

EXECUTIVE SUMMARY

➤ INTRODUCTION

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for the Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock. The main objective for the development of Proposed Project is Installation of LPG Refueling Unit, LPG reaches the domestic consumer in car cylinders under relatively low pressures. The largest part of the LPG produced is used in central heating systems, and the next largest as raw material for chemical plants. LPG commonly is used as fuel for gas barbecue grills and gas cooktops and ovens, for gas fireplaces, and in portable heaters. Unlike diesel, LPG can be stored nearly indefinitely without degradation. Environmental Impact Assessment (EIA) of the project has been conducted in accordance with the Punjab Environmental Protection (Amendment) Act 2012 and IEE/EIA Regulations 2000. The process for conducting environmental assessment and the results of EIA are described in this document.

➤ SALIENT FEATURES OF PROJECT:

Sr.#	CONSTITUENT	DESCRIPTION
1)	Name of Project	Construction Of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock
2)	Project Title:	M/S MRK Oil & Gas (SMC- Private) Limited At Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341
3)	Project Location:	Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock
4)	Total Area:	2 Kanal
5)	Total Cost:	PKR 45 million

6)	Project Description:	The proposed project is Installation of Construction Of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited At Khasra No. 3275, Khewat No. 1205/1031, Khatooni No, 1341, Situated At Fateh Jang Road, Mouza Akhori Tehsil & District Attock. First phase estimated life of the project is 50 years. Much before the project approaches end of its first life cycle it will be completely renovated, and refurbished. All civil structures and related infrastructures will be extensively renovated. Even during its first life cycle, pre-emptive modifications, replacements and refurbishing will be carried from time to time under the "order of the day principle". This will ensure enhancement of the life of the project at very nominal costs. In this way the project life will be further enhanced for another hundred years or so. All activities will be carried out in accordance with the prevailing environmental laws to avoid any damage to any segment of environment or human health around the project site.
7)	Project Proponent & Contact Person	Mr. Shahzad Rafiq S/O Muhammad Rafiq R/O Jail Road, House No 290/4, Peshawar Cant, Tehsil Peshawar.
8)	Project Category:	The proposed project is Installation of LPG Refueling unit wants to construct/ install new project to falls under Schedule II (List of projects requiring EIA), and project under consideration categories fall in the category A (5) Oil and gas extraction project including exploration, production, gathering system separation and storage for which filing of an EIA is required by the Provisional Agency under sub-regulation (2) of Regulation 5, of PEPA, Regulation, 2000 requiring EIA. Further the client is required to fulfill the legal requirements of section 12 of the PEPA Act 1997 (Amended 2012).

9)	Project Process	Purchasing of LPG ↓ Transportation to project site in closed vessels ↓ Shifting in tanks ↓ Refilling for commercial / domestic use ↓ Sale out
10)	Others details of project for LPG Refueling Unit:	• Capacity = 10 tons • Nature of project = LPG Refueling unit • Nature of area = Commercial • Current status of the land = Open land • Tank material must be steel with a factory applied corrosion • Resistant coating. Tank tightness testing 3-6 months after installation. • Contact plates required under all fill and gage openings. • Corrosion protection (impressed current or sacrificial anode) required for all steel tanks and piping. • Corrosion protection function test required annually. • Double wall tanks and interstitial monitoring required • LPG leakage
Environmental Precise		
1)	Project Environmental Consultant	Entertech Labs (PVT) Ltd Plot 114, Block E, Nawab Town Lahore. Phone: +92 423 5300446, +92 302-4707938 Email: info@iesolutions.pk

2)	Electricity Supply	WAPDA will be the main source of electricity and one transformer of 125 KW will be provided by the WAPDA. 10 people will get jobs during construction phase.
3)	Electricity Requirement	The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Maintenance will be carried out by the management of the Project.
4)	Solid Waste Management	Solid waste will primarily consist of the domestic solid waste from the project. About 10 kg/day of domestic solid waste will be generated from the project. The garbage will be collected at a designated area within the area as an intermediate garbage disposal. From this place, garbage will be collected and transported to a suitable location for final disposal. The location for this final disposal will be decided in consultation with the City District Government of Punjab. The waste will be generated in the construction phase only while in the operational phase there will be no waste generation.
5)	Tree Plantation	Trees will be planted in all open spaces and boundary of the Project Area. Green belts will also be developed.

➤ **MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES:**

Anticipated impacts associated with the construction phase include noise, air emissions from earthwork and construction machinery and vehicles, and soil contamination due to leakage from any construction material or accidents of the construction or transportation vehicles or during on-site refueling, solid waste from construction, municipal water used and safety of the workers and employment conflicts as the major adverse environmental impacts. Mitigation measures recommended to be incorporated into the project include running the machines and vehicles on good quality (low-sulfur fuels) in good working order ensuring regular maintenance, tuning and servicing, and providing them with emission control devices, such as mufflers and silencers, etc. Water suppression and covered transportation and storage of the

construction materials and slow driving on unpaved roads will control dust emission. Water sprinklers will also be implanted for the settlement of dust particles. Solid waste of construction and demolition activities will be used for flooring, while the remaining solid waste will be managed as per area practices in the area. For community safety, irrelevant persons will not be allowed inside and boundary of the site and it will be fenced. Safety of the workers will be ensured by developing SOPs for all jobs, training the workers to follow SOPs, discouraging any careless attitude of workers and providing the workers with, and encouraging them to use PPEs. Construction/ Installation of LPG Refueling Unit, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock.

Key impacts related to the operation phase include:

- ✓ Wastewater
- ✓ Solid Waste
- ✓ Energy Management
- ✓ Safety, Public Health & Nuisances

However, the magnitude of these impacts shall be very low and insignificant. Only municipal wastewater will be generated, which will be handled via Settling Tank and then will be discharged into the trunk sewer. Solid waste will also be municipal only. Solid waste will not be allowed to pile up and the municipal solid waste will be managed as per area practices. Air pollution will not be there in a scheme. High noise vehicles will not be allowed in proposed scheme. Detailed analysis is given in chapter 4.

➤ ENVIRONMENTAL MANAGEMENT & MONITORING PLANS:

During construction, ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level (tests), solid waste management and soil contamination, and community and workers 'safety (visual) need to be monitored. During operation solid waste management, sewerage lines will be monitored. Plan has been included in **Chapter-5**.

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CHAPTER # 1

INTRODUCTION

1.1 Purpose of the report

The EIA Project proponent feels its social, moral and legal obligation to protect environment. It is in this context that the company initiated the process of gaining Environmental Approval from the EPA, Government of Punjab accordingly he has on its own approached EPA for guidance in this regard. According to the direction of the EPA, as detailed in the preceding Para under "B-introduction" this EIA is being submitted for issuance of the said Environmental Approval in compliance with the Pakistan Environmental Protection Act -1997 (PEPA-1997) Section 12.

The proponent affirms that environmental management order will prevail both during construction and regular operation in accordance with the Punjab Environment Quality Standards (PEQS).

Socio economic, physical, and environmental, land use, forestry, crops, water bodies, bio diversity (flora and fauna), heritage, and other relevant aspects associated with the project itself and the area around the project are described in the EIA report and also describes mitigation measures those will be adopted to undo environmental impacts on any segment of the environment i.e., human health and environmental health around the project site both during construction and normal operation of the project. The report provides relevant information, as required under the officially approved format, to help the decision makers (EPA Punjab in the Present case) before issuing the desired environmental approval.

1.2 Identification of project and proponent history

According to Environmental Protection Agency, Government of Punjab Lahore List of Projects Requiring EIA and project under consideration categories fall in the category A (5) Oil and gas extraction project including exploration, production, gathering system separation and storage for which filing of an EIA is required by the Provisional Agency under sub-regulation (2) of Regulation 5, of PEPA, Regulation, 2000 requiring EIA. Further the client is required to fulfill the legal requirements of section 12 of the PEPA Act 1997 (Amended 2012).

Total area for the proposed project is 2 Kanal. Management of the proposed project will install two tanks with storage capacity 10T. Site where project will be installed is agricultural commercial in nature. Proposed site is located at the distance of 5 Km away from population centers. Estimated development cost of the proposed project will be PKR 45 million.

1.3 Project Proponent

Mr. Shahzad Rafiq S/O Muhammad Rafiq R/O Jail Road, House No 290/4, Peshawar Cant, Tehsil Peshawar. CNIC & other related documents are attached with the application file for the Environmental Approval.

1.4 Purpose of the report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, in compliance with the legal requirement for Punjab Environment Protection Act-1997 (Amended 2012), Section 12- for obtaining No Objection Certificate (NOC) before starting and construction activity at the project site. The other relevant regulations and guidelines considered while preparing this EIA report include:

- Policy and procedures for filing, review and approval of environmental assessments.
- Guidelines for the preparation and review of environmental reports.
- Guidelines for public participation.
- Guidelines for sensitive and critical areas.
- Detailed sectorial guidelines

Various aspects like environmental, social, physical and other aspects of the project both during construction and its regular occupancy are highlighted in this EIA report. Measures necessary to be adopted to mitigate any environmental impacts on any part of the environment around are also described. All the important information is also provided as described under the format used to help decision makers, EPA Punjab in the present case, before issuing the desired Environmental Approval.

1.5 Scope of the study

The scope of study includes baseline survey of the proposed project, collect relevant data from primary and secondary sources, assess the impacts related to the subject project, suggest the mitigation measures to control the anticipated impacts, formulate the environmental monitoring program to check the environmental parameters at NEQS, prepare an Environmental Management plan to implement the recommended mitigation measures, consultation with the stakeholder or nearby community to know their concerns regarding the subject project.

1.6 Details of Consultant

The services of environmental consultant **Entertech Labs PVT Ltd** have been taken by the proponent for the formulation of Environmental Impact Assessment Report (EIA) Report. It is an environmental consultancy firm that has an unrivalled reputation for providing high quality tailored services. **Entertech Labs PVT Ltd** is a dynamic, responsive and innovative in providing this cost-effective solution. **Entertech Labs PVT Ltd.** comprising of Environmental Engineers & Consultants, and rendering their services to clients in both industrial and the government sectors.

With the visionary leadership of its veteran management and enthusiasm of its team, it is committed to come up with innovative ways of maintaining and enriching the Environmental Profiles / Portfolios of its prestigious clients with activities having a strong and lasting impact to their corporate image. It has attracted and retained staff with an unrivalled depth and breadth of expertise and experience that they have from working, not just in consultancy but also in commercial, industrial and regulatory environments. With its pool of Environmental Consultants, Environmental Scientists and Environmental Engineers, company offers one stop solutions tailored to its client's needs.

CONTACT DETAILS:

Qualified professionals with relevant experiences of conducting environmental assessment have contributed to the preparation of Environmental Impact Assessment (EIA) Report. The team has been shown in Table below:

Table 1.1: List of Team Members

Sr. #	Name	Highest Qualification
Technical Team Member		
	Mr. Waqas Ahmad Khan	PhD in Environmental Sciences
Members		
	Mr. Abdul Rehman	MPhil Environmental Sciences (UOL)
	Fajar Waheed	BS(Hons) Environmental Sciences (UOL)
	Saira Younas	Research analyst
	Ayesha Malik	BS(Hons) Environmental Sciences (UOL)
	Sameen Salman	MPhil Environmental Sciences (GCU)
	Ashfaq Ameen	BS(Hons) Environmental Sciences (UOL)

1.7 Nature, Size and Location of the Proposed Project

The proposed project is Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC-Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock., over a total land area of 2 Kanal. The project will be facilitated with all above said facilities. The land prices are low in some area due to less development. So, the capital cost of the whole project is about PKR 45 million.

1.8 Methodology for EIA Report

For the purpose of this report, environmental and social baseline data and conditions at/around the project site has been undertaken. The methodology adopted to conduct the EIA Study includes Review of Layout Plan, detail meetings with the client, orientation session, development of data acquisition plan, Analysis of Data, review of existing data, primary &

secondary data collection survey, Screening of Potential Environmental Impacts and Mitigation Measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after findings it has been concluded that the project will not have any major adverse impacts on the socio-economic environment of the existing community.

