



# INITIAL ENVIRONMENTAL EXAMINATION FOR CONSTRUCTION & OPERATION OF HUB BULK OIL STORAGE TERMINAL

Final Report  
February 2018



*Submission to:*

Baluchistan Environmental Protection Agency



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**February 2018**

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## Executive Summary

M/S Gas & Oil Pakistan Limited (GO) is conscious about the importance of maintaining Oil product stocks in order to maintain its Market share and to fulfill the increasing local demand and supply gap. M/S GO as per part of its marketing license obligations have planned to construct its country 4th Bulk Oil Storage Terminal at Hub Baluchistan.

Gas & Oil Pakistan Limited (GO) was launched by experienced Oil & Gas sector entrepreneurs who have over 40 years' experience in the downstream petroleum business. GO has been successful in expanding its business and making 300 retail outlets operational to date in Punjab and Sindh. The company has expanded its retail network to major urban and rural areas/centers in the area where it operates to serve all market segments in terms of fulfilling their fuel needs.

The proposed project of Hub Bulk Oil Storage Terminal is located at Khasra no 392 and 393 Mauza Kund along Byco Refinery Tehsil Gadani Hub Baluchistan. Proposed project will be spread over an area of 4 acres.

The project will have four storage tanks including one fire water tank along with the one kilometer underground pipeline, boundary wall, office area, API separator, firefighting system, parking area, office block, control room, pump room, tube well room, gate office, generator room, electrical sub-station room and fire water pump house. The short details of project capacities are given below.

Sr. No	Description of Product	Tank Type	Tank Storage Capacity (MT)	Standard of Manufacture
1.	High Speed Diesel (HSD)	Vertical Cone Roof Above Ground	4,950	API 650 12th Edition
2.	High Speed Diesel (HSD)	Vertical Cone Roof Above Ground	4,950	API 650 12th Edition
3.	Premium Motor Gasoline (PMG)	Vertical Cone Roof Above Ground	2,776	API 650 12th Edition
4.	Fire Water Tank	Vertical Cone Roof Above Ground	320	API 650 12th Edition

The IEE report has been prepared in compliance with the requirements of Baluchistan Environmental Protection Act 2012, EPA Review of (IEE and EIA) Regulation, 2000 for submission to the Baluchistan Environmental Protection Agency for decision on environmental viability of the Construction and Operation of Hub Bulk Oil Storage Terminal.

For Baseline information project area was surveyed to collect primary data. During the field visits, information was collected on environmental sensitivities in the areas, neighborhood attributes, and public services. Data of ambient noise levels, surface water, ground water quality and site specific geotechnical conditions were obtained from the primary sources.

Preconstruction Period: Environmental assessment documentation and the Environment Management Plan (EMP) are prepared and approved during the pre-construction period and The



EMP's mitigation (EmiT) Table-09 and monitoring (EmoT) table -10, identify actions to be undertaken by the Management by GO.

Most of the environmental impacts during design phase such as dislocation of peoples, change of land use, loss of trees and impacts on archeological sites are neutral and do not require mitigation measures.

Construction Period: Construction phase EMP actions focus mostly on project activities for construction and the management of worksites, equipment and people. Specifically this part of the EMP focuses in defining ways to minimize effects such as excavation, wastewater discharges, air emission release (dust), noise, disposal of construction debris, disturbance to traffic flow, water consumption and demand, fuel storage, safety of workers and public during construction, employment and business opportunity.

Appropriate mitigation protocols are defined in this IEE report. By applying careful design all other potential impacts can be avoided. However care will need to be taken during construction activity.

Operating Period - Operation period actions focus on confirming that the GO Management has completed the EMP tasks required and that the after Construction of Hub Bulk Oil Storage Terminal (HBST) will increase the defense reserves however care will be taken for the aspects like air emissions, noise and vibration, solid waste management, spillage hazards, provision of utilities and their consumption, fire hazard, air emission and employment generation will be managed and monitored and are provided in the EMP report.

A schedule of activities associated with construction and operations have been prepared and the potential environmental impacts of each activity assessed. For each activity, recommended mitigation and monitoring actions have been identified. These are covered in the EMP. All impacts are minor and able to be mitigated. This IEE study authors concluded that the proposed project will not lead to significant adverse environmental and social impacts. Careful implementation of the EMP will ensure that environmental impacts are managed and minimized. The environmental safeguard implementation will have to be monitored by concerned persons, including the Project/Terminal Manager and EHS Officer of GO. Due diligence, with mandatory coordination among various stakeholders will further ensure mitigation of any adverse impacts.

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## Acronyms

BEPA	Baluchistan Environment Protection Agency
B-EPA	Baluchistan Environment Protection Act
BPD	Barrels Per Day
EA	Environmental Assessment
EQS	Environmental Quality Standards
GPD	Gallons Per Day
GO	Gas & Oil Pakistan Limited
HBST	Hub Bulk Oil Storage Terminal
IEE	Initial Environmental Examination
KVA	Kilo Volt Ampere
KW	Kilo Watts
M.Tons	Metric Tons
NCS	National Conservation Strategy
NEP	National Environment Policy
PSIA	Pounds Per Square Inch Absolute
PSIG	Pounds Per Square Inch Gage
NEQS	National Environmental Quality Standards
NSDWQ	National Standards for Drinking Water Quality



## CHAPTER 1: INTRODUCTION

### 1.1 Prelude

M/S Gas & Oil Pakistan Limited (GO) is conscious about the importance of maintaining Oil product stocks in order to maintain its Market share and to fulfill the increasing local demand and supply gap. M/S GO as per part of its marketing license obligations have planned to construct its country 4th Bulk Oil Storage Terminal at Hub Baluchistan.

This Initial Environmental Examination (IEE) Report presents the environmental aspects with respect to the “Hub Bulk Oil Storage Terminal” a project of M/S Gas and Oil Pakistan Limited (GO)” which is located at Hub Baluchistan near Byco Petroleum Refinery. The proposed project is the part of storage capacity enhancement project. The IEE Report has been prepared in compliance with the requirements of Baluchistan Environmental Protection Act, 2012, EPA (Review of IEE and EIA) Regulation 2000 for submission to the Baluchistan Environmental Protection Agency for decision on environmental viability of the Project namely “**Hub Bulk Oil Storage Terminal**” (HBST) located at Hub Baluchistan.

### 1.2 Project Proponent (Gas & Oil Pakistan Limited)

#### 1.2.1 Introduction

Gas & Oil Pakistan Limited (GO) was launched by experienced Oil & Gas sector entrepreneurs who have over 40 years’ experience in the downstream petroleum business. Management have considerable experience in oil marketing & trading in domestic & international markets and is highly capable and proficient in making a significant difference in the country’s petroleum marketing sector upon the basis of their vast knowledge, experience, expertise and skills. The key aim of the GO Team is to translate this into the success of GO, which is engaged in oil marketing, storage, transportation and supply operations. The team is assisted by a core team of experienced personnel from the petroleum industry as well as new entrants who are being groomed in various fields of specialization within the company. GO has been successful in expanding its business and making 300 retail outlets operational to date in Punjab and Sindh. The company has expanded its retail network to major urban and rural areas/centers in the area where it operates to serve all market segments in terms of fulfilling their fuel needs.

#### 1.2.2 Hub Bulk Oil Storage Terminal (The Project)

The proposed project of Hub Bulk Oil Storage Terminal is located at Khasra no 392 and 393 Mauza Kund along Byco Refinery Tehsil Gadani Hub Baluchistan. The proposed project will be spread over an area of 4 acres. The HBST has been designed for the storage capacity of 12,676 metric ton (MT), which includes two tanks for High Speed Diesel (HSD) and one for Premium Motor Gasoline (PMG). In addition to that, a dedicated tank having capacity of 320 MT has been planned for the firefighting purpose.

### 1.3 Project Location

Proposed project of HBST is located on the near Hub River and coast of the Arabian Sea at a distance of approximately 1 km from the Byco Refinery, Hub Baluchistan. Proposed Location of HBST is shown in Figure -1.



Figure 1: Proposed Location of Hub Bulk Oil Storage Terminal

### 1.4 Approvals Obtained

Management of GO has obtained/applied following approvals from different government Agencies for construction and operation of HBST.

1. **Ministry of Energy (Petroleum Division)**

Gas and Oil Pakistan Limited has applied for the NOC of HBST, through its letter no. GOPL/LASBELLA/MOD/22 dated 14 November 2017. Copy of letter from Ministry of Energy is attached as Annexure-1.

2. **Ministry of Defense (Maritime Affairs Wing)**

Gas and Oil Pakistan Limited has applied for NOC from Ministry of Defense through Ministry of Energy. The MoD will issue NOC on the basis of approval/NOC from BEPA as per policy. Copy of Letter from Ministry of Energy is attached as Annexure -2.

3. **Oil and Gas Regulation Authority**

Gas and Oil Pakistan Limited has been granted extension in provision license to set up an Oil Marketing Company till June 11, 2018 vide letter # "OGRA(Oil)19-3(63)/2016 IV dated: 20-07-2017. Copy is attached as Annexure-3 for ready reference.

#### **4. Ministry of Industries (Explosive Department)**

Gas and Oil Pakistan Limited has applied for the NOC/approval from Ministry of Industries (Explosive Department). The Explosive Department will issue approval on the basis of approval/NOC from District Administration as per Departmental policy.

#### **5. District Administration**

Gas and Oil Pakistan Limited has applied for the NOC/approval from District Administration. The District Administration will issue approval on the basis of approval/NOC from BEPA as per District Administration procedure.

### **1.5 Legal Aspects of IEE Study**

#### **1.5.1 Legislative Requirement**

The objective of this study is to carry out an Initial Environmental Examination (IEE) of the proposed project activities to meet the environmental compliances laid down by the Baluchistan Environmental Protection Agency. The scope of study would be as per the Environmental Assessment Guidelines outlined by the Environment Protection Agency.

This IEE aims to identify possible environmental aspects of the project activities and suggest mitigation measure to cater environment and to fulfill the requirement for obtaining an environmental approval from the Environmental Protection Agency, Baluchistan.

The Baluchistan Environmental Protection Act 2012 (BEPA) empowers the Baluchistan EPA as the principal authority for environmental management in Baluchistan. It has established the requirements of environmental assessment for any project in place prior to commencement of work.

Section 15 of "Baluchistan Environmental Protection Act 2012" and other regulatory document such as "Environmental Protection Agency (EPA) Review of IEE/EIA Regulations 2000" requires that every new project in Baluchistan has to be preceded by an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) depending upon the size and severity of impacts anticipated on commissioning of the project.

The main objectives of the environmental assessment study are to identify the environmental and health impacts, both positive and negative, that may result from a proposed project. The study also provides recommendations to mitigate adverse impacts and maximize benefits on all aspects of the surrounding environment (physical, biological, social).

#### **1.5.2 Justification for IEE Study**

Environmental Protection Agency (Review of IEE and EIA) Regulations 2000 classifies projects on the basis of expected degree of adverse environmental impacts and lists them in two separate schedules. Schedule-I lists projects that may not have significant environmental impacts and therefore require an IEE, similarly Schedule-II contains the lists projects that have potentially significant environmental impacts and requiring preparation of an EIA.

The project **"Construction and Operation of Hub Bulk Oil Storage Terminal"** falls under

Schedule-I under the category of **B (5) “Oil and Gas Extraction Projects Including Exploration, Production, Gathering Systems, Separation and Storage”**. This IEE report has, therefore been prepared in compliance with the requirements mentioned under the prevailing environmental legislation in Pakistan.

## 1.6 Approach and Methodology of IEE Study

### 1.6.1 Scope of IEE Study

The scope of this IEE Study is as under:

- Identify the characteristics of the proposed project that are likely to give rise to environmental impacts.
- Develop a baseline of project's current environmental scenario.
- Identify the type of impacts that may arise.
- Determine environmental resources, which are particularly sensitive to impacts and categorize impacts based on their severity.
- Evaluate impacts due to construction and operation activities of proposed project and compliance with the relevant environmental regulations of Baluchistan.
- Evaluate impacts' severity/degree and provide necessary mitigation measures.
- Provide recommendations/suggestions for the environmental monitoring and management of social and physical environment in the surroundings of the project area during various phases of the project life.

### 1.6.2 Purpose and Objectives

The purpose of this IEE study is to evaluate the proposed activities against the Baluchistan Environmental Protection Agency (BEPA) requirements.

The specific objectives of this IEE are to:

- Assess the existing environmental and socioeconomic conditions at and around the project site, particularly identify any environmental and social sensitivity areas;
- Identify the likely impacts of the proposed project on the natural and socioeconomic environment, predict and evaluate these quantitatively wherever possible and determine their significance in the light of technical and regulatory concerns, as well as those related to public perceptions;
- Propose appropriate mitigation and monitoring measures that can be incorporated into the design of the proposed activities to minimize any damaging effects or lasting negative consequences identified by the assessment
- Prepare an IEE report for submission to the Baluchistan Environmental Protection Agency (BEPA).

### 1.6.3 Methodology

The environmental assessment has been conducted with the following basic targets:

- Identification of the regulatory requirements that applies to the project activities in the proposed area, in the context of environmental protection, health and safety.

- Assessment of the proposed project activities in terms of their likely impacts on the environment during the construction and operation phases of the project, in order to identify issues of environmental concern;
- Recommendation of appropriate mitigation measures that can be incorporated into the design of the project to minimize any environmental impacts identified.

For achieving these targets symphonically, the following methodology was adopted;

1. Review of regulatory requirements based on; preliminary assessment of project activities and the project area.
2. Collection of information of the proposed project activities, project design and schedule, with an emphasis on aspects that have an interface with natural and social environment.
3. Secondary literature review to collect environmental data about the project area.
4. Site visits for the collection of primary data related to various environmental aspects of the project area.
5. Evaluation of the environmental parameters those are likely to undergo significant change due to the proposed project.
6. Identification and evaluation of measures to mitigate the adverse impacts.

#### 1.6.4 Phases of Study

The IEE study was performed in four main phases, which are described below:

##### a. Scoping:

The key activities of this phase included:

- **Project Data Compilation:** A specific description of the proposed activities relevant to environmental assessment was compiled with the help of the proponent.
- **Published Literature Review:** Secondary data includes various studies conducted by Consultant teams within project area, which includes different EIA / IEE Studies were reviewed in addition to that, other studies on weather, soil, water resources, wildlife, and vegetation were reviewed and compiled.
- **Legislative Review:** Information on relevant legislation, regulations, guidelines, and standards was reviewed and compiled.
- **Identification of Potential Impacts:** The information collected in the previous steps was reviewed and potential environmental issues identified.

##### b. Baseline Studies:

Following the scoping exercise, the project area was surveyed to collect primary data. During the field visits, information was collected on ecologically important areas, ambient noise level, Surface water (Hub River), ground water and local communities, and sites of archaeological or cultural importance.

##### c. Impact Assessment

The environmental, socioeconomic, and project information collected in previous phases was used to assess the potential impacts of the proposed activities. The issues studied included potential project impacts on:

- Water resources (surface and ground water quality)
- Ambient noise levels
- Ecology of the area including wildlife and fauna
- Local communities

Following aspects were discussed in detail and evaluated for environmental scenarios associated with proposed project, **“Construction and Operation phases of Hub Bulk Oil Storage Terminal”**.

- The present baseline conditions.
- The change in environmental parameters likely to be effected by the project related activities.
- Identification of potential impacts.
- Likelihood and significance of potential impacts.
- Mitigation measures to reduce impacts to as low as possible.
- Determination of residual impacts.
- Implementation of mitigation measures through environment management protocols.
- Evaluation of controls and monitoring of residual impacts.

**d. Documentation:**

The above steps, procedures and analysis have been documented in the form of an IEE report prepared according to the relevant guidelines of the Baluchistan Environmental Protection Agency and legal requirements. This report includes the findings of the assessment, project impacts, and mitigation measures to be implemented during the execution of the proposed activities.



## 1.7 Study Team

M/S Gas and Oil Pakistan Limited has engaged Environmental Consultancy & Services for conducting the Environmental Assessment (IEE) Study of the proposed project. Consequently, ECS formulated the following team for conducting the study:

Name	Role	Position
Mr. Shahid Ali Lutfi	Team Leader	Consultant / Environmental Engineer
Mr. Arshad Hussain Memon	Deputy Team Leader/ Project Manager	Consultant / Environmental Engineer
Mr. Nouman Sheikh	Focal Person	Senior Environmental Engineer
Mr. Saddam Hussain	Social Expert	Energy /Environment Engineer
Mr. Shaikh Shahab Uddin	Environmental Engineer	Civil /Environment Engineer

## 1.8 Report Structure

The structure of this IEE Report is as follows:

**Chapter 1:** Provides an introduction about the proposed project and categorization of the project with respect to the environmental regulations.

**Chapter 2:** Gives an overview of policy and legislation and relevant international guidelines concerning with the various aspects of the proposed project activities.

**Chapter 3:** Covers the project description, its precise location, capacity of storage, construction and operation related details and the timeframe for completion of project.

**Chapter 4:** Describes the existing environment at the proposed project area. It carries details of area infrastructures, physical, ecological and socioeconomic conditions of the area.

**Chapter 5:** Describes the anticipated environmental and social impacts of the project and their consequent screening in accordance with the general guidelines. The screening further identifies the residual impacts resulting as a consequence of the adoption of mitigation measures.

**Chapter 6:** Details the environmental management and monitoring plan to be implemented by the GO-HBST management for effective mitigation of adverse impacts and improved environmental performance.

**Chapter 7:** Summarizes the report and presents conclusion.

**Annexure:** A series of Annexure have been included in the report to provide information about the project, the regulations that were have been used to categorize the project as well as those governing environmental compliance, and other legal documents as the proof of validity of the project.

Details of Contact Person at Gas and Oil Pakistan Limited are mentioned below.

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## CHAPTER 2: ENVIRONMENTAL LEGAL REQUIREMENTS

### 2.1 Introduction

The principal environmental regulatory agency in Pakistan was the Environmental Protection Agency (EPA) of Pakistan that formulates environmental policies, action plans and legislation. After the 18th amendment the environmental portfolio devolved to provincial governments. Consequently, the Baluchistan Environmental Protection Agency was empowered to formulate environmental legislation, rules, regulations and standards and their enforcement/implement in the whole Baluchistan provinces as a formulating, regulatory and monitoring agencies. EPA Baluchistan head office is located at **Baluchistan Civil Secretariat 2nd Floor, Block-7 Zarghoon Road, Quetta.**

Presently, the basic legislation on environment is the Baluchistan Environmental Protection Act of 2012 (BEPA 2012) has been notified by the Government of Baluchistan and other rules and regulations are applicable of PEPA until EPA Baluchistan notify. EPA Baluchistan has also issued directions for immediate compliance with the legislation and Rules and Regulations promulgated so far.

This section provides synopsis of policies, legislation, and guidelines that may have relevance to the activities carried out by M/S GO within the scope defined for this IEE. The relevant requirements of the policy documents and legislative framework have also been incorporated in the environmental management and monitoring plan being formulated for the better environmental impacts management. GO Management is committed to follow and comply with the relevant requirements of the policy documents and legislative framework for the better management of environmental aspects and impacts of their business related activities.

### 2.2 Environmental Policies and Guidelines

#### 2.2.1 National Conservation Strategy

The National Conservation Strategy (NCS) is the primary policy document of the Government of Pakistan (GoP) on national environmental issues. The document was approved by the Federal Cabinet in March 1992. The NCS identifies 14 core areas and recommends immediate attention to the stated core areas in order to preserve the country's environment.

The main objectives of the strategy are conservation of natural resources, sustainable development and improved efficiency in the use and management of resources. It covers fourteen key priority areas for policy formulation and intervention, including protecting watersheds; supporting forestry and plantations; protecting water bodies and sustaining fisheries; conserving biodiversity; increasing energy efficiency; developing and deploying renewable resources; preventing or decreasing pollution; managing urban wastes; and preserving the cultural heritage. Energy policies include promoting efficiency and conservation as well as co-generation, hydro, biogas, solar and new alternatives. The strategy also includes measures to control and limit pollution - for example, by proper management of urban waste material, recycling programs, safe disposal practices.

### 2.2.2 National Environmental Policy

This policy covers all sectors and a wide range of means for promoting conservation and environmental protection in water, air and waste management, forestry, and transport. The policy aims to promote protection of the environment, the honoring of international obligations, sustainable management of resources, and economic growth. It calls for the setting of standards and regulations for ambient and indoor air quality, vehicle emissions and manufacture, energy conservation, fuel specification and building codes. It aims to promote mass transit and non-motorized transport as well as cleaner technologies, including natural gas (LPG), solar, hydroelectric, biogas and cogeneration with waste, and offering tax incentives for efficient products. It also calls for creating increased public demand for environmentally friendly products through education and mass awareness campaigns.

## 2.3 Environmental Legislation

### 2.3.1 Baluchistan Environmental Protection Act, 2012

Baluchistan Environmental Protection Act of 2012 provides the overarching provincial framework for the protection of the environment in Baluchistan. It builds on the provisions of PEPA and localizes them to the provincial context.

The act extends to whole of the province of Baluchistan and is to provide for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development.

Under Section 2(qq), the Act defines "pollution" as the contamination of air, land or water by the discharge or emission of effluent or wastes or air pollutants or noise or other matter which either directly or indirectly or in combination with other discharges or substances alters unfavorably the chemical, physical, biological, radiation, thermal or radiological or aesthetic properties of the air, land or water or which may, or is likely to make the air, land or water unclean, noxious or impure or injurious, disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to biodiversity.

The Act, under Section 15, empowers the EPA Baluchistan to require from the proponent an EIA/IEE document from the proponent of any project prior to commencement of any construction or operations activity. BEPA Act 2012 is attached as Annexure-4 for ready reference and further guidance.

## 2.4 Applicable Rules, Regulation and Standards

### 2.4.1 Environmental Protection Agency (Review of IEE and EIA) Regulations

The Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000 provide the necessary details on preparation, submission and review of the IEE and EIA. Categorization of projects for IEE or EIA is one of the main components of the Regulation. Projects are classified on the basis of expected degree of adverse environmental impacts. Project types listed in Schedule - II require an EIA and Schedule- I projects require an IEE to be conducted, rather than a full-fledged EIA, provided they are not located in environmentally sensitive areas.

Salient features of the regulations relevant to the proposed project are listed below:

- Categories of projects requiring IEE and EIA are issued through two schedules attached with the Regulations. Oil and Gas Extraction Projects Including Exploration, Production, Gathering Systems, Separation and Storage projects are included in an IEE category.
- The IEE / EIA must be prepared, to the extent practicable, in accordance with the EPA Environmental Guidelines discussed in the sections to follow.
- The submitted report is to be accompanied by an application in prescribed format included as Schedule - IV of the Regulation.
- The EPA is bound to conduct a scrutiny and reply within 10-days of submittal of report (a) confirming completeness (b) asking for additional information, or (c) requiring additional studies.
- The EPA is required to make every effort to complete the review process for the IEE within 45-days, and of the EIA within 90-days, of issue of confirmation of completeness.
- When EPA accord their approval subject to certain conditions, the following procedure will be followed:
  - Before commencing construction of the project, the proponent is required to submit an undertaking accepting the conditions.
  - Before commencing operation of the project, the proponent is required to obtain from the EPA a written confirmation of compliance with the approval conditions and requirements of the IEE/ EIA.
  - There is a requirement for an EMP to be submitted with the request for obtaining confirmation of compliance.
  - The EPA is required to issue confirmation of compliance within 15-days or receipt of request and complete documentation.
  - The IEE / EIA approval will be valid for three years from date of accord.
  - A monitoring report is required to be submitted to the EPA . Detailed IEE/ EIA review regulation 2000 are attached as Annexure-5.

## 2.5 Environmental Quality Standards (EQS)

Government of Pakistan in early 1990s realized the importance of environmental pollution control by introducing National Environmental Quality Standards (NEQS) through statutory notifications as per recommendations of various advisory committees. Pakistan Environmental Protection Committee (PEPC) in its first meeting held on 10th May 1993 approved the NEQS. Later on, a set of NEQS was announced under SRO 742 (1) 93 dated 24th Aug 1993. These approved 32 parameters prescribing permissible levels of pollutants in liquid effluent while 16 parameters for gaseous emission were of uniform standards applicable to all kinds of industrial and municipal effluent.

Revised NEQS which were approved by the Council in December 28, 1999. These NEQS were made effective under SRO 549 (1) 2000 dated 8th August 2000.

The Council made last amendments in S.R.O 742(1)/93 dated 24th August 1993 with its S.R.O. 1062(1)/2010 dated 16th October 2010.

- NEQS which were approved by the Pakistan Environment Protection Council. These NEQS for Municipal and Industrial effluent are attached as annexure-6 A.
- NEQS which were approved by the Pakistan Environment Protection Council. These NEQS for Industrial Gaseous Emissions, Motor Vehicle Exhaust, Noise and Ambient Air Quality are attached as annexure- 6 B.
- NEQS which were approved by the Pakistan Environment Protection Council. These NEQS for Ambient Noise Level are attached as annexure-6 C.

After devolution of the subject of environment to the provinces (as per 18<sup>th</sup> Amendment), the Baluchistan EPA has adopted same NEQS until notify the Baluchistan EQS. However, presently, the existing NEQS are the legal enforced standards that BEPA requires all industrial units to comply with. M/s Gas and Oil Pakistan Limited would comply with the limits of NEQS relevant to the scope of this IEE/EMP, however, once BEQS are notified; the same would be substituted in this IEE/EMP.

## **2.6 Self-Monitoring and Reporting by Industries Program**

### **a. Introduction**

The Pakistan Environmental Protection Act 1997 makes it incumbent upon industrial facilities to restrict amount of pollutants in their air emissions and effluents to the limits specified in the National Environmental Quality Standards (NEQS). The Act also outlines institutional framework for administering its laws. The EPAs are required to determine whether industries comply with the law. PEPA'97 requires the EPAs to measure, analyze and report the environmental performance of every industrial facility in the country, against no less than 48 environmental parameters-32 for liquid effluents and 16 for air emissions, which are in the NEQS. Unless the EPAs elicit the industrial sector's participation, this task isn't small or easy.

Perceiving the need for a more feasible approach, the Pakistan Environmental Protection Council constituted an Environmental Standards Committee in 1996 to devise realistic modalities for NEQS enforcement and simplified monitoring procedures. An Expert Advisory Committee was also appointed to address technical issues related to the NEQS and environmental mentoring and reporting procedures. Working in close collaboration with various industries, NGOs and research organizations, the Committee completed its work in August 1998. One of the important products of its efforts is the "Self-Monitoring and Reporting System for Industry", to be implemented by the EPAs in collaboration with the industry and other stakeholders.

**b. Objectives of the Self-Monitoring Program**

Self-Monitoring and Reporting by Industries System is designed to make the country's industry owners and operators responsible for systematic monitoring and reporting of their environmental performance. By implementing this system the government, in fact, transferred the responsibility for examining and evaluating industry's environmental performance to individual industrial facilities. Apart from saving EPAs considerable expense, time and effort, this measure will enable industry to make long-term provisions for eco-friendly production. The reported data and ongoing pollution trends will also enable government agencies to assist industrial units in controlling their pollution levels.

**c. NEQS Self-Monitoring and Reporting by Industries Rules 2001**

The system for implementation of NEQS by industries through self-monitoring as proposed by the Environmental Standards Committee was notified through S.R.O 528(1)/2001 as NEQS (Self-Monitoring and Reporting by Industries) Rules, 2001. These Rules classify industries into three categories (A, B and C) for liquid effluents and two categories (A and B) for emissions, each corresponding to a specified reporting frequency. Industries falling under a particular category are required to monitor and report only 'Priority Parameters' as per the specified frequency. These Rules also provide formats for recording the results of monitoring and lab analysis and their reporting to EPAs. The Self-Monitoring and Reporting System for Industry (SMART) Rules, 2001 are the legal enforced rules that BEPA requires all industrial units to comply with.

**d. Industrial Categorization & Reporting Procedure****i. Classification of Industrial Units for Liquid effluents****"Category A"**

- (1) Chlor-Alkali (Mercury Cell).
- (2) Chlor-Alkali (Diaphragm Cell).
- (3) Metal finishing and electroplating.
- (4) Nitrogenous fertilizer.
- (5) Phosphate fertilizer.
- (6) Pulp and paper.
- (7) Pesticides formulation
- (8) Petroleum refining
- (9) Steel Industry
- (10) Synthetic Fiber
- (11) Tanning and leather finishing.
- (12) Textile processing
- (13) Pigments and dyes.
- (14) Thermal Power Plants (Oil Fired and Coal Fired).
- (15) Rubber products.

- (16) Paints, Varnishes and Lacquers.
- (17) Pesticides.
- (18) Printing.
- (19) Industrial chemicals.
- (20) Oil and Gas production.
- (21) Petrochemicals.
- (22) Combined effluent treatment.
- (23) Any other industry to be specified by Federal or Provincial Agency

#### Category "B"

- (1) Dairy industry.
- (2) Fruit and vegetable processing.
- (3) Glass manufacturing.
- (4) Sugar.
- (5) Detergent.
- (6) Photographic.
- (7) Glue manufacture.
- (8) Oil and Gas exploration.
- (9) Thermal Power Plants (Gas Fired)
- (10) Vegetable oil and ghee mills.
- (11) Woolen mills.
- (12) Plastic materials and products.
- (13) Wood and cork products.
- (14) Any other industry to be specified by federal or Provincial Agency.

#### "Category "C"

- (1) Pharmaceutical (Formulation) Industry.
- (2) Marble Crushing.
- (3) Cement.
- (4) Any other industry to be specified by Federal or Provincial Agency

### ii. Industrial Units for Gaseous Emissions

#### "Category "A"

- (1) Cement.
- (2) Glass manufacturing
- (3) Iron and steel.
- (4) Nitrogenous fertilizer.
- (5) Phosphate fertilizer.
- (6) Oil and Gas production.
- (7) Petroleum refining.
- (8) Pulp and paper.
- (9) Thermal Power Plants (coal and oil based)
- (10) Boilers, ovens, furnaces and kilns (coal and oil fired)
- (11) Brick-Kilns (firewood and bagasse based)
- (12) Any other industry to be specified by Federal or Provincial Agency.

#### Category "B"

- (1) Sugar.
- (2) Textile.
- (3) Chlor alkali plants.
- (4) Dairy industry.

- (5) Fruits and vegetables.
- (6) Metal finishing and electroplating.
- (7) Boilers, ovens, furnaces and kilns (gas-fired)
- (8) Any other industry to be specified by Federal or Provincial Agency.

**iii. Reporting**

**Procedure**

- Under Category A, each plant has to report its data every month.
- Under Category B, each plant has to report the data on quarterly basis.
- Under Category C, each plant has to report the environmental data on biannual basis.

Copy of Self-Monitoring Rules, 2001 is attached as annexure-7 for ready reference.

## CHAPTER 3: DESCRIPTION OF THE PROJECT

### 3.1 Objectives

M/s GO-HBST intends to develop the facility to maintain strategic reserves for the state which is the prime objective in addition to that this will also help to improve distribution of petroleum products to GO's retail outlets in the area of Baluchistan and Sindh. Facility will also reduce the transportation cost and increase reliability of fuel source in the area.

The HBST will comprise of storage tank, pipeline from HBST to Byco, loading gantry and laboratory for product's quality analysis.

The proposed pipeline will be laid to boost the transportation capacity and to eliminate vehicular movement, transportation hazards and fuel consumption from Byco Refinery to proposed HBST. The other feature of the pipeline will save transportation cost, reduce the environmental impacts and facilitate freight savings by utilizing transportation through pipeline.

The high-speed diesel (HSD) and premium motor gasoline (PMG) will be transported via dedicated pipeline from Byco Refinery to GO-HBST facility. The facility will be designed and established as per the guidelines of Explosive Department and OGRA requirements.

The HBST operation comprises of multiple activities at facility, which includes the receiving of petroleum products from Byco refinery, storage of petroleum products and loading of petroleum products in road tankers for transportation to Retail outlets of GO located in Baluchistan and other nearby areas of Sindh.

### 3.2 Land Ownership

Proposed project land is the property of M/S Byco refinery, as part of the LPG- Oil Marketing Companies (OMC) Village development program. Management of GO-HBST has obtained the proposed plot on lease basis for the period of 10 years, which is renewable after 10 years upon request. Copy of lease documents attached as Annexure – 8.

### 3.3 Terminal Location

The proposed project HBST-GO will be located on the coast of the Arabian Sea besides Byco refinery and at the mouth Hub River, which is shown in Figure-1. The project site falls under the jurisdiction of Mauza Kund, Tehsil Gadani, District Lasbella, Baluchistan.

### 3.4 Land Use

The proposed project is located within the Oil Marketing Companies Oil Storage Village, which is being established besides the Byco refinery. The entire property belongs to Byco Refinery is being sub-leased to OMC to establish the storage Terminal for petroleum products. M/S Byco Refinery has allotted the Land to GO and other Oil Marketing Companies as well, so there will be no change in Land use.



### 3.5 Purpose / Need of the Storage

The proposed project is part of expansion plan of the company, and it is another strategic milestone in the history of Gas and Oil Pakistan Limited. Keeping in view growing future demand due to CPEC projects it is inevitable to further enhance the storage capacity for the strategic reserve. Construction and operation of Bulk Oil Storage Terminal will feed the retail network station of the area. This will also meet the obligation and targets of expansion plans of Company. Management of GO has planned to construct the three storage tanks for the HSD and PMG.

### 3.6 Project Components

HBST is well designed project. The project will have the following main components; there locations are also given in the detailed layout plan attached as Annexure-13.

- 01 No. pipeline from Byco Refinery to HBST
- 03 Nos. Above ground storage tanks (Product )
- Fire water tank
- Fire water pump room
- Dyke wall - (6'-10")
- API separator
- Quality Control Laboratory
- 08 Nos. Fuel Loading /Filling gantry
- Warehouse
- Pump room
- Office block
- Generator room
- Control room
- Kitchen
- Tube well room
- Parking area
- Septic tank and soak pit

#### 3.6.1 Laying of Pipeline from Byco Refinery to HBST

Dedicated pipeline of 14 inch dia will be laid down, which have the distance of around 01 Km from the proposed HBST to refinery. This pipeline will be used carry HSD and PMG from Byco Refinery.

#### 3.6.2 Storage Tanks Attributes

HSD/PMG will be acquired from Byco refinery. The acquired products will be stored at the facility. The HBST will have total four tanks, out of which two tanks are for the storage of HSD, one for PMG and one is dedicated for fire water tank. Total storage capacity of HBST will be 12, 676 MT excluding 320 MT fire water. The product wise break-up of storage is as follows:

- 2 x 4,950 MT Vertical Tanks for HSD = 9,900 MT
- 1 x 2,776 MT Vertical Tank for PMG = 2,776 MT

- 1 x 320 MT Vertical Tank for Fire Water = 320 MT

The HBST will have all vertical cone roof above ground tanks. The vertical tanks will be as per the Standard of American Petroleum Institute (API)-650. Details of tanks capacity is provided in Table-1.

Table-1: Details of Tanks at HBST

Sr. No	Description of Product	Tank Type	Tank Storage Capacity (MT)	Standard of Manufacture
5.	High Speed Diesel (HSD)	Vertical Cone Roof Above Ground	4,950	API 650 12th Edition
6.	High Speed Diesel (HSD)	Vertical Cone Roof Above Ground	4,950	API 650 12th Edition
7.	Premium Motor Gasoline (PMG)	Vertical Cone Roof Above Ground	2,776	API 650 12th Edition
8.	Fire Water Tank	Vertical Cone Roof Above Ground	320	API 650 12th Edition

### 3.6.3 Quality Control Laboratory

At HBST facility, a highly modern equipped laboratory will be established, which will be used for the quality control of products. QC Lab will be operated by qualified technicians to check the products of quality received from Byco Refinery.

### 3.6.4 Fuel Loading / Filling from Gantries to Tankers

The tanker's loading platform (gantry) will have a system for grounding the tanker during loading/filling activity as a measure to prevent any static charge or spark. The system will be installed with automatic PLC system to avoid the risk of static charges that will not start loading until red light goes off and a green light turns on at the indicator confirming proper grounding of the vehicle. A pump of 1400 Liter/min will be installed for loading of tanker from Tanks.

Adequate environmental protection measures have been designed and will be installed to avoid any kind of leakage or spillage of petroleum products. The product storage tanks will also be equipped with the level sensor, which are connected with the PLC system, which automatically shut off the supply pump whenever level will increase. In addition to this, the tanks will be equipped with the temperature and pressure-monitoring device and alarming system.

### 3.6.5 Fuel Transportation

HBST-GO has planned supply of petroleum products from facility to Retail network through road tankers. Transportation of products will be monitor by the logistics department of GO Pakistan Limited.

### 3.7 Terminal Design Safety Protection and Operation

#### 3.7.1 Terminal Design Safety Protection and Operation of Storage Tanks

The new tanks and ancillary equipment will be brought to the site by road in sections will be erected on site and hooked-up. Typical activities entailed in this process are:

- Placement of Geo-membrane
- Bottom plates laying and welding
- Roof structure and plates fabrication and welding
- Internal floating roof
- Piping connections

The following ancillary equipment will be installed and erected to ensure the safe and efficient storage and handling of oil:

##### 1. Pumps

Following pumps will be installed for the different purpose.

- Loading Decanting Pump
- Product Pumps
- Fire Water Pump
- Main Pipeline Receiving Pump

##### 2. Generators

The project will have two (02) power generators, which will be installed as secondary source of energy generation. Each generator will have the generation capacity of around 200 KVA.

