency Preparedness and Response Plan. • relevant SDSs should also be maintained in appropriate locations (i.e. hazardous materials storage areas). 	Monthly	n.a.	Ensure SDS log book is available at certain locations	EPC Contractor
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HAZARDOUS MATERIALS MANAGEMENT AND MONITORING 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 internal audit section of “ESMS Manual”.

EPC Contractor will set up its own EPC Contractor Procedure in line with this Management Plan, which will include the Audit Program to inspect the implementation of the control measures listed in section 4. EPC Contractor will submit its internal audit reports to SPV on an agreed frequency.

The schedule, the frequency, the scope and objectives of the audit as well as the responsible internal inspectors will be indicated in the Audit Program that will be 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;
- 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) of this plan.

During the inspections the inspectors will address in particular:

- All hazardous materials storage facilities have to be frequently inspected including drainages, secondary containment measures, spill kits, signaling, etc.;
- The area surrounding the hazardous materials storage facilities have to be frequently inspected for evidences of past/current spills (major staining, sign of stressed vegetation, pool of liquids, shining on water surfaces, etc.);
- SDS archive have to be inspected and SDS have to be checked on a sample basis (at least 20% of the data sheets);
- The inspector should verify presence of qualified personnel when hazardous materials transfer/transportation operation are carried out; at least one operation should be verified throughout the entire process;
- Interviews with personnel should be also take place in order to ensure that the personnel is qualified and trained;
- Main OHS aspects such as wearing of PPE, presence of firefighting equipment, presence of odors and of sufficient ventilation of the storage areas, compatibility of the materials stored in the same area, layout of the storage have to be verified.

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Evidences and results of the inspection and audit activities are included in the audit reports and in the “Non-Conformity and Preventive/Corrective actions” records.

SPV Management reviews results of audits and inspections and the progress of the Preventive/Corrective actions and takes additional appropriate actions if necessary.

7.0 REPORTING

7.1 *Audit reports (by SPV)*

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.

7.2 *EPC Contractor Monitoring Reporting*

Reporting activities for this management plan is mainly related to the amounts of hazardous materials handled on site, and consist of:

- Recording of the amount of each hazardous material/substance purchased entering the Construction site (EPC Contractor);
- Compiling of the quantity data by group of substances (as detailed in section 1.1) on a monthly basis (EPC Contractor);
- Communication of the data to SPV on a monthly basis (EPC Contractor);
- Evidence of the daily controls of the hazardous materials storage areas (EPC Contractor).

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.