Executive Summary

- ❖ Chapter 1: *Introduction of the Project*
- ❖ Chapter 2: *Deals with the project Description*
- ❖ Chapter 3: *Covers the Description of the Environment*
- ❖ Chapter 4: *Deals with the Environmental impacts and Mitigation measures*
- ❖ Chapter 5: *Describes the Environmental Management Plan & Monitoring Program*
- ❖ Chapter 6: *Involves the conclusion & Recommendation*

CHAPTER NO # 2,

DESCRIPTION OF THE PROJECT

2.1 Type and Category of the Project:

The proposed project is Construction of LPG Refueling Unit by M/S MRK Oil & Gas (SMC-Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No, 1341, Situated At Fateh Jang Road, Mouza Akhori Tehsil & District Attock. According to Environmental Protection under consideration categories fall in the category A (5) Oil and gas extraction project including exploration, production, gathering system separation and storage for which filing of an EIA is required by the Provisional Agency under sub-regulation (2) of Regulation 5, of PEPA, Regulation, 2000 requiring EIA. Further the client is required to full fill the legal requirements of section 12 of the PEPA Act 1997 (Amended 2012).

Proposed project will be LPG Refueling Unit. Hence waste water and solid waste generation will be negligible. No heavy machinery will be installed in operational phase. Majority of the area is open land and will be used as parking for LPG tankers/ trucks.

For the construction of the proposed project during construction phase cement, sand, bricks, bajri, iron rods will be required for the construction of the project while in operational phase management of the proposed project will store LPG.

2.1.1 Material for the Tanks, Piping etc.

The use of tanks for LPG and other liquids has many advantages. These include space considerations, appearance, fire safety, and protection from the elements and from vandalism. However, unless installed and maintained properly, LPG tanks have the potential for leakage from the tank or related piping. These leaks can Exist undetected for years and cause pollution and sometime chance of fire.

2.1.2 Materials of Construction

The Tanks are usually made from either steel with a protective coating. Selection of tank type may depend on use and installation location. Fiberglass tanks are typically unsuitable for storage of heated materials, and for high load locations. However, they are lower maintenance and are not susceptible to corrosion. Steel tanks must be coated with a corrosion resistant coating, and corrosion protection is required. Contact plates at the bottom of the tank under fill

and measurement ports should be installed. This prevents wear from measurement sticks hitting the bottom of the tanks.

Piping

Piping is usually steel with a protective coating. Other piping material may be copper or hydraulic flex hosing. Piping can be the same material as the tank or different. Metallic piping must be coated with a corrosion protective coating, and corrosion protection is required.

2.2 Objective of the study/ report

EIA report is being submitted to Punjab Environmental Protection Agency in compliance with the legal requirements for Punjab Environmental Protection Act-1997 (Amended 2012) for obtaining Environmental Approval / NOC before starting construction/ Installation and operation of the project as per section 12/14 of the act. Other relevant regulations and guidelines considered while preparation of this EIA report include.

- Policy and procedure for filing, review and approval of environmental approval.
- Guidelines for the preparation of and review of environmental reports.
- Guidelines for public participation
- Guidelines for sensitive and critical areas.
- Detail sectorial guidelines.

Various aspects like environmental, social, physical and other aspects of the project both construction and operational are highlighted in the EIA report. Measures necessary to be adopted to mitigate any environmental impacts on any part of the environment around are also described.

Working of the Unit

Working of the project is simple one as management of the project will purchase LPG from contractor and will store temporarily in LPG tanks and then will be refilled in cylinders for commercial/ domestic usage.

List of Machinery.

During construction and development phase below mentioned is a list of machinery which will be utilized for a specific period of time.

- Tractors
- Trolleys
- Trucks
- Cranes
- Expiators

Below mentioned is the detail of machinery which will be installed in operational phase.

- LPG Refueling tanks/ vessels
- Dispensers/ filling area
- Motors
- Generators
- Compressors

2.3 Project Process

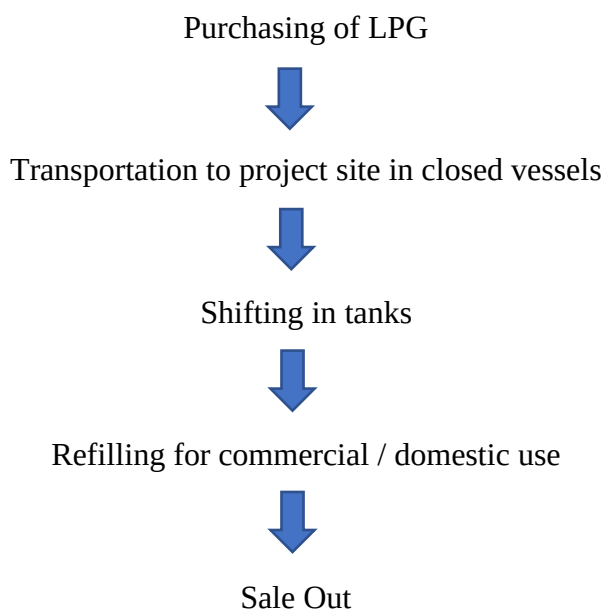


Figure 2.1 Project Process

Here is a series of activities related to the handling and distribution of Liquefied Petroleum Gas (LPG) and a detail of each step:

1. Purchasing of LPG:

This is the initial step where the proponent will acquire the LPG from a supplier or distributor. The proponent will ensure that he is sourcing the LPG from a reliable and authorized supplier to guarantee the quality and safety of the gas.

2. Transportation to Project Site in Closed Vessels:

LPG is highly flammable and needs to be transported in closed vessels to prevent leaks and accidents. Closed vessels can include specially designed tankers or containers that are sealed to avoid any leakage during transportation.

3. Shifting in Tanks:

Once the LPG reaches the project site, it needs to be shifted from the transportation vessels to storage tanks. These tanks meet safety standards and regulations to prevent any potential hazards. Proper handling and equipment are crucial at this stage to avoid accidents.

4. Refilling for Commercial/Domestic Use:

After the LPG is stored in tanks at the project site, it can be further distributed to commercial or domestic customers. This process involves refilling smaller containers, like cylinders, that can be used for various purposes, such as cooking, heating, or other industrial applications.

5. Sale Out:

The refilled LPG cylinders or containers are then sold to end-users, either commercial establishments or individual households, for their respective uses. Safety guidelines and regulations will be followed must during the sale and delivery processes to prevent accidents and ensure the safe use of LPG.

Throughout this entire process, its crucial to adhere to safety regulations, handle the LPG with care, and ensure proper training and equipment for all personnel involved. Safety will always be the top priority to prevent accidents and protect both the workers and the end-users.

2.4 LPG Plant is designed as:

- a. Plant is designed according to mineral and industrial gases safety rules 2010
- b. Plant designed is as per NFPA 58/2004
- c. LPG Refueling tanks and fitting are designed as per ASME sec-viii.div.1
- d. All LPG pipe of SCH-40 SA 106
- e. All water lines will SCH-20
- f. All LPG fitting will class 300
- g. All water lines fitting will class 150
- h. Firefighting pump UL and FM approved
- i. Fire water storage capacity is 170000 liters
- j. Fire water pump capacity is 500 GPM
- k. Firefighting equipment will as per NFPA 20
- l. LPG lines will be hydro tested at 525 psi
- m. Fire water lines will be hydro tested at 325 psi
- n. All equipment and machinery will earth protected
- o. Safety relief value 4 diameter will be fitted on LPG storage tank
- p. There is no hospital, school a public park near the plant area
- q. Plant boundary wall is free from any accommodation or commercial building
- r. Plant boundary wall height is 7ft
- s. Building is designed as per revised building code 2017

2.5 Alternatives considered and reason of rejection:

Management of the proposed project considered other sites were rejected because of availability of residential setup near to project site, lack of infrastructure, nature of area was not commercial in nature. Site selected by the management is most suitable as area is agricultural cum commercial in nature and all basic infrastructure is present at project site. Further reason of rejection of above-mentioned site are given below.

- Wastewater disposal drain was not existing
- Ground water quality was not good
- Land ownership conflict due to the land cost
- Site is located near residential area
- Thick vegetation cover was arising tree clearance issue

2.5.1 Reason for selection of project site:

The land was selected due to the following reason:

- Economically feasible
- Trained or untrained workforce is available
- Availability of access roads
- Communication facilities
- Availability of electricity
- Basic infrastructure
- Sewerage system
- Approved drainage system
- Less/few vegetation/plantation
- Less fauna species at site

a. Location of the project.

Site for the proposed project is located at Fateh Jang Road, Mouza Akhori Tehsil & District Attock. Map attached at the end of the report.

b. Land Use at the site

At present site is open land and status of the area is commercial cum agricultural in nature.

c. Road Access

Main Road and link road is available to reach at project site. Basic necessary infrastructure like markets, roads, water, power, telephone, Internet etc. is available at the project site. The availability of good roads facilitates movement of raw material and finished goods/Product at cheaper cost. The other basic facilities are vitally important for the entire

business to be run. These facilities also go in favor of the present site selection for the project sitting.

d. Labor Availability

Trained and cheap labor is easily available in the project area in more than desired number. This also makes the site suitable for the proposed project.

e. Market of the Product

Faisalabad, Multan, Gujranwala, Lahore and surrounding cities which are busiest city of Pakistan and it's a huge market for the product. So, management of the project will sale their product to passengers who will travel these cities.

f. Basic facilities:

All basic facilities like roads, water, repair, maintenances workshops, fax, and telephone are available at the doorstep of the project site. This factor also goes in favor of the selected site project.

g. Trained Labor Availability:

The trained labor required for the project operation is available conveniently and plentifully at affordable cost at the present site. This factor also supports to select the present site for the said project.

h. Water:

In the proposed project area, the underground aquifers are available for drinking and used to fulfill the needs of the project, underground water is available in large quantities from a depth of about 90-140 feet.

i. Environment:

The project area shows no sensitivity of environment around the project site. There is no worth mentioning forestry, biodiversity, fishery, flora, fauna, and heritage etc. For more details refer to the next section wetland, wildlife or sensitivity of environment.

Environment consideration is extremely important for industrial sitting. The project site is situated in the area where population centers i.e., villages are not that near to each other. The land around the project site is entirely under agriculture use.

Such factors carried important weightage in the selection of the present site for the project. This factor too supported selection of the present site.

The project will be regulated according to Pakistan Environmental Protection Act 1997 and in compliance with the Pakistan Environmental Quality Standards (PEQS). Even Environmental Management Plan (EMP) and Environment Monitoring Plan (EMP) will be operational.

Taking into consideration all the above-described factors the selected site is the most suited for installation of the project.

j. Vegetation features of the site

The principal crops were wheat, barley, maize, millets, and pulses. The district was traversed by the main line of the North-Western railway, crossing the Indus at Attock and also by a branch towards the Indus at Kushalgarh. Flora of the district has been greatly modified by human. Amongst trees the most important are Kikar (*Acacia arbica*), Shisham or Tahli (*Dalbergia sissoo*), Beri (*Zizyphus jayaba*), Toot (*Morus marlaccae*), Sharin (*Albizzia lebbek*), Dharek (*Malia azerdarach*), Phulahi (*Acacia modesta*), and Nim (*Melia indica*), Piple (*Ficus indica*) are planted for shade. The growth is composed mainly of three kinds of trees Jand (*Prosopis spicigera*), Karril (*Capparis aphylla*), and van or Jal (*Salvadora obeoides*). Occasionally pelu (*Acacia loucophhloea*) and Farash (*Tamarix articulate*) are also found. Pilchi (*Tamarix gallio*) is found on moist sandy soil.

2.6 Size or magnitude of the operation, including capital cost, and associated activities

The proponent of Construct/ Installation of LPG new project for the Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited At Khasra No. 3275, Khewat No. 1205/1031, Khatooni No, 1341, Situated At Fateh Jang Road, Mouza Akhori Tehsil & District Attock wants to construct new project for the Refueling of LPG and site of the project is located at Fateh Jang Road, Mouza Akhori Tehsil & District Attock.

At present site is open land and boundary wall has been constructed to secure the area. Management will start their project activities after obtaining NOC from EPA under section 12 and 14.

