A Member of Shaker Group

Environmental and Social Due Diligence of Suez Power Plant

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A Member of

Environmental Alliance
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CEMS</td>
<td>Continuous Emission Monitoring System</td>
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<tr>
<td>EDEPC</td>
<td>East Delta Electricity Production Company</td>
</tr>
<tr>
<td>EEA</td>
<td>Egyptian Electricity Authority</td>
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<tr>
<td>EEAA</td>
<td>Egyptian Environmental Affairs Agency</td>
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<tr>
<td>EEHC</td>
<td>Egyptian Electricity Holding Company</td>
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<tr>
<td>EETC</td>
<td>Egyptian Electricity Transmission Company</td>
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<tr>
<td>EHS</td>
<td>Environmental Health and Safety</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EMS</td>
<td>Environmental Management Staff</td>
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<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
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<td>ESMS</td>
<td>Environmental and Social Management System</td>
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<tr>
<td>HRSG</td>
<td>Heat Recovery Steam Generator</td>
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<td>IFC</td>
<td>International Finance Cooperation</td>
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<td>MWe</td>
<td>Mega Watt electrical</td>
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<tr>
<td>NFPA</td>
<td>National Fire Protection Authority</td>
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<tr>
<td>OHTL</td>
<td>Over Head Transmission Line</td>
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<td>PS</td>
<td>Performance Standard</td>
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<td>PMU</td>
<td>Project Management Unit</td>
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<td>SPRL</td>
<td>Suez Petroleum Refinery Laboratory</td>
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<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WBG</td>
<td>World Bank Guidelines</td>
</tr>
<tr>
<td>CO</td>
<td>Carbon Monoxide</td>
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<tr>
<td>NO₂</td>
<td>Nitrogen Dioxide</td>
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</table>
1. EXECUTIVE SUMMARY

1.1 Scope and purpose of review

Suez Power Plant is currently in the commissioning phase, which will be shortly re-inaugurated to provide the Egyptian electricity network with 650 MWe. The power plant includes one traditional thermal steam unit, which is planned to utilize natural gas as its primary fuel and heavy fuel oil (Mazout) as an emergency fuel. Suez Power Plant is located in the south of Suez City and 2.5 – 3 kilometers northeast of the existing “Attaqa” thermal power plant and around 700 m south of Suez / Adabyya regional road, which runs parallel to the Gulf of Suez. Historically, Suez Power Plant was constructed in 1965 with 4 units each 22 MWe, and was expanded in 1991 by a 97 MWe unit. The plant was decommissioned in 2002, and since then there were plans to demolish the old units and replace them with new ones.

The power plant site is within an existing piece of land allocated to Egyptian Electricity Authority (EEA) (today Egyptian Electricity Holding Company EEHC) by contract signed with the Suez Petroleum Refinery Laboratory (SPRL), which was renewed between the East Delta Electricity Production Company (EDEPC) and SPRL in 2007.

One of the other projects implemented to support the generation of electricity in Egypt is the EG-Giza North Power Project, which was financed by the World Bank. After the completion of the procurement of all the packages financed by the World Bank, there were financial savings available as part of the project to be utilized by the Government of Egypt. The World Bank received a formal request from the government of Egypt to utilize the financial savings of Giza North Power Plant project to procure natural gas pipelines in order to upgrade the natural gas network. One of these pipelines is El-Suez Power Station gas pipeline which will feed Suez power plant. One of the World Bank requirements to undertake an environmental and social due diligence to any associated facility to a bank-assisted project to ensure that it is conforming the World Bank/ IFC Performance Standards. Suez power plant is considered as an associated facility to Suez Power Station gas pipeline project since it meets the World Bank criteria of identification of the associated facilities as the power plant is:

- Directly and significantly related to the Bank-assisted project (Suez Power Station gas pipeline project)
- Necessary to achieve the objectives of Suez Power Station gas pipeline as set forth in the project documents; and
- Carried out contemporaneously with Suez Power Station gas pipeline project.
This report was undertaken to check and identify the current and cumulative environmental and social impacts of the power plant. Moreover, it is required to ensure that the proposed/implemented environmental and social mitigation measures, including monitoring and reporting requirements are satisfactorily conforming to the World Bank/IFC Performance Standards. Accordingly, corrective measures are proposed when required.

1.2 Methodology

In order to achieve the due diligence objectives, the work methodology followed included conducting meetings with the relevant entities to gather the available data and documents related to the power plant, conducting desk review for the relevant project documents, in addition to a visit to the power plant site. The desk review was done to evaluate all the gathered documents and studies prepared for the power plant. On the other hand, the site visit to the power plant mainly aimed to collect any missing data and to check and assess the environmental and social conditions during the construction and operation phases.

1.3 Status of requested project documentation

The following table summarizes the documents reviewed by due diligence consultant.

<table>
<thead>
<tr>
<th>Source</th>
<th>Reviewed Document</th>
</tr>
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<tbody>
<tr>
<td>EEHC</td>
<td>1. ESIA of the power plant</td>
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<tr>
<td></td>
<td>- ESIA main document</td>
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<td></td>
<td>- Public consultation</td>
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<td></td>
<td>2. Egyptian Environmental Affairs Agency (EEAA) approval for the power plant</td>
</tr>
<tr>
<td>Site visit</td>
<td>1. Industrial waste analysis report</td>
</tr>
<tr>
<td></td>
<td>2. Hazardous waste disposal receipt</td>
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<td></td>
<td>3. Waste oil disposal contract</td>
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<td></td>
<td>4. Sewage Water Disposal Contract With Suez Petroleum Company</td>
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<tr>
<td></td>
<td>5. Sample of the old demolished units disposal agreements</td>
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<td></td>
<td>6. Land Allocation Contract between EDEPC and Suez Petroleum Company</td>
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<td></td>
<td>7. Waste Management Plan</td>
</tr>
<tr>
<td></td>
<td>8. Occupational health and safety plans for operation phase</td>
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<td></td>
<td>9. Emergency evacuation plan</td>
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</table>
1.4 Power plant status

Based on the data reviewed, the Suez power plant is considered to be in compliance with the World Bank/IFC Performance Standards. None of the comments found throughout the study may pose any environmental or social threats on the successful construction and operation of the power plant. However, the following recommendations need to be considered:

- Documentation and organization of the Environmental and Social Management System (ESMS) in a systematic approach should be carried out in accordance to the requirements of the PS 1.

- Obtaining the EEAA approval for the sea discharge of the treated industrial wastewater instead of using it for irrigation as mentioned in the EEAA approval.

- Obtaining the EEAA approval for discharging the sewage water to the Suez Petroleum company treatment plant instead of constructing a separate plant onsite.

- The company should immediately develop a grievance mechanism for the workers, and the workers should be informed about such mechanism during recruitment.
- Setting a grievance mechanism to the community in the form of hotline or email and announce the method of communication in case of grievances.

- The plant should develop and carryout an annual GHG accounting and reporting procedure in accordance with the requirements of PS 3.

- Developing, applying and providing training for the workers on the spill oil contingency plan.
2. PROJECT DESCRIPTION

2.1 Site Description

Suez Power Plant is located south of Suez City and 2.5 –3 kilometers northeast of the existing “Attaqa” thermal power plant and around 700 m south of Suez / Adabyaa regional road, which runs parallel to the Gulf of Suez. The power plant can be found at coordinates of 29°57'5.96"N and 32°30'12.97"E on an area of about 90,900 m². Figure 1 shows the location of the power plant while Figure 2 shows the power plant layout and boundaries.

Suez Power Plant is currently in the commissioning phase, and will be shortly re-inaugurated to provide the Egyptian electricity network with 650 MWe. Historically, Suez Power Plant was constructed in 1965 with 4 units each 22 MWe, and was expanded in 1991 by a 97 MWe unit. The plant was decommissioned in 2002, and since then there were plans to demolish the old units and replace them with new ones.

The power plant site is within an existing piece of land allocated to Egyptian Electricity Authority (EEA) (today Egyptian Electricity Holding Company EEHC) by contract signed with the Suez Petroleum Refinery Laboratory (SPRL), which was renewed between the East Delta Electricity Production Company (EDEPC) and SPRL in 2007.

Figure 1 The location of Suez Power Plant
The site is bordered to the North by the SPRL which consists of flat, sandy land approximately 90,549 m² out of which approximately 70,000 m² are allocated for the facilities of the project. The site is bordered to the south by the Suez Gulf. The site is not located near any protectorate.

2.2 Technical Description

The overall generating capacity of Suez Power Plant is 650 MWe generated by a one gas/oil-fired traditional thermal steam unit. The power plant will fire natural gas as a primary fuel and heavy fuel oil (mazout) as an emergency fuel. The natural gas is planned to be supplied to the power plant through underground pipelines while the emergency heavy fuel oil is transported from the Suez oil refineries by pipeline or trucks and stored on site in a storage tank with a capacity of 45,000 m³.

Suez power plant operates on once through cooling system using water abstracted from the Suez Gulf. The required water for service is supplied from the Suez Gulf and will be used after desalination and demineralization to provide the boiler with its feed water. The ESIA mentioned that the sewage will either be directed to the public sewer system, or a sewage treatment facility on the site will treat the sewage wastewater streams and produces an effluent suitable for use in the plantation irrigation system. On the other hand, the industrial wastewater streams (e.g. cooling water, boiler blow down .... etc.) are treated in another facility to produce an effluent suitable for discharge into the sea (Suez Gulf). In addition, all oil waste effluents are collected into a separate network and sent to an oil separator.
As is the case with the traditional thermal steam electricity generation process, the natural gas is combusted in the boiler to generate hot gases which boil the demineralized water producing steam which generates electricity in the steam turbines generators. The exhaust steam from the steam turbines is directed to a condenser, which is cooled by a direct cooling system, extracting water and discharging the effluent to the Suez Gulf. The electricity generated by the proposed Suez power plant will be exported by the Egyptian Electricity Transmission Company (EETC) electricity network, via the existing transmission system (double circuit 220 kV and 500 kV lines).

