2024

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

M/S DESCON OXYCHEM LIMITED

18 KM, LAHORE-SHEIKHUPURA ROAD, LAHORE

PREPARED BY

Environmental Services Pakistan Private Limited (ESPAK)

OFFICE NO. 731, BLOCK 2, SECTOR D1, SHAH JILANI ROAD, TOWNSHIP, LAHORE

Contact: 042-35154015-16

EXECUTIVE SUMMARY

TITLE & LOCATION OF THE PROJECT

Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) by M/s Descon Oxychem Limited. Previous capacity of hydrogen per oxide manufacturing plant is 14000 tons per year now the proposed unit's capacity increased to 120 metric tons per day. Previous Environmental approval of the said project is attached as **Annexure-E**. Total area of said project is 20.8 Acres. Covered area of allied services is 48477 SFT. Detail of Extension is given below:

Sr.no	Extension	Covered Area
1	Material Storage Hall#1 (NFG)	0.37 Acre/ 15917 SFT
2	Material Storage Hall#2 Empty Jerrycan Building	0.48 Acre/ 20792 SFT
3	Compressor Area	1757 SFT
4	Electrical and Instrumentation Building	0.1 Acre/ 3732SFT
5	Material Storage Hall#3	0.1 Acre/ 3105 SFT
6	Material Storage Hall#4 (new warehouse near scrap area)	0.1 Acre/3174 SFT

CATEGORY OF THE PROJECT:

The proposed project fall under category of Chemical Projects mentioned in Schedule-II, Category (B), Clause (2) of Punjab Environmental protection (Review of IEE/EIA) Regulations, 2022, hence such projects require submission of EIA Report to obtain

Environmental Approval, under Section 12 of Punjab Environmental Protection Act 1997. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are attached as **Annexure-A** with this EIA report.

LOCATION

Subject unit is located at 18 Km, Lahore-Sheikhupura Road, Lahore.

The Location Coordinates are:

31°39'3.60"N

74°10'32.95"E

Project land coordinates are as follows:

North = Access Road

South = Industrial Unit

East = Access Road

West = Access Road

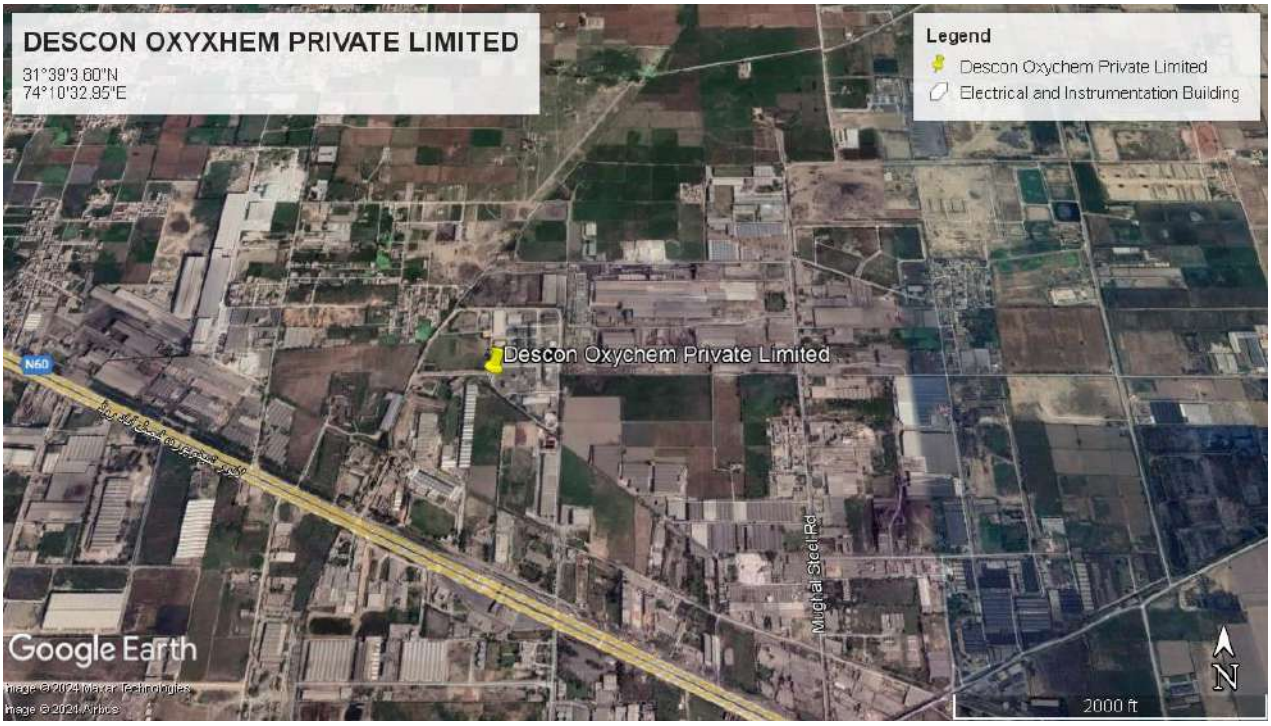

Figure: Aerial View of The Proposed Project

Figure: Marked area of proposed project

NAME OF THE PROPONENT

Name: Mr. Muhammad Mohsin Zia

CNIC# 42301-5911541-3

Mailing Address: Descon Head Quarters, 18 KM, Ferozpur Road, Lahore

For further details, CNIC of the proponent and other relevant documents attached with this report as **Annexure B.**

NAME OF ORGANIZATION PREPARING THE REPORT:

Environmental Services of Pakistan (ESPAK)., as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assessment Study.

Company office address: Office No. 731, Shah Jilani Road, Block 2 Sector D1 Lahore.

Contact No: 0312-0839999

For detail company profile see the Chapter # 1 “Introduction

STUDY TEAM

#	Name of Team Members	Designation	Qualification
1	Maham Ahsan	Environmentalist	M.S Environmental Science
2	Ali Ramzan	Environmentalist	B.S Environmental Sciences
3	Asma Akram	Environmentalist	M.S Environmental Science
4	Taha Nadeem	Environmentalist	B.S Environmental Sciences
5	Shahzad Ahmad Khan	Project Manager	MBA Marketing

A BRIEF OUTLINE OF THE PROPOSAL

<table>
<tr><td>Name of the project:</td><td>Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) by M/s Descon Oxychem Limited.</td></tr>
<tr><td>Location of the project:</td><td>18 Km, Lahore-Sheikhupura Road, Lahore.</td></tr>
<tr><td>Proposed Area:</td><td>Total area of the unit is around 20.8 Acres. Covered area of allied services is 48477 SFT. Detail of Extension is given below:
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Nature of Project:	Nature of the project is Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services.
Cost of the project:	Total cost of the project will be Approx. US$ 30 million
Project process:	The process cycle of production is based on Hydrogenation, Oxidation, Extraction, Water Separation and drying and Regeneration.
Power Requirement:	Power requirements of the project is being fulfilled by WAPDA.
Labor/ Workforce:	During Operation: 50-55 persons (approximately).
Water Requirement:	During the operational phase of the project approx. 3000$m^{3/}$day water will be required for project process and domestic purposes.
Solid waste:	During operation: 500-600 kg/day domestic and project related waste.

THE MAJOR IMPACTS

In order to identify all the activities associated with the project during operation phase with potential to cause adverse environmental impacts and harm a thorough review has been conducted. Project does not have any significant adverse impacts on the nearby community

and on environment. Overall, the project has positive impacts on the local population and country as a whole. Moreover, area for plantation is also reserved for air purification within the project vicinity.

Table: Summary of Environmental impacts of the project during the project activities and their mitigation measures

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
Solid waste Management— If solid waste will not be managed properly, it may cause negative impacts	Solid waste may produce in result of machinery installation e.g. wasted parts of machinery, wasted screws, nails and bolts. But most of the solid waste will be of domestic type.	Machinery installation waste should be sold in scrap as it can be used by steel and iron industry. Domestic waste should be disposed of properly, handed over to contractors, placed in bins; Proper solid waste management plan should be devised and implemented.
Waste water - water used for washing purposes	PEQS parameters	Waste water should be treated in the Effluent treatment plant and then disposed of in the nearest drain.
Noise- Noise may be generated during fitting and installation activities (drilling etc) and from generators at the project site; which may be a nuisance for the workers as well as neighbors	OSHA standards	Activities generating high levels of noise should be minimized at the project site. If the noise level will exceed the permissible limits with reference to Punjab Environmental Quality Standards and OSHA standards, following recommendations are suggested to take action against the high noise levels: • Ear muffs and ear plugs are recommended in case of high

		noise levels. • Rubber wounds should be placed underneath the generator to avoid the vibration.
Socioeconomic impacts—Inter-cultural differences between the project staff from other areas and the local community may arise due to the subject project. Positive socioeconomic impacts due to increased infrastructure, employment opportunities and economic growth.	No community complaints are expected. Increased employment facilities Increased infrastructure	Training of the non-local project staff on local culture and norms; Avoidance of unnecessary interaction of local population with the non-local project staff. Employment opportunities should be provided to the local people.

Table: Summary of Environmental impacts of the project during the construction phase of project and their mitigation measures

Potential Impact	Key Mitigation Measures
Dust Emissions- Particulate matter emissions during production activities can affect the air quality in the working area and be a nuisance for the workers' health. Gaseous emissions from site generators can result in deterioration of ambient air quality of the outdoor environment.	PPEs i.e. masks should be provided to workers during the working hours. Proper ventilation will be provided in the working area. Vehicles to use for the transportation of materials should be properly tuned. Monitoring should be conducted as per EPA PEQS Rules on regular intervals.
Machinery Noise- Working of machinery can be a nuisance for the workers in the working area.	PPEs i.e. ear muffs will be provided to workers in case of high noise.
Health & Safety Issues- Health and Safety issues e.g. Cuts and Injuries may be caused during the machinery handling.	Proper training of the staff should be conducted on regular basis to avoid the accidents and training record will be maintained by the management. First aid measures should be provided at the workplace. HSE policy will be formulated and implemented by management. Use of PPEs will be ensured during project activities.
Discharge of wastewater- The discharge of untreated wastewater can be a negative impact.	No wastewater will be disposed of into drain without having treatment in wastewater treatment plant. After treatment wastewater will be disposed of into nearest drainage system of main Dek Compliance of PEQS for Municipal and Liquid Industrial Effluents will be ensured. Monitoring will be conducted as per PEQS and reports will be submitted to EPA as per Rule (if

	required)
Solid waste management- Improper solid waste management may cause health problems and aesthetic issues	Waste bins will be placed at suitable areas at unit and contract will be made with EPA approved contractor for hazardous waste disposal. Domestic waste should be handed over to local contractors for safe disposal of the waste.
Groundwater—The increased withdrawal of groundwater for the project will affect the groundwater resources of the project area	No impact on the community groundwater needs is envisaged as a result of the project (ensured by management)

PROPOSED ENVIRONMENTAL MONITORING

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for following Environmental Parameters is recommended:

- **AMBIENT AIR**

  Monitoring for ambient air should be conducted during operational activities of the project and report should be submitted to EPA Punjab.

- **NOISE**

  Regular monitoring for noise level should be maintained periodically during operation phases of the project and report should be submitted to EPA Punjab as per rule.

- **WATER QUALITY**

  Regular monitoring of water quality should be conducted during operational phases of the project and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption.

Recommendation: Environmental Monitoring data log book should be maintained by the project proponent.

CHAPTER # 1

INTRODUCTION

This Section of the report provides an overview of the rational of the Project, objective of project, requirement of the project, purpose of the report and approach adopted to conduct the Environmental Impact Assessment Study.

PURPOSE OF THE REPORT

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, Lahore for the compliance of Section 12 of Punjab Environment Protection Act-1997 (Amended 2012) for obtaining No Objection Certificate (NOC). 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 sectoral 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.

IDENTIFICATION OF THE PROJECT AND PROPONENT

The proponent has been submitting this EIA report, the said project is proposed and the proponent wants to do extension of existing plant (hydrogen per oxide manufacturing plant) and allied services under the name of M/s Descon Oxychem Limited and wants to get Environmental approval for said unit.

PROPONENT:

Name: Mr. Muhammad Mohsin Zia

CNIC# 42301-5911541-3

Mailing Address: Descon Head Quarters, 18 KM, Ferozpur Road, Lahore

For further details, CNIC of the proponent and other relevant documents are attached as **Annexure-B.**

DETAILS OF CONSULTANT

Environmental Services of Pakistan (ESPAK) is an independent company, who conducts IEE, EIA, EMP and other environmental investigations through its panel of environmental consultants, public participation practitioners and experienced environmental managers. The company has its own recommended instruments to check the baseline environmental data/PEQS and lab analysis facility for water, waste water priority parameters.

Contact: Environmental Services of Pakistan (ESPAK)..
Office No. Office No. 731, Shah Jilani Road, Block 2 Sector D1 Lahore
Tel: (042) 35154015; 0312-0839999
Email ID: info@espak.com.pk
The current study was carried out by the following professionals:

#	Name of Team Members	Designation	Qualification
1	Maham Ahsan	Environmentalist	M.S Environmental Science
2	Ali Ramzan	Environmentalist	B.S Environmental Sciences
3	Asma Akram	Environmentalist	M.S Environmental Science
4	Taha Nadeem	Environmentalist	B.S Environmental Sciences
5	Shahzad Ahmad Khan	Project Manager	MBA Marketing

BRIEF DESCRIPTION OF NATURE, SIZE AND LOCATION OF PROJECT

Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) by M/s Descon Oxychem Limited. Previous capacity of hydrogen per oxide manufacturing plant is 14000 tons per year now the proposed unit's capacity

increased to 120 metric tons per day, over an area of 20.8 Acres. Covered area of allied services is 48477 SFT. Detail of Extension is given below:

Sr.no	Extension	Covered Area
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The process cycle of production is based on Hydrogenation, Oxidation, Extraction, Water Separation and drying and Regeneration.

LOCATION

Subject unit is located at 18 Km, Lahore-Sheikhupura Road, Lahore.

The Location Coordinates are:

31°39'3.60"N

74°10'32.95"E

Project land coordinates are as follows:

North = Access Road

South = Industrial Unit

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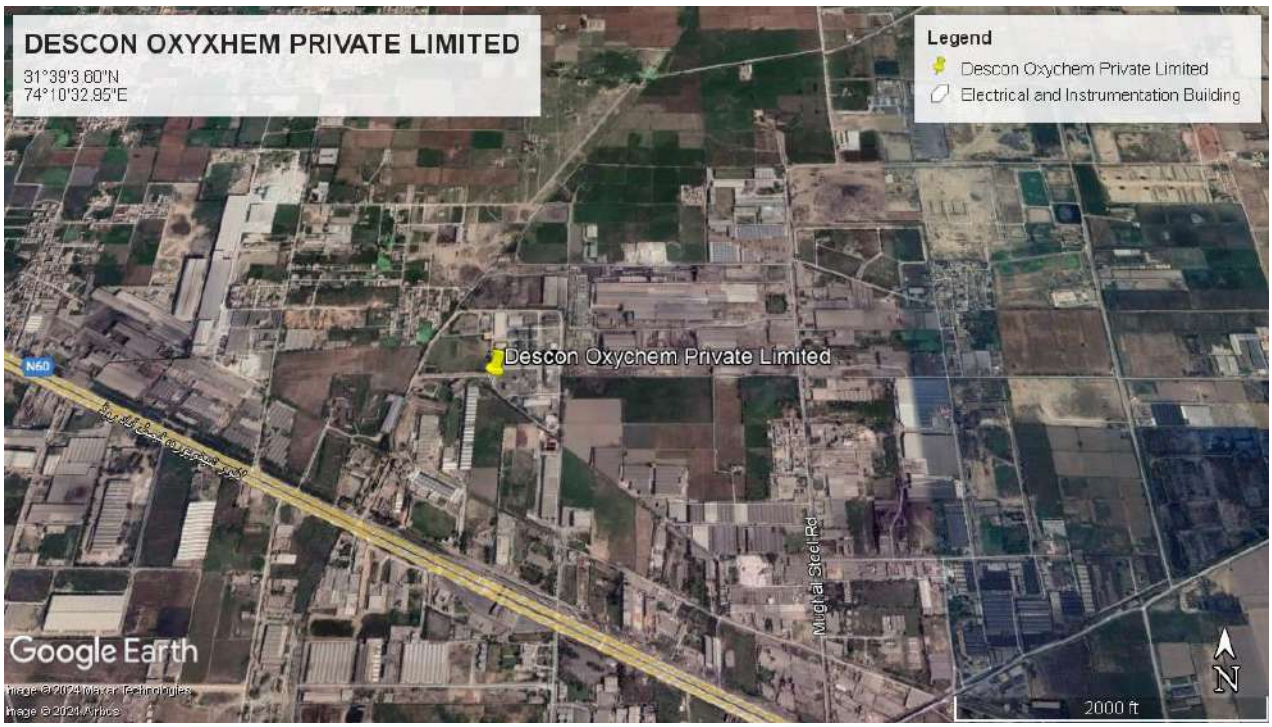

Figure 1: Aerial view of the project site

Figure: Marked area of proposed project

SCOPING

SPATIAL AND TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

The project falls in Industrial area of district Sheikhupura. This project spans at the area of 20.8 Acres. Covered area of allied services is 48477 SFT. Various Industrial Units are already present around the vicinity of the project corridor. The main road along with the project site is Lahore Sheikhupura Motorway. The following map shows the spatial and temporal boundaries of the project. For further details, Google earth map of the project on A3 page is attached as **Annexure-F** and layout as **Annexure C** with the report.

IMPORTANT ISSUES AND CONCERNS RAISED DURING CONSULTATION

Important issue and concerns raised by the community during consultation include the impact of waste water released from the treatment plant that may impact the nearby community. The Proponent ensured that treated effluent from the treatment plant will be within limits of the PEQS and then disposed of into the nearest drain of main Dek. Hence will not cause any issues to the community The community was also concerned about employment for local people. The proponent made sure that maximum job opportunities for plant management and dyeing unit operation will be provided to the residents.

SIGNIFICANT IMPACTS TO BE DETERMINED

There can be impacts related to release of waste water containing chemicals into the nearby area. M/S Descon Oxychem Limited already has a wastewater treatment plant in their already established unit and they ensure the safe disposal into nearby drain. Sludge produced if not disposed of properly can become a nuisance for nearby community especially due to its odor generation. Wastewater Disposal NOC From Irrigation department is attached as **Annexure-O.**

SCREENING

The project falls under category of Chemical Projects mentioned in Schedule-II, Category (B), Clause (2) of Punjab Environmental protection (Review of IEE/EIA) Regulations, 2022, hence such projects require submission of EIA Report to obtain Environmental Approval, under Section 12 of Punjab Environmental Protection Act 1997.

CHAPTER # 2

ANALYSIS OF ALTERNATIVES

This Chapter deals with the analytical overview of different alternatives that have been considered. The analysis has been carried out critically so as to justify the need of the Project and to select the most feasible alternative. Besides the economic viability; environmental sustainability and social soundness of the proposed Project has also been considered while analyzing different alternatives.

THE NO PROJECT ALTERNATIVE

Adopting zero-alternative would mean abandoning all the potential that the site offers to investor(s), contribution to government revenue and even local community livelihoods' improvement.

LOCATION/SITE ALTERNATIVES

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where commercial processing activity is either already going on or there are bright prospects of the same. Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment, and other related facilities.

Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited for Construction of the subject unit.

ALTERNATIVE SITE

No Alternative site has been considered as the extension will be done within the premises of already established unit.

TECHNOLOGY ALTERNATIVES

The company intends to import brand new machinery from renowned international manufacturers of the world as well as from local market. Machinery is based on latest available technology to produce hydrogen Peroxide. The machines will also be having pollution remove technologies built in. Therefore, it the best option to use that technology.

CHAPTER # 3

DESCRIPTION OF THE PROJECT

Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) by M/s Descon Oxychem Limited. Previous capacity of hydrogen per oxide manufacturing plant is 14000 tons per year now the proposed unit's capacity increased to 120 metric tons per day, over an area of 20.8 Acres. Covered area of allied services is 48477 SFT. Detail of Extension is given below:

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6	Material Storage Hall#4 (new warehouse near scrap area)	0.1 Acre/3174 SFT

The proposed project falls under category B of Chemical Projects mentioned in Schedule-II, Category (B), Clause (2) of Punjab Environmental protection (Review of IEE/EIA) Regulations, 2022. Hence such projects require submission of EIA Report to obtain. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure-A** with this EIA report.

OBJECTIVES OF THE PROJECT

Objectives of the construction of the subject project are:

- To establish the business for the proponent.
- To contribute to the national economy of the country.
- Compensate to help poverty by providing employment.

LOCATION AND SITE LAYOUT OF THE PROJECT:

Subject unit is located at 18 Km, Lahore-Sheikhupura Road, Lahore.

The Location Coordinates are:

31°39'3.60"N

74°10'32.95"E

Project land coordinates are as follows:

North = Access Road

South = Industrial Unit

East = Access Road

West = Access Road

For further details, layout map of the project is attached as **Annexure C**.

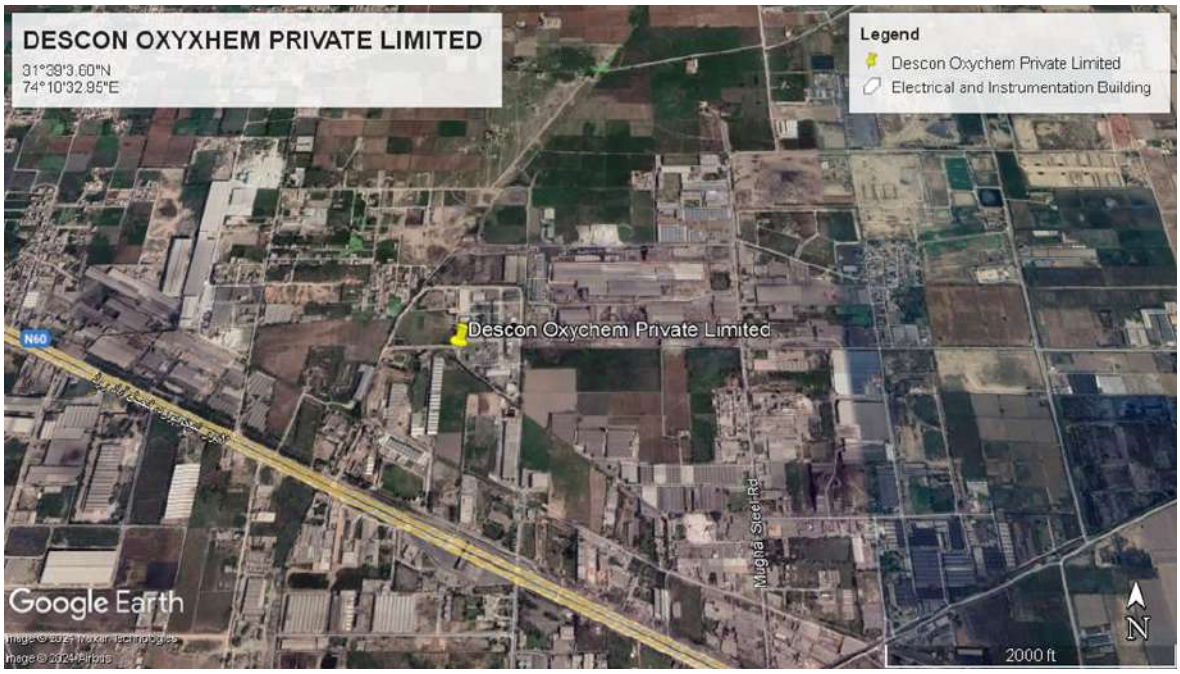


Figure 2: Aerial view of the project site

Figure: Marked area of proposed project

LAND USE ON SITE

Subject project is the extension of existing plant (hydrogen per oxide manufacturing plant) and Allied Services. Area of the unit is industrial because unit is present at 18 Km, Lahore-Sheikhupura Road, Lahore.

ROAD ACCESS

Lahore Sheikhupura Motorway link the main road to access the project site, because subject project is present in 18 Km, Lahore-Sheikhupura Road, Lahore.

VEGETATION FEATURES OF THE PROJECT

The project does not have any significant vegetation features because surrounding of the area is clear.

COST AND MAGNITUDE OF THE OPERATION

Project is proposed extension of existing plant (hydrogen per oxide manufacturing plant) and Allied Services under the name of M/s Descon Oxychem Limited. Total area of project is 20.8 Acres. Covered area of allied services is 48477 SFT, the cost of the project is approx. US$30 million approx. There are no other associated activities with regard to the subject project.

SCHEDULE OF IMPLEMENTATION

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities are being finalized. The project is expected to be completed within 10-12 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

DESCRIPTION OF THE PROJECT:

The project aims for the proposed extension of existing plant (hydrogen per oxide manufacturing plant) and Allied Services under the name of M/S Descon Oxychem Limited located at 18 Km, Lahore-Sheikhupura Road, Lahore. The process cycle of production of hydrogen per oxide manufacturing plant is based on Hydrogenation, Oxidation, Extraction, Water Separation and drying and Regeneration. Previous capacity of hydrogen per oxide manufacturing plant is 14000 tons per year now the proposed unit's capacity increased to 120 metric tons per day, over an area of 20.8 Acres. Covered area of allied services is 48477 SFT.

DETAILED PROCESS

Hydrogen Peroxide as the end product, with its local production, will meet the vital need of its end use industries including textile on the top. It will provide import substitution and save millions of dollars yearly being presently spent on its import. It will provide self-reliance. Government of Pakistan and Punjab Government will get large amounts of taxes on recurring basis.

It must be remembered that the project will result in technology transfer and enhancement of indigenous technological capabilities of Pakistan for fabrication and replication of such plants within the country.

RAW MATERIAL:

Raw materials include:

- Natural gas
- Hydrogen
- Process air
- Anthraquinone
- Catalyst

- Dematerialized water
- Water

All the material and chemicals are stored with great precaution. Material Safety Data Sheet is attached as **Annexure-K**.

PRODUCTION PROCESS:

The production process is described as follows:

The process is up to date and cost effective and based on state-of-the-art fluidized bed technology known as the auto oxidation process for hydrogen peroxide production. This process is designed for low consumptions of raw materials and utilities. A palladium catalyst with anthraquinone and solvent is circulated in the form of slurry. Major steps involved for producing H_20_2 are hydrogenation, oxidation, extraction and regeneration of working solution.

HYDROGENATION:

Working solution and hydrogen are fed to the hydrogenator in the presence of catalyst. Anthraquinone is hydrogenated into hydro anthraquinone and is fed to the oxidizer.

OXIDATION:

The hydrogenated working solution is combined with air in an oxidizer. It is in this step of the process that hydrogen peroxide is actually produced. H_20_2 at this point is dissolved in the working solution.

EXTRACTION:

Working solution from the oxidizer is fed into the bottom and demineralized water into the top of the extraction column. Due to the different densities of the two phases (organic being the lighter) the working solution flows upward and discharged from the top of the extractor. The aqueous phase discharging from the bottom of the extractor contains normally 35 to 40 wt% H_20_2.

PRODUCT TREATMENT:

H_20_2 is discharged from the bottom of the extractor into a purification system. The function of the purification system is to improve the quality and stability of H_20_2.

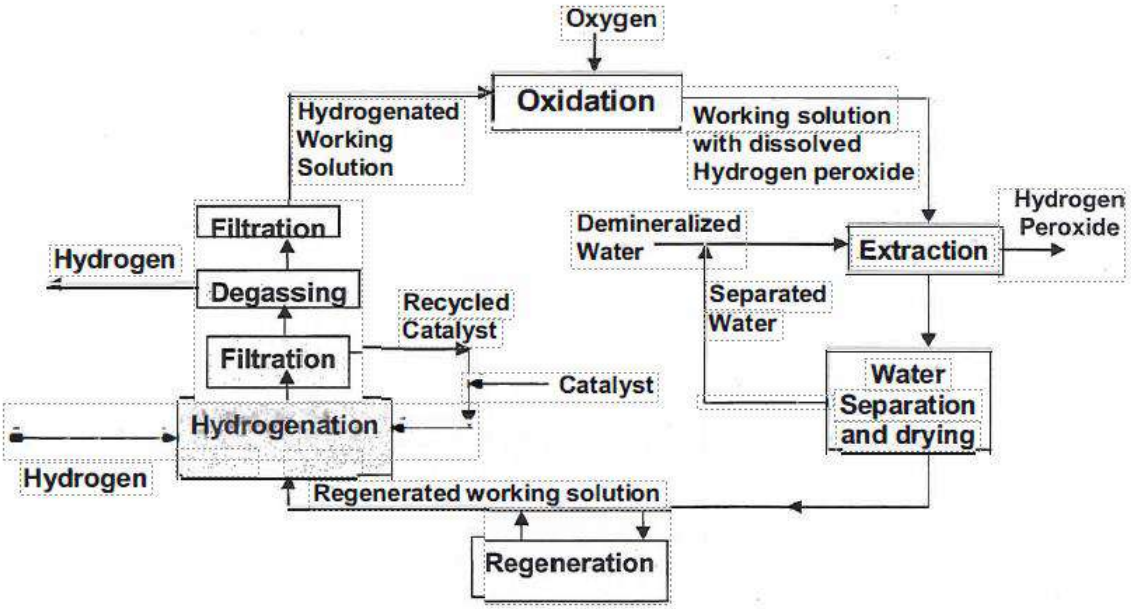
CONCENTRATION:

To increase the concentration of H_2O_2, Sulzer technology is used which is state of the art technology.

SULZER TECHNOLOGY:

Two product qualities are produced; technical grade concentration of 50 -60 wt-% and chemical grade at concentration of 50-70 wt ¾y using a vacuum distillation system. The chemical grade is completely distilled product meeting high commercial standard. The technical grade is a product not subject to complete evaporation/condensation and suitable for major applications such as bleaching etc, where traces of impurity are usually not a problem.

FLOW PROCESS:



Flow charts of the manufacturing of Hydrogen peroxide of M/S Descon Oxychem Limited is attached as **Annexure-G**. List of machinery is attached as **Annexure-P**.

WATER REQUIREMENTS:

During construction phase of the project 80 gallons per person per day water required. During the operational phase of the project water will be used according to requirement. A tube well with 1 cusec capacity will be sunk at the project site to meet the entire needs for water of the project.

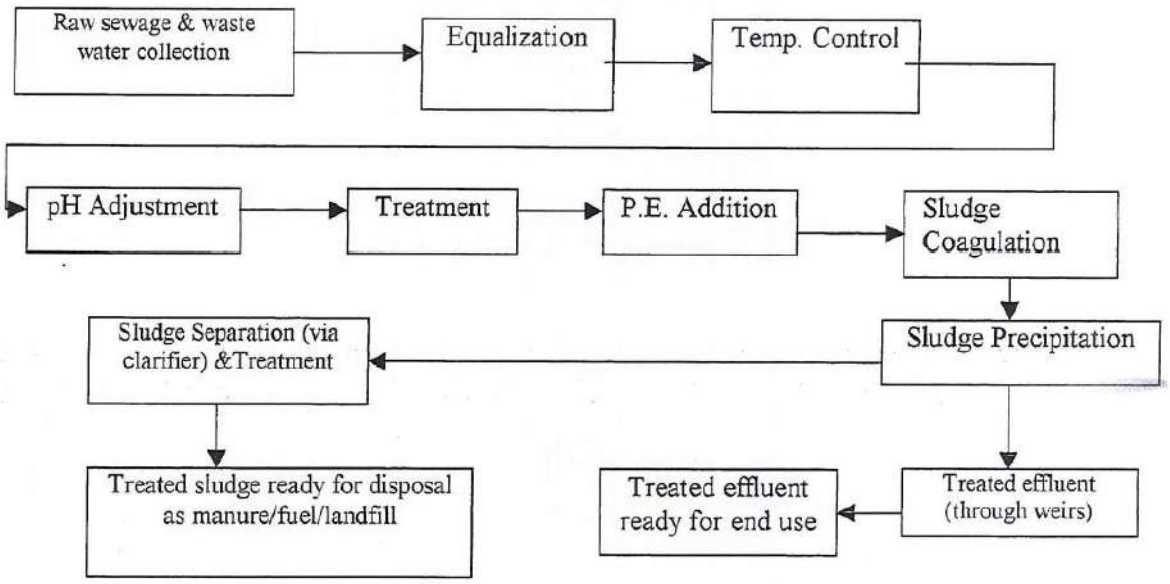
Wastewater will be generated through domestic and process related activities from the site.

WASTE WATER TREATMENT:

Effluent treatment plant, based on activated process is already installed in the existing facility to treat all type of waste water (including sewage) to be generated from the project activity. About 40-45M^3/day of effluent will be generated. Treated effluent will be used for irrigation of vegetation, trees and plants and for sprinkling on the roads within the project boundaries and if surplus it will be drained into a nearby drain to which already industrial effluents are being discharged exclusively since very old past.

Since the quality of the treated effluent is to remain- within the NEQS limits hence it will not have any detrimental effect on the environment or human health. Hereunder, brief on the effluent treatment process, characteristics of the treated effluent and flow sheet are given below:

Flow sheet of the effluent treatment is given as under:



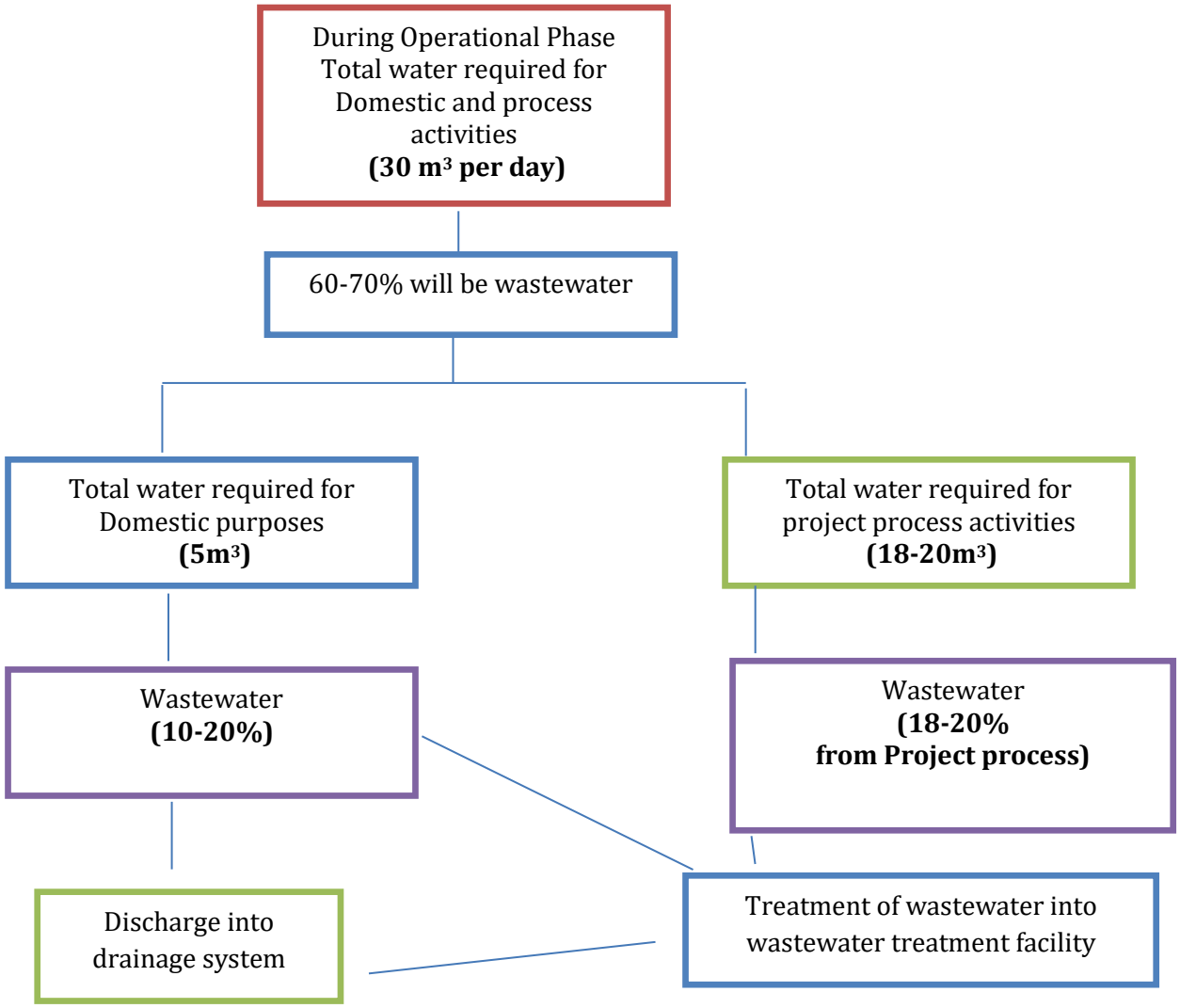
WASTEWATER DRAIN:

Dek Nalah, the famous natural water drain runs near the project site. This Nalah carries mostly untreated waste water of the industries of the project area and ultimately discharges it into the river Ravi. The Nalah is highly polluted with a variety of pollutants. The effluent from the project will also be discharged into this drain. Wastewater disposal NOC from irrigation department is attached as **Annexure-O**.

Since the present project is to operate under strict environmental safeguards, hence the environment will remain largely pollution free. Implementation of the proposed

Environmental Management Plan further guarantees protection of the environmental settings as they exist now. Since all type of wastes are to be disposed of according to the requirements of the National Environment Quality Standards (NEQS) under the Pakistan Environmental Protection Act-1997, therefore this also provides safeguard against pollution from the project activity.

Estimated Water Balance:



Estimated water balance

SOLID WASTE:

According to an estimate, approx. 560 kg/day domestic and project related solid waste will be produced during the operation phase of the project (based on solid waste generation rates of 0.45 kg/capita/day urban waste generation). Project related waste will be handed over to local contractor. Solid wastes to be generated from the project production activities will be sold in the market for their reuse. Procedure for waste management is attached as **Annexure-H**. Some of them will be used on site. Main solid wastes anticipated and their disposal methodology are given hereunder:

METAL/WOODEN WASTE

Metal and wooden waste to be generated will sold in the market for reuse.

EMPTY DRUMS OR CONTAINERS

Empty drums/containers will be returned to the suppliers of the chemicals for recycling/reuse at their end. However, if cleaned adequately they have great demand in the open market also

MISCELLANEOUS WASTE

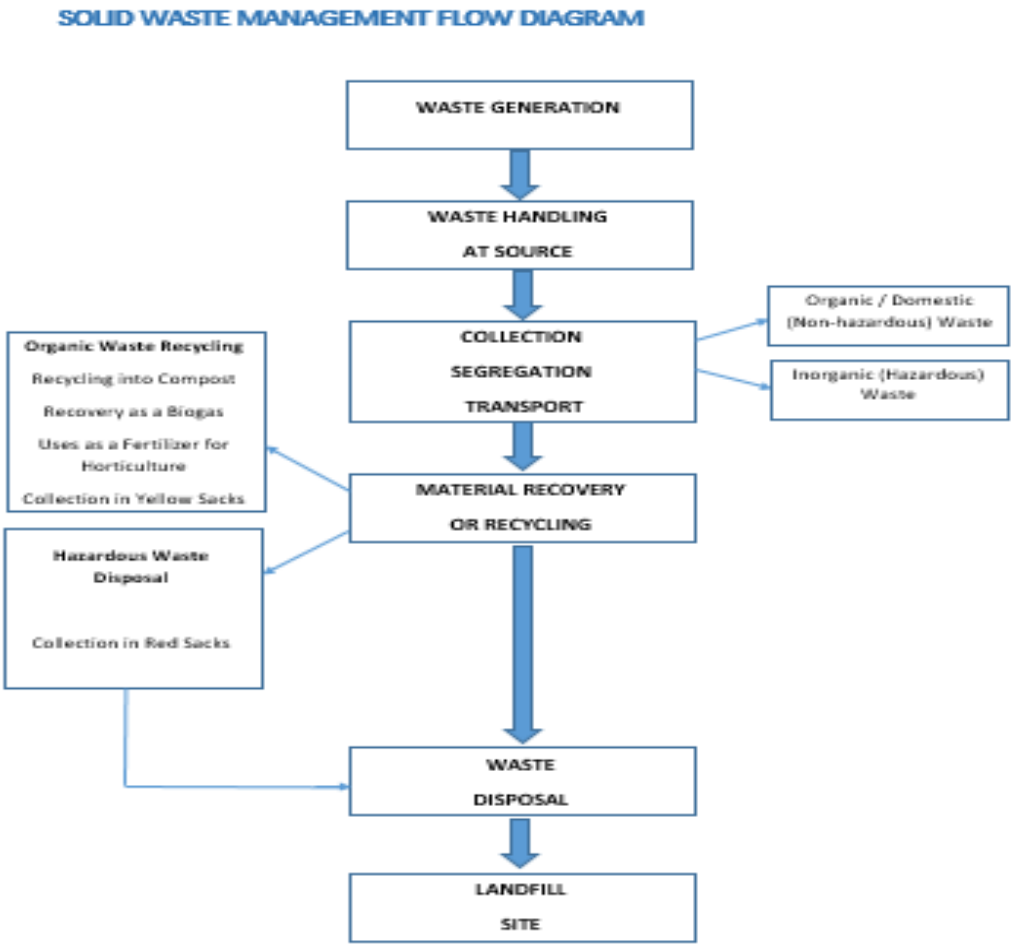
Miscellaneous solid waste including redundant tyres, tubes, batteries, belts, nylon strips, filters, scrap wood, steel scrap etc. will be sold in the market through contractors

SOLID WASTE MANAGEMENT SYSTEM/PRACTICES

The Solid waste will be managed in proper way by following operations:

1. Placement of separate waste bins for domestic and project related waste in all working halls and designated points.
2. Collection of waste from all the working halls at one designated point by the sanitary workers on daily basis.
3. Collection of waste from designated area and handling to the solid waste contractors for its final disposal.

FLOW CHART OF SOLID WASTE MANAGEMENT PLAN:



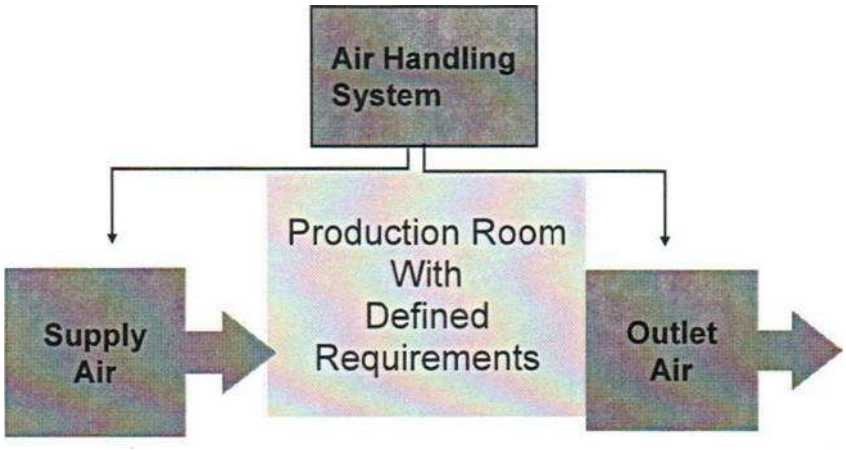
VENTILATION SYSTEM FOR MAINTENANCE OF INDOOR AIR QUALITY:

Roof overhangs, window size and placement, and overall building shape is designed in a way to ensure good ventilation. The placement of porches, garages, trees will also be ensured throughout the project activities.

TREATMENT SYSTEM FOR INDOOR AIR QUALITY:

The manufacturing process environment is critical for product quality in units. It depends on following factors.

- Light
- Temperature
- Humidity
- Air movement
- Microbial contamination
- Particulate contamination
- Uncontrolled environment can lead to product degradation



MITIGATION MEASURES TO CONTROL THE EMISSIONS OF GENERATORS:

i) Firstly, usage of the generator made up of latest and environment friendly technology is being ensured at the unit.

ii) Standard fuel is being used in the generator.

iii) Proper and regular tuning of the generator will be done.

iv) Double glazed glass and thick walls canopy of the generators has been installed which will limit the emissions of the noise.

All these measures will ensure the PEQS compliance of generators and emissions will not exceed the limits.

PARKING AREA

Parking area has been made available within the unit for cars, motorcycles, trucks etc.