2.7 Proposed schedule for implementation (tentative):

Project installation schedule (tentative) is described hereunder;

Stage- i

In the first step construction of boundary wall for security and to check upon encroachment upon the project land by unsocial elements.

Stage- ii

Installation of turbine and laying necessary pipe work.

Stage-iii:

Land Survey and excavation for civil work.

Stage- iv:

Civil work to commence and end construction of pavements, sewer laying etc.

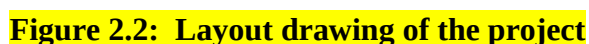
Stage v:

Fitting of electrical, water, drain pipes etc.

2.8 LOCATION AND LAYOUT OF PROJECT

2.8.1 Layout of the Project

The layout drawing of the project site is also attached with the report.



- (23) TRANSFORMER CAPACITY 100 KVA
(24) GENERATOR CAPACITY 150 KVA
(25) ALL LPG AND WATER LINE ABOVE GROUND.
(26) ALL NO BASEMENT AND FIRST FLOOR WILL BE CONSTRUCTED.

LPG STORAGE TANKS SCHEDULE								
IN BULK	TANKS NOS	DIA	LENGTH	CAPACITY IN M.TON @1785 LITERS / TON	15% LESS CAPACITY IN M.TON	WATER CAPACITY IN LTRS	15% LESS CAPACITY IN LTRS	MANUFACTURER
	01	6'	15'	5	4.25	1892.71 LITRES	7586 LITRES	HI TEK MANUFACTURING (PVT) LTD.
	01	6'	15'	5	4.25	1892.71 LITRES	7586 LITRES	HI TEK MANUFACTURING (PVT) LTD.
PROPOSED CAP.				8.5 M.TON		3785.42 LITRES	15172 LITRES	
<u>TITLE</u> M/S MRK OIL & GAS (SMC-PRIVATE) LIMITED								



Figure 2.3: Project Location



Figure 2.4: Site Google Map Location

Table 2.1 Water Requirement Parameter

S. No.	Parameter	Unit	Value
1	Design avg. flow rate	m ³ /d	109.4
2	pH	-	7 to 8
3	TSS	mg/l	220
4	BOD ₅	mg/l	220
5	COD	mg/l	500

2.9 Sources of Water

Underground water at the project site is available at the depth of 50-60 feet and source of water for the project will be the pumps. According to the chemical analysis report water is fit for the drinking.

2.10 Sanitary Sewerage System

Sanitary sewerage system has been designed by approximated speed of water as 1.5 ft. /sec. After treatment in septic tank water will be discharge into drain on the left side of the project site.

The Sewage of the building will be treated in community septic tanks. Community sewer lines will be connected septic tanks. As in community septic tanks multiple septic tanks has been installed at a place and these tanks are connected to plot sewer lines separately. All the community waste will be reached in the septic tank and anaerobic digestion will be occurred to treat the wastewater. After the design detention time the treated waste will be discharge in to main sewer line. And sludge will be disposed of as per agreement with TMA.

Location of septic tanks will be selected following the design of sewerage design. As all the sewage will be flowed under the action of gravity so septic tank will be located accordingly.

Treatment begins when the domestic wastewater flows from the building to the septic tank through the sewer pipe. A baffle (an internal flap) or tee (a T-shaped pipe) at the inlet slows the flow of wastewater going into the tank and directs it downward toward the middle of the

tank. The wastewater is then retained for a day or more in the tank to allow the solids in the wastewater to separate from the liquids. Inside the tank, liquids lighter than water—such as greases, oils, and, sometimes, other solid materials like toilet paper—float to the top forming a layer of scum. Solids heavier than water settle at the bottom of the tank forming a layer of sludge. This leaves a middle layer of partially clarified wastewater. An outlet baffle in the septic tank is positioned to allow only the partially treated liquid waste in the middle layer to flow out of the tank for further treatment. The layers of scum and sludge remain in the septic tank where bacteria found naturally in the wastewater work to break the solids down.

This process takes place anaerobically, or without the presence of oxygen, and gases produced from the decaying solids are vented back through the sewer line and released, usually through a plumbing vent located on the roof of the house. The sludge and scum that cannot be broken down is retained in the tank until the tank is eventually pumped. After the wastewater is allowed to settle and separate in the septic tank, the partially treated liquid from the middle layer flows through the outlet baffle or tee to the drain. This sewage treatment facility will be removing the BOD upto 68%, TSS upto 81%, Phosphate upto 60% and fecal coliform upto 66%.

2.11 Waste water Treatment Specification:

Septic tanks will be constructed for the sewage treatment because only municipal sewage waste will be produced during project. After being treated in septic tanks some of the waste water will be used for water sprinkling to avoid dust emission and for the Gardening purpose within the premises of project site.

Design of septic tank

Septic tank will be installed within the boundary wall of the project site. Proposed design is given in below Fig 2.5.

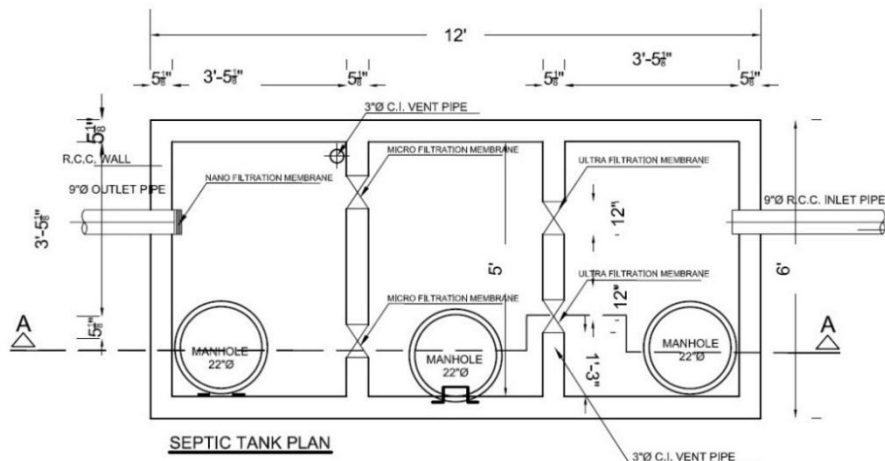


Figure 2.5 Septic Tank

Sludge

Sludge from septic tanks will be removed on regular basis and will be disposed-off in environmentally friendly way through certified contractor; contractor can use it as composite component or incinerate it.

2.12 Solid Waste Management

Solid waste will primarily consists of the domestic solid waste from the project. About 10 kg/day of domestic solid waste will be generated from the project. For domestic solid waste collected from building. The garbage will be collected at a designated area within the area as an intermediate garbage disposal. From this place, garbage will be collected and transported to a suitable location for final disposal. The location for this final disposal will be decided in consultation with the City District Government.

2.13 Atmospheric Emissions

Dust and particulate matter will be generated during the construction activities. Sprinkling of water will be done on dust tracks, stock piles; raw material will be covered by plastic sheets, loading and unloading of raw material will be done at night etc.

2.14 Electrical Works

The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Maintenance will be carried out by the management of the project, District Attock.

2.15 Telecommunication

Telephone facility will be provided by the PTCL. An underground cable will also be provided for electronic media.

2.16 Plantation

Plantation will be done within and outside of the proposed project.

No. of trees to be planted:

Total 3000 trees will be planted according to the following schedule:

Plantation in 1st year	1000 Plants
Plantation in 2nd year	1000 plants
Plantation in 3rd year	1000 plants

2.17 Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire buckets and fire extinguishers will be placed at all sensitive places within the proposed project.

There will be two security guards round the clock who improve the security of the project site and also in its vicinity.

2.18 Restoration / Rehabilitation Plan

All possible precautions will be taken to prevent an unwanted incident in terms of life and property losses. The demolition materials will possibly be reused and recycled. All excavated surfaces will be termite proofed.

Once completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures will be undertaken for ensuring occupational safety,

security and clean environment in the project area. Ornamental trees and flower plants will be planted on inside peripheral of the unit premises to restore the land.

2.19 Government approvals required by the project:

Project proponent has obtained approval for disposal of liquid waste. Approval from Social Security Departments, others concerned departments are in process.

Chapter # 3

DESCRIPTION OF THE ENVIRONMENT

This section describes the baseline conditions, which covers the existing Physical, ecological and socio-economic environment of the project as well as study area.

3.1 Physical Environment/ Resources

3.1.1 Geography

District Attock is located near the Haro River, a tributary of the Indus River, 80 km (50 mi) from Rawalpindi, 100 km (62 mi) from Peshawar, and 10 km (6 mi) from the Pakistan Aeronautical Complex, Kamra. Average land holdings are very small, but a few holdings are quite big. People increase their income also by rearing of goats, sheep and cow on a limited scale. The people of the area are generally poor. Since the area is not yet industrialized in real sense, therefore, job opportunities are very limited. Many people do mostly labor and other menial work especially at Hattar, Islamabad, Attock, Burhan, Kohat and even in Peshawar. From environment point of view the area is virtually un-tempered. As such the available carrying capacity of the environment in the area is not yet utilized. The natural environmental settings, present industrial status and its future trends around the project site covering fairly large distances have been taken into consideration while taking stock of the existing and expected conditions. Socio economic conditions, availability of basic infrastructure, availability of water, labor, raw materials, transport and means of communication, electricity and approach to the project site were the major considerations and spatial and secular boundaries considered during this study.

3.1.2 Geology:

The project area lies in Attock Basin which is wide basin located between Main Boundary Thrust (MBT) and Main Mantle Thrust (MMT). It is bordered in the north by Indus River, toward south by Kala Chitta range and in east by Haro River a tributary of the Indus River. The basin is approximately 40 Km broad and 64 Km in length. Southwestward- directed fluvial and alluvial sedimentation in the Attock basin began at least 1.8 Ma, possibly in response to the uplift of Kawa Ghar hills, and continued until about 0.6 Ma. The sediments of Attock Basin are mainly lacustrine silt with inter bedded fluvial sand and gravel containing the Clasts of Kohistan, including deposition by the ancestral Kabul and Indus rivers. The Project corridor

navigates through the uneven mountains, rolling lands and few flat lands. The present landscape is due to fluvial tectonic activities. The geology of the Project Area is mainly comprising granitic gneiss, schist and alluvium (unconsolidated material). Gneisses are the product of high-grade regional metamorphism. Schists are mainly composed of quartz as granular aggregates, muscovite (appearing) as colorless to light green and where associated with biotite tone produce schistose texture. The alluvial deposits are composed of slightly reworked and weathered material with silt clay / clayey silt, gravels and boulders occur at some places and are covered with vegetation

3.1.3 Soils

The project site comprises mainly silty eroded loess and shallow residual soils with some gullied land. Deposits of Lacustrine clay are found near the project site. The clay thickness in the project area is estimated to be around 25 meters. The project site does not fall across the natural drainage pattern and accordingly during heavy rainfalls there is no danger of flooding at the site. The soils of the project area consist of loess, old alluvial deposits, mountain outwash and recent stream valley deposits. The soils consist of mainly medium textured with considerable percentage of clayey material. Most of the soils are deep, except those formed in situ from underlying rocks. The soils like in the entire country are sodic in nature.

3.1.4 Water Resources

The main source of water in the area is groundwater which is used domestically and commercially in Attock. The depth of water table in the area is about 70 feet. Beside the Khanpur dam, River Indus, Siran, Dor, Harrooh and Kunar are the source of the surface water in the project area

3.1.5 Climate

Annual average rainfall is 694 mm. On an average the rainfall is scanty, uncertain and unevenly distributed and mostly received in monsoon season. It is characterized by semi-arid climate and the maximum temperature exceeds 45°C in summer while falls below 20°C in winter (Census, 1998). The driest month is November, with 15 mm of rainfall. With an average of 175 mm, the most precipitation falls in August. The climate is warm and temperate in Hassan Abdal. In winter, there is much less rainfall in Hassan Abdal than in summer. According to Köppen and Geiger, this climate is classified as Cwa (Under the Köppen climate classification,

Cfa and Cwa climates are roughly analogous to humid subtropical climates). The average annual temperature is 21.5 °C in Hassan Abdal. The average annual rainfall is 694 mm. The warmest month of the year is June, with an average temperature of 32.0 °C. January has the lowest average temperature of the year. It is 10.1 °C. The difference in precipitation between the driest month and the wettest month is 160 mm. During the year, the average temperatures vary by 21.9 °C.