The power plant is designed to conform to the International Building Code Zone 3 seismic criteria, according to US regulations for earthquake. In addition, the power plant is designed to comply with the international code of the National Fire Protection Authority (NFPA), which requires particular specifications for fire protection.

2.3 Supplying Natural Gas Pipelines

It is planned that the Suez Power Plant should shortly start operation with natural gas as the main fuel. To achieve this goal, GASCO is currently constructing the supplying gas pipeline coming from a valve room 3 km away.
3. SUMMARY OF DUE DILIGENCE ACTIVITIES

In order to achieve the due diligence objectives, the work methodology followed included conducting meetings with the relevant entities to gather the available data and documents related to the power plant, conducting desk review for the relevant project documents, in addition to conducting a visit to the power plant site. The desk review was done to evaluate all the gathered documents and studies prepared for the power plant. On the other hand, a site visit to the power plant was conducted on June, 28th 2016 to check and assess the environmental and social conditions during the construction phase.

3.1 Meetings

Three meetings were held with EEHC at different phases of the due diligence project. The detailed minutes of meetings can be found in appendix D of the study, while this section contains a summary of the meetings findings.

The first meeting was held on 9/5/2016 for the purpose of gathering the available data and documents related to the 7 power plants fed by the natural gas pipelines financed by the World Bank (including Suez Power Plant). During the meeting EEHC ensured that all the power plants have already obtained the environmental approval from the Egyptian Environmental Affairs agency. Also, the social status of the power plants regarding the land acquisition aspect was discussed. It was agreed that EEHC will send to the due diligence consultant the EEAA approvals, lender approvals, land ownership documents, and the contact details of the focal points inside the electricity production companies to get more specific data about each power plant.

The second meeting was held on 24/5/2016 for the purpose of gathering the available data and documents related to Cairo New Capital, El Burullus and Beni Suef Power Plants. Therefore the meeting minutes of this meeting were not added to this report.

The third meeting was held on 29/9/2016 for the purpose of discussing the status of the documents requested from EEHC. In this meeting, the due diligence consultant explained the list of the required information and the EEHC representative committed to supply the data within a week.

3.2 Desk Review

The due diligence activities included reviewing the national legal requirements pertinent to the construction and operation of power plants in Egypt. In addition, the World Bank
requirements concerning the environmental limits and standards were investigated as well as the social requirements.

(i) **Power Plant ESIA Study**

The current project proponent is the Egyptian Electricity Holding Company (EEHC). The power plant is a 650 MWe capacity simple thermal cycle that is financed through the African Development Bank (AFDB), the Islamic Development bank and EDEPC representing the Egyptian Government.

The ESIA is prepared by independent experts not affiliated with the project in accordance with the national regulations and requirements, and the requirements of the AFDB and World Bank. The study has been presented and accepted by the EEAA.

(ii) **Applicable Egyptian laws and regulations**

The Environmental Egyptian Law 4 of 1994 amended by Laws 9/2009 and 105/2015 (with its executive regulations amended by Decree 1095/2011 710/2012 and 964/2015) specifies the applications for a license for any project. According to the law, a full EIA must be prepared for the power plant and submitted to Egyptian Environmental Affairs Agency (EEAA) for consideration.

The executive regulations of the environmental law specify the limits for different environmental aspects. These include ambient air quality, air emissions from the power plants stacks during operation, management of hazardous and non-hazardous solid wastes, ambient noise levels, air and noise quality in the work environment and wastewater discharge regulations to aquatic or marine environments.

According to the guidelines issued by the EEAA for the preparation of the EIA studies, Power Plants are categorized as facilities under Category “C”, which requires the preparation of a full EIA study.

(iii) **Applicable World Bank regulations**

In addition to the Egyptian Regulations, the World Bank/IFC Performance Standards were also considered in the process of reviewing the ESIA study underhand, as well as the IFC’s General Environmental, Health and Safety (EHS) Guidelines and the EHS Guidelines for Thermal Power Plants.

3.3 **Site Visits**

Based on the ESIA, Suez power plant is intended to be operational since the end of 2013/2014. However, and according to the discussion with the plant staff the plant is planned to start operation shortly using Mazout. The site visit was planned and carried out by the due diligence team, GASCO representative and the World Bank Representative to collect more information and check the documents related to the
current situation of the power plant. The details of the site visit proceeding are included in Appendix D of the study, and a brief about the main activities is included below.

During the visit which was carried on June 28th 2016, the due diligence team mainly met EDEPC representatives who are overseeing the plant final construction stages and commissioning. During the meeting, the environmental practices of the power plant were discussed, and supporting documents were obtained. Also a tour through the plant was carried out, and the construction progress to date was discussed. The detailed minutes of meeting for the site visit are included in Appendix D of this study.
4. POWER PLANT COMPLIANCE WITH WORLD BANK/ IFC PERFORMANCE STANDARDS

This section includes the assessment of environmental and social aspects against the World Bank/ IFC Performance Standards and Guidelines.

4.1 PS 1- Assessment and Management of Environmental and Social Risks and Impacts

The prepared ESIA for the power plant is generally complying with the World Bank/ IFC requirements of PS 1 as shown in the following sub-sections.

4.1.1 Policy

The ESIA does not clearly mention the status of the policy at Suez Power plant. However, EEHC’s mission states that their power supplying service takes into consideration resources utilization and environment conservation. As EEHC is the holding company responsible for all the production companies (including EDEPC), the mission is considered as the umbrella under which all the power plants are operating. The due diligence team concludes that this matches with the requirements of PS 1.

4.1.2 Identification of risks and impacts

The ESIA presents a thorough identification of environmental and social risks and impacts. The due diligence team concludes that this matches with the requirements of PS 1.

4.1.3 Management programs

The ESIA presents a management program that describes mitigation and monitoring measures that will be applied for each defined risk and impact. In general, the Environmental Management system aspects are in general available onsite due to the previous experience of the plant management in operating similar projects, as well as the construction contractor’s experience. However, these aspects can be better organized and documented to match the requirements of the PS 1.

Recommendation:

Documentation and organization of the Environmental and Social Management System (ESMS) in a systematic approach should be carried out in accordance to the requirements of the PS 1.
4.1.4 Organizational capacity and competency

The ESIA identifies the persons responsible for the implementation and supervision of each item in the management program. The ESIA also presented the organizational chart of Environmental Management Staff (EMS) under the Project Management Unit (PMU). Also during the site visit, the due diligence team met with the management team in charge of operating the new plant, and as part of the discussion, the due diligence team was informed that the management team is the same one that was managing the Thermal Power Plant previously, so they already have the technical capacity and experience to efficiently operate the facility. The due diligence team concludes that this matches with the requirements of PS 1.

4.1.5 Emergency preparedness and response

Based on the ESIA review, an occupational health and safety plan for the construction phase should have been prepared by the 4th quarter of 2010, and implemented at the 2nd quarter of 2011. In addition, an occupational health and safety plan for the operation phase should have been prepared at the 2nd quarter of 2011 and implemented at the 2nd quarter of 2011.

The plant’s Occupational Health and Safety statement was provided by EDEPC during the site visit. Also, as part of the Occupational Health and Safety Management procedure, an Emergency Response procedure is in place at the plant and was acquired during the site visit. The due diligence team concludes that this matches with the requirements of PS 1.

4.1.6 Monitoring and review

The ESIA presents the monitoring activities as part of the management program which also included the monitoring indicators and reporting frequency. During the site visit the due diligence team was provided with a number of performance reports including the ambient air quality monitoring report, waste disposal evidence, and the occupational health and safety statement. The due diligence team concludes that this matches with the requirements of PS 1.

4.1.7 Stakeholder engagement

The ESIA discussed the 2-phase consultation methodology showing the main participating stakeholders and the key issues raised. Additionally, during the site visit it was evident that the power plan management is in constant contact with the surrounding activities due to their close proximity, as well as the agreements for facilities utilization, such as the wastewater treatment plant as discussed in details later in the report.
4.2 PS 2- Labor and Working Conditions

4.2.1 Working Conditions and Management of Worker Relationship

As mentioned above, the current plant management team was the team operating the old Thermal Power plant that was decommissioned before the beginning of the construction of the new plant, therefore the team already has the technical experience required to operate the power plant. Also, most of the operations team are residents of the Suez city and accordingly the accommodation arrangement is convenient with their work location. However, the main comment is that no clear grievance mechanism was found onsite for the plant workers.

Recommendation:

The company should immediately develop a grievance mechanism for the workers, and the workers should be informed about such mechanism during recruitment.

4.2.2 Occupational health and safety management

The plant’s Occupational Health and Safety statement was provided by EDEPC during the site visit. This statement includes the practices that are undertaken by EDEPC to ensure the safety of the workers, including that the contractors should each designate a safety officer and staff, and that all the work undertaken onsite by the contractors was done under the supervision of EDEPC. In addition, the statement ensures that EPEPC assessed all the risks and hazards that may occur during the construction and operation of the power plant. Also, as part of the Occupational Health and Safety Management procedure, an Emergency Response procedure is in place at the plant and was acquired during the site visit.