PERSONAL PROTECTIVE EQUIPMENT:

Following PPEs will be provided to the workers in the unit:

- Dust Mask
- Ear Plugs
- Safety Boots
- Safety Gloves
- Safety Belt
- Helmet
- Goggles

TYPES OF PPES USED DURING OPERATIONAL ACTIVITIES

Protection	Occupational Hazards	PPEs
Head Protection	Falling objects, inadequate height clearance, and overhead power cords	Helmets with or without electrical protection
Hand protection	Hazardous material, cuts or lacerations, vibrations, extreme temperatures	Synthetic or Rubber gloves, leather, insulating material etc.
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Glasses, shield protective, etc.
Hearing protection	Noise, ultra sound	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, fogs, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply
Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc. of appropriate materials

The unit will be secured with the presence of security guards round the clock which improves the security of the project site and also in its vicinity.

INDUSTRIES:

Project is present in Industrial area and many industries are present around the unit.

POWER SOURCES AND TRANSMISSION:

A total of about 6.0 MW electricity will be required. Power will obtain through self-generation using gas engine power generators with stand by diesel engine power generator. However, as alternate/alternate arrangement, it will also be available from Water and Power Development Authority (WAPDA). A tube well with 1 cusec capacity will be sunk at the project site to meet the entire needs for water of the project.

AVAILABLE FACILITIES

Available facilities at unit are:

- Electric supply from WAPDA

- Solid Management (SWM)
- Line and cellular telephone facilities
- Water supply, sewerage disposal and drainage systems

RESTORATION / REHABILITATION PLAN

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

On completion of the project, the debris is 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.

GOVERNMENT APPROVALS REQUIRED BY THE PROJECT:

As the said project is the Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area). So all the government approvals are attached as **Annexure-I**.

CHAPTER # 4

DESCRIPTION OF ENVIRONMENT

This section provides the description of baseline conditions of the Project as well as the area of influence. The existing environmental conditions of the proposed area of influence will also be a benchmark to be used for a comparison of before and after installation and operation of grid station. This baseline will also provide the datum for assessing the impacts and suggesting the mitigation measures, which will be implemented effectively at various phases of the Project activities.

PHYSICAL ENVIRONMENT:

TOPOGRAPHY

Sheikhupura district is a district located in Lahore division of Punjab Province, Pakistan. Sheikhupura is the headquarters of Sheikhupura district. According to the 1998 census of Pakistan, the district had a population of 3,321,029 of which 25.45% were urban. In 2005 one of its subdivisions was split off to form the new Nankana Sahib District. The predominant language of the district is Punjabi, which according to the 1998 census results for the tehsils of Sheikhupura, Ferozewala and Safdarabad, is the first language of 98% of the population, while Urdu is the first language of 1.1%. Average elevation of Sheikhupura is 206 meters.

According to the 2017 census of Pakistan, most populous cities of the district are Sheikhupura, Muridke, Kot Abdul Malik and Ferozewala. The topography is marked by, local depression and grounds.

LAND USE

The land use of the Project vicinity/area is mainly industrial estate i.e., 95%.

GEOLOGY AND SOILS

The surface soil is grey to brown in color and medium textured i.e., silty clay/ clay loamy or sandy loam at the site, at all the locations and generally continues up to depth of 6-14 feet. This sub stratum contains fine sand. Topographically the area is almost plain.

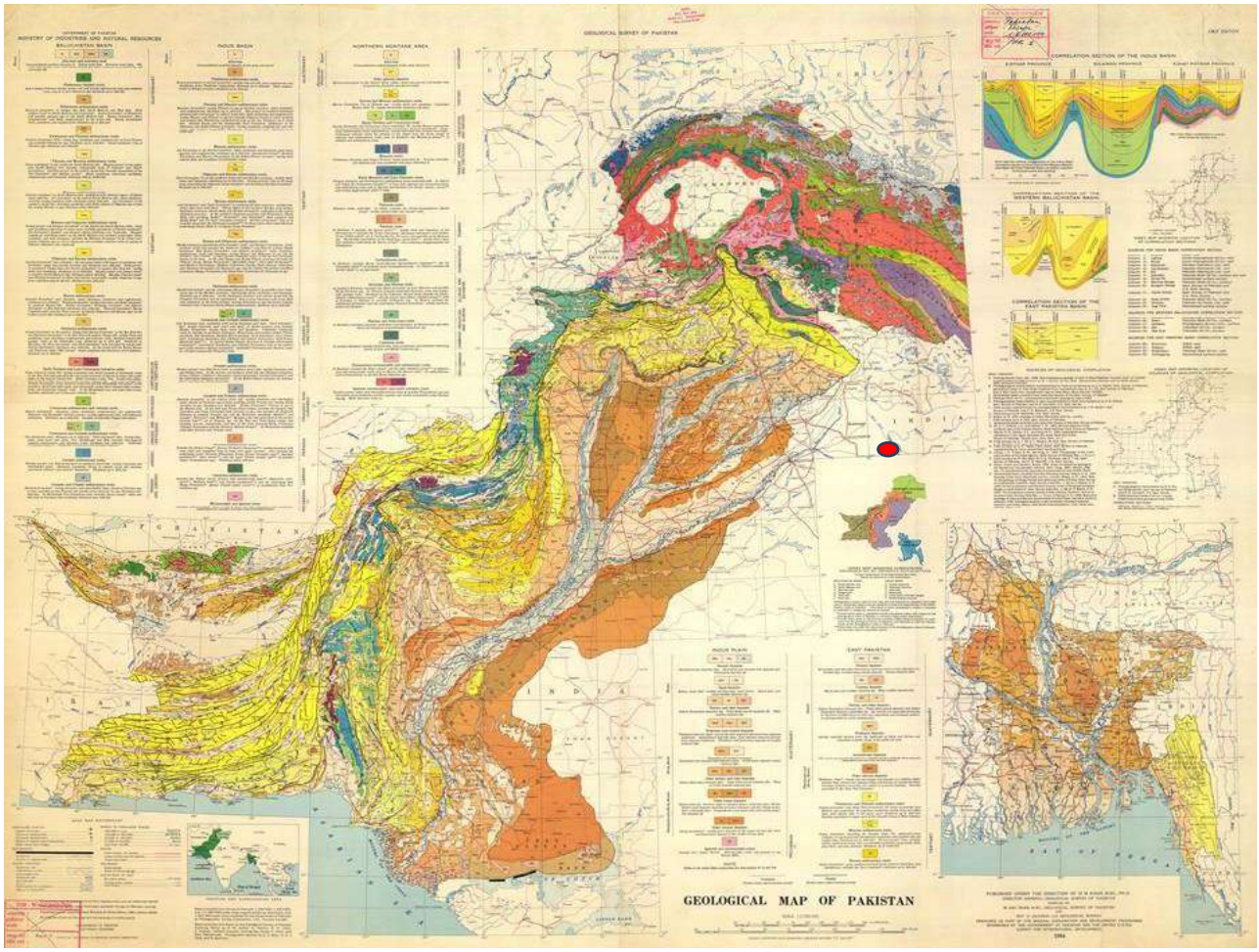


Fig 3.1: Geological Map of Pakistan

SEISMOLOGY

Earthquake is generated by tectonic process in the upper part of the earth called lithosphere, which is divided into several rigid parts called "Plates". Due to the movements of these plates, stress build up takes place and result in the deformation of the crustal mass.

On the basis of Peak Ground Acceleration (PGA) values obtained through Pakistan Seismic Hazard Assessment (PSHA), Pakistan is divided into 5 seismic zones in line with the Uniform Building Code (UBC) 1997 and the seismic zone of Sheikhupura is A2.

The boundaries of these zones are defined on the basis as shown in Table 3.1.

Table 0-1: Probabilistic Ground Acceleration (PGA) Values of Seismic Zones of Pakistan

Horizontal Zone	PGA (g)
1	0.05-0.08
2A	0.08-0.16
2B	0.16-0.24
3	0.24-0.32
4	>0.32

As per Building Code of Pakistan (BCP) 2007 (Seismic Provisions), the proposed Project falls entirely in the zone 2A, which is the regions of moderate seismic risk (Figure). Hence all the applicable provisions related to Soil and Foundations, Structural Design Requirements and with the Structural Concrete of BCP should be considered in the design of the structures.

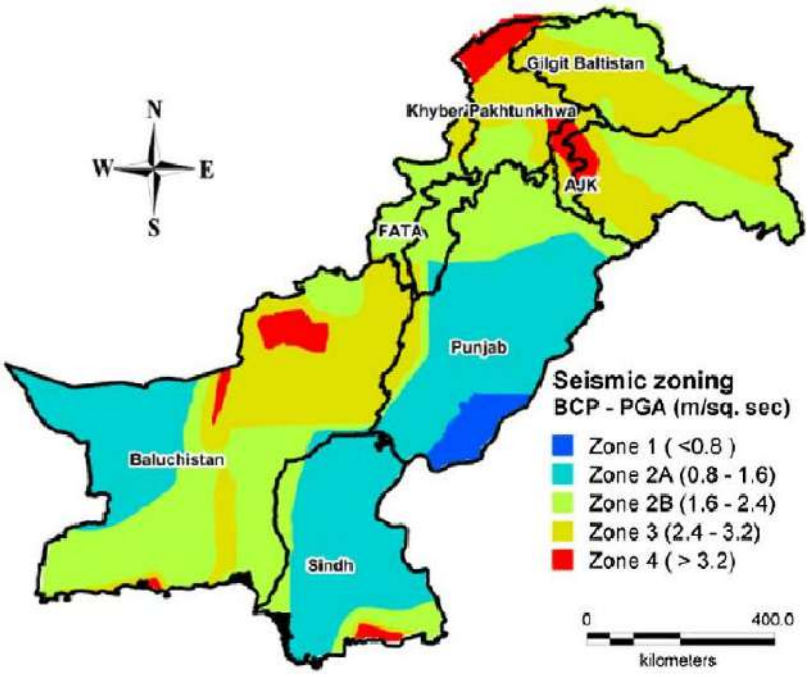


Figure 0-1: Seismic Map of Pakistan

CLIMATE

The climate of the district is hot and dry during summer and cold and dry in winter. The mean maximum and mean minimum temperatures during summer are about 40oC and 22oC respectively. The mean maximum and mean minimum temperatures during winters are about 28oC and 05oC respectively. The highest mean temperature (39oC) from 1961 to 1990 was recorded in the month of May. Likewise the minimum mean temperature (8oC) was recorded in the month of January. The annual rainfall of the district is approx. 288.8 mm.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	26.6 (79.9)	30.8 (87.4)	37 (99)	44 (111)	47.5 (117.5)	48 (118)	46.1 (115)	42 (108)	41.1 (106)	40 (104)	36.1 (97)	29.2 (84.6)	48 (118)
Average high °C (°F)	19.4 (66.9)	22.2 (72)	27.4 (81.3)	34.2 (93.6)	39.7 (103.5)	41.0 (105.8)	37.7 (99.9)	36.5 (97.7)	36.6 (97.9)	33.9 (93)	28.2 (82.8)	22.1 (71.8)	31.6 (88.9)
Average low °C (°F)	4.8 (40.6)	7.6 (45.7)	12.6 (54.7)	18.3 (64.9)	24.1 (75.4)	27.6 (81.7)	27.9 (82.2)	27.2 (81)	24.5 (76.1)	17.7 (63.9)	10.4 (50.7)	6.1 (43)	17.4 (63.3)
Record low °C (°F)	-2.9 (26.8)	-1.4 (29.5)	1 (34)	7 (45)	13 (55)	17 (63)	19 (66)	18.6 (65.5)	15.6 (60.1)	9 (48)	2 (36)	-1.3 (29.7)	-4 (25)
Average precipitation mm (inches)	15 (0.63)	18 (0.71)	23 (0.91)	14 (0.55)	9 (0.35)	29 (1.14)	96 (3.78)	97 (3.82)	20 (0.79)	5 (0.2)	2 (0.08)	8 (0.31)	346 (13.62)

Table 0-2: Details of temperature

WATER RESOURCES

SURFACE WATER

River Ravi and related canals are the major surface water source of project area. It is perennial and flows throughout the year. It also causes floods in the monsoon season, when it receives excessive rainfall water from upstream.

GROUND WATER

Irrigation is largely dependent on the canals, but tube wells have also been sunk in the areas where water is fit for irrigation. The chemical quality of ground water in the district varies area wise and depth wise. Irrigation supplies are perennial and tube wells have been installed to make up the deficiencies. The strata near project site is water bearing and alluvial deposits, giving groundwater

potential throughout the project area and the water table is fairly near the surface at 25-35 meter. The water table is not seasonal and dug wells do not generally run dry, because the ground water aquifer is recharged by Ravi River and canals (flowing about 91 km western side of project site). The local population is generally reliant on installed hand pumps, electric motors and supply from tube wells. Near the current project site hand pump water was tested in the laboratory, the results reveal that the water quality of the area is under permissible limits with respect to biological and chemical parameters. The Lab reports of water, ambient air and noise have attached as an **Annexure-D.**

ECOLOGICAL ENVIRONMENT

This section describes the biodiversity existing ecosystem and existing ecological conditions in the project area of influence.

FLORA

The area is located in alluvial plain which is highly fertile. Naturally grown shrubs are also present on the land. There were no trees seen on the project land. Green fields of rice, gandum and other vegetables are found in abundance in the surroundings of the project area.

FAUNA

Fauna within the Project area includes following:

(i) **Mammals**

Jackels (Canisaureus)

Field rats (Rattusnorvegitus)

(ii) **Reptiles**

House Lizard

(iii) **Amphibians**

Common Toads

(iv) **Birds**

Shikra (Accipiter badius)

Crow (Corvussplendens)

Common kite (Milbusmigrans)

Sparrow (Passer domesticus)

Pigeons (Columba livia)

Dove (Stratopielia SSP.)

Parrot (Psittaculakramerl)

(v) **Others**

Spiders

There are no migratory birds reported in or around the project area. Domestic animals of significance include cows/ bulls, buffaloes, goats, donkeys and sheep.

There is no endangered species reported in the project area by the Wildlife Department of Punjab.

SOCIOECONOMIC ENVIRONMENT:

GENERAL

This section deals with the social conditions of the Project Area. During the desk/ office study, available reports/ documents were comprehensively studied. During the field survey interviews with the residents, shopkeepers, students, pedestrians, drivers, and school employees were held and observations were taken after giving due consideration to the desk/ office study results.

DEMOGRAPHICS

According to the 1998 census of Pakistan, the district had a population of 3,321,029 of which 25.45% were urban. In 2005 one of its subdivisions was split off to form the new Nankana Sahib District. The predominant language of the district is Punjabi, which according to the 1998 census results for the tehsils of Sheikhupura, Ferozewala and Safdarabad, is the first language of 98% of the population, while Urdu is the first language of 1.1%Religion

Islam is the common heritage in the region with a 97.22% Muslim majority according to the 1998 Pakistan census report and 2001 population data sheet. Islamic influences are evident in the fundamental values of various inhabitants including cultural traditions, marriage, education, diet, ceremonies and policies with may reflect stark differences in rural villages as compared to urban areas. People live in tight-knit joint families, although a nuclear family system is emerging due to changing socio-economic conditions. Ancient Pakistani culture prevails in most marriage practices in the region, as do certain restrictions related to ethnicity and caste. Prevalent minorities, particularly Hindu and Christian, feel a sense of vulnerability because of their religious beliefs.

PUBLIC TRANSPORT

Sheikhupura is well-connected by rail and road. Public transportation in Sheikhupura includes auto-rickshaws, buses and railways.

RAILWAYS

The railway station “Chichon ki Maliyan” is the nearest railway station from the grid station (Project site). Rail services are operated by Pakistan Railways, owned and operated by the Ministry of Railways.

INDUSTRIAL IMPORTANCE

A variety of important industrial units are operating in district Sheikhupura including fertilizer, chemicals, polyester fiber/yarn and rayon yarn, tractor and motor cycle assembling, electric domestic appliances, tyres and tubes (trucks, buses, cars and light vehicles), jute products, ceramics, electrical goods, pharmaceutical, cotton/woolen textile, etc. Paper and paper board industry is also concentrated in district Sheikhupura.

ENVIRONMENTAL PARAMETERS FOR MONITORING

The environmental monitoring of parameters like ambient air quality, noise level and groundwater help us to analyze the prevailing environment conditions in and around the study area, and to protect it from any adverse activities due to the proposed Project implementation.

AIR QUALITY

The environmental monitoring is conducted by EPA certified laboratory ESPAK and detailed results of ambient air quality monitoring have been also attached as **Annexure D**.

NOISE LEVEL

The environmental monitoring is conducted by EPA certified laboratory ESPAK and detailed results of ambient air quality monitoring have been also attached as **Annexure-D.**

DRINKING / GROUND WATER QUALITY

The environmental monitoring is conducted by EPA certified laboratory ESPAK and detailed results of ambient air quality monitoring have been also attached as **Annexure-D.**

CHAPTER # 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of operational phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level. The anticipated impacts related to project location, design, and operational phases have been assessed and mitigation measures are provided accordingly.

IDENTIFICATION OF ALL IMPACTS:

All the impacts related to the subject project due to the project location, during the operational phase have been identified and their mitigation measures have been suggested in Chapter # 4, Screening of potential environmental impacts and mitigation measures.

METHODOLOGIES FOR IMPACT IDENTIFICATION:

The methodology adopted for impact evaluation includes the Project Impact Evaluation Matrix.

PROJECT IMPACT EVALUATION MATRIX

The impact Evaluation matrix was developed by placing project activities on x-axis and different environmental parameters likely to be affected by the project actions grouped into categories i.e. Physical, Biological and Socio-Economic Environment. For the impact assessment, project impact assessment matrix is used by dividing the project action into different phases operation phase. A project impact evaluation matrix is attached in next section of this chapter.

The evaluation of impacts has been carried out on the basis of developing matrix, in which impacts have been rated on the basis of their significance. For rating impacts significance following criterion has been developed;

NA – Not Available
O – Insignificant (No or minimal impact)
LA – Low Adverse (Short term, reversible or less damage to environment)
MA- Medium Adverse (Long term reversible damage to environment)

HA – High Adverse (severe irreversible adverse damage to the environment)

LB – Low Beneficial (Short term benefits or less beneficial to the environment)

MB – Medium Beneficial (Long term benefits to environment)

HB – High Beneficial (Continuous benefits to environment)

	Physical Environment							Biological Environment		Socio-Economic Environment						
Environmental Component / **Project Activities**	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Transportation of raw material/ products	MA	MA	MA	MA	O	MA	HA	LA	MA	O	HA	LA	B	MA	LA	O	HA
Production process	O	O	O	HA	MA	MA	MA	O	O	O	HA	HA	HB	O	O	LA	O
Washing process	O	O	O	LA	HA	O	O	LA	LA	LA	LA	HA	B	O	O	O	O
Operation of boilers	O	O	O	LA	HA	MA	MA	O	O	O	HA	HA	HB	O	O	O	O
Operation of generators	O	O	O	O	LA	HA	MA	O	O	O	HA	LA	HB	O	O	O	O
Water consumption	LA	O	LA	HA	HA	O	O	LA	LA	LA	LA	HA	B	LA	O	O	O
Wastewater generation	HA	MA	MA	MA	MA	LA	O	MA	MA	MA	HA	LA	B	LA	LA	O	O
Storage of raw materials/ dyes	O	O	O	O	O	O	O	O	O	O	LA	O	B	O	O	O	O

Social activities	O	O	LB	B	B	B	B	B	B	HB	HB	B	HB	HB	HB	HB	O
Public welfare	O	O	B	B	B	B	B	B	B	HB	HB	HB	HB	HB	HB	HB	LB
Economic activities	LB	O	B	B	B	B	B	B	B	B	HB	B	B	B	B	B	LB
Employment	O	O	O	O	O	O	O	O	O	O	B	B	HB	B	B	B	LB
Infrastructure improvement	LB	MB	HB	B	B	B	B	HB	LB	HB	HB	B	HB	B	B	B	B

Legend:

O=Negligible/No impacts B=Beneficial LA=Low Adverse MA=Medium Adverse HA=High Adverse

IMPACT ANALYSIS AND PREDICTION:

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. For the impact analysis and predictions following methods were adopted:

CONSULTATIONS/ CASE STUDIES:

To study the impacts of the project on physical and biological environment, site visits were conducted by the environmental practitioners and experts and possible physical and biological impacts which may arise due to the subject project were identified through consultations and case studies and their mitigation measures were suggested accordingly.

MEETINGS:

For the identification of the social impacts of the project, meetings and group discussions were held with the local people, stakeholders, nearby residents and passerby because social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

To identity the different types of stakeholders and ascertain their perceptions about the project, an initial environmental examination was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following.

The EIA team carried out public consultations at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring factory workers, villagers, shopkeepers, drivers etc.

- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

CHARACTERISTICS OF IMPACTS

ENVIRONMENTAL IMPACTS DUE TO PROJECT LOCATION

Project is present in the industrial area of the District Sheikhupura. No nearby human settlement exists within the radius of 500 meter. Unit/ area does not fall in the category of sensitive area and no environmentally sensitive localities exist within radius of study area. The only issue which can arise due to the location of the subject project could be the issue of traffic congestion due to transportation of the construction material at the project site. If the project proponent maintains HSE conditions and comply with the PEQS limits than, there will not be any significant impacts of the project on the environment.

If the mitigation measures are effectively implemented, the residual impact of the Subject project activities on the area's geophysical environment is expected to be insignificant.

Impact significance: Low or may be positive

Nature of impact: Direct

Duration: Long-term

Timing: Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: Mild or may be positive

MITIGATION MEASURES FOR LOCATION PHASE IMPACTS

- Project site have good road infrastructure and efficient road infrastructure already exists there that is used currently to access the site and there is no issue of the road congestion due to the wide, good and paved road.
- Location can be considered as the positive impact due to utilization of the product in the same District.
- The project has provided the jobs to the residents as well as to those from the suburban areas.

ENVIRONMENTAL IMPACTS DUE TO THE PROJECT DESIGN

The current project is present in 18 Km, Lahore-Sheikhupura Road, Lahore. Subject project is the Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide

manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) so area for parking, waste water treatment facility and solid waste management is already reserved within unit. Firefighting plan, health & safety plan, tree plantation plan, emergency response plan will be incorporated during the design phase of the project.

RESIDUAL IMPACT:

The residual impact of project activities for the land acquisition & resettlement of the area is expected to be insignificant because extension will be done within the premises of unit.

The residual effects are summarized below:

Nature of impact: direct

Timing: Planning stage

Duration: not applicable

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

MITIGATION MEASURES:

If any resettlement involve, proponent must consult the affected persons and incorporate their interests and demands.

CHANGES IN LAND USE:

The current land use of the area is mainly industrial. Project is expected to increase land use value particularly near the main road creating easy economic and employment opportunities for locals.

RESIDUAL IMPACT:

The residual impact of project activities on land use of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Duration: not applicable

Likelihood: Low (unlikely),

Consequences: no change

Impact significance: Not significant

ENVIRONMENTAL IMPACTS DURING THE CONSTRUCTION PHASE

Impacts related to the construction phase of the subject project are discussed below

IMPACTS ON THE PHYSICAL ENVIRONMENT

SOIL EROSION AND POLLUTION

There is a possibility of soil erosion and pollution to occur during construction phase of the project. The clearing of vegetation could lead into soil erosion when the cleared land is exposed to natural agents such as wind and surface run-off. Removal of top soil after site clearance by agents such as wind, rain water, and surface run off is a likely action to occur. Similarly, accidental oil spills from construction equipment and discharge of wastewater to the environment might accelerate soil pollution to some extent. Oil spills may infiltrate into soil causing soil pollution and later water pollution during rainy season.

However, this impact is localized around machinery, maintenance areas or garage and areas of concentrated activities. Severity of impact is localized with low intensity due to the nature of project, which shall require minimum number of people during construction and shall not require heavy construction equipment. It is expected that the impacts will be low, local, and they will occur mostly during the construction stage (short term).

AIR POLLUTION

Air pollution is quite likely to occur during construction phase. This is due traffic and other equipment using fossil fuels that release hydrocarbons and other gases including carbon dioxide, nitrous oxides, Sulphur oxides, and particulate matters which may pollute the air. Likewise, activities like land clearing, vehicle movement, excavations for buildings foundations, construction drive ways and landscaping may generate dust especially during the dry season.

Other sources of air pollution will occur due to decomposition and/or burning of the cleared vegetation and dust from gravel drive ways. The level of air pollution originating from the above-mentioned sources are expected to be low, localized and short term. No serious impacts are expected on people and the environment as whole.

SURFACE WATER POLLUTION

No surface water entity i.e., stream, canal, river is present in the vicinity of the subject project so there is no impact of subject project on the surface water.

IMPACTS ON BIOLOGICAL ENVIRONMENT

IMPACTS ON FLORA

The clearance of most vegetation during construction to leave space for construction of proposed unit and other building facilities and access roads will bring negative impacts to flora population. But the proposed extension will be done within the premises of unit so no such impacts occur. Moreover, direct exposure to nitrous oxides (NOx) may cause growth inhibitions in plants to some extent. No special plant species of international conservation importance was recorded at proposed site. The impacts are therefore considered of low significance.

IMPACTS ON FAUNA

The nature of the site has not attracted several organisms to find refuge in the area although some including different types of birds, reptiles, amphibians and invertebrates are found. The clearance of vegetation and presence of noisy machinery, trucks and workforce will create unfavorable environment for most of these organisms while crawling organisms will eventually vanish following construction of paved surface.

However, the Fauna will not be affected as the proposed extension will be done within the premises of unit.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

WORKERS ACCIDENTS AND HAZARDS DURING CONSTRUCTION

Construction workers are prone to accidents resulting from construction activities. These accidents may have acute or chronic impacts depending on nature, severity and intensity. In this regard, construction and mobilization activities of the proposed unit could result into accidental injuries and hazards, etc. which could negatively impact the workforce.

Because of the intensive engineering and construction activities including erection and fastening of roofing materials, metal grinding and cutting, concrete work, steel erection and welding among others, construction workers will be exposed to risks of accidents and injuries. At times, such injuries may be from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets and collapse of building sections among others.

VIBRATION AND NOISE

The level of noise and vibration are likely to increase during the construction phase. The noise will be mainly come from vehicles and equipment operation during construction activities as well as people working on the project construction. This is a short-term impact and it will be felt mostly around construction sites and its peripherals.

There will be no drilling activities or involvement of heavy or high noise machinery. For residential areas located within 20km from the Project site boundary, it is predicted that the construction phase and operation of the proposed project will not pose any significant and the annoyance level is within the "no to little" impact category.

Considering technological advancement in construction industry, it is anticipated that machinery and equipment to be used during construction will be modern, versatile, and quieter than the old ones. It is also likely that they will require fewer numbers of operators reducing noise from workers. Therefore, the levels of noise and vibrations are anticipated to be within the tolerable limits, short term and localized. In view of the above and the fact that construction will concentrate on non-residential area, no significant impact is anticipated and the impact can be highly mitigated.

EMPLOYMENT OPPORTUNITIES

On the other hand, the proposed project will have, during construction phase, potential positive impact to the local community through provision of employment. It is expected that maximum people will be employed during construction phase. Employment will be in form of managers, skilled labors as well as unskilled laborers. Therefore, apart from employment benefits accruing to local people other national and international experts are likely to be employed by the project especially at senior positions.

INCOME GENERATION AMONG SUPPLIERS

During construction phase, the proposed project plan to source most construction materials from local and/or national sources including cement, iron sheets, steel bars, pipes, etc, from local shops. This demand therefore, will create market for local people and/or elsewhere in the country engaged in supplying construction materials leading to significant positive economic benefits to suppliers on short term basis.

IMPACTS ON SECURITY

The presence of laborers and expensive construction equipment, machinery and materials in the sites could potentially pose a security risk at the project site. Furthermore, offenders may capitalize on increased movement during construction and anonymity created by the construction activities to carry out criminal activities in the site and surrounding areas. This impact is likely probable due to low security measures from the fact the site is slightly far from police station(s) that could otherwise prevent criminal activities around the project site.

Accordingly, the impacts on the area's security are considered to be of medium significance. Therefore, appropriate security measures should be provided at the site through fencing, security checks/screening of workers and their guests and 24 hours security watch by expert security men (normally privately contracted) to prevent such criminal activities from happening at the site.

MITIGATION MEASURES

PROTECTION OF FLORA

In order to protect plant species from potential negative impacts, the proponent shall ensure that:

- The contractor is responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction site as a result of their activities;
- Clearing of natural vegetation is kept to a minimum;
- Unnecessary removal, damage and disturbance of natural vegetation are prohibited;
- Re-vegetation of the proposed project site is undertaken;
- Indigenous trees are planted around project area to enhance natural habitat

As the proposed extension will be done within the premises of unit so no such impacts occur.

LAND DEGRADATION AND SOIL EROSION CONTROL

Potential negative impacts on land and soils shall be mitigated by ensuring that:

- The contractor implements erosion control measures as an on-going exercise;
- During construction, the contractor protects all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent storm water from concentrating in streams and scouring slopes, banks, etc.
- Any tunnels or erosion channels developed during the construction or maintenance period shall is backfilled and compacted and the areas restored to a proper condition;
- Areas where construction activities have been completed and where no further disturbance would take place are rehabilitated through re-vegetation;
- Ground clearance is minimized and if possible concentrated only to the specific building foundation areas, and only when it is necessary;
- Prompt reclamation of exposed soils is done;
- Construction during long rains period should be done with caution to avoid soil from being washed away;
- Topsoil excavated from buildings foundations is stored for re use on other areas like rehabilitations of quarries.

SOIL AND WATER POLLUTION MEASURES

Measures to mitigate soil and water pollution impacts during construction phase shall ensure that:

- Concrete mixing directly on the ground is prohibited and only be undertaken on impermeable surfaces;
- Concrete batching activities are located in an area of low environmental sensitivity;
- All runoff from batching areas is strictly controlled, cement-contaminated water is collected, stored and disposed of at an approved site;

- Contaminated water storage facilities are not left to overflow and appropriate protection from rain and flooding are implemented;
- Unused cement bags are stored out of the rain where runoff won't affect it;
- Used (empty) cement bags are; collected, stored in weatherproof containers to prevent windblown cement dust and water contamination, not to be used for any other purpose and shall be disposed of on a regular basis via the solid waste management system;
- All excess concrete is removed from site upon completion of concrete works and disposed of whilst preventing washing of the excess concrete into the ground;
- Entrance or accidental spillage, of solid matters, contaminants, debris and other pollutants and wastes into surface and ground water is prevented;
- Awareness of employees to prevent unnecessary oil spills and protection of environment in their daily duties is promoted; and
- All excess aggregate is removed from site and properly disposed.

WASTE MANAGEMENT

To ensure that solid waste is properly managed and potential negative impacts are mitigated, the contractor shall ensure that:

- All facilities are maintained in a neat and tidy condition. Measures to reduce the negligent behavior with regard to the disposal of all refuse are taken, bins, containers and refuse collection facilities for later disposal are provided at all places of work;
- Solid waste may be temporarily stored on site in a designated area prior to collection and disposal;
- Waste storage containers are covered, tip-proof, weatherproof and scavenger proof;
- No burning, on-site burying or dumping of waste shall occur;
- Inert construction rubble and waste materials are disposed of by burying in the borrow pits or a designated site;
- All excavated materials, debris from construction works are not to be stockpiled or deposited near or on-stream banks or other watercourse perimeter where they can be washed away by high water or storm runoff or can any way enter to water sources itself;

- Metal refuse bins or equivalent plastic refuse bins, all with lids, are provided to all buildings;

- Domestic refuse is collected and removed from all facilities at least twice per week and transported to the approved refuse disposal site in covered containers or trucks;

- Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery are collected in holding tanks and sent back to the supplier;

- Runoff from fuel depots / workshops / machinery washing areas and concrete batching areas is collected into a conservancy tank and disposed of designated site

AIR QUALITY CONTROL

The contractor shall ensure air quality by undertaking the following measures:

- Ensure that the generation of dust is minimized and implement a dust control program to maintain a safe working environment, minimize nuisance for surrounding residential areas/dwellings and protect damage to natural vegetation, crops, etc.;

- Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors;

- To minimize the pollution caused by dust generation during the construction stage, water will be sprinkled on the construction site and on drive ways as frequently as possible;

- To minimize exhaust fumes, machinery and equipment shall not be running when not in use while ensuring that they regularly serviced; and

- Construction vehicles and machinery shall be equipped with pollution-control devices to minimize emissions

VIBRATION AND NOISE CONTROL:

Vibration and noise produced by construction work will be manages as follows:

- The contractor shall strive to keep noise generating activities to a minimum;

- The contractor shall restrict all operations that result in undue noise disturbance to local communities and/or dwellings (e.g. drilling etc.) to daylight hours on weekdays;

- The contractor shall inform in advance any local communities and/or residents that could be disturbed by noise generating activities such as drilling or compacting and shall try to keep such activities to a minimum;

- The contractor shall be responsible for compliance with the relevant legislation with respect to noise;

- Provision of earplugs and earmuffs to the workers working in high peak noises during the construction stage;

- Use of modern low noise machinery and vehicles is recommended;

- Activities that may involve noises and vibration should be withheld at night especially close to human dwellings.

LANDSCAPE AND TOPOGRAPHY

As construction activities are very likely to lead to negative impact on landscape and topography at project site, such impacts will be brought to a minimum by executing the following measures:

- Planting of appropriate indigenous trees, grass cover and other vegetation types on project area should be encouraged so as to enhance scenic beauty of the area; and

- Removal and proper disposal of construction debris need to be affected after completion of construction works and shall not be stockpiled or deposited near or on water sources or other watercourse perimeter where they can be easily be washed away by high water or storm runoff or can any way enter these sources.

OCCUPATION HEALTH AND SAFETY MEASURES

The following safety measure should be observed during the construction stage:

- Provision of health and safety induction course to all workers;

- Instilling proper code of conduct and work ethics among construction workers and ensure that they are observed;

- Provision of Personal Protective Equipment (PPE) to all workers and enforce their use;

- Installing first aid kit and hire trained personnel to provide first aid;

- Reporting to OSHA within 24 hours of occurrence of any accident or near miss which can cause fatal or permanent disability; and
- Workers should be educated on their own safety and safety of others;
- For covid-19 prevention it is recommended:
- Workers are well-trained to practice and implement social distancing.
- No one is allowed to enter the premises of the project site without wearing proper mask.
- Personal hygiene practices are ensured and labor is trained for it by the contractor and the management of the unit.
- The proponent/contract provides masks to all the construction workers on daily basis and sanitizers are available at specific points of the project site.

IMPACT SIGNIFICANCE OF ECOLOGICAL IMPORTANCE

NATURAL VEGETATION

Project activities do not impose any potential impact on the area's natural vegetation and plantation.

ASSESSMENT OF IMPACT:

A significant impact will be interpreted if unnecessary or excessive removal and burning of plants for fuel wood is observed.

Nature of impact: Direct

Duration: long term

Timing: construction phase

Reversibility: irreversible

Likelihood: moderate

Consequences: Mild, as no rare plant species are not present in the project area.

Impact significance: significant

MITIGATION MEASURES:

The following mitigation measures will reduce any impact on vegetation:

- Do not park vehicles on green belts/ grass
- Unnecessary damage to vegetation will strictly be avoided.
- Proponent will plant trees and other species after construction phase

RESIDUAL IMPACT:

Given the current state of the vegetation, and proper implementation of the proposed mitigation measures, slightly significant residual impact on the natural vegetation of the area is anticipated.

FAUNA

The fauna including wildlife species do not exist at the project site**.**

Nature of impact: Direct

Duration: short term

Timing: construction phase

Reversibility: not applicable

Likelihood: low

Consequences: Nil, as no rare plant species are not present in the areas.

Impact significance: not significant

RESIDUAL IMPACT:

Given the current state of the fauna there is no significant residual impact on the wild life of the area.

SOCIAL IMPORTANCE

Following parameters were adapted for the assessment of the well-being of the poor people near the project site that are used to assess the social, economic, and cultural impacts of the project.

MITIGATION MEASURES:

Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Road and vehicles will rarely use the sub roads

Impact significance: slightly significant

CULTURAL ISSUES:

Induction of outside workers in the Contractor's labor may cause cultural issues with the local community as the local community is very sensitive about their cultural values. Also, theft problems to the local community may arise by the labor force and vice versa.

MITIGATION MEASURES:

Good relations with the local communities will be promoted by encouraging contractor to provide opportunities for skilled and unskilled employment to the locals, as well as on-the-job training in construction for young people. Project manager will restrict his staff to mix with the locals to avoid any social problem.

Contractor will keep the copies of Computerized National Identity Cards (CNIC) of his workers and will warn them not to involve in any theft activities. And if anyone would involve, he will have to pay heavy penalty. Similarly, at the time of employment contractor has to take care that the workers should be of good repute. The contractor camp will be properly fenced and main gate will be locked at night with a security guard to check the theft issues.

Contractor will also be the responsible for the sensitivity towards the local customs and traditions.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, if project proponent implements mitigation measure, its impact will be low

Impact significance: slightly significant

ACCIDENT RISKS:

Unmonitored construction activities may create an accident risk for the local residents particularly children and labor force.

MITIGATION MEASURES:

Contractor must have first aid kits along with the medical officer in the field if a minor injury takes place, but for an unfortunate accident service of nearby hospitals will be availed. Routine medical check-ups of all the field staff including unskilled labor need to be conducted by a qualified doctor.

Training of the workers should be arranged regarding safety procedures, environmental awareness, equipping all construction workers with PPEs, safety boots, safety helmets, ear plugs, gloves and protective masks. Monitoring must be carried out to check for the sustainable use of PPEs.

Nature of impact: Direct

Duration: Short term

Reversibility: not applicable

Likelihood: moderate

Consequences: moderate, as complete trainings and mitigation measure have been planned.

Impact significance: significant

PRIVACY ISSUES:

Disturbance may happen to the privacy of women residing in the work area when workers will work at height.

MITIGATION MEASURES:

Contractor must take care for the privacy of residents, especially women near the working area.

Nature of impact: Direct

Duration: Short term

Reversibility: reversible

Likelihood: low

Consequences: low, as contractor will take care of the matter

Impact significance: slightly significant

SHARING OF RESOURCES:

During the operational phase of the project, workers will share the common resources like potable water, fuel, wood. It may create conflicts between work force and local population.

MITIGATION MEASURES:

The contractor will be required to maintain a close friendly relationship with the local communities to ensure that there may not be any conflict related to common resources utilization. He must get permission of the local population before using their common sources of water and other resources.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, it the terms & conditions will be followed and mitigation measures have been employed

Impact significance: significant

NOISE PROBLEMS:

Residents of the area and neighbors may face the problems of noise during the construction and operations phase.

MITIGATION MEASURES:

Plant machinery is to be designed to meet noise levels of about 55-60dB(A) at the boundary walls of the plant site as against the permissible levels of 85 dB(A) of the NEQS Pakistan. Most of the machinery is to be installed within constructed areas which will further curtail the noise levels because of the buffer/accousting function of the walls. Additionally, the area of

the plant provides enough separation distances from the surroundings beyond its four walls. All these factors ensure noise levels to remain within the NEQS limits. Accordingly, noise levels will not have any adverse impacts on the environment around.

Nature of impact: Direct

Duration: Short term

Reversibility: reversible

Likelihood: Moderate

Consequences: Moderate, project contractor will follow the safety guidelines & NEQS

Impact significance: significant

MOBILIZATION ISSUES:

During the construction phase, the general mobility of the local residents and their livestock in and around the study area is likely to be hindered.

MITIGATION MEASURES:

It will be the responsibility of project contractor and drivers to follow the speed limits in the area.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Lahore Sheikhupura Motorway to the access road of the project site and vehicles will rarely use the sub roads

Impact significance: slightly significant

ENVIRONMENTAL STANDARDS

TOPOGRAPHY:

The project will not change the topography of the area as proponent committed to sustainable development of project. The infrastructure of the area will be maintained after the construction activities.

RESIDUAL IMPACT:

The residual impact of project activities on the topography of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: construction Phase

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

LAND ACQUISITION RESETTLEMENT:

One of the major impacts includes acquisition of land from the land owners and the resulting displacement of their families and disturbances in the livelihood of the affected persons (AP) in the project area. But present project is present in industrial area and is the property of M/s Descon Oxychem Limited and do not involve any type of land acquisition and resettlement activity.

RESIDUAL IMPACT:

After implementing the mitigation measures listed above, the residual impact of the solid waste/ sludge is expected to be insignificant.

ENVIRONMENTAL IMPACTS DURING OPERATION STAGE

AIR QUALITY POTENTIAL IMPACT:

Air emissions from project-related activities are likely to include:

- Dust raised on dirt tracks by project-related vehicles.
- Combustion products (nitrogen oxides, sulfur dioxide, particulate matter, carbon monoxide, and volatile organic compounds) from vehicles used for project-related activities.

ASSESSMENT OF IMPACT

1) DUST EMISSIONS:

Dust emissions caused by vehicular traffic on dirt track are an important concern, primarily when such traffic passes near community settlements. Dust emissions cause the amount of particulate matter in the air to increase, and thus become a health concern. Dust clouds also reduce road visibility, creating a traffic hazard.

2) GASEOUS EMISSIONS:

Since natural gas will be used as major fuel, therefore, gaseous emissions from the project activity when in operation include Carbon Monoxide (CO) and Nitrogen Oxides (NOx). Emissions produced by vehicles and equipment will be similar to those produced by generators in terms of the resulting pollutants (SO_2, NO_X, PM, etc.). However, the extent to which they are produced will be kept considerably lower, since much smaller engines are used in vehicles and construction machinery.

Nature of impact: Direct

Duration: long term

Timing: operation/ construction

Reversibility: irreversible

Likelihood: moderate as mitigation measures will ensure that air pollution remains within acceptable limits.

Consequences: moderate, as pollutant levels in the ambient air will be well within acceptable limits.

Impact significance: moderate, based upon low likelihood and mild to moderate consequence.

MITIGATION MEASURES

None of the potential effects discussed above are expected to exceed acceptable limits.
The mitigation measures given below will further reduce their impact, and ensure that they remain within acceptable limits.

- All equipment and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.
- Vehicle speed will be reduced on track passing through or close to shops

- Imposing speed limits and encouraging more efficient journey management will reduce the dust emissions produced by vehicular traffic. Water will be sprinkled where necessary to contain dust emissions.
- Management will make sure process is environmentally friendly.

RESIDUAL IMPACT:

After implementing the mitigation measures listed above, the residual impact of the proposed activities on ambient air quality is expected to be low.

NOISE LEVEL:

Noise may be a major concern during the operation phase. It can be generated from the machinery used during operational activities. Generators can be another source of noise pollution.

Nature of impact: Direct

Duration: long term

Timing: operation/ construction

Reversibility: Not applicable

Likelihood: moderate

Consequences: slightly significant, if above mentioned mitigation measure will be strictly followed

Impact significance: moderate, based upon low likelihood and mild to moderate consequence.

MITIGATION MEASURES:

- Keep the traffic load aligned and minimum during working hours of project
- Machinery and vehicles must be well tuned and maintained
- Impose the limits on unnecessary use of horns
- Safety signs must be displayed and public & drivers must be well aware of them
- Do not work in night time.

RESIDUAL IMPACT:

After implementing the mitigation measures listed above, the residual impact of the noise level will be slightly significant.

CONCLUSION

Management of M/s Descon Oxychem Limited has to achieve the following goals.

- Identification of regulatory requirements that apply to the project activities in the context of environmental protection.
- Identification of the environmental features of the project area and the likely impact of the project on the environment,
- Recommendation of appropriate mitigation measures that management will incorporate into the project implementation to minimize all adverse environmental impacts.
- Baseline environmental and socioeconomic information collection from a variety of sources, including field surveys.

The impacts of project in area will be insignificant, provided the generic mitigation measures proposed in this report are implemented.

After assessing the project activities and investigating the project area, it is concluded that, if the activities are undertaken in this report, and the recommended mitigation and environmental management measures are adopted, the project will not result in any long-term or significant impacts on the local community or the environment.

HEALTH:

People from the project area regularly travel to other cities, and thus cannot be considered isolated from the rest of the country. They are regularly exposed to illnesses common to urban populations, and have similar levels of immunity. The project is therefore very unlikely to lead to an epidemic of any sort among local communities.

MITIGATION MEASURES:

Regular medical check-ups of all the workers need to be conducted to ensure the health of workers and local population.