3.1.6 Wildlife

Forest is an adequate habitat for wildlife. Among the main species of wildlife found in the area include: wild rat, lizards, quail, urial, pig, fox, snake, sparrow, pigeon, hare, snake, goh, jackal, sparrow, crow, owl, and dove are among the important wild life.

3.1.7 Drainage

District Attock is mainly drained by Haro River, with its tributaries such as Nandna, Dhamruh and Banudra streams. Haro River rises near Donga Gali in Abbottabad enters Rawalpindi near village Bhallar-top. It cuts across a small portion of Rawalpindi tehsil and then enters Attock tehsil. Total drainage area of Haro River is 3059 km². It varies in elevation from about 240 to 690 m above mean sea level (Khan et al., 2002). Vegetation is sparse, except in certain higher areas where it is under thick forest. This river enters into plains at Sanjawal. Attock Basin generally has very little and uncertain rainfall varying from year to year. River Indus passes through Attock Basin without irrigating the adjoining areas of the basin.

3.1.8 Biodiversity

Natural capital of a country mainly includes all of a country's wilderness areas and scenic landscapes, including the associated flora and fauna. Pakistan has a total of nine major ecological zones. The contribution of the "Natural capital" is recognized at three distinct levels: species, genera, and communities (habitat and ecosystem). Both collectively and within each level, the range or variety of the resources is referred to as the "Biological Diversity". The term has relevance for each of Pakistan's administrative units-district, province, and particularly country. The more the number of species, genera and habitats and ecosystems present within these units, the greater is said to be the Biodiversity.

3.1.9 Fauna

Following Fauna is founded in the Project area;

1. Partridge
2. Jackal
3. Pig
4. Snake
5. Quail
6. Hare
7. Crow
8. Lizards
9. Wild rats
10. Fox
11. Sparrow
12. Pigeons
13. Owl
14. Dove

Rearing of goats and sheep is practiced to supplement income. Donkeys are also reared for transport of goods and especially in villages for carriage of fodder from fields to “diaries (farm houses)”.

3.1.10 Flora

The land in the project area is quite fertile. Rain water and underground water are the major sources of irrigation. Wheat is the major cash crop. Other crops include oil seed crops, pulses, lentils, sorghum, maize, millet, groundnut, potatoes and vegetables. There are some orchards of citrus fruit. Trees, grasses and shrubs are found both in the irrigated areas and the two forests –Kala Chitta Forest and Phamra Jageer. A list of the flora of the area is as below: Ureterica Pilulifera L.(Bitchi Booti), Lantana Camara L. (Panch Phuli) Zizyphus Maoritiana Lam. (Ber), Ficus carica L.(Fig, Injir), Ficus Palmate Forssk (Phagwara), Morus Alba L. (White Mulberry, Chitta toot), Morusaigra L. (Black Mulberry, Shah Toot) and Grasses like Khawi, Khabbal, Dhaman, Sinn ghorkhs, Dabb etc.

People of the project area uses the hand pump water for drinking purpose. These hand pumps are installed by the district government at the site where ground water being recharged and collection site of water.

3.2 Socio Economic Statistics

Tehsil Hassan Abdal, in District Attock is a developed tehsil with urban population of 63139 and rural population of 153427. The district Attock is divided in six Tehsil and Hassan Abdal is one of them, others are Attock Tehsil, Fateh Jhang Thsil, Hazro Tehsil, Jand Tehsil and Pindi Gheb Tehsil.

3.2.1 Cultural & other Heritage

People are religious minded. The society overall is well knit in spiritual and ethically relation. The villages, without any exception are under development. The living style in the villages is traditional, conservative and simple. Culturally, they have primitive traditions and customs. Solidarity and social cohesiveness is prevailing among them. Political and religious harmony is also a major character of these communities. The industrial set up in the area may have a diversified impact on the socio-economic environment of the area. The perceived changes may cause far reaching impacts on the indigenous communities due to the location of the project under consideration. Major topographic characteristics, socio-economic indicators, socio-cultural practices and environmental conditions of the villages are almost similar except for some very minor variations. The people are basically conservative. Bigger landlords dominate the people with small land holdings and the poor with special reference to politics. A large majority of the people practice agriculture. Livestock rearing, and Government and private service are the other professions adopted by the people to supplement their income. Because of small land holdings and low income, the people must adopt more than one profession. On the overall basis the people of the villages are poor. Unemployment, low quality of life, illiteracy and availability of health care are the salient features of the area. Educational facilities up to primary levels are available in some villages for both boys and girls. Necessities of life like electricity, potable water and roads are available to satisfactory level. Private transport is available to many masses.

3.2.2 Basic Facilities Available in the Study Area

Basic facilities including electricity, water, telephone, roads and transport are available to an adequate degree in the villages surveyed. Cellular telephones are available to many villagers. However, sewage facilities are lacking in the entire lot of the villages surveyed. Similarly, bazaar or market facilities are available only in villages. Of course, some individual shops are

available in small number. These shops cater for the ordinary day to day shopping needs of routine nature.

3.2.3 Types of Family in the Study Area

Joint family system is generally prevailing among the people of the whole of the Study Area. This tendency also shows that the people are change resistant in their attitude.

3.2.4 Educational Facilities available in the Study area

Primary level educational facilities are available in nearest villages and town. Middle level educational facilities are available in these villages and towns of the district. High school level educational facilities are also available in these villages and towns. University of Engineering and Technology is also available in the nearest distance of the project area. Other than these the capital city Islamabad is not far for the people of Hassan Abdal to go for education purpose.

3.2.5 Medical Facilities

Health care facilities in the form of basic health units, dispensaries, hospitals, clinics, private medical practitioners, quakes are available in the Tehsil and District level.

3.2.6 Archaeological and Historical Treasure

Among the historical monuments of the area include Taxila Museum, Mughal garden, Wah Cant. Apart from this; there are some old Hindu and Sikh temples (Gurdwaras) at Hassan Abdal. As home of the Gurdwara Panja Sahib, one of the most sacred sites in Sikhism, Hasan Abdal is an important pilgrimage destination. These sites are located at far distance from the project site. They are in quite good condition and every year thousands of people visit these sites.

3.3 Ambient Air Quality

The ambient air quality of the project site was taken from secondary sources, and the following results were obtained which are shown below in Table 1. The data was obtained from secondary sources. All the parameters were found to be within the permissible limit and in compliance with NEQS.

Table 1: Ambient Air Quality Analysis

Parameters	NEQS	Unit	*Avg. Conc.	Methodology
------------	------	------	-------------	-------------

Carbon Monoxide (CO)	5	mg/m ³	0.5	Non-Dispersive Infrared Spectrophotometry (NDIR)
Sulfur Dioxide (SO ₂)	120	µg/m ³	18.2	UV Fluorescent
Nitrogen Dioxide (NO ₂)	80	µg/m ³	17.8	Chemiluminescence
Nitrogen Oxide	40	µg/m ³	9.2	Chemiluminescence
Oxides of Nitrogen (NO _x)	120	µg/m ³	27.2	Chemiluminescence
Particulate Matter (PM ₁₀)	150	µg/m ³	27.4	Beta-Attenuation
Particulate Matter (PM _{2.5})	35	µg/m ³	14.5	Beta-Attenuation
Suspended Particulates	500	µg/m ³	172	Gravimetric Sampling
Ozone	130	µg/m ³	39.7	Non-Dispersive UV Absorption Method

3.4 Water Quality

The water in the project area was collected from the bore at a depth of 70 ft. and it was analyzed in the laboratory for the following physiochemical parameters. From the test results it is observed that the water quality is in good condition and all the parameters were within the permissible limits that are mentioned in the National Environmental Quality Standards of Pakistan. The water analysis results are given in table 2 below.

Table 2 Physio-chemical Parameters of Drinking water quality

Sr. #	Parameters	UoM	Methods	Specifications	Results
1.	Color !	-	APHA	Unobjectionable	Comply
2.	Taste !	-	APHA	Unobjectionable	Comply
3.	Odor !	-	APHA	Unobjectionable	comply
4.	pH @ 25 c°	-	APHA	6.5-8.5	7.39
5.	Total Dissolved Solids	mg/L	APHA	<600	309
6.	Total Hardness as CaCO ₃	mg/L	APHA	100-500	206
7.	Chloride	mg/L	APHA	<250	39.2
8.	Chlorine Residual !	mg/L	APHA	5	ND
9.	Nitrogen, Nitrates	mg/L	APHA	50	BDI<1.0
10.	Cyanide !	mg/L	APHA	-	ND
11.	Flouride	mg/L	APHA	1.5	BDI< 0.2
12.	Turbidity!	NTU	APHA	1	BDI< 1
13.	Nitrogen, Nitrites !	mg/L	APHA	3	BDI< 0.02
14.	Chromium Total	mg/L	FAAS	0.05	BDI< 0.05
15.	Copper	mg/L	FAAS	2	BDI< 0.1
16.	Manganese	mg/L	FAAS	0.4	BDI< 0.1
17.	Nickel	mg/L	FAAS	0.07	BDI< 0.07

3.5 Trees and Plants

The project site was not used by anyone previously and was an empty plot with no vegetation. Now the proponents of the Khattak Allied Construction Company have purchased the plot or installation of asphalt mixing plant. Plantation will be done in the future if needed as well, and native plants will be grown by the proponent on the project site along the boundary wall and lawns. It will increase the aesthetic view of the project site. There is no cutting of any type of tree or plant involved in the project construction and operation phases

3.6 Local Communities

The project site is located on GT Road, local communities are far from the project site but some households are settled at some distance from the site, although not dense and so the project site is very suitable to develop an asphalt plant. The Attock City is in near reach and so are markets, hospitals etc. The project will provide a good opportunity of sustainable development for the proponent as well as for the locals.

CHAPTER # 4

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The following chapter describes the overall possible impacts of said project on the physical, biological and socioeconomic environment due to the location, design, during construction phase, during operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to propose construction of building under the name of M/S MRK Oil & Gas have been assessed and mitigation measures provided accordingly.

4.1 Environmental impacts due to the project location

4.1.1 Project Location:

The subject proposed project under the Name of M/S MRK Oil & Gas., is Installation of LPG Refueling Unit, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock.

4.1.2 Impact:

Subject project is present in the Barren Land. There is no residential presence in the vicinity of subject project. So, if the proponent/owner fulfills all the HSE conditions and development laws and rules than this project will not cause any adverse environmental impacts on the society. Development of this project increases the living standards and employments for the local people of the District Attock. Overall the impacts of this development due to the location are positive on the local community of district Attock and country.

Impact significance: very Low or may be positive

Nature of impact: indirect

Duration: Long-term

Timing: Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: very low or may be positive

4.1.3 Mitigation measures

- Proponent should build the boundary wall all around the project
- Proponent should enhance the road infrastructure within the project.
- Proponent/Developers should place all the safety and location signs and maps at the specific indemnified place.
- Proper parking arrangements should be maintained during the construction and operational phase of the development
- Location can be considered as positive impact on the community due to the facilities provided to the community.

4.2 Environmental Impacts due to the project design

Subject project under the name of M/S MRK Oil & Gas., is a proposed project for the LPG Refueling Unit. Proposed project will have office, filling area, parking area. Over an area of 2 Kanal.

Following are the major Environmental impacts due to the development related to the design:

4.2.1 Impacts

- Structural stability of the proposed project
- Soil structure and soil bearing capacity
- Road infrastructure design
- Emergency exit in the building for the emergency situations
- Firefighting system
- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazardous

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operational phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

4.2.2 Mitigation measures and recommendations

Following are the mitigation measures and recommendation to minimize the anticipated impacts

- Design and map of the project is attached with file.
- Road infrastructure should be according to the laws and regulations
- Emergency exits should be designed during the designing phase of the project
- Firefighting system should be designed for the emergency situations
- Wastewater drainage should be designed vast to bear the rain water capacity of the project.
- Electricity system should be designed safe and sound, electricity wires should be covered by thick plastic/electricity resistant covers.
- All the design should be approved from the TMA to minimize the impacts due to the designing.

