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İşin Adı : Mersin-Adana-Osmaniye-Gaziantep Yüksek Standartlı Demiryolu Hattı
The Name of : İnşaatı ile Elektromekanik Sistemlerinin Temini
the Job : Construction of Mersin-Adana-Osmaniye-Gaziantep Hight Standard Railway Line
With Supply Of Electromechanical Systems

Rapor Adı : AIR QUALITY AND EMISSION CONTROL
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1. PURPOSE

The purpose of this Plan;

- Defining country legislation and standards,
- Defining the duties and responsibilities of the personnel,
- Identification of impact avoidance and mitigation measures for the management of potential air quality impacts during construction

2. SCOPE

This procedure is carried out by Ronesans Holding A.Ş. and all subHSE employees operating in the MAOG Project operating within the structure of its affiliated Group Companies (employees, interns, etc.).

Emissions during project construction will contribute to national air pollutant levels and thereby affect the health of nearby communities. The overall objective of this management plan is to identify and minimize air pollutant emissions and potential impacts from construction activities.

The plan refers to potential emission sources during construction and identifies how effective safeguards and appropriate emission controls will be implemented to ensure ambient air quality is maintained and minimize air quality impacts on adjacent receptors. This AQMCP covers all construction-related operations, including HSE activities.

This plan will be used to minimize particulate matter (eg dust) in the following sources:

- Cleaning and preparation of the land surface;
- excavation and filling activities;
- Dust generation during material handling;
- Topsoil stockpile storage;
- Passage of transport trucks (especially on stabilized roads);
- Use of dump trucks; and
- Operation of ready mixed concrete plant etc.

Particulate matter levels derived from air quality planning activities will be assessed against legal requirements and international standards. If the particulate matter level is found to exceed these conditions, corrective and preventive actions will be initiated by MAG to reduce emissions to a reasonable level. Near sensitive areas will be monitored to ensure minimal impact associated.



3. DEFINITIONS and ABBREVIATIONS

Persons who detect ambiguity and inconsistency in this document can report their requests and suggestions using the "User Feedback Form" in the APPENDIX A.

- HSE : Health, Safety and Environment
ESIA : Environmental and Social Impact Assessment
PM10 : Particulate matter (dust) with a diameter of 10 µm or less
EU : European Union
IFC : International Financial Institution
EBRD : European Bank for Reconstruction and Development

4. REFERENCES

The content of this document has been developed to determine the minimum requirements for Ronasans Holding and all affiliated Group Companies; It can be developed according to the legal regulations of the working area, employer expectations and international standards.

The legislation and standards to be implemented in the project consist of:

- Applicable Turkish Laws and national standards
IFC General Conditions, Health and Safety Guidelines Air Emissions and Ambient Air Quality
"IFC Performance Standard 3: Resource Efficiency and Pollution Prevention
EU Council Directive 2008/50/EC

The international ambient air quality standards to be implemented by the project are those determined under the IFC General Directives (based on the World Health Organization Air Quality Directive) and the EU Council Directive 2008/50/EC.

5. DUTIES AND RESPONSIBILITIES

5.1. Project Manager

Overall responsibility for the development, review, approval and coordination of various activities for initiation, execution and completion of construction activities. Overall responsibility for the compliance of construction phase noise levels with Turkish Regulations.

Ensuring that this plan is prepared based on the activities and operations undertaken by the REC as part of the project and updated as necessary.

Ensuring that adequate resources are available to implement the procedures and guidelines outlined in this plan.



5.2. HSE Manager

- Initiation, development, implementation and coordination of this plan during construction.
- Ensuring that adequate training has been given to all site personnel, including procedures and guidelines under this plan.
- Establishing appropriate control procedures and performing necessary audits.
- Recruitment, training and supervision of the Environmental Engineer, assisting with their responsibilities when necessary.
- Developing the necessary monitoring and reporting forms. Establishing appropriate document control procedures.
- Execution of ambient air quality monitoring programs.
- Review of air quality monitoring results according to national regulations and international standards. If monitoring results exceed these conditions, investigate the level of exceedance and ensure that corrective actions are initiated promptly by the OHS Supervisor and Site Manager.
- Performing repeated measurements to verify compliance.
- Prompt handling of any emissions-related complaints received from the grievance mechanism.

5.3. Environmental Engineer

It is responsible for following the implementation of the provisions of this plan in the field during the construction, monitoring the actuality of the plan and its revision.

5.4. Headquarter E&S Manager:

Responsible for managing infrastructure and superstructure projects regarding environmental and social governance issues and member of the Executive E&S Committee on behalf of the REC.

5.5. PIU (Project Implementation Unit)

PIU Physics Engineer who is responsible for supervising health and safety for the Project.

PIU Department Manager (Superstructure / Civil Engineer) will be responsible for overseeing the implementation of all health, safety and social measures, as specified within the disclosure package of the Project, and regular reporting to AYGM PIU.