Nature of impact: Indirect

Duration: Long term

Timing: operation phase

Reversibility: reversible

Likelihood: moderate

Consequences: low to moderate, it may cause disturbance or spread of disease in the area if mitigation measure will not have followed

Impact significance: significant

SAFETY:

Project activities could become a hazard as it is located in populated area local people, especially children, are likely to gather around to watch the activity. The other safety issue is that of traffic, especially along access roads close to settlements. To reduce the hazards, the following mitigation measures will be implemented:

- 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.
- Machinery will never be left unattended.
- Safe driving practices will be adopted, particularly while passing through settlements.

Nature of impact: Direct

Duration: long term

Timing: construction / operation phase

Reversibility: irreversible

Likelihood: moderate to high

Consequences: moderate if all safety measure will be taken care

Impact significance: Significant

SOLID WASTE/ SLUDGE MANAGEMENT:

Proper solid waste management system is necessary for the prompt, timely and efficient disposal of solid waste & sludge for the reduction of its impacts. Impacts due to solid waste & sludge are expected to be temporary and minor in nature.

Nature of impact: Direct

Duration: Short term

Timing: operation

Reversibility: Not applicable

Likelihood: Low (unlikely) as mitigation measures will ensure that Solid waste management will be efficient

Consequences: Mild, as it will be removed from site within few hours

Impact significance: Low, based upon low likelihood and mild to moderate consequence.

MITIGATION MEASURES:

- Planning of solid waste disposal sites with reasonable distance from the human settlements
- A minimum distance of 1 km should be maintained between the solid waste disposal site and nearest human settlement
- Devise plan & develop guidelines for the safe handling, storage & disposal
- Sludge must not be placed at the site after cleaning of wastewater treatment tank
- PPEs are strongly recommended for workers for the handling of sludge.

POTENTIAL POSITIVE IMPACTS:

The project is envisaged to have followed major positive impacts;

EMPLOYMENT OPPORTUNITIES:

Establishment of M/s Descon Oxychem Limited will help in generating new jobs for the local population. The requirement of Managers, Engineers, Workers, technicians, skilled and unskilled labor etc. will generate employment opportunities. It is estimated about 20-25 persons will be employed during operational phase. Hence, there is large number of employment opportunities especially for the locals of the district.

INCREASE IN BUSINESS:

With the influx of laborers for the proposed project, there will be more opportunities for small scale business such as small food cafes etc.

IMPROVED INFRASTRUCTURE:

Establishment of M/s Descon Oxychem Limited will improve the infrastructure of the area as proponent has incorporated aesthetic values and regeneration of site in its planning stage.

ECONOMIC BENEFITS:

M/s Descon Oxychem Limited will be a great investment for the economy of our country. In the long run it will positively impact not only the local population but also the economy of Pakistan.

Main environmental issues associated with Project operation are as follows.

- Health and safety issues for workers may arise during the project process e.g., Particulate matter may be generated during the project process, which may cause the health issues for the workers and noise of machinery can also be a negative impact on the health of workers.
- Waste water due to domestic and process activities.
- Fire due to short circuits and other activities.
- Solid waste generation due to domestic and project related activities.
- Noise pollution from generator and other machinery.
- Health hazards including the electricity hazards.
- Emissions will be generated from working of generators.
- Sludge from wastewater treatment facility will be generated.
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during tight time during operational phase. The traffic issues at any stage of project life cycle will not arise.

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: operational phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

RECOMMENDATIONS

- Safety of workers should be ensured through proper training and PPEs must be ensured during the working hours.
- Wastewater treatment facility should be constructed within the premises of the unit.
- A well design firefighting system will be constructed to cope with fire situations in the subject project.
- Solid waste bins should be regularly cleaned and solid waste must be handed over to contractor.
- Sludge from the wastewater treatment facility will be handed over to the certified contractors.
- Noise levels should not exceed the PEQS.

POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES

The proposed extension will be done with all precautionary measures to enhance and safe the environment. Following necessary measures will be adopted during construction and operation:

- Sprinkling of water will be done on dusty roads and tracks.
- PPEs will be provided during construction activity.
- Local people will be informed in advance when work is about to start in an area.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Machinery will be kept maintained.
- Waste water will be treated through waste treatment system that will be installed within the premises of the subject project.
- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- It is recommended that Solid waste should be handed over to contractors and agreement should be made.
- Noise will be controlled by adopting proper measures.
- PPEs will be provided to workers during working.
- Firefighting equipment's and system will be installed.
- Safety signs will be placed at all locations where required.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.

PURPOSE OF MITIGATION MEASURES

WHAT IS THE PROBLEM I.E. IN TERMS OF "MAJOR ENVIRONMENTAL IMPACTS" WHICH MAY ARISE BY THE SUBJECT PROJECT ACTIVITY?

The major impacts may arise by the subject project could be particulate matter & dust, noise, solid waste and wastewater. Other impacts are of minor importance. These impacts will arise during operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

WHEN THE PROBLEM WILL OCCUR AND WHEN IT SHOULD BE ADDRESSED?

Any impact that would arise due to the subject project activity will be addressed on site. Trainings will be conducted on site prior to start work while other precautionary measures will also be adopted to make the project safe and environmentally friendly.

WHERE AND HOW THE PROBLEM SHOULD BE ADDRESSED?

HSE manager/environmental manager along with site manager will be appointed to assess any impact that could be arisen during both phases. He would be responsible to address the problem and to mitigate it.

WHYS OF ACHIEVING MITIGATION MEASURES

IMPROVED MONITORING AND MANAGEMENT PRACTICES:

Management of M/s Descon Oxychem Limited shall take appropriate measures to provide pollution free and safe environment during the project activity by implementing improved management practices and monitoring techniques suggested in EMP.

COMPENSATION IN MONEY TERMS:

M/s Descon Oxychem Limited will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures.

REPLACEMENT, RELOCATION AND REHABILITATION:

M/s Descon Oxychem Limited will develop Restoration/ reclamation or tree planation plan to restore the project area. Maximum Plantation will be done with native species within the building, along the boundary wall and along the road side if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved. Details of plantation that is already done is attached as **Annexure-L**.

CHAPTER # 6

ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

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:

1. Ensure the complete implementation of all mitigation measures.
2. Ensure the effectiveness of the mitigation measures.
3. Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
4. Identify training requirements at various levels.

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.

INSTITUTIONAL CAPACITY

Following functionaries will be involved in the implementation of EMP:

- Project Proponent
- HSE/Project Manager
- In-Charge Administration
- Supervisor of project

SCHEDULE OF IMPLEMENTATION

Training for the management and workers on environmental aspects of the project will be arranged on biannually basis during the operational phase of the project. It will be imparted by a team of experienced trainers. Emergency Response Plan and Emergency preparedness

Plan is attached as **Annexure-J**. Fire Detection system, fire hydrant details and fire plan are attached as **Annexure-M.**

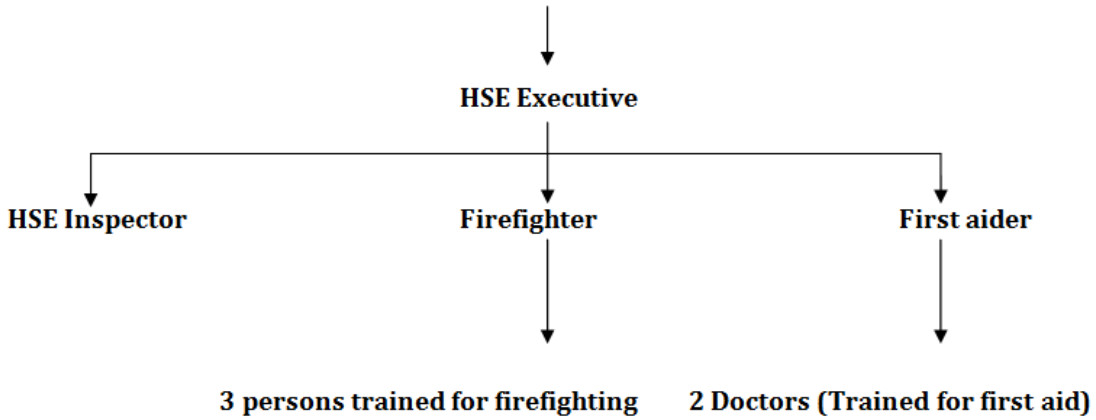


Figure: Institutional Capacity for the implementation of EMP

Management will hire or appoint HSE officer before the initiation of work at the project site. HSE officer will be responsible for conducting the training of the labor, which will be organized either by the management of industry or by the contractor. Health and Safety Policy and details of HSC team Lead is attached as **Annexure-N.**

Following schedules of training will be implemented:

Table: Training Program

Sr. No.	Description of program	Personnel involved	Time/ duration
1)	General HSE Training	Trainers and whole production facility staff	Regularly as planned by HSE Manager
2)	Instrument use/ workplace specific items	Trainers and whole production facility staff	Regularly as planned by HSE Manager
3)	PPEs use and safe work practices at work site.	Trainers and whole production facility	Regularly as planned by HSE Manager

		staff	
4)	Reporting and investigating accidents/ incidents	Trainers and whole production facility staff	Regularly as planned by HSE Manager
5)	Emergency procedures	Trainers and whole production facility staff	Regularly as planned by HSE Manager
6)	Medical and first aid	Trainers and whole production facility staff	Regularly as planned by HSE Manager
7)	Health and safety promotion	Trainers and whole production facility staff	Regularly as planned by HSE Manager

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE Manager should play a key role in this respect and arrange the training programs. HSE Manager will provide training to staff and workers about the best environmental management practices at the site and affective implementation of the EMMP. The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, National Environmental Quality Standards (PEQS), Usage of personal protection equipment, and health and safety related issues on the construction site.

The HSE Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria, dengue 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.

HSE Manager will be responsible to conduct Training on regularly basis regarding health & safety, hygiene, firefighting and first aid.

TRAINING OF BUILDING CONTRACTOR

Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme. The provisions given in EIA Report Chapter 4 Screening of Potential Environmental Impacts & Their Mitigation Measures will be followed.

TORs will be including the training and submission of reports in the following area:

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records
5. Testing of water and waste water and submission of Environmental Monitoring Reports
6. Placement of safety signs/boards during construction
7. Sprinkling of water on the roads and dusty tracks
8. Monitoring of generator emissions

Training regarding all other aspects of HSE will be ensured by the contractor during the construction phase.

PROPOSED ENVIRONMENTAL MONITORING

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for following Environmental Parameters is recommended:

- **AMBIENT AIR**

  Monitoring for ambient air should be conducted during operational activities of the project and report should be submitted to EPA Punjab.

- **NOISE**

  Regular monitoring for noise level should be maintained periodically during operation phases of the project and report should be submitted to EPA Punjab as per rule.

- **WATER QUALITY**

  Regular monitoring of water quality should be conducted during operational phases of the project and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption.

Recommendation: Environmental Monitoring data log book should be maintained by the project proponent.

RESPONSIBILITY OF EMP

Overall responsibility for implementation of EMP is of project proponent. He has appointed an HSE/Project Manager of relevant qualification. HSE/Project Manager acts as Environmental Manager and will manage all HSE condition at the PEQS.

EQUIPMENT MAINTENANCE DETAIL

The subject project is the Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) under the name of M/s Descon Oxychem Limited. The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic filings or replacement. Emergency Response Plan and Emergency preparedness Plan is attached as **Annexure-J**.

ENVIRONMENTAL BUDGET

The cost which is required to effectively implement the mitigation measures is important for the sustainability of the Project in operation stage of the Project.

Company has allocated the Environmental Budget annually for the Training, maintenance and management of Environment that will include filling and maintenance of equipment's, restoration, plantation, and availability of PPEs, strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

HSE training	On regular basis
Maintenance and management of environment	On regular basis
Maintenance of equipment	On regular basis
Availability of PPEs	During production hours

Strategic planning to cope with any emergency	As per policy
Formulate the disaster management plan to cope with natural disaster	As per policy

ENVIRONMENTAL MANAGEMENT PLAN OF M/S DESCON OXYCHEM LIMITED

Sr. #	Aspects	Impact & Mitigations to be taken			
		Impacts	**Mitigation measures Construction/Operation**	**Responsibility**	**Monitoring**
AMBIENT AIR QUALITY					
1.	Air Quality	Production machinery Flue gas emissions from machinery and generators	Air quality monitoring is recommended on regular base Open disposal and burning of solid waste in the premises of building should be strictly banned. Pollution abatement technologies regarding air pollution will be adopted. Emissions inspection and monitoring should be done on regular basis	HSE Department	Environmental Consultant/EPA PUNJAB
NOISE & VIBRATION					
2.	Noise	The major sources of the noise are production related machinery.	Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment	HSE department	Environmental Consultant/ EPA

		Noise from generators (if any)	will be provided to the workers and other staff. Sound proof room should be built for generator (if any) to control the noise.		PUNJAB
HEALTH AND SAFETY					
3.	Health and safety	Health & safety issues of workers and nearby community	Trainings of the workers is recommended for health & safety, first aid and firefighting. Fire Detection system, fire hydrant details and fire plan are attached as **Annexure-M.** Proponent must provide First aid facilities to workers in case of any injury or accident. Emergency Response Plan and Emergency preparedness Plan is attached as **Annexure-J**. Safe drinking water must be provided to workers, staff, and poor people of the area. Water consumption records should be maintained. Provision of Proper PPEs must be ensured at workplace. Assembly point and exit points must be available at workplace. Electric wires, D. Bs must be kept covered & closed to avoid any electric hazards.	HSE Department	Environmental Consultant/ EPA

			Smoking or any drugs should be prohibited during working hours or performing work. Safety signs & boards will be placed at the time of construction activity. Security guards will be appointed at the construction site. Health and Safety Policy and details of HSC team Lead is attached as **Annexure-N**.		
WASTE WATER					
4.	Waste water	Domestic waste water. Minor wastewater from production activities. Spread of diseases, underground water contamination.	Domestic waste water and process related wastewater is being drained out in nearby drain after treated in wastewater treatment plant. Wastewater Treatment Plant is installed within the premises of the unit being used to treat sewage/waste water to achieve PEQS.	HSE department	Environmental Consultant
SOLID WASTE GENERATION					
5.	Solid Waste Generation	Aesthetic degradation, foul smell etc. Solid waste generation from the machinery installation and production activities, domestic and	A solid waste management plan should be formulated to deal with the proper disposal of solid waste, supervised by HSE Manager. Waste management plan is attached as **Annexure-A.** Waste segregation is recommended at the source.	HSE Department	Environmental Consultant/ EPA PUNJAB

		process sources	Industrial ecology practices will be adopted wherever possible. 7 R's of sustainability is recommended Hazardous waste should be disposed in separate bins and handed over to EPA approved contractors. Waste produced from building alteration/renovation should be sold to local market.		
ODOR					
6.	Odor	Odor may produce from raw material and during product manufacturing	Raw material should be covered to reduce odor Face masks must be provided to the workers and employees on production floor	HSE Department	Environmental Consultant/ EPA PUNJAB
ENERGY REQUIREMENT					
7.	Energy requirement	Resource depletion	Do not waste the energy/electricity when there is no need of it. Use energy efficient and ecofriendly equipment Use energy saving appliances Conduct and maintain records for energy audits Do not leave the appliances in running when there is no need It is recommended to save and conserve the energy and adopt energy efficient technologies in the factory.	HSE Department	Environmental Consultant/ EPA PUNJAB

SOCIO ECONOMIC IMPACTS					
8.	Language	Change in 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	NA
9.	Education	Change in social behavior and economic gains	School and colleges exist in the area. The project proponent will initiate an educational awareness program with the coordination of the local people.	Proponent	NGO survey
10.	Health	Social performance of the individuals in the area	The project proponent will assist the local impacted community for the improvement of health services Health clinic must be established for the project workers.	Proponent	Proponent
11.	Culture and norms of the area	Change in culture by the influx of nomadic people	Maximum local employment should be ensured to preserve the culture of the area	Proponent	NGO survey/Environmental Consultant
12.	Sewage and waste disposal	Diseases caused by improper sanitation	Subject project will uplift the economic status of the nearest human settlements. Awareness program will be initiated regarding the disposal of waste.	Proponent/ local NGO	NGO survey/ Environmental Consultant

CHAPTER # 7

STAKEHOLDERS PARTICIPATION

Social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. To identity the different types of stakeholders and ascertain their perceptions about the project, an initial environmental examination was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

OBJECTIVES OF CONSULTATION

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the proposed project. Public involvement is a compulsory feature of environmental assessment, which leads to better and more acceptable decision making. The objective of the consultation with stakeholders is to help verify the environmental and social issues that have been presumed to arise and to identify those which are not known or are unique to the construction of the proposed unit.

The important general objectives of the consultation process are:

- Information dissemination, education and liaison;
- Identification of problems and needs;
- Collaborative problem solving;
- Reaction, comment and feedback on proposed project;
- Documenting mitigation measures proposed by the stakeholders;

METHODOLOGY OF CONSULTATION:

The EIA team carried out public consultations at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring industry workers, villagers, shopkeepers, drivers etc.

- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

PROPONENT

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environment friendly.

RESPONSIBLE AUTHORITY

Management of M/s Descon Oxychem Limited is the responsible authority to take all measures prior to start the activity.

ENVIRONMENTAL PRACTITIONERS AND EXPERTS

Team of M/s Environmental Services of Pakistan (ESPAK) visited the project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio-economic impacts. People provide the massive information about the project and have positive remarks regarding the project development.

OTHER DEPARTMENTS AND AGENCIES

For the impact analysis detailed meetings were held with the management of M/s Descon Oxychem Limited, local community, education institutes, health institutes and hospitals. Issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons.

AFFECTED & WIDER COMMUNITY

There is no affected community present in the radius of our study area. ESPAK team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activity for the proposed plant. Stakeholder's participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts. List of respondents and socioeconomic questionnaires are attached as **Annexure-Q** with the report.

Categories of stakeholders interviewed in the project area:

Sr. No.	Stakeholder Category
1.	Neighboring factory workers.
2.	Nearby residents
3.	Shopkeepers.
4.	Drivers.

In addition to the above categories, authorities of administrative and educational institutions, commerce and Investment Department (C&I), Environmental Protection Department (EPD) etc. were also consulted for more effective participation and appraisal of the proposed project.

ISSUES DISCUSSED:

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project;
- Possible impacts on natural vegetation, air, land and properties;
- Possible mitigation measures;
- Benefits of the project specifically for the local people.

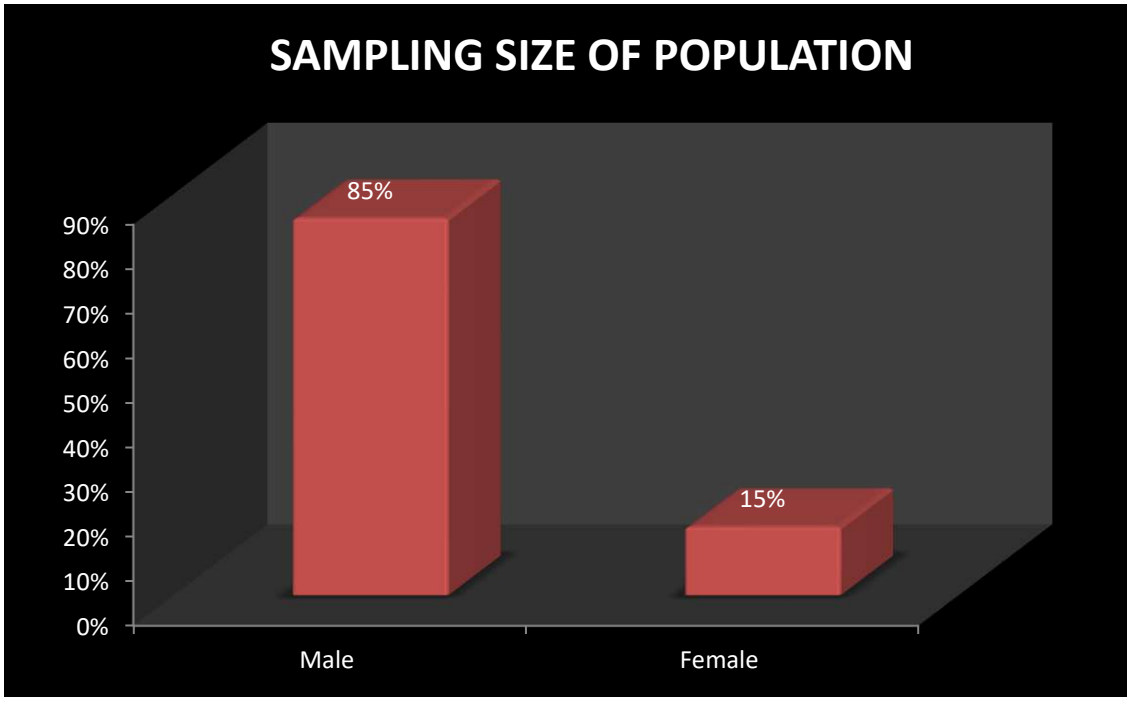
SAMPLE SIZE

Sample size of 30 respondents was selected by the Team of consultants for conducting the socioeconomic survey. Women were also consulted for the said survey; some of their names are mentioned in the above list of respondents while most of them were not willing to give personal information.

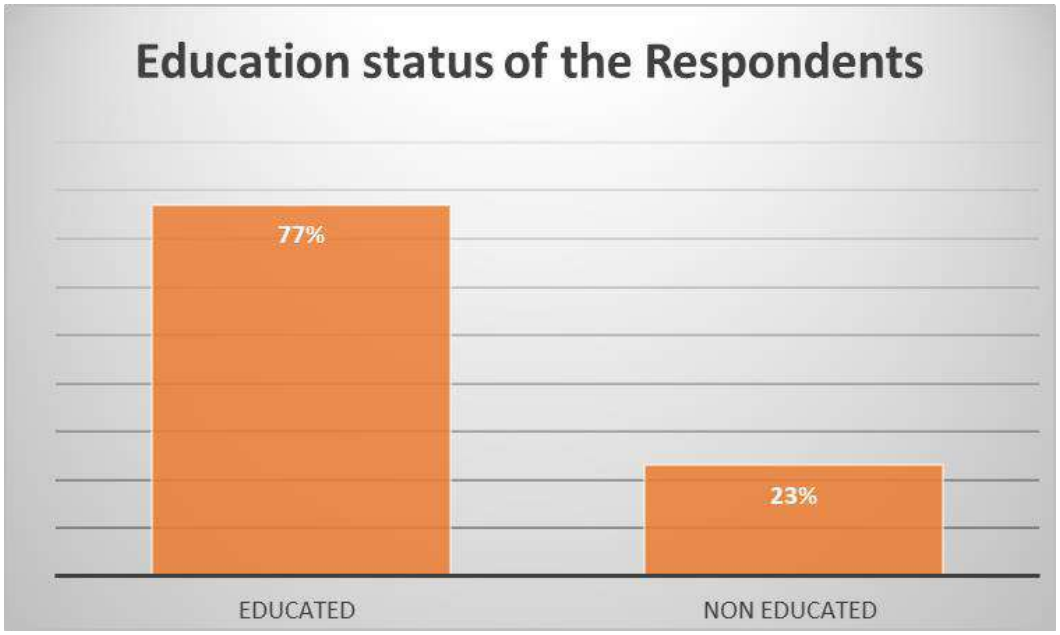
STATISTICAL ANALYSIS

SPSS 19.0 has been used for the statistical analysis of the data collected during the visit of study site area through questionnaires, List of questionnaires is attached herewith.

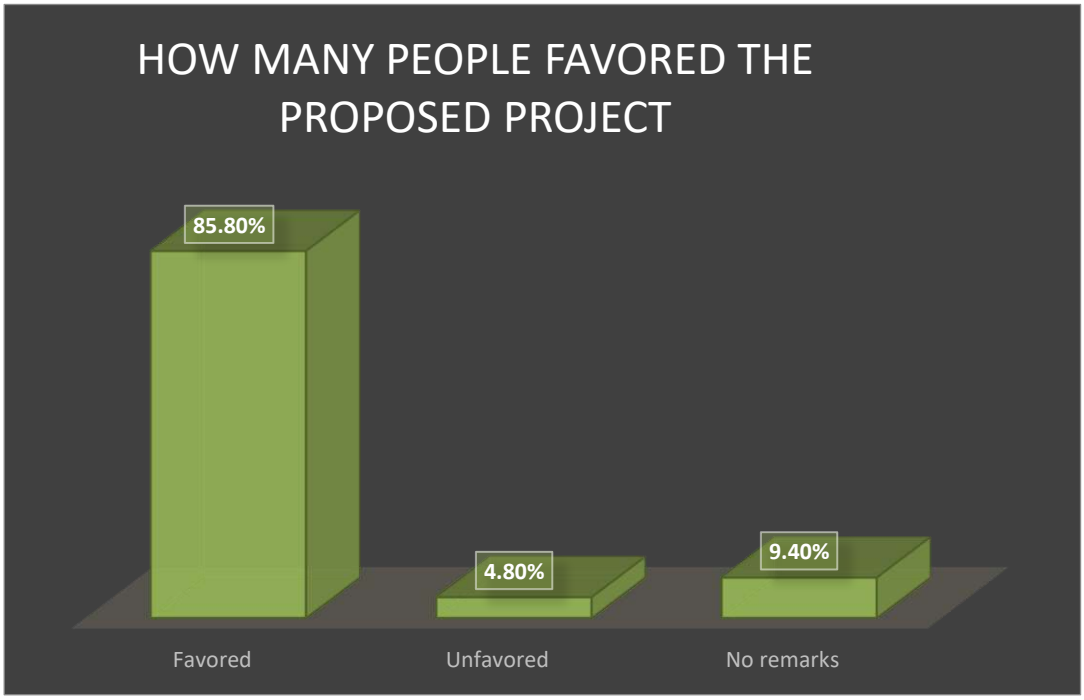
Graphical representation of analysis is given below:



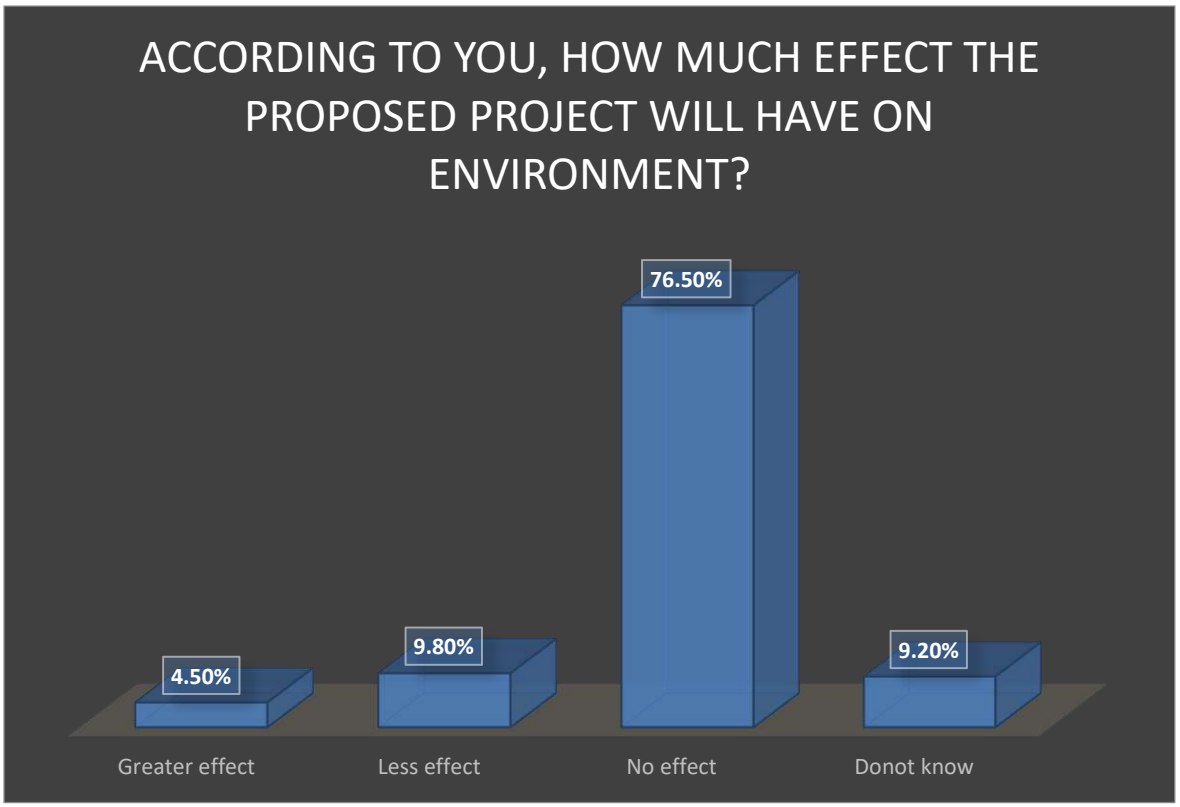
In the sampled population, 85% respondents were male while 15% respondents were female. The number of female respondents is less as compared to male respondents because according to the social binding female hesitates to respond or communicate comfortably.



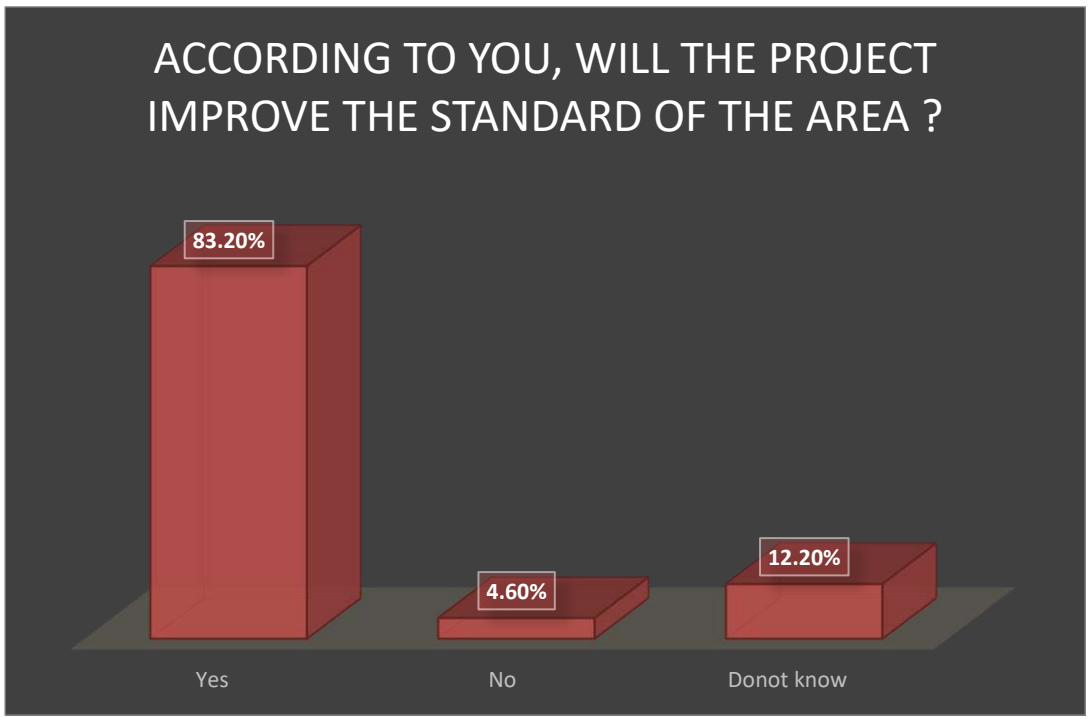
In the sampled population, 77% respondents were educated while 23% were uneducated. Overall education status of the area is good.



As per survey, 85.80 % people favored the project and they gave positive remarks regarding the subject project. While 9.40% respondents had no opinion regarding the project and 4.80% respondents were not satisfied with the project because they think that development will affect the natural aesthetics of the area.



As per survey, 4.50% respondents said that subject project will affect the environment of the area, 9.8% said that there will be less effect on the environment, 76.50% respondents said that the project will not affect the environment and 9.20% said that they have no idea regarding the subject project. Most of the population was not aware about the environmental importance; they were giving their remarks according to their own knowledge



As Per survey, 83.2 % people said that the project will improve the standard of the area, 4.60% said that it will have no impact on the area while 12.20 % respondents gave no remarks.

FINDINGS OF THE OVERALL DISCUSSION:

- It will enhance the socio-economic conditions/values of the area.
- Project will increase revenue generation for the Government.
- It will create employment opportunities.
- Local people will be given preference for employment in the proposed project.
- Construction of the project will be completed in the designated timeframe to limit adverse impacts of construction.
- There will be no significant additional load on the existing infrastructure i.e. utilities of water, telephone, electricity etc. due to the development of the proposed project.

CHAPTER # 8

CONCLUSION AND RECOMMENDATIONS

Based on the study conducted for Environment Impact Assessment (EIA) for the subject project, the following conclusions are made:

CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- It will generate additional jobs during construction and operation phases.
- The proponent has committed to implement the project in the environment friendly manner.
- M/s Descon Oxychem Limited intends to register the project with local Government.
- M/s Descon Oxychem Limited has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- M/s Descon Oxychem Limited has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside the unit and near the unit is recommended.
- The untreated wastewater will not be reused for irrigating the vegetation and lawns.
- High standards of bio-security and safety will be enforced during operation stage. Safety of the workers will be top priority for the management.
- The management of M/s Descon Oxychem Limited will 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.

ANNEXURE-A

TERM OF REFERENCES (TORS)

TERMS OF REFERENCES (TORS)

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

OF M/S DESCON OXYCHEM LIMITED LOCATED AT 18 KM, LAHORE-SHEIKHUPURA ROAD, LAHORE

TERM OF REFERNCES

These terms of references are being submitted for the subject EIA study under 5 (f) of policy and procedure for the filing, review and approval of environmental assessment. These TORs of EIA have been prepared by the environmental consultants, in consultation with the project proponent.

Introduction of project:

Subject project for which this Environmental Impact Assessment study has been conducted is proposed Construction of Proposed Extension of 120 metric tons per day of existing plant (hydrogen per oxide manufacturing plant) and Allied Services (including Material Storage Hall#1 (NFG), Compressor Area, Material Storage Hall#2 Empty Jerrycan Building, Electrical and Instrumentation Building, Material Storage Hall#3 and Material Storage Hall#4 (new warehouse near scrap area) under the name of M/S DESCON Oxychem Limited located at 18 Km, Lahore-Sheikhupura Road, Lahore

Total area of said project is 20.8 Acres. Covered area of the allied services is 48477 SFT. The process cycle of production is based on Hydrogenation, Oxidation, Extraction, Water Separation and drying and Regeneration.

Cost of Project:

The estimated initial cost of the project will be Approx. USS 30 million.

Area of the Project:

Total area of the project is 20.8 Acres. Covered area of the allied services is 48477 SFT.

Name & Address of proponent

Name: Mr. Muhammad Mohsin Zia

Environmental Consultant & Client

Proponent has appointed the Environmental Services Pakistan Pvt Ltd (ESPAK), as the Consultant for the subject project to conduct the EIA. M/S Environmental Services Pakistan Pvt Ltd (ESPAK), will be called as "Consultant" and M/s DESCON Oxychem Limited as the "Client".

Objective of the EIA study

The Objective of study includes Compliance of section 12 of PEPA 1997 (Amended 2012) & PEQS.

Purpose of the EIA

The key objectives of the EIA are to:

- Document the ecological and socioeconomic baseline conditions of the study area and the affected communities

- Inform and obtain input from stakeholders, (e.g., governmental authorities, the public, and indigenous communities) and capture their relevant issues and concerns
- Assess in detail the environmental, social, and health impacts that would result from the Project
- Identify environmental and social mitigation measures to address the impacts identified
- Develop the EMPs as discussed above, based on the mitigation measures developed in the EIA.
- Meet the requirements or recommendations of the applicable national Environmental Laws and Guidelines

Scope of Services

1. Review of existing regulatory framework
    - 1.1 Laws and Regulations
    - 1.2 National and International Guidelines and Policy
    - 1.3 Guidelines of Labor & Human Resource Department
    - 1.4 Punjab Local Government Ordinance
2. Methodology for carrying out this study
    - 2.1 Project Description
    - 2.2 Site Selection
    - 2.3 Project Alternatives
3. Process Description
    - 3.1. Detailed review of the processes
    - 3.2 Design Parameters
    - 3.3 Details related to Plant and Equipment's
4. Environmental profile of the environmental study area
    - 4.1 Climatology
    - 4.2 Geographical features
    - 4.3 Geological and Hydrological features
    - 3.5.4 Historical review
    - 3.5.5 Land Use
    - 3.5.6 Ecology, i.e. Flora and Fauna etc.

3.6 Analysis of EPA required environmental parameters

3.6.1 Sampling for Air, Water, and Noise Level

3.7 Investigate Socio-Economic and Socio-Environmental aspects and cultural values within and around the operating facility

3.7.2 Cultural and Social Values

3.7.4 Interviews from different groups

3.8 Development activities and Waste Management

3.9 Identify and evaluate major environmental impacts

3.10 Identify mitigation measures and develop Environmental Management and Monitoring plan

3.11 Conclusions based on the study conducted for this EIA

3.12 1-2 Site Visits for data acquisition

3.13 Environmental Monitoring plan

3.14 Preparation of Lab Analysis Report

3.15 Preparation of Environmental Management Plan EMP

3.16 Briefing & Presentation to the Expert Committee in the EPA Punjab.

3.17 Reply to technical Environmental Objections/Review

3.18 Presentation in the office of DG EPA, Punjab (if required)

CLIENT RESPONSIBILITY

- Proponent will be responsible to nominate a senior officer as Coordinator who will be responsible for all coordination activities as required by the Consultants and to whom the Consultants will refer for information and assistance. All correspondence between the Consultants and the CLIENT will be routed through the Coordinator
- Consultants will require free access to all relevant information available with the Client
- The report developed for the CLIENT shall be the property of the CLIENT and the Consultants shall adhere to confidentiality morally as well as legally.
- Client will provide relevant documents as:
    - Signed application on company letter head
    - Pay Order in favor of DG EPA as review fee 30,000/-
    - Undertaking on Stamp Paper as per EPA Format
    - Affidavit on Stamp Paper as per EPA Format
    - Copy of CNIC of proponent
    - Dually filled and Sign Schedule IV
    - Details of firefighting Equipment's
    - Layout Maps of the project
    - Other NOCS/Certificates from other concerned departments (if any)
    - Any other relevant documents/details required by the consultant.