4.3 Environmental impacts during the construction phase

M/S MRK Oil & Gas., now is a proposed LPG Refueling unit. Environmental impacts during the constructional phase are following:

4.3.1 Construction Stage Impacts

M/S MRK Oil & Gas., during the construction phase may cause the following anticipated impacts/vulnerabilities on the environment:

4.3.1.1 Impacts on Physical Environments

- Grubbing and stripping
- Leveling and compaction of the land
- Demarcation of project building and other facilities
- Generation of dust during loading and unloading of construction materials.
- Generation of noise on account of vehicular use and construction activities.
- Gaseous emission due to the vehicles and stand by generator (if any)

- Local flooding due to over-use of water and leakage of pipes.
- Safety of construction workers, people in the surroundings and passersby.
- Any outbreak of fire due to electrical and/or other failures.
- Solid waste generation due to domestic and construction activities.
- Wastewater generation from the domestic and constructional activities
- Ground water quality affects due to the development

4.3.2 Construction Stage

The construction stage may involve the following vulnerabilities:

- Generation of dust during loading and unloading of construction materials.
- Generation of noise on account of vehicular use and construction activities. It will be noted that background noise level will be less than PEQs limits.
- Local flooding due to over-use of water and leakage of pipes.
- Safety of construction workers, people in the surroundings and passersby
Occupational Health & Safety means to provide and maintain a working environment in which employees are not exposed to hazards.
- There must be no release of noxious or offensive odors or contaminants beyond the project site to cause any harm at any odor sensitive place. These places include schools, hospitals, park, shops and residences.
- Any outbreak of fire due to electrical and other failures.

4.3.3 Operation Stage

- About 10-15 persons will occupy the project site. The projects' operations will be kept in working condition so that the workers may give their input in environment friendly conditions.
- Management Committee will supervise the smooth functioning of the project site. All the activities will be managed by the qualified and experienced engineers.

4.4 Main Environmental Issues

Main environmental issues associated with project are as follow.

- Wastewater due to construction activities.
- Fire due to short circuits and other activities.

- Solid waste generation due to domestic/ commercial activities.
- Noise pollution from generator and other machinery.
- Health hazards

4.4.1 Operation Stage

Following points must be implemented during the operation stage.

- Keep water supply, sewerage disposal and electric supply in working condition.
- Wastewater will pass through septic tank then it will be disposed of in existing nearby TMA drain
- Solid wastes and sweepings will be stored in properly placed bins and handed over to contractors.
- Keeps the firefighting arrangements in working condition at all times at gas storage area. Contacts of fire brigades are displayed at prominent places in the project's building.

Table 4.1 – Mitigation Measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLANNING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	• Project proponent has submitted their documents in below mentioned departments like • TMA • WAPDA • Civil defense
2	Acquisition of land	Proponent has paid the total money to land owners and now land has been transferred in the name of project proponent.
3	Loss of environmentally sensitive areas	Avoid utilizing such patches of land.
4	Changes in traffic pattern	Prepare suitable in/out traffic plans

5	Potential conflicts with stakeholders	Settle the issues through scoping and specific group discussions.
6	Resettlement issues	No resettlement issues
SITE DEVELOPMENT STAGE		
1	Erosion due to stripping and site clearance	Sprinkling of water on road side
2	Generation of dust	- Careful loading and unloading of construction materials is recommended. - Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	- Avoid using forbidden horns at the site. - Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/pounding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Keeps the firefighting equipment at the oil storage area.
6	Safety	- Safety of the workers and others must be ensured. - Privacy of the neighbors must not be disturbed.
7	Labor issues	Employ the local labor as far as possible
CONSTRUCTION STAGE		

1	Minor erosion of land	- Add more vegetation, restore the land by more plantation - Sprinkling of water on dusty tracks is recommended
2	Contamination of land and water	Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
3	Impacts of dust, noise and smoke on neighbors	Schedule construction timings to cause minimum disturbance to neighbors.
OPERATION STAGE		
1	Contamination of land and water sources	Continuous vigilance on maintenance of services is recommended Tarpaulin sheets must be placed to avoid leaching of oil into ground
2	Fire breakouts	Firefighting equipment must be kept in working condition at specific area
3	Safety/security concerns	Safety of the workers and others must be ensured. Privacy of the neighbors must not be disturbed.
4	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.
5	Occupational Health, Safety and Environment	- Regular medical check-ups are recommended to improve the working condition and efficiency of workers. - Safety of management, workers and visitors must be ensured.

		Observance construction and safety codes must be ensured.
6	Production of Solid Waste	- Area for solid waste is reserved within the subject project. - The solid waste must be managed on regular basis. - The domestic waste must be disposed in municipal channel.

4.5 Corporate Social Responsibility (CSR)

CSR means “the continuing commitment by business to behave ethically and contribute to economic development while improving quality of life of the workforce and their families as well as of the local community and society at large. CSR Committee of M/S MRK Oil & Gas., entrusted with task of identifying areas where the Management of M/S MRK Oil & Gas., could participate positively to the development and improvement of better society in the project area. The Committee's mandate is to initiate, facilitate, coordinate and monitor CSR projects of the Company.

4.6 Structural Stability

While carrying out the detailed designing of the project building structural, engineering, safety and seismic considerations have been taken into account to make it structurally viable and environment friendly.

4.7 Undertaking

The proponent has committed to comply with the relevant construction by-laws/ safeguards and the environmental enactments for the environmental preservation. Project proponent has given Undertaking and Affidavit respectively.

Consultation with the Fire Fighting Department, Paramedics and Civil Defense.

Table 4.2 – Summary of major Impacts and their mitigation measures

Sr No	Constructed Phase Impacts	Operational phase impacts
1	Waste water generation	Noise from machinery

2	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles
3	Workers health and safety issues	Waste water from workers camp and from other sources
4	Disturbance of flora and fauna (if tree cutting will involve)	Workers health and safety issues
5	Solid waste generation	Fire
6	Traffic problem due to transportation of material	Safety and security issues
7	Waste water generation	Noise from machinery
8	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles

Table 4.3 – Potential Environmental Enhancement Mitigation measures

Sr No	Mitigation measures for construction phase and operational phase
1	Septic tanks will be constructed for the treatment of waste water generating from worker's camp. And waste water treatment plant will be constructed for the treatment of waste water generating from project
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.
4	Excessive tree plantation in and around the project premises.
5	Construction of hall around the generator along with installation of silencers to reduce noise
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic congestion

4.8 Changing in planning and design

There will be no change in project plan and design as design/ layout plan submitted along with EIA report will be implemented as provided.

4.9 Improved monitoring and management practices

For monitoring of pollution sources or any minor or major source pollution so mitigate it a system of monitoring and management will be adopted. HSE manager will be responsible for the monitoring, identification of pollution source and then its management. Management will monitor their systems as per the direction of the agency. They will submit their monitoring reports on regular basis to EPA to check PEQS. If any parameter found exceeding the PEQS limit proponent/ HSE manager will take immediate action to keep its level within limit by adopting proper mitigation measures. Fire system will be monitored after every month. Workers will be provided training to cope any emergency within the project. Installed machinery and vehicles will be inspected after 15 days to check there working efficiency.

4.10 Compensation of money terms

Management has purchased land directly from its owner and cost of land has been paid to its owner and now land has been transferred in the name of project owner. So, there is no effected community to whom compensation will be paid. Furthermore, project is an LPG Refueling Unit, it will not disturb surrounding flora and fauna so no need to pay any compensation.

4.11 Replacement, relocation and rehabilitation plan

From project activity trees will be damaged and quality of solid may be affected as replacement new trees will be planted and quality of soil will be improved by tree plantation, grassing and flowering.

What is problem?

Due to project activity below mentioned is list of impacts which may occur during construction and operational phase of the project.

4.12 Construction phase problems

Below mentioned impacts may occur construction phase of the project.

Sr. No	Problem	Time of occurrence
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1	Waste water generation	During construction activities and workers camp
2	Dust and emissions during construction phase	Vehicular movement, construction activities
3	Workers health and safety issues	Construction activities, loading and unloading of goods
4	Disturbance of flora and fauna (if tree cutting will involve)	Leveling of land, construction of homes
5	Solid waste generation	Workers camp, construction activities
6	Traffic problem due to transportation of material	Loading and unloading of goods

4.13 Operational phase impacts

Sr. No	Problem	Time of occurrence
1	Noise from machinery/ vehicles	Construction of project/ construction activities
2	Emissions/ noise from generators and vehicles	Construction of project/ construction activities
3	Waste water from workers camp and from other sources	During development work and construction of project
4	Workers health and safety issues	Construction activities, loading and unloading of goods
5	Fire	Construction work
6	Safety and security issues	When project will be fully developed
7	Traffic issues due to raw material movement	During constructing material transportation
8	Disturbance to flora and fauna if excessive tree cutting will be done	Construction and development activities.

4.14 Where the problem will be addressed

Sr No	Mitigation measures	Where it should be addressed
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1	Septic tanks will be constructed for the treatment of waste water generating from workers/ office camp.	During construction and operational phase
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.	During construction and operational phase
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.	During development and construction activities
4	Excessive tree plantation in and around the project premises.	During project development
5	Construction of hall around the generator along with installation of silencers to reduce noise	During generator installation time
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.	During construction and development phase
7	Movement of vehicles is recommended during night time especially when traffic load is negligible to avoid traffic blockage.	During transportation of construction material

CHAPTER # 5

ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

5.1 Purpose and Objectives of the EMP:

The primary objectives of the EMP are to:

- ☐ Facilitate the implementation of the mitigation measures identified in the EIA
- ☐ Define the responsibilities of the project proponent.
- ☐ Define a monitoring mechanism and identify monitoring parameters in order to:
 - Ensure the complete implementation of all mitigation measures
 - Ensure the effectiveness of the mitigation measures
 - Provide a mechanism for taking timely action in the face of unanticipated
 - Identify training requirements at various levels.

5.2 Management Approach:

The overall responsibility for compliance with the environmental management plan rests with the project proponent.

A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

Table 5.1 – ENVIRONMENTAL MANAGEMENT PLAN FOR M/S MRK Oil & Gas.

Serial No.	Environmental Parameter/Element	Mitigation measure to be taken during:		Responsibility
		Construction	Regular operations	
Physical Environment				
1	Waste water	The sewage to be generated shall be discharged into the SEPTIC TANK for its treatment and then it will drain into nearby drain Domestic/construction waste water after Treatment in septic tank will be drained into nearby local sewage drain. Periodic cleaning of the SEPTIC TANK is the recommended.	The sewage to be generated shall be discharged into the SEPTIC TANK for treatment at PEQS levels. As there will be no chemical contamination, therefore, simple oxidation may reduce its pollution load. Road cuttings to lay sewer shall be done after due permission from the concerned authority. Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater. No contaminated effluents will be released into the environment without having been treated. Monitoring will be conducted by EPA certified lab if required	Environmental/Project Manager