The plant’s Occupational Health and Safety statement ensures that all the staff utilizes the personal protective equipment. During the site visit, the due diligence team observed all the workers utilizing the personal protective equipment. The due diligence team concludes that this matches with the requirements of PS 2.

4.2.3 Grievance mechanism

Nothing was mentioned in the ESIA about grievance mechanism for workers.

Recommendation:

The company should immediately develop a grievance mechanism for the workers, and the workers should be informed about such mechanism during recruitment.
4.2.4 Communication and training

Based on the ESIA, the workers will undergo environmental and social training in several areas like operation of the power plant, occupational health and safety and contingency plans. The due diligence team concludes that this matches with the requirements of PS 2.

4.3 PS 3 - Resource Efficiency and Pollution Prevention

4.3.1 Waste disposal

According to the ESIA, the generated solid waste from Suez power plant will be collected by a licensed contractor. Moreover, the hazardous waste will be handled by a specialized contractor. Final disposal of wastes will be to local landfill sites, as agreed by the relevant Competent Administrative Authority.

As mentioned during the site visit to the facility, during operation the waste will be collected through EDEPC with the other power plants in the area and disposed of in a local landfill in the Suez Governorate. During construction, the contractors are responsible for the disposal of the waste generated from their activities.

Furthermore, the old units that were demolished were disposed of through contractors who demolished the plant and disposed of the old units. These contractors were hired through a closed envelope tendering process for the highest bidder, with the contract stating that the demolition and transfer process should be done with minimum disturbance to the neighboring communities. The due diligence team concludes that this matches with the requirements of PS 3.

4.3.2 Air emissions

During the site visit, the due diligence team received the site air quality monitoring report for March 2016 which is issued through the ambient air monitoring station onsite. The report includes the monitoring results for SO$_2$, NO, NO$_2$, NOx, PM$_{10}$ and TSP, on an averaging period of 1-hour and 24-hour, and CO on an averaging period of 8-hours. All the average values were found to be complying with the limit set by law 4/1994 and the World Bank standards for power plants. A part of the ambient air quality report is included in appendix B.

Additionally, the plant stack is prepared to be connected to the Continuous Emission Monitoring System (CEMS) managed by EEAA. The connections are already installed and ready for use once the operation of the plant starts.

According to the ESIA, ambient air measurements were conducted at five points at the boundary and the center of the project site to monitor and record the air quality at the
project area. These measurements showed the concentration of the gaseous pollutants (CO, CO₂, SO₂, NO₂, aldehydes HCHO and H₂S) and suspended particulates (TSP, PM₁₀ and PM₂.₅) pollutants in the project area before implementing the project. The results showed that the gaseous pollutants in the project area are complying with Egyptian limits and World Bank limits, while the TSP and smoke concentrations are exceeding the Egyptian limits and World Bank limits.

An air dispersion model was conducted to predict the air quality at the project area during the operation of the power plant. This air model was performed only for nitrogen dioxide NO₂ as Carbon monoxide (CO), sulphur dioxide (SO₂), and particulate matter less than 10 microns (PM₁₀) were considered negligible.

The air model results for NO₂ predicted that the overall NO₂ concentrations in the project area will be within the Egyptian limits and the World Bank limits. The due diligence team concludes that this matches with the requirements of PS 3.

4.3.3 Noise emissions

The ESIA study contains baseline measurements in 28 locations around the plant site showing that mostly the noise level is within the permissible limits for industrial zones, and slightly higher in some locations. Also a noise model has been performed as part of the study concluding that the plant operation will not affect the surrounding residential areas.

During the site visit, the due diligence team obtained some results for noise levels in the working area. Also, it was observed the turbine generator was constructed in a shed enclosure that further reduces the noise intensity reaching the outside area. These records showed that all the locations are complying with the WB limits. The due diligence team concludes that this matches with the requirements of PS 3.

4.3.4 Water supply

Based on the ESIA, the water supply to Suez power plant is supposed to be through the water extracted from Suez Gulf. Process water will be abstracted from the Suez Gulf for power plant usage and supplied via desalination and demineralization facilities for boiler make-up and other processes. Part of this treated water is further purified, disinfected and processed for human uses, mainly as potable water. A specialized contractor with experience in the design and installation of desalination plants was responsible for the construction activities. Additionally, the operation team at the plant is experienced in the operation of such processes as was evident during the site visit discussions.
The approvals from MWRI were obtained during the site visit. The first is for the construction of a pump room at a distance of 40 m from the shoreline and the second is for the intake and discharge points. These approvals are attached as part of appendix A. The due diligence team concludes that this matches with the requirements of PS 3.

### 4.3.5 Wastewater discharge

The final destination of the sewage wastewater is not properly specified in the ESIA. It is once stated that the sewage wastewater during the operation of the power plant will be used for plantation irrigation after being treated in the on-site treatment facility; while the ESIA also mentioned that the sewage wastewater will be disposed to the public sewage network. There is no evidence in the ESIA submitted which shows that there is a sort of agreement/coordination between Suez power plant and the holding company for water and wastewater in this regards.

During the site visit it was clarified that the wastewater treatment plant (including an oil separator) is mainly treating the process water originating from the effluent cooling water and blow down water. The design of this industrial wastewater treatment plant was finished and discussed in the site visit. The effluent treated wastewater is mixed with the brine water from the demineralization plant to dilute the salinity, and the whole effluent is planned to be discharged to the sea. As the plant operators mentioned that there are not enough green areas in the plant to be irrigated, and the EEAA approval included the condition that treated wastewater should be used for irrigation, the plant was informed during the site visit by the due diligence team that they should obtain the approval of the EEAA for the sea discharge of the industrial wastewater as soon as possible.

The sewage will be directed to sewage and wastewater treatment plant at the Suez Petroleum Company next to the power plant, mainly due to the space restrictions to locate a sewage treatment plant onsite. The contract for this disposal is already in place and it was obtained during the site visit and included in appendix B.

**Recommendations:**

- Obtaining the EEAA approval for the sea discharge of the treated industrial wastewater instead of using it for irrigation as mentioned in the EEAA approval.

- Obtaining the EEAA approval for discharging the sewage water to the Suez Petroleum company treatment plant instead of constructing a separate plant onsite.
4.3.6 Hazardous waste management

The contract for hazardous waste disposal was obtained during the site visit conducted to the plant. The solid hazardous waste is directed through a contractor to the Nassreya landfill in Alexandria, and the waste oil is disposed of through Petrotrade Company. The hazardous waste disposal contracts are shown in appendix B of the report. Also as mentioned above, the demolition waste was collected and transported via specialized contractors through a tendering process. The due diligence team concludes that this matches with the requirements of PS 3.

4.3.7 Energy conservation

The power plant will produce 650 MWe through a Natural Gas powered steam boiler followed by a steam turbine generator. The choice of this technology was mainly based on the plant area constraint, as the new plant replaced an old coal fired thermal power plant. The replacement of the old units ensures that higher efficiency equipment are being utilized for electricity production. The energy efficiency of the plant is around 46% as it is using drumless type super-critical steam cycle, which exceeds the similar sub-critical unit efficiency with about 4%. The due diligence team concludes that this matches with the requirements of PS 3.

4.3.8 Water conservation

Cooling water will be drawn from the Suez Gulf, and discharged back to it without a significant change in the amount, so no negative effects related to water availability will take place as a result of the project. The due diligence team concludes that this matches with the requirements of PS 3.

4.3.9 Contaminated land

Based on the ESIA, in order to avoid any ground contamination, several measures are applied during the construction phase including provision of site drainage systems, and removal of unsuitable waste materials on site. While for the operation phase, specific measures should be implemented e.g. the installation of bunds to isolate areas of potential oil spillages in addition to covering all the oil and chemical tanks with secondary containment structures that will hold 110% of the contents of the largest storage tank. The due diligence team concludes that this matches with the requirements of PS 3.
4.4 PS 4- Community Health and Safety

4.4.1 Spill control and management

According to the ESIA, an oil spill contingency plan should have been prepared by 2\textsuperscript{nd} quarter of 2011 and implemented by the 3\textsuperscript{rd} quarter of 2011 to be applied during the operation of the power plant for monitoring and handling of the heavy fuel oil delivered to the site.

During the site visit it was mentioned that the whole site is surrounded by a metal dike wall to prevent any oil leakages (in case of their occurrence) from polluting the surrounding land areas or the Suez Gulf Sea. This was also shown during the tour around the plant site. However, no spill oil contingency plan was provided.

Recommendation:

The plant should develop and apply an oil spill contingency plan and provide training for the workers on it.

4.4.2 Structural safety of project infrastructure

Based on the ESIA, the power plant should be designed and constructed to conform to International Building Code Zone 3 seismic criteria, according to US regulations for earthquake. The power plant has also been designed to comply with the international code of the National Fire Protection Authority (NFPA), which requires particular specifications for fire protection. The due diligence team concludes that this matches with the requirements of PS 4.

4.4.3 Traffic safety

The ESIA included an assessment of the traffic impacts during the construction and operation of the power plant utilizing historical and field data. The analysis concluded that there are no traffic impacts on the surrounding roads network during construction or operation of the power plant. The due diligence team concludes that this matches with the requirements of PS 4.

4.4.4 Grievance mechanism

Although there are not many residential areas around the plant, but as the plant is in the last stages of construction and should be in operation soon, it was an important point to ensure whether there was a set grievance mechanism for the surrounding communities.

It was verified during the meeting with the plant staff that currently there is no public grievance mechanism in the form of a hotline or an email, and in turn there is no grievances register.
**Recommendation**

It is suggested that the plant should start setting and implementing a grievance mechanism for the community, in the form of hotline or email and communicate such system.