Signatures: _____

Environmental Consultant

Environmental Services Pakistan

(ESPAK) Lahore

Signatures:

Client: Muhammad Mohsin Zia

M/s Descon Oxychem Limited

ANNEXURE-B

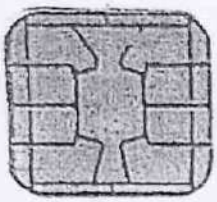
CNIC & OTHER DOCUMENTS

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Muhammad Mohsin Zia

محمد محسن ضیاء



Father Name
Zia Rasool Hashmi

ضیاء رسول ہاشمی

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
42301-5911541-3	11.04.1968

Date of Issue	Date of Expiry
29.06.2015	29.06.2025

Holder's Signature

Fw EPA NOC 148

موجودہ پتہ: مکان نمبر 33-B/II، محلہ خیابان شہباز
فیز 6 ڈی ایچ اے، کراچی جنوبی

42301-5911541-3

مستقل پتہ: مکان نمبر 33-B/II، محلہ خیابان شہباز
فیز 6 ڈی ایچ اے، کراچی جنوبی

Usman Y. Mobin
Registrar General of Pakistan

103681129684
517-86-159396

Fw EPA NOC

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Ali Husnain

علی حسنین

Father Name
Mushtaq Ahmed

مشتاق احمد

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
37101-2966201-3	20.10.1992

Date of Issue	Date of Expiry
06.12.2019	06.12.2029

Holder's Signature

موجودہ پتہ: کمرشل پلازہ، دکان نمبر K-8، محلہ ماڈل ٹاؤن، لاہور

37101-2966201-3

مستقل پتہ: ڈاک خانہ 13 ر ب، چک 129 ر ب اپکیرہ تبی رنیوال،
تحصیل چک جھمرہ ضلع فیصل آباد

108131496347

Usman Y. Mobin
Registrar General of Pakistan

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

PAKISTAN
ISLAMIC REPUBLIC OF PAKISTAN

National Identity Card

Name
Abu Zar Abid

ابوذر عابد

Father Name
Abid Manzoor Butt

عابد منظور بٹ

Gender: M
Country of Stay: Pakistan

Identity Number: 35202-5253562-3
Date of Birth: 14.12.2002

Date of Issue: 25.08.2021
Date of Expiry: 25.08.2031

Holder's Signature

موجودہ پتہ: مکان نمبر I-1574، محلہ کوچہ حاتم بندہ اندرون موچی گیٹ، لاہور

مستقل پتہ: مکان نمبر I-1574، محلہ کوچہ حاتم بندہ اندرون موچی گیٹ، لاہور

35202-5253562-3

505293277024

Registrar General of Pakistan

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

PAKISTAN

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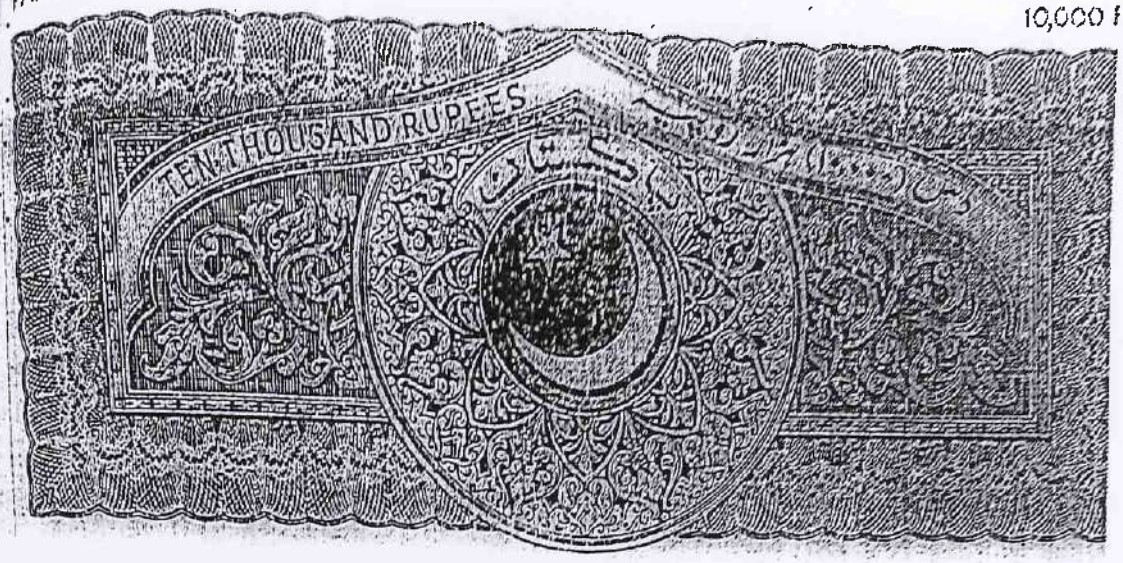


HASSAN MUHAMMAD ADVOCATE
Oath Commissioner
FEROZEWALA

﴿44﴾

بدست و بحق ڈیسکون آکسیکیم پرائیویٹ لمٹیڈ (Descon Oxychem

العبد

غریب سنز پرائیویٹ لمٹیڈ

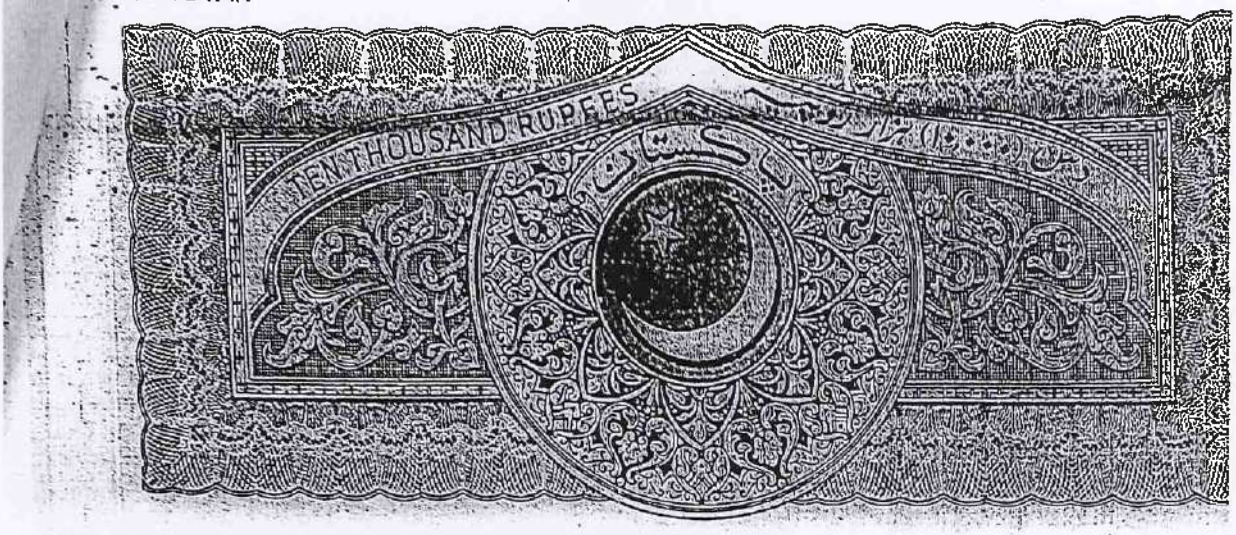
بذریعہ فواد حامد احمد (ڈائریکٹر/نمائندہ)--بائع (کمپنی)

NIC No.42000-0518706-7

ATTESTED
Hassan Muhammad Advocate
OATH COMMISSIONER
Ferozewala

PAKISTAN

10,000 /



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(135K-18M) بتفصیل از کھیوٹ

580 کھتونی نمبر 856 مربع نمبر 113

HASSAN MUHAMMAD ADVOCATE
Oath Commissioner
Notification No:180
Dated 27-11-2018
w.e.f 12-10-18
to 11-10-21
FEROZEWALA

العبد

غریب سنز پرائیویٹ لمیٹڈ

بذریعہ فواد حامد احمد (ڈائریکٹر/نمائندہ)۔۔بائع (کمپنی)

NIC No.42000-0518706-7

ATTESTED
Hassan Muhammad Advocate
OATH COMMISSIONER
Ferozewala

PAKISTAN

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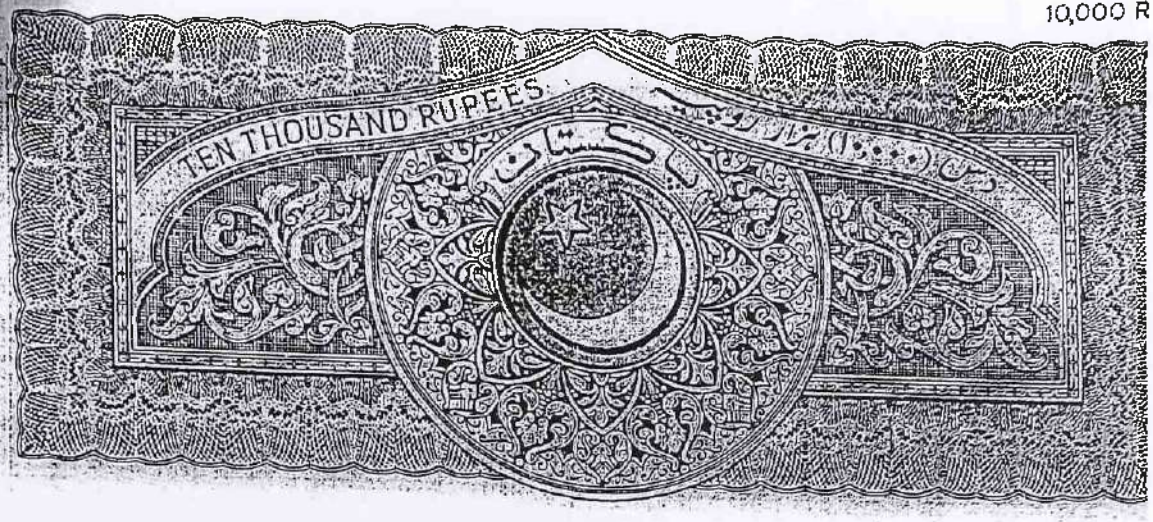
10,000 R



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کیلہ نمبر 20 رقبہ 5K-17M، کیلہ

22 رقبہ 6K-3M، کیلہ نمبر 23 رقبہ

HASSAN MUHAMMAD ADVOCATE
Oath Commissioner
Notification No:350
Dated:27-11-2019
w.e.f 12-10-19
to 11-10-21
FEROZEWALA

الجد

غریب سنز پرائیویٹ لمٹیڈ

بذریعہ فواد حامد احمد (ڈائریکٹر/نمائندہ)--بائع (کمپنی)

NIC No.42000-0518706-7

ATTESTED

Hassan Muhammad Advocate
OATH COMMISSIONER
Ferozewala

PAKISTAN

10,000 Rs

TEN THOUSAND RUPEES

﴿11﴾

قطعہ 8K-0M رقبہ 24 نمبر کیلہ، 8K-0M

113 نمبر مربع و سالم 28K-0M رقبہ کل 4

HASSAN MUHAMMAD ADVOCATE
Oath Commissioner
Notification No:350
Dated:27-11-2018
FEROZEWALA

العبد

غریب سنز پرائیویٹ لمیٹڈ

بذریعہ فواد حامد احمد (ڈائریکٹر/نمائندہ) ---بائع (کمپنی)

NIC No.42000-0518706-7

ATTESTED
Hassan Muhammad Advocate
OATH COMMISSIONER
Ferozewala

کیلہ نمبر 25 کل رقبہ 8K-0M کا منتقلہ

حصہ 148/160 رقبہ بقدر 7K-8M و مربع

HASSAN MUHAMMAD ADVOCATE
Oath Commissioner
Notification No:350
Dated:27-11-2018
W.e.f 12-10-18
to 11-10-21
FEROZEWALA

البائع

غریب سنز پرائیویٹ لمیٹڈ

بذریعہ جواد حامد احمد (ڈائریکٹر/ اختیار دار) ۔ بائع (کمپنی)

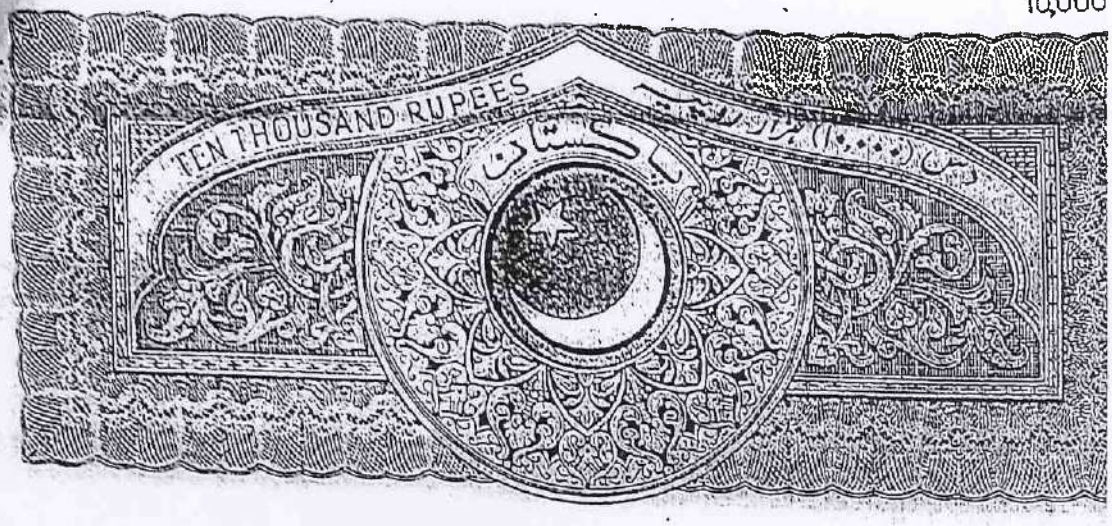
NIC No.42000-0518706-7

ATTESTED

Hassan Muhammad Advocate
OATH COMMISSIONER
Ferozewala

PAKISTAN

10,000



﴿13﴾

نمبر 149 کیلہ نمبر 3 کل رقبہ 8K-0M کا

منتقلہ حصہ 112/160 رقبہ بقدر

HASSAN MUHAMMAD ADVOCATE
Oath Commissioner
Notification No. 350
Dated: 27-11-2018
to 12-10-18
to 12-10-21
FEROZEWALA

العبد

غریب سنز پرائیویٹ لمیٹڈ

بذریعہ جواد حامد احمد (ڈائریکٹر/نمائندہ) ۔۔۔بائع (کمپنی)

NIC No.42000-0518706-7

Not use for court

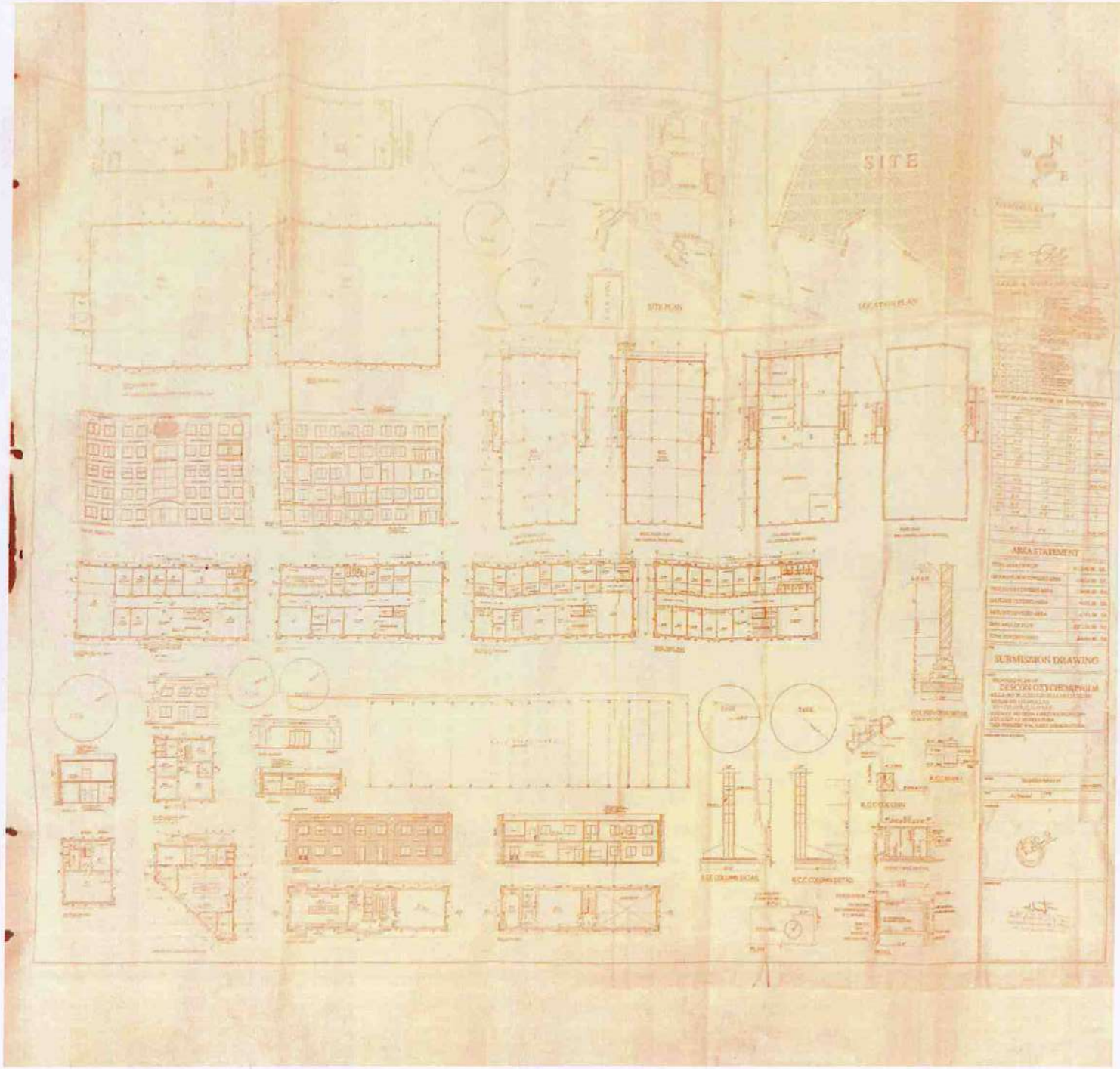
Attested

Head Mistress
City Distt Govt G/M School
Kot Kharanja Saeed Lahore
School Code # 22233

ATTESTED
Hassan Muhammad Advocate
OATH COMMISSIONER
Ferozewala

ANNEXURE-C

LAYOUT MAP OF PROPOSED SITE



ANNEXURE-D

LAB REPORTS (AIR, NOISE, WATER)

ENVIRONMENTAL SERVICES PAKISTAN

ESPAK

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: ESPAK/0840P/24/AA/7934A/09586 **Date:** 27/06/2024

Name of Industry/Client: Descon Oxychem Ltd.

Address: 18-Km, Sheikhupura Road, Lahore

Validation Officer: Muhammad Nadeem, Research Officer

Nature of Sample: Ambient Air

Monitoring Location: Near Main Gate (GPS: 31°39'3.60"N, 74°10'32.95"E)

Date of Sample Collection: 20/06/2024

Sample Collected/Sent By: Irtaza Ahmad, Analyst (Field), ESPAK

Date of Completion of Analysis: 21/06/2024

Grab / Composite: Continous-24 Hours

S. No	Parameters	Limit Values (PEQS-24Hours)	Concentration	Method / Equipment Used	Remarks
1	Carbon Monoxide (CO)	5 mg/m³ (8 Hours)	1.1 mg/m³	Non Dispersive Infrared Absorption (NDIR)	Within Prescribed Limits
2	Sulfur Dioxide (SO_2)	120 µg/m³	10.7 µg/m³	UV Fluorescence (UVF)	Within Prescribed Limits
3	Ozone (O_3)	130 µg/m³ (1 Hour)	12.7 µg/m³	Non Dispersive UV Absorption	Within Prescribed Limits
4	Oxides of Nitrogen as NO	40 µg/m³	13.2 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
5	Oxides of Nitrogen as NO_2	80 µg/m³	23.1 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
6	Particulate Matter $PM_{2.5}$	35 µg/m³	33.1 µg/m³	Particulate Sensor	Within Prescribed Limits
7	Particulate Matter PM_{10}	150 µg/m³	138 µg/m³	Particulate Sensor	Within Prescribed Limits
8	Suspended Particulate Matter (SPM)	500 µg/m³	487 µg/m³	High Volume Sampler (HVS)	Within Prescribed Limits

PEQS: Punjab Environmental Quality Standards for Ambient Air, 2016

- Uncertainty of Measurement (UoM) data will be provided on request, where available. The statement of conformity, if provided in the report, is based on the decision rule of simple acceptance or rejection with equal shared risk due to measurement uncertainty.

Note:

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- **The values represent sample conditions when monitoring/testing was carried out.**
- **The report data is not intended to be used legally by the client.**

1. **Sample Analyzed By:** Irtaza Ahmad, Analyst (Field)
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 27/06/2024

---------- End of Report ----------

Lahore Office
Office No. 731,
Block - 2, Sector D1,
Shah Jilani Road, Township
Lahore, Pakistan.
Tel: +92 (42) 3515 4015-16

Islamabad Office
Office No. 314, 3rd
Floor, Gulberg Empire,
Gulberg Greens,
Islamabad, Pakistan.
Tel: +92 (51) 5915060

Peshawar Office
Unit No. 244-TF,
Dean's Trade Center
Sadar Cantt,
Peshawar, Pakistan.
Tel: +92 312 0849999

www.espak.com.pk info@espak.com.pk

NOISE MONITORING REPORT

Reference Number: ESPAK/0840P/24/N/7938A/09757 **Date:** 27/06/2024

Name of Industry/Client: Descon Oxychem Ltd.

Address: 18-Km, Sheikhupura Road, Lahore

Validation Officer: Muhammad Nadeem, Research Officer

Nature of Sample: Noise

Date of Sample Collection: 20/06/2024 **Grab / Composite:** Continuous-24 Hours

Sample Collected/Sent By: Irtaza Ahmad, Analyst (Field), ESPAK

Date of Completion of Analysis: 21/06/2024

Method/Equipment Used: Sound Level Meter

S. No	Measurement Point	Limit Values (PEQS)	Noise Level in dB(A)	Remarks
1	Near Main Gate (GPS: 31°39'3.60"N, 74°10'32.95"E) - Day time	75 dB(A)	62 dB(A)	Within Prescribed Limits
2	Near Main Gate (GPS: 31°39'3.60"N, 74°10'32.95"E) - Night time	65 dB(A)	49 dB(A)	Within Prescribed Limits

PEQS: Punjab Environmental Quality Standards for Noise in Industrial Area, 2016 Day Time Hours (6:00 am to 10:00 pm) Night Time Hours (10:00 pm to 6:00 am)

- Uncertainty of Measurement (UoM) data will be provided on request, where available. The statement of conformity, if provided in the report, is based on the decision rule of simple acceptance or rejection with equal shared risk due to measurement uncertainty.

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1. **Sample Analyzed By:** Irtaza Ahmad, Analyst (Field)
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 27/06/2024

Environmental Services Pakistan ESPAK Tel. +924235154012-17

---------- End of Report ----------

Lahore Office
Office No. 731,
Block - 2, Sector D1,
Shah Jilani Road, Township
Lahore, Pakistan.
Tel: +92 (42) 3515 4015-16

Islamabad Office
Office No. 314, 3rd Floor, Gulberg Empire,
Gulberg Greens,
Islamabad, Pakistan.
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Peshawar Office
Unit No. 43-TF,
Dean's Trade Center
Sadar Cantt,
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Tel: +92 312 0849999

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CHEMICAL ANALYSIS TEST REPORT (GROUND WATER)

Reference Number: ESPAK/0840P/24/GW/7939A/00201 **Date:** 27/06/2024
Name of Industry / Client: Descon Oxychem Ltd.
Address: 18-Km, Sheikhupura Road, Lahore
Validation Officer: Muhammad Nadeem, Research Officer
Nature of Sample: Groundwater from Bore
Date Sample Received: 21/06/2024 **Grab / Composite:** Grab
Date of Sample Collection: 20/06/2024
Sample Collected / Sent By: Irtaza Ahmad, Analyst (Field), ESPAK
Date of Completion of Analysis: 27/06/2024

S. No	Parameters	Limit Values (DW-PEQS)	Concentration	Method / Equipment Used	Remarks
1	Total Coliforms	---	Detected	SMWW 9222 B	-----
2	Fecal Coliform Bacteria	Must not be detectable in any 100mL sample	ND	SMWW 9222 H	Within Limits
3	E. Coli	Must not be detectable in any 100mL Sample	ND	SMWW 9222 H	Within Limits
4	Taste	Non Objectionable / Acceptable	Acceptable	Organoleptic	Within Limits
5	Odor	Non Objectionable / Acceptable	Acceptable	Organoleptic	Within Limits
6	pH*	6.5-8.5	7.4	SMWW 4500H+B	Within Limits
7	Turbidity	<5 NTU	0.2 mg/L	SMWW 2130B	Within Limits
8	Color	≤15 TCU	ND	SMWW 2120 C	Within Limits
9	Total Dissolved Solids (TDS)*	<1000 mg/L	442 mg/L	SMWW 2540C	Within Limits
10	Total Hardness as $CaCO_3$*	<500 mg/L	352 mg/L	SMWW 2340C	Within Limits
11	Residual Chlorine	0.2-0.5 mg/L	ND	SMWW 4500-Cl B	----
12	Chloride (as Cl^-)*	<250 mg/L	7.0 mg/L	SMWW 4500Cl^-B	Within Limits
13	Fluoride (F^-)*	≤1.5 mg/L	0.7 mg/L	U.S. EPA 9214	Within Limits
14	Cyanide (CN^-)	≤0.05 mg/L	ND	SMWW 4500 CN^- F	Within Limits
15	Nitrate (NO_3^-)	≤50 mg/L	11 mg/L	SMWW 4500NO_3^-B	Within Limits
16	Nitrite (NO_2^-)	≤3 mg/L	ND	SMWW 4500NO_2^-B	Within Limits
17	Phenolic Compounds (as Phenols)	NGVS	ND	SMWW 5530 C	----
18	Aluminum (Al)	≤0.2 mg/L	0.1 mg/L	U.S. EPA-200.7	Within Limits
19	Antimony (Sb)	≤0.005 mg/L	ND	U.S. EPA-200.7	Within Limits
20	Arsenic (As)	≤0.05 mg/L	ND	U.S. EPA-200.7	Within Limits
21	Barium (Ba)	0.7 mg/L	0.1 mg/L	U.S. EPA-200.7	Within Limits
22	Boron (B)	0.3 mg/L	0.1 mg/L	U.S. EPA-200.7	Within Limits

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Unit No. 43-TF,
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Tel: +92 312 0849999

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CHEMICAL ANALYSIS TEST REPORT (GROUND WATER)

Reference Number: ESPAK/0840P/24/GW/7939A/00201 **Date:** 27/06/2024

Name of Industry / Client: Descon Oxychem Ltd.

S. No	Parameters	Limit Values (DW-PEQS)	Concentration	Method / Equipment Used	Remarks
23	Cadmium (Cd)	0.01 mg/L	ND	U.S. EPA-200.7	Within Limits
24	Chromium (Cr)	≤0.05 mg/L	0.3 mg/L	U.S. EPA-200.7	Within Limits
25	Copper (Cu)	2.0 mg/L	ND	U.S. EPA-200.7	Within Limits
26	Lead (Pb)	≤0.05 mg/L	ND	U.S. EPA-200.7	Within Limits
27	Manganese (Mn)	≤0.5 mg/L	ND	U.S. EPA-200.7	Within Limits
28	Mercury (Hg)	≤0.001 mg/L	ND	U.S. EPA-200.7	Within Limits
29	Nickel (Ni)	≤0.02 mg/L	ND	U.S. EPA-200.7	Within Limits
30	Selenium (Se)	0.01 mg/L	ND	U.S. EPA-200.7	Within Limits
31	Zinc (Zn)	5.0 mg/L	ND	U.S. EPA-200.7	Within Limits

DW-PEQS: Punjab Environmental Quality Standards for Drinking Water Quality, 2016
SMWW: Standard Methods for the Examination of Water and Waste Water 23rd Edition, American Public Health Association, American Water Works Association, Water Environment Federation USA (2017)
USEPA: United States Environmental Protection Agency
NGVS: No Guideline Value Set
ND: Not Detected

- Laboratory tests and measurements were carried out at 25 ± 5 °C and 50 ± 20 % Relative Humidity conditions unless required otherwise.
- Uncertainty of Measurement (UoM) data will be provided on request, where available. The statement of conformity, if provided in the report, is based on the decision rule of simple acceptance or rejection with equal shared risk due to measurement uncertainty.

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1. **Sample Analyzed By:** Riaz Ahmad (Analyst (Chemical)); Abdul Aziz (Analyst (Chemical)); Muhammad Shahid (Analyst (Chemical)); Khizra Bano (Analyst (Microbiology)); Samahir Khalid (Analyst (Chemical))
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 27/06/2024

Environmental Services Pakistan ESPAK Tel: +9242351 4012-17

---------- End of Report ----------

Lahore Office
Office No. 731,
Block - 2, Sector D1,
Shah Jilani Road, Township
Lahore, Pakistan.
Tel: +92 (42) 3515 4015-16

Islamabad Office
Office No. 314, 3rd
Floor, Gulberg Empire,
Gulberg Greens,
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Tel: +92 (51) 5915060

Peshawar Office
Unit No. 43-TF,
Dean's Trade Center
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CHEMICAL ANALYSIS TEST REPORT (WASTE WATER)

Reference Number: ESPAK/0840P/24/WW/7938A/01039 **Date:** 27/06/2024

Name of Industry / Client: Descon Oxychem Ltd.

Address: 18-Km, Sheikhupura Road, Lahore

Validation Officer: Muhammad Nadeem, Research Officer

Nature of Sample: Waste Water at Final Outlet (Pit)

Date Sample Received: 21/06/2024 **Grab / Composite:** Grab

Date of Sample Collection: 20/06/2024

Sample Collected / Sent By: Irtaza Ahmad, Analyst (Field), ESPAK

Date of Completion of Analysis: 27/06/2024

S. No	Parameters	Limit Values PEQS	Concentration	Method / Equipment Used	Remarks
1	pH value (H^+)*	6-9	7.4	SMWW 4500H^+ B	Within Prescribed Limits
2	Total Suspended Solids (TSS)*	200 mg/L	56 mg/L	SMWW 2540 D	Within Prescribed Limits
3	Total Dissolved Solids (TDS)*	3500 mg/L	723 mg/L	SMWW 2540 C	Within Prescribed Limits
4	Chlorine (Cl)	1.0 mg/L	ND	SMWW 4500-Cl B	Within Prescribed Limits
5	Chloride (as Cl^-)*	1000 mg/L	120 mg/L	SMWW 4500Cl^- -B	Within Prescribed Limits
6	Fluoride (as F^-)*	10 mg/L	0.1 mg/L	U.S. EPA 9214	Within Prescribed Limits
7	Cyanide (as CN^-)	1.0 mg/L	ND	SMWW 4500 CN- F	Within Prescribed Limits
8	Ammonia (NH_3)	40 mg/L	14.2 mg/L	SMWW 4500-NH_3- D	Within Prescribed Limits
9	Sulfide (S^{2-})	1.0 mg/L	ND	SMWW 4500 - S^{2-} F	Within Prescribed Limits
10	Sulfate (SO_4^{2-})*	600 mg/L	168 mg/L	SMWW 4500 - SO_4^{2-} C	Within Prescribed Limits
11	Chemical Oxygen Demand (COD)*	150 mg/L	79 mg/L	SMWW 5220 D	Within Prescribed Limits
12	Biochemical Oxygen Demand (BOD_5) at 20 °C	80 mg/L	50 mg/L	SMWW 5210 B	Within Prescribed Limits
13	Grease and Oil (as n-HEM)	10 mg/L	4.2 mg/L	U.S.EPA 1664 B	Within Prescribed Limits
14	Phenolic Compounds (as Phenol)	0.1 mg/L	ND	SMWW 5530 C	Within Prescribed Limits
15	An-ionic detergents (as MBAS)	20 mg/L	0.1 mg/L	SMWW 5540 C	Within Prescribed Limits
16	Arsenic (As)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
17	Barium (Ba)	1.5 mg/L	0.1 mg/L	U.S. EPA-200.7	Within Prescribed Limits
18	Boron (B)	6.0 mg/L	0.1 mg/L	U.S.EPA-200.7	Within Prescribed Limits
19	Cadmium (Cd)	0.1 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
20	Chromium (Trivalent and Hexavalent)	1.0 mg/L	0.3 mg/L	U.S. EPA-200.7	Within Prescribed Limits
21	Copper (Cu)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
22	Iron (Fe)	8.0 mg/L	1.4 mg/L	U.S.EPA-200.7	Within Prescribed Limits
23	Lead (Pb)	0.5 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
24	Manganese (Mn)	1.5 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
25	Mercury (Hg)	0.01 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
26	Nickel (Ni)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits

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Peshawar Office
Unit No. 43-TF,
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www.espak.com.pk info@espak.com.pk

CHEMICAL ANALYSIS TEST REPORT (WASTE WATER)

Reference Number: ESPAK/0840P/24/WW/7938A/01039 **Date:** 27/06/2024

Name of Industry / Client: Descon Oxychem Ltd.

S. No	Parameters	Limit Values PEQS	Concentration	Method / Equipment Used	Remarks
27	Selenium (Se)	0.5 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
28	Silver (Ag)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
29	Zinc (Zn)	5.0 mg/L	1.0 mg/L	U.S. EPA-200.7	Within Prescribed Limits
30	Total Toxic Metals	2.0 mg/L	0.5 mg/L	Calculated Value	Within Prescribed Limits

PEQS: Punjab Environmental Quality Standards for Municipal & Liquid Industrial Effluents, 2016
SMWW: Standard Methods for the Examination of Water and Waste Water 23rd Edition, American Public Health Association, American Water Works Association, Water Environment Federation USA (2017)
USEPA: United States Environmental Protection Agency
ND: Not Detected

- Laboratory tests and measurements were carried out at 25 ± 5 °C and 50 ± 20 % Relative Humidity conditions unless required otherwise.
- Uncertainty of Measurement (UoM) data will be provided on request, where available. The statement of conformity, if provided in the report, is based on the decision rule of simple acceptance or rejection with equal shared risk due to measurement uncertainty.

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1. **Sample Analyzed By:** Nageen Arshad (Analyst (Chemical)), Abdul Aziz (Analyst (Chemical)), Samahir Khalid (Analyst (Chemical)), Riaz Ahmad (Analyst (Chemical)), Muhammad Shahid (Analyst (Chemical))
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 27/06/2024

Environmental Services Pakistan * ESPAK * Tel:+924235154012-17

---------- End of Report ----------

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Block - 2, Sector D1,
Shah Jilani Road, Township
Lahore, Pakistan.
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www.espak.com.pk info@espak.com.pk

p ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF THE PUNJAB
National Hockey Stadium, Gate No. 08
Gaddafi Stadium Complex, Lahore

Validation for Stack & Ambient Monitoring / Sampling

Validation # 1111-A
Issue Date: 06-06-2024

Emission Monitoring under CTM-34 or OTM-39				
Facility Name & Address Phone	Descon Oxychem Private Limited 18 Km, Lahore-Sheikhupura Road, Lahore	No of Stacks /Sampling Point Ambient Air 01		
Industry Category	Baseline Study			
Analyzer Model & Make	Thermo scientific			
Average stack emission Values of CO, NOx (in mg/nM3)				
Excess Air / Excess Oxygen (%age):-				
Analyzer exposed for Ramp-Up phase to the sample gas for 5 minutes		Yes	NO	NA
Analyzer flow rate and EC temperature monitored during calibration and testing		Yes	No	NA
Test Data Phase of sample gas recorded with 15 second interval		Yes	No	NA
All key requirements to ensure QA/QC complied for said EPA approved Method		Yes	No	NA
Particulate Matter (PM) Monitoring / Sampling under USEPA Method 5 / 17				
Model & Make of Iso-kinetic PM Assembly				
The PM sampling train is complete as per Method 5 & 17		Yes	No	NA
Leak Test performed prior to sampling		Yes	No	NA
Field data Sheet for PM Sampling filled during PM sampling		Yes	No	NA
Data for determining of "K" factor & DGM "Y" Factor filled during sampling		Yes	No	NA
All method key requirements during sampling were compiled to ensure QA/QC		Yes	No	NA
Filter of Particulate matter is suitable for metal Testing		Yes	No	NA
SOx sampling as per Method 8 (Thorin Indicator Method)				
The right absorbent solution are available for SOx Sampling		Yes	No	NA
The equipment is capable to maintain flow rate @ 2.0LPM or as per method 8 requirement		Yes	No	NA
Sampling for SOx is performed as per method		Yes	No	NA
Ambient Air Quality Monitoring by Automatic Monitors for CO, O3, SO2, NOx, PM2.5 & PM10				
In case of continuous monitoring at a site, One Point QC Check Single analyzer & zero/span check is performed every 14 days.		Yes	No✓	NA
The CE of NOx analyzer is ensured to be maintained within 96% - 104.1%		Yes	No✓	NA
Zero/span check is performed prior to starting ambient monitoring		Yes	No✓	NA
All key requirements for Critical & Operational Criteria for ambient air monitoring by automatic monitors were compiled during monitoring		Yes✓	No	NA
The measuring techniques of monitors comply PEQS		Yes✓	No	NA
Ambient Air Sampling of SPM, PM10, Pb by High Volume Sampler				
In case of Sampling for SPM through samplers, the flow rate of sampler comply PEQS (1.1m3/min).		Yes✓	No	NA
Calibration of Sampler performed prior to sampling		Yes	No✓	NA
Vehicular Emissions & Noise Measurement				
Sampling of Vehicle emissions and noise measurement have been performed as per method and SOPs		Yes✓	No	NA

Remarks (if Any):-

Signature

Research Officer
Environment Protection Agency
Punjab Lahore

Monitoring Date
04-06-2024

Signature
Assistant Analyst
Mehmood Aslam

ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF THE PUNJAB
National Hockey Stadium, Gate No. 08
Gaddafi Stadium Complex, Lahore

Validation for Wastewater & Drinking Water

Validation # 1111-B

Issue Date: 06-06-2024

Project / Unit Name with Address and contact details	**Descon Oxychem Private Limited**	**Sampling Point** **Tap Water**	
	18 Km, Lahore-Sheikhupura Road, Lahore		
Validation No			
Name of Private Lab	**ESPAK.**		

~~Waste Water (WW) Treatment facility~~ Primary Secondary Tertiary ~~NA~~

~~Drinking Water (W) Treatment Facility~~ Chemical RO ~~NA~~

~~Total WW collected Sample .....~~

~~Total Collected Drinking water samples.....~~

Sample Tag for testing parameter is assigned on sample container	Yes	NO	NA
Sample is preserved properly for each testing parameter	Yes	NO	NA
Sample size is adequate for testing the target parameters	Yes	NO	NA
Wastewater Flow Measurement performed to ensure sample representativeness	Yes	NO	NA

No. of Waste Water outlets	Waste Water Flow m^3/hr from each outlet **(Optional)**	Water intake m^3/hr **(Optional)**	Water Mass balance complied during sampling **(Optional)**	**Sample Type** **GROUND WATER**
			Yes No	Grab✓ Composite

Parameter	Matrix W	Matrix WW	Container	Sample Size	Preservation	Yes	NO	NA
Coliform, Total or Fecal	✓	——	Sterile Container	100 mL	Refrigerate 6 C	✓		
Coliform, Total or Fecal,Chlorinated Water	✓	——	Sterile Container	100 mL	0.008% Thiosulphate & cooled 6 C	✓		
Color, Turbidity	✓	——	P,G	500 mL	Cool 6 C	✓		
Hardness, Total	✓	——	P,G	500ml	HNO3 to pH<2	✓		
Nitrogen, Nitrate + Nitrite, Phenolic Compounds, ~~Oil & Grease, COD, NH3~~	✓	——	P,G	2000 mL	H2SO4 to pH < 2, Cool 6C	✓		
Metals, General	✓	——	P,G Rinsed 1.1 HNO3	500 mL	HNO3 to pH < 2	✓		
Cyanide, Total	✓	——	P,G	500 mL	NaOH to pH > 12, Cool 6C	✓		
Pesticides, General	——	——	Glass	1 Liter	Cool 6 C	——	——	——

Field Parameters*

Field parameter		pH meter, Model Make	Measurement Method	Calibrated in Field Yes NO	Measured value
pH					
Temp					
Cl					

Signature

Research Officer
Environment Protection Agency
Punjab Lahore.

Monitoring Date
04-06-2024

Signature
Assistant Analyst
Mehmood Aslam

ANNEXURE-E

PREVIOUS ENVIRONMENTAL APPROVAL

ENVIRONMENT PROTECTION DEPARTMENT

Government of the Punjab
4 - Lytton Road, Lahore

REGISTERED

NO. DDEIA)/F-242/Cir/EIA/3191
Dated: 13/06/2007

To

The Chief Executive,
M/s Descon Oxychem, Pvt. Limited,
18-Km, Ferozpur Road,
Lahore.

Subject: **ENVIRONMENTAL APPROVAL**

1. **Description of Project:** **Installation of New Hydrogen Peroxide Unit. The capacity of the unit will be 14,000 tons per year (100 wt - %)**

2. **Location of Project:** **The proposed site is located at 18 Km, Lahore Sheikhupura Road.**

3. Kindly refer to the application submitted to Environmental Protection Agency, Punjab for issuance of Environmental Approval for establishment of M/s Descon Oxychem Pvt. Limited at 18 Km, Lahore Sheikhupura Road.

4. Environmental Protection Agency, Punjab accords approval for only construction phase of your Plant at the aforementioned site subject to the following conditions:

   (i) This Environmental Approval stands only for establishment of Hydrogen Peroxide plant.

   (ii) Hazard of soil erosion will be minimized with proper provision for resurfacing of exposed area.

   (iii) Monitoring shall be carried out during the entire period of the project activities. Monitoring reports should be submitted to EPA, Punjab on monthly basis.

   (iv) The proponent shall be responsible for adopting appropriate mitigation measures for controlling anticipated environmental hazards.

   (v) Environmental Management Plan (EMP) should be devised and strictly adhered to minimize any negative impacts on soil, ground water, air and biological resources of the project area. The proponent shall depute staff to monitor compliance of EMP.

   (vi) The proponent shall comply with National Environmental Quality Standards (NEQS).

   (vii) Processing of potential environmental hazard substances/materials shall not be stored.

   (viii) Raw material containing CFC or other toxic compounds/gases shall not be stored at the unit.

   (ix) Explosive Materials shall neither be stored nor processed in the unit.

   (x) All unskilled and to the extent possible skilled jobs shall be given to the locals after providing them proper training.

   (xi) Compensation should be provided to the inhabitants in case of loss of agricultural land, crop, property, etc. in accordance with the rates that are agreed upon. All conflicting issues regarding compensation, etc. should be settled amicably before the start of the project activities.

(P.T.O)

(xii) Proponent will submit a community development plan for the benefit of communities of the project area to EPA, Punjab within **two months** of start of the project construction phase.

(xiii) The proponent shall ensure that strict and efficient health and safety measures are in place for protection of workers backed by a comprehensive emergency response system.

(xiv) The responsible persons may be deputed who will provide Environment Management Plan, a framework for implementing mitigations suggested in the Environment Assessment Report for life of the project and for safe environment.

(xv) The Management shall carry out extensive tree plantation, especially of indigenous species in and around the project area within the periphery of 25 KM in consultation with Divisional Forest Officer and District Officer (Environment), Sheikhupura within six months. The management will also allocate special funds for raising 25 acres plantation in the area each year and will raise its own nurseries.

(xvi) The proponent will arrange for the carpeting of the Kacha Track if any in the surroundings of the project site within six months.

(xvii) The proponent will not discharge untreated or treated wastewater in a surface water body.

5. The proponent shall be liable for correctness and validity of information supplied by the Environmental consultant.
6. The proponent shall be liable for compliance of sections 13, 14, 17 and 18 of IEE/EIA Regulations, 2000, regarding approval, conformation of compliance, entry, and inspection and monitoring.
7. This approval is accorded only for the installation/construction phase of the project. The proponent will obtain approval for operation of the Power Plant in accordance with Section 13(2)(b) and Section 18 of the IEE/EIA Regulations, 2000.
8. Any change in the approved project shall be communicated to EPA, Punjab and shall not be commenced after obtaining the approval.
9. The proponent shall follow all the conditions / suggestions / measures mentioned in the EIA Report.
10. This approval does not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law in force. The approval shall be treated as null and void if all or any of the conditions, mentioned in Para No. 4 above, is/are not complied with and if there is an order of the court of competent jurisdiction to the contrary.

DEPUTY DIRECTOR (EIA)
for Director General, EPA, Punjab

Endst. No. DD(EIA)/EPA/F-242/Cir/EIA/3192-94 Dated 14/06/2007

A copy is forwarded for information to:

1) The Director, Industries Department, Punjab, Lahore.
2) The District Officer (Environment), Sheikhupura with reference to his letter No. 910/DOE/SKP dated 14-04-2007. He is requested to ensure compliance of the above-mentioned conditions / mensures under intimation to this office.
3) The Divisional Officer (Forest), Sheikhupura.

DEPUTY DIRECTOR (EIA)
for Director General, EPA, Punjab

ENVIRONMENT PROTECTION DEPARTMENT
Government of the Punjab
National Hockey Stadium, Lahore

NO. DD (EIA)/EPA/F-242(EIA)/2007/Cir-//
Dated: 03 / 01/ 2011

To

The Chief Executive,
M/s Deacon Oxychem Limited,
18-Km, Sheikhupura Road,
Lahore.

Subject: **ENVIRONMENTAL APPROVAL**
(Under Section 12 of the PEP Act, 1997 read with IEE/EIA Regulations, 2000).

Reference: E.A Letter NO. DD (EIA)/EPA/F-242(EIA)/2007/Cir/3191 dated 14.06.2007 for the Construction Phase.

1. Description of Project: Operation of new Hydrogen Peroxide Unit. The capacity of project will be 14,000 tons per year.
2. Location of Project: The site is located at 18-Km Lahore-Sheikhupura Road.

3. After review of the Environmental Impact Assessment (EIA) Report, DOE Report and other relevant record, the Environmental Protection Agency, Punjab has decided to accord its approval for operational phase of the project subject to the following conditions:

i) The proponent shall ensure compliance of National Environmental Quality Standards (NEQS).
ii) Mitigation measures suggested in the EIA Report and EMP shall be strictly adhered to minimize any negative impacts on soil, groundwater, air and biological resources of the project area.
iii) Monitoring shall be carried out during the entire period of the project activities. Monitoring reports of the whole operation shall be submitted to EPA, Punjab on quarterly basis.
iv) At least 90% unskilled and to the extent possible skilled jobs shall be given to locals after providing them proper training.
v) Compensation shall be provided to inhabitants in case of loss of agricultural land, crop, property, etc. in accordance with the rates that are agreed upon. All conflicting issues regarding compensation, etc should be settled amicably before or during the project activities.
vi) The proponent shall submit a Community Development Plan for the benefit of communities of the project area to Punjab, EPA within two months of start of the project construction phase.
vii) The proponent shall ensure treatment of liquid waste and shall not discharge treated or untreated wastewater in any surface water body.
viii) The proponent shall ensure that strict and efficient health and safety measures are in place for protection of workers backed by a comprehensive emergency response system.
ix) Explosive Materials shall neither be stored nor processed in the unit.
x) Raw materials containing CFC or other toxic compounds/gases shall not be stored at site/unit.
xi) Sanitary conditions in and around your project should be to the entire satisfaction of this Agency during operational phase of the project.
xii) The proponent shall obtain separate approval from Joint Secretary (IC), Ministry of Environment, Islamabad in case of import of any raw material.

P.T.O

xiii) The proponent shall plant at least 10,000 trees of minimum height 6-7 feet especially of indigenous species in the area in consultation with District Officer (Environment), Sheikhupura within six months. The proponent shall take measures for the maintenance of the plants.

xiv) The proponent shall obtain NOC / clearance from all other concerned departments before commencement of work.

xv) The proponent shall appoint an Environmental Manager (having at least qualification of M.Sc. Environmental Sciences).

xvi) No encroachments or additional activities shall be done within/outside the premises.

xvii) The proponent shall ensure proper disposal of solid waste according to guidelines of EPA.

4. The proponent shall be liable for correctness and validity of the information supplied by the Environmental Consultant.

5. The proponent shall be liable for compliance of Sections 17 and 18 of IEE/EIA Regulations, 2000, regarding, confirmation of compliance, entry, inspections and monitoring.

6. Any change in the approved project shall be communicated to EPA, Punjab and shall be commenced after obtaining the approval.

7. This approval shall be treated as null and void if all or any of the conditions mentioned above, is are not complied with. This approval does not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law in force and is subjudice to legal proceedings in any legal fora / court.

8. This approval can be withdrawn at any time without any prior notice in the public / national interest.

ASSISTANT DIRECTOR (EIA)
for Director General, EPA, Punjab
Ph. # (042)99232228

NO. & DATE EVEN.

A copy is forwarded for information to,

1. The Director (North), Environmental Protection Agency, Lahore.
2. The Director, Industries Department, Government of the Punjab, Lahore.
3. The District Officer (Environment), Sheikhupura w.r.t. his letter No. 4761/DOE/SKP dated 27.11.2020. He is requested to ensure compliance of the above-mentioned conditions / intimate under information to this office.