#### 3.7.2 Terminal Design Safety Protection and Operation of Pipeline

The pipeline has been designed in accordance with international standard ASTM- 106(B). During the designing of this project, all possible latest technologies and parameters have been considered. The proposed pipeline will be approximately 1 Km long and buried for its entire length. The design details of pipelines are mentioned in Table-2.

##### A Pipeline Wall Thickness

The selection of the material properties and the wall thickness to be used for pipeline has been determined by the engineering teams on the basis of:

- International standards and design guidelines
- The loads that will be applied to the pipe, i.e the internal pressures
- Limiting factors associated with the constructability of the pipeline (e.g ease of welding) and the robustness of the line pipe during construction operations.
- As a result of engineering analysis, it is anticipated that the pipes wall thickness will be 9.53 mm.

## B Block Valves

Block valves are to be installed on the pipeline to provide the capability to isolate section of the line in case of accidental leakage or damage and for maintenance or repair purposes. The placement of pipeline valve will be at the start and end points along with the online pressure meter to assure the pressure consistency for conformance.

Table 2: Details of Pipeline Design

Pipeline #	Dia (inches)	Standard of Pipeline	Material of Manufacturing	Design Operation Pressure (Bar)	Underground Depth (BGL)	Transportation Capacity (MT/hr)	Design Life (year)	Wall Thickn ess (mm)
Pipeline-1	14	ASTM- 106 (B)	Mild Steel	10	1.5	2000	30	9.53

## C Pipeline Safety and Protection

The pipeline safety is design in accordance with engineering practice and the requirements of the engineering standards adopted for the project, safety factors have been incorporated in each element of the engineering design for the pipeline.

### (i) Corrosion Protection

The HBST pipeline will be protected from external corrosion by a combination of a high integrity three-layered polyethylene coating system. Following commissioning, regular monitoring activities will be carried out to ensure that adequate protection potentials are achieved and that power sources are operating within their intended limits.

### (ii) Leakage Protection

A state of the art leak detection system will be installed. It will operate by comparing actual profiles of flow, pressure, temperature and density with modelled profiles of the same parameters. Excessive differences between the real-time measurements and the modelled profiles indicate possible pipe failure and leakage.

The system will be able to identify smaller leaks over a longer period of time. The leak detection system will be designed to accommodate routine pipeline operating conditions (steady-state), as well as transient conditions.

### (iii) Emergency Shut Down

Emergency shut down (ESD) valves will be installed at the perimeter of the pump station site. Shut down of the HBST pipeline system will be initiated manually in response to an ESD situation or predetermined abnormal operating conditions.

## 3.8 Electrical and Miscellaneous Works

The electrical and other auxiliary works will essentially consist of the following:

- Mechanical Electrical services including power, lighting etc.
- Plumbing and drainage services.
- Fire Protection works

- Coloring & Painting
- Carpentry work

### 3.9 Machinery and Equipment

The major machinery and equipment to be use in the construction work of the project is given below:

- Concrete Mixing Machine
- Concrete Vibrator
- Water Pumps
- Steel Cutting Equipment
- Steel Shuttering
- Scaffolding Pipes
- Formwork, Forms, Plank
- Hand Trolleys / Wheel Barrows
- Power Generator
- Excavators
- Dozers and Loaders
- Dumper Trucks
- Loader Trucks

### 3.10 Schedule of Construction and Operation

The construction and installation work schedule of the HBST is envisaged to complete by December, 2018, this time period includes all construction and installation activities including excavation, tank erection and commissioning of tanks, etc.

### 3.11 Construction and Installation Activities

This construction work of Terminal will take nine to ten months from execution of project i.e. after obtaining environmental and other necessary approvals.

During the construction and installation of this project, all possible latest technologies and parameters have been considered. The construction and installation activities of the project are described below.

#### 3.11.1 Site Clearance

The proposed project site is located in dedicated oil marketing companies village beside the Byco refinery, Project site area is barren land. During site survey of the Environment and Social Team of consultants, no trees found within the project site or proposed RoW for pipeline which are likely to be cut, only some small vegetation were found which, will be cleared. There are no public existing utilities lying within the project site or within the RoW of the pipeline. Site clearance will be carried out with the following Procedure.

**Procedure**

- Setting out control point's reference to the given co-ordinates for site identification.
- Site shall be handed over to contractor by the client representative/ Engineer.
- RoW shall be appropriately barricaded/marked to avoid any accident / incident
- Any vegetation will be grabbed and cleared from the site.

**3.11.2 Installation / erection of Tanks**

GO-HBST will install / erect through welding of steel for the storage of Oil products as per American Petroleum Institute standard (API 650). Design and installation activities will be carried out by contractor. All tanks at GO-HBST will be installed in vertical direction.

All construction and installation work for storage tanks erection will be carried out within the project boundaries. Once the site sub-base has been prepared, the underground infrastructure will be installed and foundations laid for the storage and handling equipment and supporting structure. The new tanks and ancillary equipment will be brought to the site by road in sections will be erected on site and hooked-up. Typical activities entailed in this process are:

- Placement of Geo-membrane
- Bottom plates laying and welding
- Roof structure and plates fabrication and welding
- Nozzles welding on roof
- Internal floating roof
- Piping connections

**3.11.3 Trench & Pipeline laying**

The RoW will be 10 ft. wide. The RoW will be marked at every 100m on the side of the pipeline trench. The Contractor Construction Manager will be responsible for any damage caused, outside the RoW during the project construction phase.

The pipeline will be buried to a depth of cover of 1.5 m (5-6 feet). There will be at least 300-mm clearance in the trench either side of the pipe. The pipe will be strung along the RoW, which is, welded into a continuous length for each section and then lowered into the trench.

Excavation and its arrangements to be made at project site in accordance with the project drawings and project specifications in order to complete this installation safely as per agreed time schedule.

**Procedure:**

- Setting up and establishing major Gridlines for the pipeline.
- To perform bulk excavation with reasonable slope to achieve the required levels as per design, proper mechanical Excavators (machine) shall be used.
- The trench for the pipeline is dug after the RoW is cleared of shrubs in this operation trench digger and jack hammers are brought in to create the trench.
- Within the RoW there is no existing utilities except Storm water drainage, care will be taken, so that no blockage occur.

- To make proper/safe access for workers/equipment to reach the excavation pits or trenches.
- Appropriate protection measure will be taken for oil spill protection to protect Hub River.
- After the excavation, all surplus material shall be transported out of the pit using dumping trucks. It shall be disposed off /stacked as per instructions of Engineer/Client representative.
- Warning signs and barricades will be erected around the trench, and adequate warning lights will be provided during the hours of darkness.

#### **3.11.4 Pipe stringing and bending**

The GO-HBST's pipeline on RoW will be laid end to end alongside the trench line. The pipeline will be strung in such a manner to minimize joint overlap and accumulation of pipe. The stringing and bending will be done with the following methodologies:

##### **Procedure:**

- Factory manufactured bends will be used for acute changes in pipe direction or elevation along the route.
- The quality of the bends will be controlled through the use of approved bending procedures, by witnessing trial field bends before production and by inspection of completed field bends.

#### **3.11.5 Pipe welding and inspection**

Following the process of stringing and bending, the pipe sections will be elevated into blocks to the correct height to ensure proper alignment of the sections and safe welding. Internal line-up clamps will be used to align pipe length. Welded pipes will be inspected as per ASTM. Welds will initially be visually inspected, then subject to any one or a combination of the following Non-Destructive Testing (NDT) techniques:

- Radiography
- Ultrasonic testing

The rejected welds will be repaired and re-inspected or replaced as necessary. To minimize the number of tie-in welds below ground level, the pipe will be welded into the longest practicable strings.

#### **3.11.6 Field coating**

The GO-HBST's pipe will be supplied with a factory-applied three-layered polyethylene coating. Field coating will be applied to all welds, fittings and areas where the factory coatings have been damaged to provide a continuous coating along the pipeline. After welding, a primer coat will be applied on the joint area and after which, a polyurethane pipe coating will be applied finally.

#### **3.11.7 Lowering-in and backfilling**

The pipeline will then be lowered-in the excavated trenches. After the pipe joint coating and testing, side boom tractors and backhoes will be used to lift the pipe section and lower it into the excavated trench. Several side booms and backhoes will be used simultaneously to accomplish

the lowering-in procedure. Once pipe is lowered into the trench, each pipe section will be welded onto the preceding or adjacent sections. The excavated trench will be backfilled with the material taken from the trench in the reverse order to which it was excavated.

### 3.11.8 Hydrostatic testing

The entire pipeline will be subjected to hydrostatic pressure testing to establish the strength and integrity of the pipeline system in accordance with the relevant standard. In this testing, the internal part of the pipeline will be cleaned using two wired brush pigs propelled through the line by compressed air. The water pressure will be increased and the pipeline is hydrostatically tested. During the hydrotesting, the pressure will be monitored for 24 hours to ensure pressure and to check any leakage. If pressure drops, it may indicate a leak and further inspection will be required.

The pipeline will be tested to:

- Allow the test pressure to be maintained between the minimum required pressure and maximum pressure which the pipeline will safely withstand.
- Accommodate the maximum stress criteria for each wall thickness.

The hydrostatic testing activities will be carried out in sequence and will include the following:

- Welding of certified test ends onto each end of the pipeline test section
- Controlled filling of pipeline sections with water
- Pressurization of the pipeline test section
- A test pressure hold period (i.e. commencement of test upto 24 hours to check strength and leak)
- De-pressurization of the pipeline test section
- Controlled dewatering of the pipeline test section
- Removal of tested ends

The displaced hydro test water will be finally discharged. Filters and break tanks will be used to remove any solids and to control the rate of discharge.

Water for hydrostatic testing will be clean and contain the minimum achievable concentrations of contaminants (e.g. sediment, bacteria, etc.) and shall be non-corrosive. Water requirements will be fulfilled through third party water tanker. The water required for the hydro testing will be around 4,950 m<sup>3</sup>.

### 3.11.9 Commissioning

Commissioning of the tanks/pipeline, block valves and associated above-ground installations will ensure that the pipeline network has been constructed in accordance with the design and that the system is ready for operation.

Commissioning will also ensure that there are no defects in the piping system which could cause problems during start-up or operation. Commissioning activities for the piping and block valves will be carried out in sequence and will include the following:

- Checking the opening, closing, sealing and operation of mainline block valves



- Operational checks on all instrumentation
- Operational checks on all metering devices
- Checking the operation of all pressure protection systems
- Checking the operation and settings of all pumping and associated equipment (e.g. block valves, filters, etc.)
- Undertaking integrity surveys to confirm continuity of pipeline coating

### 3.12 Facilities & Support Services

The major facilities and support services for the project components are mention below:

- Water Resource and Management
- Wastewater Management
- Storm Waste Management
- Solid Waste Management
- Electrical System
- Firefighting

#### 3.12.1 Water Resource and Management

The main water supply source to the project site is the third party water tanker. Water will be provided GO-HBST from nearest pumping house, through third party tanker service for the purpose of construction and operation phases. Whereas bottled water will be procured from Hub city for drinking purpose. The project's water supply requirement will be around of 3,000 gallons per day (GPD) and 1500 GPD during the construction and operation phase respectively. The additional water 1.1 MGD required for the hydro testing purposes will be managed through third party water tankers.

#### 3.12.2 Wastewater Management

During the construction phase wastewater will drained in to the nearby drainage network prior to settling into the settling pond. Apart from this, wastewater will also be generated during hydro testing. This wastewater will be discharged into storm water drain through the pumps.

During the operation phase, domestic wastewater will be generated from kitchen, office rooms and washrooms. The wastewater generation will be around 1350 GPD which will be diverted into the wastewater treatment system. The wastewater treatment will be based on dual staged mechanism. The initial stage will have a septic tank. The wastewater from the facility will be routed to the septic tank from where it will flow from the top portion of the septic tank to find its way into the second stage. The second stage will contain a soak pit.

The soak pit will contain loose gravels which allow wastewater to gradually soak into the ground. The water will be percolated from soak pit into the soil where small particles will be filtered out by the soil matrix and organics will be digested by microorganisms. GO-HBST will not discharge their effluent into the drainage system during operation phase. The wastewater treatment system will be located within the premises of GO-HBST and is designed on the "zero discharge principle".

Apart from this, the other wastewater may be generated during the tank bottom drain or during the time of precipitation or in case of an accidental spillage which contains oil traces in wastewater. This wastewater will be generated within the boundary of dyke wall and will be diverted to API separator.

The API Separator will be installed to separate and collect oil present in oil contained wastewater generated from the fuel storage area. The API Separator will be connected with the loading/decanting line from where oil will be routed into the storage tanks, and also will have other discharge lines from where the oil could be collected into the drums for safe disposal; and in case, if the oil contains water which is surely not suitable to be used further and oil and water will need to be separated.

### **3.12.3 Storm Water Drainage System**

Brisk and timely removal of storm water from the project area has been a priority in the design of the drainage system for the project. Historical rainfall data for the project area and surface topography information was used effectively by the hydrologist for the design of storm water drainage network.

### **3.12.4 Solid Waste Management**

It is anticipated that certain amount of solid waste will also generate during maintenance of valves, generators, sludge and equipments, but this solid waste would be safely stored within facility boundary and on completion of maintenance, would be disposed in environmental friendly manner through third party EPA approved contractor. The GO-HBST's staff will manage all the waste generated through the development and implementation of a waste management plan.

The purpose of waste management plan will be to outline the requirements to handle the waste generated at site during the project execution. This refers to ongoing commitment to safety and to protect human health and the environment.

- a. Burning of refuse, scrap and waste in the open air is not permitted.
- b. The construction debris will be removed from site.
- c. Timber and other scrap material with a commercial value shall be separated and stored in nominated & segregated areas prior to removal.
- d. Oil and other lubricants shall be free from any leaks.
- e. Diesel storage tanks and generators for temporary electricity supply shall be provided with the spill/drip trays to contain any spillage.

### **3.12.5 Electrical System**

The primary source of electricity for HBST project would be HUBCO. Electricity will be provided from the dedicated substation of project which will be constructed by the contractor. The project will have the dedicated substation for 500 KW of power supply operation phase.

### **3.12.6 Firefighting Facilities**

The GO Management has planned to install a state of the art firefighting system at HBST comprising of dedicated fire water tank, fire hydrant system, fire trollies, secondary jockey-pump

centralized foam skid, tank fire suppression, etc. The typical layout of fire water hydrant system is attached as Annexure-9.

FINAL REPORT

## CHAPTER 4: ENVIRONMENTAL BASELINE

### 4.1 Introduction

Macro and micro environmental description of the project area and its surroundings is given in this chapter. This includes physical environment, ecological & human resources and prevailing socio economic etc.

### 4.2 Description of Macro-Environment

The macro-environment of HBST comprises of two oil storage Terminal located in the south, which are M/S Jinn Petroleum and M/S Hascol, both are under construction phase. Byco Refinery is located in further South of HBST. HUBCO Power Plant in its immediate neighborhood in the south-west. Hub River is located in the east direction at a distance of about 50 meters. Sea Coast at a distance of about 5 km in the south, Goth Qadir Bux in its north, the Hub Industrial Estate in the further northeast and the Gadani Ship-Breaking Yard in the far north. The industrial activity center in the macro-environment as can be seen in Figure-2 of macro-environment map of GO-HBST.

### 4.3 Physical Environment

#### 4.3.1 Topography & Physiography of Land

The land area has low relief topography at most of the points where the GO-HBST is located. There is a warped area with closely spaced contours indicating steepness of the slope, surrounded by an area with widely spaced contours indicating the plains. The area can be classified as gently sloping coastal plain area, having scattered higher parts in form of small hills. Coming to the deltaic region, origin wise this area belongs to tertiary and post tertiary period. The GO-HBST proposed project is located at an elevation of 21ft above mean sea level. Land Elevation Map of GO-HBST is shown in Figure-2.

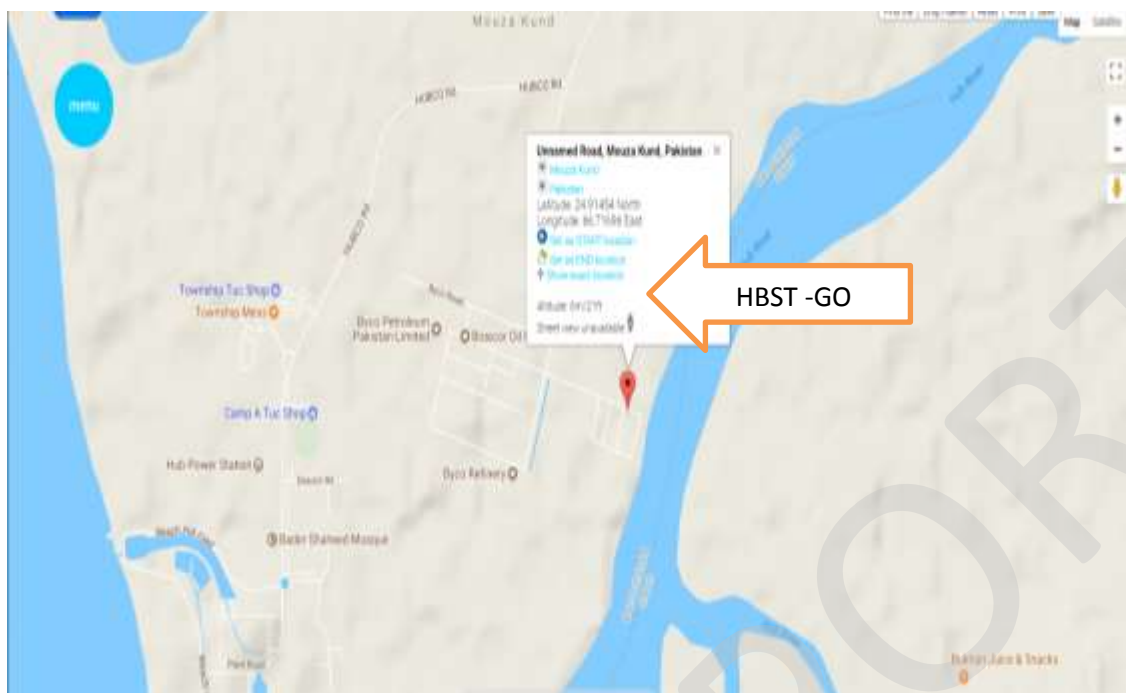


Figure 2: Land Elevation Map of HBST- GO and Macro Environment Map

#### 4.3.2 Ambient Noise of Project

The ambient noise level of the four points from the boundaries of the project area was monitored by the team on January 30, 2018, which shows the project area has the average ambient noise levels are within range 49.5-56.5 dB. The result of ambient noise levels are shown in Table-3. Copy of Ambient Noise report of project area is attached as Annexure-10.

Table 3: Ambient Noise Levels of Project Area

Sr. #	Location	EQS Limit	Unit	Results		
				Min	Max	Mode
1.	West	70.0	dB	55.1	57.9	56.5
2.	South	70.0	dB	49.5	53.2	51.3
3.	North	70.0	dB	53.3	51.2	52.2
4.	East	70.0	dB	50.7	48.4	49.5

#### 4.3.3 Water Resources and Quality

The project will use third party water tanker during construction and operation. The water quality sampling and monitoring for ground water and river water of the project area was carried out by the consultant team for priority parameters through EPA Certified Laboratory on January 30, 2018 to develop baseline of water concentration. The report shows that the project area's ground water and river water quality for priority parameters contains high concentration of total dissolve solids which is not suitable of drinking or construction purpose and the tested samples contain minor concentration of TPH as well. The results are shown in Table-4 and Table-5 and copy of lab reports are attached as Annexure-11 and Annexure-12.

Table 4: Ground Water Quality at Project Site

Sr. #	Parameter	Unit	NDWQS	Result
1.	TDS	mg/L	<1000	33100.0
2.	pH	SU	6.5-8.5	7.56
3.	Total Petroleum Hydrocarbons (TPH)	mg/L	NoGL	0.0962

Table 5: River Water Quality from Hub River Closer to Project Site

Sr. #	Parameter	Unit	NDWQS	Result
1.	TDS	mg/L	<1000	34209.0
2.	pH	SU	6.5-8.5	7.98
3.	Total Petroleum Hydrocarbons (TPH)	mg/L	NoGL	0.0716

#### 4.3.4 Soil

Soil is mostly of recent or early recent age. A small part of the rocks is sedimentary of Oligocene to Palaeocene Epoch. In such areas mostly gravel and cobbles are found. The surface is dry, contains loose sands and loose conglomerates. The soil, when wet becomes dark colored. Loose sand of the area contains small percentage of silt.

Generally, the soil of project area can be described as composite of shale, loose conglomerate, shale concrete, indurate sand and loose silt sand fractions. Fine sand is found to be the most prevalent component of the upper surface but small fractions of silt are also present and hence, it can be described as loose silty sand. The upper soil is porous in nature due to the low degree of compactness. Below the loose silty sand, indurate sand is found spread over a large area. The loose silty sand and indurate sand together account for numerous sand dunes at the site. Below the indurate sand a sample at a depth of 3 feet appears to be semi loose conglomerated. A thick layer of shale along with isolated shale concrete consisting of dead micro-organisms is also found at the coastal site. These shale layers appear to be a part of Nari formation of Oligocene age.

#### 4.3.5 Geology

GO-HBST proposed site is located at edge of Hub River Delta, which extends in the north towards Gadani Hills. The rocks encountered are mainly sandstone, siltstone and shale with traces of limestone. The surrounding area of Byco refinery is dotted with a number of small outcrops of melange and quaternary deposits of silt, sand, gravels, conglomerate and boulder. Outcrops are exposed in the form of small hillock ridges. The hillock seems to represent a small part of the denuded outcrop. Igneous intrusive rocks are also present in the surrounding area and this is evidenced by the Rati hill consisting of granite as the dominant rock.

#### 4.3.6 Seismic Activity

In the Indus Delta, Malir River, Lyari River and Hub River valley and their estuarine areas, which include the creeks, all located on the passive continental margin, mainly intra-plate active faults are responsible for the seismic activity, particularly the Rann of Kutch fault line and Pab fault and their strands. There are four active fault lines situated in the vicinity of coastline. They are Karachi-Jati, Allah Bund-Rann of Kutch Fault, Surjan-Jhimpir, and Pab. The Allah Bund Fault passes in the proximity of the Steel Mills and Karachi Nuclear Power plant and Terminals near Hub Chauki. The orientation of the Rann of Kutch fault follows roughly east west trend; it is 225 km in

length and is responsible for causing earthquakes of considerably high magnitude of up to 7.6 mm on Richter scale and of IX to X intensity on the Modified Mercalli, mm scale. According to a map created by the Pakistan Meteorological Department, the country is divided into 4 zones on the basis of expected ground acceleration. The areas surrounding Quetta, along the Makran coast and parts of the NWFP along the Afghan border fall in Zone 4. The rest of the NWFP lies in Zone 3, with the exception of southern parts of this province, which lie in Zone 2. The remaining parts of the Pakistani coast till Karachi also lie in Zone 3. The remaining parts of the country lie in Zone 1.

#### 4.3.7 Climate Profile of Hub Area

Hub is situated in the southeastern part of Baluchistan province at latitude 25° 2' N, longitude 66° 53' East, elevation of 29 meters (95 feet) above sea level. The climate information presented in this profile gives detailed historical monthly average weather conditions along with exceptional weather occurrences. To maintain relevance to current weather trends the information given has been calculated using data collected over the recent past decade. For the preparation of climate profile of Hub, the climate data of weather observing stations located at Karachi (South) has been used. This weather observing station is located in the south-south-east direction of Hub at a distance of about 18 km. The climate of Hub area is relatively mild due to closeness to North Arabian Sea. The year for Hub may be divided into three seasons, winter, summer and monsoon; however the last season is very brief. The area of Hub often experienced two summer seasons in the year, first April to mid-June, other mid-September to October and July to September are the rainy months. Table-6 depicted the extreme climate recorded in the area during the past five decades (1953-2012). Similarly Table-7 illustrates the ten years (2003-2012) monthly observed climate data.

The summer highest temperature recorded in area is 46 °C on 17 June 1979. The winter lowest temperature is 4.5 °C which was recorded on 6 January 2007. The highest rainfall during a 24-hour period is 211.3 millimeters (8.3 inches) recorded on 26 July 1967 while highest monthly rainfall is 509.3 millimeters (20.1 inches), which was recorded in July 1967 also. The highest annual rainfall record is 957 millimeters (37.7 inches) in 1967. The principle mode of rainfall occurs during the monsoon season and on average 16-18 rainy days in the year. There is frequency of 1-3 days of dust storm in a year, mainly in the months of October to December. Wind normally blows, most of the time in the year, from south-west direction with speed 6-13 knots. The Figure-3 shows the monthly distribution of temperature and rainfall of Hub.

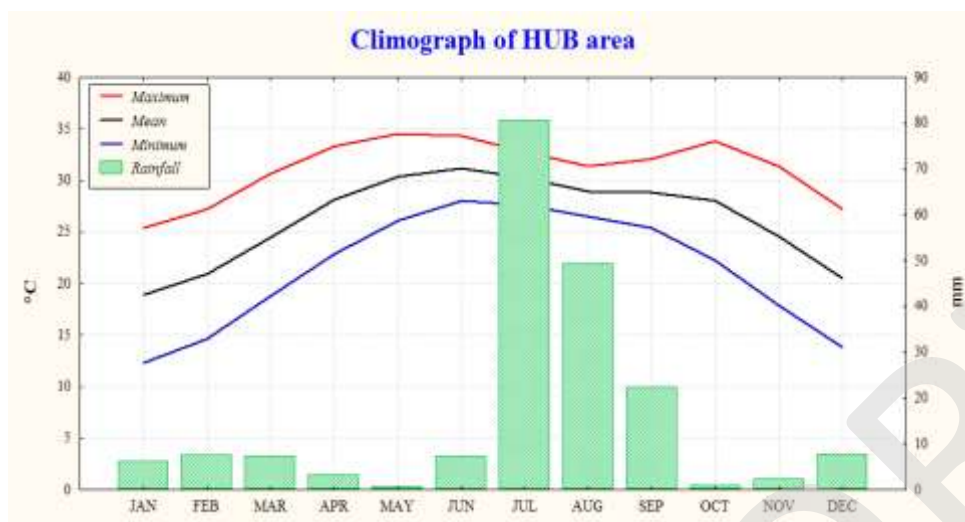


Figure: 3 Monthly Distribution of temperatures and rainfall

Figure-4 shows the spatial distribution of annual rainfall over the country. The figure depicted that the area received around 200 mm of annual rainfall. Annually, it is expected that the sun to shine for an average of 7-8 hours per day. This represents the average number of hours in the daytime that the sun is visible and not obscured by cloud e.g. the average number of hours the sun is actually out and shining (Figure-5) and monthly humidity distribution is shown in Figure-6.

The area normally experienced around 29.5 °C of maximum temperature annually, as evident from Figure-7. Similarly, the Figure-8 shows the area experienced the minimum temperature of 20 °C annually. On average, annually the area is affected by foggy conditions on 1-2 days.

### Monthly climatic conditions:

Following are the monthly summary of climatic conditions in the area:

#### January

In the month of January daytime temperatures are generally reach around 25.4°C, with highest maximum record of 31.7 °C on 17 January 1965. At night the average minimum temperature drops down to around 12°C, with lowest ever temperature recorded as 4.5 °C on 6 January 2007. The average monthly amount of precipitation has been recorded at around 6 mm. Throughout the month one can expect to see rain or drizzle falling on 1-2 days of the month. The highest rainfall during this month was 63 millimeters, which occurred in 1976. The average humidity in morning is in 60s % and in 40s % in evening. During this month the wind normally blows from north-east and south-west direction with speed 4-10 knots.



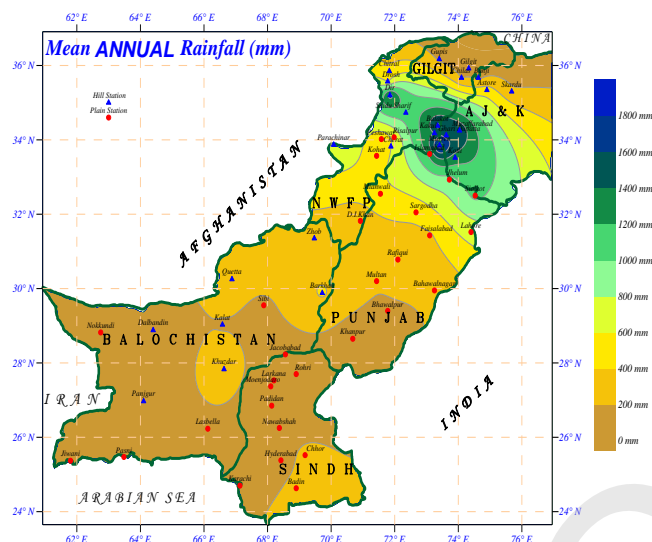


Figure 4: Spatial distribution of rainfall

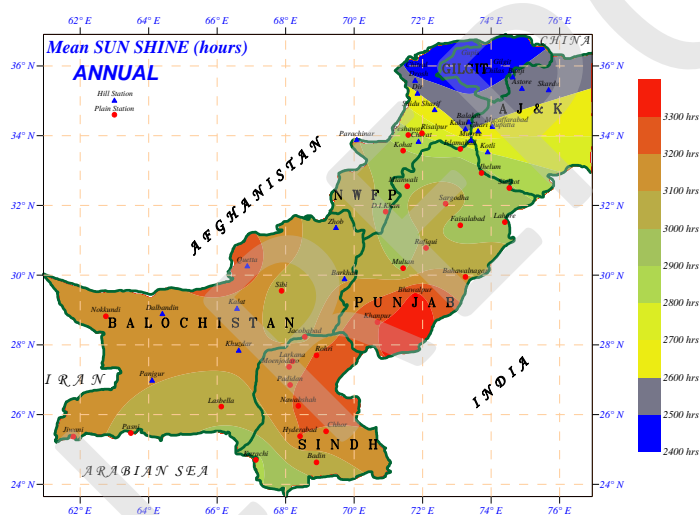


Figure 5: Spatial distribution of sunshine

## February

The average total monthly rainfall during the month is around 7.6 mm. The highest rainfall during this month was 56.1 millimeters (2.2 inches), which occurred in 1961. On average minimum temperature during the month is around 14.6 °C. The lowest temperature of 5 °C was recorded on 10 February 1957, while the highest temperature of 34.5 °C was recorded on 26 February 1985. During February the wind normally blows from north-west and south-west direction with speed 4-12 knots. The average humidity in morning is in 70s % and in 40s % in evening.

## March

On average maximum temperature during the month is around 30.7 °C and minimum temperature is around 18.8°C. The lowest temperature was 9°C on 4 March 2003 and the highest was 42.5 °C recorded on 20 March 2010. The highest monthly rainfall of 132.8 millimeters (5.2 inches) was recorded in 1967. During March the wind normally blows from north-west direction

in morning with speed 3-4 knots and from south-west in the evening with speed 12-14 knots. The average humidity in morning is in 70s % and in 40s % in evening.

## April

In this month the weather rain occurred occasionally and in little amount with total monthly average 3.3 mm. The highest monthly rainfall of 57.9 millimeters (2.3 inches) was recorded in 1967. Humidity is higher than first three months of the year and ranges around 70-80 % in morning and around 50s % in evening. April daytime average temperatures are generally reach highs of around 39.1°C. At night the average minimum temperature drops down to around 26°C. The lowest temperature of the month was 15.5 °C on 16 April 1983 and the highest was 44.5 °C on 26 April 2008. During April the wind normally blows from south-west direction with speed 4-16 knots.

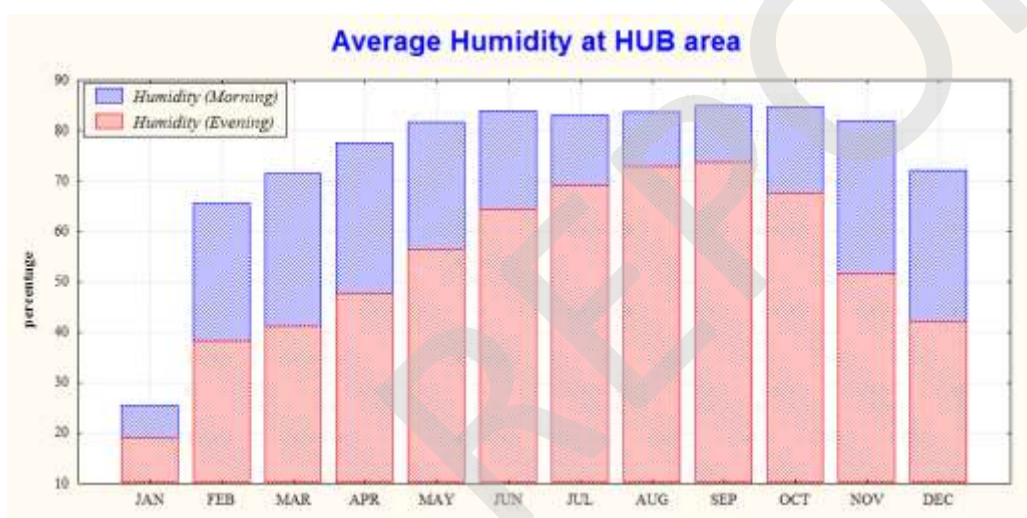


Figure 6: Monthly distribution of Humidity

## May

Temperatures increases and the weather becomes hotter and very little rain in the month. In this month of the year, humidity is between 80s % (morning) and 60s % (evening). May daytime temperatures are generally reach highs of around 40.5°C. At night the average minimum temperature drops down to around 23 °C. The highest temperature during May was 45.5 °C, which was recorded on 21 May 2011, while the lowest temperature of 19.4 °C was recorded on 10 May 1960. May is the driest month of the year with average monthly rainfall of only 0.7 millimeters. The highest monthly rainfall of 40 millimeters (1.6 inches) was recorded in 1997. During May the wind normally blows from south-west direction with speed 10-18 knots.

## June

June is the hottest month around this area, with monthly maximum temperatures is 34 °C and the average monthly minimum temperature is 28 °C. The hottest June was on 17 June 1979, when temperatures reached 46 °C; the lowest temperature ever recorded was on 2 June 1986 when 21 °C was recorded. The humidity is quite high like May. Average rainfall during this month is 7.4 mm (0.29 inches) and the sky remains partly cloudy. On average there may 1-2 rainy days in

the month. The highest monthly rain that occurred was in June 2010, when 128 millimeters (5.03 inches) rain was recorded in the area. During June the wind normally blows from south-west direction with speed 10-18 knots.

## July

Throughout the month of July daytime average temperatures are 32.8°C. At night the average minimum temperature is around 27.6 °C. The highest temperature during July was 41.1 °C which was recorded on 2 July 1958, while the lowest temperature of 22.8 °C was recorded on 4 July 1967. The month of July may be termed as one of the rainiest month in the area. The average monthly amount of rainfall is recorded as 80.7 mm, that's 3.77 inches. Throughout the month one can expect to have rain on 4-6 days of the month. The highest monthly rainfall of 509.3 millimeters (20.05 inches) was recorded in the area on 1967. The humidity is ranging around 80s % (morning) and 70s % (evening). During July the wind normally blows from south-west direction with speed 10-18 knots.

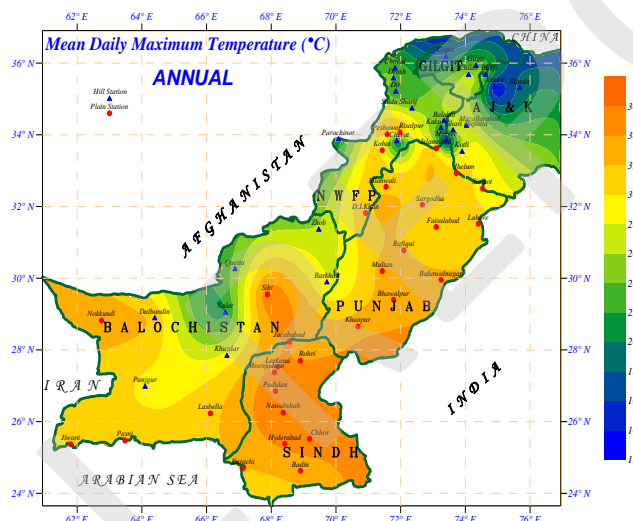


Figure 7: Spatial distribution of maximum temperature

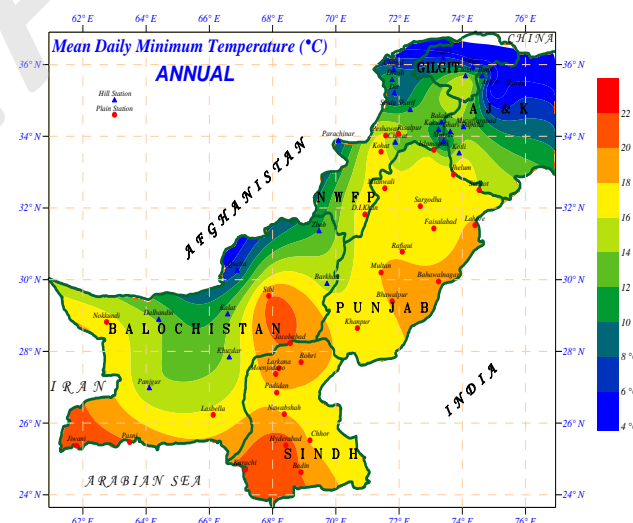


Figure 8: Spatial distribution of minimum temperature

**August**

The weather of August is almost identical to July, as far as temperature is concern. August is the second rainiest month of the year with average monthly amount of rainfall is recorded as 49.4 mm, that's 1.94 inches. Throughout the month, there can be 4-5 rainy days in the month. The highest monthly rainfall of 272 millimeters (10.71 inches) was recorded in 2007. The temperatures of July continue through August with a slight decrease. The monthly average day time temperature is recorded as 31.4 °C and night time average temperature is 26.5 °C. The highest temperature of August of 41.5 °C was recorded on 27 August 2000, and the lowest was 22 °C, recorded on 18 August 1978. The monthly average humidity is 80s % in morning and in 70s % in evening. During August the wind pattern is almost similar to July with minor decrease in intensity of speed.