2	Health & safety	Local people will be informed in advance when work is about to start in an area. This may result in people keeping young children away from work areas. Safe driving practices will be adopted, particularly while passing through settlements Job opportunity will be provided to local people of the area Basic health facilities will be provided to employees	Fire Fighting Equipment's & system will be installed. Basic health facilities will be provided to employees Security guards will be present Job opportunity will be provided to local people of the area	Environmental/Project Manager
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3	Water supply	It shall be ensured that no activity tempers with the water supply system.	It shall be ensured that no activity tempers with the water supply system. Project proponent committed to provide safe drinking water to all workers and staff	Environmental/Project Manager
4	Solid wastes	Limited solid wastes from the construction activities shall be segregated and duly disposed of. The solid redundant materials will be disposed of away from the city adequately. None of these wastes shall be accumulated on site. It shall be ensured that none of the wastes or materials of construction spread	Solid waste will be handed over to the local Government after collection from project. Solid waste bins will be placed at suitable places Area for solid waste disposal will be allocated within the subject project Sludge will be replaced on regular basis. Proper solid waste management system will be adopted.	Environmental/Project Manager

		on the public roads or on the foot path or else. Construction Solid waste will be stored in solid waste bins and will be handed over to TMA Solid waste management division, and also construction waste will be used for road repairing and maintenance purpose.		
5	Noise	In order to avoid noise in the project area, vehicles to carry raw materials, shall be operated during night time as far as possible. The project construction activities don't involve any	In order to avoid noise in the project area, vehicles to carry domestic and commercial materials, shall be operated during night as far as possible. No activity producing extra ordinary levels of noise will be allowed as a policy matter. Generators will be installed in a specially constructed room where its noise will be curtailed within the limiting values of the Punjab Environmental Quality Standards.	Environmental/Project Manager

		activity which may create high noise levels. Ear plugs will be provided & implemented. Noise level monitoring has been conducted by EPA certified lab & results are incorporated within the report.	Monitoring will be conducted by EPA Certified lab as per PEQS if required	
6	Gaseous emissions and particulate matter/dust emissions	Construction materials i.e., sand, clay and like shall be transported to the project site during night time and will be stored away from the road or foot path. They will be kept under	Diesel fired generator shall cater for emergency situation only. Their exhaust will be emitted through an adequately fabricated stack. Monitoring will be conducted as per PEQS if required	Environmental/Project Manager

		cover to avoid any fugitive dust. Dust may generate during unloading of raw materials. All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions. All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.		
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		Ambient air quality has been monitored by EPA certified Lab and results are incorporated within the report.		
7	Soil erosion	The clearing of vegetation along proposed site will be minimized as far as possible. Minor & scattered vegetation is present that include shrubs and grasses only. Open fires will not be allowed anywhere outside the proposed site.	Maximum plantation is recommended within at outside the land subdivision and for this area is reserved. Tarpaulin sheets will be placed under generator (s), and other leaching substances. Land will be restored by planting indigenous plants	Environmental/Project Manager

		Fuel-wood and shrubs will not be used as fuel during project activities.		
8	Traffic related problems	The vehicles number will be regulated in a way that no stampedes occur on the site. As far as possible, large size vehicles in very limited number may visit the project site during night time.	The project site has additional area reserved exclusively for parking cars and motor cycles. No vehicle or motor cycle will be allowed to be parked in the front of the road and project as well.	Environmental/Project Manager
9	Trash burning	No trash burning will be allowed in or outside the unit building.	No trash burning will be allowed on the roads and streets.	Environmental/Project Manager
10	Dust	The open place in front of the building will be duly cleaned after	Plantation will be ensured in open space to avoid dust.	Environmental/Project Manager

		sprinkling of water to avoid any dust to spread around.		
BIOLOGICAL ENVIRONMENT				
11	Fauna and Flora	Proposed site is devoid - off any protected species of both fauna & flora	Awareness programs will be planned regarding the protection of fauna & flora. Species of Indigenous plants will be planted at site.	Environmental/HSE Manager
SOCIOECONOMIC IMPACTS				
12	Resettlement issues	There is no any issue of resettlement due to the construction of the subject project.	There will not be any issue of resettlement due to the operation of the subject project.	Environmental/HSE Manager
13	Change in cultural language	Maximum employment of Local people is recommended to preserve the local cultural language.	Maximum employment of Local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area	Proponent

		It will help in communication with the local people to resolve any emerging issue near the project area		
14	Education	School and colleges exist in the area. The project proponent will initiate an educational awareness program.	School and colleges exist in the area. The project proponent is committed to initiate an educational awareness program	Proponent
15	Health	Health facility already exists near the project site at the distance of about 8 km. The project proponent should provide first aid facilities at site and also social security and	Health facility already exists near the project site at the distance of about 8- km. The project proponent is committed to provide first aid facilities at site and also social security and medical checkups of the workers.	Proponent

		medical checkups of the workers.		
16	Culture, Norms of the area	Maximum local employment should be ensured to preserve the culture of the area	Maximum local employment should be ensured to preserve the culture of the area	Proponent
17	Gender inequality	Women involvement in decision making process should be ensured.	Women involvement in decision making process should be ensured	Proponent
Others				
18	Environment quality enhancement measures: flowers and plants and decoration lights.	---	Flower pots containing flowers and plants will be planted in front of the buildings to add to the improvement of the environment around. Street lights will be provided on the front side of the building to add beauty to the front site and the environment around.	Environmental/Project Manager

19	Staff for catering the Environmental Management Plan	---	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Environmental/Project Manager
20	Enhancement of aesthetic beauty of the building and the area.	---	All other necessary measures shall also be taken to maintain standards of cleanliness so that the building may add to the scenic/aesthetic beauty of the area around.	Environmental/Project Manager

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5.3 Monitoring Plan

Proponent will ensure overall monitoring the project so that all intended activities may take place in accordance with environmental assessment.

5.4 Training Schedule

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

5.5 Institutional Responsibilities

Following functionaries will be involved in the implementation of EMP:

- HSE/Project Manager
- In-Charge Administration
- Supervisor of project
- Environmental Engineer/Officer of Contractor

5.5.1 Responsibility of EMP

Overall responsibility for implementation of EMP will be that of HSE/Project Manager. He will act as Environmental Manager. He will be assisted by supervisor of project and In-charge Administration. Project Manager will be responsible to the Project Proponent in all respects. He will make liaison with all stakeholders and EPA Punjab.

5.6 Need for Disaster Management and Emergency Response System

In order to cope up with the possible hazards it is imperative to prepare the Disaster Management Plan and rehearse it frequently. To evaluate effectiveness of the system preparedness exercises and drills should be undertaken frequently. Small courses should be run to train the relevant persons about their actions during emergency. The administration staff need be familiar with the firefighting procedures and equipment.

5.7 Components of Fire Management Plan

Background Information

- The likely causes of the breakout of fire are short-circuiting of electricity, throwing of cigarette butts, combustible materials catching fire and damaged gas pipes.

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Immediate / First Line Actions

The occupants must evacuate the building using the stairs, ramps & lobby and emergency exits. Evacuation plan should be hoisted at many places. Evacuation of building should be completed within 2/3 minutes time.

Calling the Fire Brigades

The contacts (telephones, call and fax numbers) of local fire brigades should be boldly written at each floor on the notice boards so that any person may call them for immediate assistance. Information about the firefighting facilities in the nearby urban centers should also be handy all the time.

Medical Aid

Information be immediately passed to the nearby medical hospitals and centers for recovery of the wounded persons. First aid boxes should be kept at suitable places. Some of the employees should obtain formal training about medical first aid.

5.8 Fire Fighting Procedures

- To ensure availability of adequate water for firefighting purpose dedicated water tank should be earmarked.
- It should be ensured that during firefighting operation enough space is available for movement of vehicles and personnel.
- In addition to the above the firefighting personnel from Fire Brigade Department should be in possession of the required pieces of equipment like fire man suit, fire blankets, Fire torch special for looking in smoke, gloves (rubber & canvas), goggles, helmets plastic, gum boots, gasmasks, Oxygen cylinder/breathing apparatus, fireman axe, shovel, first aid box (complete), ladder, metal detector.

Regular monitoring of all the significant environmental issues is essential to check the compliance status of EMP. The main objective of the monitoring will be;

- To verify the results of the environmental study with respects to the proposed project.
- To estimate the trends of concentrated values of the issues, which have been identified as critical and then planning the mitigating measures.
- To assess the efficiency of pollution control mechanism.

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To ensure that any additional parameters, other than those identified in the EIA report, do not turn critical after the commissioning of said project.

5.9 Aim of Monitoring

The aim of monitoring is to oversee the environmental performance of the project through its lifecycle enforcing the PEQS. Timely implementation of mitigation measures leads to sustainable environmental management of the project.

5.9.1 Environmental Monitoring Plan

- The monitoring will be carried out in accordance with PEQS.
- Monitoring program will be undertaken for compliance of mitigation measures.
- Monitoring for various parameters will be done during construction, commissioning and operation stages.

5.10 Performance Indicators

The performance indicators / parameters having significant impact on physical, biological and socio-economic environments will be evaluated. These are given below:

- Ambient Air Quality
- PM₁₀, CO, NO_x, HC and SO₂
- Water Quality
- TDS, TSS, COD, oil and grease, chloride, lead, zinc and cadmium
- Noise Levels
- Soil Quality
- Lead, chromium, cadmium hydrocarbons
- Tree plantation

5.11 Environmental Monitoring Cell (EMC)

EMC of the project will undertake monitoring of the Safety, Health and Environmental Aspects. It will ensure implementation of EIA report and apprise the General management of the project on fortnightly basis.

Environmental Technical Assistance and Training Plan

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In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. Environment/HSE/Project Manager should play a key role in this respect and arrange the training programs.

Environment/HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment, and health and safety related issues on the construction site.

The Environment/HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

Environment/HSE/Project Manager will arrange Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

5.11.1 Monitoring of Quality

The EMC will arrange monitoring of the quality of air, water, noise and waste water on quarterly or monthly basis from any EPA Certified/approved laboratory if required.

5.12 Monitoring Stages/Plan

5.12.1 Monitoring Stages

Monitoring of environmental parameters need to be carried out during the following stages in addition to post-project period:

- Construction Stage
- Operation Stage

5.13 Monitoring Plan

Following aspects need to be monitored during construction and operation stages:

- Air quality

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- Water quality
- Noise level
- Management of utility services including water supply, sewerage disposal, electric supply and solid wastes.

5.14 Training Schedule

HSE manager will conduct training for staff so that workers may deal any emergency took place within project premises. Management will have close liaison with district emergency services like Rescue 1122, Civil Defense and Fire brigade. Training sessions will be conducted for staff along with firefighting equipment's inspection by Rescue and Civil Defense officials after 2-3 months. Fire drills will be conducted by the staff once in a month so that they may prepare themselves for any emergency like fire.

5.15 Summary of impacts and there mitigation measures

Table 5.2 – Summary of major Impacts and there mitigation measures

Sr No	Constructed Phase Impacts	Operational phase impacts
1	Waste water generation	Noise from machinery
2	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles
3	Workers health and safety issues	Waste water from workers camp and from other sources
4	Disturbance of flora and fauna (if tree cutting will involve)	Workers health and safety issues
5	Solid waste generation	Fire
6	Traffic problem due to transportation of material	Safety and security issues
7	Waste water generation	Noise from machinery
8	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles
9		Waste water from workers camp and from other sources
10		Workers health and safety issues

Table 5.3 – Mitigation measures

Sr No	Mitigation measures for construction phase and operational phase
1	Septic tanks will be constructed for the treatment of waste water generating from worker's camp. And waste water treatment plant will be constructed for the treatment of waste water generating from houses
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.
4	Excessive tree plantation in and around the project premises.
5	Construction of hall around the generator along with installation of silencers to reduce noise
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic congestion

5.16 Equipment maintenance detail

The subject project is construction of LPG Refueling Unit in District Attock. The proponent of the subject project will maintain records for Health Safety & Environment and will hire Environment/HSE manager to check and deal with the HSE issues. The subject project will maintain medical facilities, firefighting Equipment such as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement and will ensure proper housekeeping and essentials facilities.

Below mentioned is a list of machinery which will be used for construction purpose.

- Tractor
- Trolley
- Trucks
- Vans

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- Crane
- Generators

These equipments will be monitored after every week. There engine oil, filter repair issues will be addressed on priority when and where required. No unfit machinery exceeding PEQS in terms of noise, emission etc. will be allowed to work at site. Environmental manager / contractor will be responsible to have a check and balance on these issues and they will prepare an inspection record (date of inspection, time of inspection, next due date of inspection, fault trace, measures taken and any observation).

Proposed project will be a LPG Refueling Unit hence there will be no machinery during operational phase which will be monitored.

5.17 Environmental Data Review:

All environmental data should be reviewed and analyzed regularly in comparison with the PEQS limiting values. And in case of any deviation/violation immediate necessary corrective actions should be taken.

However, overall monitoring once year by a third party will be Preferred.

5.18 Reporting and reviewing procedures

Monitoring schedule, reporting and reviewing as explained above will be strictly followed. All monitored data are to be scrutinized at the level of Shift Engineer/ In Charge and on monthly basis at the Manager level. The data will be documented according to the SMART format. Discrepancies will be duly addressed to. For presentation of the data to the Government Agencies, approved data recording to the SMART format will be adopted.