### 4.5 PS 5- Land Acquisition and Involuntary Resettlement

The power plant site is within an existing piece of land allocated to Egyptian Electricity Authority (EEA) (today Egyptian Electricity Holding Company EEHC) by contract signed with the Suez Petroleum Refinery Laboratory (SPRL), which was renewed between the East Delta Electricity Production Company (EDEPC) and SPRL in 2007 (these documents are included in appendix C of this study). Accordingly, no social issues or claims were recorded as the development of the power plant did not include any land acquisition and did not affect any local community. The due diligence team concludes that this matches with the requirements of PS 5.

### 4.6 PS 6- Biodiversity Conservation and Sustainable Management of Living Natural Resources

The proposed power plant site is located on the top western coast of the Gulf of Suez, part of the Red Sea, approximately 3 km south of Suez City, and around 500 m south of the Suez / Adablyyah Regional Road, which runs parallel to the Gulf of Suez. The project site is located within the coastal desert plain. Therefore, no living natural resources are affected by the implementation of the power plant. Regarding the aquatic Environment, the ESIA study included 2-D and 3-D numerical model system software that evaluates the temperature profile resulting from the system proposed for cooling water discharge. The modeling outcomes have been validated by the Hydraulics Research Institute (HRI). The model proved that the system proposed for cooling water discharge will comply with the WB limits related to the maximum temperature of discharged water. The due diligence team concludes that this matches with the requirements of PS 6.

### 4.7 PS 7- Indigenous People

No indigenous people are found in the project area, so this performance standard does not apply.

### 4.8 PS 8- Cultural Heritage

As indicated by the ESIA, the power plant’s location does not include any archaeological remains. Therefore, this performance standard does not apply.
The power plant’s status was checked and compared to the WB guidelines for thermal power plants (utilizing boiler). All the guidelines were covered and checked through the review with the performance standards.

### 4.9.1 Mitigation of air emissions

The following table shows a comparison between the air emissions limits in the guidelines and the design parameters for the boiler. The ESIA study also mentions that the ceiling values of the Egyptian and the WB standards, whichever is more stringent, will be guaranteed per the design process.

**Table 2 Comparison of air emissions between boiler design for the thermal power plant and WB limits**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Boiler design</th>
<th>World Bank limits (mg/Nm$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value, mg/m$^3$</td>
<td>Natural Gas</td>
</tr>
<tr>
<td>NOx</td>
<td>&lt;300</td>
<td>240</td>
</tr>
<tr>
<td>SO$_2$</td>
<td>&lt;25</td>
<td>N/A</td>
</tr>
<tr>
<td>Particulate Matter</td>
<td>&lt;50</td>
<td>N/A</td>
</tr>
<tr>
<td>PM10</td>
<td>&lt;50</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Regarding the mitigation of the air emissions from the power plant, specific measures will be applied during the operation of the power plant. Low NOx burners will be used in addition to that the stack height is 152 m to allow good dispersion to the surroundings.

### 4.9.2 Energy efficiency and GHG emissions

CO$_2$ is considered the main GHG emitted during the construction activities of the power plant and from fuel combustion during the operation phase. The choice of implementing steam generated electricity is mainly due to the plant’s space constraint, but utilizing natural gas as the primary fuel will help in minimizing the CO$_2$ emissions from the power plant compared to heavy fuel oil (mazout).

Based on the ESIA, the generating efficiency of the power plant is set to be 36-45% with associated CO$_2$ emissions of 520 g/KWh, based on studies on steam power plants done in Egypt. As per WBG EHS Sector Guidelines for Thermal Power Plants, the typical CO$_2$ emissions performance for a boiler fired using natural gas is 40-42% with CO$_2$ emissions.
of 481-505 g/KWh. As values expected from the power plant are close the WB guidelines, the due diligence team concluded that it is appropriate.

During the site visit, the plant was not yet in operation and accordingly no GHG emissions calculations have been carried out. However, the procedure for GHG accounting was not presented.

Recommendation:

The plant should develop and carry out an annual GHG accounting and reporting procedure in accordance with the requirements of PS 3.

4.9.3 Thermal discharges

The power plant will operate using a direct water cooling system with water extracted from the Gulf of Suez. The water intake from the gulf of Suez is designed to be 1,100 m$^3$, of which 700 m$^3$ is used as cooling water, and the remaining 400 m$^3$ is used as process makeup water. As per the ESIA, the cooling water effluent temperature will be elevated by 8 to 10 °C above the ambient seawater temperature, and rapidly decrease upon mixing, at the edge of the missing zone. A complete thermal dispersion model was carried out for the site taking into consideration the combined effect of the proposed Suez power plant and the existing Ataqa power plant. The model concludes that the rise in water temperature due to the plant activity is expected to be around 1 °C, which is considered in line with the 3 °C WB limit.

4.9.4 Solid wastes

Covered in section 4.3.1

4.9.5 Hazardous materials and oils

In order to prevent any hazard associated with hazardous waste handling, the ESIA contains the procedure for the waste handling storage and transportation. Also during the site visit, the due diligence team obtained the hazardous waste disposal contract, which is disposed through a contractor to the Nassreya landfill in Alexandria, and the waste oil is disposed of through Petrotrade Company. The hazardous waste disposal contracts are shown in appendix B of the report.

Also as mentioned in sections 4.3.1 and 4.3.6 the demolition waste was collected and transported via specialized contractors through a tendering process.

4.9.6 Noise

As mentioned in section 4.3.3, the noise measurements carried out during the construction phase were found to be mostly complying with the WB and Egyptian
4.9.7 Occupational health and safety

Covered in section 4.2.1.

4.9.8 Monitoring emissions

During the site visit, it was observed that the plant stack is prepared to be connected to the Continuous Emission Monitoring System (CEMS) managed by EEAA. The connections are already installed and ready for use once the operation of the plant starts. Also as mentioned above, an ambient air quality report was received.

All these actions are complying and consistent with the requirements of WBG EHS Sector Guidelines for Thermal Power Plants.

4.10 WBG EHS General Guidelines

4.10.1 Environmental

(i) Air emissions and ambient air quality
    Covered in sections 4.3.2

(ii) Energy conservation
    Covered in section 4.3.7 and 4.9.2.

(iii) Wastewater and ambient water quality
    Covered in section 4.3.5

(iv) Water conservation
    Covered in section 4.3.8

(v) Hazardous materials management
    Covered in section 4.3.6 and 4.9.5

(vi) Waste management
    Covered in section 4.3.1 and 4.9.4

(vii) Noise
    Covered in section 4.3.3 and 4.9.6

(viii) Contaminated land
    Covered in sections 4.3.9
4.10.2 Occupational health and safety

(i) General facility design and operation
Covered in section 4.2.1, 4.4.1 and 4.4.2

(ii) Communication and training
Covered in section 4.2.4

(iii) Hazards
Covered in section 4.2.4 and 4.4.1

(iv) Personal protective equipment
Covered in section 4.2.1

(v) Special hazard environments
Covered in section 4.2.1

(vi) Monitoring
Covered in section 4.1.5

4.10.3 Community health and safety

(i) Water quality and availability
Covered in section 4.3.4

(ii) Structural safety of project infrastructure
Covered in section 4.4.2

(iii) Life and fire safety (L&FS)
Covered in section 4.2.1 and 4.4.2

(iv) Traffic safety
Covered in section 4.4.3

(v) Transport of hazardous materials
Covered in section 4.3.6 and 4.9.5

(vi) Disease prevention
No issues anticipated

(vii) Emergency preparedness and response
Covered in section 4.2.1

4.10.4 Construction and decommissioning

(i) Environment
This was covered in the abovementioned guidelines. The due diligence team concludes that this guideline is covered in Suez Power Plant.

(ii) **Occupational health and safety**  
This was covered in the abovementioned guidelines. The due diligence team concludes that this guideline is covered in Suez Power Plant.

(iii) **Community health and safety**  
This was covered in the abovementioned guidelines. The due diligence team concludes that this guideline is covered in Suez Power Plant.

### 4.11 Summary of the Environmental and Social Findings

The due diligence team concluded that Suez power plant is considered to be in compliance with the World Bank/IFC Performance Standards. However, minor issues are identified, which do not pose any risks to the construction and operation of the project. The following table summarizes the main comments and recommendations.

<table>
<thead>
<tr>
<th>Item</th>
<th>Aspect</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PS 1- Assessment and management of environmental and social risks and impacts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Management programs</td>
<td>Documentation and organization of the Environmental and Social Management System (ESMS) in a systematic approach should be carried out in accordance to the requirements of the PS 1.</td>
</tr>
<tr>
<td><strong>PS 2- Labor and working conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Grievance mechanism for workers</td>
<td>Nothing was mentioned about grievance mechanism for workers in the ESIA.</td>
</tr>
<tr>
<td><strong>PS 3- Pollution prevention and abatement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Wastewater Discharge</td>
<td>The destination of the sewage and wastewater discharge was changed during the final design and construction phases due to the lack of space onsite.</td>
</tr>
<tr>
<td>2.</td>
<td>Energy Conservation</td>
<td>The plant should develop and carryout an annual GHG accounting and reporting procedure in accordance with the requirements of PS 3.</td>
</tr>
<tr>
<td><strong>PS 4- Community health and safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Grievance Mechanism</td>
<td>During the site visit, it was concluded from the plant management that there is no grievance mechanism defined for the community until this time.</td>
</tr>
<tr>
<td>2.</td>
<td>Spill Control and Management</td>
<td>No spill oil contingency plan was available.</td>
</tr>
</tbody>
</table>
5. POWER PLANT COMPLIANCE WITH NATIONAL REGULATIONS

The review of the power plant’s documents and the site visit conducted to the plant’s site showed that the power plant is complying with the national regulations and laws. An ESIA for the power plant was prepared in accordance with the national regulations and requirements and submitted for EEAA for approval. The approval of EEAA was issued on 04/01/2011, and is presented in Appendix A of this report.