**September**

The monthly average rainfall of this month is 22.5 mm (0.89 inches). The highest monthly rainfall of 200.4 millimeters (7.89 inches) was recorded in 1959. Throughout the month one can expect to see rain or drizzle falling on 2 days of the month. The monthly average day time temperature is 32.1 °C and night time average temperature is 25.4 °C. The highest temperature of 42 °C was recorded on 2 September 2008 and lowest was 21 °C recorded on 27 September 1994. During September the wind normally blows from south-west direction with speed 8-16 knots. The monthly average humidity is 80s % in morning and in 60s % in evening.

**October**

October is also one of the driest month, with monthly average rainfall is 0.9 mm and it is hard to see any rainy day during the month. The highest monthly rainfall in October was recorded only 17 millimeters in 2004. The average maximum temperature of the month is 33.8 °C and the average monthly minimum temperature is 17.9 °C. The highest temperature of 42.5 °C was recorded on 12 October 1998 and lowest was 13.8 °C recorded on 30 October 1984. During October the wind normally blows from north-west (morning) with speed of 2-4 knots and south-west (evening) direction with speed 10-12 knots.

**November**

Rainfall remains rare during this month and witnessed in very few occasion with only 2.3 millimeters monthly average and 52.3 millimeters (2.06 in) is maximum monthly rainfall recorded in 1959. The average maximum temperature of the month is 31.4 °C and the average monthly minimum temperature is 17.9 °C. The highest temperature of 38 °C was recorded on 3 November 1977 and lowest was 10 °C recorded on 29 November 1966. During November the wind normally blows from north-east (morning) with speed of 2-4 knots and from south-west (evening) with 8-10 knots speed.

**December**

The month of December is second coldest month of the area and rains do occur in this month but are very low in intensity. The monthly average rainfall of the month is 7.8 mm (0.31 inches) and the highest rainfall during this month was 90.2 millimeters (3.55 inches), which occurred in 1974.

The average maximum temperature of the month is 27.4 °C and the average monthly minimum temperature is 13.8 °C. The lowest temperature of 5.5 °C was recorded on 31 December 1990, while the highest temperature of 34.5 °C was recorded on 2 December 2011. During December, the wind normally blows from north-east (morning) with 2-4 knots speed and from south-west (evening) with 8-10 knots speed. Throughout the month one can expect to see rain or drizzle falling on 1 day of the month.

Table-6: Climate averages and extremes of HUB area

Weather Parameter	unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Highest recorded Maximum Temperature	°C	31.7	34.5	42.5	44.5	45.5	46.0	41.1	41.5	42.0	42.5	38.0	34.5	46.0
Average Maximum Temperature	°C	25.4	27.2	30.7	33.3	34.5	34.3	32.8	31.4	32.1	33.8	31.4	27.2	29.5
Mean Temperature	°C	18.9	20.9	24.5	28.1	30.4	31.2	30.3	28.9	28.8	28.0	24.6	20.5	24.9
Average Minimum Temperature	°C	12.3	14.6	18.8	22.8	26.1	28.0	27.6	26.5	25.4	22.2	17.9	13.8	20.3
Lowest Minimum Temperature	°C	4.5	5.0	9.0	15.5	19.4	21.0	22.8	22.0	21.0	13.8	10.0	5.5	4.5
Heaviest Rainfall in 24 hrs	mm	45.0	45.0	68.8	42.9	40.0	104.0	211.3	209.8	84.0	15.5	38.1	90.2	211.3
Monthly Average Rainfall	mm	6.2	7.6	7.3	3.3	0.7	7.4	80.7	49.4	22.5	0.9	2.3	7.8	193.4
Heaviest Rainfall in a month	mm	63.0	56.1	132.8	57.9	40.0	128.0	509.3	272.0	200.4	17.0	52.3	90.2	957.0
Rainy days	days	1.4	1.5	0.9	0.6	0.1	1.1	4.9	4.0	1.6	0.3	0.4	1.1	17.3
Wind Speed (morning)	knots	3.7	3.4	3.2	4.3	6.6	8.7	9.4	8.8	6.2	2.4	2.5	3.5	5.0
Wind Speed (evening)	knots	9.0	10.9	12.9	14.7	17.0	17.2	16.9	15.8	14.4	11.0	8.6	8.1	12.1
Humidity (Morning)	%	65.5	71.4	77.6	81.6	84.0	83.0	83.8	84.9	84.8	81.8	72.1	65.9	74.6
Humidity (Evening)	%	38.3	41.1	47.6	56.4	64.3	69.0	73.0	73.7	67.6	51.5	42.2	38.9	53.5

Compilation period: 1952-2012

Table-7: HUB area Annual Climate Record (2003-2012)

Year	Temperature (°C)					Rainfall (mm)			Wind Speed (knots)		Relative Humidity (%)	
	Maximum		Mean	Minimum		Average	Heaviest in 24 hr	Rainy Days	Morning	Evening	Morning	Evening
	Highest	Average		Average	Lowest							
2003	42.0	32.0	26.8	21.6	8.5	264	60	21	6.0	16.2	77.1	53.1
2004	43.0	32.3	27.2	21.8	9.5	41	12	11	6.7	16.5	78.7	51.6
2005	40.5	31.6	26.5	21.4	9.0	58	16	10	5.2	14.1	76.3	52.3
2006	41.5	31.7	26.7	21.7	5.5	288	62	20	5.4	14.4	80.3	56.5
2007	44.5	32.4	27.0	21.6	4.5	425	142	21	4.3	12.7	81.5	53.8
2008	44.5	32.2	26.6	20.9	5.5	116	50	9	4.4	13.1	78.3	50.5
2009	43.5	32.8	27.4	22.2	11.5	298	205	10	5.0	13.4	77.4	52.5
2010	42.5	32.8	27.1	21.6	7.5	381	104	18	4.8	13.8	76.8	51.7
2011	45.5	32.3	27.1	21.7	7.0	186	75	19	4.4	12.5	74.2	51.4
2012	42.5	31.9	27.1	21.3	6.5	69	17	14	5.3	14.2	73.3	49.7

## 4.4 Marine Environment

Main aspects of baseline are given below with respect to the marine ecology:

### 4.4.1 General Oceanography

Iran, Pakistan, India and Oman are included in the countries bordering the North Arabian Sea (project site location) and consist of a large expanse of the northern Indian Ocean; it is surrounded by Indian coast in the east, latitude 100N in the south, the Arabian Peninsula in the west and coasts of Iran and Pakistan in the north. In terms of coordinates the area of this project 24057'N 66034'E is area off the Cape Monze 24050'N 66040'E and adjacent to the Churna Island (24053.48'N 66036.16'E). According to UNESCAP Report (1996) the average annual sea - surface temperature in near shore waters along Karachi Coast Ranges between 20.70°C to 29.30°C. Along Makran coast the sea water temperature during summer months ranges between 26.50°C - 28.50°C whereas during winter months the temperature range is between 20.20°C - 23.20°C. During the month of September/October 1991 the area in the vicinity of Khalifa point was surveyed in detail for the establishment of Hub Power Plant and the average temperature near the bottom was found between 22.70°C - 25.80°C at various locations with an overall average of 25.0°C (INTEG, 1991). Tides along Karachi Coast are semi- diurnal but diurnal inequality is also present. The effect of this shows up in daily tidal cycle as there are two High Waters and two Low Waters which also vary considerably from each other in tidal heights. These are classified as HHW, LHW, LLW and HLW. The tides move from west to east. The waves along Karachi Coast which is in the vicinity of the proposed site vary with the seasons. During NE winter monsoon when winds are around 10 knots the coastal waters are almost calm and the wave height is less than 1 meter. During SW summer monsoon when the winds are around 25 knots the waves on the Karachi Coast are more than 4 meters. In the interim month i.e. post SW monsoon and pre SW monsoon the waves are around 1.5 to 2.5 meters.

### 4.4.2 Mangrove Forests

The baseline study identified no mangrove forests in the proximity of the proposed project vicinity. The nearest mangrove forest is in Miani Hor (Sonmiani Bay) which is spread over an area measuring about 2500 ha and has the distinction of being the only area in Pakistan where three species of mangroves grow naturally, namely *Avicennia marina*, *Ceriops tagal* and *Rhizophora mucronata*.

## 4.5 Biological Environment

### 4.5.1 Flora

**Trees:** During the proposed project site survey, no trees were observed within the project boundaries, However in the surroundings area some common trees were observed like, Acacia, Neem, Ilaiche (local name) and Dayal (local name). Neem and Ilaiche trees provide shade in hot summer to the pedestrians.

**Bush:** Predominant bush specie found in the area is Devi. In majority of cases, comparatively older plants are cut to meet the fuel wood requirements in the area. The survivors develop into fully-grown trees, providing sunshade and fuel wood to the local population. Chali, Damral and

Darathi (local names) are the other bush species that are found in the area. The locals attribute no special medicinal value to these bush species.

**Grass:** Wild grass is the only predominant grass specie and serves as the staple food for the livestock in the areas around Hub. Owing to low precipitation, the dry topsoil does not offer much opportunity for large-scale greenery in the project area.

**Crops:** Although the agricultural activities are minimal in the project zone of influence, major crops grown here include Indian corn, Pumpkin, ladyfinger, Wheat, Coconut, Millet, Wheat, Jawar, Gowar Moong (local name), Zucchini (local name: Tori), Bitter Gourd (Local name: Karela), etc.

#### 4.5.2 Fauna

This area has diversified fauna. The adjacent hills of Kirthar are of great value with regard to rare species of mammals like Sindh Wild goat (*Capra hircus blythi*), Cinkara (*Gazella gazella*) and Urial (*Ovis orientalis blanfordi*). March Crocodile 'Mugger' *Crocodylus palustris* is reported in the Hub area.



## CHAPTER 5: POTENTIAL ENVIRONMENTAL IMPACT AND PROPOSED MITIGATION MEASURES

### 5.1 Introduction

This section of the IEE report presents the screening process to identify the overall impacts of construction and operation activities on the physical, biological, and socioeconomic environment of the project and to provide mitigation measures that need to be adopted, wherever necessary, to reduce, minimize or compensate for the negative impact.

The construction and operation of proposed HBST comprises the design, construction, and operation phases which will include serving to the storage of petroleum products. The potential impacts from the proposed project HBST are identified and assessed based on the nature and magnitude of the various activities associated with the project. Table 8 gives an overview of the potential impacts due to project's location, construction and operation.

### 5.2 Potential Impacts

All the potentially significant environmental impacts from the project are grouped in three types and phase; Table 8 shows the overview of potential impacts in all three phases.

- Design
- Construction
- Operation/Usage

Table 8: Overview of Potential Impacts due to the Proposed Project

S. No	Impacts	Negative Impact		Positive Impact		No Impact
		Short Term	Long Term	Short Term	Long Term	
<b>A</b>	Design Phase Impacts					
	Dislocation of people					√
	Change of land use					√
	Loss of trees					√
	Relocation of existing utilities					√
	Impact on archeological sites					√
<b>B</b>	Construction and Installation Phase Impacts					
	Dust emissions		√			
	Wastewater discharges		√			
	Release of air emission		√			
	Noise and vibration		√			
	Disposal of construction waste		√			
	Water consumption & demand		√			
	Weather conditions		√			
	Fuel storage		√			



	Worker's safety	✓	
	Employment & business opportunities		✓
<b>C</b>	<b>Operation Phase Impacts</b>		
	Release of emissions	✓	
	Noise and vibration	✓	
	Wastewater Disposal	✓	
	Solid waste disposal	✓	
	Utility services & consumption of resources	✓	
	Fire hazards	✓	
	Oil spillage	✓	
	Sustainable Plantation		✓
	Parking Facility		✓
	<b>Employment Generation</b>		✓

### 5.3 Design Phase Impacts

#### 5.3.1 Dislocation of People

Since the project site, RoW and its associated activities are limited within premises of Byco Refinery land and is free from encroachment, and the proposed site is the allotted to GO, hence no displacement of any person is anticipated.

#### Mitigation Measures:

- Not required.

#### 5.3.2 Change of Land use

Proposed site is located within the dedicated OMC oil storage village zone and development is in designated area.

#### Mitigation Measures:

- Not required.

#### 5.3.3 Loss of Trees

The project site lies in dedicated OMC oil storage where no trees and significant vegetation shrubs were found within the project location and along the RoW. The few shrubs which were found at site will be cut-off and cleared in the construction phase, and at the time of completion of project, lavish green belts will be provided to increase the scenic beauty of the surroundings. For this purpose, sustainable tree plantation plan has also been prepared.

#### Mitigation Measures:

- Not required.

#### 5.3.4 Relocation of existing Utilities

The project's site and RoW is located within the Byco Refinery where no public utilities exist in the proposed GO-HBST and pipeline RoW therefore no public utilities relocation is required.

**Mitigation Measures:**

- Not required.

**5.3.5 Impact on Archaeological sites**

The project and RoW property is allotted by Byco Refinery and is vacant plot, where no archeological properties exist.

**Mitigation Measures:**

- No mitigation measure was required.

**5.4 Construction and Installation Phase Impacts****5.4.1 Dust Emissions**

During the excavation/trenching, unloading of construction material, cement bags and mixing of cement with other construction materials, fugitive dust emissions may be generated. These emissions would be in the form of coarse particulate matter and will be settled down ultimately in the closed vicinity of construction site. Therefore, no significant impact is anticipated due to dust emission during construction phase.

**Mitigation Measures:**

- Excavated soil will be re-used as back filling material in civil work, trench, and filling of depressions.
- Excavated channels would be barricaded with caution tape and necessary safety signs would be posted at prominent locations. Night illumination and warning lights would also be posted.
- Soil stockpiles would be regularly wetted to keep airborne dust levels to minimum.
- Necessary measures and planning would be done to keep the excavation work to minimum possible duration.
- The GO-HBST Management will be responsible for taking necessary mitigation measures for reduction of air pollution from dust emissions and safety measure during construction work.

**5.4.2 Wastewater Discharges**

Construction activity will generate two types of effluents: sewage waste from temporary toilet facilities for site workers and water from hydro testing activity. Improper disposal of sewage water can cause nuisance in the project area. The water generated from hydro testing can cause localized flooding in the area. This may not only cause inconvenience to the nearby under construction deport and vehicles, but also provide breeding place for mosquitoes and other insects, which is dangerous for the environment.

**Mitigation Measures:**

- Sewage water will be drained through temporary piping into the main sewer drain near the construction site.
- Domestic wastewater/sewage would be processed through a temporary-sedimentation pit and no direct discharge be carried out.
- Hydro testing water will be used sequentially for all tank and pipeline and then will be discharged into the storm water channel through temporary pumps.
- Filters and break tanks will be used to remove any solids and to control the rate of discharge from the hyrdotesting water prior to discharge into the storm water channel.

**5.4.3 Release of Air Emissions**

Exhaust emissions from the operation of construction and installation machinery, transportation vehicles and welding equipments may cause air pollution. Movement of heavy machinery and construction material transportation vehicles would create dust emissions in the area. Generators used for power generation may cause pollution in ambient air and have adverse impacts on the workers, operators and nearby area. Emissions from welding machine may cause health and safety problems for workers. There may also be small emission of VOC during the commissioning.

**Mitigation Measures:**

- The impact from above mentioned activities will be mitigated by selection of good quality equipment, machinery and vehicles. Smoke releasing machinery and vehicles would not be allowed to be operated on the project by GO-HBST management and contractor or sub-contractor (if any).
- High exhaust pipes would be used in generators and other fixed equipment for better dispersion of air emissions and to prevent high concentrations of pollutants in the immediate vicinity. However, operators and workers working in proximity of heavy machinery, equipment and generators would be required to wear masks.
- Emission levels of the generators and other fixed equipment would be monitored regularly and maintenance would be done as per the recommendation of the manufacturer/supplier.
- Duration of the work having potential of dust emissions would be minimized by proper project management.
- Movement of the vehicle would be planned on designated routes only. Water sprinkling would be done on vehicles, routes/tracks to control dust emissions from vehicular movement within the project site.
- Specific timings would be allocated during normal daytime working hours for movement of heavy construction machinery.
- Appropriate PPE's will be provided to the workers.

**5.4.4 Noise and Vibration**

The operation of generators and movement of heavy machinery may create high noise and vibrations levels in the project area. However, this would be a localize issue and noise and

vibration levels will attenuate with distance from the work site. Movement of heavy vehicles for delivery of construction material may also induce high noise levels for short periods. High noise levels may affect the workers engaged in the construction activities besides causing disturbance in the neighborhood.

**Mitigation Measures:**

- The impact from above mentioned activities will be mitigated by selection of good quality of generators and heavy machinery. Noise producing machinery and vehicles would not be allowed to be operated on the project site by the GO-HBST and contractor.
- While fixing generators at the work site all possible noise and vibration reducing measures would be adopted, including usage of canopy over the generator and vibration-dampener pads over the foundation platform.
- Noise and vibration levels of the generators and other fixed equipment would be monitored regularly and necessary maintenance would be done to control the noise and vibration levels.
- Operators and workers working in proximity of heavy machinery, equipment and generators would be required to use ear plugs.
- Movement of the vehicle would be planned and allowed on designated routes only.

**5.4.5 Disposal of Construction Waste**

Typical solid wastes generated during construction and installation may include waste concrete, damaged joint, pipe pieces, empty packaging bags, wooden scaffolding, empty cement bags, excavated soil, steel parts, wood remains, empty paint drums, etc. This waste has the potential to cause adverse impact on the surroundings if not appropriately managed and disposed of. Improper storage of waste may pose hazards to the workers at the site as well. Wind-blown debris cause nuisance to the neighborhood. Poor waste management practices result in short term and long term adverse impacts on the aesthetics of the surrounding.

**Mitigation Measures:**

- Effective and instant removal will be ensured for unusable construction material such as damaged pipes, left over metallic material and pieces of wood, and plastics from the site for recycling.
- Waste including concrete debris, stones, soil, etc. will be not be allowed to accumulate on site and shall be removed intermittently either for using as filling material at other sites or disposal at landfill site.
- Possibility of reuse of the waste concrete material and construction waste from demolition works as filling material in paving large concrete floors would be on explored.
- Hazardous waste will be disposed-off through EPA approved contractor.

#### 5.4.6 Water Consumption and Demand

Water required during numerous construction and installation activities will be fulfilled through third party tanker. Improper storage of water at site may not only cause loss of valuable resource but also disturb the project site by creation of water pools and muddy swamps leading to breeding of mosquitoes and insects.

##### **Mitigation Measures:**

- Water storage at site would be done in concrete tanks designed especially for the purpose.
- Water consumption will be monitored regularly.
- Water conservation practices will be adopted during the entire course of construction to keep the water demand as low as possible.

#### 5.4.7 Weather Conditions

Weather parameter which includes temperature, humidity and wind are the important parameters and variation in these parameters will affect the quality and efficiency of the construction and installation work and workers. High temperatures will affect the workers efficiency. High wind will affect the safety of workers in case of contact with falling object, dust emission and operation of crane may be hampered during high wind times which are during (May, June and August).

##### **Mitigation Measures:**

- Adequate drinking water will be provided to workers during high temperature times.
- To avoid any heat stroke to workers awareness will be provided and adequate measures will be taken.
- During high wind time crane boom will be lowered and operation will be halted.
- Project site and RoW will be kept clean and tidy to avoid dust emission and falling objects.

#### 5.4.8 Fuel Storage

Storage of fuel for generators and other construction related machinery may be a potential source of risk at the project site. Any leakage or spill would cause contamination of soil. Unsafe storage and usage may be a risk to fire and explosion. Fumes may be harmful to worker.

##### **Mitigation Measures:**

- Fuel storage area will be developed in an isolated and safe area.
- Storage area would be properly bounded and lined with concrete floor or any impervious sheet to prevent soil contamination.
- Adequate numbers of fire extinguishers will be kept at appropriate locations.
- Storage of fuel at site would be kept to minimum quantities. Excess storage would be discouraged. Storage preferably is in close mouth steel drums of 200 liter capacity.
- Operators would be required to use safety mask while loading or decanting the fuel.

#### 5.4.9 Workers' Safety

Operation of heavy machinery, movement of vehicles, excavated trenches, working at height; fire and handling of materials, including cement, paints, solvents, etc., are some potential sources having safety concerns for the workers. The possibilities of accidents also cannot be ruled out during the construction and installation phase.

##### **Mitigation Measures:**

- Since the project is located within the OMC oil storage village; but the project site will be confined and No unauthorized person will be allowed.
- Necessary awareness will be imparted to workers related to health and safety during construction and installation phase.
- Safety signs will be placed at prominent locations at relevant sites.
- First aid facilities will be made available for the workers at site.
- Necessary Personnel Protective Equipment (PPE) will be provided to the workers engaged in work having potential risk to health and safety.
- The GO-HBST management would be required to have safety personnel to ensure safe working practices during construction.

#### 5.4.10 Employment and Business Opportunity

The project would provide direct employment opportunities for a certain period. Approximately 70-100 workers would be engaged in the construction and installation work depending on the stage of the construction. It would include skilled and semi-skilled workers.

Besides direct employment in the construction and installation work, the project would provide several indirect opportunities of business and trade. These would include but not limited to supply of construction material, equipment, machinery, fuel. The procurement of material such as blocks, wood, steel, plumbing fixtures, sewage pipes, electrical wires/cables, electrical fittings, sanitary fittings, etc. would promote business in the local markets and indirect opportunities of employment.

##### **Mitigation Measures:**

- This has positive impacts on the area and requires no mitigation.
- Preference would be given to hire services of local labor for skilled and semi-skilled work.
- Preference would be given to local market for purchase of material.
- Preference would be given to local suppliers for procurement of construction material and machinery.

### 5.5 Operation Phase Impacts

#### 5.5.1 Release of Emissions

Vapor emissions from the operation of loading, decanting, pipelines and from the oil storage tanks may cause air pollution. Generators used for secondary power generation may cause pollution in ambient air and have adverse impacts on the workers, operators and nearby area.

### **Mitigation Measures:**

- The impact from above mentioned activities will be mitigated by selection of good quality equipment and generator.
- A regular maintenance program for fixed equipment will be implemented to ensure that their operations are efficient and within the design specification.
- Internal floating roof along with decks, fittings and rim seal will be installed in all tanks to reduce evaporation of vapors and to maintain fuel level in tanks.
- Vapor balancing will be done during the loading/decanting.
- High exhaust pipes would be used in generators and other fixed equipment for better dispersion of air emissions and to prevent high concentrations of pollutants in the immediate vicinity. However, operators and workers working in proximity of heavy machinery, equipment and generators would be required to wear masks.
- Training will be provided to the workers.
- Emission levels of the generators and other fixed equipment would be monitored regularly and maintenance would be done as per the recommendation of the manufacturer/supplier.
- Pressure / vacuum relief valves will be used extensively to control evaporation loss for bulk storage tanks.

### **5.5.2 Noise and Vibration**

The operation of generators and pumps may create high noise and vibrations levels. However, this would be a localized issue and noise and vibration levels will attenuate with distance from the work site. High noise levels may affect the workers engaged in the generator and pumps operation activities besides causing disturbance in the neighborhood.

### **Mitigation Measures:**

- The impact from above mentioned activities will be mitigated by selection of good quality of generators and pumps.
- While fixing generator and pumps at the work site all possible noise and vibration reducing measures would be adopted, including usage of canopy over the generator and vibration-dampener pads over the foundation platform.
- Noise levels of the generators and other fixed equipment would be monitored regularly and necessary maintenance would be done to control the noise and vibration levels.
- Operators and workers working in proximity of fixed equipments and generators would be required to use ear plugs.

### **5.5.3 Wastewater Disposal**

Wastewater source from the HBST will be only sewage during normal operation which will be of domestic nature and contains bacteria, pathogens and other organisms, and may create adverse impacts if not managed appropriately. Impounding will result in swamps, leading to breeding of mosquitoes and other insects. Overall impact can be nuisance in the area, pollution of the soil, adverse impact on human health and damage to other infrastructure of

the area. Unsafe disposal of the wastewater may also contaminate the water supply system leading to serious adverse impacts on the occupants and public.

The other wastewater generation sources include tank bottom drain or during the time of precipitation or in case of an accidental spillage which may contain oil traces in wastewater. These wastewater generation sources are interim or incident event based.

**Mitigation Measures:**

- The project is an oil storage Terminal and domestic wastewater will be majorly generated.
- The entire wastewater will be treated into a septic tank and then percolate in soil through soak pit.
- The API separator will be installed for the treatment of interim / incident event generated wastewater containing oil.

#### **5.5.4 Solid Waste Disposal**

The operation stage will generate both hazardous and non-hazardous waste. The hazardous waste includes the used generator oil, tank sludge, used filters, maintenance and hay baskets generated in insignificant quantity at seldom. The non-hazardous waste will be waste generated from the office, and non-hazardous waste will mainly comprise box, packaging material, food, and glass, which will be generated in considerable quantities on regular basis. If these wastes are not properly managed and disposed of, then they may pose environmental hazard not only to the staff but also in the neighboring vicinity of the project.

Improper handling of food waste and its storage may also provide favorable ground for the breeding of vectors and rodents, a source of foul smell.

**Mitigation Measures:**

- Separated waste bin for food, recyclable and hazardous waste.
- Awareness training will be provided to the employees.
- Awareness signs will be placed to educate staff managing their waste properly.
- Waste will be disposed of in accordance with the BEPA requirement.
- Hazardous waste will be disposed off through EPA approved contractor.

#### **5.5.5 Utility Services and Consumption of Resource**

Water and electricity will be the prime utilities in the project. During normal usage of utilities in due course of time there is likelihood of leakages/losses from the network resulting in loss of resources. Excessive and uncontrolled usage of these resources at will contradict with the principles of sustainable usage of natural resources.

**Mitigation Measures:**

- Best quality of electrical cables and gadgets, water supply pipes and control valves will be used in the project which would require less maintenance and prevent leakages of resources.



### 5.5.6 Fire Hazards

During the operation phase, oil spillage, oil storage tanks, electricity lines will be a significant potential source of fire risk for the project as well.

#### **Mitigation Measures:**

- Oil storage tanks will be properly maintained and inspected regularly to avoid leakage.
- Oil pipelines will be coated and properly maintained and inspected regularly to avoid leakage.
- Adequate firefighting system is planned to install to keep the HBST well controlled and secured.
- Fire suppression system will be installed at the tanks.
- Oil storage tanks area will only be accessible to dedicated technical staff and adequate dyke wall is designed to control the spillage and fire hazard in case of leakage/spillage emergency.
- Emergency shut down system will be in place to cut off supply immediately in-case of pressure drop / difference in start and end point of pipelines.
- Electricity lines will be properly insulated and maintained to avoid important losses of resources and spark of electrical power.
- The tankers loading platform (gantry) will have the system for grounding the tanker during loading/decanting activity to prevent any static charge or spark and the system will be automatic and filling could not precede without proper grounding the vehicle.

### 5.5.7 Oil Spillage

During the operation phase, oil transportation pipeline, petroleum products' storage and loading activities will be prone to potential hazard of oil spillage. The spillage may also cause due to corrosion, mechanical fault, operation fault (pressurization), natural hazards (earthquake), etc. These activities cannot only lead to high risk to fire situations but also can contaminate soil, surface water, ground water and sea water.

#### **Mitigation Measures:**

- Oil storage tanks will be well bounded by adequate dyke wall as per the international standard criteria.
- A regular maintenance and inspection program will be implemented to ensure safe operations.
- Geo-membrane liners will also be installed at the foundation of tanks to avoid contamination of soil/ water.
- API separator will be installed to separate and recover oil in-case of spillage incident.
- Loading of oil will be done through close mouth wall system to avoid risk of spillage.
- Only trained staff will be utilized for the loading/decanting purpose.
- Oil storage tanks area will be accessible only for dedicated trained technical staff.
- The oil spill response plan and associated procedures will be put in place for the project to achieve minimization of soil and water contamination as a result of spillages or leakages during operation.

### 5.5.8 Sustainable Plantation

Plantation at project surrounding as well at road side areas is very important for a number of reasons. First and foremost reason is as a mitigation measure to protect the degrading environment and cooling effects. The GO-HBST management shall plant 50 most suitable trees within project area and road side of project area.

#### **Mitigation Measures:**

- No mitigation measure is required.

### 5.5.9 Parking and Traffic Management

The GO-HBST management has planned dedicated space for tankers parking those are coming for loading as well as car parking for employees and visitors. This facility would ease up parking issues and reduce the likelihood of congestion in the area of the project.

#### **Mitigation Measures:**

- Entry and exist point of the parking will be kept free from obstruction.
- No offsite parking will be allowed.
- Signages of No Parking will be installed.

### 5.5.10 Employment Generation

This project is expected to generate 10-15 employment opportunities. Employment would include staff for operation, security and housekeeping and indirect would include supervisors, helpers etc.

#### **Mitigation Measures:**

- No mitigation measure is required.

## CHAPTER 6: ENVIRONMENTAL MANAGEMENT PLAN

A comprehensive environmental management and monitoring plan (EMP) has been formulated to ensure compliance with all statutory regulations including Baluchistan EPA, and others applicable during design, construction and operation phase of HBST. This will be done to minimize the extent of impacts to the environment aside from already specified mitigations.

Good management practice is one of the key elements of swift and sound operation, with reference to the concerns studied in section 5 of this report; this management plan has been developed to follow up operations, the major elements of the EMP are as follows:

- Environmental Monitoring System
- Environmental Management and Monitoring Team

### 6.1 Environmental Monitoring System

Environmental Monitoring is the process of repeated observation and measurement of one or more environmental quality parameters to enable changes to be observed over a period of time. These changes relate to the physical, chemical and biological parameters of various phases of the environment such as Air, Water and Land.

The main objective of the environmental monitoring program is the conservation of the quality of the various components of the environment. Monitoring is carried out to obtain quantitative information on current levels of harmful or potentially harmful parameters of air and water quality. The information so obtained enables an assessment to be made of the extent of the polluting damages of these parameters, the increasing and the decreasing levels of specific polluting parameters, and the control measures that need to be implemented.

The following is an outline of a typical construction and operation monitoring program that can be modified as necessary to meet the needs of BEPA. The monitoring program will include the following at a minimum:

- Introduction - explaining the nature of the proposed project outlining the need for monitoring program and the relevant specific provisions of the permit granted.
- The various activities and parameters being monitored
- The methodology to be employed and the frequency of monitoring
- A summary of data collected. Tables and graphs will be used where appropriate.
- Discussion of results with respect to the project in progress, highlighting any parameters, which exceed the standards and mitigation implemented.
- Frequency of reporting to EPA.
- Recommendations
- Appendices of data

At a minimum the following activities will be monitored in the various phases:

## 6.2 Scope of EMP

The EMP comprises the following elements along with the methods and procedures of their implementation:

- Organizational structure and roles and responsibilities of project personnel.
- Specific requirements for the implementation of the EMP.
- Mitigation or impact management matrix.
- Monitoring plan with the emphasis on specific parameters to be monitor.

## 6.3 Organization of EMP

EMP provides the procedures; organization and instruction to ensure project personnel understand and implement environmental protection procedures for routine activities associated with the construction and operation of the Project and its anticipated facilities. The organization, style and format of the EMP is intended to enhance its use by project personnel in the field and to provide an important support document between overall environmental management of the Project and various permits and authorizations issued for specific construction and operation related Project components and activities.

## 6.4 Maintenance of the EMP

EMP needs to be revised on timely basis to keep up-to-date as per the requirements comes up regularly. Therefore, outlining the responsibilities and activities associated with the maintenance of the EMP is essential. The responsibilities of the Environmental Monitor are mentioned and procedures for requesting EMP revisions are outlined. EMP revision procedures include requirements for notification of the appropriate government, public and other relevant agencies so that their role is also included in the overall management process.

## 6.5 Management Approach

The management of GO along with Project / Terminal Manager and its EHS officer will undertake overall responsibility of management and supervision for compliance with the EMP. It will ensure that all activities it executes with construction team comply with positive environmental sensitivities as well as it will cooperate with the concerned regulatory agencies such as the BEPA.

On the other hand, construction team will carry out field activities as part of the project that includes relevant and subsidiary construction and installation work. The GO Management will be subjected to certain liabilities under the environmental laws of the Province which will be mentioned in the implementation of Project / Terminal Manager and supervision of EHS officer of the GO Management respectively.

Some of the approaches to be followed during the environmental management practices are given below:

- Complying with the relevant legislation and regulations.
- Regularly reviewing of the impacts on the environment.
- Developing appropriate indicators in order to monitor core impacts.
- Communicating openly with internal and external stakeholder on environmental issues.

## 6.6 Regulatory Requirements

### 6.6.1 Approvals, Authorizations and Permits

The list of potential approvals, authorizations and permits required for the Project from various agencies, are given below:

- Baluchistan Environmental Protection Agency (BEPA)
- Oil and Gas Regulation Authority
- Ministry of Industries and Production (Explosive)
- Ministry of Defense
- District Administration

### 6.6.2 Environmental Quality Objectives

The criteria for management's quality objectives and generation of solid waste and wastewater quality, air and noise quality are detailed here. The management of GO-HBST shall review Environmental Objectives once a year and try to complete them in the stipulated time frame. This will also include any applicable treatment criteria meeting the applicable Effluent Quality Standards (EQS) as per Baluchistan Environment Protection Act 2012.

### 6.6.3 Compliance Monitoring

It would be required by the management of GO-HBST to comply with the Environmental Monitoring Plan laid in the subsequent section. The compliance shall also require periodic reporting of the monitoring results in form of report submitted to the Baluchistan Environmental Protection Agency. As the project is at moderate scale for "Hub Bulk Oil Storage Terminal" construction and operation so it is proposed, during the construction and operation, the monitoring report will be on quarterly basis.

## 6.7 Roles and Responsibilities

A brief structure of role and responsibilities is given below:

### 6.7.1 Project/Terminal Manager

Environmental management plan will be regulated by the Project/Terminal Manager of GO. Some of the key role and responsibilities are described below:

- To consider and react to issues and solutions proposed by the EHS Officer
- To cooperate and consult with relevant environmental agency in order to perform in a better way

- To approve any change in decision making and authorities in consultation with EHS Officer, if appropriate
- The Project/Terminal Manager will be the responsible for managing client's corporate public relations efforts and reporting to the GM Operations & HSSE.
- The Project/Terminal Manager will develop and execute an integrated administration & public relations plan based on marketing strategy and reflecting the individual divisional (service line) public relations objectives.
- The role requires careful cross company collaboration and will necessitate both strategic leadership and practical execution.

### 6.7.2 EHS Officer

The role of EHS officer is vital. The success of an EMP always depends on proper and effective management provided by EHS Officer. Following are some of the roles and responsibilities of EHS Officer:

- To identify issues and where possible propose solutions for inclusion in the management plan review process.
- To ensure that the points of view of staff, contractor and EHS staff are considered and placed in the EMP accordingly.
- To improve coordination and exchange of information between top management, employees, contractors etc.
- To contribute towards the actions to deliver the management plan and ensure its continual development.
- To review EMP every year under the supervision of top management, tackling issues and change EMP accordingly with the solutions and suggestions.
- To monitor the progress, development and implementation of this management plan.
- To integrate, as far as possible, the aims and objectives of different users within an agreed plan.
- To provide professional guidance on questions relating to the environmental management and issues raised by contractors/relevant personals.
- To progress the EMP process through development towards implementation.
- To ensure that all necessary safety approvals are in place prior to commencement of location activities as stipulated in local regulations.
- Assist the Project/Terminal Manager in seeking budgetary approvals for various safety operational requirements.
- To supervise the environmental compliance and inspection process.
- EHS Officer is responsible for ensuring that each new employee, whether temporary permanent, receives appropriate safety training at the start of employment.
- To report all accidents or injuries that occurs to their employees while at work.

- EHS Officer must ensure that any employee who is injured while at work completes and signs the Employee's Report of Work-Related Injury Form.

### 6.7.3 HBST and Contractor Employees

Employees must assume a high level of responsibility to work safely and strive for an incident-free workplace by:

- Considering the consequences of their acts on their safety and that of fellow employees.
- Following all general and job related EHS work procedures and practices.
- Detecting, reporting and correcting unsafe work behavior or conditions.
- Applying EHS work practices both on and off the job.
- Making or suggesting enhancement to the jobs at hand to reduce or eliminate the risk or stresses associated with job performance.
- Reinforcing safe behavior
- Working safely and with regard for the environment is a condition of employment and no employee should ever consciously perform an unsafe act.

## 6.8 Training

Training is vital for the safe and efficient operation at the HBST and an important step for the implementation of the EMP. All the employees will require to be trained to work appropriately on EMP. Contractor will organize training in consultation with EHS Officer during construction and HR department will organize trainings in consultation with EHS Officer. It will be ensured that employees understand the issues associated with the proposed activities and products. Trainings should be arranged on regular basis with notification that it should be attended by all respective employees.