PIU Department Manager (Environmental and Feasibility / Environmental Engineer) will be responsible for supervising the implementation of all environmental and biodiversity measures, as specified within the disclosure package of the Project, and regular reporting to AYGM PIU.

5.6. Executive Environmental and Social Management Committee

- **Executive E&S Committee Project Manager (Department Head / Branch Manager /Head of Department)** will be ultimately responsible for overseeing the activities undertaken by the



AYGM/TCDD specialists (listed below), overseeing the implementation of mitigation measures and management procedures specified within the disclosure package of the Project, and overseeing the preparation and implementation of a CESMP, which will be based on this ESMP.

- **Executive E&S Committee Environmental, Health and Safety, and Social (EHSS) Manager (Specialist / Engineer)** will be responsible for overseeing all matters that relate to environment, health, safety and social aspects of the Project. Also, s/he will be appointed to be responsible for supporting the implementation of the SEP, by conducting regular consultation with affected communities on any concern regarding the Project. CLOs will also have responsibility for disseminating the Project disclosure package as described in the SEP. They will also conduct regular inspections of records relating to grievances received and their resolution. S/He will report regularly to AYGM PIU.

Further technical staff may be required during the course of the Project, who will be assigned internally by the AYGM, either by means of permanent or temporary basis until the completion of relevant tasks under the Project whilst they undertake their current responsibilities.

5.7. SubHSEs and Employees

- Understands and acts in accordance with the human resources procedures and guidelines outlined in this plan.
- Understands the emission control conditions related to their work and acts in accordance with this plan during their duties.
- It reports any activity that is unnecessary and causes excessive dust or emissions.
- Follows supervisors' instructions or recommendations regarding emission control and monitoring conditions.
- Accordingly, those who are unsure of the legal, regulatory or political consequences of their actions should seek management or supervisory direction.
- Sub-HSEs are responsible for determining their own responsibilities for the control of construction-related emissions at the construction site. However, REC is fully responsible for the actions and actions of its SubHSEs.

6. MITIGATION MEASURES

A Method Statement will be prepared for air quality monitoring during the pre-construction and construction phase. The Method Statement will make provision for:

- Periodic visual inspections of activities resulting in impact to air quality. Visual inspections will reflect the ethos of 'see it, own it', in terms of identifying and addressing significant air quality impacts. Where significant impacts are observed, these will be recorded and closed out.
- Regular inspections during the site preparation phase to review air and dust issues and dust suppression techniques altered as required.
- If significant dust complaints are received, passive monitoring of dust deposition upwind and downwind of key construction areas will be undertaken. Monitoring will be undertaken using an internationally recognised technique.



Stated criteria will be monitored:

- Dust monitoring results compliant to performance criteria.
- Recommendations and corrective actions taken when dust generation or combustion sources are noted.
- Complaints arising from air quality emissions managed through the Grievance Mechanism.

Regarding air quality and dust management:

In line with the mitigation measures expressed in this ESMMP, the HSE will prepare an plan, which will include a requirement for monitoring of dust deposition, dust flux, real-time PM10 monitoring and/or visual inspections; daily on-site inspections to monitor compliance with the AQ&DMP will be carried out and results recorded.

- If there is a requirement for unpaved roads close to settlements to be used by vehicles, surface-binding agents may be used, options include salt to or gravel coat the road.
- 20kph speed limit will be applied on unpaved surfaces close to settlements.
- Vehicles will be kept clean, so that no dirt is carried on the vehicles into and out of the area.
- Where the mitigation measures are inadequate, surface-binding agents will be used in exposed earthworks.
- Localized watering/dampening and activity-specific watering/dampening will be used to reduce localized dust emissions.
- Stockpiling of stripped surface material, eg. rock, sand and soil, stockpiling of unwashed materials, will be limited. Stockpiles should be kept as enclosed as possible or covered.
- Stockpiles will be placed as far away from receptors as possible.
- Design of stockpiles will be optimized to maintain a low profile without a sharp change in shapes.
- Wind breaks or dust protection systems (including sprinklers) should be built around the main construction activities where necessary and, if possible, near potentially dusty works to minimize the impact of nearby residential receptors.
- Good practice should be applied for selection of Project vehicles that meet the latest emission standards (e.g. EURO 3 or US EPA Tier 2 emission standards) and maintained in a reasonable working order.
- When not in use, vehicles should be shut down unless it is due to health and safety reasons (e.g. maintenance of the air conditioner).
- During transportation on public roads, the excavated materials will be covered with nylon canvas or suitable materials with a grain size greater than 10 mm in public roads as good practice.
- To reduce fugitive dust emission during vehicle operation on public roads and at construction sites, service roads and quarry/material borrow/storage sites, dust suppression methods (i.e. watering with water trucks, applying nontoxic chemicals, speed limits for mobile vehicles, using well-maintained vehicles/equipment) should be used.