Based on the documents’ review and the site visit, the power plant’s design and construction activities comply with the limits specified in the executive regulations of the environmental law for different environmental aspects. These include ambient air quality, air emissions from the power plants stacks during operation, management of hazardous and non-hazardous solid wastes, ambient noise levels, air and noise quality in the work environment, and wastewater discharge regulations to aquatic or marine environments.

Regarding the land acquisition of the power plant’s site, as mentioned above, the contract between SPRL and EDEPC that was drawn in 2007 was obtained during the site visit. It was mentioned that the contract was mainly a proof of land ownership after the Ministry of Electricity and the Ministry of Petroleum were separated, as it already contained the old power plant which was built during the 1960s.

The national regulations also include issuing the key permits required for the construction and operation of the power plant. During the site visit a number of approvals were obtained from the administration of the Suez Thermal Power Plant. The obtained permits are shown in in appendix A of this report and include:

1. Environmental approval from the EEAA (Dated 4th of January 2011)
2. Land Allocation contract between the Suez Oil Processing Co (SOPC) and EDEPC (Dated 28th of March 2007).
3. The construction license of the power plant from the Engineering Department and the Suez District, Suez Governorate (issued in the year 2013).
4. Stack height approval from the civil aviation authority (dated 2nd of May 2013).
5. Shore Protection Authority (under MWRI) Approval for the construction of the water draw pump room on the Suez Gulf Shoreline (issued in the year 2012).
6. Shore Protection Authority (under MWRI) approval for water intake and discharge from the Suez Gulf (dated 20th of January 2011).
7. Ministry of defense approval for the plant construction (issued in the year 2011).

As part of assessing the project compliance with local laws and regulations, the due diligence team checked the EEAA approval conditions and evaluated the compliance status as shown in the following table.

### Table 4 EEAA approval compliance status

<table>
<thead>
<tr>
<th>Item</th>
<th>Condition</th>
<th>Compliance status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Committing to the use of Natural Gas as the main fuel for the boilers used in the plant, and using Light Fuel Oil (solar) as a secondary fuel in case of emergency only and within the limit of 2% of the annual operating hours</td>
<td>In progress: The plant is planned to start operation using Light Fuel Oil as the N.G. supplying pipeline is not yet constructed.</td>
</tr>
<tr>
<td>2</td>
<td>Obtaining the approval from the Permitting Authority concerning the establishment of buildings inside the restricted shore line areas.</td>
<td>Complying: Approval is acquired and presented in Annex (A) of this report</td>
</tr>
<tr>
<td>3</td>
<td>Committing to getting EEAA approval before transmission line construction for the Electricity Transmission Lines linked to the Power Plant and Natural Gas Transmission Lines</td>
<td>Complying: EEAA approval is obtained before the commencement of connection activities.</td>
</tr>
<tr>
<td>4</td>
<td>Committing to the installation of Continuous Emissions Monitoring System (CEMS) for the stacks emissions, and linking them to the National Monitoring Network</td>
<td>Complying: As discussed in section 4.3.2, the plant stack is prepared to be connected to the Continuous Emission Monitoring System (CEMS) managed by EEAA. The connections are already installed and ready for use once the operation of the plant starts.</td>
</tr>
<tr>
<td>5</td>
<td>Committing that the cumulative pollution load of the ambient air pollutants in the area does not exceed the limits set by the executive regulations</td>
<td>Complying: According to the mitigation measures mentioned in the design (discussed in sections 4.3.2 and 4.9.1), the power plant is complying with this condition</td>
</tr>
<tr>
<td>6</td>
<td>Abiding by the maximum permissible ambient air pollutants levels</td>
<td>Complying: According to the mitigation measures mentioned in the design (discussed in sections 4.3.2 and 4.9.1), the power plant is</td>
</tr>
<tr>
<td>No.</td>
<td>Commitment Description</td>
<td>Status</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Commitment to not exceed the maximum permissible pollutant levels inside the work environment</td>
<td><strong>Complying:</strong> According to the mitigation measures mentioned in the design (discussed in section 4.9.1), the power plant is complying with this condition</td>
</tr>
<tr>
<td>8</td>
<td>Committing to the installation of the required stack</td>
<td><strong>Complying:</strong> Taken into consideration in the design and already installed during the construction stage.</td>
</tr>
<tr>
<td>9</td>
<td>Committing to reuse the treated wastewater from the sewage and industrial wastewater treatment plants onsite for irrigation of timber plantations</td>
<td><strong>Non-compliance:</strong> Accordingly, and as discussed in section 4.3.5, EEAA approvals should be obtained for the discharge of the treated industrial wastewater into the sea instead of using it for irrigation and the sewage water to the Suez Petroleum company treatment plant instead of constructing a separate plant onsite.</td>
</tr>
<tr>
<td>10</td>
<td>Committing to the maximum permissible noise levels</td>
<td><strong>Complying:</strong> As discussed in sections 4.3.3 and 4.9.6, the measurements done for the plant showed that compliance with the regulations in addition several applied mitigation measures.</td>
</tr>
<tr>
<td>11</td>
<td>Committing to work environment standards and safety procedures for workers</td>
<td><strong>In progress:</strong> As discussed in section 4.2.2, the plant’s Occupational Health and Safety statement is available, also a spill oil contingency plan should be prepared.</td>
</tr>
<tr>
<td>12</td>
<td>Abiding to the maximum permissible limit for exposure to electromagnetic waves</td>
<td><strong>Complying:</strong> Taken into consideration in the design of the plant.</td>
</tr>
<tr>
<td>13</td>
<td>Environmentally safe and proper handling of the chemical substances and materials used in desalination and treatment processes</td>
<td><strong>Complying:</strong> As discussed in section 4.3.4, a specialized contractor with experience in the design and installation of desalination and treatment plants was responsible for the construction activities. Additionally, the operation team at the plant is experienced in the</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Status</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>14</td>
<td>Environmentally safe and proper disposal of the hazardous wastes resulting from the activities</td>
<td><strong>Complying:</strong> As discussed in section 4.3.6, the waste oil disposal contract is presented in Annex (B) as well as hazardous waste disposal receipt.</td>
</tr>
<tr>
<td>15</td>
<td>Environmentally safe and proper disposal of wastes generating from demolition of the existing power plant</td>
<td><strong>Complying:</strong> As discussed in section 4.3.1, the demolition waste were disposed through specialized contractors and a sample of the old demolished units disposal agreements is presented in annex (B).</td>
</tr>
<tr>
<td>16</td>
<td>Preparing a Register for the hazardous waste</td>
<td><strong>In progress:</strong> The plant was still in the commissioning phase, and the register should be prepared in the operation phase.</td>
</tr>
<tr>
<td>17</td>
<td>Environmentally safe and proper disposal of the solid waste resulting from the construction and operation</td>
<td><strong>Complying:</strong> Implemented during the construction phase and disposal receipts were checked as shown in section 4.3.1 and the same should be followed in the operation phase.</td>
</tr>
<tr>
<td>18</td>
<td>Abiding by the Environmental and Social Monitoring Plan and registering the results of the measurements and analysis in the environmental register</td>
<td><strong>Complying:</strong> A complete environmental register should be prepared during the operation phase and for the construction phase, environmental records are being maintained and regularly updated.</td>
</tr>
</tbody>
</table>
6. CONCLUSIONS AND RECOMMENDATIONS

Based on the data reviewed, the meetings and discussions conducted with the EEHC representatives, and the site visit conducted to the power plant site, the Suez power plant is considered to be in compliance with the World Bank/IFC Performance Standards. None of the comments mentioned in the previous sections of the study may pose environmental or social threats on the successful construction and operation of the power plant. However, the following recommendations need to be considered and implemented within the proposed time frame as shown in the following table:

<table>
<thead>
<tr>
<th>Item</th>
<th>Aspect</th>
<th>Recommended action</th>
<th>Time frame</th>
<th>Verification method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Management programs</td>
<td>Documentation and organization of the Environmental and Social Management System (ESMS) in a systematic approach should be carried out in accordance to the requirements of the PS 1.</td>
<td>By the end of the 2nd quarter of 2017</td>
<td>Obtaining the Environmental and Social Management Procedures</td>
</tr>
<tr>
<td>2.</td>
<td>Wastewater discharge</td>
<td>Obtaining the EEAA approval for the discharge of all the treated process wastewater with the cooling water instead of using it for irrigation as mentioned in the EEAA approval.</td>
<td>By the end of the 1st quarter of 2017</td>
<td>Obtaining EEAA approval</td>
</tr>
<tr>
<td>3.</td>
<td>Wastewater discharge</td>
<td>Obtaining the EEAA approval for discharging the sewage water to the Suez Petroleum company treatment plant instead of constructing a separate plant onsite.</td>
<td>By the end of the 1st quarter of 2017</td>
<td>Obtaining EEAA approval</td>
</tr>
<tr>
<td>4.</td>
<td>Grievance mechanism for community</td>
<td>The plant should start setting and implementing a grievance mechanism for the community, in the form of hotline or email and communicate such system.</td>
<td>By the end of the 1st quarter of 2017</td>
<td>Obtaining the grievance register/the grievance mechanism document</td>
</tr>
<tr>
<td>5.</td>
<td>Grievance mechanism for</td>
<td>The company should immediately develop a</td>
<td>By the end of</td>
<td>Obtaining the grievance</td>
</tr>
</tbody>
</table>