### A. Training Need Assessment

EHS Officer will determine the training requirements during the operation phase for the GO employees, contractors, subcontractors and visitors. Need assessment process will be done in consultation with HR department. Induction will be the basis of all training courses for contractor and subcontractor during the operation phase.

Trainings identified in EMP are given below:

- Site induction course;
- Training for oil spill Response and use of equipments;
- Training for emergency response and preparedness;
- Training for site environmental controls;

- Specific environmental training for relevant employees e.g. erosion and sedimentation controls, daily checks to maintain controls, cleaning up oil spills and waste minimization at the HBST storage area.

## 6.9 Communications

For effective monitoring, management and documentation of the environmental performance during the operation, the Environmental, Health and Safety (EHS) matters will be discussed during daily meetings held on HBST. Environmental concerns raised during the meetings will be mitigated after discussions between the EHS Officer and the contractor. Any issues that require attention of higher management of GO will be communicated to them for action. The EHS Officer will also prepare a monthly environmental report which includes the EHS related issues. Duplicates of the report will be provided to the higher managements of GO and of the contractor. Communication is the key of successes in good management practices. Steps given below will assist in effective communication and documentation.

### A. Opening Meeting

The aim of organizing the kick-off meeting is to define the environmental responsibilities, awareness of EMP to the managing staff and to streamline the work plan according to the EMP. This meeting will be arranged prior to commencement of activities.

### B. Monthly Meeting

Monthly meetings will be held every month after the opening meeting. Aim of this meeting is to review the progress of activities performed, explore ideas and problems, and discuss about the progress in acquisition and analysis of information. Deadlines are re-evaluated in it and if necessary, and issues will be resolved accordingly.

### C. Minutes of Meetings

In the end of monthly meetings, minutes will be issued which are comprised of the discussion made in the meeting, issues discussed and decisions taken with the time frame for their implementation. Main points of minutes for general employees may be incorporated in the record register. These meeting minutes will also be provided to the higher authorities of GO and the contractor if any involved for their own record.

## 6.10 Environmental Health and Safety

GO is devoted to manage and operate its HBST in a manner consistent with its core standards to protect the environment, health and safety of people and comply with applicable Environment, Health and Safety (EHS) laws, regulations and internal EHS standards.

This section will outline an Environmental Health and Safety Management System which will delineate mitigation measures and best management practices and SOPs related to the activities. This management will carry a complete risk assessment, evaluate, monitor, identify and control all potential hazards and risks that may arise during the operation phase of the GO-HBST project.



The GO Management has planned to install state of art technology fire protection systems, flame, smoke and low and high-temperature detectors, alarms, and shut-down systems. The efficiency and stability of operations will be maximized by the use of a high level of automation, regular preventative maintenance, and safeguards such as back-up systems and the provision for safe emergency shut-downs. Prior to project commissioning, all personnel will be required to undertake an extensive training program to ensure safe operating practices pertain to the facility.

The training program and subsequent regular refresher programs will involve issues covering operations, hazards, safety and emergency procedures and environmental management. The Health and Safety Plan will incorporate provisions for impediment of and response to oil leakages, release of hydrocarbons and accidental spills. It is also the responsibility of the management to provide the following basic information to the relevant staff:

- Description of all potential hazards / risks.
- Health and Safety implications about all hazards.
- Description of management techniques (including inspections, maintenance follow-up reports, personnel protective gears and medical monitoring).

### 6.11 Emergency Response Plan

The purpose of emergency response plan (ERP) will be to provide a clear and concise reference of the important actions for a number of emergency situations that may arise in the HBST during the operation phase. Therefore, ERP will be developed before commissioning of project and all key personnel in the emergency response organization or crisis management organization must be familiar with the contents of the ERP and to have full knowledge of their duties and responsibilities in the respective organization.

### 6.12 Compliance Management Plan

The success of the management plan will lie with its implementation. An EMP requires to be executed in three stages. Those are, planning & design stage, construction stage and operation stage.

#### 6.12.1 Planning and Design of Project

There are two main components to consider in an EMP prior the construction and operation phase. Implementation of EMP at this stage may tackle the environmental issues before they arise. Those components are given below:

##### A. Construction and Operation of HBST

It describes the location of the project, its adjoining conditions in the area, facilities to be installed in particular HBST. If any design parameter changes at time of approval, management will assess the environmental impacts that may arise from such changes. If the impacts are found to be different and in excess of those mentioned in the report, GO Management will develop further mitigation measures with respect to the changes to minimize these impacts

## B. Approvals

### 6.12.2 Construction and Operation Phase

### A. Mitigation Plan

## B. Monitoring and Review

The management of GO will conduct the Environmental Monitoring (Air, Emissions, Noise (Ambient Noise And Equipment Noise), Wastewater, Ground Water and Surface Water) as per frequencies and parameters mentioned in (Table 11).

[illegible]

Table 9: Environmental Management (Mitigation) Plan

1. Construction and Installation Period Impacts				
Environmental Issue	Mitigation Measure	Time frame	Implementer	Supervisor
<b>1.1 Dust Emissions</b>	<ul style="list-style-type: none"> <li>i. Excavated soil will be used as fill material.</li> <li>ii. Where required, locate stockpiles out of wind or provide cover.</li> <li>iii. Where required, sprinkle water on areas prone to erosion and dust.</li> </ul>	During Construction	Project Manager	EHS-Officer
<b>1.2 Discharge of Wastewater</b>	<ul style="list-style-type: none"> <li>i. Wastewater of domestic nature from the temporary bath rooms will be disposed of into the nearby drainage system. However, connected through a pit to prevent discharge of solids into the nearby drainage network.</li> <li>ii. The entire wastewater of domestic nature during construction will be treated in compliance with the EQS permissible limits prior to its discharge into drain line.</li> </ul>	During Construction	Project Manager	EHS-Officer
<b>1.3 Release of Air Emissions</b>	<p>Emissions will be minimized by:</p> <ul style="list-style-type: none"> <li>i. Ensuring that the contractor's fleet are properly maintained</li> </ul>	During Construction	Project Manager	EHS-Officer

according to manufacturer's specifications;

- ii. Use of appropriate haul loads within specified limits.
- iii. Vehicles, generators and machineries used during the project construction will be of good condition and will be regularly tuned.
- iv. Emissions from small generators will be vented through the stacks.
- v. Idle running of vehicle engines will be avoided.

#### 1.4 Noise and Vibration

- i. All vehicles, equipments and machineries used during construction and installation will be in good condition and will be regularly maintained to avoid generation of vibration and unnecessary noise;
- ii. The generators at project location will be kept within enclosures to minimize noise and dampener pads will be used on platform of generator to reduce vibration.
- iii. The noise warning signs will be posted in high noise areas and use of ear plugs required by the workers.

During Construction

Project Manager

EHS-Officer

<b>1.5 Disposal of Construction Waste</b>	<ul style="list-style-type: none"> <li>i. Wherever possible, wastes will be reduced, reused or recycled before disposal. Reusable and recyclable wastes will be disposed of using appropriate contractors.</li> <li>ii. Hazardous wastes (if any); will be separated from other types of waste and stored in designated areas with restricted access and proper signage.</li> <li>iii. Wastes will not be thrown or left in the open.</li> <li>iv. Waste will be disposed off in accordance with the BEPA requirements.</li> <li>v. Hazardous waste will be disposed off through EPA approved contractor.</li> </ul>	During Construction	Project Manager	EHS-Officer
<b>1.6 Water Consumption</b>	<ul style="list-style-type: none"> <li>i. Water consumption will be monitored so that excessive water usage can be noted and rectified.</li> <li>ii. Conservation practice will be applied during all stages of activities.</li> </ul>	During Construction	Project Manager	EHS-Officer
<b>1.7 Weather Condition</b>	<ul style="list-style-type: none"> <li>i. Adequate drinking water will be provided to workers.</li> <li>ii. To avoid heat stroke to workers awareness will be imparted.</li> <li>iii. Working time will be planned to avoid heat</li> </ul>	During Construction	Project Manager	EHS-Officer

- stroke in high temperature months.
- iv. Work at height will be avoided during high wind time.
  - v. Crane boom will be kept lowered and operation will be halted during high wind time.
  - vi. Site and Pipeline RoW will be kept clean and tidy to avoid dust emission and falling objects.

#### 1.8 Contamination of Soil and Ground/River Water (Soil or ground/river water can be polluted from spillage of store fuel).

- i. All fuel storage sites must be checked daily for leaks and held in an impervious site where spilled/leaking material can be collected.
- ii. Fuel will only be stored in an isolated area, applicable to safety standards.
- iii. Appropriate secondary containment will be provided to the fuel storage container.

During Construction

Project Manager

EHS-Officer

#### 1.9 Workers' Safety

- i. Necessary awareness provided to the workers, construction and installation team.
- ii. Appropriate PPE's provided to the labour and construction and installation team.

During Construction

Project Manager

EHS-Officer

- iii. First aid facility will be made at the construction site.
- iv. Necessary barrication will be done in construction and hazardous area.

## 2. Operation Period Impacts

### 2.1 Release of Emissions

Emissions will be minimized by:	During Operation	Project/Terminal Manager	EHS Officer
i. Emissions from small generators will be vented through the stacks.			
ii. Good quality of generator will be installed to control the exhaust emissions within the prescribed limits of EQS.			
iii. Emissions (VOC) from piping, valves, shafts, rotating equipment and at connections pipeline will be control maintained as per the design specification.			
iv. To minimize the vapor emissions at platform gantry, vehicle will be filled with closed vapor system.			
v. Internal floating roof along with decks, fittings and rim seal will be installed in all tanks to reduce evaporation of vapor and to maintain fuel level in tanks.			
vi. Vapor balancing will be done during the loading.			

	vii. Ensure proper maintenance of pressure valve and other tank equipments.			
<b>2.2 Noise and Vibration</b>	i. All equipments and machineries used during construction operation will be in good condition and will be regularly maintained to avoid generation of vibration and unnecessary noise; ii. The generators at site will be kept within enclosures to minimize noise and dampener pads will be used on platform of generator to reduce vibration. iii. The noise warning signs will be posted in high noise areas and use of ear plugs required by the workers.	During Operation	Project/Terminal Manager	EHS Officer
<b>2.3 Wastewater Discharge</b>	i. Wastewater will be treated in septic tank and soak pit. ii. The soak pit contains loose gravels, which will percolate into the ground. iii. The API separator will be installed for the treatment of interim / incident event based wastewater containing oil.	During Operation	Project/Terminal Manager	EHS Officer
<b>2.4 Disposal of Solid Waste</b>	i. Separated waste bin for plastic, recyclable and hazardous waste will be	During Operation	Housekeeping	EHS Officer



	placed, so that on site segregation took place.		staff	
	ii. Waste will be collected by housekeeping staff.			
	iii. Waste will be disposed of through approved contractor			
	iv. Awareness training will be provided to the staff.			
<b>2.5 Resources Consumption</b>	i. Implement energy conservation program, procure energy saving equipments for the HBST.	During Operation	Project/Terminal Manager	EHS Officer
	ii. Water conservation practices will be adopted.			
	iii. Water conservation training will be provided to the staff.			
<b>2.6 Fire Hazards</b>	i. Adequate firefighting system is designed and will be installed which includes automatic fire detectors, fire alarming, fire hose cabinets, fire hydrants, portable extinguishers, centralized foam skid system, fire suppression system at tanks.	During Operation	Project/Terminal Manager	EHS Officer
	ii. Ensure proper maintenance of firefighting system.			
	iii. Ensure adequate insulation of electricity lines.			
	iv. Grounding system of tankers at gantry.			
	v. Ensure adequate coating and insulation of pipelines			

	<ul style="list-style-type: none"> <li>vi. Ensure adequate insulation of electricity lines.</li> </ul>			
<b>2.7 Oil Spillage</b>	<ul style="list-style-type: none"> <li>i. Oil storage tanks will be well bounded by adequate dyke wall of 6'-10"ft height as per the international standard criteria. Loading of tankers will be carried out through closed mouth system.</li> <li>ii. Ensure regular maintenance and inspection of equipment (valve, pipe, joint, pressure meter, etc.)</li> <li>iii. Ensure the availability of oil spill response plan and training of staff for its implementation</li> <li>iv. Training of the concerned workforce.</li> <li>v. Geo-membrane liners will also be installed at the foundation of tanks to avoid contamination of soil/ground/river water.</li> </ul>	During Operation	Project/Terminal Manager	EHS Officer
<b>2.8 Parking and Traffic Management</b>	<ul style="list-style-type: none"> <li>i. Adequate parking space will be provided.</li> <li>ii. Entry and exit point of the HBST will be kept free from any hindrances</li> <li>iii. Traffic will be managed by proper guidance and signages.</li> </ul>	During Operation	Project/Terminal Manager	EHS Officer

Table 10: Environmental Management Plan (Monitoring) Plan

Environmental Issue	Monitoring Action	Timing	Monitoring Delivered By	Managed by	Supervised by
<b>1. Construction Period</b>					
<b>1.1 Dust Emissions</b>	i. Site Inspection (Visual) Controls	During excavation / trenching activities and usage as filling material.	Record of dust emission erosion control actions	Project Manager	EHS- Officer
<b>1.2 Discharge of Wastewater</b>	i. Randomly check to ensure compliance. ii. Check hydro testing record water disposal.	During construction period.	Written and dated note indicating compliance or issue and action taken	Project Manager	EHS- Officer
<b>1.3 Releases of air emissions from vehicular and machinery exhaust</b>	i. Check maintenance log. ii. Site inspection (visual).	i. During machinery operation, ii. At maintenance location iii. During construction period.	Inspection note to file for use in contractor reporting and in monthly report.	Project Manager	EHS- Officer
<b>1.4 Noise and vibration</b>	i. Using a portable noise meter, monitor checks conditions ii. Check noise level monitoring record iii. Site inspection (visual) to Check dampener-pads	During construction period	Inspection note with compliance status and noise reading results	Project Manager	EHS- Officer

		on generator platform.				
<b>1.5 Disposal of construction waste</b>	i.	Monitor to check waste handling and disposal procedure.	During construction period	Note to file, signed and dated	Project Manager	EHS- Officer
	ii.	Maintain record of waste generation and disposal.				
<b>1.6 Water Consumption</b>	i.	Check water consumption record	During construction period	Inspection note, signed and dated	Project Manager	EHS- Officer
	ii.	Compare water consumption				
<b>1.7 Weather Conditions</b>	i.	Check high temperature timing working plan	During construction period	Note to file, signed and dated	Project Manager	EHS- Officer
	ii.	Check record of training.				
	iii.	Check high wind days working plan				
<b>1.8 Fuel Storage (Soil or ground/river water can be polluted by spillage of store fuel).</b>	i.	Check fuel storage record	During construction period	Note to file, signed and dated	Project Manager	EHS- Officer
	ii.	Monitor to check fuel handling procedure.				
	iii.	Site inspection (visual)				
<b>1.9 Worker's Safety</b>	i.	Inspection of construction location to ensure proper use of OHS gear and contractor	During construction period	Inspection note, signed and dated	Project Manager	EHS- Officer

	ii.	enforcement. Check the daily record of workforce and project staff.				
<b>2. Operation Period</b>						
<b>2.1 Release of Emissions</b>	i.	Ensure maintenance plan implementation	Operation Period	Check emission concentration limits Check compliance status	Project/ Terminal Manager	EHS- Officer
	ii.	Ensure implementation of procedure				
<b>2.2 Noise and Vibration</b>	i.	Ensure dampener-pads on generator platform.	Operation period	Note the inspection visit status Check the noise monitoring record	Project/ Terminal Manager	EHS- Officer
	ii.	Check generator and pumps maintenance record.				
	iii.	Check noise level of generator and pump sections				
<b>2.3 Wastewater Discharge</b>	i.	Ensure wastewater that is treated in septic tank and soak pit.	Operation period	Check the record of spillage/ incident batch wastewater collection and recovery record	Project/ Terminal Manager	EHS- Officer
	ii.	Ensure the wastewater is percolate into ground.				

	iii.	Ensure Separator efficiently maintained and working.	API is and			
2.4 Disposal of Solid Waste	i.	Ensure proper segregation of waste.	proper of	Operation period	Check waste disposal register	Housekeeping staff
	ii.	Ensure proper disposal of hazardous waste through approved contractor.	proper of waste EPA		Check waste disposal certificate of EPA approved contractor	EHS- Officer
2.5 Resource Consumption	i.	Ensure conservation practice		Operation period	Check and compare bills	Project/ Terminal Manager
	ii.	Ensure prompt replacement of leaking equipments	prompt of		Check equipment maintenance and replacement record	EHS- Officer
2.6 Fire Hazards	i.	Ensure the inspection of firefighting system	the of	Operation period	Checking fire extinguisher filling record	Project/ Terminal Manager
	ii.	Checking refilling record of portable extinguishers.			Check firefighting system inspection record	EHS- Officer
	iii.	Check fire hydrant system maintenance and inspection plan.			Check approved drill plan and record of	
	iv.	Ensure proper	proper			

	working of fire suppression system.			conducted drills		
	v. Conduct fire drills					
<b>2.7 Oil Spillage</b>	i. Ensure well maintained dyke wall	Operation period		Visual inspection record.	Project/ Terminal Manager	EHS- Officer
	ii. Ensure proper operation of API separator.			Maintain training record		
	iii. Ensure well maintained pump, valves and generators.			Check availability of oil spill response plan document		
	iv. Ensure availability of oil spill response plan					
	v. Training of oil spill response to the concerned workforce.					
<b>2.8 Sustainable Tree Plantation</b>	i. Develop trees plantation strategy	Throughout trees plantation Plant Strategy Period			Project/ Terminal Manager	EHS- Officer
<b>2.9 Parking and Traffic Management</b>	i. Check the parking signages.	Operation period		Maintain the record of visits	Project/ Terminal Manager	EHS- Officer
	ii. Check the parking entry and exit point are free from hindrances.					

Table 11: Environmental Monitoring and Reporting Frequencies for HBST

CONSTRUCTION PHASE				
1. Gaseous Air Emission Plan				
Parameters	Source	Frequency	Standards	
CO, Smoke, Noise	Construction Machinery	Quarterly	EQS	
CO, NOx, SOx and Particulates	Power Generator	Quarterly	EQS	
2. Ambient Air Quality Plan				
Parameters	Locations	Frequency	Duration	
VOC, PM <sub>2.5</sub> , PM <sub>10</sub> , SPM, NO, NO <sub>2</sub> , CO, SO <sub>x</sub>	7 meters from the Project Boundaries	Bi-annually	8-hours	
3. Wastewater Quality Sampling Plan				
Parameters	Locations	Frequency	Duration	Standards
BOD, COD, DO, TSS, TDS, pH, SO <sub>4</sub> , Oil & Grease)	Wash rooms points into drains	Quarterly	Grab sampling	EQS
4. Drinking Water Quality Sampling Plan				
Parameters	Locations	Frequency	Duration	Standards
E-Coli, fecal coliform, Total Coliform pH, TDS.	Drinking Water Source	Quarterly	-	EQS/WHO
5. Hub River Water Quality Sampling Plan				
Parameters	Locations	Frequency	Duration	Standards
pH, TSS and Oil & Grease	Hub River Closer Point to Terminal	Quarterly	-	EQS
6. Ground Water Quality Sampling Plan				
Parameters	Locations	Frequency	Duration	Standards
pH, TSS and Oil & Grease	Ground Water from vicinity	Quarterly	-	EQS
7. Noise Level Sampling Plan				
Parameters	Locations	Frequency	Duration	Standards
Decibels [dB(A)Scale]	At the interface of project and community 7 meters from the equipment at construction site	Quarterly	Continuous for 8 hours in a full working day	EQS Noise Guidelines



## 8. Solid Waste Sampling & Characterization Plan

Parameters	Locations	Frequency	Duration	Standards
<ul style="list-style-type: none"> <li>Waste generation rate,</li> <li>Waste composition;</li> <li>recyclables and non-recyclables,</li> <li>hazardous waste</li> </ul>	At main solid waste collection point from where the waste is transported from site	Quarterly	-	BEPA

## OPERATION PHASE

### 1. Gaseous Air Emission Plan

Parameters	Source	Frequency	Standards
CO, NOx, SOx and Particulates	Power Generator	Quarterly (Standby)	EQS

### 2. Ambient Air Quality Plan

Parameters	Locations	Frequency	Duration
VOC, PM <sub>2.5</sub> , PM <sub>10</sub> , SPM, NO, NO <sub>2</sub> , CO, SOX, H <sub>2</sub> S.	HBST Premises	Annually	8-hours

### 3. Drinking Water Quality Sampling Plan

Parameters	Locations	Frequency	Duration	Standards
E-Coli, fecal coliform, Total Coliform pH, TDS.	Drinking Water Source	Quarterly	-	EQS/WHO

### 4. Hub River Water Quality Sampling Plan

Parameters	Locations	Frequency	Duration	Standards
pH and Total Petroleum Hydrocarbons	Hub River Closer Point to Terminal	Quarterly	-	EQS

### 5. Ground Water Quality Sampling Plan

Parameters	Locations	Frequency	Duration	Standards
pH, and Total petroleum hydrocarbons	Ground Water from vicinity	Bi-annually	-	-

### 6. Noise Level Sampling Plan

Parameters	Locations	Frequency	Duration	Standards
Decibels [dB(A)Scale]	HBST-Boundaries	Bi-annually	8 hours	EQS Noise Guidelines

## Conclusion

M/S Gas and Oil Pakistan Limited is the project proponent. It provides a range of petroleum storage services to the profound oil industries in Pakistan with an objective to provide state of the art oil storage facility to the local oil industry for storage of petroleum products. The construction of Hub Bulk Oil Storage Terminal is only used for storage purpose and the project is limited to within the premises of Byco Refinery's land.

Baseline environmental and socioeconomic information was collected from a various sources, including reports of previous studies, published literature and field surveys. The information collected was used to compose profiles of the natural, socioeconomic and cultural environments likely to be affected by the project.

However, the scale and nature of the project requires that potential environmental impacts of the proposed activities. The issues studied included potential project impacts on, surrounding built environment, ground water quality, surface water quality, utilities and road infrastructure. Mitigation measures were presented to reduce impacts to as low as possible.

Potential environmental impacts due to the proposed project are evaluated, mitigation measures required to minimize or obviate these impacts be assessed, implemented and monitored. All these requirements have been addressed in this IEE, which has in considerable length covered the proposed project activities, surrounding built environment, ground water quality, surface water quality, ambient air temperature and ambient noise levels.

It is therefore likely to have only limited impact of a temporary nature and short duration. The impacts can be mitigated with the measures proposed in the Environmental Management Plan. Overall the project will have positive impacts. It will also enhance the defense reserve of country.

Moreover project surrounding has the same business nature operations located . The environmental safeguards will have to be monitored by concerned agencies, and GO-HBST's EHS section. Due diligence, with mandatory coordination among various stakeholders, will further ensure mitigation of any adverse impacts.

This IEE study concludes that the proposed Construction and Operation of "Hub Bulk Oil Storage Terminal" project will not lead to significant adverse environmental and social impacts of such nature or magnitude that would require a more detailed report in the form of an EIA. Additionally careful implementation of the EMP will ensure that environmental impacts are managed and minimized and the project proponent meets all statutory requirements.

The proposed project will create the considerable jobs for the locals and improve the supply of the petroleum products within time.

## Annexure

FINAL REPORT

## Annexure 1: Letter from Ministry of Energy (Petroleum Division)

No.PL-2(5)/2017-GO  
Government of Pakistan  
Ministry of Energy  
(Petroleum Division)  
Directorate General of Oil  
\*\*\*\*\*

Islamabad the 20<sup>th</sup> November, 2017

**OFFICE MEMORANDUM**

**Subject:-** ISSUANCE OF "NO OBJECTION CERTIFICATE" FOR INSTALLATION OF BULK OIL DEPOT ON PLOT BEARING KHASRA NO. 392, 393 MOUZA KUND, TEHSIL GADANI, DISTRICT LASBELLA (ADJACENT BYCO REFINERY)

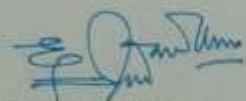
The undersigned is directed to enclose herewith M/s Gas & Oil Pakistan (Pvt) Limited letter No. GOPL/LASBELA/MOD/22 dated 14<sup>th</sup> November, 2017 along with necessary documents, on the above subject.

2. Ministry of Energy (Petroleum Division) is conscious about the importance of new/enhanced storage and infrastructure facilities in order to maintain oil product stocks to cope with the increasing demand of petroleum products in the country. Accordingly, every effort is being put in place to encourage investment in infrastructure development throughout the country and oil companies are being consistently followed up to complete their plans, as a mandatory condition of their marketing licenses.

3. M/s Gas & Oil Pakistan (Pvt) Limited, an approved Oil Marketing Company, has forwarded the relevant information along with enclosures (both hard and soft copies) for forwarding to the Ministry of Defence for NOC for construction of oil terminal at subject location.

4. Accordingly, Ministry of Defence is requested to process the case for necessary issuance of NOC for timely completion of oil storages in the country.

Encl: As above

  
(Imran Ali Abro)  
Research Officer (M)  
051-9201193

Cdr (PN) Muhammad Yasir Tahir TI(M),  
Assistant Chief (Maritime),  
Maritime Affairs Wing,  
Ministry of Defence,  
Rawalpindi

Cc: ✓ Mr. Khalid Riaz, Chief Executive Officer, Gas & Oil Pakistan (Pvt) Limited,  
Lahore

**Annexure 2: Letter of Ministry of Energy (Petroleum Division) for NOC from Ministry of Defense.**

No.PL-2(5)/2017-GO  
Government of Pakistan  
Ministry of Energy  
(Petroleum Division)  
Directorate General of Oil  
\*\*\*\*\*

Islamabad, the 20<sup>th</sup> December, 2017

✓ Mr. Khalid Riaz,  
Chief Executive Officer,  
Gas & Oil Pakistan (Pvt) Limited,  
Lahore

**Subject: NO OBJECTION CERTIFICATE FOR INSTALLATION OF BULK OIL DEPOT ON PLOT BEARING KHASRA NO. 392, 393 MOUZA KUND, TEHSIL GADANI, DISTRICT LASBELLA (ADJACENT BYCO REFINERY)**

I am directed to refer to Ministry of Defence O.M. No.2/11/M/3/2017 dated 19<sup>th</sup> December, 2017 on the subject whereby they have asked for submission of Environment Impact Assessment (EIA) report of the proposed site/depot.

2. Accordingly, It is requested to provide 02 sets of the requisite report at an early date for onward submission to Ministry of Defence for proceeding further in the case.

  
**(Imran Ali Abro)**  
Research Officer (M)  
051-9201193

Cc:

Mr. Pervez Iqbal, Lt Cdr Pakistan Navy, Assistant Chief (Maritime),  
Maritime Affairs Wing, Ministry of Defence, Rawalpindi

Annexure 3: Approval of OGRA



(اے ایچ آر اے) OIL & GAS REGULATORY AUTHORITY  
"SAY NO TO CORRUPTION"

Through Courier/Fax  
OGRA (Oil)-19-3(63)/2016 IV  
July 20, 2017

The Chief Executive,  
M/s Gas & Oil Pakistan (Pvt.) Limited,  
23-T, Gulberg II, Off. M.M. Alam Road,  
Lahore

Subject: **EXTENSION IN PROVISIONAL LICENSE TO SET UP AN OIL MARKETING COMPANY**

Dear Sir,

Please refer to your letter no. nil dated May 29, 2017 regarding the subject matter.

2. Although M/s. Gas & Oil Pakistan Pvt Ltd has made healthy progress towards storage infrastructure; however, you are still short of target to achieve the storage development as committed vide your application and as per your current sales for Financial Year 2015-16, therefore, the Authority has decided to extend your provisional license till June 11, 2018 subject to following conditions:

- (i) The company will construct/ develop remaining storage infrastructure (as committed in your submitted infrastructure plan) within the extended time.
- (ii) The company will submit extension of provisional license fee i.e. 2 Million for two years w.e.f. June 12, 2016 (50% of license fee in line with Para-1(a)(ix), Schedule-II of the Oil Rules 2016).

3. Other terms and conditions defined in your letter no. 19-3(63)/2016 dated June 12, 2012 would remain the same.

4. This issues with the approval of the Authority, please.

Yours truly,

  
(Sarmad Aslam)  
Executive Director (Oil)

CC:

- i) The Secretary, M/o Petroleum and Natural Resources, Government of Pakistan, Islamabad.
- ii) The Chief Secretary, Government of the Punjab, Lahore.
- iii) The Chief Secretary, Government of the Sindh, Karachi.
- iv) The Chief Secretary, Government of the Khyber Pakhtunkhwa, Peshawar.
- v) The Chief Secretary, Government of the Balochistan, Quetta.
- vi) The Chief Inspector of Explosives, Rawalpindi.
- vii) The Secretary General, Oil Companies Advisory Council, Karachi.



**BALUCHISTAN PROVINCIAL ASSEMBLY SECRETARIAT**  
**BALUCHISTAN ENVIRONMENTAL PROTECTION BILL 2012 BILL NO. \_\_\_\_**  
**OF 2012.**

**A**  
**BILL**

**Balochistan Environmental Protection Bill 2012.**

to provide for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development

**Preamble**

Whereas, it is expedient to provide for the protection, conservation, rehabilitation and improvement of the environment, prevention and control of pollution, promotion of sustainable development, and for matters connected therewith and incidental thereto;

**Short title, extent and commencement**

1. It is enacted as follows:-
  - (1) *This Act, shall be called the Balochistan Environmental Protection Act, 2012.*
  - (2) *It extends to the whole Province of Balochistan except Tribal Areas.*
  - (3) *It shall come into force at once.*

**Definitions**

2. In this Act, unless there is anything repugnant in the subject or context,—
  - (a) "adverse environmental effect" means impairment of, or damage to, the environment and includes—
    - (i) *human health and property or biodiversity, coast, beaches and ecosystem;*
    - (ii) *pollution; and*
    - (iii) *any adverse environmental effect on Land, Air and Water;*
  - (b) "Agricultural waste" means waste from farm and agricultural activities including poultry, cattle farming, animal husbandry residues from the use of fertilizers, pesticides and other farm chemicals;
  - (c) "Air pollutant" means any substance that causes pollution of air and includes soot, smoke, dust particles, odour, light, electro-magnetic, radiation, heat, fumes, combustion exhaust, exhaust gases, noxious gases, hazardous substances and radioactive substances;
  - (d) "Alien species" means a species that does not occur naturally in Balochistan.
  - (e) "Balochistan coastline or coastal zone" means the territorial jurisdiction of the coastline of the Province of Balochistan.
  - (f) "Best practicable environmental option" means the best method for preventing or minimizing adverse effects on the environment, having regard to, among other things:
    - (i) *the nature of the discharge and the sensitivity of the receiving environment to adverse effects;*
    - (ii) *the financial implications, and the effect on the environment, of that option when compared with other options; and*

(iii) *the current state of technical knowledge and the likelihood that the option can be successfully applied.*

(g) "Biodiversity" or "biological diversity" means the variability among living organisms from all sources, including inter alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, including diversity within species, between species and of ecosystems;

(h) "Clinical waste" means any waste produced by hospitals, clinics, nursing homes, doctor's offices, medical laboratories, medical research facilities and veterinarians which is infectious or potentially infectious.

(i) "Council" means the Balochistan Environmental Protection Council established under section 3;

(j) "Discharge" includes spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping;

(k) "Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit;

(l) "Effluent" means any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor;

(m) "Electronic waste" means discarded computers, office electronic equipment, entertainment device electronics, mobile phones, television sets, Cathode ray tubes (CRT) and refrigerator, VCRs, stereos, copiers, and fax machines. It also includes used electronics which are destined for reuse, resale, salvage, recycling, or disposal and electronic products nearing the end of their "useful life."

(n) "Emission standards" means the permissible standards established by the Provincial Agency for emission of air pollutants and noise and for discharge of effluent and waste;

(o) "Endemic and indigenous species" means a species which occurs naturally in the wild only in Balochistan, or a species which only breeds in the wild in Balochistan.

(p) "Environment" means—

- (i) air, water and land;
- (ii) all layers of the atmosphere;
- (iii) all organic and inorganic matter and living organisms;
- (iv) the ecosystem and ecological relationships;
- (v) buildings, structures, roads, facilities and works;
- (vi) all social and economic conditions affecting community life; and
- (vii) the inter-relationships between any of the factors specified in sub-clauses (i) to (vi);

(q) "Environmental impact assessment" means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigation and



compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed;

(r) "Environmental Magistrate" means the Magistrate of the First Class appointed under Section 32 ;

(s) "Environmental Tribunal" means the Balochistan Environmental Protection Tribunal constituted under section 28;

(t) "Exclusive Economic Zone" shall have the same meaning as in the Territorial Waters and Maritime Zones Act, 1976 (LXXXII of 1976);

(u) "Factory" means any premises in which industrial activity is being undertaken;

(v) "Genetic Resource" means any material of plant, animal, microbial or other origin containing functional units of heredity of actual or potential value.

(w) "Government" means the Government of Balochistan.

(x) "Government Agency" includes—

(i) a department, attached department, bureau, section, commission, board, office or unit of the Provincial Government;

(ii) a developmental or a local authority, company or corporation established or controlled by the Provincial Government; and

(iii) the Balochistan Environmental Protection Agency. ; and

(iv) any other body defined and listed in the Rules of Business of the Provincial Government.

(y) "Handling", in relation to any substance, means the manufacture, processing, treatment, package, storage, transportation, collection, destruction, conversion, offering for sale, transfer or the like of such substance;

(z) "Hazardous substance" means—

(i) a substance or mixture of substances, other than a pesticide as defined in the Agricultural Pesticides Ordinance, 1971 (II of 1971), which, by reason of its chemical activity or toxic, explosive, flammable, corrosive, radioactive or other characteristics, causes, or is likely to cause, directly or in combination with other matters an adverse environmental effect; and

(ii) any substance which may be prescribed as a hazardous substance;

(aa) "Hazardous waste" means waste which is or which contains a hazardous substance or which may be prescribed as hazardous waste and includes hospital waste and nuclear waste;

(bb) "Historic waters" means such limits of the waters adjacent to the land territory of Pakistan as may be specified by notification under section 7 of the Territorial Waters and Maritime Zones Act, 1976 (LXXXII of 1976);

(cc) "Hospital waste" includes waste medical supplies and materials of all kinds, and waste blood, tissue, organs and other parts of the human and animal bodies, from hospitals, clinics and laboratories;

(dd) "Industrial activity" means any operation or process for manufacturing, making, formulating, synthesizing, altering, repairing, ornamenting, finishing, packing or otherwise treating any article or substance with a view to its use, sale, transport, delivery or disposal, or for mining, for oil and gas exploration and development, or for pumping water or sewage, or for generating, transforming or transmitting power or for any other industrial or commercial purpose;

(ee) "Industrial waste" means waste resulting from an industrial activity;

(ff) "Initial Environmental Examination" means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an adverse environmental effect for requiring preparation of an environmental impact assessment;

(gg) "Integrated pollution control" means the holistic system aimed at pollution prevention and minimization at source, managing the impact of pollution and waste on the receiving environment and remediation of damaged and polluted environments.

(hh) "Living modified organism" means any living organism that possesses a novel combination of genetic material obtained through the use of modern technology.

(ii) "local authority" means regional or district set up of EPA or any Agency designated by the Provincial Government, by notification in the official Gazette, to be a local authority for the purposes of this Act;

(jjj) "Local council" means a local council constituted or established under a law relating to local Government;

(kk) "Motor vehicle" means any mechanically propelled vehicle adapted for use upon land whether its power of propulsion is transmitted thereto from an external or internal source, and includes a chassis to which a body has not been attached, and a trailer, but does not include a vehicle running upon fixed rails;

(ll) "Municipal waste" includes sewage, refuse, garbage, waste from abattoirs, sludge and human excreta and the like;

(mm) "Environmental Quality Standards" means standards established by the Federal/Provincial Agencies under clause (e) of sub-section (1) of section 6 and approved by the Council under clause (c) of sub - section (1) of section 4;

(nn) "Noise" means the intensity, duration and character of sounds from all sources, and includes vibration;

(oo) "Nuclear waste" means waste from any nuclear reactor or nuclear plant or other nuclear energy system, whether or not such waste is radioactive;

(pp) "Person" means any natural person or legal entity and includes an individual, firm, association, partnership, society, group, company, corporation, co-operative society, Government Agency, non-governmental organization, community-based organization, village organization, local council or local authority and, in the case of a vessel, the master or other person having for the time being the charge or control of the vessel;

(qq) "Pollution" means the contamination of air, land or water by the discharge or emission of effluent or wastes or air pollutants or noise or other matter which either directly or indirectly or in combination with other discharges or

substances alters unfavorably the chemical, physical, biological, radiation, thermal or radiological or aesthetic properties of the air, land or water or which may, or is likely to make the air, land or water unclean, noxious or impure or injurious, disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to biodiversity;

(rr) "Prescribed" means prescribed by rules made under this Act;

(ss) "Project" means any activity, plan, scheme, proposal or undertaking involving any change in the environment and includes—

- (i) construction or use of buildings or other works;
- (ii) construction or use of roads or other transport systems;
- (iii) construction or operation of factories or other installations;
- (iv) mineral prospecting, mining, quarrying, stone-crushing, drilling and the like;
- (v) any change of land use or water use; and
- (vi) alteration, expansion, repair, decommissioning or abandonment of existing buildings or other works, roads or other transport systems, factories or other installations;

(tt) "Protection of environment" means the qualitative and quantitative improvement of the different components of the environment and prevention of the deterioration of qualitative and quantitative standards;

(uu) "Proponent" means the person who proposes or intends to undertake a project;

(vv) "Provincial Agency" means the Balochistan Environmental Protection Agency established under section 5, or any Government Agency, local council or local authority exercising the powers and functions of the Provincial Agency;

(ww) "Rules & Regulations" means rules and regulation made under this Act;

(xx) "Sewage" means liquid or semi-solid wastes and sludge from sanitary conveniences, kitchens, laundries, washing and similar activities and from any sewerage system or sewage disposal works;

(yy) "Ship breaking" means breaking up of various types of ship for recycling.