5.19 Environmental Management Plan

a. Purpose and Objectives of the EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
 - Ensure the complete implementation of all mitigation measures

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- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations
- Identify training requirements at various levels.

b. Components of the EMP

The EMP consists of the following:

- Organizational structure
- Mitigation plan
- Environmental monitoring
- Communication and documentation
- Change management
- Environmental training
- Waste disposal plan
- Restoration and rehabilitation

The components listed above are discussed in the report.

c. Management Approach:

The overall responsibility for compliance with the environmental management plan rests with the project proponent. A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

5.20 Environment Budget

For the improvement of environment, tree plantation PKR 100,000 rupees will be the environment budget which will be utilized only for the beautification of the environment like tree plantation, flowering etc.

CHAPTER # 6

INVOLVEMENT OF STAKEHOLDER/ PUBLIC CONSULTATION

6.1 EIA and Public Consultation Process

Stakeholder participation in planning and management of the social and environmental issues assists in reducing the concerns of stakeholders and hence increases public acceptance towards development programs. Consultation process entitles the stakeholders with opportunities to participate in key decisions that will affect their lives. Therefore, detailed public consultation meetings were arranged at different levels of the planning process. For this purpose, periodic consultation meetings were held with various project stakeholders. Different aspects and impacts of the proposed project were highlighted regarding their impacts on the physical, biological, and socio-economic environment of the project area. Stakeholders' trepidations regarding various aspects like existing environment, and impacts of the project on the surrounding environment were emphasized and have been added to this EIA report.

6.2 Proponent

Mr. Shahzad Rafiq, S/O Muhammad Rafiq, R/O Jail Road, House No 290/4, Peshawar Cant, Tehsil Peshawar.

6.3 Objectives of the Public/Stakeholders Consultation

Public consultation plays a vital role in studying stakeholders' perspectives regarding the project and henceforth the successful implementation and execution of the proposed project. Public involvement is a compulsory feature of Environmental Impact Assessment, which leads to improved and acceptable decision-making. The primary objective of the stakeholders' consultations was to learn and know the apprehensions, concerns, and opinions of the key stakeholders over environmental implications of the project activities from public perception. The consultation sessions also served as a source of firsthand information about the users and the beneficiaries' expectations from the project. Dialogue with the stakeholders and recording their concerns at appropriate stages of the project would help to tailor the project in line with stakeholders' aspirations and so increases the likelihood for public acceptance of the project and its subcomponents. It also helps to develop and maintain communication links between the project proponents and stakeholders, providing opportunities to the public to influence the project design in a positive manner. This ensures that the views and concerns of the

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stakeholders are incorporated into the project design and implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits of the proposed project.

6.4 Methodology

6.4.1 Responsible Authority

The consultation process began with the identification of the most pertinent stakeholders. Identification of the stakeholders for the proposed project plays a crucial role in development and also assists in quantifying the role of different stakeholders involved. Impacts identified by the stakeholders are measured through matrix method and mitigation measures are proposed according to the intensity of the identified impacts. Efforts were made to identify the relevant stakeholders through a systematic process based on the nature and degree of their actual and perceived stakes related to the project.

6.4.2 Issues Discussed with the stakeholders

Following issues were discussed during the stakeholder consultation meetings:

- Concerns, apprehensions, and views of the community and the stakeholders over the project activities relating to design, construction and operational aspects.
- Probable adverse impacts of the project activities on various components of the environment i.e., physical, biological, and social components.
- Possible remedies for the concerns and apprehensions, how the concerns can be effectively addressed?

Identification of any specific personal or site related concerns

- How the project operations can happen in accordance with user/beneficiaries' expectations?
- Beneficial factors and involvement opportunities of the local people in the set of activities of project during construction and operational phases.
- Material's transport management during construction and operational phase of the project.
- Management of water, wastewater and solid waste during construction and operational phase of the project.
- Natural hazards, associated risks and precautionary measures.

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- Traffic issues subjected to activities during different phases of the project.

6.5 Environmental Practitioners and Experts

According to the EIA rules and regulations, this report will be compiled and submitted to the Environment Protection Department (EPD) and after the review on the report this report will be disseminated to the public. This dissemination and information sharing exercise will then be followed by public participation through print media in which the public will be requested for their reviews. The copies of the report will be placed in the EPA for comments from the public which will be incorporated in the report. As per rules and regulations, Environment Protection Department will hold a public hearing at the proposed project site.

The proposed Project does not have direct impacts on any individual; therefore, no primary stakeholders are identified. Secondary stakeholders are institutional stakeholders, which include Project Proponent, local Government representatives, and Government officials of the relevant departments, NGO, general public, local residents, shop keepers, vendors, hospital owners/staff, teachers, pedestrians, and businessmen/traders of the city. The categories of the stakeholders who provided useful feedback, included:

- Project Proponent
- Government officials
- Environmental practitioners and experts
- Teachers/students
- Shopkeepers

All those stakeholders have different types of stakes according to their involvements in various aspects of the Project. The consultant tried to contact all the stakeholders and shared their views and concerns and also interacted with the community-based organizations that can support the community.

Meetings with Stakeholders/ Environmental Practitioners and experts

A series of consultation was carried out with stakeholders and general public in Akhori District and nearby areas.

The purpose of this survey was to achieve the objectives of the consultation, highlight the main issues in the implementation of the proposed Project and finally propose mitigation measures. Open and close ended questionnaire was used to collect the views concerning the assessment survey. Scoping sessions and informal group discussions were also carried out with local

residents and local government representatives regarding the proposed Project. The outcome of whole consultation process was very encouraging. The following issues were discussed during Informal Meetings with local representatives:

- i. Brief Description of the Project
- ii. Current economic condition in the area
- iii. Suggestions for improvement in the current industrial system and all activities related to industry
- iv. Perceptions about the proposed Project
- v. Perceived impacts of the proposed Project

The local poor people predominantly requested for unskilled and semi-skilled jobs during implementation of the Project. On the basis of the consultations so far, it appears that the Project will have no insurmountable environmental and social impact. The community generally supported the proposed Project. They have opinion that the Project will not only provide livelihood during construction stage, but also will help to eradicate the burning issue of regarding import of materials.

Other Departments and agencies

A series of consultation was carried out with WAPDA, Municipality officers and other government sectors

Responsible Authority

HSE manager will be responsible for all the operational activities

Environmental Practitioners and Experts

Name	Post	Qualification
Talha Abid	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Ali Malik	HSE Officer	MPhil Environmental Sciences
M Abuzar	Senior Environmentalist	BS Environmental Sciences

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Masooma Batool	Senior Environmental Officer	MPhil Environmental Sciences
Mubeen Sohail	HSE Officer	BS Environmental Sciences
Fajar Waheed	Environmentalist	BS Environmental Sciences
Muhammad Haris	Environmentalist	BS Environmental Sciences

Proponent Environment Management Team

Talha Abid	HSE Manager
Ali Malik	HSE Officer
Abdul Rehman	Senior Environmentalist

Affected and Wider Community

There is no population present in the safe radius of the site that's why community will not be disturbed due to project operation. Although the opportunity of employment will increase if the project will approve.

Summary of Issues Raised by Stakeholders

A summary of the key issues raised by stakeholders and how these are being addressed by Project Proponent is provided in Table below.

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the industry.

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Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be accommodating. The internship program will be offered to the students to develop professional skills.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting concrete.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so, they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.

Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the proponent that will help to safe disposal of the water.
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CHAPTER NO # 07

ASSESSING IMPACTS

7.1 Methodological Approach to Assessing Impacts

The main impacts of the policy which need to be assessed are summarized below.

Social / Public Health impacts
• Changes in health outcomes for patients
Economic impacts
• Changes in expenditure on pharmaceuticals (plus any changes in other healthcare costs) • Costs incurred by industry in providing additional information to patients • Costs of enforcing information provision standards • Administrative burdens associated with notifying the regulatory body of information provision • Other possible impacts (e.g. on competition and innovation)
Environmental impacts
• No significant environmental impacts have been identified.

A number of elements of research have been carried out to gather data to inform an assessment of these impacts:

- The literature review has generated some useful qualitative and quantitative material relevant to the impact of providing information to patients about medicinal products and health-related issues in order to gather evidence on.
 - The effects on patients, health professionals, health systems and public health of the provision of information to patients on medicinal products and illnesses.
 - The distinction between information and advertising.

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- The relative effectiveness of different information channels, such as the internet and written information.
- The effects of how information is presented (drawing on behavioral economics research into framing effects).

7.2 Evaluation of Identified Impacts

Methodology adopted for the identification, evaluation and analysis of environmental impacts by the proposed project is “Matrix Method and Significance Rating of Impacts”.

7.3 Environmental impact Matrices

The environmental impact matrices have been developed to evaluate magnitude of the impacts of various project activities on different environmental settings for construction and operation phases and are shown in **Tables** respectively.

A Matrix method helps in identifying the potential temporal & spatial impact and screens the project for environmental and social soundness. Each project activity is screened separately with regard to its construction and operation phases according to the various physical, ecological and social parameters. These impacts are characterized on the basis of extent, timing, magnitude, reversibility, probability, nature and duration. **Table 7.1** shows the characterization of impact.

Table 7.1 Environmental impact Evaluation Matrix during Construction Phase

	VEC/VSE	VEC/VSE Rating	Establishment and Functioning of Construction Camps workshops etc.	Excavation Operation of burrow and quarry Areas.	Transportation of construction Materials and Equipment's	Open storage of Construction materials, fuels etc.	Operation of Concrete	Functioning of Power generators	Land Acquisitions	Solid & Liquid waste management	Impact Score
Components	Air Quality and dust	0.10	-3	-3	-2	-2	-3	-2	0	-1	-1.6
	Soil Erosion & contamination	0.05	-2	-2	-3	-2	-3	-1	0	-3	-0.8
	Ground water Quality	0.10	-3	-2	-2	-2	-2	-1	0	-2	-1.4
	Noise	0.10	-3	-4	-2	0	-3	-3	0	-1	-1.6
	Flora	0.12	-1	-2	-2	-1	-1	0	0	-1	-1.0
	Fauna	0.06	-2	-2	-2	-1	-2	-2	-2	-2	-0.9
Bio physical environment											
Socio economic Environment	Traffic management	0.20	-3	-3	-4	-3	-2	-1	0	-2	-3.6

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	Social and cultural conflict	0.07	-3	0	-1	-1	-1	-1	-4	-2	-0.9
	Health and safety of Workers & community	0.10	-3	-3	-3	-2	-3	-2	0	-3	-1.9
	Employment/ Economic activity	0.10	3	3	2	0	1	1	-4	3	0.9
		Legend	+Positive	0	No impact	2	Minimum impact	4	Severe impact		
			-Negative	1	Negligible impact	3	Moderate impact				

Environmental Impact Evaluation Matrix during Operational Phase

	Components		VECs Rating	Activities	
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		Valued Ecological components		Movement of Vehicles	Vehicles Emission	Dumping of solid waste in drain	
	Biophysical Environment	Flora	0.05	0	-2	0	-0.10
		Fauna	0.05	-3	0	0	-0.15
		Noise and Vibration	0.10	-3	0	0	-0.30
		Drainage	0.20	-2	0	-3	-1.0
	Socio Economic Environment	Road Safety	0.20	-4	0	-4	-1.60
		Economic Activity	0.15	3	0	0	0.45
		Traffic Management	0.25	4	0	-3	0.25
Legend	+Positive	0	No impact	2	Minor impact	4	Severe impact
	-Negative	1	Negligible impact	3	Moderate impact		

Table 7.2 Characterization of Impacts

Extent	Timing	Magnitude	Reversibility	Probability	Nature	Duration
Site Specific	Short Term	Negligible	No Change	Very Unlikely	Indirect	Temporary
Local Impact	Medium Term	Low	Reversible	Unlikely	Direct	Permanent
Area Impact	Long Term	Medium	Slowly Reversible	Likely		
Regional Impact	Multi-year and Permanent Impact	High	Irreversible	Certain		

Table Characterization of Impacts

In addition to assigning the numerical values to each marked box in the Matrix, plus (+) or minus (-) signs are used to show whether an impact is beneficial or adverse. The weighted matrix was applied to the environmental components listed on the y-axis against the activities of the proposed project listed on the x-axis prior to mitigation measures. In this process, numerical values were assigned from 0 to 1 for biophysical environment and socio-economic environment to indicate the significance of the affected environmental and social components. These numerical values were then multiplied with the individual project activity rating/values and all added to get an overall impact score. This impact score gives the relative significance of impacts for a specific component. The highest impact score gives the level of significance of that impact.