ASSISTANT DIRECTOR (EIA)
for Director General, EPA, Punjab

ANNEXURE-F

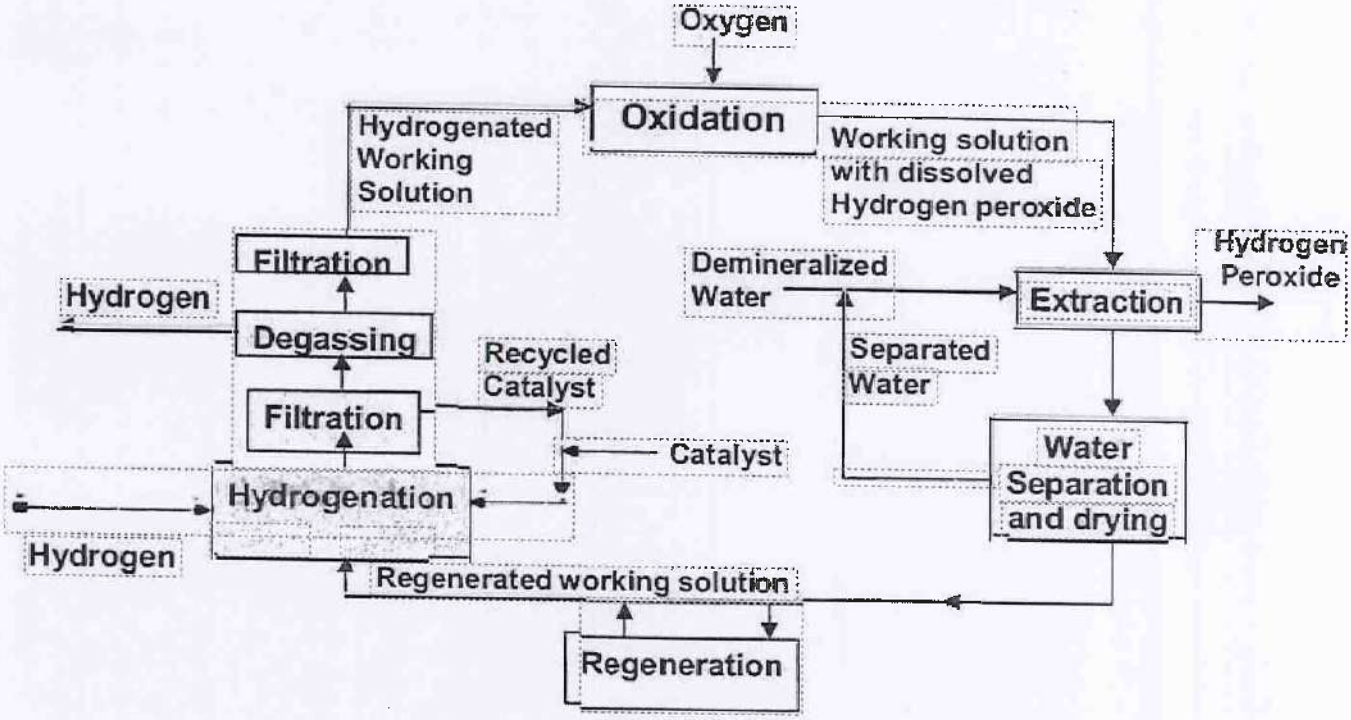
GOOGLE EARTH MAP


Marked Areas of Proposed Extension
Legend
Feature 1
Feature 2
Material
Yasir Bhatti Shop
Yasir Bhatti Shop
Pure Foods
Mughal Steel Group of Industries
Mughal Steel - Pla
Material Hall Storage# 1 (NFG)
Compressor Area
Material Storage Hall # 1 (Empty Jerrycan Building)
Electrical and Instrumentation Building
Material Storage # 3 (New Warehouse Near Scrap Area)
Material Storage Hall # 4
NEWAGE PLASTIC Pvt
Packtech (Pvt)
Lahore Rd
Google Earth
600 ft
N

ANNEXURE-G

FLOW PROCESS OF HYDROGEN PEROXIDE

FLOW PROCESS:



ANNEXURE-H

PROCEDURE FOR WASTE MANAGEMENT

SYSTEM PROCEDURE

FOR

WASTE MANAGMENT

WRITTEN BY _____
MANAGER QHSE

REVIEWED BY _____
WORKS MANAGER

APPROVED BY _____
CHIEF EXECUTIVE OFFICER

DATED February 28, 2019

CONTROLLED
THE COLOUR IS RED

Controlled Copy, if Stamped in Red
Descon Oxychem Limited

DISTRIBUTIONAND / COMMUNICATION

All System procedures and formats are available for all at "Descon Online" https://descononline.descon.com/app/default.aspx

1. OBJECTIVE

The purpose of this Procedure is to identify waste generated, its segregation, collection and responsible disposal.

2. SCOPE

This System Procedure is applicable to Descon Oxychem Limited (DOL).

3. RESPONSIBILITIES

All respective personnel mentioned in this procedure are responsible for implementing this procedure.

4. ABBREVIATIONS

I/C	In-charge
CEO	Chief Executive Officer
DR	Departmental Representative
DOL	Descon Oxychem Limited
QHSE	Quality, Health, Safety & Environment
OH&S	Occupational, Health & Safety

5. DEFINITIONS

Nil

6. PROCEDURE

6.1. Handling, segregation and disposal of waste

Waste is classified as Hazardous and Non-hazardous by identifying the physical, chemical and toxicological properties. This information may be found via Material Safety Data Sheets (MSDS), manufacturer's information, process knowledge, historic information or lab analysis. Designated drums, containers, bins, etc with specific labels are placed at different areas of plant for collection of waste. Color coding of drums/ containers/ bins for various types of wastes is to be as follows:

Wastes Type	Bin Color
Hazardous Wastes	
Canteen/Lunch Room/Kitchen Waste	
Non Hazardous Wastes	
Grinding/Cutting disc waste	

6.2. Waste management hierarchy

Environmental impact can be minimized by ensuring that the materials are used efficiently and are not disposed off unnecessarily. By reusing materials or having them recycled, the impacts can be minimized further.
As indicated in HSE Management Standards, waste control and management should follow the hierarchy of waste control:

1. At Source Reduction
2. Re-use
3. Recycling
4. Treatment
5. Disposal

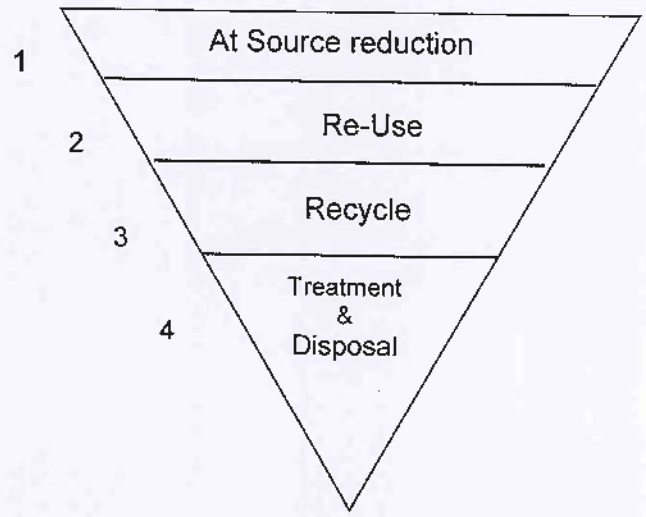


Fig: Waste Management Hierarchy

6.2.1. At Source Reduction

The volume of waste produced should be reduced through:

a. Purchase of materials in bulk.
b. Avoiding purchase of goods with excessive packaging.
c. Avoiding wastage of materials.
d. Better handling and storage practices to prevent damage.

6.2.2. Reuse

Wherever possible items should be reused rather than discarding, e.g.:

- Reuse of containers where possible.
- Handle and store packaging material in way so that others can reuse it at plant.

Materials that can be reused should be segregated from the waste stream, cleaned and repaired prior to storage for future use.

6.2.3. Recycling

A number of discarded materials can be recycled rather than being disposed. These should be segregated within the main waste stream and stored separately. Recyclable materials include:

- All metals.
- Plastics.
- Paper
- Glass

6.2.4. Disposal

Treatment and disposal of hazardous waste would be done responsibly in collaboration with EPA approved Waste Management Company and/or Local Administrative authority to comply PEQs.

6.3. Solid Waste

6.3.1. Non-hazardous Solid Waste

6.3.1.1. Admin department will collect waste from designated drums of Non-hazardous waste placed at different locations of plant, on weekly basis to dispose off responsibly at disposal point indicated by Local administrative authority.

6.3.1.2. Admin department will ensure on daily basis about collection of waste in designated drum to prevent its mixing with hazardous waste.

6.3.1.3. Admin manager is responsible to dispose off waste on weekly basis.

6.3.2. Hazardous Solid Waste

6.3.2.1. All relevant department, where hazardous waste is generated, will store waste in designated drums placed at different points in their area.

6.3.2.2. Each department will segregate hazardous waste into re-useable/scrape items and disposable items.

6.3.2.3. Re-useable/ scrape items will be handed over to warehouse department for sale purposes.

6.3.2.4. EPA Approved waste management company will collect disposable hazardous waste for responsible disposal.

6.3.2.5. IT department will segregate IT related E-waste, both at plant side and building area, into reusable/scrap and disposable items. Reusable/ scrap material will be sold out to approve vendors while disposable material will be handed over to EPA approved waste management company for responsible disposal.

6.3.2.6. Electrical department will segregate electrical related E-waste, both at plant side and building area, into reusable/scrap and disposable items. Reusable/ scrap material will be sold out to approve vendors while disposable material will be handed over to EPA approved waste management company for responsible disposal.

Non Hazardous Waste	• Kitchen /Café waste • Yard Waste • Paper Waste/ Packaging waste • Plastic Bottle • Broken Crockery • Glass
Hazardous Waste	• Waste oil • Chemical Container(crushed) • Other Hazardous waste(chemical waste like catalyst after processing) • Contaminated Soil • Grease trap sludge • Contaminated rags

6.4. Liquid Waste

6.4.1. Technical Lab will conduct waste water analysis on monthly basis, of sample taken from main storm pit where overall liquid waste of plant is accumulated.

6.4.2. Technical lab will maintain record of waste water analysis report.

7. APPLICABLE DOCUMENTS

Nil

8. APPENDICES

Nil

ANNEXURE-I

RELEVANT GOVERNMENT APPROVALS

DISTRICT CIVIL DEFENCE
HEADQUARTER SHEIKHUPURA
PHONE NO. 9200049/ 9200048
civildefenceskp188@gmail.com

To,

The Team Lead HSE,
Descon Oxychem Limited,
18 Km Lahore-Sheikhupura Road,
Tehsil Ferozewala District Sheikhupura.

No. CDS-F.F.-2023/1396
Dated: 20-07-2023

Subject:- FIRE FIGHTING CERTIFICATE.

Reference your application dated on 02-07-2023 the subject cited above.

It is certified that Descon Oxychem Limited, 18 Km Lahore-Sheikhupura Road Tehsil Ferozewala District Sheikhupura has been visited by Mr. Muhammad Hanif Chief Instructor of this office on 20-07-2023 regarding the checking of fire fighting equipment. As per inspection report, Firefighting equipment installed in the above said premises i.e. Water Type, CO2, DCP Fire Extinguishers and Fire Hydrant System were found in working condition and satisfactory at the time of inspection. This Certificate is valid till 31-12-2023.

However, the management is bound to maintain the equipment in working condition all the time and they will be responsible for any mishap that takes place due to incompetence / negligence.

Civil Defence Officer
Sheikhupura

CIVIL DEFENCE OFFICE SKP

ANNEXURE-J

EMERGENCY RESPONSE PLAN AND EMERGENCY EVACUATION PLAN

PROCESS SAFETY MANAGEMENT

System Procedure

Emergency Preparedness & Response Plan

Prepared By: _____
HSE Executive

Reviewed By: _____
Manager HSE

_____
Works Manager

Approved By: _____
Chief Executive Officer

DISTRIBUTION/COMMUNICATION

All System Procedures and formats are available for all at "Descon Online".
https://descononline.descon.com/app/default.aspx

PATH

Chemical Business→ Descon Oxychem Limited→ QMS-DOL→ HSE→ Procedure→ DOL-HSE-PSM-15

1. OBJECTIVE

This procedure is intended to ensure that in case of incident such as major fire, explosion, flammable gas release, medical, chemical spillage from pressurized vessels, natural disaster, road accident and multiple fatalities. All necessary actions are taken for protection and to prevent or mitigate associated adverse Health, Safety and Environmental consequences.

This procedure details the protocol for Emergency Response and Planning, Crisis Management requirements for ensuring effective response by site personnel to minimize the loss and recovery time.

2. SCOPE

This procedure is applicable to all potential and actual emergency situations which can arise in any area of Descon Oxychem Limited (DOL).

3. RESPONSIBILITIES

3.1. CEO

- Assume primary responsibility to maintain a safe work environment within their jurisdiction
- CEO will inform head office about crisis

3.2. WORKS MANAGER

- Ensure appropriate mechanisms exist to develop, update and as appropriate practice emergency preparedness procedures
- Identify appropriate processes to HSE Department for inclusion in the DOL Emergency Plans
- Works Manager will communicate operations situation with top management (in case of crisis)

3.3. PRODUCTION MANAGER

- Ensure existing emergency preparedness procedures according to possible emergency scenarios through PHAs as well.
- Provide appropriate opportunities for employees to actively participate in emergency planning and response exercises
- In case of crisis, will decide on emergency shutdown

3.4. ADMIN & IR MANAGER

- Will identify the needs of relevant interested parties, e.g. emergency services and neighbors and contact them to know about their capacity and resources to deal with emergency situations and can develop an understanding for helping each other, if needed
- Will perform headcount in assistance with security supervisor

3.5. HSE DEPARTMENT

- Provide guidance on implementation of the DOLs emergency plans
- Define and assign appropriate resources to implement the measures described within the plans
- Provide training to DOL Emergency Squad (DES)
- HSE in coordination with functional heads will form an DES from every department and it will be displayed in each section and communicated as well
- HSE will prepare an emergency response flow chart explaining emergency communication flow and channels, roles and responsibilities and effective response methodology for controlled and uncontrolled emergencies.
- HSE will prepare emergency evacuation map(s) in consultation with Production, Engineering, Technical containing details of emergency communication system, emergency equipment's, emergency routes, assembly point(s) for all sections/workshops and emergency contact numbers. He will also ensure that it is known to all employees and contractors.

Key personnel who will play vital role in handling emergency situation on plant are DOL Emergency Squad, Administration & IR Manager, and Works Manager.
Works Manager is the senior most person in the team to handle emergencies and make important decisions in consultation with Manager HSE. Works Manager/ Manager HSE may coordinate with CEO if required.

4. ABBREVIATIONS

CEO	Chief Executive Officer
HSE	Health Safety and Environment
DES	DOL Emergency Squad
DOL	Descon Oxychem Limited
OH&S	Occupational, Health & Safety
WM	Works Manager
LM	Line Manager

5. DEFINITIONS

5.1. CRISIS

Any critical emergency, which can last from a few hours to several days or longer, requires decisions to be made quickly to limit damage to an organization, its key stakeholders and the public.

5.2. MAJOR EMERGENCY

An unexpected material, system, or process occurrence within premises that has the potential for causing serious injury to people and/or property or environmental damage and needs immediate action.

5.3. EMERGENCY PREPAREDNESS

Emergency Preparedness is an integral part of an OH&S occupational health and safety management system. It is a set of procedures that needs to be put in place to both identify and respond to potential emergency situations.

5.4. DOL EMERGENCY SQUAD (DES)

Emergency squad team is a team that can be central to ensuring that the effect is mitigated, reduced and people are rescued.

5.5. FLOOR MARSHALS

Floor Marshals are the one being nominated to ensure that the area has been evacuated and nobody is left behind in case of emergency.

6. PROCEDURE ON EMERGENCY PREPAREDNESS

6.1. MAIN RISK AT DESCON OXYCHEM SITE

The main risks at DOL site include:

1. Fire and explosion
2. Flammable gas release
3. Medical
4. Chemical Spillage from pressurized vessels
5. Natural Disaster (Flood, Earthquake etc.)
6. Multiple Fatalities
7. Road Accidents (Passengers, Product)

Emergency planning for all these hazards should be based on worst case scenario for each type of hazardous event. For this, consequence analysis should be conducted for all potential hazardous events resulting from the loss of engineering / operational controls for the process. This evaluation along with guidance from PHAs includes estimating release amounts and conditions, consequences on affected areas and determining resulting Health, Safety and Environmental effects.

6.2. EMERGENCY RESPONSE & PREPAREDNESS

In an event of emergency, from declared emergency scenarios the report should be made to the DCS room by any means walkie talkie, dialing emergency number and or using manual call point. Emergency

planning for all these hazards should be based on worst case scenario for each type of hazardous event. For this, consequence analysis should be conducted for all potential hazardous events resulting from

6.2.1. Emergency preparedness will include training of employees on how to deal with emergencies, implementation of effective control measures to avoid any emergency, defining responsibilities for emergency handling, installation of emergency communication system and equipment, availability of emergency response equipment's, defining the evacuation routes and exit points and defining the frequency for inspection of emergency response equipment's.

6.2.2. In case of any Emergency, there exists a Medical Facility to provide 1st Aid treatment in presence of qualified Paramedics. Registered Medical Practitioner is hired to comply with OHIH requirements. Furthermore, rescue, firefighting and hospital are readily available (with dialing numbers displayed) in close vicinity which can be approached in a matter of few minutes.

6.2.3. TL HSE in coordination with functional heads will form a DES from every department and it will be displayed in each section and communicated as well.

6.2.4. HR and Admin department is responsible for the up gradation of DES list on quarter basis, a soft copy of this record will be circulated to all departments.

6.2.5. HSE Executive will prepare an emergency response flow chart explaining emergency communication flow and channels, roles and responsibilities and effective response methodology for controlled and uncontrolled emergencies.

6.2.6. Manager HSE will prepare emergency evacuation map(s) in consultation with Production, Engineering, Technical containing details of emergency communication system, emergency equipment's, emergency routes, assembly point(s) for all sections/workshops and emergency contact numbers. He will also ensure that it is known to all employees and contractors.

6.2.7. All line manager will ensure that lists of DES is displayed in all their respective areas.

6.2.8. Manager HSE and Administration will identify the needs of relevant interested parties, e.g. emergency services and neighbors and contact them to know about their capacity and resources to deal with emergency situations and can develop an understanding for helping each other, if needed.

6.2.9. The actual involvement of external agencies in emergency planning and response will be clearly documented by concerned person HSE Manager and Administration Manager.

HSE in collaboration with line management team will conduct the emergency drills report and circulate among all departments and also report in management review meeting.

6.3. INFORMATION

6.3.1. MSDS will be the source of information on hazardous material's potential impact on the environment, and measures will be taken as instructed in the event of accidental releases.

6.3.2. All manuals and drawings to be available in Control Room, Crisis Management cell and with all key members involved in emergency handling.

6.3.3. All responsibilities of involved staff should be printed on single page and placed at CM cell and in their respective office.

6.4. EMERGENCY DRILLS

6.4.1. Emergency drills will be conducted at least quarterly in order to assess the effectiveness of ERP and preparedness of workforce to handle emergencies and to make workforce realize their roles and responsibilities during emergency. The frequency can be increased by Manager HSE based on the requirements.

6.5. CORRECTIVE ACTIONS

6.5.1. Any discrepancy observed during emergency drills will be reported. Corrective actions will be taken and decisions made jointly by team.

6.6. MUTUAL AID

6.6.1. Other organizations in surrounding area can be contacted to know about their capacity and resources to meet emergencies. Numbers of these neighbor companies are provided to all departments and placed at different location of plant.

6.7. EVACUATION ROUTE

Evacuation route maps have been posted in each work area. The following information is marked on evacuation maps:

6.7.1. Emergency exits

6.7.2. Locations of fire extinguisher

6.7.3. Assembly points

6.8. EMERGENCY COMMUNICATION

6.8.1. Two level of communication external and internal

6.8.2. Communication is a critical factor in handling an emergency. To control the situation by the earliest possible action, any employee must be authorized to raise an emergency alarm

6.8.3. Ambulance, medical staff, Fire brigade service or other external emergency services shall be called if needed in consultation with Administration & HSE department.

6.9. CRISIS MANAGEMENT CELL

A conference room in Admin Building would be dedicated as crisis management cell. With all necessary information made available with dedicated seating arrangement where every ones roles statement is placed.

CEO, CFO, Works Manager, HRBP, Admin & IR Manager.

6.9.1. CEO will inform head office about crisis.
6.9.2. CFO will look after financial matters to counter the crisis.
6.9.3. Works Manager will communicate operations situation with top management.
6.9.4. HRBP will tally the headcount and make arrangement for employees
6.9.5. Admin & IR Manager will liaison with government emergency services such as Rescue 1122, Police, Civil Defense, National Disaster Management Authority etc.

6.10. PERIODICAL REVIEW OF EMERGENCY SYSTEM

After the occurrence of an actual emergency situation also; effectiveness of this procedure and system will be reviewed. If found unsatisfactory, revisions will be made accordingly and communicated to all concerned.

7. ROLE AND RESPONSIBILITIES

As attached in Annexure A

8. EMERGENCY SCENARIOS AND EVACUATION PROCEDURE

Including major risk at DOL site following emergency scenarios has been attached in Annexure B along with their evacuation procedure.

1. Fire and explosion
2. Flammable and toxic gas release
3. Medical
4. Chemical Spillage from pressurized vessels
5. Natural Disaster (Flood, Earthquake etc.)
6. Multiple Fatalities
7. Road Accidents (Passengers & Product)

9. TRAINING ON EMERGENCY PREPAREDNESS

Regular training and practice under simulated conditions is imperative to enable the organization to respond effectively to emergencies. Following program is to be followed for training of the DOL emergency squad and employees.

9.1. INITIAL TRAINING

All new / transferred employee's / contractor workforce should undergo an initial training on site emergency procedures and their role statement in case of emergency.
This training is mandatory at the start of their employment on site.

9.2. MONTHLY SIMULATED EXERCISE

All emergency squad should do once in two-month emergency training for the training of emergency squad.

9.3. QUARTERLY SIMULATED EXERCISES

9.3.1. A comprehensive program should be established for quarterly simulated exercises.
9.3.2. All employees and contractor workforce should participate in the simulation.
9.3.3. Observers should be assigned at all the locations to assess compliance on the role statements
9.3.4. A formal critique session should be held after the simulated exercise and participated by all the observers and key personnel from emergency organization
9.3.5. After the critique session, a report should be issued which should highlight area-wise compliance on the role statements and capture areas of improvement.
9.3.6. The frequency can be increased by Works Manager based on the requirements.

9.4. TRAINING REQUIREMENT FOR DOL EMERGENCY SQUAD

Minimum training requirements for the squad members are as under:

9.4.1. Aware of emergency reporting procedure
9.4.2. Understands his role statement in emergency
9.4.3. Knows location of major equipment at the plant site for assembly purposes
9.4.4. Knows assembly locations for employees other than squad members
9.4.5. Understand classes of fire and extinguishing media for each class of fire
9.4.6. Capable of using fire extinguishers independently
9.4.7. Capable of hose handling and making of water curtain
9.4.8. Aware of location of spare cylinders, fire extinguishers, fire hoses and nozzles etc
9.4.9. Capable of providing 1st aid specific to needs
9.4.10. Understands Laboratory emergency handling procedure
9.4.11. Is aware of the MSDS on Hydrogen Peroxide, Sulphuric Acid and HCL etc
9.4.12. Understands possible emergencies at non-operating areas of the Plant
9.4.13. Has participated in the class room training on Fire Fighting
9.4.14. Has participated in the class room training on First-Aid
9.4.15. Has participated in training on Confined Space Rescue
9.4.16. Firefighting on or near electrical equipment

9.5. SQUAD LEADER

In addition to general requirements mentioned above, on duty HSE representative / Shift Engineer would be a Squad Leader and is:

9.5.1. Capable of leading the emergency squad

9.5.2. Know the role of emergency squad members as well as their own role statements in case of emergency

9.5.3. Must have participated at least in one quarterly drill as a squad member or an observer

10. APPLICABLE DOCUMENTS

Nil

11. APPENDICES

Annex A	Roles & Responsibilities
Annex B	Emergency Scenarios and Evacuation Plan
Annex C	DOL Emergency Squad and Floor Marshals

Annexure "A"

All Staff Responsibilities

General Responsibility

1. It is mandatory for all employees to participate in an evacuation, whether it is being conducted as a drill or is an actual emergency. When the fire alarm sounds, you must proceed as follows:
2. Terminate all telephone conversation
3. Close all desk and file cabinet drawers
4. Take valuables with you if they are readily available and will not delay your evacuation
5. Do not return for them
6. Ensure that all visitors are evacuated
7. Move to the emergency staircase nearest to your location
8. Do not carry anything, linger, smoke or carry beverages in staircases. All of these can cause accidents and needless injuries. Also, remember to keep conversation to a minimum since this could interfere with follow-up instructions provided by members of your Emergency Squad
9. After Evacuation from affected building / area all personnel will assemble outside the department in the defined Assembly Area by using Emergency Exits as shown on the emergency plan
10. Squad Leader shall arrange to conduct the head count

In The Event of Fire

1. If you see a fire or smoke, activate the alarm and inform Shift Engineer / DOL Squad Leader
2. Provide the following details:
    - Location of the Incident
    - Natures of incident e.g. fire, number of injuries, etc.
    - Identify yourself giving your name and telephone number
3. All persons will evacuate the effected Building / Area except those who have been trained in emergency response activities or any other who are required in the situation. Emergency Evacuation plan of the building has been displayed for guidance
4. After Evacuation from affected building / area all personnel will assemble outside the department in the defined Assembly Area by using Emergency Exits as shown on the emergency plan
5. Squad Leader / Admin representative shall arrange to conduct the head count

When The Fire Alarm Sounds

1. Do not panic
2. Walk, don't run in case of earthquake
3. Use exit stairways
4. Keep conversation to a minimum

5. Leave lights on and close doors
6. Be alert for further instructions
7. Do not start rumors
8. Do not congregate near the exit stairways doors

If There is a Fire On the Floor, Follow These Steps

1. Leave all lights on and close all doors behind you, making sure they are not locked
2. Use the exit stairwells
3. If there is smoke in the area, stay low to the floor during the evacuation

If There is a Fire or Substantial Amount of Smoke in the Hallway

1. Stay in the room and remain calm
2. Dial your emergency number and inform them of the situation and that you cannot safely evacuate.
3. Seal the cracks around the door to keep smoke out
4. If smoke enters the room, stay close to the floor and breathe slowly
5. Remain calm and wait for help to arrive

Every Supervisor Shall Ensure the Following

1. All work is stopped at once
2. All equipment is shut down or put in a safe place
3. All employees are evacuated to a pre-determined assembly point in an orderly manner
4. Advise security to open the main gate for emergency vehicles
5. Keep the zone, affected by the emergency, clear and remove any vehicles that could cause a restriction to the emergency team
6. No one is permitted to return to work until notification has been received from operations or from the company representative that it is safe to do so

CHIEF EXECUTIVE RESPONSIBILITIES

1. CEO shall immediately inform vice chairman about the incident
2. If required CEO shall be the spokesperson and may have to represent the site with;
    - Local community organizations
    - News media
    - Governmental agencies

WORKS MANAGER RESPONSIBILITIES

1. In case of emergency WM shall inform immediately to CEO and CFO
2. WM shall take a call incase emergency shut down of plant is required in consultation with Production manager or SE

3. If required WM shall give guidance for mobilization of additional resources to adequately deal with the situation in consultation with Manager HSE

HSE DEPARTMENT RESPONSIBILITIES

1. HSE manger shall ensure compliance of this procedure;
2. By auditing the procedure and is being implemented in its true shape
3. Provide guidance, assistance and advice to DES as required
4. Responsible for periodic evaluation & review during emergency drills
5. Recommend and monitor control measures
6. Responsible to set up the schedule for emergency and evacuation drills
7. In case of emergency Manager HSE shall inform to SE/WM/DES
8. TL HSE in coordination with functional heads will form an DES from every department and it will be displayed in each section and communicated as well
9. TL HSE will ensure that lists of DES team is displayed in all areas
10. TL HSE to ensure all escape routes and assembly areas are clearly marked by respective safety signs in the field as indicated on the site plan
11. TL HSE to develop schedule of inspection for firefighting and other emergency equipment
12. HSE will ensure arrangements for head counting in the assembly area

Shift Engineer Responsibilities

1. All shift engineers are responsible to deal the emergencies at plant
2. SE will assess the scale of emergency and issue the directions to the emergency response team (if not declared and notified already) for mobilization
3. SE will immediately contact/inform to HSE team or WM
4. If emergency shutdown is required SE is authorized to follow the emergency plant shut down guidelines
5. After assessing the extent of emergency SE will liaise with site supervision to withdraw the work permits
6. SE will inform production manager or WM about the emergency shutdown of plant
7. If required SE will ask WM for mobilization of additional resources if required to adequately deal with the situation. As per the clause

DOL Emergency Squad Responsibilities

1. All emergency personnel should go through the training as described in.
2. DOL emergency squad members shall reach the point of incidence and shall take part in the initial fire extinguishing activities or required activities
3. Shall help the persons in the evacuation of the building
4. Shall take with them first aid boxes outside the building for its any eventual use outside the building
5. Electrical Department shall be informed to cut off electrical supply of the affected area if needed

6. Shift engineer shall be informed about the incident
7. Call to ambulance if fire spreads in consultation with HSE
8. Emergency squad team shall follow the steps in case of medical as attached in annexure b

Annexure "B"

EMERGENCY SCENARIOS AND EVACUATION PROCEDURE

MEDICAL EMERGENCY

Call medical emergency phone number (check applicable):

- Paramedics
- Ambulance
- DOL Emergency Squad
- HSE Team
- Control Number
- Neighboring Industry / Community

Provide the following information:

- Nature of medical emergency
- Location of the emergency (address, building, room number)
- Your name and phone number from which you are calling

Do not move victim unless absolutely necessary

Prior to the arrival of the medical help take following information:

Contact person name in family: _____ Phone: _____

Contact person name in family: _____ Phone: _____

If First Aid are not available

If personnel trained in First Aid are not available, as a minimum, attempt to provide the following assistance:

1. Stop the bleeding with firm pressure on the wounds (note: avoid contact with blood or other bodily fluids)
2. In case of rendering assistance to personnel exposed to hazardous materials, consult the Material Safety Data Sheet (MSDS) and wear the appropriate personal protective equipment.

Attempt first aid ONLY if trained and qualified.

If required, HSE Team or DES will make necessary arrangement to move the victim to nearest hospital

CHEMICAL SPILL

The following are the locations of:

Spill Containment and Equipment: _____

Personal Protective Equipment (PPE):

MSDS: _____

When a Large Chemical Spill has occurred:

1. Immediately notify the designated area in-charge and DES

2. Contain the spill with available equipment (e.g., Spill kit, pads, booms, absorbent powder, etc.)
3. Secure the area and alert other site personnel
4. Do not attempt to clean the spill unless trained to do so
5. Attend to injured personnel and call the medical emergency number, if required
6. Evacuate building as necessary

When a Small Chemical Spill has occurred:

1. Notify the supervisor or area in charge
2. If flammable fumes are present, secure the area (with caution tapes or cones) to prevent other personnel from entering
3. Deal with the spill in accordance with the instructions described in the MSDS
4. Small spills must be handled in a safe manner, while wearing the proper PPE

INSTRUCTIONS: BE CALM, BE COURTEOUS. LISTEN. DO NOT INTERRUPT THE CALLER.

Snake Bite

Take following measures in case of snake bite

- Inform the supervisor/ HSE representative
- Keep victim still and calm
- Keep the bitten area lower than heart, tie with tourniquet above the bitten area to avoid spreading of poison in the body
- Immediately shift the victim to near-by Hospital, HSE representative will inform the nearby hospital and send anti-venom vaccine along with the victim

PRECAUTONARY MEASURES DURING NATURAL DISASTERS

Earthquake

One of the greatest threats during an earthquake is falling debris. Earthquakes are unpredictable and strike without warning. Therefore, it is important to know the appropriate steps to take when one occurs, and to be so thoroughly familiar with these steps, that you can react quickly and safely.

Steps to Take During an Earthquake:

- Stay calm and await instructions from the DES or the HSE Representative
- Remain inside the building
- Seek immediate shelter under a heavy desk or table--or brace yourself inside a door frame or against an inside wall
- Stay clear of windows--at least 15 feet away
- If shaking causes the desk or table to move, be sure to move with it
- Resist the urge to panic. Organize your thoughts. Think as clearly as possible, and anticipate the sights and sounds that may accompany an earthquake
- Evacuate as instructed by the DES or the HSE Representative

Steps to Take Immediately After an Earthquake:

- Remain in the same "safe" location for several minutes after the earthquake, in case of aftershocks
- Do not attempt to evacuate or leave your immediate area unless absolutely necessary or when instructed to do so by HSE department. After their instruction please evacuate the building and collect at designated place outside the building
- Recounting shall be carried out at the assembly point
- DES will check for injuries and administer necessary first aid
- Recognize and assist co-workers who are suffering from shock or emotional distress
- Due to the possibility of aftershocks, a person should only move back to workplace after clear instructions from HSE or DES

Flood

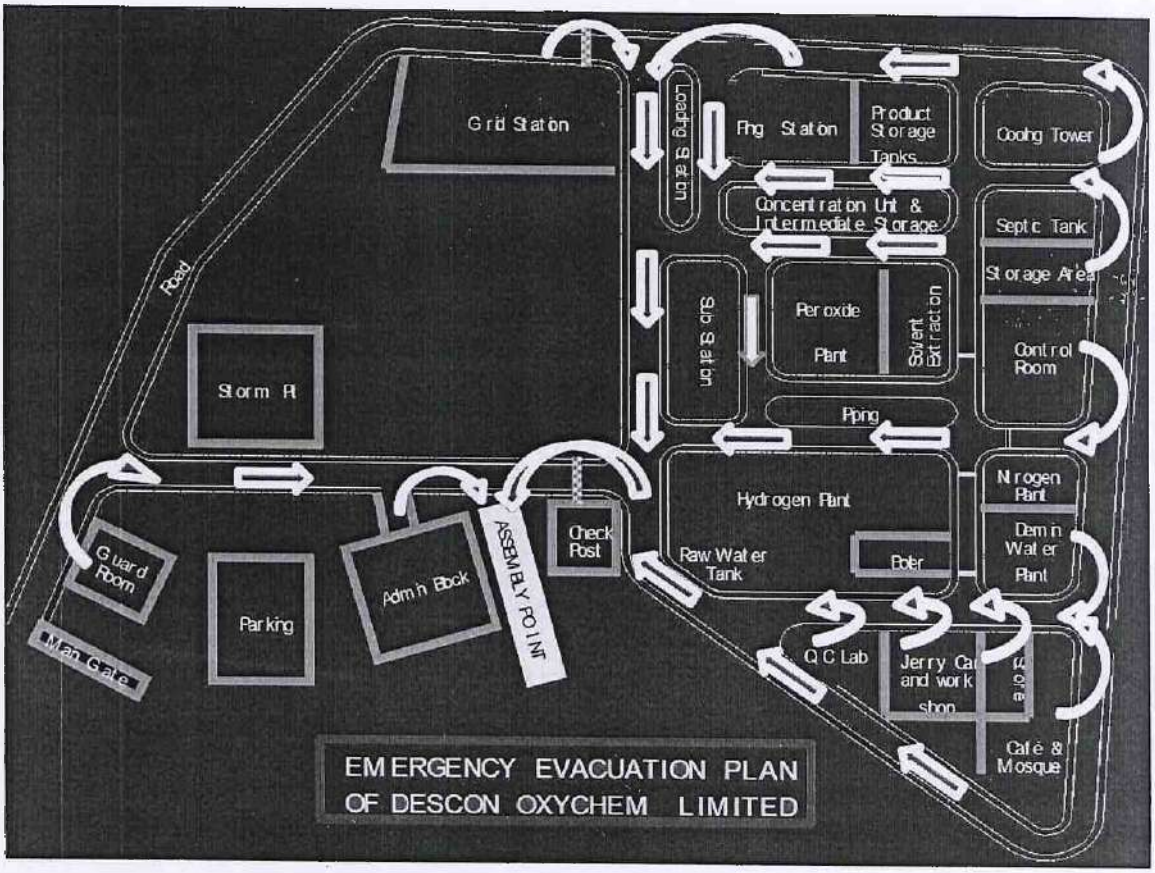
In case of serious flooding; could occur as a result of heavy rainfall, earthquake, land movement, dam failure etc. Response to a major flooding incident will require a high degree of local and state or federal interagency cooperation, communication and mutual aid between agencies, municipalities, business, and counties would be required to cope with the situation.

- In the event of a flood, use the following procedures.
- Individuals should exit the flooded area as quickly as possible.
- Avoid standing in flood waters due to the threat of electrocution.
- One of the greatest hazards to personnel will be electrical grounding of equipment and power lines
- SE will coordinate with works manager for shut down and plant in case of severe weather condition

Severe Weather

In case of heavy rain, dust storm etc. no one will leave the office until the weather condition becomes favorable. Manager Administration & HSE Executive will update about latest weather forecast by coordinating with the local weather department

Evacuation Plan



Annexure "C"

DOL Emergency Squad & Floor Marshals

DOL Emergency Squad				
SR	Position	Area	Department	Role Statement
1	On-duty shift engineers	Whole Plant	Production	Overall emergency lead
2	On-duty plant operator	Concentration unit	Production	Handling the overall emergency situation
3	On-duty plant operator	UTY	Production	Handling the overall emergency situation
4	On-duty senior technician	Substation	Electrical	Handling the overall emergency situation
5	On-duty senior technician	Work shop	Mechanical	Handling the overall emergency situation
6	On-duty senior technician	MCC Room	Instrument	Handling the overall emergency situation
7	On-duty security supervisor	Time Office	Admin	Handling the overall emergency situation
Floor Marshals				
SR	Position	Area	Department	Role Statement
1	On-duty office boys	Admin/CCR Building	Admin	They will check all areas to confirm that all the employees have left the premises
2	On-duty lab chemist	Laboratory	Technical	They will check all areas to confirm that all the employees have left the premises
3	On-duty supervisor	Jerry Can	Sunder plast	They will check all areas to confirm that all the employees have left the premises
4	On-duty warehouse officer	Warehouse	WH	They will check all areas to confirm that all the employees have left the premises
5	On-duty logistic officer	Finished good	WH&L	They will check all areas to confirm that all the employees have left the premises
6	On-duty filling supervisor	Filling Hall	Production	They will check all areas to confirm that all the employees have left the premises
7	On-duty staff	Mess	Admin	They will check all areas to confirm that all the employees have left the premises

Form A
THE COMPANIES ACT, 2017
THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018
[Section 130(1) and Regulation 4]
ANNUAL RETURN OF COMPANY HAVING SHARE CAPITAL

1652

PART-I

(Please complete in typescript or in bold block capitals)

1.1 CUIN (Registration Number)	0048852			
1.2 Name of the Company	DESCON OXYCHEM LIMITED			
1.3 Fee payment details	1.3.1 Chalan No	E-2023-1674783	1.3.2. Amount	1000.0
	dd mm yyyy			
1.4 Form A made upto	23/10/2023			
1.5 Date of AGM	23/10/2023			

PART - II

Section A

2.1 Registered Office Address	DESCON WORLD HEAD QUARTER, 18 KM, FEROZEPUR ROAD, LAHORE
2.2 Email Address	mubashar.manzoor@descon.com
2.3 Office Tel. No	35996034
2.4 Office Fax No	35811135
2.5 Principle line of business	--CHEMICAL
2.6 Mobile No. of Authorized officer (Chief Executive/ Director/ Company Secretary/ Chief Financial Officer)	03004536102

2.7 Authorized Share Capital

Classes and kinds of Shares	No. of Shares	Amount	Face Value
Ordinary Shares		3,000,000,000.00	

2.8 Paid up Share Capital

Classes and kinds of Shares	No. of Shares	Amount	Face Value
Ordinary Shares		1,750,310,840.00	

2.9 Particulars of the holding /subsidiary company, if any

Name of Company	Holding/Subsidiary	% Shares Held

2.10 Chief Executive

Name	MUHAMMAD MOHSIN ZIA
Address	H NO. 33 B/2 MAIN KHAYABAN-E-SHAHBAZ PHASE 6 DHA KARACHI
NIC No	4230159115413

Company Registration Office Lahore
Securities and Exchange Commission of Pakistan
SECP

2.11 Chief Financial Officer

Name	MUHAMMAD RIZWAN QAISER
Address	HOUSE NO DD-391 PHASE 4 DHA LAHORE
NIC No	3520153705931

2.12 Secretary

Name	ABDUL SOHAIL
Address	122-A, PIA HOUSING SOCIETY, JOHAR TOWN, LAHORE
NIC No	3520226920967

2.13 Legal Advisor

Name	HASSAN AND HASSAN
Address	P.A.A.F BUILDINGS, 7-D, KASHMIR ROAD LAHORE
NIC No	

2.14 Particulars of Auditors

Name	CROWE HUSSAIN CHAUDHURY AND CO
Address	25-E MAIN MARKET GULBERG II LAHORE

2.15 Particulars of Shares Registrar (If applicable)

Name	CORPLINK (PVT) LTD
Address	MODEL TOWN LAHORE
Email	mubashar.manzoor@cascon.com

Section-B

2.16 List of Directors on the date Annual return is made

S#	Name of Director	Residential Address	Nationality	NIC (Passport No. if foreigner)	Date of appointment /election	Name of Member/Creditors nominating/appointing
1	ASIF QADIR	8-B, SOUTH PARK ST. PHASE-2 DHA, KARACHI	Pakistan	4230145146541	28/02/2023	
2	FAROOQ NAZIR	HOUSE NO 39/2, STREET NO 22, KHAYABAN-E-MUJAHID PHASE V DHA KARACHI	Pakistan	9150843382351	28/02/2023	
3	MEHREEN DAWOOD	H # F-4 DAWOOD COLONY STADIUM ROAD KARACHI	Pakistan	4220105789060	28/02/2023	
4	TAMUR DAWOOD	28-SARWAR ROAD, LAHORE CANTT	Pakistan	3520015767091	28/02/2023	
5	FAISAL DAWOOD	28-SARWAR ROAD, LAHORE CANTT	Pakistan	3520090390175	28/02/2023	
6	MUHAMMAD ZAHIR	HOUSE NO 1-A/4, ZAFAR ALI ROAD LAHORE CANTT	Pakistan	3520127414781	28/02/2023	
7	JEHANZEB KHAN	HOUSE NO 552-H, STREET # 14 PHASE 5 DHA LAHORE	Pakistan	3520113225195	28/02/2023	

2.17 List of members & debenture holders on the date upto which this Form is made

S#	Folio#	Name *	Address	Nationality	No of shares	Percentage	NIC No(Passport if foreigner)
Members							
Debenture Holders							

* In case the member or debenture holder is holding shares or debentures on behalf of other person(s), the name of such other person(s) may be entered in parentheses alongwith the name of the member or debenture holder

Company Registration Office Lahore
SECP
Securities and Exchange Commission of Pakistan

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2.18 Transfer of shares (debentures) since last Form A was made

S#	Name of Transferor	Name of Transferee	No of Shares Transferred	Date of Registration of transfer
Members				
Debenture Holders				

PART-3

3.1 Declaration:
I do hereby solemnly, and sincerely declare that the information provided in the form is:
(i) true and correct to the best of my knowledge, in consonance with the record as maintained by the Company and nothing has been concealed; and
(ii) hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.2 Name of Authorized Officer with designation/ Authorized Intermediary	ABDUL SOHAIL	Secretary
3.3 Signatures	Electronically signed by ABDUL SOHAIL	
3.4 Registration No of Authorized Intermediary, if applicable		
3.5 Date	Day Month Year: 13/11/2023	

CERTIFIED TO BE TRUE COPY
ADDITIONAL JOINT REGISTRAR OF COMPANIES
COMPANY REGISTRATION OFFICE, LAHORE
"This Certified True Copy is not valid for purpose of bank account opening. The Banks may verify company's record through bank portal launched by the SECP"

Company Registration Office Lahore
Securities and Exchange Commission of Pakistan
SECP

Previous Page Next Page

CERTIFIED TO BE TRUE COPY
04/12/23
ADDITIONAL JOINT REGISTRAR OF COMPANIES
COMPANY, REGISTRATION OFFICE, LAHORE
"This Certified True Copy is not valid for purpose of bank account opening. The Banks may verify company's record through bank portal launched by the SECP"

THE COMPANIES ACT, 2017
THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018
[Section 197 and Regulations 4 and 20]
PARTICULARS OF DIRECTORS AND OFFICERS, INCLUDING THE CHIEF EXECUTIVE, SECRETARY, CHIEF FINANCIAL OFFICER, AUDITORS AND LEGAL ADVISER OR OF ANY CHANGE THEREIN

FORM 29

PART-I

1.1 CUIN (Incorporation Number) 0048862

1.2 Name of Company DESCON OXYCHEM LIMITED

1.3 Fee Payment Details

1.3.1 Challan Number E-2023-1825746 1.3.2 Amount 1000.0

2. Particulars*: PART-II

2.1 New Appointment/Election

Present Name in Full (a)	NIC No. or Passport No. in case of Foreign National (b)	Father / Husband Name (c)	Usual Residential Address (d)	Designation (e)	Nationality** (f)	Business Occupation** * (if any) (g)	Date of Present Appointment or Change (h)	Mode of Appointement / change / any other remarks (i)	Nature of directorship (nominee/independent/additional/ other) (j)
CROWE HUSSAIN CHAUDHURY AND CO	9999999	N/A	25-E MAIN MARKET GULBERG II LAHORE	Auditor	Pakistan		18/10/2023	Appointed /	

2.2 Ceasing of Officer/Retirement/Resignation

Present Name in Full (a)	NIC No. or Passport No. in case of Foreign National (b)	Father / Husband Name (c)	Usual Residential Address (d)	Designation (e)	Nationality** (f)	Business Occupation** * (if any) (g)	Date of Present Appointment or Change (h)	Mode of Appointement / change / any other remarks (i)	Nature of directorship (nominee/independent/additional/ other) (j)
A.F.FERGUSON AND CO. CA	0	N/A	23-C AZIZ AVENUE, CANAL BANK GULBERG V LAHORE	Auditor	Pakistan		18/10/2023	Retired /	

2.3 Any other change in particulars relating to columns (a) to (g) above

Present Name in Full (a)	NIC No. or Passport No. in case of Foreign National (b)	Father / Husband Name (c)	Usual Residential Address (d)	Designation (e)	Nationality** (f)	Business Occupation** * (if any) (g)	Date of Present Appointment or Change (h)	Mode of Appointement / change / any other remarks (i)	Nature of directorship (nominee/independent/additional/other) (j)

Company Registration Office Lahore — Securities and Exchange Commission of Pakistan — SECP

* In the case of a firm, the full name, address and above mentioned particulars of each partner, and the date on which each became a partner.
** In case the nationality is not the nationality of origin, provide the nationality of origin as well.
*** Also provide particulars of other directorships or offices held, if any.
**** In case of resignation of a director, the resignation letter and in case of removal of a director, member's resolution be attached
***** In case of a director nominated by a member or creditor the name of such nominating or appointing body shall also be mentioned in column (j), and a copy of resolution from the nominating or appointing body be attached.