(zz) "Standards" means qualitative and quantitative standards for discharge of effluent and wastes and for emission of air pollutants and noise either for general applicability or for a particular area, or from a particular production process, or for a particular product, and includes the Environmental Quality Standards, emission standards and other standards established under this Act and the rules and regulations;

(aaa) "Strategic Environmental Assessment" Strategic environmental assessment (SEA) is a system of incorporating environmental considerations into policies, plans, programmes and strategies. It is sometimes referred to as strategic environmental impact assessment.

(bbb) "Sustainable Development" means development that meets the needs of the present generation without compromising the ability of future generations to meet their needs;

(ccc) "Sustainable Management" means management of the use of natural resources to provide for the health, safety and social, cultural and economic well-being of people and communities taking into account the following:

- (i) safeguarding the life-supporting capacity of natural resources and ecosystems;
- (ii) ensuring the maintenance of the life-supporting capacity and quality of natural resources and ecosystems to meet the reasonably foreseeable

needs of future generations;

(iii) avoiding the creation of adverse effects and, where adverse effects cannot be avoided, mitigates and remedies adverse effects.

(ddd) "Territorial waters" shall have the same meaning as in the Territorial Waters and Maritime Zones Act, 1976 (LXXXII of 1976);

(eee) "Vessel" includes anything made for the conveyance by water of human beings or of goods; and

(fff) "Waste" means any substance or object which has been, is being or is intended to be, discarded or disposed of, and includes liquid waste, solid waste, waste gases, suspended waste, industrial waste, agricultural waste, nuclear waste, municipal waste, hospital waste, used polyethylene bags and residues from the incineration of all types of waste.

(ggg) "Water resource" includes surface water, an aquifer or ground water, a river or spring, a natural channel in which water flows regularly or intermittently, and a wetland, lake or dam into which, or from which, water flows.

**Establishment of the  
Balochistan  
Environmental  
Protection Council.—**

3. (1) The Provincial Government shall, by notification in the official Gazette, establish a Council to be known as the Balochistan Environmental Protection Council consisting of—

(a) Chief Minister or such other person as the Chief Minister may nominate in this behalf.	Chairperson
(b) Minister for Environment	Vice chairperson
(c) Chief Secretary Balochistan	Member
(d) Secretary Environment	Member/Secretary
(e) Secretary Finance	Member
(f) Secretary Industries	Member
(g) Secretary Agriculture	Member
(h) Secretary Forest	Member
(i) Secretary P&D	Member
(j) Secretary S&GAD	Member
(k) Director General EPA	Member

(l) Such other persons not exceeding six (6) as the Provincial Government may appoint, with the following representation:

*One from the Balochistan Chamber of Commerce & Industries and one from the Balochistan Chamber of Agriculture, Two Environment experts/Scientist, One Educationist and One from Non Governmental Organization.*

(2) The Members of the Council, other than ex-officio members, shall be appointed in accordance with the prescribed procedure and shall hold office for a term of two years.

(3) The Council may constitute committees of its members and entrust them with such functions as it may deem fit, and the recommendations of the



committees shall be submitted to the Council for approval. The council or any of such committee may seek assistance from any Government Department or expert in the relevant environmental field in performance of its functions.

**Functions and powers of the Council.—**

4. (1) The Council shall:-
- (a) co-ordinate and supervise enforcement of the provisions of this Act; and
  - (b) approve comprehensive environmental policies and ensure their implementation within the framework of a National /Balochistan conservation strategy as may be approved by the Federal/Provincial Government from time to time;
  - (c) approve the Environmental Quality Standards;
  - (d) provide guidelines for the protection and conservation of species, habitats, and biodiversity in general, and for the conservation of renewable and non-renewable resources.
  - (e) co-ordinate integration of the principles and concerns of sustainable development into development plans and policies;
  - (f) The Council shall frame its own rules of procedure.
  - (g) The Council shall hold meetings, as and when necessary, but not less than two meetings, shall be held in a year.
- (2) The Council may direct the Provincial Agency or any Government Agency to prepare, submit or implement projects for the protection, conservation, rehabilitation and improvement of the environment and the sustainable development of resources or to undertake research in any aspect of environment.

**Establishment of the Balochistan Environmental Protection Agency.**

5. (1) The Government of Balochistan shall by a notification in the official Gazette established Balochistan Environmental Protection Agency to exercise the powers and perform the functions assigned to it under this Act and the rules and regulations made there under.
- (2) The Balochistan Environmental Protection Agency shall be headed by a Director-General who shall be appointed by the Government of Balochistan on such terms and conditions as it may determine.
- (3) The Balochistan Environmental Protection Agency shall have such administrative, technical and legal staff, as the Government of Balochistan may specify, to be appointed in accordance with Balochistan Civil Servant Act 1974.
- (4) The powers and functions of the Balochistan Environmental Protection Agency shall be exercised and performed by the Director-General.
- (5) The Director-General may, by general or special order, delegate any of the powers and functions to staff appointed under sub-section (3).
- (6) For assisting the Balochistan Environmental Protection Agency in the discharge of its functions the Government of Balochistan shall establish Advisory Committees for various sectors and appoint as members thereof representatives of the relevant sector, educational institutions and non- governmental organizations.

**Functions of the  
Balochistan  
Environmental  
Protection Agency**

**6. (1) The Balochistan Environmental Protection Agency shall—**

- (a) administer and implement this Act and the rules and regulations made; thereunder;
- (b) prepare, in co-ordination with the relevant Government Agency and in consultation with the concerned sectors Advisory Committees, environmental policies for approval by the Council;
- (c) take all necessary measures for the implementation of the national environmental policies approved by the Council;
- (d) prepare and publish an Annual Environment Report on the state of the environment;
- (e) establish standards for the quality of the ambient air, water and land, by notification in the official Gazette in consultation with the other relevant Government Departments/ Agencies.
- (f) Revise the Environmental Quality Standards with approval of the Council:

**Provided that**

- (i) before seeking approval of the Council, the Balochistan Environmental Protection Agency shall publish the proposed Environmental Quality Standards for public opinion in accordance with the prescribed procedure; and
- (ii) different standards for discharge or emission from different sources and for different areas and conditions may be specified; where standards are less stringent than the Environmental Quality Standards prior approval of the Council shall be obtained;
- (iii) certain areas, with the approval of the Council, may exclude from carrying out specific activities, projects from the application of such standards;
- (g) co-ordinate environmental policies and programmes;
- (h) establish systems and procedures for surveys, monitoring, measurement, examination, investigation, research, inspection and audit to prevent and control pollution, and to estimate the costs of cleaning up pollution and rehabilitating the environment in various sectors;
- (i) take measures to promote research and the development of science and technology which may contribute to the protection of the environment, and sustainable development;
- (j) certify one or more laboratories as approved laboratories for conducting tests and analysis and one or more research institutes as environmental research institutes for conducting research and investigation for the purposes of this Act.
- (k) initiate legislation in various sectors of the environment;
- (l) render advice and assistance in environmental matters including such information and data available with it as may be required for carrying out the purposes of this Act:

Provided that the disclosure of such information shall be subject to the restrictions contained in the proviso to sub-section (3) of section 15;

- (m) assist the local councils, local authorities, Government Agencies and other persons to implement schemes for the proper disposal of wastes so as to ensure compliance with the standards established by it;
- (n) provide information and guidance to the public on environmental matters;
- (o) recommend environmental courses, topics, literature and books for incorporation in the curricula and syllabi of educational institutions;
- (p) promote public education and awareness of environmental issues through mass media and other means including seminars and workshops;
- (q) specify safeguards for the prevention of accidents and disasters which may cause pollution, collaborate with the concerned person in the preparation of contingency plans for control of such accidents and disasters, and co-ordinate implementation of such plans;
- (r) encourage the formation and working of non-governmental organizations, community organizations and village organizations to prevent and control pollution and promote sustainable development;
- (s) perform any function which the Council may assign to it.

(2) The Balochistan Environmental Protection Agency may—

- (a) undertake inquiries or investigation into environmental issues, either of its own accord or upon complaint from any person or organization;
- (b) request any person to furnish any information or data relevant to its functions;
- (c) initiate with the approval of the **Provincial/Federal Government**, requests for foreign assistance in support of the purposes of this Act and enter into arrangements with foreign agencies or organizations for the exchange of material or information and participate in international seminars or meetings;
- (d) recommend to the Government of Balochistan the adoption of financial and fiscal programmes, schemes or measures for achieving environmental objectives and goals and the purposes of this Act, including—
  - (i) incentives, prizes awards, subsidies, tax exemptions, rebates and depreciation allowances; and
  - (ii) taxes, duties and other levies;
- (e) establish and maintain laboratories to help in the performance of its functions under this Act and to conduct research in various aspects of the environment and provide or arrange necessary assistance for establishment of similar laboratories in the private sector;
- (f) provide or arrange, in accordance with such procedure as may be prescribed, financial assistance for projects designed to facilitate the discharge of its functions.

**Powers of the  
Balochistan  
Environmental  
Protection Agency**

**7. Subject to the provisions of this Act, the Balochistan Environmental Protection Agency may**

- (a) lease, purchase, acquire property both moveable and immovable;
- (b) fix and realize fees, rates and charges for rendering any service or providing any facility, information or data under this Act or the rules and regulations;
- (c) enter into contracts, execute instruments subject to approval of the Provincial Government, necessary for proper management and conduct of its business made thereunder;
- (d) subject to approval of the Provincial Government appoint in accordance with prescribed procedures such experts and consultants as it considers necessary for the efficient performance of its functions on appropriate terms and conditions;
- (e) summon and enforce the attendance of any person and require him to supply any information or document needed for the conduct of any enquiry or investigation into any environmental issue;
- (f) The Director General Balochistan EPA or any other Regional officer specifically authorized in this behalf by the Director General shall have the power to impose fine/administrative penalty up to rupees one hundred thousand from case to case basis.
  - (i) the fine/administrative penalty shall be recovered as per land revenue act.
  - (ii) the fine/administrative penalty initially or for an interim period shall be placed with the Balochistan EPA till the decision of the Environmental Tribunal or Magistrate; and
  - (iii) the fine/administrative penalty after the final decision shall be deposited in the public exchequer.
- (g) enter and inspect and under the authority of a search warrant issued by the Environmental Court or Environmental Magistrate, search at any reasonable time, any land, building, premises, vehicle or vessel or other place where or in which, there are reasonable grounds to believe that an offence under this Act has been, or is being, committed;
- (i) Subject to the provisions of this Act, any person generally or specifically authorized in this behalf by the Director General shall be entitled to enter, at all reasonable times, with such assistance as he considers necessary, any building or place for the following purposes, namely:-
  - a) to perform duties conferred on him under this Act or rules;
  - b) to inspect any activity in such building or place in accordance with this Act, the rules or any notice, order or direction issued thereunder;
  - c) to examine or test any equipment, industrial plant, record, register or any other important matter relating thereto;
  - d) to conduct a search of any building or place which the said person has reason to believe to have been the place of occurrence of any offence in contravention of any notice, order or direction issued under this Act or the



rules;

e) to seize/close any equipment, industrial plant, record, register, document or other matter which may serve as evidence of the commission of any offence punishable under this Act or the rules.

(ii) The provisions of the Code of Criminal Procedure shall be applicable in respect of any search or seizure under this Act.

(a) take samples of any materials, products, articles or substances or of the effluent, wastes or air pollutants being discharged or emitted or of air, water or land in the vicinity of the discharge or emission;

(b) arrange for test and analysis of the samples at a certified laboratory;

(i) Every person authorized in this behalf by the Director General may, in such manner as may be prescribed by rules, collect from any factory, premises or place samples of air, water, soil or of any other substance for the purpose of analysis.

(ii) The results of the analysis of samples collected under clause (i) shall not be admissible in evidence in any legal proceeding unless the provisions of the clauses (iii) and (iv) have been complied with.

(iii) Subject to the provisions of sub-section (4), the officer collecting a sample under clause (i) shall-

(a) serve notice on the owner or proponent or agent of the said place, in such manner as may be prescribed by rules, of his intention to collect such sample;

(b) collect the sample in the presence of the said occupier or agent;

(c) put the sample into a container and affix on it a seal bearing the signatures of himself and of the occupier or agent;

(d) prepare a report of the sample collected and sign it himself and take the signature of the occupier or agent;

(e) send without any delay, the said container to the laboratory specified by the Director General EPA.

(iv) Where a sample is collected under clause (i) and a notice is served by the collecting officer under sub clause a) of clause (iii), the collecting officer shall, if the occupier or agent willfully absents himself at the time of the collection of the sample or, though being present, refuses to sign the sample or report, in the presence of two witnesses, give his signature and attest and seal it and shall send it without any delay to the laboratory specified by the Director General, mentioning that the occupier or agent had not been present or, as the case may be, refused to give his signature.

(i) confiscate any article used in the commission of the offence where the offender is not known or cannot be found within a reasonable time:

Provided that the power under clauses (f), (h), (i) and (j) shall be exercised in accordance with the provisions of the Code of Criminal Procedure, 1898 (Act V of 1898), or the rules made under this Act and under the direction of the Environmental

Tribunal or Environmental Magistrate; and

(j) establish an Environmental Co-ordination Committee comprising the Director-General as its chairman and the heads of relevant Government Agencies and such other persons as the Government of Balochistan may appoint as its members to exercise such powers and perform such functions as may be delegated or assigned to it by the Government of Balochistan for carrying out the purposes of this Act and for ensuring inter departmental co-ordination in environmental policies.

**Establishment, powers and functions of the Regional or District Environmental Protection Agencies.—**

8. (1) Government of Balochistan shall, by notification in the official Gazette, establish the Regional or District Environmental Protection Agency, to exercise such powers and perform such functions as may be delegated to it by the Government of Balochistan under sub-section (2) of section 34.
- (2) The Regional or District Environmental Protection Agency shall be headed by an officer at least of the rank of regional Director or Deputy Director who shall be appointed by the Provincial Government on such terms and conditions as prescribed in the Balochistan Civil Servant Act 1974.
- (3) The Regional or District Environmental Protection Agency shall have such administrative, technical and legal staff as the Government of Balochistan may specify, to be appointed in accordance with the Balochistan Civil Servants Appointment, Promotion and Transfers Rules 2009 such procedure as may be prescribed.
- (4) The powers and functions of the Regional or District Environmental Protection Agency shall be exercised and performed by an Officer of the rank of regional Director or Deputy Director appointed as head.
- (5) The Director General may, by general or special order, delegate any of the powers and functions to staff appointed under sub-section (3).

**Establishment of the Balochistan Sustainable Development Funds.—**

9. (1) There shall be established in the Province a Balochistan Sustainable Development Fund.
- (2) The Balochistan Sustainable Development Fund shall be derived from the following sources, namely:—
- (a) grants made or loans advanced by the Federal Government or the Provincial Government;
  - (b) aid and assistance, grants, advances, donations and other non-obligatory funds received from foreign governments, national or international agencies, and non-governmental organizations; and
  - (c) contributions from private organizations and other persons.
- (3) The Balochistan Sustainable Development Fund shall be utilized in accordance with such procedure as may be prescribed for—
- (a) providing financial assistance to the projects in the public/private sector designed for the protection, conservation, rehabilitation and improvement of the environment, the prevention and control of pollution, the sustainable development of resources and for research in any aspect of environment; and
  - (b) any other purpose which in the opinion of the Board shall help to achieve environmental objectives and the purposes of this Act.

**Management of the  
Balochistan Sustainable  
Development Fund.—**

10. (1) The Balochistan Sustainable Development Fund shall be managed by a Board known as the Sustainable Development Fund Board consisting of:-

- |   |             |
|---|-------------|
| (i) Secretary Environment Department      | Chairperson |
| (ii) Secretary Industries Department      | Member      |
| (iii) Secretary Social welfare Department | Member      |
| (iv) Secretary Finance Department         | Member      |
| (v) Secretary Forest Department           | Member      |
| (vi) Secretary Agriculture Department     | Member      |

(vii) such non-official persons not exceeding six (6) as the Members Government of Balochistan may appoint including two (2) representatives of the Balochistan Chamber of Commerce and Industry, two (2) representatives of the Balochistan Chamber of Agriculture and two (2) representative of leading non-governmental organizations/donors.

(viii) Director General, Balochistan Environmental Protection Agency  
Member/Secretary

(2) the Board shall have the power to—

(a) sanction financial assistance for eligible projects; as specified in section 9(3) of this Act

(b) invest moneys held in the Balochistan Sustainable Development Fund in such profit - bearing Government bonds, savings schemes and securities as it may deem suitable; and

(3) The Board shall constitute committees of its members to undertake regular monitoring of projects financed from the Balochistan Sustainable Development Fund and to submit progress reports to the Board which shall publish an Annual Report incorporating its annual audited accounts and performance evaluation based on the progress reports.

(4) Audit of the fund shall be conducted on annual basis.

**Inter-Provincial  
Environmental  
issues:-**

11. (1) The project falling within the geographical jurisdiction of two or more Provinces, the IEE or EIA may be submitted by the proponent to each Provincial Environmental Agencies for review and approval.

(2) In case of any dispute or concerns the matter shall be settled through mutual consultation of the Provinces to avoid any inconveniences or future litigation.

(3) The concerned Provinces may constitute a joint technical or review committee including a representative of the concerned Federal Ministry dealing with Environment and coordination.

**Multilateral  
Environmental  
Agreements:-**

12. (1) The obligation of the International Conventions, Treaties and Protocols shall be observed as before devolution of the subject of Environment to the Province on Environment or climate change. In case of any international/ bilateral cooperation, the matter shall be proceeded with consultation with the concerned Federal Ministries.

(2) The Government of Balochistan/ Environmental Protection Agency shall extend support to those obligation of the International Conventions, Treaties and Protocols where adequate assistance provided by the Federal Government.

**Strategic Environment Assessment (SEA):-**

13. (1) This section regulates the conditions, methods and procedure according to which the assessment of impact of certain plans and programmes on the environment (hereinafter referred to as: strategic assessment) shall be carried out in order to provide for the environmental protection and improvement of sustainable development through integration of basic principles of environmental protection into the procedure of preparation and adoption of plans and programmes.
- (2) The Government at all levels of administration and in every sector shall incorporate environmental considerations into policies, plans, programmes and strategies.

**Prohibition of certain discharges or emissions and potential harmful items or materials :-**

14. (1) Subject to the provisions of this Act and the rules and regulations no person shall discharge or emit or allow the discharge or emission of any effluent or waste or air pollutant or noise in an amount, concentration or level or is likely to cause, a significant adverse effect on the environment or human health which is in excess of the Environmental Quality Standards or, where applicable, the standards established under sub -clause (ii) of clause (f) of section 6.
- (2) The Government of Balochistan shall not allow any imported or locally made commodities or items or materials or equipment or instruments or automobile or pesticides etc, into its provincial jurisdiction which may have any potential of causing Environmental problems.
- (3) No person or company related to public and private sector shall introduce any of the imported or locally made items or materials or equipment or instruments or automobile or pesticides etc as per subsection (2) for any purpose unless it has filed an application to the Balochistan Environmental Protection Agency, as the case may be, and has obtained approval from the Government Agency in respect thereof.
- (4) The Government of Balochistan may levy a pollution charge on any person who contravenes or fails to comply with the provisions of sub-section (1), to be calculated at such rate, and collected in accordance with such procedure as may be prescribed.
- (5) Any person who pays the pollution charge levied under sub-section (2) shall not be charged with an offence with respect to that contravention or failure.
- (6) The approved license in terms of section 15 of this Act does not affect the applicant's duty to obtain any other authorization required in order to undertake the activity or implement the project concerned, whether in terms of this Act or any other legislation
- (7) A person /firm causing discharge of pollutants shall take all reasonable measures to ensure that the best practicable environmental option is adopted in relation to the discharge of emission and conservation of the environment.

**Initial Environmental Examination and Environmental Impact Assessment. —**

15. (1) No proponent of a project of public and private sector shall commence construction or operation unless he has filed an Initial Environmental Examination with the Government Agency designated by Balochistan Environmental Protection Agency, as the case may be, or, where the project is likely to cause an adverse environmental effects an environmental impact assessment, and has obtained from the Government Agency approval in respect thereof.
- (2) The Government Agency shall subject to standards fixed by the Balochistan



Environmental Protection Agency—

- (a) review the initial environmental examination and accord its approval, or require submission of an environmental impact assessment by the proponent; or
  - (b) review the environmental impact assessment and accord its approval subject to such conditions as it may deem fit to impose, require that the environmental impact assessment be re-submitted after such modifications as may be stipulated or reject the project as being contrary to environmental objectives.
- (3) Every review of an environmental impact assessment shall be carried out with public participation and no information will be disclosed during the course of such public participation which relates to—
- (i) trade, manufacturing or business activities, processes or techniques of a proprietary nature, or financial, commercial, scientific or technical matters which the proponent has requested should remain confidential, unless for reasons to be recorded in writing, the Director General of the Balochistan Environmental Protection Agency is of the opinion that the request for confidentiality is not well-founded or the public interest in the disclosure outweighs the possible prejudice to the competitive position of the project or its proponent; or
  - (ii) international relations, national security or maintenance of law and order, except with the consent of the Government of Balochistan; or
  - (iii) matters covered by legal professional privilege.
- (4) The Government Agency shall communicate its approval or otherwise within a period of four months from the date the initial environmental examination or environmental impact assessment is filed complete in all respects in accordance with the prescribed procedure, failing which the initial environmental examination or, as the case may be, the environmental impact assessment shall be deemed to have been approved, to the extent to which it does not contravene the provisions of this Act and the rules and regulations.
- (5) Subject to sub-section (4) the appropriate Government may in a particular case extend the aforementioned period of four months if the nature of the project so warrants.
- (6) The provisions of sub-sections (1), (2), (3), (4) and (5) shall apply to such categories of projects and in such manner as may be prescribed.
- (7) The Government Agency shall maintain separate registers for initial environmental examination and environmental impact assessment projects, which shall contain brief particulars of each project and a summary of decisions taken thereon, and which shall be open to inspection by the public at all reasonable hours and the disclosure of information in such registers shall be subject to the restrictions specified in sub-section (3).
- (8) No concession areas for any developmental activities shall be awarded to any International/National groups or firms without consultation and concurrence of the Government of Balochistan/Environmental Protection Agency.
- (9) The prospect licenses for mining, quarrying, crushing etc. shall only be awarded/ granted in compliance with the sub section (1), (2), (3), (4) and (5).
- (10) The cellular companies shall obtain environmental approval from the Balochistan EPA before installing Base Transceiver Station (BTS).

(11) BTS Stations should be required to undergo routine evaluation for Compliance. Whenever an application is submitted to the Balochistan EPA for construction or modification of a transmitting facility. EPA shall have the authority to take action if a cellular base station antenna does not comply with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines and recommendations of the report titled 'Environmental and Health Related Effects of the Cellular Base Station Antennas' carried out by IT and Telecom Division, Ministry of Information Technology.

(12) No person or company related to public and private sector shall commence construction or operation unless the concerned building authority accord approval under the provisions of the in vogue Building Code.

(13) after fulfilling the sub section (12) an action plan shall be submitted to the concerned municipal/town/union council to carry out the activities for a specific time period as to provide the general public or road users an alternative corridor.

(14) the waste generated during the construction or maintenance or repair of any building shall be appropriately disposed of or transported or collected to a designated place allocated for the purpose like any land fill site to avoid public nuisance.

(15) the construction or repair activities especially in the main city area shall be carried out in a manner to minimize the road congestion or blockage.

(16) the proponent of the project shall remit fifty thousand rupees as review fee of an Initial Environmental Examination (IEE) and one hundred thousand as review fee for Environmental Impact Assessment (EIA).

(17) the person or company in public or private sector intend to commence any scheme or project do not falling under schedule I and II of this Act shall remit twenty five thousand rupees as an Environmental approval fee to the Balochistan Environmental Protection Agency.

**Prohibition of import of hazardous waste.—**

16. No person shall import hazardous waste into Balochistan and its jurisdiction limits.

**Handling of hazardous substances and License:-**

17. (1) Subject to the provisions of this Act, no person shall generate, collect, consign, transport, treat, dispose of, store, handle or import any hazardous substance except—

(a) under a license issued by the Government of Balochistan and in such manner as may be prescribed; or

(b) in accordance with the provisions of any other law for the time being in force, or of any international treaty, convention, protocol, code, standard, agreement or other instrument to which Pakistan is a party.

(2) Every owner or proponent of any land or premises on which hazardous waste is kept, treated or disposed of shall make a written application to the Balochistan Environmental Protection Agency for a hazardous waste management license, which shall at least include details of:

- a) the chemical composition, nature and volume of the waste which is being, or will be, produced;
- b) the industrial process, trade or activity giving rise to the waste;
- c) the way in which the applicant proposes to keep, treat or dispose of the hazardous waste, including storage and handling procedures;
- d) the precautions which will be taken to avoid any adverse effects on the environment being caused by the hazardous waste.

- (3) the Balochistan Environmental Protection Agency shall evaluate each application for a license under this Article in the following manner:
- grant a hazardous waste management license, with or without conditions, if satisfied that the proposed method of keeping, treating and disposing of the hazardous waste will not cause any adverse effects; or
  - refuse to grant a license giving reasons for the refusal in writing to the applicant.
- (4) the Balochistan Environmental Protection Agency would take a decision in regard to subsection 2 within thirty (30) days of the date of lodging of the application for a license.
- (5) The license shall be granted for a reasonable period not exceeding five years. On expiry of the license for renewal same procedure shall be followed.

#### Electronic Wastes:-

18. (1) Every producer, distributor, collection centre, refurbisher, dismantler or recyclers shall store the electronic waste for a period not exceeding six months and shall maintain a record of collection, sale, transfer, storage and segregation of wastes and make these records available for inspection: Provided that the Balochistan Environmental Protection Agency may extend the said period in following cases, namely:
- Dismantlers and Recyclers up to six months of their annual storage capacity of the owner; or
  - Collection centers who do not have access to any registered dismantling or recycling facility; or
  - the waste which needs to be specifically stored for development of a process for its recycling, reuse.
- (2) Every producer, distributor, collection centre, refurbisher, dismantler or recyclers shall make arrangements for the environmentally sound management and disposal of electronic waste.
- (3) the 'environmentally sound management of electronic waste' as "taking all steps required to ensure that electronic waste are managed in a manner which shall protect health and environment against any adverse effects, which may result from hazardous substance contained in such wastes."
- (4) the provisions of this section shall apply to every producer, consumer and bulk consumer involved in manufacture, sale, purchase and processing of electronic equipment or components.
- (5) information dissemination on electronic waste and the environmentally sound management of electronic waste is also mandated from producers.
- (6) to regulate the provisions of this section all the relevant international conventions, protocols and treaties collectively called as multilateral environmental agreements (MEAs) shall be applicable where Pakistan is signatory or ratified the MEAs.
- (7) any person or company or unit who contravenes or fails to comply with the provisions of the above subsections shall be imposed penalty under section 25 of this act.

#### General Prohibition in relation to Solid and Hospital Waste management and Waste Management License:-

19. (1) No person may collect, transport, sort, recover, store, dispose of or otherwise manage waste in a manner that results in a significant adverse effect.
- (2) Every person who imports, produces, collects, recovers, transports, keeps, treats or disposes of waste shall take all reasonable measures to prevent a significant adverse effect on the environment from occurring.
- (3) The owner or proponent of every premises upon which solid and hazardous hospital waste is produced shall ensure that all hazardous waste whether solid or hospital waste is separated from other waste, and is stored in separate containers pending disposal, in accordance with the requirements of the Balochistan Environmental Protection Agency as set out in regulations, published guidelines or license conditions.



- (4) A person shall not dispose of solid and hazardous hospital waste in such a manner that it becomes litter or is likely to become litter.
- (5) Unless in possession of a valid waste management license issued by the Balochistan Environmental Protection Agency, no person may construct, own or operate a landfill site, incinerator or other facility at which waste is permanently disposed of or is stored indefinitely.
- (6) The Balochistan Environmental Protection Agency shall evaluate each application for a license and shall do the following:
- grant a license if the Balochistan Environmental Protection Agency is satisfied that the applicant has sufficient expertise to undertake the activity in question in accordance with the law and in a manner that will not have significant adverse effects; or
  - refuse to grant a license giving reasons for the refusal in writing to the applicant.
- (7) The Balochistan Environmental Protection Agency shall reach a decision in regard to subsection 2 within thirty (30) days of the date of lodging of the application for a license with the Balochistan Environmental Protection Agency.
- (8) If there are reasonable grounds to grant license, and those grounds are communicated to the license holder in writing, the Balochistan Environmental Protection Agency may amend, revoke or impose new conditions in an existing waste management license.
- (9) The license granted under subsection (6) shall be subject to review if condition of license granted are not fulfilled.

**Management of Water Resources:-**

20. (1) All persons, for the purpose of protection, conservation, development, use, control and management of water resources, would take into account the following measures:
- protecting aquatic and associated ecosystems and their biological diversity;
  - reducing and preventing pollution and degradation of water resources.
- (2) When preparing water resource management plans, Departments and other relevant institutions shall at least take the following into account:
- provisions for integrated watershed management;
  - regulation of sustainable abstraction of groundwater;
  - regulation of the use of ground or surface water for agricultural, industrial, mining, and urban purposes;
  - measures to protect human health and ecosystems;
  - measures to protect wetlands and their associated ecosystems;
  - any other provision necessary for the sustainable use and management of water resources.
- (3) An owner of land or a person who uses the land on which any activity or process is performed or undertaken which causes or is likely to cause significant pollution of a water resource must take measures to prevent any such pollution.

**Regulation of motor vehicles.**

21. (1) Subject to the provisions of this Act, and the rules and regulations, no person shall operate a motor vehicle from which air pollutants or noise are being emitted in an amount, concentration or level which is in excess of the Environmental Quality Standards, or where applicable the standards established under clause (e) of section 6 (1).
- (2) For ensuring compliance with the standards mentioned in sub-section (1), the Balochistan Environmental Protection Agency may direct that any motor vehicle or class of vehicles shall install such pollution control devices or other equipment or use such fuels or undergo such maintenance or testing as may be prescribed.
- (3) Where a direction has been issued by the Government Agency under subsection (2) in respect of any motor vehicles or class of motor vehicles, no person shall operate any such vehicle till such direction has been complied with.



(4) To regulate the provision of this Act a green squad comprising of representative of Traffic Police, Motor Vehicle Examiner, Excise & Taxation and EPA Balochistan shall be in place to monitor and inspect the automobiles running on the road as per the Environment Quality Standard.

(5) The inspection or monitoring shall be carried out at least once in a month wherein a mechanism be chalked out for issuance of warning tickets (red: Highly polluted, Blue: less polluted) on a prominent on the vehicle, as the case may be for specific period of time not exceeding 30 days to maintain the vehicle in order.

(6) Whoever contravenes or fails to comply with the provision of subsection (5) such vehicle should be made off road or punishable with fine at least twenty thousand rupees which may be extended to one hundred thousand rupees. In the case of continuing contravention or failure the vehicle shall be impounded.

#### **Alien Species and Living Modified Organisms:-**

22. (1) The import into Balochistan of alien species and of living modified organisms is prohibited without a permit issued by the relevant authority under any law enforce in Balochistan. The Balochistan Environmental Protection Agency in consultation with the Departments of Agriculture, Livestock and Animal Husbandry and Food shall monitor the matter.
- (2) No permit for the introduction of an alien species or of a living modified organism shall be issued unless the environmental impact indicates that there is a reasonable certainty that no harm to indigenous natural resources or human health will result from the proposed introduction.
- (3) Subsection 1 and 2 of this Section shall apply equally to introductions of alien species and living modified organisms into the Province of Balochistan and to introductions from one ecosystem to another within the province.
- (4) The introduction of alien species and living modified organisms into protected areas shall not be allowed.

#### **Coastal Zone:-**

23. (1) Subject to the provisions of this Act the activities or concentration or level of discharges of the following units established on onshore and offshore shall be monitored strictly to prevent the pollution and environmental degradation caused by the following multi-magnitude and multidisciplinary units.
  - a) Ports and shipping
  - b) Fisheries
  - c) Ship dismantling
  - d) Shipping Traffic (Oil Tankers & Vessels) & dredging.
  - e) Oil and gas mineral exploration.
  - f) Coastal power plants and Energy sector.
  - g) Oil refineries and Industries
- (2) The ship breaking at Gaddani or anywhere else in the coastal belt/zone of this province shall be subject to fulfilling all the relevant obligations under the Basel Convention "on the Control of Trans-boundary Movements of Hazardous Waste and their Disposal", Rotterdam Convention "on the prior Informed Consent(PIC) Procedure for certain Hazardous Chemicals and Pesticides in International Trade" and other relevant Treaties/Protocols and provisions of this Act.
- (3) During the process of ship breaking/dismantling the waste, hazardous waste or sludge or Polychlorinated biphenyls or asbestos etc, shall be disposed of in a manner to ensure Protection of Terrestrial and Marine environment.
- (4) The activities of ship breaking/dismantling activities on shore or offshore within territorial limit of Balochistan shall be monitored at least biannually to ensure environmental protection and prevent degradation and pollution.

(5) The disposal of untreated sewage and domestic wastes and untreated disposal of industrial effluents into the sea is an offence any person or company or unit who contravenes or fails to comply with the provisions of this Act shall face to penalty under section 25.

**Environmental protection order.**

24. (1) Where the Balochistan Environmental Protection Agency is satisfied that the discharge or emission of any effluent, waste, air pollutant or noise, or the disposal of waste, or the handling of hazardous substances, or any other act or omission is likely to occur, or is occurring, or has occurred, in violation of the provisions of this Act, rules or regulations or of the conditions of a license, and is likely to cause, or is causing or has caused an adverse environmental effect, the Balochistan Environmental Protection Agency may, after giving the person responsible for such discharge, emission, disposal, handling, act or omission an opportunity of being heard, by order direct such person to take such measures that the Balochistan Environmental Protection Agency may consider necessary within such period as may be specified in the order.

(2) In particular and without prejudice to the generality of the foregoing power, such measures may include—

(a) immediate stoppage, preventing, lessening or controlling the discharge, emission, disposal, handling, act or omission, or to minimize or remedy the adverse environmental effect;

(b) installation, replacement or alteration of any equipment or thing to eliminate, control or abate on a permanent or temporary basis, such discharge, emission, disposal, handling, act or omission;

(c) action to remove or otherwise dispose of the effluent, waste, air pollutant, noise, or hazardous substances; and

(d) action to restore the environment to the condition existing prior to such discharge, disposal, handling, act or omission, or as close to such condition as may be reasonable in the circumstances, to the satisfaction of the Balochistan Environmental Protection Agency.

(3) Where the person, to whom directions under sub-section (1) are given, does not comply therewith, the Balochistan Environmental Protection Agency may, in addition to the proceedings initiated against him under this Act, the rules and regulations, itself take or cause to be taken such measures specified in the order as it may deem necessary and may recover the reasonable costs of taking such measures from such person as arrears of land revenue.

**Penalties**

25. (1) Whoever contravenes or fails to comply with the provisions of sections 14, 15, 16, 18 or section 24 or any order issued there-under shall be punishable with fine which may extend to one million rupees, and in the case of a continuing contravention or failure, with an additional fine which may extend to one hundred thousand rupees for every day during which such contravention or failure continues:

Provided that if contravention of the provisions of section 14 also constitutes contravention of the provisions of section 21, such contravention shall be punishable under sub-section (2) only.

(2) Whoever contravenes or fails to comply with the provisions of section 17, 19, 21, 22 or 23 or any rule or regulation or conditions of any license, any order or direction, issued by the Council or the Balochistan Environmental Protection Agency, shall be punishable with fine which may extend to one hundred thousand rupees, and in case of continuing contravention or failure

with an additional fine which extend to one thousand rupees for every day during which such contravention continues.

(3) Where an accused has been convicted of an offence under sub-sections (1) and (2), the Environmental Court and Environmental Magistrate, as the case may be, shall, in passing sentence, take into account the extent and duration of the contravention or failure constituting the offence and the attendant circumstances.

(4) Where an accused has been convicted of an offence under sub-section (1) and the Environmental Court is satisfied that as a result of the commission of the offence monetary benefits have accrued to the offender, the Environmental Court may order the offender to pay, in addition to the fines under sub-section (1), further additional fine commensurate with the amount of the monetary benefits.

(5) Where a person convicted under sub-sections (1) or sub-section (2) had been previously convicted for any contravention under this Act, the Environmental Court or, as the case may be, Environmental Magistrate may, in addition to the punishment awarded thereunder—

(a) endorse a copy of the order of conviction to the concerned trade or industrial association, if any, or the concerned Provincial Chamber of Commerce and Industry or the Federation of Pakistan Chambers of Commerce and Industry;

(b) sentence him to imprisonment for a term which may extend to two years;

(c) order the closure of the factory;

(d) order confiscation of the factory, machinery, and equipment, vehicle, material or substance, record or document or other object used or involved in contravention of the provisions of the Act;

Provided that for a period of three years from the date of commencement of this Act the sentence of imprisonment shall be passed only in respect of persons who have been previously convicted for more than once for any contravention of sections 14, 16, 17, 18, 19 or 24 involving hazardous waste;

(e) order such person to restore the environment at his own cost, to the conditions existing prior to such contravention or as close to such conditions as may be reasonable in the circumstances to the satisfaction of the Balochistan Environmental Protection Agency; and

(f) order that such sum be paid to any person as compensation for any loss, bodily injury, damage to his health or property suffered by such contravention.