Environmental and Social Due Diligence for Suez Power Plant
<table>
<thead>
<tr>
<th>Item</th>
<th>Aspect</th>
<th>Recommended action</th>
<th>Time frame</th>
<th>Verification method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>workers</td>
<td>grievance mechanism for the workers, and the workers should be informed about such mechanism during recruitment.</td>
<td>the 1st quarter of 2017</td>
<td>register/ the grievance mechanism document</td>
</tr>
<tr>
<td>6.</td>
<td>Energy Conservation</td>
<td>The plant should develop and carryout an annual GHG accounting and reporting procedure in accordance with the requirements of PS 3.</td>
<td>By the 4th quarter of 2017</td>
<td>Issuing of annual GHG calculations report</td>
</tr>
<tr>
<td>7.</td>
<td>Spill Control and Management</td>
<td>The plant should develop and apply Spill oil contingency plan, and provide training for the workers such plan.</td>
<td>By the end of the 1st quarter of 2017</td>
<td>Obtaining the spill contingency plan</td>
</tr>
</tbody>
</table>
Figure A- 1 EEAA approval for the Replacement of Suez Thermal power plant (1)
Figure A-2 EEAA approval for the Replacement of Suez Thermal power plant (2)
Mr. Dr. Engineer/ Mohamed Mohamed Awad  
Chairman of the Egyptian Electricity Holding Company  
After Greetings,

With reference to the letter received from your good self, dated 05/12/2011, to which was attached the Environmental study regarding the project named “Replacement of the Existing Suez Power Plant Project with 1 x 650 MW Steam Turbine Generator” presented by/ East Delta Power Company, at the Address/ Current Suez Power Plant location, 3 km south Suez City.

We would like to inform you that after revising and evaluating the delivered environmental impact assessment study, the EEAA approves the submitted project (decommissioning the existing plant, constructing, and operating the power plant), with the condition of abiding by all the specifications and procedures mentioned in the Environmental Impact/ Assessment (EIA) study submitted to the EEAA, and to all the rules, conditions, and standards stated in law no. 4 /1994 and its executive regulations amended by law no. 9 /2009 while committing to the following conditions:

1. Committing to the use of Natural Gas as the main fuel for the boilers used in the plant, and using Light Fuel Oil (solar) as a secondary fuel in case of emergency only and within the limit of 2% of the annual operating hours (with a maximum of 170 hours) as mentioned in the EIA study.

2. Obtaining the approval from the Permitting Authority under the Ministry of Water Resources and Irrigation, established via the prime minister’s decree 1599/2006, concerning the establishment of buildings inside the restricted shore line areas.

3. Committing to the submission of a scoped EIA study for the Electricity Transmission Lines linked to the Power Plant and Natural Gas Transmission Lines and getting EEAA approval before transmission line construction.

4. Committing to the installation of Continuous Emissions Monitoring System (CEMS) for the stacks emissions, and linking them to the National Monitoring Network at the EEAA at the cost of the company in accordance with the technical specifications set by the EEAA.

5. Committing that the cumulative pollution load of the ambient air pollutants in the area does not exceed the limits set by the executive regulations and in accordance with the measurements included in the study.
6. Abiding by the maximum permissible ambient air pollutants levels in accordance with annex 5 of the executive regulations.

7. Commitment to not exceed the maximum permissible pollutant levels inside the work environment in accordance with annex 8 of the executive regulations of law 4/1994, especially during construction phase.


9. Committing to reuse the treated wastewater from the sewage and industrial wastewater treatment plants onsite for irrigation of timber plantations, after ensuring its compliance with the Protocol issued from the Ministry of Housing regarding the use of wastewater in irrigation.

10. Committing to the maximum permissible noise levels in accordance with annex 7 of the executive regulations.


12. Abiding to the maximum permissible limit for exposure to electromagnetic waves in accordance with the regulations of the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

13. Environmentally safe and proper handling of the chemical substances and materials used in desalination and treatment processes in accordance with article 33 of law 4/1994 and article 31 of the executive regulations.

14. Environmentally safe and proper disposal of the hazardous wastes resulting from the activities (Filters, used oil and grease resulting from the operation and maintenance activities, and sludge resulting from the water treatment plant).

15. Environmentally safe and proper disposal of wastes generating from demolition of the existing power plant especially the power transformers, condensers, water treatment units, chemicals... etc.

16. Preparing a Register for the hazardous waste in accordance with article 33 of law 4/1994 and article 33, and table 2 of annex 3 of the executive regulations.

17. Environmentally safe and proper disposal of the solid waste resulting from the construction and operation over regular intervals.
18. Abiding by the Environmental and Social Monitoring Plan and registering the results of the measurements and analysis in the environmental register, which should be available in case of environmental auditing.

This approval is from the environmental perspective only without breaching any other laws, rules or regulations related to this activity, and in case of non-compliance with any of the requirements mentioned above, this approval will be considered invalid, and the company will bear its responsibility towards any environmental damages.

Chief Executive Officer

(Dr. Mawaheb Abouel Azm)
Figure A-3: Buildings Permit from Suez Governorate (1)
Figure A-4 Buildings Permit from Suez Governorate (2)
Figure A-5 Buildings Permit from Suez Governorate (3)
Figure A-6 MWRI Approval (1) for Shoreline Buildings
Figure A-7 MWRI Approval (2) for the Water Intake and Discharge
Figure A- 8 Military Approval (1) for the Suez Thermal Power Plant Construction
Figure A-9 Military Approval (2) for the construction of the Water intake and discharge structures
Figure A-10 Military Approval (3) for the construction of the pump room on the Shoreline
Figure A- 11 Civil Aviation Approval for the plant stacks
Appendix E: Main Environmental Practices Documents

THE ARAB REPUBLIC OF EGYPT
MINISTRY OF ELECTRICITY AND ENERGY
EAST DELTA ELECTRICITY PRODUCTION COMPANY
(EDEPC)

Suez Thermal Power Plant
1x650 MW Gas/Oil Fired Unit

Monthly Air Quality Monitoring Report No. 7
March 2016

Environmental Monitoring Package Contract 10065-CP-103

CTS For CHEMICAL & TECHNICAL SERVICES

Figure B-1 Ambient Air Quality Monitoring Report March 2016 – (1)
1- Introduction

This is the Seventh Air Quality Monitoring Report to be submitted for the Suez Power Plant. CTS is currently operating, maintaining, and calibrating the Suez Environmental Air Quality Monitoring Station.

The Met Tower temperature sensor indicated that no significant changes were observed during March 2016 other than the expected seasonal temperature variations.

1-a-Monitoring Plan (MP)

The Monitoring Plan (MP) which is in accordance to the tendered specifications and requirements, was strictly followed.

1-b-Environmental Instrument Shelters

The environmentally controlled shelter housing the Air Quality Monitoring Station was operated and maintained successfully throughout the month of March 2016.

2-Quality Assurance (QA) Measures

The QA measures that were previously detailed and listed were followed through the operation and maintenance task.

- Site Visits: CTS made the weekly site visits by the assigned site representative to perform the tasks required by the site visits.
- Completing Site related forms and Station Logbooks
- Performing the following checks and calibrations:
  - Manual Bi-weekly zero/span checks for SO₂, NOx and CO gas analyzers
  - Quarterly Multi-point Calibrations for SO₂, NOx and CO gas analyzers
  - Quarterly Flow Checks for the mass flow meters of the dynamic gas calibrator
  - Quarterly PM-10 calibrations
  - Sample Line Integrity Checks
  - Precision Checks
  - Semi-annual Calibration Checks for the Met Sensors
  - Semi-annual Quality Assurance Performance Audits
In addition; the Site Representative always performed the following checks whenever the station is visited:

- Checking the Data Acquisition System (DAS) FC for continuous logging of monitored data, while verifying that the displayed date and time are correct.
- Visually inspect the air intake, sampling manifold, and sampling lines for any dust or water vapour condensations in the condensation trap. The air-intake sampling manifold was maintained to be at all times clean from any dust and/or water vapour.
- The blower was checked and was found to run freely without any unusual noise. The connection to the manifold was maintained leak free.
- The air conditioner filter was checked every other week and cleaned whenever required. The cooling efficiency was according to specifications.
- The automatic fire fighting system detectors were regularly checked and were found to be functioning properly. No alarms were displayed and the pressure of the chemical tank was OK.
- On regular bases, the SR validates the data and comment on any out of range figures. There were no out of range figures during the month of March 2016.

Also the SR has adhered strictly to The Standard Operation Procedures (SOPs) in performing his tasks. The Project and QA Managers have continually audited the Site Representative’s performance with regard to the SOPs.

Corrective Actions Forms
No Corrective Action Forms were completed for any of the equipment during the month of March 2016.

3- Air Quality Monitoring Results

3.1- 1-Hour Running Averages
The Suez Air Quality Monitoring Station is continuously sampling, analyzing and logging the concentrations of the gas and particulates pollutants at the surroundings of the New Power Plant.