3.1 Declaration: PART-III

I do hereby solemnly and sincerely declare that the information provided in the form is:
(i) true and correct to the best of my knowledge, in consonance with the record as maintained by the Company and nothing has been concealed and
(ii) hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.2 Name of Authorized Officer with designation/ Authorized Intermediary ABDUL SOHAIL Secretary

3.3 Signature Electronically signed by ABDUL SOHAIL

3.4 Date (DD/MM/YYYY) 20/10/2023

CERTIFIED TO BE TRUE COPY
04/12/23
ADDITIONAL JOINT REGISTRAR OF COMPANIES
COMPANY REGISTRATION OFFICE, LAHORE
"This Certified True Copy is not valid for purpose of bank account opening. The Banks may verify company's record through bank portal launched by the SECP"

SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN
COMPANY REGISTRATION OFFICE

CERTIFICATE ON CONVERSION OF PRIVATE COMPANY INTO PUBLIC COMPANY

[See regulation 6(c)]

[Under Section 41 (3) of the Companies Ordinance, 1984 (XLVII of 1984)]

Company Registration No. 00000014062/20041102

I hereby certify that pursuant to the provisions of section 45 read with sub-section (3) of section 41 of the Companies Ordinance, 1984 (XLVII of 1984), **"DESCON OXYCHEM (PRIVATE) LIMITED"** has complied with the requirements precedent and incidental to the conversion of a private company into a public company. The said company stands converted into a public company with effect from **28-02-2008.**

Given under my hand at **LAHORE** this **14th** day of **March 2008** (two thousand and Eight).

(**MAHBOOB AHMAD**)
Joint Registrar of Companies

Fee Rs. 200/-

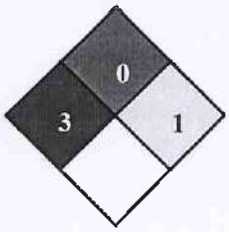
No.ARL/ 16222

DATED: 14-03-08

ANNEXURE-K

MATERIAL SAFETY DATA SHEET

Descon Oxychem Limited



Health	3
Fire	0
Reactivity	1
Personal Protection	

Material Safety Data Sheet

Hydrogen Peroxide 50% (w/w) MSDS

Section 1: Chemical Product and Company Identification

Product Name:

- Chemical Grade Hydrogen Peroxide 50% Concentration
- Technical Grade Hydrogen Peroxide 50% Concentration for Textile Industry
- Technical Grade Hydrogen Peroxide 50% Concentration for Paper and Pulp Industry

Synonym: Hydrogen Peroxide 50%

Chemical Name: Hydrogen Peroxide

Chemical Formula: H_2O_2

Contact Information:

Descon Oxychem Limited
18 Km, Lahore-Sheikhupura Road, Lahore
Pakistan

Web: http//: www.descon.com

Customer Care Center No. +92(0) 42-111-337-266

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	50
Hydrogen Peroxide	7722-84-1	50

Toxicological Data on Ingredients: Hydrogen Peroxide: ORAL (LD50): Acute: 2000 mg/kg [Mouse]. DERMAL (LD50): Acute: 4060 mg/kg [Rat]. 2000 mg/kg [pig]. VAPOR (LC50): Acute: 2000 mg/m 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant). Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged

exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Combustible materials

Explosion Hazards in Presence of Various Substances: Slightly explosive in presence of open flames and sparks, of heat, of organic materials, of metals, of acids.

Fire Fighting Media and Instructions:
Fire: Small fires: Use water. Do not use dry chemicals or foams. CO_2, or Halon may provide limited control. Large fires: Flood fire area with water from a distance. Move containers from fire area if you can do it without risk. Do not move cargo or vehicle if cargo has been exposed to heat. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. / Hydrogen peroxide, aqueous solution, with not less than 8% but less than 20% Hydrogen peroxide; Hydrogen peroxide, aqueous solution, with not less than 20% but not more than 60% Hydrogen peroxide (stabilized as necessary)/ [QC Reviewed] [U.S. Department of Transportation. 2000 Emergency Response Guidebook. RSPA P 5800.8 Edition. Washington, D.C: U.S. Government Printing Office, 2000,p. G-140]

Special Remarks on Fire Hazards:
Most cellulose (wood, cotton) materials contain enough catalyst to cause spontaneous ignition with 90% Hydrogen Peroxide. Hydrogen Peroxide is a strong oxidizer. It is not flammable itself, but it can cause spontaneous combustion of flammable materials and continued support of the combustion because it liberates oxygen as it decomposes. Hydrogen peroxide mixed with magnesium and a trace of magnesium dioxide will ignite immediately.

Special Remarks on Explosion Hazards:

Soluble fuels (acetone, ethanol, glycerol) will detonate on a mixture with peroxide over 30% concentration, the violence increasing with concentration. Explosive with acetic acid, acetic anhydride, acetone, alcohols, carboxylic acids, nitrogen containing bases, As_2S_3, Cl_2 + KOH, FeS, $FeSO_4$ + 2 methylpryidine + H_2SO_4, nitric acid, potassium permanganate, P_2O_5, H_2Se, Alcohols + H_2SO_4, Alcohols + tin chloride, Antimoy trisulfide, chlorosulfonic acid, Aromatic hydrocarbons + trifluoroacetic acid, Azeliac acid + sulfuric acid (above 45 C), Benzenesulfonic anhydride, tert-butanol + sulfuric acid, Hydrazine, Sulfuric acid, Sodium iodate, Tetrahydrothiophene, Thiodiglycol, Mercurous oxide, mercuric oxide, Lead dioxide, Lead oxide, Manganese dioxide, Lead sulfide, Gallium + HCl, Ketenes + nitric acid, Iron (II) sulfate + 2-methylpyridine + sulfuric acid, Iron (II) sulfate + nitric acid, + sodium carboxymethylcellulose (when evaporated), Vinyl acetate, trioxane, water + oxygenated compounds (eg: acetaldehyde, acetic acid, acetone, ethanol, formaldehyde, formic acid, methanol, 2-propanol, propionaldehyde), organic compounds. Beware: Many mixitures of hydrogen peroxide and organic materials may not explode upon contact. However, the resulting combination is detonatable either upon catching fire or by impact. EXPLOSION HAZARD: SEVERE, WHEN HIGHLY CONCENTRATED OR PURE H2O2 IS EXPOSED TO HEAT, MECHANICAL IMPACT, OR CAUSED TO DECOMPOSE CATALYTICALLY BY METALS & THEIR SALTS, DUSTS & ALKALIES. ANOTHER SOURCE OF HYDROGEN PEROXIDE EXPLOSIONS IS FROM SEALING THE MATERIAL IN STRONG CONTAINERS. UNDER SUCH CONDITIONS EVEN GRADUAL DECOMPOSITION OF HYDROGEN PEROXIDE TO WATER + 1/2 OXYGEN CAN CAUSE LARGE PRESSURES TO BUILD UP IN THE CONTAINERS WHICH MAY BURST EXPLOSIVELY. Fire or explosion: May explode from friction, heat or contamination. These substances will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Some will react explosively with hydrocarbons (fuels). Containers may explode when heated. Runoff may create fire or explosion hazard. /Hydrogen peroxide, aqueous solution, stabilized, with more than 60% Hydrogen peroxide; Hydrogen peroxide, stabilized/ [QC Reviewed] [U.S. Department of Transportation. 2000 Emergency Response Guidebook. RSPA P 5800.8 Edition. Washington, D.C: U.S. Government Printing Office, 2000,p. G-143] . Fire or explosion: These substances will accelerate burning when involved in a fire. Some may decompose explosively when heated or involved in a fire. May explode from heat or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Runoff may create fire or explosion hazard. /Hydrogen peroxide, aqueous solution, with not less than 8% but less than 20% Hydrogen peroxide; Hydrogen peroxide, aqueous solution, with not less than 20% but not more than 60% Hydrogen peroxide (stabilized as necessary)/ [QC Reviewed] [U.S. Department of Transportation. 2000 Emergency Response Guidebook. RSPA P 5800.8 Edition. Washington, D.C: U.S. Government Printing Office, 2000,p. G-140] (Hydrogen Peroxide)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Corrosive liquid. Oxidizing material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.Refrigerate Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Hydrogen Peroxide TWA: 1 (ppm) from ACGIH (TLV) [United States] TWA: 1 (ppm) from OSHA (PEL) [United States] TWA: 1 STEL: 2 [Canada] TWA: 1.4 (mg/m3) from NIOSH TWA: 1.4 (mg/m3) from OSHA (PEL) [United States] TWA: 1 (ppm) [United Kingdom (UK)] TWA: 1.4 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Odorless.

Taste: Slightly acid. Bitter

Molecular Weight: Not applicable.

Color: Clear Colorless.

pH (1% soln/water): Not available

Boiling Point: 108°C (226.4°F)

Melting Point: -33°C (-27.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.1 (Water = 1)

Vapor Pressure: 3.1 kPa (@ 20°C)

Vapor Density: 1.1 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:
Easily soluble in cold water. Soluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable. It contains a stabilizer.

Instability Temperature: Not available.
Conditions of Instability: Excess heat, incompatible materials

Incompatibility with various substances: Reactive with reducing agents, combustible materials, organic materials, metals,acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Light sensitive. Incompatible with reducing materials, ethers (dioxane, furfuran, tetrahydrofuran), oxidizing materials, Metals(eg. potassium, sodium lithium, iron, copper, brass, bronze, chromium, zinc, lead, silver, nickel), metal oxides (eg. cobalt oxide, iron oxide, lead oxide, lead hydroxide, manganese oxide), metal salts (eg. calcium permanganate, salts of iron), manganese, asbestos, vanadium, platinium, tungsten, molybdeum, triethylamine, palladium, sodium pyrophosphate, carboxylic acids, cyclopentadiene, formic acid, rust, ketones, sodium carbonate, alcohols, sodium borate, aniline, mercurous chloride, rust, nitric acid, sodium pyrophosphate, hexavalent chromium compounds, tetrahydrofuran, sodium fluoride organic matter, potassium permanganate, urea, chlorosulfonic acid, manganese dioxide, hydrogen selenide, charcoal, coal, sodium borate, alkalies, cyclopentadiene, glycerine, cyanides (potassium, cyanide, sodium cyanide), nitrogen compounds.. Caused to decompose catalytically by metals (in order of decreasing effectiveness): Osmium, Palladium, Platinum, Iridium, Gold, Silver, Manganese, Cobalt, Copper, Lead. Concentrated hydrogen peroxide may decompose violently or explosively in contact with iron, copper, chromium, and most other metals and their salts, and dust. (Hydrogen Peroxide)

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 6667 mg/kg (Mouse) (Calculated value for the mixture). Acute dermal toxicity (LD50): 6667 mg/kg (pig) (Calculated value for the mixture).

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH [Hydrogen Peroxide]. Classified 3 (Not classifiable for human.) by IARC [Hydrogen Peroxide]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Hydrogen Peroxide]. Mutagenic for bacteria and/or yeast. [Hydrogen Peroxide]. Contains material which may cause damage to the following organs: blood, upper respiratory tract, skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant). Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of ingestion, of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause cancer and may affect genetic material based on animal data. May be tumorigenic. (Hydrogen Peroxide)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes severe skin irritation and possible burns. Absorption into skin may affect behavior/central nervous system (tremor, ataxia, convulsions), respiration (dyspnea, pulmonary emboli), brain. Eyes: Causes severe eye irritation, superficial clouding, corneal edema, and may cause burns. Inhalation: Causes respiratory tract irritation with coughing, lacrimation. May cause chemical burns to the respiratory tract. May affect behavior/Central nervous system (insomnia, headache, ataxia, nervous tremors with numb extremities) and may cause ulceration of nasal tissue, and , chemical pneumonia, unconciousness, and possible death. At high concentrations, respiratory effects may include acute lung damage, and delayed pulmonary edema. May affect blood. Ingestion: Causes gastrointestional tract irritation with nausea, vomiting, hypermotility, and diarrhea. Causes gastrointestional tract burns. May affect cardiovascular system and cause vascular collapse and damage. May affect blood (change in leukocyte count, pigmented or nucleated red blood cells). May cause difficulty in swallowing, stomach distension and possible cerebal swelling. May affect behavior/central nervous system (tetany, excitement). Chronic Potential Health Effects: Prolonged or repeated skin contact may cause dermatitis. Repeated contact may also cause corneal damage. Prolonged or repeated ingestion may affect metabolism (weight loss). Prolonged or repeated inhalation may affect respiration, blood. (Hydrogen Peroxide)

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short/long term degradation products are to be expected.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste from residues / unused products

- Limited quantity
- Dilute with plenty of water.
- Flush into sewer with plenty of water.
- Maximum quantity
- Contact manufacturer.
- Contact waste disposal services.
- In accordance with local and national regulations.

13.2. Packaging treatment

- Empty containers.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Where possible recycling is preferred to disposal or incineration.
- In accordance with local and national regulations.

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

UN number	UN 2014
Class	5.1
Packing group	II
ICAO-Labels	5.1 - Oxidizing substances8 – Corrosive
Proper shipping name:	HYDROGEN PEROXIDE, AQUEOUS SOLUTION

Section 15: Other Regulatory Information

Federal and State Regulations: Pakistan Environmental Protection Act, 1997 The Factories Act, 1934

(Chapter 3, Health & Safety)

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Section 16: Other Information

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

ANNEXURE-L

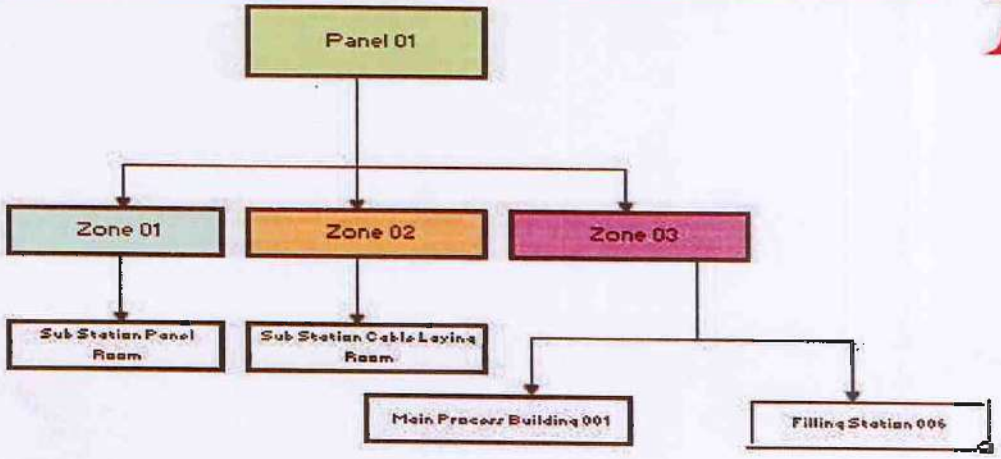
PLANTATION DETAIL

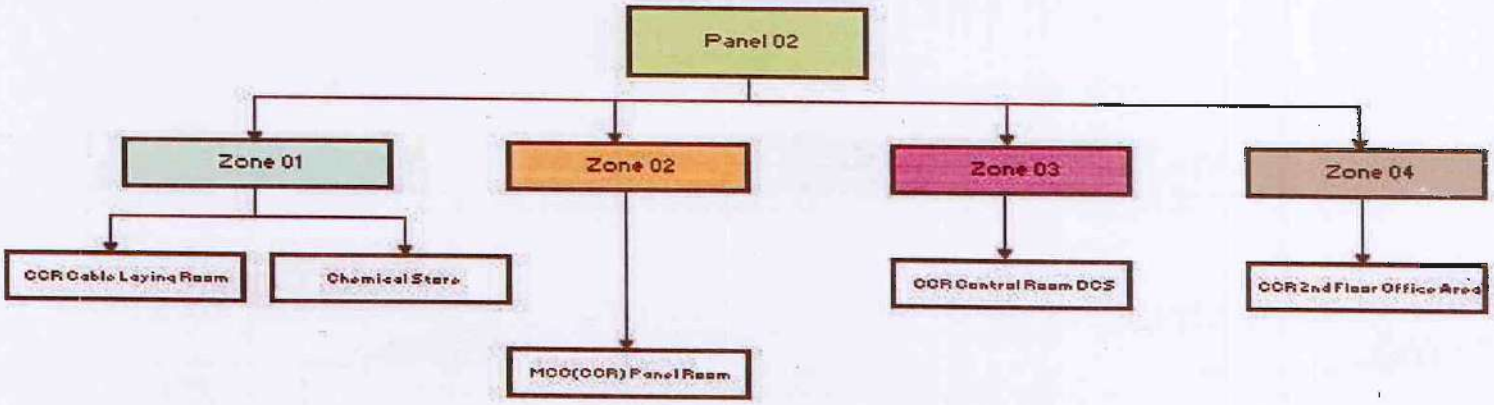
Detail of Plantation		
Sr #	**Name**	**Nos**
April-2010 detail got from admin by email.		
1	Fig	50
2	Shahtoot	100
3	Alastonia	100
4	Facus	50
5	Kachnar	70
6	Ashok	100
7	Dhraik	50
8	Neem	50
9	Eucalyptus	2500
10	Marwa	100
11	Guava	50
12	Rubber Plant	50
13	Popular	500
14	Papita	75
15	Lemon	50
16	Jaman	50
17	Karonda	50
18	Banana	5
19	Tahli	2000
20	Kikar	2000
June-2011 detail got from admin by email.		
21	Gulab	110
22	Malta	30
23	Walpam	4
24	Bakain	50
25	Marwa	40
26	Ulta ashok	214
27	More pankh	20
28	Anar	35
July-2012 detail got from admin by email.		
29	Gulab	30
30	Walpam	4
31	Bakain	10
32	More pankh	10
33	Lal ton	20
34	Faxes	25
35	Mini hot	10
36	**U-four**	**50**
37	Nisha	4
38	Cono Karpas	83
39	Gully chain	10
40	Different flowers (seaso	1400
Detail of Plantation 2013/14		
41	Gardener Production	**7000**
42	Nursery purchase	**1039**
	Total plantation	**18198**

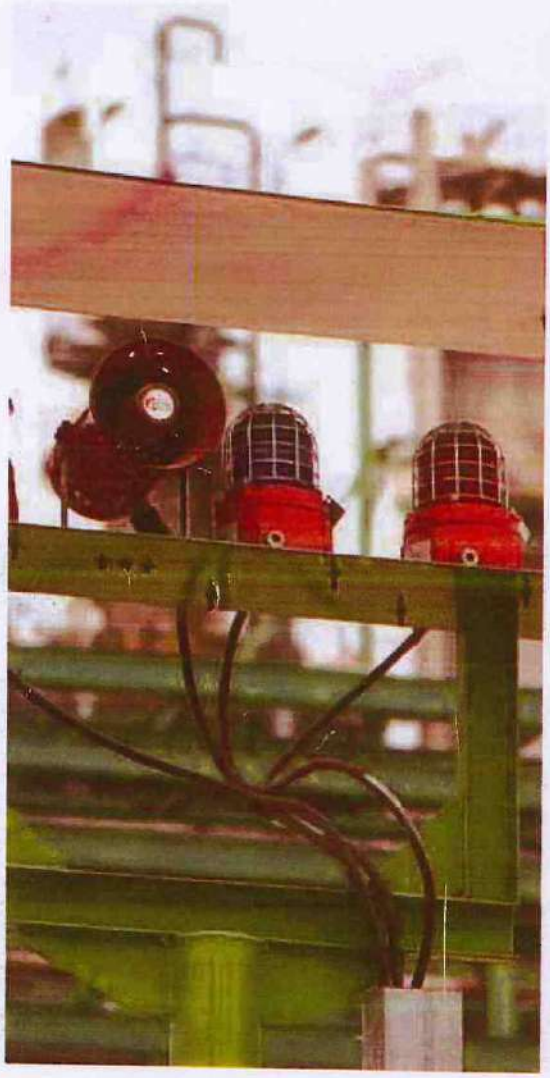
ANNEXURE-M

FIRE DETECTION SYSTEM, FIREHYDRANT DETAIL AND FIRE PLAN

(FAS) Fire Alarm System Of DOL Plant

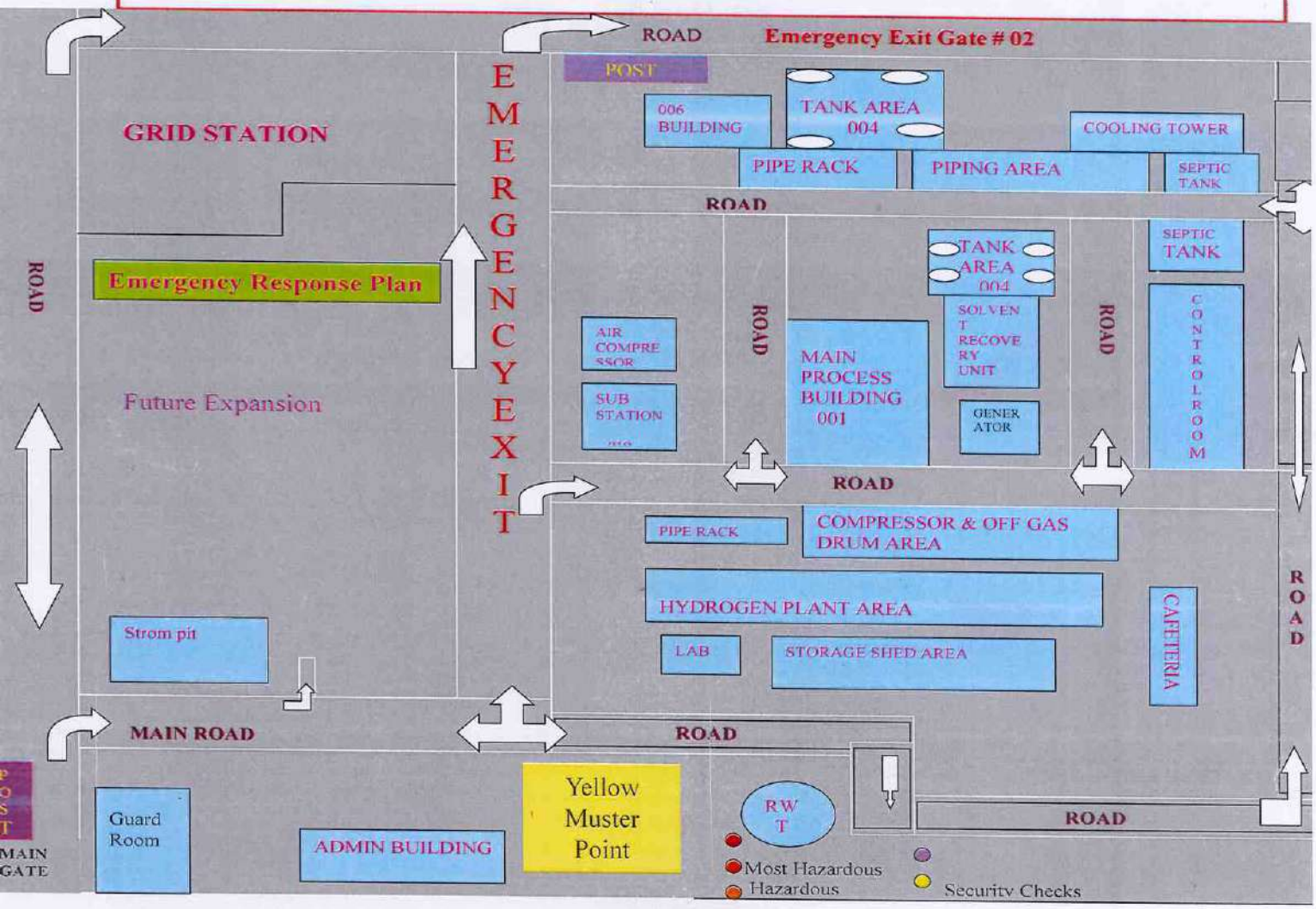






DOL Fire & Gas Detection System

MUSTER POINT LOCATIONS OF DOL




DESCON
Road
Guard Room
Main Gate
Admin Block
MUSTER POINT
DOL PLANT EMERGENCY EVACUATION PLAN

Descon Oxychem Limited Fixed Fire Equipment's

Pillar Hydrant

Simple Hydrant

Double barrel fixed foam monitor

Single barrel fixed water monitor

Type of Equipment	Quantity
Fixed water monitor	24
Fixed foam monitor	4
Pillar hydrant	6
Simple Hydrant	3
Total number of equipments has been Installed at Plant	37

Technical Calculation For Capacity of Raw Water Tank And Fixed Firefighting Media

Sr	1753m3 Tank %	Bar Pressure	Discharge Litter per minute	Source	Total extinguishing time
1	100%	10	2000	Single fire monitor	14.6hrs
2	100%	10	4000	Double fire monitors	7.3hrs
3	75%	10	2000	Single fire monitor	10.95hrs
4	75%	10	4000	Double fire monitors	5.4hrs
5	100%	05	302	Single hose pipe	96hrs
6	75%	05	302	Single hose pipe	72.5hrs

The whole procedure of fire water pump is, jockey pump will maintain the pressure of 6 to 7 bar all the time in the fire water line of plant and whenever we need to use any fire gun the pressure will be dropped, at 4 bar main fire water pump will be started automatically and will maintain the pressure of 10 bar in the fire water line.

Installed And Backup Fire Extinguishing Equipment Detail With Technical Data

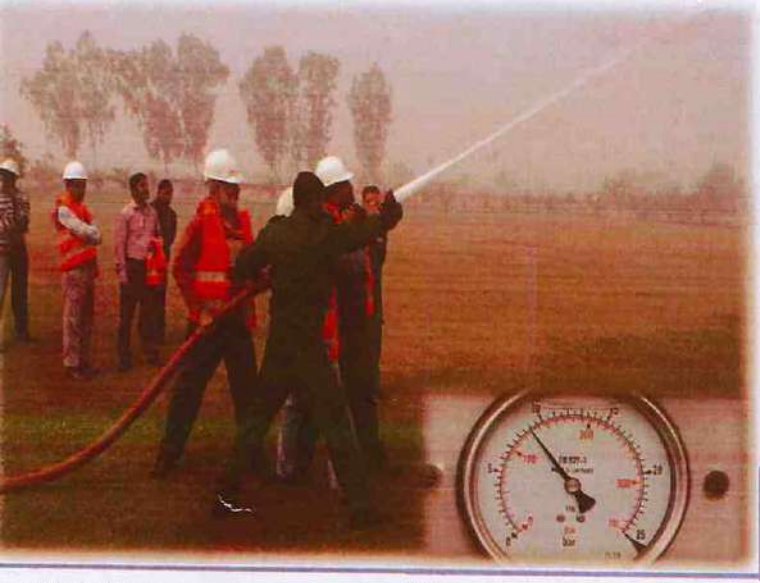
Type	Capacity	Total Stock	Discharge Time
DCP	50kgs curt trollies	02	05
CO2	30kgs curt trollies	06	1.70
AFFF	45litter curt trollies	08	24.8
DCP	6kg fire extinguishers	33	6.27
CO2	5kg extinguishers	32	4.8
AFFF	10litter extinguishers	21	14.7
Total portable equipment quantity is		102-Nos	57.27 seconds Total minutes

DOL Emergency Squad

SR	Position	Area	Department	Role Statement
1	On duty shift engineers	Whole Plant	Production	Overall emergency lead
2	On duty plant operator	Concentration unit	Production	firefighter, first aider and searcher
3	On duty plant operator	UTY	Production	firefighter, first aider and searcher
4	On duty senior technician	Substation	Electrical	firefighter, first aider and searcher
5	On duty senior technician	Workshop	Mechanical	firefighter, first aider and searcher
6	On duty senior technician	MCC Room	Instrument	firefighter, first aider and searcher
7	On duty security supervisor	Time Office	Admin	firefighter, first aider and searcher

Floor Marshals

SR	Position	Area	Department	Role Statement
1	On duty office boys	Admin/CCR Building	Admin	clear the area/building and report to assembly poi
2	On duty lab chemist	Labortary	Technical	clear the area/building and report to assembly poi
3	On duty supervisor	Jerry Can	Sunderplast	clear the area/building and report to assembly poi
4	On duty warehouse officer	Warehouse	WH	clear the area/building and report to assembly poi
5	On duty logistic officer	Finished good	WH&L	clear the area/building and report to assembly poi
6	On duty filling supervisor	Filling Hall	Production	clear the area/building and report to assembly poi
7	On duty staff	Mess	Admin	clear the area/building and report to assembly poi



Works manager and team operated the hose pipe at 9 bar pressure for 8-minutes and 12 bar pressure for 2 minutes.

Housekeeping team operate the hose pipe for 4-minutes at 8.5 bar pressure.

Gardner's team operate the hose pipe 5-minutes on 8.5 bar pressure.

Shift engineer and paramedic team operate the hose pipe 05-minutes on 8-bar pressure.

Operation team 07-minutes operate the hose pipe on 7.5 bar pressure.

Electrical and finance team 05-minutes operate the hose pipe on 7.5 bar pressure

IT and operation team operate the hose pipe on 4 bar pressure.

Rescue-1122 pressure measurement gauge board.

All functions team members extinguished the fire through multi type and capacity of fire extinguishers.

Fire Fighting Plan
OF
M/S.DESCON OXYCHEM LIMITED

Dated: 25th Jun'2023

INFORMATION / DOCUMENTS ATTACHED

1)	General Information	(Annexure-1)
2)	List of Civil Works	(Annexure-2)
3)	List of Portable Fire Extinguishers & Trolleys	(Annexure-3)
4)	List of Fire Hydrants, Smoke Detectors, Sand Buckets	(Annexure-4)
5)	Water System	(Annexure-5)
6)	Management System of Emergency Preparedness & Response	(Annexure-6)

Best Regards,

Zahid Zaki
Team Lead QHSE
0322-4431002

M/S.DESCON OXYCHEM LIMITED

GENERAL INFORMATION

Annexure-1

1) **SURROUNDING:**

East: Mughal steel
West: Open land
South: Corrobox paper mill and open land
North: open land

2) **MAJOR RAW MATERIALS:** Gas, working solution and water

3) **NO. OF EMPLOYEES:** **Permanent:** 78 Nos. **Daily Wages:** 3rd party 84 Nos.

4) **SHIFT OPERATIONS / TIMINGS:** General shift : 0830hrs to 1630hrs
Shifts: 0700hrs to 1500hrs to 2300hrs

PUBLIC UTILITIES: **Electricity**: Wapda, **Gas:** SNGPL, **Water:** Self Generation

5) **GENERAL FLOOR LEVEL OF FACTORY:** About 03 Ft. above main road level

6) **MACHINERY FLOOR LEVEL:** About 03 Ft. above internal road level.

7) **FLOOD HISTORY:** Last flood was coming in 1988.

8) **BOUNDARY WALL:** **HEIGHT:** 6feet
TYPE OF CONSTRUCTION: Brick walls with R.C.C
BARBED WIRE ON BOUNDARY WALL: Yes
LIGHTING ON BOUNDARY WALL: Yes

9) **NEAREST POLICE STATION:** Koat Abdul Malik Police Station at a distance of 2000-Meter From the factory premises. (Arrival time about 05 minutes)

10) **NEAREST FIRE BRIGADE:** Rescue-1122 Koat Abdul Malik at a distance of 04 -Km from the factory premises. (Arrival time about 08 minutes)

M/S.DESCON OXYCHEM LIMITED

LIST OF CIVIL WORKS

Annexure-2

Sr. #	Type of Construction	Designation	Class of Const.
1)	R.C.C frame structure with R.C.C flat roofing	A	1st Class
2)	R.C.C frame structure with R.C.C shell roofing	B	1st Class
3)	Brick walls with R.C.C flat roofing	C	1st Class
4)	Brick walls with R.C.C pre-cast roofing	D	1st Class
5)	Brick walls with steel truss/G.I/ Asbestoses roofing	E	2nd Class
6)	Steel structure	F	

S. NO.	BUILDING	SIZE (Ft.)	COVERED AREA (SQ. FT.)	TYPE OF CONST.	YEAR OF CONST.	CLASS OF CONST.
	Security building	36*36	1296	C	2008	1st class
	Admin building	121*98	11858	C	2008	1st class
	Technical Laboratory	49*49	2400	C	2008	1st class
	Control room building	49*98	4802	C	2008	1st class
	Substation building	78*39	3042	C	2008	1st class
	Filling hall	78*98	7644	C&F	2008	1st class
	Grid station	65*49	3185	C	2008	1st class
	Main process building	59*98	5782	A&T	2008	1st class
	Ware house and work shop	127*39	4758	E	2008	2ndclass
	Cafeteria	65*16	1040	C	2008	1st class
	Cooling tower	75*23	1725	A	2008	1st class
	Concentration unit	32*19	608	F	2008	1st class
	Process air compressor	39*39	1521	F	2008	1st class

M/S.DESCON OXYCHEM LIMITED

LIST OF PORTABLE FIRE EXTINGUISHERS & TROLLEYS

Annexure-3

SR	Inspection Date	Area	Fire Post Stand	Description Of Equipment	Quantity	Weight Of Equipment	Filling Date	Next Refilling Date
1	18-21-08-2023	Security building out side	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
2	18-21-08-2023	Security building out side	Bucket stand	CO2	1	5kg	6/6/2023	5/6/2024
3	18-21-08-2023	Admin building-ground floor	stand	DCP	1	6kg	6/6/2023	5/6/2024
4	18-21-08-2023	Admin building-ground floor	stand	CO2	1	5kg	4/6/2023	3/9/2023
5	18-21-08-2023	Admin building-1st floor	stand	CO2	1	5kg	4/6/2023	3/9/2023
6	18-21-08-2023	Admin building-1st floor	stand	DCP	1	6kg	6/6/2023	5/6/2024
7	18-21-08-2023	Admin building-1st floor (IT-server room)	wall hanging clip	CO2	2	5kg	4/6/2023	3/9/2023
8	18-21-08-2023	Admin building-2nd floor (new offices)	wall hanging clip	DCP	1	6kg	6/6/2023	5/6/2024
9	18-21-08-2023	Admin building-2nd floor (new offices)	wall hanging clip	CO2	1	5kg	4/6/2023	3/9/2023
10	18-21-08-2023	Admin building-2nd floor offices hall	wall hanging clip	DCP	2	6kg	6/6/2023	5/6/2024

11	18-21-08-2023	Admin building-2nd floor offices galli	wall hanging clip	DCP	2	6kg	6/6/2023	5/6/2024
12	18-21-08-2023	Smoking point	wall hanging clip	DCP	1	6kg	6/6/2023	5/6/2024
13	18-21-08-2023	Lab	wall hanging clip	DCP	1	6kg	5/6/2023	4/9/2023
14	18-21-08-2023	Lab	wall hanging clip	DCP	1	6kg	5/6/2023	4/9/2023
15	18-21-08-2023	Lab	wall hanging clip	CO2	2	5kg	4/6/2023	3/9/2023
16	18-21-08-2023	Sunder plast	Bucket stand	DCP	1	6kg	5/6/2023	4/9/2023
17	18-21-08-2023	Sunder plast	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
18	18-21-08-2023	Engineering workshop	Bucket stand	DCP	1	6kg	5/6/2023	4/9/2023
19	18-21-08-2023	Engineering workshop	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
20	18-21-08-2023	Store	On the floor	AFFF	1	45-liter	17/6/2023	16/9/2023
21	18-21-08-2023	Store	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2023
22	18-21-08-2023	Store	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
23	18-21-08-2023	Alumina storage near scrap area front gate	On the floor	DCP	1	6kg	6/6/2023	5/6/2024
24	18-21-08-2023	Alumina storage near scrap area front gate	On the floor	CO2	1	5kg	6/6/2023	5/6/2024

25	18-21-08-2023	Alumina storage near scrap area second gate	On the floor	DCP	1	6kg	5/6/2023	4/9/2023
26	18-21-08-2023	Alumina storage near scrap area second gate	On the floor	CO2	1	5kg	4/6/2023	3/9/2023
27	18-21-08-2023	Chemical store	on the floor	DCP	1	6kg	5/6/2023	4/9/2023
28	18-21-08-2023	Chemical store	on the floor	CO2	1	5kg	17/6/2023	16/9/2023
29	18-21-08-2023	Chemical store	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
30	18-21-08-2023	Chemical store	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
31	18-21-08-2023	Chemical store	Trolley	DCP	1	50kg	8/8/2022	7/8/2023
32	18-21-08-2023	Mess	wall hanging clip	DCP	2	6kg	6/6/2023	5/6/2024
33	18-21-08-2023	HCL	Bucket stand	DCP	2	6kg	6/6/2023	5/6/2024
34	18-21-08-2023	Demin plant	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
35	18-21-08-2023	Demin plant	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
36	18-21-08-2023	Nitrogen plant corner	Trolley	AFFF	1	45-liter	6/6/2023	5/6/2024
37	18-21-08-2023	Boiler near container	Bucket stand	DCP	2	6kg	6/6/2023	5/6/2024
38	18-21-08-2023	Boiler downside the pipe rack	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
39	18-21-08-2023	Boiler downside the pipe rack	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
40	18-21-08-2023	H2 near diesel tank area	Trolley	AFFF	1	45-liter	1/8/2023	30/1/2024
41	18-21-08-2023	H2 near raw water tank	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
42	18-21-08-2023	H2 near raw water tank	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
43	18-21-08-2023	H2 near reformer	Bucket stand	DCP	2	6kg	6/6/2023	5/6/2024

44	18-21-08-2023	H2 plant near NG compressor	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
45	18-21-08-2023	H2 plant near NG compressor	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
46	18-21-08-2023	H2 plant NG compressor corner	Bucket stand	DCP	1	6kg	6/6/2023	5/6/2024
47	18-21-08-2023	H2 plant NG compressor corner	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
48	18-21-08-2023	Substation near generators	Bucket stand	DCP	2	6kg	6/6/2023	5/6/2024
49	18-21-08-2023	Substation cable laying gate generators side	Trolley	CO2	1	30kg	4/6/2023	3/9/2023
50	18-21-08-2023	Substation inside the building	wall hanging clip	CO2	2	5kg	4/6/2023	3/9/2023
51	18-21-08-2023	Substation process air compressor area side	Trolley	DCP	1	50kg	6/6/2023	5/6/2024
52	18-21-08-2023	H2O2 plant near pit tank	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024
53	18-21-08-2023	H2O2 old compressor area	Bucket stand	DCP	1	6kg	5/6/2023	4/9/2023
54	18-21-08-2023	H2O2 old compressor area	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023
55	18-21-08-2023	H2O2 new compressor area	Bucket stand	DCP	1	6kg	5/6/2023	4/9/2023
56	18-21-08-2023	H2O2 new compressor area	Bucket stand	CO2	1	5kg	4/6/2023	3/9/2023

57	18-21-08-2023	H2O2 plant near nitric acid tank	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024
58	18-21-08-2023	H2O2 plant near recycle compressor	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024
59	18-21-08-2023	H2O2 plant near solvent recovery unit	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024
60	18-21-08-2023	H2O2 plant ground floor downside the lift	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024
61	18-21-08-2023	H2O2 plant near chiller unit	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024
62	18-21-08-2023	H2O2 plant near collesor	on the floor	AFFF	1	45-liter	17/6/2023	16/9/2023
63	18-21-08-2023	H2O2 1st floor near C-222	wall hanging clip	DCP	1	6kg	5/6/2023	4/9/2023
64	18-21-08-2023	H2O2 1st floor near stair	on the floor	AFFF	1	10 litter	17/6/2023	16/9/2023
65	18-21-08-2023	H2O2 2nd floor near cable rack	wall hanging clip	DCP	1	6kg	5/6/2023	4/9/2023
66	18-21-08-2023	H2O2 2nd floor near stairs	on the floor	AFFF	1	10 litter	1/8/2023	30/1/2024
67	18-21-08-2023	H2O2 3rd floor near stairs	on the floor	AFFF	1	10 litter	1/8/2023	30/1/2024
68	18-21-08-2023	H2O2 4th floor near stairs	on the floor	AFFF	1	10 litter	1/8/2023	30/1/2024
69	18-21-08-2023	Concentration unit	Bucket stand	AFFF	1	10 litter	1/8/2023	30/1/2024

70	18-21-08-2023	New finished goods warehouse RIGHT side wall	on the wall	AFFF	4	10 litter	1/8/2023	30/1/2024
71	18-21-08-2023	New finished goods warehouse LEFT side wall	on the wall	AFFF	4	10 litter	1/8/2023	30/1/2024
72	18-21-08-2023	New finished goods warehouse at emergency exit gate	on the wall	AFFF	2	10 litter	1/8/2023	30/1/2024
73	18-21-08-2023	Inside filling hall near new machines	Bucket stand	AFFF	1	10 litter	4/6/2023	3/9/2023
74	18-21-08-2023	Filling hall dispatch office	Bucket stand	DCP	2	6kg	4/6/2023	3/9/2023
75	18-21-08-2023	filling hall at entrance gate near filling machine	Bucket stand	AFFF	1	10 litter	4/6/2023	3/9/2023
76	18-21-08-2023	filling hall top of roof	on the wall	DCP	2	6kg	5/6/2023	4/9/2023
77	18-21-08-2023	inside the filling hall	Trolley	AFFF	1	45-liter	17/6/2023	16/9/2023
78	18-21-08-2023	inside the filling hall	Trolley	AFFF	1	45-liter	1/8/2023	30/1/2024
79	18-21-08-2023	CCR building cable laying room gate	Trolley	CO2	1	30kg	4/6/2023	3/9/2023
80	18-21-08-2023	CCR MCC room	wall hanging clip	CO2	1	5kg	7/2/2023	6/8/2023
81	18-21-08-2023	CCR DCS and Control room gate on the wall	wall hanging clip	DCP	1	6kg	6/6/2023	5/6/2024
82	18-21-08-2023	CCR DCS and Control room gate on the wall	wall hanging clip	CO2	1	5kg	7/2/2023	6/8/2023

83	18-21-08-2023	CCR office area	wall hanging clip	DCP	1	6kg	6/6/2023	5/6/2024
84	18-21-08-2023	CCR office area	wall hanging clip	CO2	1	5kg	4/6/2023	3/9/2023
85	18-21-08-2023	CCR office backside	wall hanging clip	CO2	2	5kg	4/6/2023	3/9/2023
86	18-21-08-2023	Food grade plant	hoked on H-beams	AFFF	15	10 litter	1/8/2023	30/1/2024
87	18-21-08-2023	Food grade plant at entrance of both sides	On the floor	AFFF	2	45-liter	1/8/2023	30/1/2024
88	18-21-08-2023	Grid station operator room	wall hanging clip	CO2	3	5kg	4/6/2023	3/9/2023
89	18-21-08-2023	Grid station battery room	on the floor	AFFF	2	10 litter	4/6/2023	3/9/2023
90	18-21-08-2023	Grid station 2nd room	wall hanging clip	CO2	2	5kg	4/6/2023	3/9/2023
91	18-21-08-2023	Grid station 2nd room (double trolley)	Trolley	CO2	2	35kg	7/2/2023	6/8/2023
92	18-21-08-2023	Grid station 2nd room (double trolley)	Trolley	CO2	2	35kg	7/2/2023	6/8/2023
93	18-21-08-2023	Grid station scrap area	Trolley	AFFF	1	45-liter	17/6/2023	16/9/2023
94	18-21-08-2023	Grid station transformer area	Trolley	AFFF	1	45-liter	1/8/2023	30/1/2024
95	18-21-08-2023	External warehouse (Mughal Steel)	on the floor	AFFF	10	10 litter	17/6/2023	16/9/2023

96	18-21-08-2023	External warehouse (Qila Sttar Shah)	on the floor	AFFF	10	10 litter	1/8/2023	30/1/2024

M/S.DESCON OXYCHEM LIMITED

LIST OF FIRE HYDRANTS, DETECTORS, SAND BUCKETS

Annexure-4

Sr. No.	Department / Section	Fire Hydrant with Hose & Nozzle	Smoke Detectors	Heat Detectors	Break Glass Units	Fire Alarm Panels	Fire Alarm Bells	Water Buckets	Sand Buckets
1	Plant area	6-Nos Plane Hydrants	108	-	21	10	16	-	40
2	Plant area	4-Nos Foam Monitors	-	-	-	-	-	-	-
3	Plant area	24-Nos Water Monitors	-	-	-	-	-	-	-
4	Plant area	3-Nos Pillar Hydrants	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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M/S.DESCON OXYCHEM LIMITED

WATER SYSTEM

Annexure-5

Tube Well-02-Nos

Near wellness center 01

Near at laboratory 01

Capacity : 01 cu-s

Discharge Pipe Dia : 150mm

Motor H. P : 25

Overhead Water Tank

Capacity : 1753 cubic m

		Fire Pump No. 1	Fire Pump No. 2	Fire Pump No. 3
Capacity	:	Jokey pump	(9.3 bar) main pump motorized	(9.1 bar) Diesel engine
Motor H.P	:	10-hp	177	215
Head	:			3000psi
Inlet / Outlet Dia:		50mm	20mm/150mm	20mm/150mm

1. OBJECTIVE

This procedure is intended to ensure that in case of incident such as major fire, explosion, toxic gas release, bomb threat or sabotage, all necessary actions are taken for protection and to prevent or mitigate associated adverse Health, Safety and Environmental consequences.
This procedure details the protocol for emergency response and planning requirements for ensuring effective response by site personnel to minimize the loss and recovery time.