(6) The Director-General of the Balochistan Environmental Protection Agency or an officer generally or specially authorized by him in this behalf may, on the application of the accused compound an offence under this Act with the permission of the Environmental Tribunals or Environmental Magistrate in accordance with such procedure as may be prescribed.

(7) Where the Director-General of the Balochistan Environmental Protection Agency is of the opinion that a person has contravened any provision of Act he may, subject to the rules, by notice in writing to that person require him to pay to the Balochistan Environmental Protection Agency an



administrative penalty in the amount set out in the notice for each day the contravention continues; and a person who pays an administrative penalty for a contravention shall not be charged under this Act with an offence in respect of such contravention.

(8) The provisions of sub-sections (6) and (7) shall not apply to a person who has been previously convicted of offence or who has compounded an offence under this Act who has paid an administrative penalty for a contravention of any provision of this Act.

**Offences by bodies corporate**

26. Where any contravention of this Act has been committed by a body corporate, and it is proved that such offence has been committed with the consent or connivance of, or is attributed to any negligence on the part of, any director, partner, manager, secretary or other Officer of the body corporate, such director, partner, manager, secretary or other officer of the body corporate, shall be deemed guilty of such contravention along with the body corporate and shall be punished accordingly:

Provided that in the case of a company as defined under the Companies Ordinance, 1984 (XLVII of 1984), only the Chief Executive as defined in the said Ordinance shall be liable under this section.

Explanation.— For the purposes of this section, "body corporate" includes a firm, association of persons and a society registered under the Societies Registration Act, 1860 (XXI of 1860), or under the Co-operative Societies Act, 1925 (VII of 1925).

**Offences by Government Agencies, local authorities or local councils.**

27. Where any contravention of this Act has been committed by any Government Agency, local authority or local council, and it is proved that such contravention has been committed with the consent or connivance of, or is attributable to any negligence on the part of, the Head or any other officer of the Government Agency, local authority or local council, such Head or other officer shall also be deemed guilty of such contravention along with the Government Agency, local authority or local council and shall be liable to be proceeded against and punished accordingly.

**Balochistan Environmental Tribunals.—**

28. (1) The Government of Balochistan may, by notification in the official gazette establish Balochistan Environmental Protection Tribunals which shall exercise jurisdiction under this Act.

(2) The Balochistan Environmental Protection Tribunal shall consist of a Chairperson who is, or has been, or is qualified for appointment as, a judge of the High Court to be appointed after consultation with the Chief Justice of the High Court and two members to be appointed by the Government of Balochistan which at least one shall be a technical member with suitable professional qualifications and experience; in the environmental field as may be prescribed. For every sitting of the Balochistan Environmental Protection Tribunal the presence of the Chairperson and not less than one Member shall be necessary.

(3) A decision of Balochistan Environmental Protection Tribunal shall be expressed in terms of the opinion of the majority or if the case has been decided by the Chairperson and only one of the members and a there is a difference of opinion between them, the decision of the Balochistan Environmental Protection Tribunal shall be expressed in terms of the opinion of the Chairperson.

(4) Balochistan Environmental Protection Tribunal shall not, merely by reason of a change in its composition, or the absence of any member from any sitting, be bound to recall and rehear any witness who has given evidence, and

may act on the evidence already recorded by, or produced, before it.

(5) Balochistan Environmental Protection Tribunal may hold its sittings at such places within its territorial jurisdiction as the Chairperson may decide.

(6) No act or proceeding of Balochistan Environmental Protection Tribunal shall be invalid by reason only of the existence of a vacancy in, or defect in the constitution, of, the Balochistan Environmental Protection Tribunal.

(7) The terms and conditions of service of the Chairperson and members of the Balochistan Environmental Protection Tribunal shall be such as may be prescribed.

**Jurisdiction and powers of Balochistan Environmental Tribunals.**

29.

(1) Balochistan Environmental Protection Tribunal shall exercise such powers and perform such functions as are, or may be, conferred upon or assigned to it by or under this Act or the rules and regulations made there under.

(2) All contravention punishable under sub-section (1) of section 25 shall exclusively be triable by Balochistan Environmental Protection Tribunal.

(3) Balochistan Environmental Protection Tribunal shall not take cognizance of any offence triable under sub-section (2) except on a complaint in writing by-

(a) the Government Agency or local council; and

(b) any aggrieved person, who has given notice of not less than thirty days to the Provincial Agency concerned, of the alleged contravention and of his intention to make a complaint to the Environment Tribunal.

(4) In exercise of its criminal jurisdiction, the Balochistan Environmental Protection Tribunal shall have the same powers as are vested in Court of Session under the Code of Criminal Procedure, 1898 (Act V of 1898).

(5) In exercise of the appellate jurisdiction under section 22 the Balochistan Environmental Protection Tribunal shall have the same powers and shall follow the same procedure as an appellate court in the Code of Civil Procedure, 1908 (Act V of 1908).

(6) In all matters with respect to which no procedure has been provided for in this Act, the Balochistan Environmental Protection Tribunal shall follow the procedure laid down in the Code of Civil Procedure, 1908 (Act V of 1908).

(7) Balochistan Environmental Protection Tribunal may, on application filed by any officer duly authorized in this behalf by the Director-General of the Balochistan Environmental Protection Agency, issue bail able warrant for the arrest of any person against whom reasonable suspicion exist, of his having been involved in contravention punishable under sub-section (1) of Section 25:

Provided that such warrant shall be applied for, issued, and executed in accordance with the provisions of the Code of Criminal Procedure, 1898 (Act V of 1898):

Provided further that if the person arrested executes a bond with sufficient sureties in accordance with the endorsement on the warrant he

shall be released from custody, failing which he shall be taken or sent without delay to the officer in-charge of the nearest police station.

(8) All proceedings before the Balochistan Environmental Protection Tribunal shall be deemed to be judicial proceedings within the meaning of section 193 and 228 of the Pakistan Penal Code (Act XLV of 1860), and the Balochistan Environmental Protection Tribunal shall be deemed to be a court for the purpose of section 480 and 482 of the Code of Criminal Procedure, 1898 (Act V of 1898).

(9) No court other than Balochistan Environmental Protection Tribunal shall have or exercise any jurisdiction with respect to any matter to which the jurisdiction of Balochistan Environmental Protection Tribunal extends under this Act, the rules and regulations made thereunder.

(10) Where the Balochistan Environmental Protection Tribunal is satisfied that a complaint made to it under sub-section (3) is false and vexatious to the knowledge of the complainant, it may, by an order, direct the complainant to pay to the person complained against such compensatory costs which may extend to five hundred thousand rupees.

#### Appeals to the Environmental Tribunal.—

30. (1) Any person aggrieved by any order or direction of the Balochistan Environmental Protection Agency under any provision of this Act, and rules or regulations may prefer an appeal with the Balochistan Environmental Protection Tribunal within thirty days of the date of communication of the impugned order or direction to such person.

(2) An appeal to the Balochistan Environmental Protection Tribunal shall be in such form, contain such particulars and be accompanied by such fees as may be prescribed.

#### Appeals from orders of the Environmental Tribunal

31. (1) Any person aggrieved by any final order or by any sentence of the Balochistan Environmental Protection Tribunal passed under this Act may, within thirty days of communication of such order or sentence, prefer an appeal to the High Court.

(2) An appeal under sub-section (1) shall be heard by a Bench of not less than two Judges.

#### Jurisdiction of Environmental Magistrates.

32. (1) Notwithstanding anything contained in the Code of Criminal Procedure, 1898 (Act V of 1898), or any other law for the time being in force, but subject to the provisions of this Act, all contravention punishable under sub-section (2) of section 25 shall exclusively be trial-able by Environmental Magistrate especially empowered in this behalf under section 14 of the Code of Criminal Procedure, 185 (Act No. V of 1898).

(2) An Environmental Magistrate shall be competent to impose any punishment specified in sub-sections (2) and (4) of section 25.

(3) An Environmental Magistrate shall not take cognizance of an offence trial able under sub-section (1) except on a complaint in writing by—

(a) the Balochistan Environmental Protection Agency, or Government Agency or a local council; and

(b) any aggrieved person.



<b>Appeals from orders of Environmental Magistrates.</b>	<b>33.</b> Any person convicted of any contravention of this Act or the rules or regulations by an Environmental Magistrate may, within thirty days from the date of his conviction, appeal to the Court of Sessions whose decision thereon shall be final.
<b>Power to delegate.</b>	<p><b>34.</b> (1) The Government of Balochistan may, by notification in the official Gazette, delegate any of its or of the Balochistan Environmental Protection Agency powers and functions under this Act and the rules and regulations to any Government Agency, local council or local authority.</p> <p>(2) The Balochistan Environmental Protection Agency may also by notification in the official Gazette, delegate any of its powers or functions under this Act and the rules and regulations to EPA Regional or sub-offices. In case of nonexistence of its Regional/Sub-offices may delegate its powers or functions to any local council or local authority in the Province.</p>
<b>Power to give directions.</b>	<b>35.</b> In the performance of its functions the Provincial Agency shall be bound by the direction given to it in writing by the Government.
<b>Indemnity.</b>	<b>36.</b> No suit, prosecution or other legal proceedings shall lie against the Government, the Council, the Balochistan Environmental Protection Agency, the Director-Generals of the Balochistan Environmental Protection Agency, members, officers, employees, experts, advisers, committees or consultants of the Balochistan Environmental Protection Agency or the Environmental Tribunal or Environmental Magistrates or any other person for anything which is in good faith done or intended to be done under this Act or the rules or regulations made thereunder.
<b>Dues recoverable as arrears of land revenue.</b>	<b>37.</b> Any dues recoverable by the Balochistan Environmental Protection Agency under this Act, or the rules or regulations shall be recoverable as arrears of land revenue.
<b>Act to override other laws.</b>	<b>38.</b> The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force.
<b>Power to make rules.</b>	<b>39.</b> The Government of Balochistan may, by notification in the official Gazette, make rules for carrying out the purposes of this Act including rules for implementing the provisions of the international environmental Agreements, specified in the Schedule to this Act.
<b>Power to amend the Schedule</b>	<b>40.</b> The Government of Balochistan may, by notification in the official Gazette, amend the Schedule so as to add any entry thereato or modify or omit any entry therein.
<b>Power to make regulations.</b>	<p><b>41.</b> (1) For carrying out the purposes of this Act, the Balochistan Environmental Protection Agency may, by notification in the official Gazette and with the approval of the Government of Balochistan, make regulations not inconsistent with the provisions of this Act or the rules made thereunder.</p> <p>(2) In particular and without prejudice to the generality of the foregoing power, such regulations may provide for</p> <p>(a) submission of periodical reports, data or information by any Government agency, local authority or local council in respect of environmental matters;</p> <p>(b) preparation of emergency contingency plans for coping with environmental hazards and pollution caused by accidents, natural disasters and</p>

calamities;

(c) appointment of officers, advisers, experts, consultants and employees;

(d) levy of fees, rates and charges in respect of services rendered, actions taken and schemes implemented;

(e) monitoring and measurement of discharges and emissions;

(f) categorization of projects to which, and the manner in which, section 15 applies;

(g) laying down of guidelines for preparation of initial environmental examination and environmental impact assessment and Development of procedures for their filing, review and approval;

(h) providing procedures for handling hazardous substances; and

(i) installation of devices in, use of fuels by, and maintenance and testing of motor vehicles for control of air and noise pollution.

**Repeal, savings and succession.**

**42. (1)** The provision of Pakistan Environmental Protection Act 1997 (Act No.XXXIV of 1997) applicable to the Province of Balochistan are hereby repealed.

(2) Notwithstanding the repeal of the Pakistan Environmental Protection Act 1997 hereinafter called the repealed Act, any rules or regulations or appointments made, orders passed, notifications issued, powers delegated, contracts entered into, proceedings commenced, rights acquired liabilities incurred, penalties, rates, fees or charges levied, things done or action taken under any provisions of the repealed Act shall, so far as they are not inconsistent with the provisions of this Act be deemed to have been made, passed, issued, delegated, entered into, commenced, acquired, incurred, levied, done or taken under this Act, until they are repealed, rescind, withdrawn, cancelled, replaced or modified in accordance with the provisions of this Act.

(3) On the establishment of the Balochistan Environmental Protection Agency under this Act, all properties, assets and liabilities pertaining to the Balochistan Environmental Protection Agency established under repealed Act shall vest in and be the properties, assets and liabilities, as the case may be, of the Balochistan Environmental Protection Agency established under this Act.

(4) The Balochistan Environmental Protection Agency constituted under the repealed Act and existing immediately before the commencement of this Act shall be deemed to have been constituted under section 5 and the Director General and other officers and employees appointed in the said Agency shall be deemed to be Director General, officers and employees appointed under the Balochistan Civil Servant Act 1974.

(5) Notwithstanding the repeal of the Pakistan Environmental Protection Act 1997(Act No.XXXIV of 1997), all proceeding pending immediately before commencement of this Act, against any person under the repealed Act and rules, regulation or order made thereunder, or any other Law or rules shall continue under that Law and rules, in the manner proceeded thereunder.



**SCHEDULE**  
**(See section 39)**

1. International Plant Protection Convention, Rome, 1951.
2. Plant Protection Agreement for the South-East Asia and Pacific Region (as amended), Rome, 1956.
3. Agreement for the Establishment of a Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South-West Asia (as amended), Rome, 1963.
4. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 1971 and its amending Protocol, Paris, 1982.
5. London Convention on Ocean Dumping 1972.
6. Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention), 1972.
7. MARPOL Convention on Prevention of Pollution from Ship, 1973/78
8. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Washington, 1973.
9. Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 1979.
10. Convention on the Law of the Sea, Montego Bay, 1982.
11. Vienna Convention for the Protection of the Ozone Layer, Vienna, 1985.
12. Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal, 1987 and amendments thereto.
13. Agreement on the Network of Agriculture Centres in Asia and the Pacific, Bangkok, 1988.
14. Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal, Basel, 1989.
15. Convention on Biological Diversity, Rio de Janeiro, 1992.
16. United Nations Framework Convention on Climate Change, Rio De Janeiro, 1992.
17. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 17 March 1992.
18. The Rio Declaration on Environment and Development, 13 June 1992
19. London Amendment to Montreal Protocol on Substances that deplete the ozone layer, 10 Aug 1992
20. United Nations Convention on the Law of the Sea, 16 Nov 1994
21. Washington Declaration on Land Based Marine Pollution 1995.

22. UN Convention on Non-Navigational Uses of International Watercourses, 1995
23. Ban Amendment to the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal, 22 Sept 1995.
24. The Kyoto Protocol, 11 Dec 1997
25. The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 11 Sept 1998.
26. The Beijing Amendment to the Montreal Protocol on Substances that deplete the ozone layer, 1 Jan 2000
27. The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 29 Jan 2000.
28. Stockholm Convention on Persistent Organic Pollutants (POPs), 23 May 2001.
29. International Treaty on Plant Genetic Resources for Food and Agriculture, 3 Nov 2001.
30. Hong Kong International Convention For The Safe And Environmentally Sound Recycling Of Ships, 2009

#### **STATEMENT OF OBJECTS AND REASONS.**

After the 18<sup>th</sup> Constitutional amendments the subject of environment vide Notification No.4-9/2011-Min dated 29<sup>th</sup> June, 2011 stand devolved to the provinces with effect from 1<sup>st</sup> July, 2011. Even after the deletion of the subject of environment from the concurrent list the Pakistan Environmental Protection Act 1997 remained intact as per Article 270-AA, Sub-Article(6). However, there is provision that the province through an appropriate legislature/competent authority may alter, repeal and amend the laws related to the subject.

To regulate and effectively address the peculiar environmental issues of the province of Balochistan this act namely "Balochistan Environmental Protection Act 2012" is submitted as per provisions of the Article 270-AA, Sub-Article(6) of 18<sup>th</sup> Constitutional amendments.

**(Mir Asghar Rind)**

**Minister for Environment Department**

**SECRETARY**

**Balochistan Provincial Assembly**

Dated \_\_\_\_\_ November, 2012.

PAKISTAN ENVIRONMENTAL PROTECTION AGENCY (REVIEW OF IEE AND EIA) REGULATIONS, 2000

**PAKISTAN ENVIRONMENTAL PROTECTION AGENCY (REVIEW OF IEE AND EIA) REGULATIONS, 2000**

**S.R.O. 339 (1)/2001.** - In exercise of the powers referred by section 33 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), Pakistan Environmental Protection Agency, with the approval of the Federal Government is pleased to make the following Rules, namely :-

**1. Short title and commencement**

(1) These regulations may be called the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000.

(2) They shall come into force at once.

**2. Definitions**

(1) In these regulations, unless there is anything repugnant in the subject or context -

(a) "Act" means the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997);

(b) "Director-General" means the Director-General of the Federal Agency;

(c) "EIA" means an environmental impact assessment as defined in section 2(xi);

(d) "IEE" means an initial environmental examination as defined in section 2(xxiv); and

(e) "section" means a section of the Act.

(2) All other words and expressions used in these regulations but not defined shall have the same meanings as are assigned to them in the Act.

**3. Projects requiring an IEE**

A proponent of a project falling in any category listed in Schedule I shall file an IEE with the Federal Agency, and the provisions of section 12 shall apply to such project.

**4. Projects requiring an EIA**

A proponent of a project falling in any category listed in Schedule II shall file an EIA with the Federal Agency, and the provisions of section 12 shall apply to such project.

**5. Projects not requiring an IEE or EIA**

- (1) A proponent of a project not falling in any category listed in Schedules I and II shall not be required to file an IEE or EIA:

Provided that the proponent shall file –

- (a) an EIA, if the project is likely to cause an adverse environmental effect;
- (b) for projects not listed in Schedules I and II in respect of which the Federal Agency has issued guidelines for construction and operation, an application for approval accompanied by an undertaking and an affidavit that the aforesaid guidelines shall be fully complied with.

- (2) Notwithstanding anything contained in sub-regulation (1), the Federal Agency may direct the proponent of a project, whether or not listed in Schedule I or II, to file an IEE or EIA, for reasons to be recorded in such direction:

Provided that no such direction shall be issued without the recommendation in writing of the Environmental Assessment Advisory Committee constituted under Regulation 23.

- (3) The provisions of section 12 shall apply to a project in respect of which an IEE or EIA is filed under sub-regulation (1) or (2).

**6. Preparation of IEE and EIA**

- (1) The Federal Agency may issue guidelines for preparation of an IEE or an EIA, including guidelines of general applicability, and sectoral guidelines indicating specific assessment requirements for planning, construction and operation of projects relating to particular sector.
- (2) Where guidelines have been issued under sub-regulation (1), an IEE or EIA shall be prepared, to the extent practicable, in accordance therewith and the proponent shall justify in the IEE or EIA any departure therefrom.

**7. Review Fees**

The proponent shall pay, at the time of submission of an IEE or EIA, a non-refundable Review Fee to the Federal Agency, as per rates shown in Schedule III.

**8. Filing of IEE and EIA**

- (1) Ten paper copies and two electronic copies of an IEE or EIA shall be filed with the Federal Agency.

- (2) Every IEE and EIA shall be accompanied by –
    - (a) an application, in the form prescribed in Schedule IV; and
    - (b) copy of receipt showing payment of the Review Fee.
9. **Preliminary scrutiny**
  - (1) Within 10 working days of filing of the IEE or EIA, the Federal Agency shall –
    - (a) confirm that the IEE or EIA is complete for purposes of initiation of the review process; or
    - (b) require the proponent to submit such additional information as may be specified; or
    - (c) return the IEE or EIA to the proponent for revision, clearly listing the points requiring further study and discussion.
  - (2) Nothing in sub-regulation (1) shall prohibit the Federal Agency from requiring the proponent to submit additional information at any stage during the review process.
10. **Public participation**
  - (1) In the case of an EIA, the Federal Agency shall, simultaneously with issue of confirmation of completeness under clause (a) of sub-regulation (1) of Regulation 9, cause to be published in any English or Urdu national newspaper and in a local newspaper of general circulation in the area affected by the project, a public notice mentioning the type of project, its exact location, the name and address of the proponent and the places at which the EIA of the project can, subject to the restrictions in sub-section (3) of section 12, be accessed.
  - (2) The notice issued under sub-regulation (1) shall fix a date, time and place for public hearing of any comments on the project or its EIA.
  - (3) The date fixed under sub-regulation (2) shall not be earlier than 30 days from the date of publication of the notice.
  - (4) The Federal Agency shall also ensure the circulation of the EIA to the concerned Government Agencies and solicit their comments thereon.
  - (5) All comments received by the Federal Agency from the public or any Government Agency shall be collated, tabulated and duly considered by it before decision on the EIA.



- (6) The Federal Agency may issue guidelines indicating the basic techniques and measures to be adopted to ensure effective public consultation, involvement and participation in EIA assessment.

#### 11. Review

- (1) The Federal Agency shall make every effort to carry out its review of the IEE within 45 days, and of the EIA within 90 days, of issue of confirmation of completeness under Regulation 9.
- (2) In reviewing the IEE or EIA, the Federal Agency shall consult such Committee of Experts as may be constituted for the purpose by the Director-General, and may also solicit views of the sectoral Advisory Committee, if any, constituted by the Federal Government under subsection (6) of section 5.
- (3) The Director-General may, where he considers it necessary, constitute a committee to inspect the site of the project and submit its report on such matters as may be specified.
- (4) The review of the IEE or EIA by the Federal Agency shall be based on quantitative and qualitative assessment of the documents and data furnished by the proponent, comments from the public and Government Agencies received under Regulation 10, and views of the committees mentioned in sub-regulations (2) and (3) above.

#### 12. Decision

On completion of the review, the decision of the Federal Agency shall be communicated to the proponent in the form prescribed in Schedule V in the case of an IEE, and in the form prescribed in Schedule VI in the case of an EIA.

#### 13. Conditions of approval

- (1) Every approval of an IEE or EIA shall, in addition to such conditions as may be imposed by the Federal Agency, be subject to the condition that the project shall be designed and constructed, and mitigatory and other measures adopted, strictly in accordance with the IEE/EIA, unless any variation thereto have been specified in the approval by the Federal Agency.
- (2) Where the Federal Agency accords its approval subject to certain conditions, the proponent shall –
  - (a) before commencing construction of the project, acknowledge acceptance of the stipulated conditions by executing an undertaking in the form prescribed in Schedule VII;

- (b) before commencing operation of the project, obtain from the Federal Agency written confirmation that the conditions of approval, and the requirements in the IEE/EIA relating to design and construction, adoption of mitigatory and other measures and other relevant matters, have been duly complied with.

#### **14. Confirmation of compliance**

(1) The request for confirmation of compliance under clause (b) of sub-regulation (2) of Regulation 13 shall be accompanied by an Environmental Management Plan indicating the measures and procedures proposed to be taken to manage or mitigate the environmental impacts for the life of the project, including provisions for monitoring, reporting and auditing.

(2) Where a request for confirmation of compliance is received from a proponent, the Federal Agency may carry out such inspection of the site and plant and machinery and seek such additional information from the proponent as it may deem fit:

Provided that every effort shall be made by the Federal Agency to provide the requisite confirmation or otherwise within 15 days of receipt of the request, with complete information, from the proponent.

(3) The Federal Agency may, while issuing the requisite confirmation of compliance, impose such other conditions as the Environmental Management Plan, and the operation, maintenance and monitoring of the project as it may deem fit, and such conditions shall be deemed to be included in the conditions to which approval of the project is subject.

#### **15. Deemed approval**

The four-month period for communication of decision stipulated in sub-section (4) of section 12 shall commence from the date of filing of an IEE or EIA in respect of which confirmation of completeness is issued by the Federal Agency under clause (a) of sub-regulation (1) of Regulation 9.

#### **16. Extension in review period**

Where the Federal Government in a particular case extends the four-month period for communication of approval prescribed in sub-section (5) of section 12, it shall, in consultation with the Federal Agency, indicate the various steps of the review process to be taken during the extended period, and the estimated time required for each step.

#### **17. Validity period of approval**

(1) The approval accorded by a Federal Agency under section 12 read with Regulation 12 shall be valid, for commencement of construction, for a period of three years from the date of issue.

(2) If construction is commenced during the initial three year validity period, the validity of the approval shall stand extended for a further period of three years from the date of issue.

(3) After issue of confirmation of compliance, the approval shall be valid for a period of three years from the date thereof.

(4) The proponent may apply to the Federal Agency for extension in the validity periods mentioned in sub-regulations (1), (2) and (3), which may be granted by the Federal Agency in its discretion for such period not exceeding three years at a time, if the conditions of the approval do not require significant change:

Provided that the Federal Agency may require the proponent to submit a fresh IEE or EIA, if in its opinion changes in location, design, construction and operation of the project so warrant.

#### **18. Entry and inspection**

(1) For purposes of verification of any matter relating to the review or to the conditions of approval of an IEE or EIA prior to, during or after commencement of construction or operation of a project, duly authorized staff of the Federal Agency shall be entitled to enter and inspect the project site, factory building and plant and equipment installed therein.

(2) The proponent shall ensure full cooperation of the project staff at site to facilitate the inspection, and shall provide such information as may be required by the Federal Agency for this purpose and pursuant thereto.

#### **19. Monitoring**

(1) After issue of approval, the proponent shall submit a report to the Federal Agency on completion of construction of the project.

(2) After issue of confirmation of compliance, the proponent shall submit an annual report summarizing operational performance of the project, with reference to the conditions of approval and maintenance and mitigatory measures adopted by the project.

(3) To enable the Federal Agency to effectively monitor compliance with the conditions of approval, the proponent shall furnish such additional information as the Federal Agency may require.

#### **20. Cancellation of approval**

(1) Notwithstanding anything contained in these Regulations, if, at any time, on the basis of information or report received or inspection carried out, the Federal Agency is of the opinion that the conditions of an approval have not been complied with, or that the information supplied by a proponent in the approved IEE or EIA is incorrect, it



shall issue notice to the proponent to show cause, within two weeks of receipt thereof, why the approval should not be cancelled.

(2) If no reply is received or if the reply is considered unsatisfactory, the Federal Agency may, after giving the proponent an opportunity of being heard:

(i) require the proponent to take such measures and to comply with such conditions within such period as it may specify, failing which the approval shall stand cancelled; or

(ii) cancel the approval.

(3) On cancellation of the approval, the proponent shall cease construction or operation of the project forthwith.

(4) Action taken under this Regulation shall be without prejudice to any other action that may be taken against the proponent under the Act or rules or regulations or any other law for the time being in force.

## 21. Registers of IEE and EIA projects

Separate Registers to be maintained by the Federal Agency for IEE and EIA projects under sub-section (7) of section 12 shall be in the form prescribed in Schedule VIII.

## 22. Environmentally sensitive areas

(1) The Federal Agency may, by notification in the official Gazette, designate an area to be an environmentally sensitive area.

(2) Notwithstanding anything contained in Regulations 3, 4 and 5, the proponent of a project situated in an environmentally sensitive area shall be required to file an EIA with the Federal Agency.

(3) The Federal Agency may from time to time issue guidelines to assist proponents and other persons involved in the environmental assessment process to plan and prepare projects located in environmentally sensitive areas.

(4) Where guidelines have been issued under sub-regulation (3), the projects shall be planned and prepared, to the extent practicable, in accordance therewith and any departure therefrom justified in the EIA pertaining to the project.

## 23. Environmental Assessment Advisory Committee

For purposes of rendering advice on all aspects of environmental assessment, including guidelines, procedures and categorization of projects, the Director-General shall constitute an Environmental Assessment Advisory Committee comprising –

(a) Director EIA, Federal Agency ... Chairman

PAKISTAN ENVIRONMENTAL PROTECTION AGENCY (REVIEW OF IEE AND ELA) REGULATIONS, 2000

- |     |  |     |         |
|-----|--|-----|---------|
| (b) | One representative each of the Provincial Agencies   | ... | Members |
| (c) | One representative each of the Federal Planning Commission and the Provincial Planning and Development Departments | ... | Members |
| (d) | Representatives of industry and non-Governmental organizations, and legal and other experts                        | ... | Members |

#### 24. Other approvals

Issue of an approval under section 12 read with Regulation 12 shall not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law for the time being in force.

**SCHEDULE I**  
(See Regulation 3)

**List of projects requiring an IEE**

- A. Agriculture, Livestock and Fisheries**
  1. Poultry, livestock, stud and fish farms with total cost more than Rs.10 million
  2. Projects involving repacking, formulation or warehousing of agricultural products
- B. Energy**
  1. Hydroelectric power generation less than 50 MW
  2. Thermal power generation less than 200 KW
  3. Transmission lines less than 11 KV, and large distribution projects
  4. Oil and gas transmission systems
  5. Oil and gas extraction projects including exploration, production, gathering systems, separation and storage
  6. Waste-to-energy generation projects
- C. Manufacturing and processing**
  1. Ceramics and glass units with total cost more than Rs.50 million
  2. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost less than Rs.100 million
  3. Man-made fibers and resin projects with total cost less than Rs.100 million
  4. Manufacturing of apparel, including dyeing and printing, with total cost more than Rs.25 million
  5. Wood products with total cost more than Rs.25 million
- D. Mining and mineral processing**
  1. Commercial extraction of sand, gravel, limestone, clay, sulphur and other minerals not included in Schedule II with total cost less than Rs.100 million
  2. Crushing, grinding and separation processes

3. Smelting plants with total cost less than Rs.50 million
- E. Transport**
  1. Federal or Provincial highways (except maintenance, rebuilding or reconstruction of existing metalled roads) with total cost less than Rs.50 million
  2. Ports and harbor development for ships less than 500 gross tons
- F. Water management, dams, irrigation and flood protection**
  1. Dams and reservoirs with storage volume less than 50 million cubic meters of surface area less than 8 square kilometers
  2. Irrigation and drainage projects serving less than 15,000 hectares
  3. Small-scale irrigation systems with total cost less than Rs.50 million
- G. Water supply and treatment**

Water supply schemes and treatment plants with total cost less than Rs.25 million
- H. Waste disposal**

Waste disposal facility for domestic or industrial wastes, with annual capacity less than 10,000 cubic meters
- I. Urban development and tourism**
  1. Housing schemes
  2. Public facilities with significant off-site impacts (e.g. hospital wastes)
  3. Urban development projects
- J. Other projects**

Any other project for which filing of an IEE is required by the Federal Agency under sub-regulation (2) of Regulation 5

**SCHEDULE II**  
(See Regulation 4)

**List of projects requiring an EIA**

**A. Energy**

1. Hydroelectric power generation over 50 MW
2. Thermal power generation over 200 MW
3. Transmission lines (11 KV and above) and grid stations
4. Nuclear power plans
5. Petroleum refineries

**B. Manufacturing and processing**

1. Cement plants
2. Chemicals projects
3. Fertilizer plants
4. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost of Rs.100 million and above
5. Industrial estates (including export processing zones)
6. Man-made fibers and resin projects with total cost of Rs.100 M and above
7. Pesticides (manufacture or formulation)
8. Petrochemicals complex
9. Synthetic resins, plastics and man-made fibers, paper and paperboard, paper pulping, plastic products, textiles (except apparel), printing and publishing, paints and dyes, oils and fats and vegetable ghee projects, with total cost more than Rs.10 million
10. Tanning and leather finishing projects

**C. Mining and mineral processing**

1. Mining and processing of coal, gold, copper, sulphur and precious stones
2. Mining and processing of major non-ferrous metals, iron and steel rolling
3. Smelting plants with total cost of Rs.50 million and above

**D. Transport**

1. Airports
2. Federal or Provincial highways or major roads (except maintenance, rebuilding or reconstruction of existing roads) with total cost of Rs.50 million and above
3. Ports and harbor development for ships of 500 gross tons and above
4. Railway works

**E. Water management, dams, irrigation and flood protection**

1. Dams and reservoirs with storage volume of 50 million cubic meters and above or surface area of 8 square kilometers and above
2. Irrigation and drainage projects serving 15,000 hectares and above

**F. Water supply and treatment**

Water supply schemes and treatment plants with total cost of Rs.25 million and above

**G. Waste Disposal**

1. Waste disposal and/or storage of hazardous or toxic wastes (including landfill sites, incineration of hospital toxic waste)
2. Waste disposal facilities for domestic or industrial wastes, with annual capacity more than 10,000 cubic meters

**H. Urban development and tourism**

1. Land use studies and urban plans (large cities)
2. Large-scale tourism development projects with total cost more than Rs.50 million

**I. Environmentally Sensitive Areas**

All projects situated in environmentally sensitive areas

**J. Other projects**

1. Any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5.
2. Any other project likely to cause an adverse environmental effect

**SCHEDULE III**  
(See Regulation 7)

**IEE/EIA Review Fees**

<b>Total Project Cost</b>	<b>IEE</b>	<b>EIA</b>
Upto Rs. 5,000,000	NIL	NIL
Rs. 5,000,001 to 10,000,000	Rs. 10,000	Rs. 15,000
Greater than Rs. 10,000,000	Rs. 15,000	Rs. 30,000



**SCHEDULE IV**  
[See Regulation 8(2)(a)]

**Application Form**

1.	Name and address of proponent	Phone: Fax: Telex:																	
2.	Description of project																		
3.	Location of project																		
4.	Objectives of project																		
5.	IEE/EIA attached?	IEE/EIA	Yes/No																
6.	Have alternative sites been considered and reported in IEE/EIA?	Yes/No																	
7.	Existing land use	Land requirement																	
8.	Is basic site data available, or has it been measured?	(only tick yes if the data is reported in the IEE/EIA)  Meteorology (including rainfall) Ambient air quality Ambient water quality Ground water quality	<table border="1"> <thead> <tr> <th>Available</th> <th>Measured</th> </tr> </thead> <tbody> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> </tbody> </table>	Available	Measured	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No						
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9.	Have estimates of the following been reported?	<table border="1"> <thead> <tr> <th>Estimated</th> <th>Reported</th> </tr> </thead> <tbody> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> </tbody> </table>	Estimated	Reported	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	<table border="1"> <thead> <tr> <th>Estimated</th> <th>Reported</th> </tr> </thead> <tbody> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> <tr> <td>Yes/No</td> <td>Yes/No</td> </tr> </tbody> </table>	Estimated	Reported	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
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Yes/No	Yes/No																		
Yes/No	Yes/No																		
10.	Source of power	Power requirement																	
11.	Labour force (number)	Construction: Operation:																	

**Verification.** I do solemnly affirm and declare that the information given above and contained in the attached IEE/EIA is true and correct to the best of my knowledge and belief.

Date \_\_\_\_\_

Signature, name and \_\_\_\_\_  
designation of proponent  
(with official stamp/seal)



**SCHEDULE V**  
[See Regulation 12]

**Decision on IEE**

1. Name and address of proponent \_\_\_\_\_
  2. Description of project \_\_\_\_\_
  3. Location of project \_\_\_\_\_
  4. Date of filing of IEE \_\_\_\_\_
  5. After careful review of the IEE, the Federation Agency has decided –
    - (a) to accord its approval, subject to the following conditions:
   
\_\_\_\_\_
   
\_\_\_\_\_
    - or (b) that the proponent should submit an EIA of the project, for the following reasons –
   
\_\_\_\_\_
   
\_\_\_\_\_
- [Delete (a) or (b), whichever is inapplicable]
- Dated \_\_\_\_\_
- Tracking no. \_\_\_\_\_

Director-General  
Federal Agency  
(with official stamp/seal)

**SCHEDULE VI**  
[See Regulation 12]

**Decision on EIA**

1. Name and address of proponent \_\_\_\_\_
  2. Description of project \_\_\_\_\_
  3. Location of project \_\_\_\_\_
  4. Date of filing of EIA \_\_\_\_\_
  5. After careful review of the EIA, and all comments thereon, the Federation Agency has decided –
    - (a) to accord its approval, subject to the following conditions:  
\_\_\_\_\_
    - or (b) that the proponent should submit an EIA with the following modifications-  
\_\_\_\_\_
    - or (c) to reject the project, being contrary to environmental objectives, for the following reasons:  
\_\_\_\_\_
- [Delete (a)/(b)/(c), whichever is inapplicable]

Dated \_\_\_\_\_

Tracking no. \_\_\_\_\_

Director-General  
Federal Agency  
(with official stamp/seal)

**SCHEDULE VII**  
[See Regulation 13(2)]

**Undertaking**

I, (full name and address) as proponent for (name, description and location of project) do hereby solemnly affirm and declare that I fully understand and accept the conditions contained in the approval accorded by the Federal Agency bearing tracking no. \_\_\_\_\_ dated \_\_\_\_\_, and undertake to design, construct and operate the project strictly in accordance with the said conditions and the IEE/EIA.