Regarding GHG emissions:

- Design optimisation to reflect the carbon reduction hierarchy should be considered;
 - Reduce the elements required for the Project;
 - Reduce the requirement for construction materials and excavation;
 - Substitute construction elements for lower-carbon alternatives (e.g. specifying concrete with a higher portion of ground-granulated blast furnace slag (GGBS) content which is widely available in Turkey); and
 - Use efficient construction processes, such as design for manufacture and assembly.
- Materials and products with reduced embodied GHG emissions including through material substitution, recycled or secondary content and from renewable sources can be specify ;
- Energy consumption including fuel usage by, for example, reducing the requirement for earth movements to/from and within the construction site can be minimised;
- The local sourcing of materials and local waste management facilities can be maximised;
- The Project with a view to maximising the potential for reuse and recycling of materials/elements at the end-of-life stage can be specified and constructed; and
- High efficiency mechanical and electrical equipment can be specified and constructed.

For adapting and mitigating climate change risks on the Project:

- Relocate facilities to higher elevations

Relocating utility infrastructures to higher elevations would reduce risks from coastal flooding and exposure as a result of coastal erosion or wetland loss.

- Build flood barriers to protect infrastructure

Flood barriers to protect critical infrastructure include levees, dikes and seawalls. A related strategy is flood proofing, which involves elevating critical equipment or placing it within waterproof containers or foundation systems.

- Diversify options for water supply and expand current sources

Diversifying sources helps to reduce the risk that water supply will fall below water demand. Examples of diversified source water portfolios include using a varying mix of surface water and groundwater, employing desalination when the need arises and establishing water trading with other utilities in times of water shortages or service disruption.

- Increase water storage capacity

Increased drought can reduce the safe yield of reservoirs. To reduce this risk, increases in available storage can be made. Methods for accomplishing this may include raising a dam, practicing aquifer storage and recovery, removing accumulated sediment in reservoirs or lowering water intake elevation.

- Conduct climate change impacts and adaptation training

An important step in developing an adaptation program is educating staff on climate change. Staff should have a basic understanding of the projected range of changes in temperature and precipitation, the increase in the frequency and magnitude of extreme weather events for their region and how these changes may affect the utility's assets and operations. Preparedness from this training can improve utility management under current climate conditions as well.

- Develop emergency response plans

Emergency response plans (ERPs) outline activities and procedures for utilities to follow in case of an incident, from preparation to recovery. Some of the extreme events considered in ERPs may change in their frequency or magnitude due to changes in climate, which may require making changes to these plans to capture a wider range of possible events.

- Participate in community planning and regional collaborations

Effective adaptation planning requires the cooperation and involvement of the community. Water utilities will benefit by engaging in climate change planning efforts with local and regional governments, electric utilities and other local organizations

- Resource efficient methods (in terms of capital costs, data collection and analysis time) may be developed to assess the current condition and resilience of existing infrastructure to weather events. The development of a comprehensive database of infrastructure assets, use of remote condition monitoring and GIS may be methods to consider.
- An assessment of the vulnerability of particular assets including knock-on effects both from and to third party assets should be carried out. Consistent recording of flooding events should be carried out to capture the necessary data that can be used in more detailed flood risk modelling.
- Earthworks as an asset class require careful management during wet weather and therefore opportunities to further refine management procedures should be examined.
- REC should develop a business case for replacing or relocating vulnerable assets based on lifecycle cost comparisons. As part of this, research will be conducted to identify options for potential new locations and routes for the most vulnerable and costly assets including modal shifts (high precipitation, high sea levels and storm surges).
- It should be assessed whether electronic design temperature thresholds are still appropriate given projected climate change. More specifically,
 - It should be better understood the temperature sensitivity of semaphore signal cables which are subject to similar sag problems as Overhead Line Equipment (OLE) cables (high temperatures).
 - A cost benefit analysis of temperature control options should be undertaken for any planned upgrades of location cases.
- It should be explored how changing from diesel to electric power generation and from AC to DC energy transmission will affect future temperature-related risks given climate change projections (high temperatures, low temperatures)
- REC should identify alternative design options for OHL (Overhead Line) cable posts to reduce wind risks (high winds, high precipitation, low precipitation).
- REC should review the latest temperature design ranges for information and communication technologies (ICT) and electronics equipment, as well as those for the buildings which contain them.

Quantification of Project GHG emissions during the construction phase will be yearly held for monitoring results which can be used to evaluate project performance.



7. Monitoring and Measurement

Key success indicators (KPIs) of this procedure will be monitored, verified and evaluated by the relevant parties in accordance with their responsibilities set forth in the E&S Governance document, within the scope of the MAOG-RECU-GB-GNL-IS-PRG-0007-0 HSE Monitoring, Assurance and Verification Procedure.