2. SCOPE

This procedure is applicable to all potential and actual emergency situations which can arise in any area of Descon Oxychem Limited (DOL).

3. RESPONSIBILITIES

Key personnel who will play vital role in handling emergency situation on plant are Works Manager, Manager HSE, Team Lead HSE, HSE Executive, Reliability Manager, HR/ Administration Manager, Line Managers and Shift Engineers.
Works Manager is the senior most person in the team to handle emergencies and make important decisions in consultation with Manager HSE. Works Manager/ Manager HSE may coordinate with CEO if required.

Works	Works Manager
	Technical manager
	Production manager
	Reliability manager
	Admin /HR
	Finance manager
	HSE manager
	IT manager
Field	Shift Engineer
	Operations
	Maintenance
	Fire fighter
	Instrumentation
	Contractor
	Time keeper/Security

4. ABBREVIATIONS

CEO	Chief Executive Officer
HSE	Health Safety and Environment
ERT	Emergency Response Team
DOL	Descon Oxychem Limited
OH&S	Occupational, Health & Safety
WM	Works Manager
LM	Line Manager

5. DEFINITIONS

5.1. EMERGENCY

An unexpected material, system, or process occurrence that has the potential for causing serious injury to people and/or property or environmental damage and needs immediate action.

5.2. EMERGENCY PREPAREDNESS

Emergency Preparedness is an integral part of an occupational health and safety management system. It is a set of procedures that needs to be put in place to both identify and respond to potential emergency situations.

5.3. EMERGENCY RESPONSE TEAM (ERT)

Emergency response team is a team that can be central to ensuring that the effect is mitigated and reduced and people are rescued.

5.4. TYPICAL EMERGENCIES

Medical, Fire/ Explosion, accidental leakages of combustible gases, accidental releases of combustible or other hazardous substances, accidental leakages of fluid from pressurized vessel, Accident, Natural Disaster (Earthquakes etc.), Flood, Snake bite Sabotage, Strikes and War.

6. PROCEDURE ON EMERGENCY PREPAREDNESS

6.1. MAIN RISK AT DESCON OXYCHEM SITE

The main risks at DOL site include:

1. Fire and explosion
2. Flammable gas release and explosion
3. Containment Loss
4. Bomb Threat or Sabotage

Emergency planning for all these hazards should be based on worst case scenario for each type of hazardous event.

For this, consequence analysis should be conducted for all potential hazardous events resulting from the loss of engineering / operational controls for the process. This evaluation includes estimating release amounts and conditions, consequences on affected areas and determining resulting Health, Safety and Environmental effects.

6.2. EMERGENCY RESPONSE MANUAL

The Site Emergency Response Manual should cover the following:

6.2.1. Purpose and scope of the manual
6.2.2. Hazards of Materials
6.2.3. Types of emergencies
6.2.4. Reporting of emergencies
6.2.5. Detection, declaration and notification of emergencies including emergency alarm
6.2.6. Communication channel
6.2.7. Details of Emergency Organization, Responsibilities and authorities Emergency squad membership and leader
6.2.8. Activation of emergency response team
6.2.9. Role statements for all the individuals involved in emergency response

6.2.10. Role statement of floor marshals
6.2.11. Assembly locations for people vacating the site
6.2.12. Personnel accounting – individuals responsible to check the number of personnel and assembly points
6.2.13. Firefighting techniques
6.2.14. Rescue plans including medical assistance
6.2.15. Layout and location of safety / emergency equipment
6.2.16. Miscellaneous Information (Population around Plant, typical wind reference diagram)
6.2.17. Training
6.2.18. Stewardship

6.3. EMERGENCY HANDLING TECHNIQUE

A brief guideline to handle different types of fires, response to liquid and gaseous releases and spills is vital part of the emergency response plan. The plan should cover the following:

6.3.1. Firefighting actions / containment techniques
6.3.2. Spill control / decontamination procedures
6.3.3. Shut down / isolation of plant equipment as necessary
6.3.4. Handling of Electrical Sub Station / Breaker Fires
6.3.5. Isolation procedure for Switch Gear Room Fires
6.3.6. Water Fogging Techniques
6.3.7. Emergency Health Information and guidelines for handling of sulfuric acid / causticleakages/ HCL
6.3.8. Information and usage of fire water network
6.3.9. Spill Control of hydrogen peroxide

6.4. EMERGENCY PREPAREDNESS

6.4.1. Emergency preparedness will include training of employees on how to deal with emergencies, implementation of effective control measures to avoid any emergency, defining responsibilities for emergency handling, installation of emergency communication system and equipment, availability of emergency response equipment's, defining the evacuation routes and exit points and defining the frequency for inspection of emergency response equipment's.
6.4.2. TL HSE in coordination with functional heads will form an ERP team from every department and it will be displayed in each section and communicated as well.
6.4.3. HR and Admin department is responsible for the upgradation of ERP team list onquarter basis, a soft copy of this record will be circulated to all departments.
6.4.4. HSE Executive will prepare an emergency response flow chart explaining emergency communication flow and channels, roles and responsibilities and effective response methodology for controlled and uncontrolled emergencies.
6.4.5. Manager HSE will prepare emergency evacuation map(s) containing details of emergency communication system, emergency equipment's, emergency routes, assembly point(s) for all sections/workshops and emergency contact numbers. He willalso ensure that it is known to all employees and contractors. WM is responsible to review the plan and final plan will be circulated to all departments after the approvalof CEO.
6.4.6. All line manager will ensure that lists of ERP team is displayed in all their respectiveareas.

6.4.7. Manager HSE and Administration will identify the needs of relevant interested parties, e.g. emergency services and neighbors and contact them to know about their capacity and resources to deal with emergency situations and can develop an understanding for helping each other, if needed.

6.4.8. The actual involvement of external agencies in emergency planning and response willbe clearly documented by concerned person Manager HSE and Administration Manager.

6.4.9. HSE will conducted the emergency drills report and circulated among all departmentsand also reported in management review meeting.

6.5. *INFORMATION*

6.5.1. MSDS will be the source of information on hazardous material's potential impact on the environment, and measures will be taken as instructed in the event of accidentalreleases.

6.5.2. All manuals and drawings to be available in Control Room, Admin Building, Wellness Center and with all key members involved in emergency handling.

6.5.3. All responsibilities of involved staff should be printed on A4 sheet and placed atwellness center and in their respective office.

6.6. *EMERGENCY DRILLS*

6.6.1. Emergency drills will be conducted at least quarterly in order to assess the effectiveness of ERP and preparedness of workforce to handle emergencies and to make workforce realize their roles and responsibilities during emergency. The frequency can be increased by Manager HSE based on the requirements.

6.7. *CORRECTIVE ACTIONS*

6.7.1. Any discrepancy observed during emergency drills will be reported. Corrective actions will be taken and decisions made jointly by WM and Manager HSE.

6.8. *MUTUAL AID*

6.8.1. Other organizations in surrounding area can be contacted to know about their capacity and resources to meet emergencies. Numbers of these neighbor companies are provided to all departments and placed at different location of plant. Final call should be decided by WM, Manager HSE and SE.

6.9. *EVACUATION ROUTE*

Evacuation route maps have been posted in each work area. The following information is marked on evacuation maps:

6.9.1. Emergency exits

6.9.2. Primary and secondary evacuation routes

6.9.3. Locations of fire extinguisher

6.9.4. Fire alarm manual station

6.9.5. Assembly points

6.10. *EMERGENCY COMMUNICATION*

6.10.1. Two level of communication external and internal

6.10.2. Communication is a critical factor in handling an emergency. To control the situation by the earliest possible action, any employee must be authorized to raise anemergency alarm

6.10.3. Ambulance, medical staff, Fire team, Fire service, other emergency services shallbe called if needed

In consultation with Manager HSE.

6.11. PERIODICAL REVIEW OF EMERGENCY SYSTEM

After the occurrence of an actual emergency situation also; effectiveness of this procedure and system will be reviewed. If found unsatisfactory, revisions will be made accordingly and communicated to all concerned.

7. ROLE AND RESPONSIBILITIES

As attached in Annexure A

8. EMERGENCY SCENARIOS AND EVACUATION PROCEDURE

Including major risk at DOL site following emergency scenarios has been attached in Annexure B along with their evacuation procedure.

1. Medical
2. Chemical Spill
3. Telephone Bomb Threat
4. Snake Bite
5. Natural Disaster
   - Earth quack
   - Flood
   - Severe weather

9. TRAINING ON EMERGENCY PREPAREDNESS

Regular training and practice under simulated conditions is imperative to enable the organization to respond effectively to emergencies. Following program is to be followed for training of the emergency squad and employees.

9.1. INITIAL TRAINING

All new / transferred employee's / contractor workforce should undergo an initial training on site emergency procedures and their role statement in case of emergency.

This training is mandatory at the start of their employment on site.

9.2. MONTHLY SIMULATED EXERCISE

All emergency squad should do once in two-month emergency training for the training of emergency squad.

9.3. QUARTERLY SIMULATED EXERCISES

9.3.1. A comprehensive program should be established for quarterly simulated exercises.

9.3.2. All employees and contractor workforce should participate in the simulation.

9.3.3. Observers should be assigned at all the locations to assess compliance on the role statements

9.3.4. A formal critique session should be held after the simulated exercise and participatedby all the observers and key personnel from emergency organization

9.3.5. After the critique session, a report should be issued which should highlight area-wise compliance on the role statements and capture areas of improvement.

9.3.6. The frequency can be increased by Works Manager based on the requirements.

9.4. *TRAINING REQUIREMENT FOR EMERGENCY RESPONSE TEAM*

9.4.1. Minimum training requirements for the squad members are as under:
9.4.2. Aware of emergency reporting procedure
9.4.3. Understands his role statement in emergency
9.4.4. Knows location of major equipment at the plant site for assembly purposes
9.4.5. Knows assembly locations for employees other than squad members
9.4.6. Understand classes of fire and extinguishing media for each class of fire
9.4.7. Capable of using fire extinguishers independently
9.4.8. Capable of hose handling and making of water curtain
9.4.9. Aware of location of spare cylinders, fire extinguishers, fire hoses and nozzles etc
9.4.10. Capable of providing 1st aid specific to needs
9.4.11. Understands Laboratory emergency handling procedure
9.4.12. Is aware of the MSDS on Hydrogen Peroxide, Sulphuric Acid and HCL etc
9.4.13. Understands possible emergencies at non-operating areas of the Plant
9.4.14. Has participated in the class room training on Fire Fighting
9.4.15. Has participated in the class room training on First-Aid
9.4.16. Has participated in training on Confined Space Rescue
9.4.17. Firefighting on or near electrical equipment

9.5. *SQUAD LEADER*

In addition to general requirements mentioned above, the Squad Leader and Squad Leader should be:

9.5.1. Capable of leading the emergency squad
9.5.2. Know the role of emergency squad members as well as their own role statements incase of emergency
9.5.3. Must have participated at least in one quarterly drill as a squad member or an observer

10. APPLICABLE DOCUMENTS

Nil

11. APPENDICES

Annex A	Roles and Responsibilities
Annex B	Emergency Scenarios and Evacuation Plan

Annexure "A"

All Staff Responsibilities

General Responsibility

1. It is mandatory for all employees to participate in an evacuation, whether it is being conducted as adrill or is an actual emergency. When the fire alarm sounds, you must proceed as follows:
2. Terminate all telephone conversation
3. Close all desk and file cabinet drawers
4. Close all doors behind you and leave the lights on
5. Take valuables with you if they are readily available and will not delay your evacuation
6. Do not return for them
7. Ensure that all visitors are evacuated
8. Move to the emergency staircase nearest to your location
9. Do not carry anything, linger, smoke or carry beverages in staircases. All of these can cause accidentsand needless injuries. Also, remember to keep conversation to a minimum since this could interfere with follow-up instructions provided by members of your Safety Team
10. After Evacuation from affected building / area all personnel will assemble outside the department inthe defined Assembly Area by using Emergency Exits as shown on the emergency plan
11. Area Marshal shall arrange to conduct the head count

In The Event of Fire

1. If you see a fire or smoke, activate the alarm and inform shift engineer/area marshals/rescue teamleader
2. Provide the following details:
    - Location of the Incident
    - Natures of incident e.g. fire, number of injuries, etc.
    - Identify yourself giving your name and telephone number
3. All persons will evacuate the effected Building / Area except those who have been trained in emergency response activities or any other who are required in the situation. Emergency Evacuationplan of the building has been displayed for guidance
4. After Evacuation from affected building / area all personnel will assemble outside the department inthe defined Assembly Area by using Emergency Exits as shown on the emergency plan
5. Area Marshal shall arrange to conduct the head count

When The Fire Alarm Sounds

1. Do not panic
2. Walk, don't run
3. Use exit stairways
4. Keep conversation to a minimum
5. Leave lights on and close doors
6. Be alert for further instructions
7. Do not start rumors
8. Do not congregate near the exit stairways doors

If There is a Fire On the Floor, Follow These Steps

1. Leave all lights on and close all doors behind you, making sure they are not locked

2. Use the exit stairwells
3. If there is smoke in the area, stay low to the floor during the evacuation

If There is a Fire or Substantial Amount of Smoke in the Hallway

1. Stay in the room and remain calm
2. Dial your emergency number and inform them of the situation and that you cannot safely evacuate.
3. Seal the cracks around the door to keep smoke out
4. If smoke enters the room, stay close to the floor and breathe slowly
5. Remain calm and wait for help to arrive

Every Supervisor Shall Ensure the Following

1. All work is stopped at once
2. All equipment is shut down or put in a safe place
3. All employees are evacuated to a pre-determined assembly point in an orderly manner
4. Advise security to open the main gate for emergency vehicles
5. Keep the zone, affected by the emergency, clear and remove any vehicles that could cause a restrictionto the emergency team
6. No one is permitted to return to work until notification has been received from operations or fromthe company representative that it is safe to do so

Area Marshals Responsibilities

1. Areas marshals shall be appointed and following responsibilities has been assigned to all area marshals;
2. As soon as the evacuation alarm sounded area marshals are bound to inform HSE team or rescueteam leader.
3. They will check all areas to confirm that all the employees have left the premises; if they find anyvictim they shall inform the rescue team.
4. The leaser of area marshals shall assist ERPT by maintaining a muster count and keep a record of allemployees present. In the event of a 'no show' they will alert the ERPT.

Area Marshals of DOL:

Team leaders

1.	Time office	Security Supervisor
2.	Admin building	
3.	CCR building	Shift Engineer
4.	Filling hall	
5.	Jerry can	
6.	Store	
7.	Laboratory	
8.	Main Mess building	

Members Tea boy
Janitorial staff

CHIEF EXECUTIVE RESPONSIBILITIES

1. CEO shall immediately inform vice chairman about the incident
2. If required CEO shall be the spokesperson and may have to represent the site with;
    - Local community organizations
    - News media
    - Governmental agencies

WORKS MANAGER RESPONSIBILITIES

1. In case of emergency WM shall inform immediately to CEO and CFO
2. WM shall take a call incase emergency shut down of plant is required in consultation with Productionmanager or SE
3. If required WM shall give guidance for mobilization of additional resources to adequately deal withthe situation in consultation with Manager HSE

HSE MANAGER & TEAM RESPONSIBILITIES

1. HSE manger shall ensure compliance of this procedure;
2. By auditing the procedure and is being implemented in its true shape
3. Provide guidance, assistance and advice to ERP team as required
4. Responsible for periodic evaluation & review during emergency drills
5. Recommend and monitor control measures
6. Responsible to set up the schedule for emergency and evacuation drills
7. In case of emergency Manager HSE shall inform to SE/WM/ERP
8. TL HSE in coordination with functional heads will form an ERP team from every department and itwill be displayed in each section and communicated as well
9. TL HSE will ensure that lists of ERP team is displayed in all areas
10. TL HSE to ensure all escape routes and assembly areas are clearly marked by respective safety signsin the field as indicated on the site plan
11. TL HSE to develop schedule of inspection for firefighting and other emergency equipment
12. HSE will ensure arrangements for head counting in the assembly area
13. HSE should completely follow the guidelines as described in clause 6.4 and 7

EMERGENCY REPONSES TEAM RESPONSIBILITIES

1. All emergency personnel should go through the training as described in 7.4
2. The emergency response Team members shall reach the point of incidence and shall take part in theinitial fire extinguishing activities or required activities
3. Shall help the persons in the evacuation of the building
4. Shall take with them first aid boxes outside the building for its any eventual use outside the building
5. Electrical Department shall be informed to cut off electrical supply of the affected area if needed
6. Shift engineer shall be informed about the incident
7. Call to ambulance or fire truck in case of injuries or if fire spreads in consultation with HSE
8. ERP team shall follow the steps in case of medical as attached in annexure b

SHIFT ENGINEER RESPONSIBILITIES

1. All shift engineers are responsible to deal the emergencies at plant
2. SE will assess the scale of emergency and issue the directions to the emergency response team (if notdeclared and notified already) for mobilization
3. SE will immediately contact/inform to HSE team or WM
4. If emergency shut down is required SE is authorized to follow the emergency plant shut downguidelines
5. After assessing the extent of emergency SE will liaise with site supervision to withdraw the workpermits
6. SE will inform production manager or WM about the emergency shutdown of plant
7. If required SE will ask WM for mobilization of additional resources if required to adequately deal withthe situation. As per the clause

Annexure "B"

EMERGENCY SCENARIOS AND EVACUATION PROCEDURE

MEDICAL EMERGENCY

Call medical emergency phone number (check applicable):

- Paramedics
- Ambulance
- ERP Team
- HSE Team
- Control Number

Provide the following information:

- Nature of medical emergency
- Location of the emergency (address, building, room number)
- Your name and phone number from which you are callingDo

not move victim unless absolutely necessary

Prior to the arrival of the medical help take following information:

Contact person name in family:_____Phone:_____

Contact person name in family:_____Phone: _____

If First Aid are not available

If personnel trained in First Aid are not available, as a minimum, attempt to provide the following assistance:

1. Stop the bleeding with firm pressure on the wounds (note: avoid contact with blood or other bodilyfluids)
2. In case of rendering assistance to personnel exposed to hazardous materials, consult the MaterialSafety Data Sheet (MSDS) and wear the appropriate personal protective equipment.

Attempt first aid ONLY if trained and qualified.

If required, HSE Team or ERP team will make necessary arrangement to move the victim to nearest hospital

CHEMICAL SPILL

The following are the locations of:

Spill Containment and Equipment: _____

Personal Protective Equipment (PPE):

MSDS: _____

When a Large Chemical Spill has occurred:

1. Immediately notify the designated area in charge and ERP
2. Contain the spill with available equipment (e.g., pads, booms, absorbent powder, etc.)
3. Secure the area and alert other site personnel
4. Do not attempt to clean the spill unless trained to do so
5. Attend to injured personnel and call the medical emergency number, if required
6. Evacuate building as necessary

When a Small Chemical Spill has occurred:

1. Notify the supervisor or area in charge
2. If toxic fumes are present, secure the area (with caution tapes or cones) to prevent other personnelfrom entering

3. Deal with the spill in accordance with the instructions described in the MSDS
4. Small spills must be handled in a safe manner, while wearing the proper PPE

TELEPHONE BOMB THREAT CHECKLIST

INSTRUCTIONS: BE CALM, BE COURTEOUS. LISTEN. DO NOT INTERRUPT THE CALLER.

YOUR NAME:_____ TIME:_____ DATE: _____

CALLER'S IDENTITY SEX: Male___Female_____Adult_Juvenile_____APPROXIMATE AGE: _____

ORIGIN OF CALL: Local___ Long Distance_____ Telephone Booth ____

VOICE CHARACTERISTICS

_____Loud _____Soft
_____High Pitch _____Deep
_____Raspy _____Pleasant
_____ _____
Intoxicated Other

ACCENT

_____Local _____Not Local
_____Foreign _____Region
_____Race

SPEECH

_____Fast _____Slow
_____Distinct _____Distorted
_____Stutter _____Nasal
_____Slurred _____
Other

MANNER

_____Calm _____Angry
_____Rational _____Irrational
_____Coherent _____Incoherent
_____Deliberate _____Emotional
_____Righteous _____Laughing

LANGUAGE

_____Excellent _____Good
_____Fair _____Poor
_____Foul _____
Other

BACKGROUND NOISES

_____Factory _____Trains
_____Machines _____Animals
_____Music _____Quiet
_____Office _____Voices
_____Machines _____Airplanes
_____Street _____Party
_____Traffic _____
Atmosphere

BOMB FACTS

Pretend Difficulty Hearing - Keep Caller Talking - If Caller Seems Agreeable to Further Conversation, Ask Questions Like:

When will it go off? Certain Hour_Time Remaining_____
Where is it located? Building_____Area
What kind of bomb? _____
What kind of package?_____
How do you know so much about the bomb?_____
What is your name and address? ___
If building is occupied, inform caller that detonation could cause injury or death.
Call Security at_____and relay information about call.
Did the caller appear familiar with plant or building (by his/her description of the bomb location)? Write out the message in its entirety and any other comments on a separate sheet of paper and attach to this checklist.
Notify your supervisor immediately.

Snake Bite

Take following measures in case of snake bite

- Inform the supervisor/ HSE representative
- Keep victim still and calm
- Keep the bitten area lower than heart, tie with tourniquet above the bitten area to avoid spreading ofpoison in the body
- Immediately shift the victim to near-by Hospital, HSE representative will inform the nearby hospitaland send anti-venom vaccine along with the victim

PRECAUTONARY MEASURES DURING NATURAL DISASTERS

Earth Quack

One of the greatest threats during an earthquake is falling debris. Earthquakes are unpredictable and strike without warning. Therefore, it is important to know the appropriate steps to take when one occurs, and to be so thoroughly familiar with these steps, that you can react quickly and safely.

Steps to Take During an Earthquake:

- Stay calm and await instructions from the ERP team or the HSE official
- Remain inside the building
- Seek immediate shelter under a heavy desk or table--or brace yourself inside a door frame or againstan inside wall
- Stay clear of windows--at least 15 feet away
- If shaking causes the desk or table to move, be sure to move with it
- Resist the urge to panic. Organize your thoughts. Think as clearly as possible, and anticipate the sightsand sounds that may accompany an earthquake
- Don't be surprised if the electricity goes out, fire or elevator alarms begin ringing
- Expect to hear noise from broken glass, creaking walls, and falling objects

- Evacuate as instructed by the ERP team or the HSE official

Steps to Take Immediately After an Earthquake:

- Remain in the same "safe" location for several minutes after the earthquake, in case of aftershocks
- Do not attempt to evacuate or leave your immediate area unless absolutely necessary or when instructed to do so by HSE department. After their instruction please evacuate the building and collect at designated place outside the building
- Recounting shall be carried out at the assembly point
- ERP team will check for injuries and administer necessary first aid
- Recognize and assist co-workers who are suffering from shock or emotional distress
- Due to the possibility of aftershocks, a person should only move back to workplace after clear instructions from HSE or ERP team

Flood

In case of serious flooding could occur as a result of heavy rainfall, earthquake, land movement, dam failure etc. Response to a major flooding incident will require a high degree of local and state or federal interagency cooperation, communication and mutual aid between agencies, municipalities, business, and counties would be required to cope with the situation.

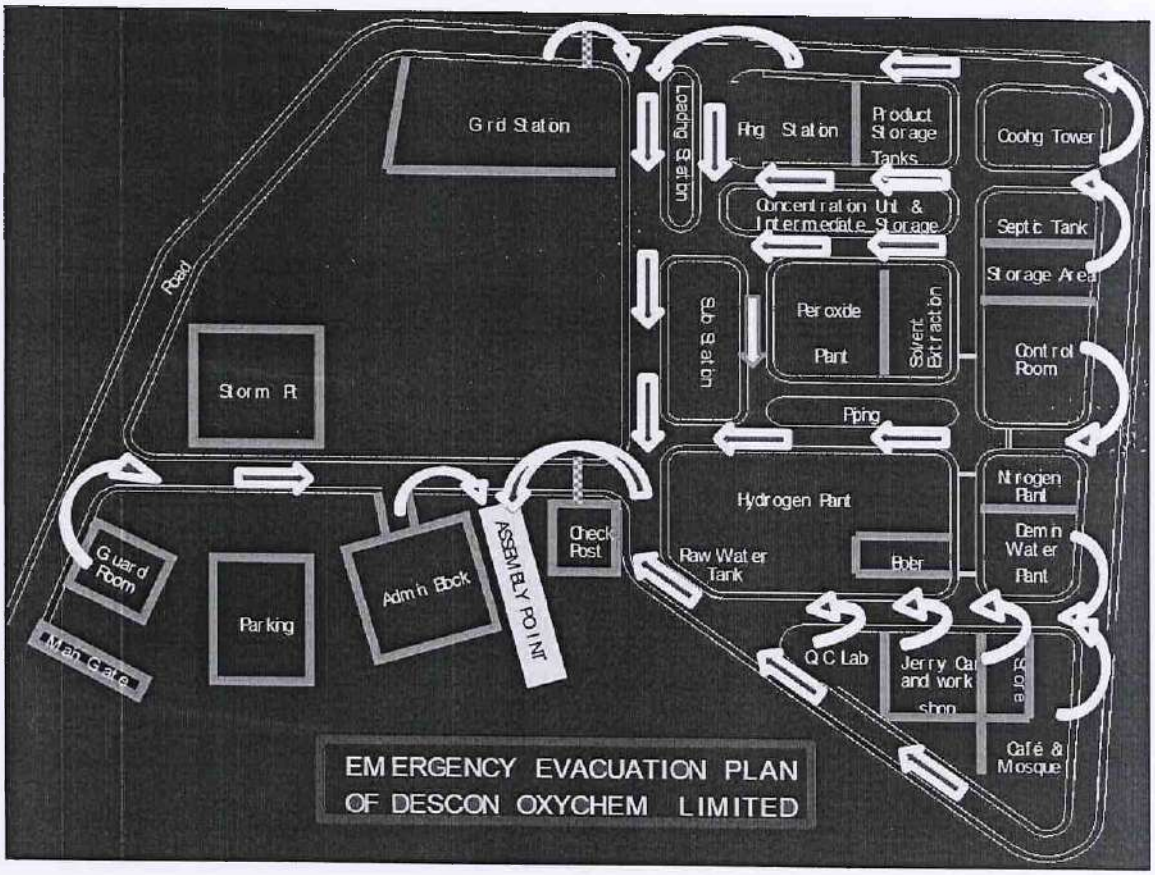
- In the event of a flood, use the following procedures.
- Individuals should exit the flooded area as quickly as possible.
- Avoid standing in flood waters due to the threat of electrocution.
- One of the greatest hazards to personnel will be electrical grounding of equipment and power lines
- SE will coordinate with works manager for shut down and plant in case of severe weather condition

Severe Weather

In case of heavy rain, dust storm etc. no one will leave the office until the weather condition becomes favorable. Manager Administration & HSE Executive will update about latest weather forecast by coordinating with the local weather department

Annexure "A"

Evacuation Plan



ANNEXURE-N

HEALTH AND SAFETY POLICY AND DETAIL OF HSC LEAD

Descon Oxychem Limited

QHSE Policy

Descon Oxychem Limited (DOL) ensures that Quality, Health, Safety and Environment (QHSE) remains its top priority to achieve maximum stakeholders' satisfaction.
DOL is committed to:

- Compliance with all applicable QHSE laws and regulations related to our business. Consider HSE Risks and significant impacts, while making business decisions.
- All employees take ownership and are accountable for QHSE.
- Strive to become one of the QHSE benchmark organizations in the chemical industry.
- Ensuring customers' delight by eliminating quality non-conformance.
- Prevent accidents, occupational illnesses and other events to protect our people and host communities at all times, and in all circumstances.
- Respond promptly to all incidents and emergencies, implementing measures to prevent reoccurrence.
- Ensure the safety, integrity and reliability of its facilities and operations through effective implementation of Reliability Centered Management operating model.
- Minimize impact on the environment through pollution prevention, reduction of natural resource consumption, emissions and the reduction/recycling of waste by implementing product stewardship program.
- Monitor, evaluate and continually improve our performance through the definition of operational standards, corrective & preventive actions and process safety assessments.
- Provide risk based and behavior based trainings and development opportunities to our employees to maintain job competence focused on developing a culture of excellence.
- Communicate openly with all stakeholders to demonstrate responsibility in the areas of Quality, Health, Safety and Environment.
- Hold contractors and third parties accountable for adhering to the company's QHSE policy and procedures to ensure satisfactory safety and environmental performance.

QHSE policy and program at DOL is progressively complied with the requirements of ISO 9001:2015 ISO 14001:2015 and ISO 45001-2018 standards' requirements.

The policy will be reviewed periodically, and if necessary updated, to take into account any changes in the organizational structure or in the light of legislative changes . This policy statement will be made available to all employees and all stakeholders.

Muhammad Mohsin Zia
Chief Executive Officer

MERCER

PARTNERS IN PROGRESS | DESCON

Organization:	Descon Oxychem	Department:	QHSE	Date:	
Position:	Team Lead HSE	Person:	Zahid Zaki	Approval:	
Supervisor's Position:	Manager QHSE	Supervisor:	Haider Ali	Approval:	

PURPOSE

This position is responsible to assist and monitor QEHS Management system on the sites, mitigate the risks and conduct incident investigations, provide QEHS updates; conduct internal QEHS trainings & facilitate in conducting external QEHS training; facilitate internal and external audits **WITH** the objective of achieving Zero LTI by efficiently implementing existing QEHS management system, **WITHIN** the limits of LOCAL regulations, company policies and procedures, directions from Manager QEHS.

SIZE

Financial	Non-Financial
ZERO	Direct Reports:00 Indirect Reports:01

OPERATING NETWORK

External	Internal	External
QEHS, Regulatory authorities Inspectors, Auditors Suppliers Visitors	Manager QHSE Operation Manager Works Manager Team Lead HSE All departments	QEHS, Regulatory authorities Inspectors, Auditors Suppliers Visitors

COMMUNICATION

Internal

Manager QEHS/ Head QEHS: Share QEHS updates relevant to the plant, receive direction and guidance on QEHS policies and requirements.

Operation and Works Manager: Provide project specific QEHS updates, Provide briefings about QEHS statistics & policies for compliance to the QEHS SOPs.

External:

Inspectors: Coordinate & facilitate external QEHS audit for certifications.

Auditors: Acquire and provide information about health, safety & environment policies & standards of Govt. & other regulatory bodies.

MINIMUM REQUIREMENTS

Education & Relevant Experience :	B.E Chemical/Graduate discipline with NEBOSH Certificate with minimum 5 Years of experience in industrial construction/ maintenance in Chemical industry.

Knowledge	Skills
– Good Knowledge of QEHS Standards – Good knowledge in Incident Investigation Methodology – Working knowledge local QEHS relevant regulations and requirements – Working knowledge of training methodology. – Good knowledge about ISO 9001, ISO 14001,OHSAS 18001(ISO 45001) standards and Auditing	

PERSONAL ATTRIBUTES

AREAS OF RESPONSIBILITY:	PERCENT OF TIME SPENT

1	**QEHS Planning & Implementation**	**40%**
	Responsible for preparation, implementation and monitoring of QEHS plan for the plant, conduct internal QEHS audits, provide relevant reporting data, Implement QEHS pro-active measures in the project site activities as stated in plan, conducting Site & Camp safety drills, ensure QEHS inductions for new comers, Closely monitor site activities and site conditions on daily basis to find out QEHS lapses and take appropriate Corrective and Preventive Actions (CPA) and report to In Charge and site Manager, Ensure that Project QEHS programs and procedures are implemented, reviewed and improved as needed. Authorization and supervision of every lifting, HOT, work at height, confined job at plant. To come to plant anytime even in off days for supervision if required to perform any critical job. Especial visit during long weekends and on EID days at plant and report to board through monthly HSE report. Plant CCTV camera surveillance from home to plant and call to concerned if found any un-expected situation. Risk based health surveillance of all workers. Coordinate with Dr. for performing the pre-employment medical. Over all supervision of shutdown activity. Conduct interviews of free lancers at plant during the shutdown period. These responsibilities are carried out IN ORDER TO ensure that all staff and activities on site are compliant with QEHS plan to execute the Project activities safely.	
2	**Audits and Reporting**	**15%**
	Prepare QEHS Audit Process and Plan to get the SM QEHS approval and get it implemented; develop, compile, maintain and report QEHS performance measures (KPIs), conduct QEHS audits to assess the check the compliance to QEHS Management system, Legal requirements, welfare within project site and camp. These responsibilities are carried out IN ORDER TO ensure compliance to existing QEHS Management system, standards and improvement of DIMS.	
3	**QEHS Trainings**	**15%**
	Identification of QEHS Training conduct safety induction of everyone who's coming at plant. Conduct in-house training session of different functions and third-party workers on different topics. Conduct Safety sessions on different topic in collaboration with Director Worker Education and Rescue Emergency Wing Government of Punjab. Prepared the emergency response team members and conduct the emergency evacuation drills on different scenarios. Conducted firefighting drills at plant. Conduct Internal QHSE audits. Call the HSE Committee Meetings once in a month. Conduct Safety Walks once in a month, prepared the report and circulate to all. Conduct Tool Box Talk depending on job nature. Conduct risk assessment and impact aspect. Conduct monthly inspection of safety critical equipment like Fire Water, Powder & Foam Media, Fire extinguishers, Emergency showers, Fire Alarm system (Smoke detectors & MCPs) etc. prepared the report and send it to all concerned n stack holders. Prepared the firefighting refilling batch. Manage the all things related to ambulance. Manage the all things related to first aid point. Ready for dealing the any emergency situation at plant, if received any emergency call will report to plant by 20 to 30 minutes. Coordinate with concerned for maintaining the condition of safety sign boards of whole plant area. Conduct the internal ISO-9001, 14001, OHSAS-18001 and HALAL internal audits. Raised the potential incidents and near miss reporting at plant. Conducting inspections of admin and logistic fleets at plant. These responsibilities are carried out IN ORDER TO provide required awareness to complete the job in a safe manner	
4	**Communication and Consultation**	**15%**
	Coordinate with Manager QHSE where QHSE roles and responsibilities for each Handle the customer complaint through CAPA module. To visit the customer site for conducting the risk assessment, training of concerned. Visit the customer site in terms of incident investigation. Conducted road risk assessment for customer site. Liaise between management and staff on all matters relating to health, safety and environment to ensure consistent application and understanding of policies and procedures. Assist Manager QHSE for formulation of emergency/contingency plans for Natural disasters, Industrial action, Fire, Explosions, Bomb threats etc. Prepared the HSE consultant agenda, manage the all administrative things on monthly basis. Coordination with PNRA Pakistan Nuclear Regulatory Authority for timely renewal of license and their payments arrangements. (As we have Approval of Nuclear gauge for Level Measurement using Cs-137 Radiation source.) Coordinate with PINSTECH (Pakistan institute of nuclear science and technology) for (Monthly Monitoring of Film Batches for radiation worker and maintained the bi-annual medical data and their timely payments. Coordinate with Civil Defense Ordinance Annually Compliance certificate from District Officer Civil Defense for legal compliance. Coordination with external accreditation bodies for making the contract and for conducting the audits and for timely payments. Certifications by SGS Pakistan QMS 9001:2015, Environment management system 14001-2015, OHSAS-18001 2007, Bureau Veritas Certified for PS 3733:2016 (HALAL Food Management System). These responsibilities are carried out IN ORDER TO communicate QEHS roles and responsibilities and consult with other to make the QEHS Management System more effective.	
5	**Incident Reporting and Investigation**	**15%**

	Ensure all incidents are timely & adequately reported by team; Investigate accident cases, significant near miss cases, property loss incidents, environmental related issues; Provide input and disseminate the collection of Lessons Learned for the project along with maintain Trend Analysis for future references. These responsibilities are carried out IN ORDER TO avoid re occurrence of incidents & accidents by placing preventive measure and mitigating any such near misses.	

ANNEXURE-O

WASTEWATER NOC

9

GOVERNMENT OF THE PUNJAB

IRRIGATION DEPARTMENT

EFFLUENT CHARGES BILL

Bill No.9	Effluent charges
Bill period	01-07-2023 to 30-06-2024
Authority	Executive Engineer Rachna Drainage Division Sheikhupura
Drain	Main Dek
Name of Factory/ Agency	**Descon Oxychem**
RD/Site	38-39/L
Bill issue date	10-Oct-23
Bill Due Date	~~31-Oct-23~~ 15-Nov-23
Payable before due date	Rs. 17500/-
Payable after due date	Rs. 17500/-
Sanctioned Discharge	0.50 Cs
Annual Effluent Rate (Rs/Cs)	Rs: 35000/- per Cs
Mode of Payment	By Bank Draft /Cross Cheque/ CDR in favour of Executive Engineer Rachna Drainage Division Sheikupura

Back ground of current bill

Financial year	Supplying existing	Bill Amount	Arrear	Advance	Total Bill Amount including arrear
2023-24	0.50	17500	0	0	17,500

1. Effluent must be treated its disposal in irrigation drain, in case it found untreated case will be reported to EPD/EPA for proceeding.

2. It is further added that agreement for the year 2023-24 with Irrigation Department should be signed and a certificate of Environment Department should also be submitted for record in the office. In case on non compliance the water of Industrial unit will be stopped.