Table (1) summarises the monthly averages for the pollutants monitored for the 1-hours running averages at monitoring station. This table also displays the maximum, minimum, and average concentrations measured during March 2016 for SO2, NO, NO2, NOx, CO, PM-10 and TSP concentrations.
Table (1) Monthly Averages for 1-Hour Running Averages

<table>
<thead>
<tr>
<th>Month</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ppb</td>
<td>µg/m³</td>
<td>ppb</td>
</tr>
<tr>
<td>SO₂</td>
<td>0.1</td>
<td>0.3</td>
<td>42.6</td>
</tr>
<tr>
<td>NO</td>
<td>0.0</td>
<td>0.0</td>
<td>228.0</td>
</tr>
<tr>
<td>NO₂</td>
<td>2.3</td>
<td>4.4</td>
<td>64.3</td>
</tr>
<tr>
<td>NOₓ</td>
<td>2.3</td>
<td>4.4</td>
<td>270.3</td>
</tr>
<tr>
<td>CO</td>
<td>0.0</td>
<td>0.0</td>
<td>1.2</td>
</tr>
<tr>
<td>PM 10</td>
<td>------</td>
<td>------</td>
<td>134.6</td>
</tr>
<tr>
<td>TSP</td>
<td>------</td>
<td>------</td>
<td>18.0</td>
</tr>
</tbody>
</table>

*PM-10 and TSP data are not expressed in ppb but instead of µg/m³

Table (2) clearly shows the highest, non-overlapping second highest for the 1-hour running averages for the SO₂, NO, NO₂, NOₓ and CO concentrations, the times of occurrence, and the day of its occurrence at the site.

Table (2) Highest, Non-Overlapping Second Highest, Day, and times of occurrence For the 1-Hour Running Averages

<table>
<thead>
<tr>
<th>Parameters</th>
<th>1-Hour Running Averages March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highest</td>
</tr>
<tr>
<td></td>
<td>ppb</td>
</tr>
<tr>
<td>SO₂</td>
<td>42.8</td>
</tr>
<tr>
<td>NO</td>
<td>228.0</td>
</tr>
<tr>
<td>NO₂</td>
<td>64.3</td>
</tr>
<tr>
<td>NOₓ</td>
<td>270.3</td>
</tr>
<tr>
<td>CO</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Table (3) summarises the monthly 1-hour running averages for the meteorological data measured at the monitoring station. This table also displays the monthly measurements for the maximum and minimum Wind Speed, Wind Direction, Sigma-Theta and Ambient Temperature. The data is presented in the metric system of measurement units: wind speed values in meters per second (m/s), wind direction to the nearest whole degree, sigma-theta to the nearest tenth-degree, and temperature to the nearest tenth-degree centigrade.
Table (3) Meteorological Data Monthly Averages for 1-Hour Running Averages

<table>
<thead>
<tr>
<th>Month</th>
<th>MET 1-Hour Running Averages March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td>ATM(°C)</td>
<td>12.0</td>
</tr>
<tr>
<td>WSA(mps)</td>
<td>1.00</td>
</tr>
<tr>
<td>WDA(Deg)</td>
<td>2</td>
</tr>
<tr>
<td>SCT(Deg)</td>
<td>8</td>
</tr>
</tbody>
</table>

2-2- 24-Hour Running Averages

Table (4) summaries the monthly averages for the 24-hours running averages at monitoring station. This table also displays the maximum, minimum and average concentrations measured during March 2016 for SO2, NO, NO2, NOx, CO, PM-10 and TSP.

Table (4) Monthly Averages for 24-Hour Running Averages Monitoring Station

<table>
<thead>
<tr>
<th>Month</th>
<th>24-Hour Running Averages March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td></td>
<td>ppb</td>
</tr>
<tr>
<td>SO2</td>
<td>0.1</td>
</tr>
<tr>
<td>NO</td>
<td>1.4</td>
</tr>
<tr>
<td>NO2</td>
<td>6.7</td>
</tr>
<tr>
<td>NOx</td>
<td>7.7</td>
</tr>
<tr>
<td>CO</td>
<td>0.1</td>
</tr>
<tr>
<td>PM-10*</td>
<td>-----</td>
</tr>
<tr>
<td>TSP</td>
<td>-----</td>
</tr>
</tbody>
</table>

* PM-10 and TSP data are not expressed in ppb but instead of µg/m³
Table (5) clearly shows the highest, non-overlapping second highest for the 24-hour running averages for the SO₂, NO, NO₂, NOₓ and CO concentrations, the times of its occurrence and the day of its occurrence.

Table (5) Highest, Non-Overlapping Second Highest, Day, and times of occurrence
For the 24-Hour Running Averages

<table>
<thead>
<tr>
<th>Parameters</th>
<th>24-Hour Running Averages March 2016</th>
<th>Non-Overlapping Second-Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highest</td>
<td>Times of occurrence</td>
</tr>
<tr>
<td>SO₂</td>
<td>8.3</td>
<td>22.0</td>
</tr>
<tr>
<td>NO</td>
<td>72.8</td>
<td>90.8</td>
</tr>
<tr>
<td>NO₂</td>
<td>40.1</td>
<td>76.6</td>
</tr>
<tr>
<td>NOₓ</td>
<td>111.9</td>
<td>214.0</td>
</tr>
<tr>
<td>CO</td>
<td>0.3</td>
<td>0.6</td>
</tr>
</tbody>
</table>

3-3 8-Hour Running Averages

Table (6) summarises the monthly averages for CO concentrations for the 8-hours running average at the Monitoring Station. This table also displays the maximum, minimum and average concentrations measured during March 2016. The data is presented in both parts per billion (ppb) and micro gram per cubic meter (µg/m³).

Table (6) Monthly Averages for 8-Hour Running Averages
For CO concentrations

<table>
<thead>
<tr>
<th>Month</th>
<th>CO 8-Hour Running Averages March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td></td>
<td>ppb</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
</tr>
</tbody>
</table>
3-4 3-Hour Running Averages

Table (7) summarises the monthly averages for SO₂ concentrations for the 3-hours running average at the Monitoring Station. This table also displays the maximum, minimum and average concentrations measured during March 2016. The data is presented in both parts per billion (ppb) and micro grams per cubic meter (µg/m³).

<table>
<thead>
<tr>
<th>Month</th>
<th>SO₂ 3-Hour Running Averages March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum ppb</td>
</tr>
<tr>
<td></td>
<td>µg/m³</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>77.6</td>
</tr>
</tbody>
</table>

4- Monthly Exceedances

Table (8) lists the monthly maximum 1-Hour Running Averages concentrations during March 2016. These data were compared with the limits drawn by the Egyptian Standards and World Bank guidelines. There were exceedances for NOx concentration recorded during this month.

<table>
<thead>
<tr>
<th>Month</th>
<th>Monthly Maximum 1-Hour Running Averages March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recorded Readings</td>
</tr>
<tr>
<td></td>
<td>ppb</td>
</tr>
<tr>
<td>SO₂</td>
<td>42.6</td>
</tr>
<tr>
<td>NOx</td>
<td>270.3</td>
</tr>
<tr>
<td>CO</td>
<td>1.2</td>
</tr>
</tbody>
</table>
Table (9) lists the monthly maximum 24-Hour Running Averages concentrations in comparison with the limits drawn by the Egyptian Standards and World Bank guidelines during March 2016. There were exceedances recorded only for the PM-10 and TSP concentrations recorded during this month.

Table (9) Monthly Exceedances for the 24-Hour Running Averages at Monitoring Station

<table>
<thead>
<tr>
<th>Month</th>
<th>Monthly Maximum 24-Hour Running Averages</th>
<th>% Exceedance March 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recorded Readings</td>
<td>EGY Standards</td>
</tr>
<tr>
<td></td>
<td>ppb</td>
<td>μg/m³</td>
</tr>
<tr>
<td>SO₂</td>
<td>83</td>
<td>220</td>
</tr>
<tr>
<td>NOx</td>
<td>111.9</td>
<td>214.0</td>
</tr>
<tr>
<td>PM-10</td>
<td>—</td>
<td>450.8</td>
</tr>
<tr>
<td>TSP</td>
<td>—</td>
<td>591.4</td>
</tr>
</tbody>
</table>

*PM-10 and TSP data are not expressed in ppb

Table (10) lists the monthly maximum 8-Hour Running Averages CO concentrations in comparison with the limits drawn by the Egyptian Standards and World Bank guideline during March 2016. There were no exceedances for the CO concentrations recorded during this month.

Table (10) Monthly Exceedances for the 8-Hour Running Averages for CO concentrations

<table>
<thead>
<tr>
<th>Month</th>
<th>CO Monthly Maximum 8-Hour Running Averages March 2016</th>
<th>% Exceedance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recorded Readings</td>
<td>EGY Standards</td>
</tr>
<tr>
<td></td>
<td>ppb</td>
<td>μg/m³</td>
</tr>
<tr>
<td>0.8</td>
<td>0.5</td>
<td>10,000.0</td>
</tr>
</tbody>
</table>
Environmental and Social Due Diligence for Suez Power Plant

Figure B-9 Hazardous Waste Disposal Receipt – 1

[Text in Arabic]
Figure B-10 Hazardous Waste Disposal Receipt – (2)
مقدمة
توصيف الموقع المستخدم للاختبار
في يوم
تم اليوم هذا العقد في داوم
أو على الرسماء / شركة توصيف المنشأة لإنتاج الموارد - بني ساوج في هذا العقد:
السيد المحمود / أمير الصناعات العامة - رئيس مجلس الإدارة والعضو البديل:
وفصيلى الشهيد حيدر - موظفين في م🏖ة مديرية الزراعة والإصلاح الزراعي
(طرود أول)
دارياً: السيد / شركة الخدمات التجارية والبنكية (ببوزر بيد): ويمثلها في هذا العقد:
السيد / طارق محمود محمد خليل - ممثله، مساعد رئيس الشركة الشروب التجارية
وفرضة: إسطور المختلي - مدينة مصر-القاهرة
(طرود أول)
وبعد أن أقرطرتان بإتمام وأدائهما للعقد وفقاً على ما يلي:

(توضيح)

نظام الأحتاج مواقع الانتاج التابع للطرف الأول للعقد مع شركة منصلصة في تجميع الزيوت
المستعملة.