Date \_\_\_\_\_

Signature, name and \_\_\_\_\_  
designation of proponent  
(with official stamp/seal)

Witnesses  
(full names and addresses)

(1) \_\_\_\_\_

(2) \_\_\_\_\_

**SCHEDULE VIII**  
(See Regulation 21)  
**Form of Registers for IEE and EIA projects**

S. No.	Description	Relevant Provisions
1	2	3
1.	Tracking number	
2.	Category type (as per Schedules I and II)	
3.	Name of proponent	
4.	Name and designation of contact person	
5.	Name of consultant	
6.	Description of project	
7.	Location of project	
8.	Project capital cost	
9.	Date of receipt of IEE/EIA	
10.	Date of confirmation of completeness	
11.	Approval granted (Yes/No)	
12.	Date of approval granted or refused	
13.	Conditions of approval/reasons for refusal	
14.	Date of Undertaking	
15.	Date of extension of approval validity	
16.	Period of extension	
17.	Date of commencement of construction	
18.	Date of issue of confirmation of compliance	
19.	Date of commencement of operations	
20.	Dates of filing of monitoring reports	
21.	Date of cancellation, if applicable	

REGISTERED No. M-302  
L. 7646

The Gazette



of Pakistan

EXTRAORDINARY  
PUBLISHED BY AUTHORITY

ISLAMABAD, THURSDAY, AUGUST 10, 2000

PART-II

Statutory Notification (S.R.O)

GOVERNMENT OF PAKISTAN

MINISTRY OF ENVIRONMENT, LOCAL GOVERNMENT AND  
RURAL DEVELOPMENT

NOTIFICATION

Islamabad, the 8<sup>th</sup> August 2000

S.R.O. 549 (I)/2000. In exercise of the powers conferred under clause (c) of sub-section (1) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to direct that the following further amendments shall be made in its Notification No. S.R.O. 742(I)/93, dated the 24<sup>th</sup> August, 1993, namely: \_\_\_\_\_

In the aforesaid Notification, in paragraph 2. \_\_\_\_\_

(1289)

[4138(2000)/Ex.GAZ]

Price : Rs. 5.00

## 1290 THE GAZETTE OF PAKISTAN, EXTRA, AUGUST 10, 2000 [PART-III]

(1) for Annex, I the following shall be substituted, namely:\_\_\_\_\_

**Annex-I**
**"NATIONAL ENVIRONMENTAL QUALITY STANDARDS FOR MUNICIPAL AND LIQUID INDUSTRIAL EFFLUENTS (mg/l, UNLESS OTHERWISE DEFINED)"**

<u>S. No.</u>	<u>Parameter</u>	<u>Existing Standards</u>	<u>Revised Standards</u> <u>Into Inland Waters</u>	<u>Into Sewage Treatment<sup>(9)</sup></u>	<u>Into Sea<sup>(7)</sup></u>
1	2	3	4	5	6
1.	Temperature or Temperature Increase *	40°C	≤3°C	≤3°C	≤3°C
2.	pH value (H <sup>+</sup> )	6-10	6-9	6-9	6-9
3.	Biochemical Oxygen Demand (BOD) <sub>5</sub> at 20°C <sup>(1)</sup>	80	80	250	80**
4.	Chemical Oxygen Demand (COD) <sup>(1)</sup>	150	150	400	400
5.	Total Suspended Solids (TSS) ...	150	200	400	200
6.	Total Dissolved Solids (TDS)	3500	3500	3500	3500
7.	Oil and Grease	10	10	10	10
8.	Phenolic compounds (as phenol)	0.1	0.1	0.3	0.3
9.	Chloride (as Cl <sup>-</sup> )	1000	1000	1000	SC***
10.	Fluoride (as F <sup>-</sup> )	20	10	10	10
11.	Cyanide (as CN <sup>-</sup> ) total ..	2	1.0	1.0	1.0
12.	An-ionic detergents (as MBAS) <sup>(2)</sup>	20	20	20	20
13.	Sulphate (SO <sub>4</sub> <sup>2-</sup> )	600	600	1000	SC***
14.	Sulphide (S <sup>2-</sup> )	1.0	1.0	1.0	1.0
15.	Ammonia (NH <sub>3</sub> )	40	40	40	40
16.	Pesticides <sup>(3)</sup>	0.15	0.15	0.15	0.15



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1	2	3	4	5	6
17.	Cadmium <sup>(6)</sup> ...	0.1	0.1	0.1	0.1
18.	Chromium (trivalent and hexavalent) <sup>(6)</sup> ...	1.0	1.0	1.0	1.0
19.	Copper <sup>(6)</sup> ...	1.0	1.0	1.0	1.0
20.	Lead <sup>(6)</sup> ...	0.5	0.5	0.5	0.5
21.	Mercury <sup>(6)</sup> ...	0.01	0.01	0.01	0.01
22.	Selenium <sup>(6)</sup> ...	0.5	0.5	0.5	0.5
23.	Nickel <sup>(6)</sup> ...	1.0	1.0	1.0	1.0
24.	Silver <sup>(6)</sup> ...	1.0	1.0	1.0	1.0
25.	Total toxic metals ...	2.0	2.0	2.0	2.0
26.	Zinc ...	5.0	5.0	5.0	5.0
27.	Arsenic <sup>(6)</sup> ...	1.0	1.0	1.0	1.0
28.	Barium <sup>(6)</sup> ...	1.5	1.5	1.5	1.5
29.	Iron ...	2.0	2.0	2.0	2.0
30.	Manganese ...	1.5	1.5	1.5	1.5
31.	Boron <sup>(6)</sup> ...	6.0	6.0	6.0	6.0
32.	Chlorine ...	1.0	1.0	1.0	1.0

**Explanations:**

1. Assuming minimum dilution 1:10 on discharge, lower ratio would attract progressively stringent standards to be determined by the Federal Environmental Protection Agency. By 1:10 dilution means, for example that for each one cubic meter of treated effluent, the recipient water body should have 10 cubic meter of water for dilution of this effluent.
2. Methylene Blue Active Substances; assuming surfactant as biodegradable.
3. Pesticides include herbicides, fungicides, and insecticides.
4. Subject to total toxic metals discharge should not exceed level given at S. N. 25.
5. Applicable only when and where sewage treatment is operational and BOD<sub>5</sub>=80mg/l is achieved by the sewage treatment system.

## Annexure 6-B: NEQS for Industrial Gaseous Emissions, Motor Vehicle Exhaust, Noise and Ambient Air Quality

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6. Provided discharge is not at shore and not within 10 miles of mangrove or other important estuaries
- \* The effluent should not result in temperature increase of more than 3°C at the edge of the zone where initial mixing and dilution take place in the receiving body. In case zone is not defined, use 100 meters from the point of discharge.
- \*\* The value for industry is 200 mg/l
- \*\*\* Discharge concentration at or below sea concentration (SC).

- Note: \_\_\_\_\_
1. Dilution of liquid effluents to bring them to the NEQS limiting values is not permissible through fresh water mixing with the effluent before discharging into the environment.
  2. The concentration of pollutants in water being used will be subtracted from the effluent for calculating the NEQS limits\* and
- (2) for Annex-I the following shall be substituted, namely: \_\_\_\_\_

### Annex-II

#### "NATIONAL ENVIRONMENTAL QUALITY STANDARDS FOR INDUSTRIAL GASEOUS EMISSION (mg/Nm<sup>3</sup>, UNLESS OTHERWISE DEFINED)."

S. No.	Parameter	Source of Emission	Existing Standards	Revised Standards
1	2	3	4	5
1.	Smoke	Smoke opacity not to exceed	40% or 2 Ringlemann Scale	40% or 2 Ringlemann Scale or equivalent smoke number
2.	Particulate matter	(a) Boilers and Furnaces		
	(i)	(i) Oil fired	300	300
	(ii)	(ii) Coal fired	500	500
	(iii)	(iii) Cement Kilos	200	300
		(b) Grinding, crushing, Clinker coolers and Related processes, Metallurgical Processes, converter, blast furnaces and cupolas.	500	500
3.	Hydrogen Chloride	Any	400	400

**PART-III THE GAZETTE OF PAKISTAN, EXTRA, AUGUST 10, 2000 1293**

1	2	3	4	5
4.	Chlorine	Any	150	150
5.	Hydrogen Fluoride	Any	150	150
6.	Hydrogen Sulphide	Any	10	10
7.	Sulphur Oxides <sup>(2)(3)</sup>	Sulfuric acid/Sulphonic acid plants		
		Other Plants except power Plants operating on oil and coal	400	1700
8.	Carbon Monoxide	Any	800	800
9.	Lead	Any	50	50
10.	Mercury	Any	10	10
11.	Cadmium	Any	20	20
12.	Arsenic	Any	20	20
13.	Copper	Any	50	50
14.	Antimony	Any	20	20
15.	Zinc	Any	200	200
16.	Oxides of Nitrogen	Nitric acid manufacturing unit.	400	3000
	(3)	Other plants except power plants operating on oil or coal:		
		Gas fired	400	400
		Oil fired	-	600
		Coal fired	-	1200

**Explanations:-**

1. Based on the assumption that the size of the particulate is 10 micron or more.
2. Based on 1 percent Sulphur content in fuel oil. Higher content of Sulphur will ease standards to be pro-rated.
3. In respect of emissions of Sulphur dioxide and Nitrogen oxides, the power plants operating on oil and coal as fuel shall in addition to National Environmental Quality Standards (NEQS) specified above, comply with the following standards:-

**1294 THE GAZETTE OF PAKISTAN, EXTRA, AUGUST 10, 2000 PART-III**
**A. Sulphur Dioxide**

Sulphur Dioxide Background levels Micro-gram per cubic meter ( $\mu\text{g}/\text{m}^3$ ) Standards.

Background Air Quality ( $\text{SO}_2$ Basis)	Annual Average	Max. 24-hours Interval	Criterion I Max. $\text{SO}_2$ Emission (Tons per Day Per Plant)	Criterion II Max. Allowable ground level increment to ambient ( $\mu\text{g}/\text{m}^3$ ) (One year Average)
Unpolluted	<50	<200	500	50
Moderately Polluted*				
Low	50	200	500	50
High	100	400	100	10
Very Polluted**	>100	>400	100	10

\* For intermediate values between 50 and 100  $\mu\text{g}/\text{m}^3$  linear interpolations should be used.

\*\* No projects with Sulphur dioxide emissions will be recommended.

**B. Nitrogen Oxide**

Ambient air concentrations of Nitrogen oxides, expressed as  $\text{NO}_x$  should not be exceed the following:-

Annual Arithmetic Mean	100 $\mu\text{g}/\text{m}^3$ (0.05 ppm)
------------------------	--

Emission level for stationary source discharge before missing with the atmosphere, should be maintained as follows:-

For fuel fired steam generators as Nanogram ( $10^9$ -gram) per joule of heat input:

Liquid fossil fuel	..	..	..	130
Solid fossil fuel ..	..	..	..	300
Lignite fossil fuel	..	..	..	260

Note:- Diffusion of gaseous emissions to bring them to the NEQS limiting value is not permissible through excess air mixing blowing before emitting into the environment.

[File No. 14(3)/98-TO-PEPC.]

**HAFIZ ABDULAH AWAN**  
DEPUTY SECRETARY (ADMN)

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## PART II

## Statutory Notifications (S. R. O.)

GOVERNMENT OF PAKISTAN

## MINISTRY OF ENVIRONMENT

## NOTIFICATIONS

Islamabad, the 18th October, 2010

**S. R. O. 1062(I)/2010.**—In exercise of the powers conferred under clause (c) of sub-section (I) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to establish the following National Environmental Quality Standards for Ambient Air.

**National Environmental Quality Standards for Ambient Air**

Pollutants	Time-weighted average	Concentration in Ambient Air		Method of measurement
		Effective from 1st July, 2010	Effective from 1st January 2013	
Sulphur Dioxide (SO <sub>2</sub> )	Annual Average* 24 hours**	80 µg/m <sup>3</sup> 120 µg/m <sup>3</sup>	80 µg/m <sup>3</sup> 120 µg/m <sup>3</sup>	-Ultraviolet Fluorescence method
Oxides of Nitrogen as (NO)	Annual Average* 24 hours**	40 µg/m <sup>3</sup> 40 µg/m <sup>3</sup>	40 µg/m <sup>3</sup> 40 µg/m <sup>3</sup>	- Gas Phase Chemiluminescence

(3205)

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Pollutants	Time-weighted average	Concentration in Ambient Air		Method of measurement
		Effective from 1st July, 2010	Effective from 1st January 2013	
Oxides of Nitrogen as (NO <sub>x</sub> )	Annual Average*	40 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>	- Gas Phase Chemiluminescence
	24 hours**	80 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	
	1 hour	180 µg/m <sup>3</sup>	130 µg/m <sup>3</sup>	
Suspended Particulate Matter (SPM)	Annual Average*	400 µg/m <sup>3</sup>	360 µg/m <sup>3</sup>	- High Volume Sampling, (Average flow rate not less than 1.1 m <sup>3</sup> /minute)
Respirable Particulate Matter, PM <sub>10</sub>	Annual Average*	200 µg/m <sup>3</sup>	120 µg/m <sup>3</sup>	β Ray absorption method
	24 hours**	250 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	
	1 hour	25 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	
Respirable Particulate Matter, PM <sub>2.5</sub>	Annual Average*	25 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	β Ray absorption method
	24 hours**	40 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>	
	1 hour	25 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	
Lead Pb	Annual Average*	1.5 µg/m <sup>3</sup>	1 µg/m <sup>3</sup>	- ASS Method after sampling using EPM 2000 or equivalent Filter paper
	24 hours**	2 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	
Carbon Monoxide (CO)	8 hours**	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	- Non Dispersive Infra Red (NDIR) method
	1 hour	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	

\*Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

\*\* 24 hourly & 8 hourly values should be met 98% of the in a year, 2% of the time, it may exceed but not on two consecutive days.

**S. R. O. 1063(I)/2010.**— In exercise of the powers conferred under clause (c) of sub-section (1) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to establish the following National Standards for Drinking Water Quality.



## National Standards for Drinking Water Quality

Properties/Parameters	Standard Values For Pakistan	Who Standards	Remarks
<b>Bacterial</b>			
All water intended for drinking (e.Coli or Thermotolerant Coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water entering the distribution system (E.Coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water in the distribution system (E. coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample  In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12-month period.	Must not be detectable in any 100 ml sample  In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12 month period.	Most Asian countries also follow WHO standards
<b>Physical</b>			
Colour	≤ 15 TCU	≤ 15 TCU	
Taste	Non objectionable/Acceptable	Non objectionable/Acceptable	
Odour	Non objectionable/Acceptable	Non objectionable/Acceptable	
Turbidity	< 5 NTU	< 5 NTU	
Total hardness as CaCO <sub>3</sub>	< 500 mg/l	—	
TDS	< 1000	< 1000	
pH	6.5 – 8.5	6.5 – 8.5	
<b>Chemical</b>			
<i>Essential Inorganic</i>	<i>mg/Litre</i>	<i>mg/Litre</i>	
Aluminium (Al) mg/l	≤ 0.2	0.2	

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Properties/Parameters	Standard Values for Pakistan	WHO Standards	Remarks
Antimony (Sb)	≤ 0.005 (P)	0.02	
Arsenic (As)	≤ 0.05 (P)	0.01	Standard for Pakistan similar to most Asian developing countries
Barium (Ba)	0.7	0.7	
Boron (B)	0.3	0.3	
Cadmium (Cd)	0.01	0.003	Standard for Pakistan similar to most Asian developing countries
Chloride (Cl)	< 250	250	
Chromium (Cr)	≤ 0.05	0.05	
Copper (Cu)	2	2	
<i>Toxic Inorganic</i>	<i>mg/Litre</i>	<i>mg/Litre</i>	
Cyanide (CN)	≤ 0.05	0.07	Standard for Pakistan similar to Asian developing countries
Fluoride (F)*	≤ 1.5	1.5	
Lead (Pb)	≤ 0.05	0.01	Standard for Pakistan similar to most Asian developing countries
Manganese (Mn)	≤ 0.5	0.5	
Mercury (Hg)	≤ 0.001	0.001	
Nickel (Ni)	≤ 0.02	0.02	
Nitrate (NO <sub>3</sub> )*	≤ 50	50	
Nitrite (NO <sub>2</sub> )*	≤ 3 (P)	3	
Selenium (Se)	0.01(P)	0.01	
Residual chlorine	0.2-0.5 at consumer end 0.5-1.5 at source	—	
Zinc (Zn)	5.0	3	Standard for Pakistan similar to most Asian developing countries

\* indicates priority health related inorganic constituents which need regular monitoring.

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Properties/Parameters	Standard Values for Pakistan	Who Standards	Remarks
<b>Organic</b>			
Pesticides mg/L		PSQCA No. 4639-2004, Page No. 4 Table No. 3 Serial No. 20-58 may be consulted.***	Annex II
Phenolic compounds (as Phenols) mg/L		≤ 0.002	
Polynuclear aromatic hydrocarbons (as PAH) g/L		0.01 ( By GC/MS method)	
<b>Radioactive</b>			
Alpha Emitters bq/L or pCi	0.1	0.1	
Beta emitters	1	1	

\*\*\* PSQCA: Pakistan Standards Quality Control Authority.

#### Proviso:

The existing drinking water treatment infrastructure is not adequate to comply with WHO guidelines. The Arsenic concentrations in South Punjab and in some parts of Sindh have been found high then Revised WHO guidelines. It will take some time to control arsenic through treatment process. Lead concentration in the proposed standards is higher than WHO Guidelines. As the piping system for supply of drinking water in urban centres are generally old and will take significant resources and time to get them replaced. In the recent past, Lead was completely phased out from petroleum products to cut down Lead entering into environment. These steps will enable to achieve WHO guidelines for Arsenic, Lead, Cadmium and Zinc. However, for bottled water, WHO limits for Arsenic, Lead, Cadmium and Zinc will be applicable and PSQCA Standards for all the remaining parameters.

**S. R. O. 1064(I)/2010.**—In exercise of the powers conferred under clause (c) of sub-section (1) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to establish the following National Environmental Quality Standards for Noise.

## Annexure 6-C: NEQS for Ambient Noise Level

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## National Environmental Quality Standards for Noise

S. No.	Category of Area / Zone	Effective from 1st July, 2010		Effective from 1st July, 2012	
		Limit in dB(A) Leq *			
		Day Time	Night Time	Day Time	Night Time
1.	Residential area (A)	65	50	55	45
2.	Commercial area (B)	70	60	65	55
3.	Industrial area (C)	80	75	75	65
4.	Silence Zone (D)	55	45	50	45

Note: 1. Day time hours: 6.00 a. m. to 10.00 p. m.

2. Night time hours: 10.00 p. m. to 6.00 a.m.

3. Silence zone: Zones which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.

4. Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.

\*dB(A) Leq: Time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

[No. F. I(12)/2010-II-General.]

MUHAMMAD KHALIL AWAN,  
Section Officer (PEPC).

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## Annexure 7: Self-Monitoring and Reporting by Industry Rules, 2001

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**S.R.O. 528 (1)/2001.** - In exercise of the powers conferred by section 31 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Federal Government is pleased to make the following rules, namely: -

1. **Short title and commencement.** - (1) These rules may be called the National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001.

(2) They shall come into force at once.

2. **Definitions.** - (1) In these rules, unless there is anything repugnant in the subject or context, -

- (a) **Act** means the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997);
- (b) **Associated Company** and associated undertaking, shall have the same meaning as defined in the Companies Ordinance, 1984 (XLVII of 1984);
- (c) **Certified environmental laboratory** means an environmental laboratory which has been granted certification under the Pakistan Environmental Protection Agency (Certification of Environmental Laboratories) Regulations, 2000;
- (d) **Director-General** means the Director-General of the Federal Agency;
- (e) **Environmental monitoring** report means the report submitted by an industrial unit to the Federal Agency in respect of priority parameters;
- (f) **Industrial unit** means any legal entity carrying on industrial activity;
- (g) **pollution level** means number of units per unit of production determined under the Pollution Charge for Industry (Calculation and Collection) Rules, 2001;
- (h) **priority parameters** means those parameters of the National Environmental Quality Standards which have been selected for purposes of submission of Environmental Monitoring Reports to the Federal Agency by an industrial unit; and
- (i) **Schedule** means the Schedule to these rules.



National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

(2) All other words and expressions used in these rules but not defined herein shall have the same meanings as are assigned to them in the Act.

3. **Responsibility for reporting.** - All industrial units shall be responsible for correct and timely submission of Environmental Monitoring Reports to the Federal Agency.

4. **Classification of industrial units.** - On the basis of the pollution level of an industrial unit, the Director-General shall classify the unit into category "A", "B" or "C" for liquid effluents, and category "A" or "B" for gaseous emissions:

Provided that till such time as the pollution level of an industrial unit is determined, it shall be classified according to the type of industry to which it belongs, as shown in Schedule I for liquid effluents and in Schedule II for gaseous emissions.

5. **Category "A" industrial units.** - (1) An industrial unit in category "A" shall submit Environmental Monitoring Reports on monthly basis-

(a) in respect of liquid effluents, for priority parameters listed in column 3 of Table A of Schedule III;

Provided that during start-up or upset conditions, priority parameters mentioned in column 4 of Table A of Schedule III shall be recorded on hourly basis;

(b) in respect of gaseous emissions, for priority parameters listed in Table B of Schedule III.

(2) An industrial unit in category "A" shall maintain a record of the times during which start-up and upset conditions occur, and shall mention the total time elapsed in such conditions in its monthly Environmental Monitoring Report.

6. **Category "B" industrial units.** - An industrial unit in category "B" shall submit Environmental Monitoring Reports on quarterly basis-

(a) in respect of liquid effluents, for priority parameters listed in Table A of Schedule IV;

(b) in respect of gaseous emissions, for priority parameters listed in Table B of Schedule IV.

7. **Category "C" industrial units.** - An industrial unit in category "C" shall submit Environmental Monitoring Reports on biannual basis for priority parameters in respect of liquid effluents listed in Schedule V.



National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

8. **Special Industries.** - (1) Without prejudice to the provisions of rule 4, the Director-General may classify a large industrial unit with very high pollution levels as "Special Industry".

(2) In addition to complying with the requirements of rule 5, a Special Industry shall submit Environmental Monitoring Reports for such parameters and at such frequency as the Director-General may require.

9. **Environmental Monitoring Report.** - (1) An Environmental Monitoring Report shall comprise a Liquid Effluents Monitoring Report, a Gaseous Emissions Monitoring Report and a Cover Sheet which shall be in the form as set out in Forms A, B and C, respectively, of Schedule VI.

(2) All measurements of priority parameters contained in the Environmental Monitoring Report submitted by an industrial unit shall be based on test reports of a certified environmental laboratory, and attested copies of such results shall be attached with the Environmental Monitoring Report.

Provided that such certified environmental laboratories shall not be part of, or an associated company or associated undertaking of, the said industrial unit.

(3) The Gaseous Emissions Report shall cover the priority parameters listed in Schedule VII, and shall include, every two years, metal analysis of all gaseous emissions from the industrial unit.

10. **Sampling, testing and analysis.** - Sampling testing and analysis of effluents, gaseous emissions and waste shall be carried out in accordance with the Environmental Samples Rules, 2001.

11. **Monitoring conditions of EIA approval.** - The provisions of these rules shall be in addition to, and not in derogation of, the monitoring conditions laid down in an EIA approval.

12. **Compilation, analysis and management of data.** - The Federal Agency shall compile, analyze and manage the data contained in the Environmental Monitoring Reports with the objective, *inter alia*, of enforcing the National Environmental Quality Standards and developing an environmental database.

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

Schedule I  
(See rule 4)

## Classification of Industrial Units for Liquid Effluents

1. **Category "A"**

- (1) Chlor-Alkali (Mercury Cell).
- (2) Chlor-Alkali (Diaphragm Cell).
- (3) Metal finishing and electroplating.
- (4) Nitrogenous fertilizer.
- (5) Phosphate fertilizer.
- (6) Pulp and paper.
- (7) Pesticides formulation.
- (8) Petroleum refining.
- (9) Steel industry.
- (10) Synthetic fiber.
- (11) Tanning and leather finishing.
- (12) Textile processing.
- (13) Pigments and dyes.
- (14) Thermal Power Plants (Oil Fired and Coal Fired).
- (15) Rubber products.
- (16) Paints, Varnishes and Lacquers.
- (17) Pesticides.
- (18) Printing.
- (19) Industrial chemicals.
- (20) Oil and Gas production.
- (21) Petrochemicals.
- (22) Combined effluent treatment.
- (23) Any other industry to be specified by Federal or Provincial Agency.

2. **Category "B"**

- (1) Dairy industry.
- (2) Fruit and vegetable processing.
- (3) Glass manufacturing.
- (4) Sugar.
- (5) Detergent.
- (6) Photographic.
- (7) Glue manufacture.
- (8) Oil and Gas exploration.
- (9) Thermal Power Plants (Gas Fired)
- (10) Vegetable oil and ghee mills.
- (11) Woolen mills.
- (12) Plastic materials and products.
- (13) Wood and cork products.

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

(14) Any other industry to be specified by federal or Provincial Agency.

3. **Category "C"**

- (1) Pharmaceutical (Formulation) Industry.
- (2) Marble Crushing.
- (3) Cement.
- (4) Any other industry to be specified by Federal or Provincial Agency

**Schedule II**

(See rule 4)

**Classification of Industrial Units for Gaseous Emissions**

**1. Category "A"**

- (1) Cement.
- (2) Glass manufacturing
- (3) Iron and steel.
- (4) Nitrogenous fertilizer.
- (5) Phosphate fertilizer.
- (6) Oil and Gas production.
- (7) Petroleum refining.
- (8) Pulp and paper.
- (9) Thermal Power Plants (coal and oil based)
- (10) Boilers, ovens, furnaces and kilns (coal and oil fired)
- (11) Brick-Kilns (firewood and bagasse based)
- (12) Any other industry to be specified by Federal or Provincial Agency.

**2. Category "B"**

- (1) Sugar.
- (2) Textile.
- (3) Chloralkali plants.
- (4) Dairy industry.
- (5) Fruits and vegetables.
- (6) Metal finishing and electroplating.
- (7) Boilers, ovens, furnaces and kilns (gas-fired)
- (8) Any other industry to be specified by Federal or Provincial Agency.

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Schedule III**  
(See rule 5(1)(a) and (b))  
**Table A**  
**Category "A"**  
**Priority Parameters for Monitoring of Liquid Effluents**

S.No.	Industry	Priority Parameters for Normal Plant Conditions to be Reported on a Monthly Basis <sup>1</sup>	Priority Parameters for Start-up and Upset Conditions to be Recorded on an Hourly Basis
1.	Chlor-Alkali (Mercury Cell)	Effluent flow, Temperature, pH, TSS, Chlorine, Mercury, Chlorides	Effluent Flow, Temperature, pH, TSS, Mercury, Chlorides
2.	Chlor-Alkali (Diaphragm Cell)	Effluent Flow, Temperature, pH, TSS, Chlorine, Chlorides	Effluent Flow, Temperature, pH, TSS, Chlorides
3.	Metal Finishing and Electroplating	Effluent Flow, Temperature, pH, TSS, Oil and Grease, Arsenic, Cadmium, Chromium (trivalent), Chromium (hexavalent), Lead, Nickel, Mercury, Silver, Zinc, Fluorides, Cyanides	Effluent Flow, Temperature, pH, TSS, Chromium (trivalent), Chromium (hexavalent), Lead, Nickel, Mercury, Silver, Zinc, Fluorides, Cyanides
4.	Nitrogenous Fertilizer	Effluent Flow Temperature, pH, TSS, Ammonia, COD	Effluent Flow, Temperature, pH, TSS, Ammonia, COD
5.	Phosphate Fertilizer	Effluent Flow, Temperature pH, TSS, Cadmium, Fluorides, COD	Effluent Flow, Temperature, pH, TSS, Cadmium, Fluorides, COD
6.	Pulp and paper	Effluent Flow, Temperature, pH, COD, TSS, TDS, Sulphides, BOD5	Effluent Flow, Temperature, pH, COD, TSS, TDS, Sulphides, BOD5
7.	Pesticides Formulation	Effluent Flow, Pesticides	Effluent Flow, Pesticides
8.	Petroleum Refining	Effluent flow, Temperature, pH, COD, TSS, BOD5 Oil and Grease, phenolic compounds	Effluent Flow, Temperature, pH, COD, TSS, BOD5, Oil and Grease, phenolic compounds
9.	Steel Industry <sup>2</sup>	Effluent Flow, Temperature, pH, COD, TSS, TDS, Chromium (trivalent), Iron, Oil and Grease, Cadmium Copper	Effluent Flow, Temperature, pH, COD, TSS, TDS, Chromium (trivalent), Iron, Oil and Grease, Cadmium Copper
10.	Synthetic Fiber	Effluent Flow, Temperature pH, COD TSS, BOD5, Oil and Grease, Sulphides	Effluent Flow, Temperature pH, COD TSS, BOD5, Oil and Grease, Sulphides
11.	Tanning and Leather Finishing	Effluent Flow, Temperature, pH, COD, TSS, BOD5, Sulphide, Oil and Grease, Chromium (trivalent), Chromium (hexavalent), TDS, phenolic compounds	Effluent Flow, Temperature, pH, COD, TSS, BOD5, Sulphide, Oil and Grease, Chromium (trivalent), Chromium (hexavalent), TDS, phenolic compounds
12.	Textile Processing	Effluent Flow, Temperature, pH, COD, TSS, TDS, BOD5, Copper, Chromium	Effluent Flow, Temperature, pH, COD, TSS, TDS, BOD5, Copper, Chromium

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

S.No.	Industry	Priority Parameters for Normal Plant Conditions to be Reported on a Monthly Basis.	Priority Parameters for Start-up and Upset Conditions to be Recorded on an Hourly Basis
13.	Pigments and Dyes	Effluent Flow, pH, Temperature, COD, lead, Copper, Zinc.	Effluent Flow, Temperature, pH,
14.	Thermal Power Plants (Oil fired and coal fired)	Effluent Flow, Temperature, pH, TSS, Oil and Grease	Effluent Flow, Temperature, pH, TSS
15.	Rubber Products	COD, Cadmium TSS	TSS
16.	Paints, Varnishes & Lacquers	PH, TSS, COD, Lead, Chromium, Cadmium, Zinc, Barium.	PH, TSS
17.	Pesticides	COD, Mercury, Pesticides	COD,
18.	Printing	COD, Lead	COD,
19.	Industrial Chemicals	PH, COD, TDS, Phenolic Compounds, Cyanide, Ammonia, Cadmium*, Chromium*, Mercury*, Nickel*, Zinc*, Arsenic*.	PH, COD, TDS,
20.	Oil and Gas Production	Effluent Flow, Temperature, pH, COD, TSS, TDS, Oil and Grease, Chloride, BOD5, Phenolic Compounds	Effluent Flow, Temperature, pH, TSS, TDS,
21.	Petrochemicals	Effluent Flow, Temperature pH, COD TSS, TDS, Oil and Grease, BOD5, Phenolic Compound.	Effluent Flow, Temperature, pH, TSS, TDS,

1. Industry using chromium in its cooling water system will also report chromium (trivalent, hexavalent) in addition to the stipulated priority parameters for each sector.
2. Steel Industry includes steel-re-rolling mills, electric furnaces, and foundries.

\* Priority parameters will be limited to those occurring in chemicals and raw materials used.

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Schedule IV**  
[See rule 6(a) and (b)]  
**Table A**  
Category "B"  
**Priority Parameters for Monitoring of Liquid Effluents**

S. No.	Industry	Priority Parameters for Normal Plant Conditions to be Reported on a quarterly Basis <sup>1</sup>
1.	Dairy Industry	Effluent Flow, Temperature, pH, BOD <sub>5</sub> , TSS, TDS, Oil and Grease
2.	Fruit and Vegetable Processing	Effluent Flow, Temperature, pH, BOD <sub>5</sub> , TSS, COD
3.	Glass Manufacturing	Effluent Flow, Temperature, pH, TSS, COD, Oil and Grease
4.	Sugar	Effluent Flow, Temperature, pH, BOD <sub>5</sub> , TSS, COD, Oil and Grease
5.	Detergent	pH, COD, Oil and Grease, An-ionic Detergent
6.	Photographic	pH, COD, Silver, Cyanide, Fluoride
7.	Glue Manufacture	BOD, COD, pH,
8.	Oil and Gas Exploration	Effluent Flow, Temperature, pH, COD, TSS, TDS, Oil and Grease, Chloride, BOD <sub>5</sub> , Phenolic compounds
1.	Industry using chromium in its cooling water system will also report Chromium (trivalent, hexavalent) in addition to the stipulated priority parameters for each sector	



National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Table B**  
**Category "A"**  
**Priority Parameters for Monitoring of Gaseous Emissions**

S. No.	Industry	Priority Parameters for Normal Plant Conditions to be reported on a Monthly basis
		<b>Process Emission</b> <b>Emission from fired Equipment</b>
1.	Cement	CO, *SOx, NOx, Particulates
2.	Glass Manufacturing	CO, *SOx, NOx, Particulates
3.	Iron and Steel	CO, *SOx, NOx, Particulates
4.	Nitrogenous Fertilizers	CO, *SOx, NOx, Particulates
5.	Phosphate Fertilizers	CO, *SOx, NOx, Particulates
6.	Oil and Gas Production	CO, *SOx, NOx, H <sub>2</sub> S and Particulates
7.	Petroleum Refining	CO, *SOx, NOx, SO <sub>2</sub> , Particulates
8.	Pulp and Paper	CO, *SOx, NOx, SO <sub>2</sub> , Particulates
9.	Thermal Power Plants (Coal and Oil based)	CO, *SOx, NOx, SO <sub>2</sub> , Particulates
10.	Boilers, Ovens, Furnaces and Kilns (Coal and Oil fired)	CO, *SOx, NOx, SO <sub>2</sub> , Particulates
11.	Brick Kilns (Firewood and Bagasse)	CO, NOx, *SOx, Particulates
1.	Metal analyses of all gaseous emission would be carried out once in two years.	CO, Particulates

\*Only where fuel contains hydrogen sulphide (H<sub>2</sub>S) more than 20ppm

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Table B**  
**Category "B"**  
**Priority Parameters for Monitoring of Gaseous Emission**  
**Category "B"**

S. No.	Industry	Priority Parameters for Normal Plant Conditions to be reported on a Quarterly Basis <sup>1</sup>	
		Process Emission	Emission from fired Equipment
1.	Sugar	Particulates	CO, *SO <sub>x</sub> , NO <sub>x</sub> , Particulates
2.	Textile		CO, *SO <sub>x</sub> , NO <sub>x</sub> , Particulates
3.	Chloralkali Plants	Chlorine	CO, NO <sub>x</sub> , *SO <sub>x</sub> , Particulates
4.	Dairy Industry		CO, NO <sub>x</sub> , *SO <sub>x</sub> , Particulates
5.	Fruits and Vegetables		CO, NO <sub>x</sub> , *SO <sub>x</sub> , Particulates
6.	Metal Finishing and Electroplating	Particulates	
7.	Boilers, Ovens, furnaces and Kilns (Gas-fired)		CO, NO <sub>x</sub>

1. Metal analyses of all gaseous emission would be carried out once in two years.

\*Only where fuel contains hydrogen sulphide (H<sub>2</sub>S) more than 20ppm

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Schedule V**  
(See rule 7)  
Category "C"  
**Priority Parameters for Monitoring of Liquid Effluents**

S. No.	Industry	Priority Parameters for Normal Plant Conditions to be Reported on a quarterly Basis <sup>1</sup>
1.	Pharmaceutical (formulation industry, marble crushing, Cement, and any other industry as notified by EPAs	Effluent Flow, Temperature, pH, COD, TSS, TDS,

1. Industry using chromium in its cooling water system will also report chromium (trivalent, hexavalent) in addition to the stipulated priority parameters for each sector.