7.3.1 Identification of VECs

Biophysical and human environments that, if altered by the project, would be of concern to regulatory agencies, indigenous community, resource managers, scientists,

stakeholders, and/or the general public. VECs are typically selected for assessment on the basis of regulatory issues, guidelines, and requirements; consultation with regulatory agencies, the public, stakeholder groups; field reconnaissance; and the professional judgment of the Study Team.

7.3.2 Significance Rating of Impacts

The overall significance of the impacts was defined based on the result of a combination of the ratings. Each identified impact was analyzed individually according to a number of criteria including descriptions of their extent, timing, magnitude, reversibility, probability, nature and duration. Taking into account these criteria, potential significance was classified as either:

- Low: The impact which has a slight influence on the natural and socio-economic environment;
- Medium: The impact which can be eliminated/ mitigated after applying the appropriate mitigation measures; and
- High: an impact, which, if not mitigated, could stop the project from proceeding

7.4 Delineation of Project Corridor of Impact (COI)

COI is a limit which identifies the area where direct and indirect impacts of the project activities are envisaged like existence of forests, game reserves, wetlands, archaeological sites etc. The limit for COI for the proposed project is taken as 250 meter radius for collection of baseline information, impacts assessment and mitigation measures of physical, ecological as well as social resources. As the location of construction/contractor camps, vehicles, equipment yard, material quarry areas and access tracks have not been defined yet, so impacts evaluated due to these facilities in this section will be of generic nature

CHAPTER NO # 8

MITIGATION AND IMPACT ASSESSMENT

8.1 Purpose of Mitigation Measure

The basic purpose of mitigation measures is to reduce the impacts of the project Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock on the socio-environment up to the maximum possible extent. The mitigation measures are suggested based on the following parameters:

8.2 When problem will occur and when it should be addressed?

The impacts from the Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock will occur during the development and operation due to the civil work involved and the people residing in the project area. These issues included; noise generation, fugitive dust emissions, solid waste management, wastewater disposal, top-soil removal, Health and Safety issues and change in the geographic features of the area. These all problems should be addressed on-site where they are being generated, to avoid the residual or adverse impacts.

8.3 Where problem should be addressed?

The problem will be generated from site development and operation of the unit. So, it should be addressed on source i.e., at site within the same timeframe.

8.4 How the problem should be addressed?

Proper mitigations measures will be provided according to the nature of the impacts/problems. For example, against dust emissions sprinkling of water may be done on regular basis, for solid waste proper solid waste management and disposal practices may be adopted, to manage liquid waste proper treatment may be made before discharging into the receiving body.

8.5 Ways of Achieving Mitigation Measures?

Following ways will be adopted to reduce the impacts of the quarrying:

8.5.1 Changing in Planning Design

For the process, commercial cum agriculture land is selected. The process selected for Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock. Project is the controlled system where physical, biological and chemical hazards are controlled or managed effectively. The chances of the biological contamination are reduced significantly. There is no endangered and threatened species present in the project area that could be impacted due to the installation of the facility. Moreover, there is not any human settlement or infrastructure that will be dislocated or dismantled due to the proposed project development. No adverse impact is therefore being envisaged due to the installation of the facility in the proposed location as the process employed is controlled as for the management. Hence, there is no need to change the design of project.

8.5.2 Improved Management and Monitoring Practices

The anticipated impacts had been reduced significantly by adopting better management activities, as it will be carried out for betterment of the society. While environmental monitoring will be conducted on the regular basis to keep the sources of the wastewater generation, solid waste management, by-product management, noise and public nuisances in-check. Following practices that need to be adopted to reduce the impact significantly:

a. Compensation in Money Terms

Due to the construction of the facility, the vegetation present on-site will be removed and the geography/landscape of the area will be slightly changed on the permanent basis, however, there is no protected or environmentally sensitive area present within 10.0 km vicinity of the project that could be impacted due to the Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock project. Hence, no compensation for it will be required. However, for the removal of the one tree from the leased area 3-5 trees will be planted as the compensation along the facility boundary.

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b. Replacement/Relocation/Rehabilitation

The proposed project is located in commercial cum agriculture area. There is no sensitive area, population or natural resource is present which could be impacted due to the installation of the facility. No replacement, relocation and rehabilitation are required.

CHAPTER # 9

CONCLUSION AND RECOMMENDATIONS

9.1 Conclusion

- ❖ The EIA study reveals that the project is economically viable, socially acceptable and environment friendly. On completion of the project Construction of LPG Refueling Unit By M/S MRK Oil & Gas (SMC- Private) Limited at Khasra No. 3275, Khewat No. 1205/1031, Khatooni No,1341, Situated at Fateh Jang Road, Mouza Akhori Tehsil & District Attock, it will generate additional jobs during construction and operation phases.
- ❖ Project is environment friendly and pollution free
- ❖ The proponent has committed to implement the project in the environment friendly manner.
- ❖ Project proponent has ensured to install the WWTP to treat the wastewater prior to discharge into drain or use for irrigation purposes.
- ❖ Project proponent has ensured to adopt the proper solid waste management
- ❖ Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- ❖ Project proponent has ensured to provide the safe drinking water to all workers and staff.
- ❖ Project proponent has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- ❖ Project proponent has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

Main environmental issues are as under:

- Production of Solid Waste
- Generation of waste water
- Generation of Noise

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- Traffic issues
- Health and Safety issues

9.2 Recommendations

- ❖ In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- ❖ Tree plantation.
- ❖ RO Plant recommended for the safe drinking water supply to the workers of industry
- ❖ Waste water treatment Facility should be installed.
- ❖ Proper solid waste management system should be followed according to direction of the Local Government.
- ❖ The untreated wastewater should not be reused for irrigating the vegetation and lawns without treatment.
- ❖ High standards of bio-security and safety should be enforced during operation stage. Safety of the workers should be top priority for the management.
- ❖ Industry should continue to assist the local communities as a corporate social responsibility.
- ❖ The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.

ANNEXURES

Terms of Reference for Environmental Impact Analysis

1.0 Introduction

Entertech Group of Companies (PVT) Ltd has been asked to submit the technical proposal for this project to fulfill the legal requirements under Pakistan Environmental Protection Act 1997 (amended 2012).

Part A- Completion of EIA

2. Environmental Impact Analysis

The proponent is required to prepare an environmental assessment study and get approval from EPA prior to commencement of the project.

3. Responsibility of Consultant

The consultant would undertake surveys, conduct studies, consult with the community and compile the EIA report. The EIA should cover all likely construction and operation activities and will include, but not to be limited to, an assessment of the environmental and social impacts relating to the land.

The following tasks shall be conducted for the completion of work.

1) Procedure of Environmental Assessment

After the award of work of Environmental Assessment study, consultant will carry out following activities:

- a. Kick off meetings with client to collect the requisite information regarding project i.e. Design reports, drawings, feasibility study, topographic survey etc. Site topographical surveys and underground reservoir survey reports will be shared by client.
- b. Site survey and environmental monitoring of groundwater, noise, wastewater and ambient air quality.
- c. Socioeconomic survey of the area.
- d. Secondary data collection from district department (Forest, drainage, meteorological)

- e. Assessment of environmental and socioeconomic project and mitigation measures
- f. Preparation of environmental management and monitoring plan.
- g. Environmental assessment report preparation and submission to client for review and comments if any.
- h. Follow up of case in EPA till its final Environmental Approval Responsibilities of the Client

Responsibilities of the Client

- I. Provision of necessary documents and studies about the features and description of the project.
- II. Provision of copy of the geotechnical study including seismic study.
- III. Site topographical surveys and underground reservoir survey reports.
- IV. Basic data for quantification of solid waste, water use, wastewater and its safe disposal.
- V. Detail of each commercial activity and its expected magnitude.
- VI. Provision of review fee for EPD.
- VII. Health and safety plan.

Part B) Securing NOC and Approval from Govt. Departments

- a. Consultant will prepare and submit a complete final Environmental Assessment report to the client along with requisite documents provided by the proponent for onward submission to EPA Punjab securing NOC.
- b. Consultant, as required by environmental law, will submit the report along with bank draft of review fee in the name DG EPA, application, affidavit and undertaking provided by the client.
- c. EPA Punjab raises queries on EIA report and sends to the client. At this stage, consultant will reply all the queries raised by EPA. Client will submit the reply to EPA.
- d. After the approval of Environmental report, a notice for the committee of experts for the proposed project will be issued by EPA Punjab to the client. Consultant will prepare and deliver presentation before committee of experts. All the questions raised by committee of experts will be responded by the consultant.
- e. After committee of experts, NOC is issued to the client.

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- f. Consultant will facilitate the client till the issuance of NOC by concerned Government Department from EPA Punjab.

Glossary

- ❖ **Ambient:** relating to the immediate surroundings of something
- ❖ **Base line:** Conditions prevailing at the time of study or before initiation of any project
- ❖ **Baseline:** Conditions prevailing at the time of study or before initiation of any project
- ❖ **Discharge:** means spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping
- ❖ **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
- ❖ **Environment budget:** Monetary assets reserve for environmental activity.
- ❖ **Environment:** Means air, water and land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the factors mentioned
- ❖ **Environmental Impact Assessment:** means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, migratory 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
- ❖ **Fauna:** Animal life occurring in particular region or time.
- ❖ **Flora:** plant life occurring in particular region or time.
- ❖ **Human Settlement:** A cluster of at least 50 houses.
- ❖ **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 environmental effect for requiring preparation of an environmental impact assessment
- ❖ **Punjab Environmental Quality Standards:** means the permissible standards for emission of air pollutants and noise and for discharge of effluent and waste
- ❖ **Nuisance:** A person, thing or circumstances causing inconvenience or annoyance.
- ❖ **pH:** negative log of hydrogen concentration:

CONSTRUCTION OF LPG REFUELING UNIT BY M/S MRK OIL & GAS (SMC-PRIVATE) LIMITED AT KHASRA NO. 3275, KHEWAT NO.1205/1031, KHATOONI NO, 1341, SITUATED AT FATEH JANG ROAD, MOUZA AKHORI TEHSIL & DISTRICT ATTOCK

- ❖ **Poultry Project:** means poultry related activities like hatcheries, poultry farm, poultry control shed, poultry premises or any other poultry project notified as such.
- ❖ **Poultry:** including the species such as chicken, turkey, quail, and pheasant.
- ❖ **Proponent:** the person who intends to carry-out a proposed project.
- ❖ **Sustainability:** means such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs
- ❖ **Waste:** means any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process

List of Abbreviation

BOD	Biochemical Oxygen Demand
C&I	Commerce and Investment
CEPT	Common Effluent Pretreatment Plant
COD	Chemical Oxygen Demand
DCP	Dry Chemical Powder
EIA	Environmental Impact Assessment
EMP	Environmental Management Plant
EMMP	Environmental Mitigation & Monitoring Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Ordinance
GOP	Government of Pakistan
GOPb	Government of Punjab
HSE	Health, Safety & Environment
HC	Horticulture Committee
IEE	Initial Environmental Examination
Kmp/h	Kilo Meter Per Hour
Km	Kilo Meter
LESCO	Lahore Electricity Company
NEQS	National Environmental Quality Standards
NOC	No Objection Certificate
NWFP	North West Frontier Province
OSHA	Occupation Health and Safety
PEPA -97	Pakistan Environmental Protection Act, 1997
PCGIP	Punjab Cities of Governance Improvement Project
PM	Particulate Matters

PEPO-83	Pakistan Environmental Protection Ordinance, 1983
TDS	Total Dissolved Solids
TMA	Tehsil Municipal Administration
UC	Union Council
WAPDA	Water and Power Development Authority
WHO	World Health Organization
LPG	liquefied petroleum gas

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