وحيث أن الهيئة المصرية العامة للبترول قد تولت شركة الخدمات التجارية (ببوزر بيد) بإعتبارها
الشركة الوحيدة المسؤولة عن تجميع الزيوت المستعملة من جميع محاور الدولة، بساهمة إلى ما ورد في الكتاب الدوائي رقم (5) الصادر من وزارة التموين والتجارة الداخلية بتاريخ
30/7/2000

وبين أنه الذي أول يرغب في التحلل الآمن من الزيوت المستعملة المستلمة التي لديه
أباً لها من الشكاوي المتطرفة طالما لا تخضع لقانون البيئة رقم (4) لسنة 1994.
وبين أن الطرف الثاني (شركة الخدمات التجارية (ببوزر بيد)) قد تقدمت بعرض تجميع الزيوت
المستعملة الخاصة بمواقع الانتاج التابع للطرف الأول للسوري الاتهام.

Figure B- 11 Waste Oil Disposal Contract – (1)
Figure B-12 Waste Oil Disposal Contract – (2)
Figure B-13 Waste Oil Disposal Contract – (3)
Figure B-14 Waste Oil Disposal Contract – (4)
Figure B- 15 Waste Oil Disposal Contract – (5)
Figure B- 16 Sewage Water Disposal Contract With Suez Petroleum Company – (1)
Figure B-17 Sewage Water Disposal Contract With Suez Petroleum Company – (2)
Environmental and Social Due Diligence for Suez Power Plant

Figure B- 18 Sewage Water Disposal Contract With Suez Petroleum Company – (3)
Figure B- 19 Sample of the old demolished units disposal agreements
Appendix C | Land Acquisition Contract

Figure C-1 Land Allocation Contract between EDEPC and Suez Petroleum Company – (1)
Figure C-2 Land Allocation Contract between EDEPC and Suez Petroleum Company – (2)
Figure C-3 Land Allocation Contract between EDEPC and Suez Petroleum Company – (3)
Figure C-4 Land Allocation Contract between DEPC and Suez Petroleum Company – (4)
Figure C-5 Land Allocation Contract between EDEPC and Suez Petroleum Company – (5)
Figure C-7 Land Allocation Contract between EDEPC and Suez Petroleum Company – (7)
Figure C-8 Land Allocation Contract between EDEPC and Suez Petroleum Company – (8)
Figure C-9 Land Allocation Contract between EDEPC and Suez Petroleum Company – (9)
### Table D-1 First Meeting at EEHC

<table>
<thead>
<tr>
<th>Entity</th>
<th>EEHC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attendees</strong></td>
<td></td>
</tr>
<tr>
<td>Eng. Hekmat Abdulrahman Selim</td>
<td>General Director of the Environmental studies Department, Ministry of Electricity and Energy</td>
</tr>
<tr>
<td>Dr. Ismaail El Sawy</td>
<td>Senior Research Engineer at the Environmental Project Management Sector, EEHC</td>
</tr>
<tr>
<td>Dr. Mohamed Fathy Tash</td>
<td>Environmental Assessment Department Manager, Egyptian Natural Gas Co. (GASCO)</td>
</tr>
<tr>
<td>Dr. Amr Abd El Aziz</td>
<td>President, Integral Consult</td>
</tr>
<tr>
<td>Dr. Ahmad Wafiq</td>
<td>Technical Team Lead, Integral Consult</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>9/5/2016</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>Gathering the available data and documents related to the 7 power plants fed by the natural gas pipelines financed by the World Bank (including Suez Power Plant)</td>
</tr>
</tbody>
</table>

**Summary (for the points relevant to Suez power plant)**

- EEHC clarified that all the power plants including Suez Power Plant have already got the environmental approval from the Egyptian Environmental Affairs Agency (EEAA)
- EEHC will also send to the due diligence consultant the contact details of the focal points inside the electricity production companies to get more specific data about each power plant.

There was a second meeting held at EEHC for the aim of gathering the available data and documents just related to New Capital, El Burullus and Beni Suef Power Plants. Therefore, the meeting minutes were not added to this report.

### Table D-2 Third Meeting at EEHC

<table>
<thead>
<tr>
<th>Entity</th>
<th>EEHC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attendees</strong></td>
<td></td>
</tr>
<tr>
<td>Dr. Ismaail El Sawy</td>
<td>Senior Research Engineer at the Environmental Project Management Sector, EEHC</td>
</tr>
<tr>
<td>Eng. Ehab Shaalan</td>
<td>Senior Environmental Specialist, Environment and Natural Resources, World Bank</td>
</tr>
<tr>
<td>Mrs. Amal Faltas</td>
<td>Senior Social Specialist, World Bank</td>
</tr>
<tr>
<td>Dr. Magda Amin</td>
<td>Director General of Environmental Protection Department, Egyptian Natural Gas Co. (GASCO)</td>
</tr>
<tr>
<td>Dr. Azza El-Trabili</td>
<td>Executive General Manager of the Environmental Protection Department, GASCO</td>
</tr>
<tr>
<td>Dr. Mohamed Fathy Tash</td>
<td>Environmental Assessment Department Manager, GASCO</td>
</tr>
<tr>
<td>Eng. Ahmed Galal</td>
<td>Environmental Assessment Department</td>
</tr>
</tbody>
</table>
Assistant Manager, GASCO
Dr. Amr Abd El Aziz
President, Integral Consult
Eng. Esraa El Mitainy
Senior Environmental Specialist, Integral Consult

Date 29/9/2016
Purpose Knowing the status of the documents requested from EEHC and not received until the submission of the Second Report Drafts

Summary
• The meeting started with a discussion about the importance of the due diligence reports as part of the Natural Gas Funding preparation process and accordingly the importance of obtaining all the required information for the plants' environmental and social practices.
• EEHC ensured their commitment to supply the required information in order to support the preparation of the reports.
• The due diligence consultant then explained the list of the required information, with special focus on the Livelihood Restoration Plan, and changes in ESIA for Beni Suef Power plant, Land Acquisition and Compensation Framework for Burullus as well as the missing land allocation permits and practice proof for other power plants.
• EEHC representative committed to do his best to supply the information he can collect within a week after the meeting.

Table D- 3 Site Visit Meeting of Minutes

<table>
<thead>
<tr>
<th>Entity</th>
<th>Suez Power Plant</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Ms. Alia ElKadi, Dr. Mohamed Fathy Tash, Dr. Amr Abd El Aziz, Eng. Esraa ElMitainy</td>
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<td></td>
<td>Project Manager for the Suez Thermal Power Plant Project, EDEPC</td>
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<td></td>
<td>Social Consultant, World Bank</td>
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<td>Environmental Assessment Department Manager, Egyptian Natural Gas Co. (GASCO)</td>
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<td>President, Integral Consult</td>
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<td></td>
<td>Senior Environmental Specialist, Integral Consult</td>
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<tr>
<td>Date</td>
<td>28/6/2016</td>
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<tr>
<td>Purpose</td>
<td>Site visit and gathering the available data and documents related to Suez power plant.</td>
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</tbody>
</table>

Summary of the Points discussed during the visit
• The meeting started with an introduction from the company about the power plant.
• The plant is designed as 1 x 650 MWh thermal power plant, operating through a steam turbine generator.
The planned start of operation date is on the 8th of July 2016, according to the construction schedule, but the plant operators are expecting it to be actually by the 10th.

The plant parts are divided into “units”, each can be from a different supplier, with PGESCo being the entity responsible to overlook the equipment trials and the whole plant commissioning.

The current plant construction progress is almost 100% in most areas except the civil works, water and wastewater treatment plants which are around 98-99% done.

The Natural gas connection to the plant is not yet in place (as the connection line is part of this study scope). Therefore, for the first phase of operation planned to start this July the plant will operate using 100% Mazout.

An environmental monitoring station was installed during the construction of the plant and is still in operation.

The brine from the demineralization plant is planned to be diluted and re-injected to the sea. The amount of water drawn from the sea is designed to be 1,100 m³ of which 700 m³ are used in the cooling process before discharge and 400 m³ are used as makeup water and for brine dilution.

The wastewater treatment plant onsite is mainly for process and cooling water and the treated wastewater will be discharged to the sea, while the waste oil will be collected in an oil separator and disposed of separately.

The sewage water is connected to a treatment plant at the Suez Petroleum Company, as they have a separate treatment plant and a contract is already in place for this disposal.

The Continuous Emissions Monitoring System (CEMS) is already installed and in place and connected to the national monitoring grid, and is planned to be activated with the operation of the plant.

There is no discharged wastewater yet, so the plant does not monitor the wastewater until now. A trial sample has been collected and sent to “Ataqa” for analysis, but the report is not received yet.

There is no environmental register for the plant yet, but the hazardous waste is disposed of in the Nassreya landfill, the waste oil is collected by Petrotrade and the other wastes are disposed of through EDEPC.

The land was a power plant since 1965, this plant went out of service in 2002, and the land allocation agreement was drawn between the Ministry of petroleum and the ministry of electricity in 2007 after they were separated, and no persons’ livelihood was onsite at any point.

Currently there is no grievance mechanism in place, and no grievances register at the power plant.

The site visit ended with a tour around the plant showing the water intake and discharge points, the installed units, internal natural gas connections and the land allocated to the Pressure Reduction Station.