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Schedule VI**

**FORM A**

**Liquid Effluents Monitoring Report**

SMART Plant Database ×

**Monitored Effluents**

**Sampling Information**

Stream  Sampling Date  Sampling Time

Location  Temp. (C)  Flow (m<sup>3</sup>/hr)

**Reported Data**

Period  Reported Days  Hrs Per Day

**Laboratory**

Name  Address

**Sample Analysis**

Ammonia <input type="text"/> mg/l	Chlorine <input type="text"/> mg/l	Lead <input type="text"/> mg/l	Silver <input type="text"/> mg/l
Anionic Detergents <input type="text"/> mg/l	Chromium (Hexavalent) <input type="text"/> mg/l	Manganese <input type="text"/> mg/l	Sulphides <input type="text"/> mg/l
Arsenic <input type="text"/> mg/l	Chromium (Trivalent) <input type="text"/> mg/l	Mercury <input type="text"/> mg/l	TDS <input type="text"/> mg/l
Barium <input type="text"/> mg/l	COD <input type="text"/> mg/l	Nickel <input type="text"/> mg/l	Total Chromium <input type="text"/> mg/l
BOD5 <input type="text"/> mg/l	Copper <input type="text"/> mg/l	Oil and Grease <input type="text"/> mg/l	TSS <input type="text"/> mg/l
Boron <input type="text"/> mg/l	Cyanides <input type="text"/> mg/l	Pesticides <input type="text"/> mg/l	Zinc <input type="text"/> mg/l
Cadmium <input type="text"/> mg/l	Fluorides <input type="text"/> mg/l	pH <input type="text"/>	
Chlorides <input type="text"/> mg/l	Iron <input type="text"/> mg/l	Phenolic Compounds <input type="text"/> mg/l	

**Province/Plant ID**

PUNJAB 1AAV

Edit Save Cancel Main

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

## Schedule VI

## FORM B

## Gaseous Effluents Monitoring Report

SMART Plant Database

**Monitored Emissions**

Normal Conditions SMART

**Sampling Information**

Process Feedstock  Sampling Date  Time

Location  Flow (m<sup>3</sup>/hr)

**Reported Data**

Period

Reported Days  Hrs Per Day

**Laboratory**

Name  Address

**Sample Analysis**

Ammonia <input type="text"/> mg/m <sup>3</sup>	Copper <input type="text"/> mg/m <sup>3</sup>	NO <sub>x</sub> <input type="text"/> mg/m <sup>3</sup>
Acetylene <input type="text"/> mg/m <sup>3</sup>	Hydrogen Fluoride <input type="text"/> mg/m <sup>3</sup>	Particulates <input type="text"/> mg/m <sup>3</sup>
Arsenic <input type="text"/> mg/m <sup>3</sup>	Hydrogen Sulphide <input type="text"/> mg/m <sup>3</sup>	Soots <input type="text"/> mg/m <sup>3</sup>
Carbonates <input type="text"/> mg/m <sup>3</sup>	Hydrogen Chloride <input type="text"/> mg/m <sup>3</sup>	SO <sub>x</sub> <input type="text"/> mg/m <sup>3</sup>
Chlorine <input type="text"/> mg/m <sup>3</sup>	Lead <input type="text"/> mg/m <sup>3</sup>	Zinc <input type="text"/> mg/m <sup>3</sup>
CO <input type="text"/> mg/m <sup>3</sup>	Mercury <input type="text"/> mg/m <sup>3</sup>	

**Province/Plant ID**

PUNJAB 1AAV

Edit Save Cancel Main

National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**FORM C****Environmental Monitoring Report Cover Sheet****SMART Plant Database****Registration Information**

SMART

<b>Company</b>	
Company Name	Chief Executive
Address 1	Designation
Address 2	City Code
City	E-mail
Post Code	Phone
	Fax

<b>Plant</b>	
Plant Name	Contact Person
Address 1	Designation
Address 2	City Code
City	E-mail
District	Phone
	Fax

<b>Type</b>		
Plant Type	Total Number of Combustion Stacks	Total Number of Process Stacks
Total Number of Streams		
Plant Uses Chromium Based Chemicals for Water Treatment ? <input type="radio"/> Yes <input type="radio"/> No		

<b>Province/Plant ID</b>	<b>Edit</b>	<b>Save</b>	<b>Cancel</b>	<b>Main</b>
PUNJAB 1A4V				



National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rule, 2001

**Schedule VII**  
[See rule 9(3)]  
**Priority Parameters for Monitoring of Gaseous Emissions**

S. No.	Emission source	Priority Parameters 2 for Reporting
1.	Boiler, Ovens Furnaces and Kilns Gas Fired Oil Fired Coal Bagasse and Firewood Brick Kilns Thermal Power Plants Process Emission <sup>1</sup>	CO, NOx CO, NOx, SOx, Particulates CO, NOx, SOx, Particulates CO, Particulates CO, NOx, SOx, Particulates Sox, NOx, Particulates Particulates Ammonia, Chlorine, H <sub>2</sub> S, fluoride, SOx, NOx, Co, Mercury*, Lead*, Zinc*, Cadmium*, Arsenic*, Antimony*
2.		
3.		
4.		
1.	Process emissions involving fuel combustion will also include parameters as for Boilers, Ovens, furnaces and Kilns.	
2.	Metal analyses of all gaseous emissions would be carried out once in two years.	
3.	Priority parameters will be limited to those occurring in chemicals and raw-materials used.	

F. No. 14 (3)/98-TO-PEPC

**(SAEED ATHAR)**  
**Section Officer**

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PUBLISHED BY THE MANAGER OF PUBLICATIONS, KARACHI

## Annexure 8: Copy of Lease / Ownership Documents

07 FEB 2017

ANIL AKHTAR STAMP VENDOR  
Lic # BS, Shop # 64, New Ruby Centre,  
Tajpur Road, Durrani Market, Karachi  
SR. NO. 3345 DATE 07 FEB 2017  
RSDS TO RTH ADDRESS IN  
TAXED WITH ADHESIVE  
OFFICE 82 JUNCTION A-2  
STAMP VENDOR SIGNATURE  
(NOT USE FOR FREE WILL & DISPOSE PURPOSE)  
Vendor Not Responsible for False Document

07 FEB 2017

Presented at the Office of the  
Sub Registrar Goddani, District  
Lahore between the hours of  
09:00 AM & 4:00 PM  
on the 14-12-2017

Sub Registrar, Goddani  
District Lahore

LEASE DEED

THIS LEASE DEED is made on this 31<sup>st</sup> day of March, 2017 ("Lease Deed")

BETWEEN

Byco Petroleum Pakistan Limited, a public company incorporated under the laws of Pakistan,  
having its registered office at 9th Floor, The Harbour Front, Dolmen City, HC-3, Block-4, Marine  
Drive, Clifton, Karachi-75600, Pakistan (hereinafter referred to as the "Lessor") which expression  
shall be deemed to include its successors-in-interest and assigns;

AND

Gas & Oil Pakistan (Pvt.) Ltd, Surt # 205, 2<sup>nd</sup> Floor, Park Towers, Clifton, Karachi, Pakistan,  
(hereinafter referred to as the "Lessee") which expression shall be deemed to include its  
successors-in-interest and assigns;

The Lessor and the Lessee shall hereinafter collectively be referred to as the ("Parties") and  
individually as the ("Party")

A. WHEREAS the Lessor is full, absolute and exclusive owner and is seized and possessed of  
and otherwise well and sufficiently entitled to a plot of land measuring 4.02 Acres (\_\_\_\_\_  
sq. yds.) out of the total land measuring \_\_\_\_\_ bearing Khata No. 332-333, Khata  
No. \_\_\_\_\_ Khatoni No. \_\_\_\_\_ situated at \_\_\_\_\_  
more  
particularly and elaborately described in the Schedule hereto given at the foot of these  
present and delineated in the plan annexed hereto (hereinafter referred to as the  
"Premises") owned by the Lessor above named by virtue of  
\_\_\_\_\_ free from all  
encumbrances whatsoever.

B. AND WHEREAS the Lessor has agreed to grant lease to the Lessee and the Lessee has agreed to take on lease, the said Premises together with all ways, passages, lights, drains, sewers, water-courses, rights, easements, advantages and appurtenances whatsoever to the said Premises belonging or connected or therewith usually held or enjoyed, for the purposes and on the terms and conditions set forth herein below:

NOW, THEREFORE, in consideration of the mutual covenants and the promises set out hereunder, it is hereby agreed as under:

#### DEFINITIONS

The terms used in this Lease Deed shall have the meanings stated below, unless the context otherwise requires:

- "Advance Rent" shall have the meaning ascribed to it in Section 2.4;
- "Due Date" shall have the meaning ascribed to it in Section 4.3;
- "Effective Date" shall have the meaning ascribed to it in Section 1.1;
- "Premises" is defined in the preamble hereto;
- "Renewed Term" shall have the meaning ascribed to it in Section 3.1;
- "Rent" shall have the meaning ascribed to it in Section 2.2
- "Term" shall have the meaning ascribed to it in Section 1.1

#### 1. Term of Lease

- 1.1 Subject to the terms of this Lease, this Lease Deed has been entered into for an initial term of ten (10) years (the "Term") commencing and reckoned from the execution date of this Lease Deed (the "Effective Date").

#### 2. Lease of Premises

- 2.1 The Lessor hereby lets out and the Lessee hereby takes the Premises on lease on the terms and conditions set out in this Lease Deed.
- 2.2 Subject to compliance with relevant laws, and Lessor's policies, procedures, environment, health and safety standards, the Lessee intends to develop a petroleum storage facility at the Premises. The Lessee will seek connectivity of its storage tanks to the Lessor's facilities.
- 2.3 That the Lessee shall have the right and liberty to install, erect, construct, raise, build, manage, maintain, establish and run, in and over the said Premises roadways, pathways, compound walls, fencing, railings, pump outfit or outfalls, CNG / LPG storage tanks, pumps, all manners of underground or over ground tank or tanks with necessary fittings and pipelines, petrol and diesel oil delivery pumps connected with such tanks, shelter for attendants, workshops, laboratories or other conveniences and also such other fittings, building, facility, erection or equipment whether of temporary or permanent nature as may be required for the purpose of storing, selling or otherwise carrying on the trade in petrol, petroleum products, oil and / or any kind of trade or business which the Lessee in its absolute discretion deems fit.
- 2.4 The Lessor shall on the Effective Date deliver vacant peaceful possession of the Premises upon receipt of the agreed rent, specified hereunder in Clause 4 ("Rent") in advance for the first twelve (12) months of the Term ("Advance Rent")
- 2.5 The Lessee shall hold, occupy, possess and enjoy the use of the Premises during the Term and any Renewed Term thereof without any let, hindrance, interruption and ...





### 3. Renewal

3.1 The Lessee may notify the Lessor by written notice served three (03) months prior to the expiry of the Term of its desire to renew this Lease Deed and the underlying lease for a further period or periods of ten (10) years ("Renewed Term") at a time as specified in the aforesaid notice.

3.2 Upon receipt of the notice referred to in Clause 3.1 hereof, the Parties shall amend this Lease Deed for the purpose of extending its tenor and recording the increase in rent as contemplated in Clause 4.2. Such amendment shall be registered and stamped at the cost of Lessee as required by law. Both Parties will ensure the execution of the amendment within a reasonable time.

### 4. Rent

4.1 The agreed rent for the Premises will be a lump sum amount of Pak Rupees One Hundred Thousand only (hereinafter referred to as "Rent"), for the Premises per year for the first year of the Term reckoned from the Effective Date.

4.2 During the subsistence of this Lease Deed, the Rent shall be revised after the elapse of every year and shall be increased at the rate of ten percent (10%) of the Rent paid for the last month of the immediately preceding year. The Rent will be payable through Pay Order/Demand draft in favour of the Lessor.

4.3 Except for the Rent aggregated for the first year which will be paid at the time of execution hereof and thereafter at the start of every year as "Advance Rent" by the Lessee on or before the first day of each tenor of one (01) year period during the currency of this lease ("Due Date").

4.4 In the event any Rent is overdue by more than thirty (30) calendar days, the Lessee shall, in addition to the Rent, pay delay or liquidated damages at the rate of five percent (5%) of the annual rent for the period commencing on the expiry of such 30 day period and ending on the date of payment.

### 5. Withholding for taxes

5.1 All payments of the Rent will be subject to such deductions at source / withholding, for income tax or any other taxes as may be required by and prescribed under the applicable laws for the time being in force.

5.2 If the Lessee is obliged to make and makes any such deduction or withholding, the Lessee shall provide within seven days of such deduction or withholding an official challan evidencing the deposit thereof in the Government Treasury / designated bank on account of the rent paid hereunder to the Lessor.

### 6. Lessor's Representations and Warranties

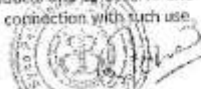
6.1 The Lessor hereby represents and warrants to the Lessee that Lessor is the true and lawful owner of the Premises, and has the requisite rights, power and lawful authority to let out the Premises to the Lessee in accordance with the terms of this Lease Deed.

### 7. Lessee's Representations and Warranties

7.1 The Lessee hereby represents and warrants to the Lessor that the Lessee has the requisite right, power and lawful authority to acquire on lease the Premises and will observe and perform the terms and conditions of this Lease Deed including the payment of Rent for the Term and the Renewed Term(s) timely.

7.2 That the Lessee shall apply and endeavor to obtain all necessary authorizations, permits, sanctions and licences from the Government and competent authorities for the use of the Premises by the Lessee as hereinabove provided and to pay all licenses and other fees and cesses, levied in respect of the Premises by reason of the same being used for storing, selling or otherwise carrying on trade in petrol, petroleum products and to observe and comply with Local, Police and Municipal Rules and Regulations in connection with such use.








Provided that the Lessor shall incur all charges and expenses in converting the Premises for commercial use, if necessary, and the Lessee shall not be liable to pay for the same.

7.4. The Lessee hereby represents and covenants to the Lessor that the Lessee will not sublet (entire or part of the Premises) to any third party. Further any lien/mortgage will not be executed on the Premises during the Term and or any Renewed Term.

#### 8. Termination

8.1 Subject to the terms of this Agreement:

- (a) the Lessor shall be entitled to terminate this Lease Deed before the expiry of the Term or the Renewed Term(s), as the case may be, if the Lessee commits a default in the payment of the Rent and has not made the payment within sixty (60) days thereof or within mutually agreed extended period of further thirty (30) days between the Lessor and the Lessee. The Lessor may terminate this Lease Deed for the above reason by informing the Lessee through written notice of thirty (30) days for such termination.
- (b) The Lessee shall be entitled to terminate this Lease Deed for plausible cause acceptable to the Lessor before the expiry of the Term or the Renewed Term(s) as the case may be, upon giving the Lessor prior written notice of thirty (30) days.
- (c) upon expiry of the aforesaid notice period, if any, the Lessor shall forthwith refund the entire amount of any un-utilized Rent paid in advance by the Lessee to the Lessor unless there are any dues outstanding against the Lessee in respect of the Rent or otherwise for which the Lessor shall be entitled to make necessary deductions or withhold the entire amount the refund in addition to other recoveries, if any, required to be made hereunder from the Lessee by the Lessor; subject to the payment of rent for the dismantling period over and above three months rent paid in advance.
- (d) upon termination of the Lease Deed, and unless otherwise agreed by the Lessor and the Lessee, the Lessee shall as soon as possible and no later than the expiry of the aforesaid notice period, dismantle and remove all the equipment, plant, machinery and other movable assets and super structure belonging to the Lessee from the Premises and deliver peaceful and vacant possession of the Premises to the Lessor on or before the last day of the notice period in the same condition as it was originally leased to the Lessee.
- (e) Upon effectiveness of termination of the Lease Deed, the physical possession of the Premises and the right of use shall forthwith revert to the Lessor and hindrance or delay regarding deliverance will be considered unlawful or unauthorized occupation of the Premises.

#### 9. Covenants of the Parties

9.1 The Parties hereby covenant that:

- (a) subject to the applicable laws, and with the Lessor's prior written consent, the Lessee shall be entitled to at any time make all necessary temporary or permanent, structural or non-structural changes in, under or to the Premises in order to suit its requirements for the purpose hereunder;
- (b) upon expiry of the Term, the Renewed Term(s), clearance of all dues to Lessor, or on earlier termination of the Lease Deed, the Lessee at its own sole discretion chose to dismantle and remove any structure and / or equipment that have been installed by the Lessee in or at the Premises, if it so desires, and shall deliver vacant and peaceful possession of the Premises to the Lessor.
- (c) Subject to safety and security protocols applicable at the Premises, the Lessor, its officers or duly authorized representatives shall be permitted to enter and/or inspect the Premises during the currency of the Term or Renewed Term(s).

the Lessor will facilitate for any no-objection certificates which the Lessee may require for installation of utility services, erection of storage tanks for dangerous and non-

dangerous products, for construction of offices, for laying underground pipeline, for developing any other infrastructure that the Lessee may desire and all cost incurred regarding above mentioned tasks and/or assignments will be arranged and or paid by the Lessee.

(e) The Lessee shall utilize the Premises only for the purposes for which the Premises has been acquired on lease hereunder; and the Parties shall comply with the applicable laws in force in Pakistan.

(f) The Lessor shall not sell, transfer, mortgage, charge, lease, alienate or encumber the Premises in any way whatsoever nor shall enter into any agreement with any other Party in respect thereof. If at any time the Lessor intends to sell the land, the Lessee shall have first option to purchase it at a reasonable market price. The Lessee shall have the right to waive their first right of purchase of the Premises in writing within 60 days from the date of receipt of the offer in writing.

(g) In the event of the Premises being acquired by the Government or by any lawful authority or if the Lessee will be unable to carry out their normal trade and business on the Premises due to any restriction being imposed by lawful authority, the Lessee will have the option to determine this Lease, and the Lessee shall be entitled to remove from the Premises all structures, erections, materials property belonging to them without any hindrance, and either Party hereto shall have no claim against each other from the date of such acquisition or determination as the case may be, provided that the rent paid by the Lessee for the unexpired period of this lease shall be refunded by the Lessor, and provided further that the Lessee shall be entitled to receive their share of compensation if paid by the Government or any lawful authority against the said acquisition or restriction.

#### 10. Indemnification

##### 10.1 Notwithstanding anything to the contrary contained herein:

(a) The Lessor shall indemnify and hold the Lessee harmless against all losses, damages, claims, liabilities, costs, expenses, penalties, levies and charges and all costs and expenses if at any point in time from the date of execution hereof, and during the Term or the Renewed Term(s), if any, the title of the Lessor in and to the Premises is found to be defective or deficient in any manner whatsoever;

(b) The Lessee hereby indemnifies and agrees to hold the Lessor harmless against all losses, damages, claims, liabilities, costs, expenses, penalties, levies and charges and all costs and expenses, if it's use of the Premises causes any damage or loss to the Premises or the Lessor; or any of its staff representative(s) or any person enters the Premises on or under the authority of the Lessee for any unlawful activity.

#### 11. Notices

11.1 All notices, consents, requests, and similar correspondence required to be communicated or given under this Lease Deed shall be made in writing. All notices under this Lease Deed or pursuant to any legal proceedings shall be given in writing by registered mail acknowledgment due, recorded mail, courier, facsimile transmission or electronic mail (Email) to the addressee and particulars specified below, or to such other addresses or particulars as the Parties may specify in advance in writing from time to time:

##### If to the Lessor:

Byco Petroleum Pakistan Limited  
9th Floor, the Harbour Front, Dolmen City,  
HC-3, Block 4, Marine Drive, Clifton, Karachi-75600, Pakistan

Attention: *Sahid Raza*

Fax: \_\_\_\_\_

e-mail: *Sahid.Raza@byco.com.pk*





**IF to the Lessee:**


Gas & Oil Pakistan (Pvt.) Ltd.  
 Plot # 209, 2<sup>nd</sup> Floor, Park Towers, Clifton, Karachi, Pakistan.

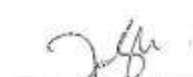
Attention: ALL ABER KHAN  
 Fax: 92-21-35290205  
 e-mail: ALL.ABER@GPO.Com.Pk

**12. Miscellaneous**

- 12.1 Save as expressly provided for herein, this Lease Deed supersedes all previous agreements and understandings between the Parties.
- 12.2 The Recitals, Schedules and the Annexure(s) referred to herein, are an integral part of this Lease Deed and shall be construed accordingly for all purposes.
- 12.3 This Lease Deed may only be amended by a written agreement of the Parties.
- 12.4 Any failure of either of the Parties to require the prompt performance of any of the other Party's obligations under this Lease Deed or the waiver by either Party of any breach hereunder, shall not prevent a subsequent enforcement of the said obligation, nor shall it be deemed to be a waiver of any subsequent breach.
- 12.5 The Lessee shall bear and pay the costs required for the registration of this Lease Deed, including the cost for affixing proper stamp duty as applicable for this Lease Deed, and indemnify the Lessor from all costs, penalties and losses for any deficiency therein.
- 12.6 This Lease Deed shall be governed by, construed, interpreted and applied in accordance with the laws of Pakistan and courts at Karachi shall have exclusive jurisdiction to entertain suits/petitions under this Lease Deed and the Parties submit to such exclusive jurisdiction.
- 12.7 The Parties shall seek amicably to settle all disputes arising out of or relating to this Lease Deed by negotiation by and between the Parties. If, within thirty (30) days after written notice by either Party of the existence of a dispute, the Parties do not resolve such dispute, then the dispute shall be referred to Chief Executive Officers of the Parties for further negotiation. If the Parties do not resolve their dispute within sixty (60) days of written notice by either Party of existence of such dispute, then, either party shall have the right to approach the court. Subject to the foregoing, the Parties agree to submit to the courts at Karachi to have exclusive jurisdiction over such matters/dispute(s) hereunder.

IN WITNESS WHEREOF the Parties have signed this Lease Deed on the date mentioned hereinabove:

  
 For & on behalf of the Lessor  
 Byco Petroleum Pakistan Limited

  
 For & on behalf of the Lessee  
 Gas & Oil (Pvt.) Limited,

By:  
 Name: Mohammad Wasim Khan  
 CNIC No. 42201-0738367-5  
 Address: C/O Byco

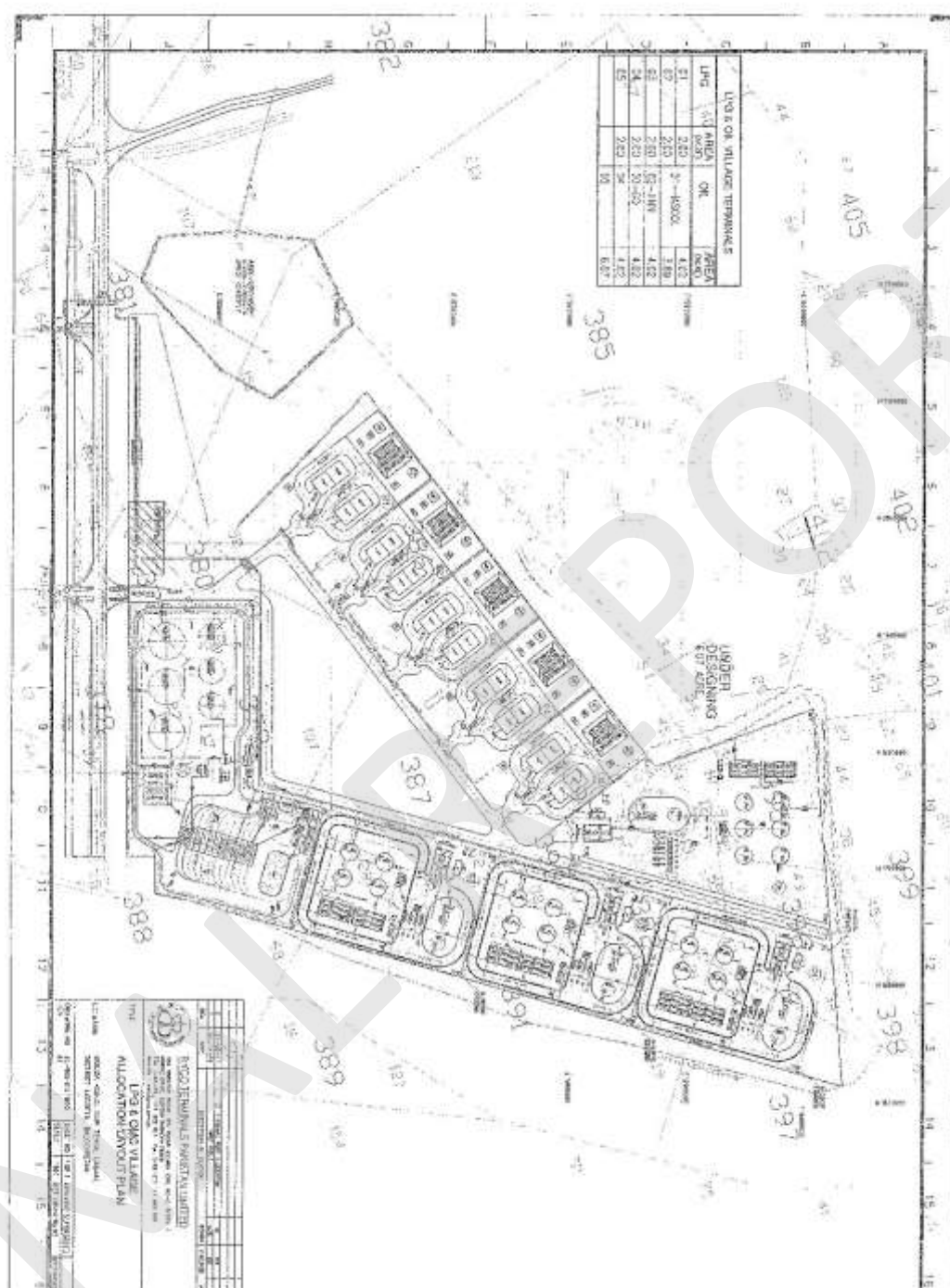
By:  
 Name: FARHAN ABBAS SHEIKH  
 CNIC No. 422014-186257-5  
 Address: 23-T, GOLBERG-2, LHR

Witness:

Name: Sohail Saifi  
 CNIC No. 42201-3299658-4  
 Address: C/O Byco

Name: MANSIM SARTIAZ  
 CNIC No. 34401-9459636-3  
 Address: 23-T, GOLBERG-2, LHR

Registered (No.) 157 in Volume I  
 District Lahore  
 of 2013 Book No. I



07-P-157-V.1-B.1

وقت سر رسید و ارسال به ایستگاه

دریاداریت اداره ایستگاه: میرزا محمد میرزا

تاریخ: 14-07-2017

نام کارکن: مهندس میرزا محمد میرزا

مدرک: 200/

تفصیل کار: 200/

مبلغ: 200/

07-P-157-V.1-B.1

وقت سر رسید و ارسال به ایستگاه

دریاداریت اداره ایستگاه: میرزا محمد میرزا

تاریخ: 14-07-2017

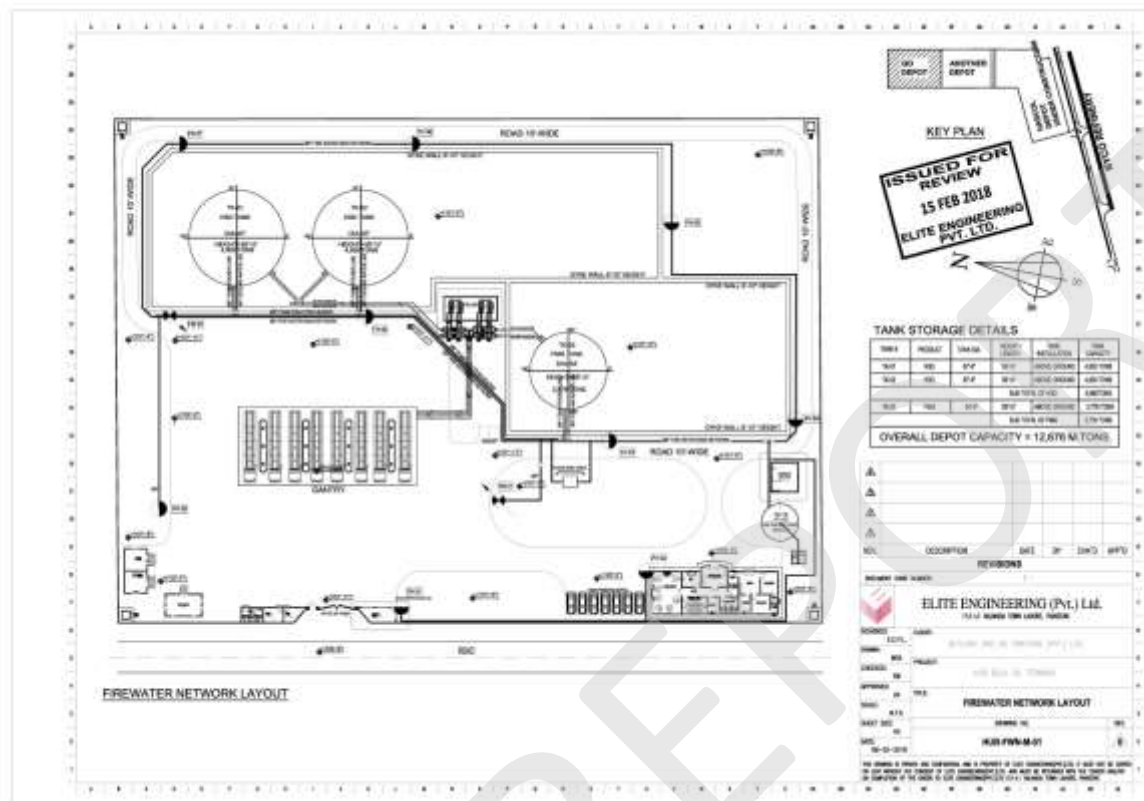
نام کارکن: مهندس میرزا محمد میرزا

مدرک: 3025/

تفصیل کار: 3025/

مبلغ: 3025/

## Annexure 9: Fire Hydrant Layout Plan



## Annexure 10: Ambient Noise Level Report


**ECS**

Environmental Consultancy &amp; Services

223/F, Block-2, P.E.C.H.S.

Karachi-75400

Ph: 021-34303165

Cell: 0333-2131228

Email: ecs.karachi@gmail.com

Report Ref No: ECS/GPP/03/002

Reporting Date: 30-January-2018

Sampling Date: 30-January-2018

Sampling Time: 2:30pm

**Report to:** M/S GO Petroleum  
 Proposed SITE Hub,  
 Near Byco Refinery, Pakistan.

**Attention:** M/S GO Petroleum.

Sample ID: Noise Level  
 SEQs Limits: 70.0 dBA

Sr. #	Location	SEQs Limit	Unit	Results		
				Min	Max	Mode
1.	West	70.0	dB	55.1	57.9	56.5
2.	South	70.0	dB	49.5	53.2	51.3
3.	North	70.0	dB	53.3	51.2	52.2
4.	East	70.0	dB	50.7	48.4	49.5

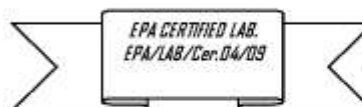
Sample Analyzed by: Habib Muhammad





## Annexure 11: Ground Water Quality Report

Lab. Rpt. Rf. No.: 16694/GOP/ERC/BUKC/2018  
 Invoice/ Bill No.: 8748/ECS/ERC/BUKC/2018



Reporting date: 30-January-2018

**Report to:** M/s GO Petroleum  
 Proposed SITE Hub,  
 Near Byco Refinery-Pakistan.

sampling date: 30-January-2018  
 sampling time: 1400 hrs PST (+5GMT)  
 sample receiving date (at ERC): 30-January-2018  
 sample receiving time (at ERC): 1630 hrs PST (+5GMT)

**Attention:** Director ECS  
 Tel. # (+92) 21 3430 3636

Page: **1 of 1**

**Sample ID:** Ground Water  
**Sample Description:** Ground Water Sample from M/s GO Petroleum  
**Sample Type:** Liquid Grab Sample  
**Sample Collected/Submitted by:** M/s Environmental Research Centers' (ERC) Representative  
**Analytes Descriptions:** Mentioned bellow Parameters.

**ANALYTICAL TEST REPORT**

Sr #	Parameters/ Analytes Description	Methods <sup>*1</sup>	NSDWQ <sup>*2</sup> Limits	Units	Results
1	Total Dissolved Solids (TDS)	APHA 2540C	1000.0	mg/L	33100.0
2	pH Value	APHA 4500H <sup>1</sup> B	6.5 - 8.5	SU	7.58
3	Total Petroleum Hydrocarbon (TPH)	EPA 8015C	NoGL	mg/L	0.0962

<sup>\*1</sup> Methods: APHA = Standard Methods, approved by American Public Health Association, American Water Works Association, Water Environment Federation 2005.

EPA = United States Environmental Protection Agency Methods.

<sup>\*2</sup> NSDWQ = National Standards for Drinking Water Quality; Registered No. M-30, I-7646, Part-II, Nov., 26, 2010, pg. 3207-9.

Note: SU = Standard Unit, NoGL = No Guidelines Limits Available

Sample Analyzed by: Mr. Abdul Rahim Name of Scientific Officer: Mr. Ahmed Jamil

Signature of Incharge of the Environmental Lab: \_\_\_\_\_  
 Name: Dr. Yasmin Nergis

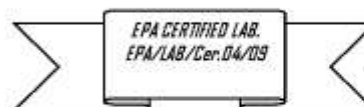
**Terms & Condition:**

- Report is valid for current batch (sample).
- The remaining portion of the sample (s) will be discard after seven (07) days unless otherwise instructed.



## Annexure 12: Hub River Water Quality Report

Lab. Rpt. Rf. No.: 16693/GOP/ERC/BUKC/2018  
 Invoice/ Bill No.: 8748/ECS/ERC/BUKC/2018



Reporting date: 30-January-2018

**Report to:** M/s GO Petroleum  
 Proposed SITE Hub,  
 Near Byco Refinery-Pakistan.

sampling date: 30-January-2018  
 sampling time: 1330 hrs PST (+5GMT)  
 sample receiving date (at ERC): 30-January-2018  
 sample receiving time (at ERC): 1630 hrs PST (+5GMT)

**Attention:** Director ECS  
 Tel. # (+92) 21 3430 3636

Page: **1 of 1**

**Sample ID:** River Water  
**Sample Description:** River Water Sample from Hub River  
**Sample Type:** Liquid Grab Sample  
**Sample Collected/Submitted by:** M/s Environmental Research Centers' (ERC) Representative  
**Analytes Descriptions:** Mentioned below Parameters.

**ANALYTICAL TEST REPORT**

Sr #	Parameters/ Analytes Description	Methods* <sup>1</sup>	NSDWQ** <sup>2</sup> Limits	Units	Results
1	Total Dissolved Solids (TDS)	APHA 2540C	1000.0	mg/L	34209.0
2	pH Value	APHA 4500H <sup>+</sup> B	6.5 - 8.5	SU	7.98
3	Total Petroleum Hydrocarbon (TPH)	EPA 8015C	NoGL	mg/L	0.0716

\* Methods: APHA= Standard Methods, approved by American Public Health Association, American Water Works Association, Water Environment Federation 2005.

EPA= United State Environmental Protection Agency Methods.

\*\* NSDWQ= National Standards for Drinking Water Quality; Registered No. M-30, L-7646, Part-II, Nov., 26, 2010, pg. 3207-9.

Note: SU= Standard Unit, NoGL= No Guidelines Limits Available.

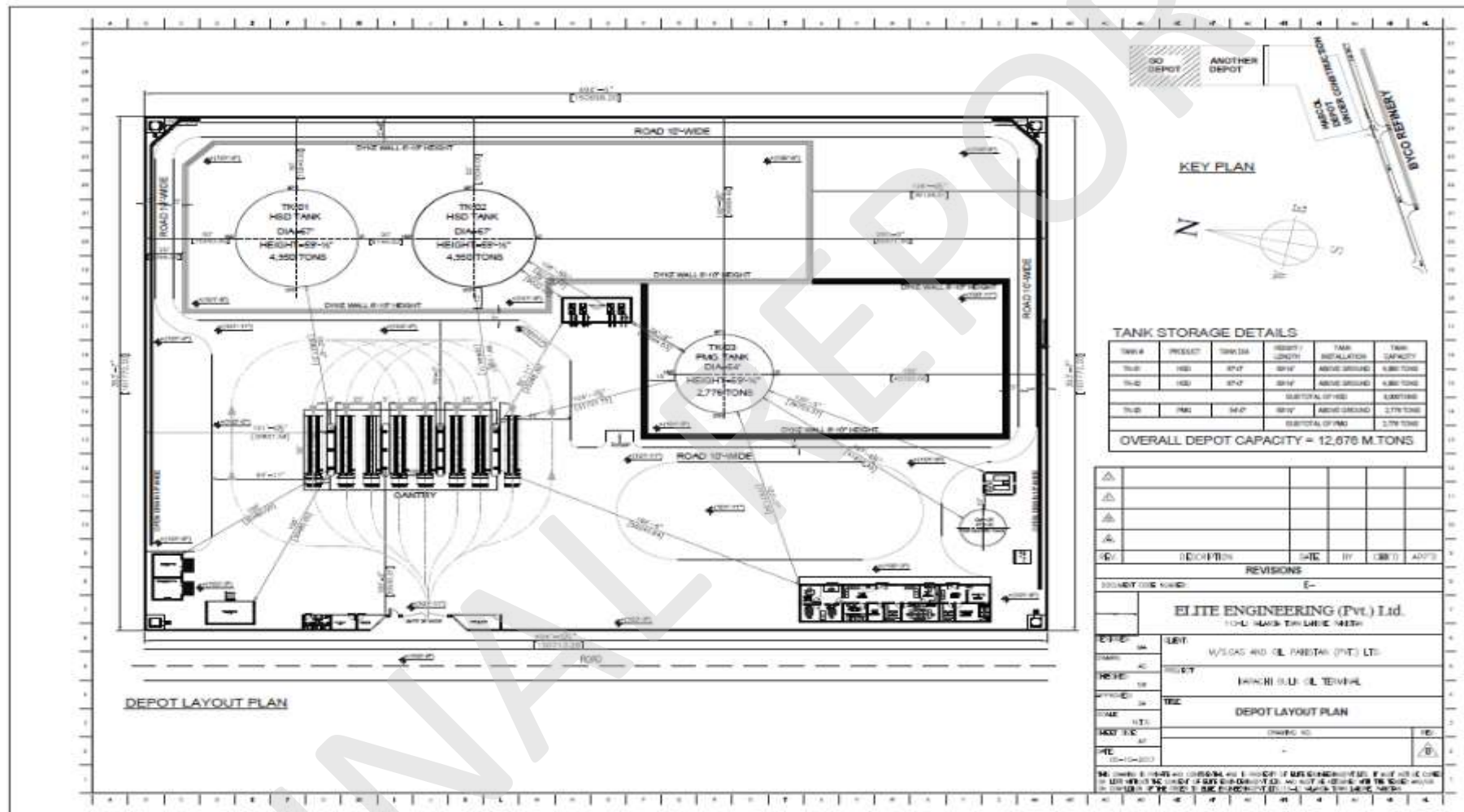
Sample Analyzed by: Mr. Abdul Rahim Name of Scientific Officer: Mr. Ahmed Jamil

Signature of Incharge of the Environmental Lab: \_\_\_\_\_  
 Name: Dr. Yasmin Nergis

**Terms & Condition:**

- Report is valid for current batch (sample).
- The remaining portion of the sample (s) will be discard after seven (07) days unless otherwise instructed.

## Annexure 13: Layout Plan of HBST Terminal



## The End