Executive Engineer
Rachna Drainage Division
Sheikhupura

M. [illegible]
EIC LAB
02/11/23.

ANNEXURE-P

LIST OF MACHINERY

Asset Group	Description	Asset Number	Asset Serial Number	Description
03-BEACON	BEACON	BEACON-H2 AREA BLUE	070-BCN-10Fm0002	BEACON-H2 AREA BLUE
03-CEIL FAN	Ceiling Fan	Ceiling Fan	040-CEILFAN-SEC-8	Ceiling Fan
03-NON MAINT	NON-MAINTAINABLI	DCL PLANT	0-40CPS	DCL PLANT
03-TOOLS & EQUI	TOOLS & EQUIPMEN	40CPS	0-40TELEXCH	Cathodic Protection Syste
03-TOOLS & EQUI	TOOLS & EQUIPMEN	40TELEXCH	0-40TELEXT	Telephone Exchange
03-TOOLS & EQUI	TOOLS & EQUIPMEN	40TELEXT	0-40WLKT	Telephone Extension
03-TOOLS & EQUI	TOOLS & EQUIPMEN	40WLKT	0-ADMIN	Walkie Talkie
03-NON MAINT	NON-MAINTAINABLI	ADMIN	0-BOILER	ADMIN
03-NON MAINT	NON-MAINTAINABLI	BOILER	0-CAFETERIA	BOILER
03-NON MAINT	NON-MAINTAINABLI	CAFETERIA	0-CCR	CAFETERIA
03-NON MAINT	NON-MAINTAINABLI	CCR	0-CHILLED WATER SYSTEM	CCR
03-NON MAINT	NON-MAINTAINABLI	CHILLED WATER SYSTEM	0-CONCENTRATION	CHILLED WATER SYSTEM
03-NON MAINT	NON-MAINTAINABLI	CONCENTRATION	0-CONTROL SYSTEM	CONCENTRATION
03-NON MAINT	NON-MAINTAINABLI	CONTROL SYSTEM	0-COOLING WATER SYSTEM	CONTROL SYSTEMS
03-NON MAINT	NON-MAINTAINABLI	COOLING WATER SYSTEM	0-DCS	COOLING WATER SYSTEM
03-NON MAINT	NON-MAINTAINABLI	DCS	0-DEMINRO PLANT	DCS System Yokogawa
03-NON MAINT	NON-MAINTAINABLI	DEMINRO PLANT	0-DIESEL STORAGE	DEMINRO PLANT
03-NON MAINT	NON-MAINTAINABLI	DIESEL STORAGE	0-GRID STATION	DIESEL STORAGE
03-NON MAINT	NON-MAINTAINABLI	GRID STATION	0-H2 PRODUCTION	GRID STATION
03-NON MAINT	NON-MAINTAINABLI	H2 PRODUCTION	0-H2 SAFETY EQUIPMENT	H2 PRODUCTION
03-NON MAINT	NON-MAINTAINABLI	H2 SAFETY EQUIPMENT	0-H2O2 PROCESS	SAFETY EQUIPMENT H2
03-NON MAINT	NON-MAINTAINABLI	H2O2 PROCESS	0-H2O2 PRODUCTION	H2O2 PROCESS
03-NON MAINT	NON-MAINTAINABLI	H2O2 PRODUCTION	0-H2O2 SAFETY EQUIPMENT	H2O2 PRODUCTION
03-NON MAINT	NON-MAINTAINABLI	H2O2 SAFETY EQUIPMENT	0-IA/N2 UNIT	SAFETY EQUIPMENT H2O2
03-NON MAINT	NON-MAINTAINABLI	IA/N2 UNIT	0-JERRY CAN	IA/N2 UNIT
03-NON MAINT	NON-MAINTAINABLI	JERRY CAN	0-LAB	JERRY CAN
03-NON MAINT	NON-MAINTAINABLI	LAB	0-NATURAL GAS STATION	LABORATORY
03-NON MAINT	NON-MAINTAINABLI	NATURAL GAS STATION	0-OTHER PRODUCTION SERVICES	NATURAL GAS STATION
03-NON MAINT	NON-MAINTAINABLI	OTHER PRODUCTION SERVICES	0-PLC	OTHER PRODUCTION SERVICES
03-NON MAINT	NON-MAINTAINABLI	PLC	0-PRODUCT STORAGE/ FILLING	PLC SYSTEM
03-NON MAINT	NON-MAINTAINABLI	PRODUCT STORAGE/ FILLING	0-PSA	PRODUCT STORAGE/ FILLING
03-NON MAINT	NON-MAINTAINABLI	PSA	0-RAW FIRE WATER	PSA
03-NON MAINT	NON-MAINTAINABLI	RAW FIRE WATER	0-REFORMER/SYNGAS	RAW FIRE WATER
03-NON MAINT	NON-MAINTAINABLI	REFORMER/SYNGAS	0-SECURITY	REFORMER/SYNGAS
03-NON MAINT	NON-MAINTAINABLI	SECURITY	0-SUBSTATION	SECURITY
03-NON MAINT	NON-MAINTAINABLI	SUBSTATION	0-SUPPORT SERVICES	SUB-STATION
03-NON MAINT	NON-MAINTAINABLI	SUPPORT SERVICES	0-TOOLS & EQUIPMENTS	SUPPORT SERVICES
03-NON MAINT	NON-MAINTAINABLI	TOOLS & EQUIPMENTS	0-UTILITIES	TOOLS & EQUIPMENTS
03-NON MAINT	NON-MAINTAINABLI	UTILITIES	0-WAREHOUSE	UTILITIES
03-NON MAINT	NON-MAINTAINABLI	WAREHOUSE	0-WASTE WATER	WAREHOUSE
03-NON MAINT	NON-MAINTAINABLI	WASTE WATER	0-WELLNESS CENTRE	WASTE WATER
03-NON MAINT	NON-MAINTAINABLI	WELLNESS CENTRE	0-WHRS	WELLNESS CENTRE
03-NON MAINT	NON-MAINTAINABLI	WHRS	0-WORKS	WASTE HEAT RECOVERY SYSTE
03-NON MAINT	NON-MAINTAINABLI	WORKS	0-WORKSHOP	WORKS
03-NON MAINT	NON-MAINTAINABLI	WORKSHOP	010-AT101	WORKSHOP
03-ANALYZER	ANALYZER	010-AT101	020-B9801	Oxygen Analyzer
03-RECI PRO COMP	RECIPROCATING CO	010-B9801	010-C101A	Natural Gas Booster Compr
03-RECI PRO COMP	RECIPROCATING CO	010-C101A	010-C101B	Natural Gas Compressor
03-RECI PRO COMP	RECIPROCATING CO	010-C101B	020-C111A	Natural Gas Compressor
03-FD FAN	FORCED DRUAGHT	010-C111A	010-C111B	Forced Draught Fans
03-FD FAN	FORCED DRUAGHT	010-C111B	020-C111C	Forced Draught Fans
03-FD FAN	FORCED DRUAGHT	010-C111C	020-C112A	Forced Draught Fans
03-ID FAN	INDUCED DRAUGHT	010-C112A	010-C112B	Induced Draught Fans
03-ID FAN	INDUCED DRAUGHT	010-C112B	010-CP-C101A	Induced Draught Fans
03-CP COMPR	CONTROL PANELS I	010-CP-C101A	010-CP-C101B	Control Panel for C101A
03-CP COMPR	CONTROL PANELS I	010-CP-C101B	010-DP902	Control Panel for C101B
03-DOZING PUMP	DOZING PUMP	010-DP902	010-DP903	Dozing Pump
03-DOZING PUMP	DOZING PUMP	010-DP903	010-DPS1	Dozing Pump
03-PRESS SWITCH	PRESSURE SWITCH	010-DPS1	010-DPS2	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-DPS2	010-E102	Pressure Switch
03-SAT HEAT EXC	SHELL AND TUBE H	020-E102	010-E103	Feed Gas Preheater
03-SAT HEXC REF	SHELL AND TUBE H	020-E103	010-E106	Process Boiler
03-SAT HEAT EXC	SHELL AND TUBE H	020-E106	010-E107	BFW Heater
03-SAT HEAT EXC	SHELL AND TUBE H	010-E107	010-E108	DAF. Water Preheater
03-SAT HEAT EXC	SHELL AND TUBE H	010-E108	010-E112	Trim Cooler
03-SAT HEXC REF	SHELL AND TUBE H	010-E112	010-E113A	Process Super Heater
03-SAT HEXC REF	SHELL AND TUBE H	010-E113A	010-E113B	Flue Gas Boiler
03-SAT HEXC REF	SHELL AND TUBE H	010-E113B	010-E115	Flue Gas Boiler
03-SAT HEXC REF	SHELL AND TUBE H	010-E115	010-E901	Air Preheater
03-P&F HEAT EXC	P & F HEAT EXCH	010-E901	010-FCV100	Cooling Water Exchanger
03-CONT VALVE	CONTROL VALVE	010-FCV100	010-FCV101A	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV101A	010-FCV101B	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV101B	010-FCV103	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV103	010-FCV104	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV104	010-FCV105	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV105	010-FCV107	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV107	010-FCV112	Control valve
03-CONT VALVE	CONTROL VALVE	010-FCV112	010-FS1A	Control valve
03-FLOW SWITCH	FLOW SWITCH	010-FS1A	010-FS1B	Flow Switch
03-FLOW SWITCH	FLOW SWITCH	010-FS1B	010-FT100	Flow Switch
03-FLOW TRANS	FLOW TRANSMITTER	010-FT100	010-FT101	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT101	010-FT102	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT102	010-FT103	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT103	010-FT104	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT104	010-FT106	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT106	010-FT107	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT107	010-FT110	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT110	010-FT112	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT112	010-FT113	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT113	010-FT114	Flow Transmitter
03-FLOW TRANS	FLOW TRANSMITTER	010-FT114	010-FT111	Flow Transmitter
03-FURNACE	FURNACE	010-FT111	010-H101	Flow Transmitter
03-MAINT AR CTR	MAINTENANCE ARE/	010-H101	010-H2 CBT	Reformer
03-MAINT AR GEN	MAINTENANCE ARE/	010-H2 CBT	010-H2 GWORK	H2 Plant Cable Trey
03-MAINT AR PIP	MAINTENANCE ARE/	010-H2 GWORK	010-H2 PIPING	H2 Plant general Work
03-CONT VALVE	CONTROL VALVE	010-H2 PIPING	010-HCV102	H2 Plant Piping & Cables
03-CONT VALVE	CONTROL VALVE	010-HCV102	020-HCV110	Control valve
03-CONT VALVE	CONTROL VALVE	010-HCV110	010-HCV501	Control valve
03-CONT VALVE	CONTROL VALVE	010-HCV501	010-LCV401	Control valve
03-JUNCTION BOX	JUNCTION BOX	010-LCV401	010-JBA10	Control valve
03-JUNCTION BOX	JUNCTION BOX	010-JBA10	010-JBA11	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA11	010-JBA12	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA12	010-JBA2	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA2	010-JBA3	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA3	010-JBA4	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA4	010-JBA5	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA5	010-JBA6	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA6	010-JBA7	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA7	010-JBA8	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA8	010-JBA9	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBA9	010-JBX10	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX10	010-JBX11	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX11	010-JBX12	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX12	010-JBX13	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX13	010-JBX14	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX14	010-JBX15	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX15	010-JBX16	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX16	010-JBX7A	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX7A	010-JBX7B	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX7B	010-JBX8A	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX8A	010-JBX8B	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX8B	010-JBX9	Junction Box
03-JUNCTION BOX	JUNCTION BOX	010-JBX9		Junction Box

03-CONT VALVE	CONTROL VALVE	010-LCV402	Control valve
03-CONT VALVE	CONTROL VALVE	010-LCV405	Control valve
03-CONT VALVE	CONTROL VALVE	010-LCV406	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV101	Control valve
03-LEVEL GAUGE	LEVEL GAUGE	010-LG3	LEVEL GAUGE V105
03-LEVEL GAUGE	LEVEL GAUGE	010-LG405-1	STEAM DRUM LEVEL GLASS
03-LEVEL GAUGE	LEVEL GAUGE	010-LG405-2	STEAM DRUM LEVEL GLASS
03-LEVEL GAUGE	LEVEL GAUGE	010-LG5	LEVEL GAUGE V109
03-LEVEL GAUGE	LEVEL GAUGE	010-LG7	LEVEL GAUGE V107
03-PRESS SWITCH	PRESSURE SWITCH	010-LSLL1A	Pressure Switch
03-LEVEL SWITCH	LEVEL SWITCH	010-LSLL1B	Level Switch
03-LEVEL TRANS	LEVEL TRANSMITTE	010-LT4021	Level Transmitter
03-LEVEL TRANS	LEVEL TRANSMITTE	010-LT4022	Level Transmitter
03-LEVEL TRANS	LEVEL TRANSMITTE	010-LT4051	Level Transmitter
03-LEVEL TRANS	LEVEL TRANSMITTE	010-LT4052	Level Transmitter
03-LEVEL TRANS	LEVEL TRANSMITTE	010-LT4061	Level Transmitter
03-LEVEL TRANS	LEVEL TRANSMITTE	010-LT4062	Level Transmitter
03-MOTOR	MOTOR	010-MBBB01	Motor of Natural Gas Boos
03-MOTOR	MOTOR	010-MC101A	Motor of Natural Gas Comp
03-MOTOR	MOTOR	010-MC101B	Motor of Natural Gas Comp
03-MOTOR	MOTOR	010-MC111A	Motor of Forced Draught F
03-MOTOR	MOTOR	010-MC111B	Motor of Forced Draught F
03-MOTOR	MOTOR	010-MC111C	Motor of Forced Draught F
03-MOTOR	MOTOR	010-MC112A	Motor of Induced Draught
03-MOTOR	MOTOR	010-MC112B	Motor of Induced Draught
03-MOTOR	MOTOR	010-MP104A	Motor of Boiler Feed Wate
03-MOTOR	MOTOR	010-MP104B	Motor of Boiler Feed Wate
03-MOTOR	MOTOR	010-MP104C	Motor of Boiler Feed Wate
03-MOTOR	MOTOR	010-MP802A	Motor of Tempered Cooling
03-MOTOR	MOTOR	010-MP802B	Motor of Tempered Cooling
03-PRESS SF VAL	PRESSURE SAFETY	010-NSBC001	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	010-NSBC002	Pressure safety valve
03-VERTICAL PUM	VERTICAL PUMP	010-P104A	Boiler Feed Water Pump
03-VERTICAL PUM	VERTICAL PUMP	010-P104B	Boiler Feed Water Pump
03-VERTICAL PUM	VERTICAL PUMP	010-P104C	Boiler Feed Water Pump
03-VERTICAL PUM	VERTICAL PUMP	010-P802A	Tempered Cooling Water p
03-VERTICAL PUM	VERTICAL PUMP	010-P802B	Tempered Cooling Water p
03-PRES RED VAL	PRESSURE REDUCI	010-PCV053	main steam line 2nd floor
03-CONT VALVE	CONTROL VALVE	010-PCV102	Control Valve
03-CONT VALVE	CONTROL VALVE	010-PCV303	Control Valve
03-CONT VALVE	CONTROL VALVE	010-PCV304	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV305A	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV305B	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV305	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV3081	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV3082	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV310	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV311	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV311A	Control Valve
03-CONT VALVE	CONTROL VALVE	010-PCV311B	Control Valve
03-CONT VALVE	CONTROL VALVE	010-PCV312	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV98114A	Control valve
03-CONT VALVE	CONTROL VALVE	010-PCV98114B	Control valve
03-CONT VALVE	CONTROL VALVE	010-TCV108	Control valve
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 0	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 1	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 10	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 11	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 12	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 13	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 14	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 15	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 16	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 17	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 18	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 19	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 20	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 21	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 22	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 23	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 24	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 25	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 26	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 27	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 28	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 29	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 305	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 30A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 30B	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 30C	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 30D	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 32	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 33	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 34	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 35	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 4	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 40	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 41	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 42	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 43	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 44	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 45	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 46	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 47	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 48	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 5	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 50A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 50B	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 53	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 58	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 58A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 58B	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 6	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 60A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 60B	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 61A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 61B	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 7	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 8	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 9	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	010-PI 9101	Pressure Gauge
03-PRESS CON	PRESSURE CONTROI	010-PI C01	Pressure Controller
03-PLC CON SYS	PLC CONTROL SYST	010-PLCH101	PLC SIEMENS
03-PLC MARS CAB	PLC MARSHALLING	010-PLCH101MCP	PLC Marshalling Cabinet
03-PRES RED VAL	PRESSURE REDUCI	010-PRV3	Fuel gas to reformer
03-PRES RED VAL	PRESSURE REDUCI	010-PRV4	Fuel gas to canteen line
03-PRESS SWITCH	PRESSURE SWITCH	010-PSHH11	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSHH12	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSHH12A	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSHH12B	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSHH14A	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSHH14B	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSL13	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-PSL1A	Pressure Switch

CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL1B	C10-PSL1B Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL2	C10-PSL2 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL3	C10-PSL3 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL4	C10-PSL4 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL5	C10-PSL5 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL6	C10-PSL6 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSL7	C10-PSL7 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL10	C10-PSLL10 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL2A	C10-PSLL2A Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL2B	C10-PSLL2B Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL3A	C10-PSLL3A Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL3B	C10-PSLL3B Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL5	C10-PSLL5 Pressure Switch
CG-PRESS SWITCH	PRESSURE SWITCH	C10-PSLL55	C10-PSLL55 Pressure Switch
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV 281	C10-PSV 281 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV 282	C10-PSV 282 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV10	C10-PSV10 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV11	C10-PSV11 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV12	C10-PSV12 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV13	C10-PSV13 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV14	C10-PSV14 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV15	C10-PSV15 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV16	C10-PSV16 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV17	C10-PSV17 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV18	C10-PSV18 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV19	C10-PSV19 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV20	C10-PSV20 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV21	C10-PSV21 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV22	C10-PSV22 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV23	C10-PSV23 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV24A	C10-PSV24A Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV24B	C10-PSV24B Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV24C	C10-PSV24C Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV24D	C10-PSV24D Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV25	C10-PSV25 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV271	C10-PSV271 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV272	C10-PSV272 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV281	C10-PSV281 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV282	C10-PSV282 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV28A	C10-PSV28A Safty Valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV28B	C10-PSV28B Safty Valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV29A	C10-PSV29A Safty Valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV29B	C10-PSV29B Safty Valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV9101	C10-PSV9101 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV98104	C10-PSV98104 Pressure safety valve
CG-PRESS SF VAL	PRESSURE SAFETY	C10-PSV98113	C10-PSV98113 Pressure safety valve
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT101	C10-PT101 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT201A	C10-PT201A Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT201B	C10-PT201B Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT201C	C10-PT201C Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT201D	C10-PT201D Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT301	C10-PT301 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT303	C10-PT303 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT304	C10-PT304 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT305	C10-PT305 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT306	C10-PT306 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT308	C10-PT308 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT3101	C10-PT3101 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT3102	C10-PT3102 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT311	C10-PT311 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT311A	C10-PT311A Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT311B	C10-PT311B Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT313	C10-PT313 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT314	C10-PT314 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT3102	C10-PT3102 Pressure Transmitter
CG-PRESS TRANS	PRESSURE TRANSM	C10-PT98103	C10-PT98103 Pressure Transmitter
CG-VESSEL	VESSEL	C10-R103	C10-R103 H.T Shift Converter
CG-VESSEL	VESSEL	C10-R106A	C10-R106A Hydrotreater / Desulphuri
CG-VESSEL	VESSEL	C10-R106B	C10-R106B Hydrotreater / Desulphuri
CG-STEAM TRAPS	STEAM TRAPS	C10-ST003	C10-ST003 SteamTrap at steam mix p
CG-STEAM TRAPS	STEAM TRAPS	C10-ST004	C10-ST004 SteamTrap at steam mix p
CG-STEAM TRAPS	STEAM TRAPS	C10-ST005	C10-ST005 SteamTrap at steam mix p
CG-TANK	TANK	C10-T901	C10-T901 Cooling Water Tank
CG-VESSEL	VESSEL	C10-T9195	C10-T9195 H2 Buffer Vessel
CG-TEMP SWITCH	TEMPERATURE SWI	C10-TAH-2A	C10-TAH-2A Temperature Switch
CG-TEMP SWITCH	TEMPERATURE SWI	C10-TAH-2B	C10-TAH-2B Temperature Switch
CG-CONT VALVE	CONTROL VALVE	C10-TCV204A	C10-TCV204A Control valve
CG-CONT VALVE	CONTROL VALVE	C10-TCV204B	C10-TCV204B Control valve
CG-CONT VALVE	CONTROL VALVE	C10-TCV219	C10-TCV219 Control valve
CG-CONT VALVE	CONTROL VALVE	C10-TCV220	C10-TCV220 Control valve
CG-ON OFF VALVE	ON OFF VALVE	C10-HV9101	C10-HV9101 On/Off valve
CG-TEMP INDICAT	TEMPERATURE IND	C10-TI 0	C10-TI 0 Temperature Indicator
CG-TEMP INDICAT	TEMPERATURE IND	C10-TI 1	C10-TI 1 Temperature Indicator
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 10	C10-TI 10 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 11	C10-TI 11 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 12	C10-TI 12 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 13	C10-TI 13 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 14	C10-TI 14 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 15	C10-TI 15 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 16	C10-TI 16 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 17	C10-TI 17 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 18	C10-TI 18 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 19	C10-TI 19 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 20	C10-TI 20 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 21	C10-TI 21 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 22	C10-TI 22 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 23	C10-TI 23 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 24	C10-TI 24 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 26	C10-TI 26 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 27	C10-TI 27 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 28	C10-TI 28 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 2A	C10-TI 2A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 2B	C10-TI 2B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 3	C10-TI 3 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 30	C10-TI 30 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 31	C10-TI 31 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 32	C10-TI 32 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 34A	C10-TI 34A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 34B	C10-TI 34B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 35A	C10-TI 35A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 35B	C10-TI 35B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 36A	C10-TI 36A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 36B	C10-TI 36B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 37A	C10-TI 37A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 37B	C10-TI 37B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 38A	C10-TI 38A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 38B	C10-TI 38B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 39A	C10-TI 39A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 39B	C10-TI 39B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 4	C10-TI 4 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 40A	C10-TI 40A Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 40B	C10-TI 40B Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 5	C10-TI 5 Temperature Gauge
CG-TEMP GAUGE	TEMPERATURE GAU	C10-TI 52A	C10-TI 52A Temperature Gauge

03-TEMP GAUGE	TEMPERATURE GAUG	010-TI52B	010-TI52B	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI6	010-TI6	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI60	010-TI60	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI61	010-TI61	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI62	010-TI62	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI63	010-TI63	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI64	010-TI64	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI65	010-TI65	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI66	010-TI66	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI7	010-TI7	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI8	010-TI8	Temperature Gauge
03-TEMP GAUGE	TEMPERATURE GAUG	010-TI9	010-TI9	Temperature Gauge
03-PRESS TRANS	PRESSURE TRANSM	010-TP15	010-TP15	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSM	010-TP2	010-TP2	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSM	010-TP3	010-TP3	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSM	010-TP4	010-TP4	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSM	010-TP5	010-TP5	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSM	010-TP6	010-TP6	Pressure Transmitter
03-PRESS SWITCH	PRESSURE SWITCH	010-TSHH1A	010-TSHH1A	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSHH1B	010-TSHH1B	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSHH220A	010-TSHH220A	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSHH220B	010-TSHH220B	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSHH2A	010-TSHH2A	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSHH2B	010-TSHH2B	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSLL220A	010-TSLL220A	Pressure Switch
03-PRESS SWITCH	PRESSURE SWITCH	010-TSLL220B	010-TSLL220B	Pressure Switch
03-TEMP TRANS	TEMPERATURE TRAI	010-TT107	010-TT107	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT108	010-TT108	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT201	010-TT201	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT202	010-TT202	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2041	010-TT2041	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2042	010-TT2042	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT205	010-TT205	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT206	010-TT206	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2101	010-TT2101	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT21010	010-TT21010	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT21011	010-TT21011	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT21012	010-TT21012	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT21013	010-TT21013	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT21014	010-TT21014	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2102	010-TT2102	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2103	010-TT2103	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2104	010-TT2104	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2105	010-TT2105	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2106	010-TT2106	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2107	010-TT2107	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2108	010-TT2108	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2109	010-TT2109	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2111	010-TT2111	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2112	010-TT2112	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT213	010-TT213	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT214	010-TT214	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2151	010-TT2151	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2152	010-TT2152	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT218	010-TT218	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2191	010-TT2191	Temperature Transmitter
03-TEMP TRANS	TEMPERATURE TRAI	010-TT2192	010-TT2192	Temperature Transmitter
03-VESSEL	VESSEL	010-V101	010-V101	Steam Drum
03-VESSEL	VESSEL	010-V105	010-V105	Deaerator
03-VESSEL	VESSEL	010-V107	010-V107	Condensate Separator
03-VESSEL	VESSEL	010-V109	010-V109	Blow Down Drum
03-VESSEL	VESSEL	010-V201A	010-V201A	Adsorbers(PSA unit)
03-VESSEL	VESSEL	010-V201B	010-V201B	Adsorbers(PSA unit)
03-VESSEL	VESSEL	010-V201C	010-V201C	Adsorbers(PSA unit)
03-VESSEL	VESSEL	010-V201D	010-V201D	Adsorbers(PSA unit)
03-VESSEL	VESSEL	010-V203	010-V203	Off Gas Drum
03-VESSEL	VESSEL	010-V204	010-V204	H2 Off Gas Drum
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV1	010-XEV1	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV16	010-XEV16	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV2	010-XEV2	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV22	010-XEV22	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV28	010-XEV28	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV29	010-XEV29	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV3	010-XEV3	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV32	010-XEV32	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV33	010-XEV33	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV4	010-XEV4	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV5	010-XEV5	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV55	010-XEV55	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV6	010-XEV6	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV7	010-XEV7	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XEV9	010-XEV9	On/Off valve
03-ON/OFF VALVE	ON/OFF VALVE	010-XV20	010-XV20	On/Off valve
03-PSA VALVE	PSA VALVE	010-XEV10A	010-XEV10A	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV10B	010-XEV10B	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV10C	010-XEV10C	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV10D	010-XEV10D	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV11A	010-XEV11A	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV11B	010-XEV11B	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV11C	010-XEV11C	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV11D	010-XEV11D	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV12A	010-XEV12A	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV12B	010-XEV12B	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV12C	010-XEV12C	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV12D	010-XEV12D	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV13A	010-XEV13A	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV13B	010-XEV13B	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV13C	010-XEV13C	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV13D	010-XEV13D	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV14A	010-XEV14A	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV14B	010-XEV14B	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV14C	010-XEV14C	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV14D	010-XEV14D	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV15	010-XEV15	PSA Valve
03-PSA VALVE	PSA VALVE	010-XEV26	010-XEV26	PSA Valve
03-PRESS TRANS	PRESSURE TRANSM	020-AFDP2051	020-AFDP2051	Inlet air filter DP TX
03-PRESS TRANS	PRESSURE TRANSM	020-AFDP2052	020-AFDP2052	Inlet air filter DP TX
03-ANALYZER	ANALYZER	020-AT1002	020-AT1002	Oxygen Analyzer
03-ANALYZER	ANALYZER	020-AT1041	020-AT1041	Oxygen Analyzer
03-ANALYZER	ANALYZER	020-AT2089	020-AT2089	Oxygen Analyzer
03-ANALYZER	ANALYZER	020-AT3226	020-AT3226	Conductivity Analyzer
03-ANALYZER	ANALYZER	020-AT3554	020-AT3554	Conductivity Analyzer
03-ANALYZER	ANALYZER	020-AT4091	020-AT4091	Conductivity Analyzer
03-LRP	LIQUID RING PUM	020-B1011	020-B1011	H2 recycle compressor
03-LRP	LIQUID RING PUM	020-B1011-B	020-B1011-B	H2 recycle compressor B
03-CENTRIF COMP	CENTRIFUGAL COM	020-B2051	020-B2051	Process air compressor
03-CENTRIF COMP	CENTRIFUGAL COM	020-B2052	020-B2052	Process air compressor
03-CENTRIF COMP	CENTRIFUGAL COM	020-B2053	020-B2053	Process air compressor
03-CENTRIF COMP	CENTRIFUGAL COM	020-B2054	020-B2054	Process air compressor
03-BLOWER	BLOWER	020-B2541	020-B2541	Blower Solvent Recovery
03-LRP GEAR BOX	LIQUID RING PUM	020-B3221	020-B3221	Vaccum pump unit
03-LRP	LIQUID RING PUM	020-B4027	020-B4027	Concentration vaccum pump
03-VERTICAL PUM	VERTICAL PUMP	020-BRL001	020-BRL001	Barrel Pump
03-TANK	TANK	020-BT182	020-BT182	Bulk Tanker TTB-182

OG-TANK	TANK	C20-BT2603	C20-BT2603	Bulk Tanker 30 Tons
OG-TANK	TANK	C20-BT2604	C20-BT2604	Bulk Tanker 30 Tonnes
OG-TANK	TANK	C20-BT3700	C20-BT3700	Bulk Tanker 10 Tonnes
OG-TANK	TANK	C20-BT6845	C20-BT6845	BULK TANKER LES6845
OG-TANK	TANK	C20-BT7341	C20-BT7341	Bulk Tanker 25 Tons
OG-TANK	TANK	C20-BT7369	C20-BT7369	Bulk Tanker 10 Tons
OG-TANK	TANK	C20-BT7609	C20-BT7609	Bulk Tanker 30 Tonnes
OG-TANK	TANK	C20-BT8600	C20-BT8600	Bulk Tanker 30 Tonnes
OG-TANK	TANK	C20-BT8900	C20-BT8900	Bulk Tanker 30 Tonnes
OG-TANK	TANK	C20-BT8956	C20-BT8956	Road Tanker LES8956
OG-COLUMN	COLUMN	C20-C1050A	C20-C1050A	Hydrogen Vent Adsorber
OG-COLUMN	COLUMN	C20-C1050B	C20-C1050B	Hydrogen Vent Adsorber
OG-COLUMN	COLUMN	C20-C2221	C20-C2221	Regeneration Column
OG-COLUMN	COLUMN	C20-C2222	C20-C2222	Regeneration Column
OG-COLUMN	COLUMN	C20-C2511	C20-C2511	Solvent adsorber 1 with
OG-COLUMN	COLUMN	C20-C2512	C20-C2512	Solvent adsorber 2 with
OG-COLUMN	COLUMN	C20-C2513	C20-C2513	Solvent adsorber 3 with
OG-COLUMN ST	COLUMN WITH SIEV	C20-C3011	C20-C3011	Extractor
OG-COLUMN ST	COLUMN WITH SIEV	C20-C30118	C20-C30118	Extractor New
OG-COLUMN	COLUMN	C20-C4010	C20-C4010	Vaporiser
OG-COLUMN	COLUMN	C20-C4020	C20-C4020	Distillation column
OG-MTR CTRL PAN	MOTOR CONTROL PA	C20-CP81011-B	C20-CP81011-B	Motor Control Panel of H2
OG-DES COOLER	DESERT COOLER	C20-DC001	C20-DC001	Desert Cooler
OG-DES COOLER	DESERT COOLER	C20-DC002	C20-DC002	Desert Cooler
OG-Dedusting	Screens/dedusti	C20-DDM1	C20-DDM1	Alumina De-dusting Machin
OG-PRESS TRANS	PRESSURE TRANSMI	C20-DPT2051	C20-DPT2051	Final stage discharge PT
OG-PRESS TRANS	PRESSURE TRANSMI	C20-DPT2052	C20-DPT2052	Final stage discharge PT
OG-MAINT AR GEN	MAINTENANCE ARE/	C20-Drain Water Basin Area	C20-Drain Water Basin Area	Drain Water Basin Area
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E0101	C20-E0101	Heat Exchanger
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E1015	C20-E1015	H2 vent cooler
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E1025	C20-E1025	VG cooler
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E1051	C20-E1051	Desorbate Condenser
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E1052	C20-E1052	Desorbate Cooler
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E1511	C20-E1511	Filter cleaning condenser
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E2007	C20-E2007	Backwash cooler
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E2042	C20-E2042	Oxidiser feed cooler
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E2061	C20-E2061	Heat Exchanger
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E2062	C20-E2062	Oxidiser outlet cooler
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E20628	C20-E20628	Oxidiser outlet cooler
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E2071	C20-E2071	Oxidiser off gas chiller
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E2205	C20-E2205	VG make up condenser
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E2213	C20-E2213	Regeneration economizer
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E2215	C20-E2215	Regeneration feed heater
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E2521	C20-E2521	Solvent recovery seperato
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E2522	C20-E2522	Condensate cooler
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E3017	C20-E3017	Crude cooler
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E3201	C20-E3201	VG heater
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E3211	C20-E3211	VG condenser (Drier Condi
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E4003	C20-E4003	Economiser
OG-P&F HEAT EXC	P & F HEAT EXCH	C20-E4015	C20-E4015	Technical grade cooler
OG-S&T HEAT EXC	SHELL AND TUBE H	C20-E4026	C20-E4026	Cooling trap
OG-PRI FILT VES	PRIMARY FILTER V	C20-F1101	C20-F1101	Primary filter vessel
OG-PRI FILT VES	PRIMARY FILTER V	C20-F1102	C20-F1102	Primary filter vessel
OG-PRI FILT VES	PRIMARY FILTER V	C20-F1103	C20-F1103	Primary filter vessel
OG-PRI FILT VES	PRIMARY FILTER V	C20-F1104	C20-F1104	Primary filter vessel
OG-PRI FILT VES	PRIMARY FILTER V	C20-F1105	C20-F1105	Primary filter vessel
OG-PRI FILT VES	PRIMARY FILTER V	C20-F1106	C20-F1106	Primary filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F1165	C20-F1165	Catalyst remova, filter v
OG-FILTER VES	FILTER VESSEL	C20-F1502	C20-F1502	Basket filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2011	C20-F2011	Secondary filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2012	C20-F2012	Secondary filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2013	C20-F2013	Secondary filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2014	C20-F2014	Secondary filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2016	C20-F2016	Catalyst detector
OG-FILTER VES	FILTER VESSEL	C20-F2021	C20-F2021	Safety filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2022	C20-F2022	Safety filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F2055A	C20-F2055A	Oxidiser air filter vesse
OG-FILTER VES	FILTER VESSEL	C20-F2055B	C20-F2055B	Oxidiser air filter vesse
OG-FILTER VES	FILTER VESSEL	C20-F2055C	C20-F2055C	Oxidiser air filter vesse
OG-FILTER VES	FILTER VESSEL	C20-F2203A	C20-F2203A	VG make up polishing filt
OG-FILTER VES	FILTER VESSEL	C20-F2203B	C20-F2203B	VG make up polishing filt
OG-FILTER VES	FILTER VESSEL	C20-F2212	C20-F2212	Regeneration feed filter
OG-FILTER VES	FILTER VESSEL	C20-F2225	C20-F2225	Regeneration polishing fi
OG-FILTER VES	FILTER VESSEL	C20-F2229	C20-F2229	Regeneration polishing fi
OG-FILTER VES	FILTER VESSEL	C20-F2235	C20-F2235	Regeneration drain filter
OG-FILTER VES	FILTER VESSEL	C20-F3402	C20-F3402	Working solution recovery
OG-FILTER VES	FILTER VESSEL	C20-F3537	C20-F3537	DMAF feed filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F3541	C20-F3541	Concentrated feed filter
OG-FILTER VES	FILTER VESSEL	C20-F4023	C20-F4023	OG filter
OG-FILTER VES	FILTER VESSEL	C20-F5022	C20-F5022	End user feed filter ves
OG-FILTER VES	FILTER VESSEL	C20-F5025	C20-F5025	Product transfer filter v
OG-FILTER VES	FILTER VESSEL	C20-F5026	C20-F5026	Product transfer filter v
OG-FILTER VES	FILTER VESSEL	C20-F5028	C20-F5028	End user feed filter 2 ve
OG-FILTER VES	FILTER VESSEL	C20-F5175	C20-F5175	Acid filter vessel
OG-FILTER VES	FILTER VESSEL	C20-F5185	C20-F5185	Stabiliser filter vessel
OG-TANK	TANK	C20-FOL1	C20-FOL3	Container for IBC transpo
OG-CONT VALVE	CONTROL VALVE	C20-FCV63016	C20-FCV63016	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-FCV63017	C20-FCV63017	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-FCV63018	C20-FCV63018	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-FCV63025	C20-FCV63025	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-FCV63034	C20-FCV63034	Control valve
OG-MAINT AR GEN	MAINTENANCE ARE/	C20-FG Unit PROCESS GWORK	C20-FG Unit PROCESS GWORK	FG Unit Process general \
OG-FLOW GAUGE	FLOW GAUGE	C20-FI 1014B	C20-FI 1014B	Flow Gauge
OG-ROTAMETER	ROTAMETER	C20-FI 2021	C20-FI 2021	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 2058	C20-FI 2058	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 2207	C20-FI 2207	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 2261	C20-FI 2261	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 2554	C20-FI 2554	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 3220	C20-FI 3220	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 4006	C20-FI 4006	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 4014	C20-FI 4014	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 4015	C20-FI 4015	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 4016	C20-FI 4016	Rotameter
OG-ROTAMETER	ROTAMETER	C20-FI 510	C20-FI 510	Rotameter
OG-MAINT AR CTR	MAINTENANCE ARE/	C20-FILLING HALL CBT	C20-FILLING HALL CBT	Filling Hall Cable Tray
OG-MAINT AR GEN	MAINTENANCE ARE/	C20-FILLING HALL GWORK	C20-FILLING HALL GWORK	Filling Hall general Work
OG-MAINT AR PIP	MAINTENANCE ARE/	C20-FILLING HALL PIPING	C20-FILLING HALL PIPING	Filling Hall Piping & Cat
OG-MNT AR PVC T	MAINTENANCE ARE/	C20-FILLING HALL PVC TUBING	C20-FILLING HALL PVC TUBING	Filling Hall PVC Tubing
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT1006	C20-FT1006	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT1011	C20-FT1011	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT1024	C20-FT1024	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT1052	C20-FT1052	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT1176	C20-FT1176	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2012	C20-FT2012	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2034	C20-FT2034	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2070	C20-FT2070	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2224	C20-FT2224	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2252	C20-FT2252	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2301	C20-FT2301	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2302	C20-FT2302	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT2314	C20-FT2314	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT3018	C20-FT3018	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT3025	C20-FT3025	Flow Transmitter
OG-FLOW TRANS	FLOW TRANSMITTEI	C20-FT3034	C20-FT3034	Flow Transmitter

00-FLOWTRANS	FLOWTRANSMITTEI	020-FT3539	020-FT3539	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT3551	020-FT3551	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4001	020-FT4001	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4002	020-FT4002	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4003	020-FT4003	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4004	020-FT4004	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4007	020-FT4007	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4012	020-FT4012	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT4013	020-FT4013	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT6201	020-FT6201	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT63016	020-FT63016	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT63017	020-FT63017	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT63018	020-FT63018	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT63034	020-FT63034	Flow Transmitter
00-FLOWTRANS	FLOWTRANSMITTEI	020-FT65162	020-FT65162	Flow Transmitter
00-CONTVALVE	CONTROL VALVE	020-FV1008	020-FV1008	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV1011	020-FV1011	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV2070	020-FV2070	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV2224	020-FV2224	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV2252	020-FV2252	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV3025	020-FV3025	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV3034	020-FV3034	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV4007	020-FV4007	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV4011	020-FV4011	Control valve
00-CONTVALVE	CONTROL VALVE	020-FV4012	020-FV4012	Control valve
00-ONOFFVALVE	ON OFF VALVE	020-FV63034	020-FV63034	On/Off valve
00-FLOWTRANS	FLOWTRANSMITTEI	020-Ft4005	020-Ft4005	Flow Transmitter
00-MAINTAIR CTR	MAINTENANCE ARE/	020-H202 PROCESS CBT	020-H202 PROCESS CBT	H202 Process Cable Tray
00-MAINTAIR GEN	MAINTENANCE ARE/	020-H202 PROCESS GWORK	020-H202 PROCESS GWORK	H202 Process general Worl
00-MAINTAIR PIP	MAINTENANCE ARE/	020-H202 PROCESS PIPING	020-H202 PROCESS PIPING	H202 Process Piping & Cat
00-CONTVALVE	CONTROL VALVE	020-HCV63228	020-HCV63228	Control valve
00-ONOFFVALVE	ON OFF VALVE	020-HS63009	020-HS63009	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HS63016	020-HS63016	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HS63019	020-HS63019	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HS63028	020-HS63028	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1001	020-HV1001	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1004	020-HV1004	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1020	020-HV1020	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1025	020-HV1025	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1033	020-HV1033	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1035	020-HV1035	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1040	020-HV1040	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1051	020-HV1051	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1054	020-HV1054	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1057	020-HV1057	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1151	020-HV1151	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1183	020-HV1183	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1185	020-HV1185	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1186	020-HV1186	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1187	020-HV1187	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1188	020-HV1188	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1189	020-HV1189	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1502	020-HV1502	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1503	020-HV1503	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1504	020-HV1504	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1505	020-HV1505	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1506	020-HV1506	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1508	020-HV1508	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1509	020-HV1509	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1513	020-HV1513	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1514	020-HV1514	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1516	020-HV1516	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1519	020-HV1519	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1520	020-HV1520	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1521	020-HV1521	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1523	020-HV1523	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1524	020-HV1524	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV1528	020-HV1528	On/Off valve
00-CONTVALVE	CONTROL VALVE	020-HV2027	020-HV2027	Control valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2032	020-HV2032	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2051	020-HV2051	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2052	020-HV2052	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2073	020-HV2073	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2074	020-HV2074	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2083	020-HV2083	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2084	020-HV2084	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2091	020-HV2091	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2217	020-HV2217	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2501	020-HV2501	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2502	020-HV2502	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2503	020-HV2503	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2504	020-HV2504	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2505	020-HV2505	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2506	020-HV2506	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2507	020-HV2507	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2508	020-HV2508	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2509	020-HV2509	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2510	020-HV2510	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2511	020-HV2511	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2512	020-HV2512	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2513	020-HV2513	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2514	020-HV2514	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2515	020-HV2515	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2516	020-HV2516	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2517	020-HV2517	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2518	020-HV2518	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2531	020-HV2531	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2532	020-HV2532	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV2533	020-HV2533	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3019	020-HV3019	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3027	020-HV3027	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3036	020-HV3036	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3039	020-HV3039	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3210	020-HV3210	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3222	020-HV3222	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV3428	020-HV3428	On/Off valve
00-CONTVALVE	CONTROL VALVE	020-HV4036	020-HV4036	Control valve
00-CONTVALVE	CONTROL VALVE	020-HV4058	020-HV4058	Control valve
00-CONTVALVE	CONTROL VALVE	020-HV4059	020-HV4059	Control valve
00-ONOFFVALVE	ON OFF VALVE	020-HV4092	020-HV4092	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV4093	020-HV4093	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV4094	020-HV4094	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV4097	020-HV4097	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV4098	020-HV4098	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV4099	020-HV4099	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV6203	020-HV6203	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV6204	020-HV6204	On/Off valve
00-ONOFFVALVE	ON OFF VALVE	020-HV63001	020-HV63001	On/Off valve
00-TEMPTRANS	TEMPERATURE TRAI	020-HV63228	020-HV63228	Temperature Transmitter
00-VIBPROBE	VIBRATION PROBE	020-HVT2051	020-HVT2051	high vibration probe
00-VIBPROBE	VIBRATION PROBE	020-HVT2052	020-HVT2052	high vibration probe
00-MAINTAIR CTR	MAINTENANCE ARE/	020-INT TANK FARM CBT	020-INT TANK FARM CBT	Intermediate Tank Farm Ca
00-MAINTAIR GEN	MAINTENANCE ARE/	020-INT TANK FARM GWORK	020-INT TANK FARM GWORK	Intermediate Tank Farm ge
00-MAINTAIR PIP	MAINTENANCE ARE/	020-INT TANK FARM PIPING	020-INT TANK FARM PIPING	Intermediate Tank Farm Pi

03-INLET VAL	INLET VALVE	C20-IVT2051	C20-IVT2051	Inlet Valve
03-INLET VAL	INLET VALVE	C20-IVT2052	C20-IVT2052	Inlet Valve
03-JUNCTION BOX	JUNCTION BOX	C20-JB1011-B1	C20-JB1011-B1	Power Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JB1011-B2	C20-JB1011-B2	Skid mounted Instrument J
03-JUNCTION BOX	JUNCTION BOX	C20-JB1011-B3	C20-JB1011-B3	Instrument Mid Junction J
03-JUNCTION BOX	JUNCTION BOX	C20-JB1011-B4	C20-JB1011-B4	Instrument Mid Junction J
06-JUNCTION BOX	JUNCTION BOX	C20-JB80	C20-JB80	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JB82	C20-JB82	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 101	C20-JBAI 101	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 102	C20-JBAI 102	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 103	C20-JBAI 103	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 104	C20-JBAI 104	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 105	C20-JBAI 105	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 106	C20-JBAI 106	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 107	C20-JBAI 107	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 108	C20-JBAI 108	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 109	C20-JBAI 109	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 2101	C20-JBAI 2101	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 111	C20-JBAI 111	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 112	C20-JBAI 112	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 113	C20-JBAI 113	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 115	C20-JBAI 115	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 116	C20-JBAI 116	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 117	C20-JBAI 117	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 118	C20-JBAI 118	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 119	C20-JBAI 119	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 120	C20-JBAI 120	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 1201	C20-JBAI 1201	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 121	C20-JBAI 121	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 122	C20-JBAI 122	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 123	C20-JBAI 123	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 124	C20-JBAI 124	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 202	C20-JBAI 202	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 302A	C20-JBAI 302A	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 302B	C20-JBAI 302B	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 303A	C20-JBAI 303A	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 303B	C20-JBAI 303B	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 304A	C20-JBAI 304A	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 304B	C20-JBAI 304B	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 305	C20-JBAI 305	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 401	C20-JBAI 401	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 402	C20-JBAI 402	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAI 403	C20-JBAI 403	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAI 404	C20-JBAI 404	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC102	C20-JBAC102	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAC103	C20-JBAC103	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC104	C20-JBAC104	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC105	C20-JBAC105	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBAC106	C20-JBAC106	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC107	C20-JBAC107	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC108	C20-JBAC108	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC109	C20-JBAC109	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC110	C20-JBAC110	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC801	C20-JBAC801	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC802	C20-JBAC802	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC803	C20-JBAC803	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBAC804	C20-JBAC804	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBC101	C20-JBC101	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC102A	C20-JBC102A	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC102B	C20-JBC102B	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC107	C20-JBC107	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC108A	C20-JBC108A	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC108B	C20-JBC108B	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC109	C20-JBC109	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC110A	C20-JBC110A	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBC110B	C20-JBC110B	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC112	C20-JBC112	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC113	C20-JBC113	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC114	C20-JBC114	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC115	C20-JBC115	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC116A	C20-JBC116A	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC116B	C20-JBC116B	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC117	C20-JBC117	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC125	C20-JBC125	Junction Box
03-JUNCTION BOX	JUNCTION BOX	C20-JBC1301	C20-JBC1301	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC201	C20-JBC201	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC901	C20-JBC901	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC902	C20-JBC902	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC903	C20-JBC903	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC904	C20-JBC904	Junction Box
06-JUNCTION BOX	JUNCTION BOX	C20-JBC905	C20-JBC905	Junction Box
06-LEVEL GAUGE	LEVEL GAUGE	C20-LI 10048	C20-LI 10048	Level Gauge
03-LEVEL SWITCH	LEVEL SWITCH	C20-LS1042	C20-LS1042	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS1511	C20-LS1511	Level Switch
03-LEVEL SWITCH	LEVEL SWITCH	C20-LS2010	C20-LS2010	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS2014	C20-LS2014	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS2078	C20-LS2078	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS2402	C20-LS2402	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS2522	C20-LS2522	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS2523	C20-LS2523	Level Switch
03-LEVEL SWITCH	LEVEL SWITCH	C20-LS2524	C20-LS2524	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS3040	C20-LS3040	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS4021	C20-LS4021	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS4022	C20-LS4022	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS4023	C20-LS4023	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS4026	C20-LS4026	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS4029	C20-LS4029	Level Switch
06-LEVEL SWITCH	LEVEL SWITCH	C20-LS7011	C20-LS7011	Level Switch
03-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1016	C20-LT1016	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1016B	C20-LT1016B	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1031	C20-LT1031	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1046	C20-LT1046	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT10461	C20-LT10461	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1526	C20-LT1526	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1529	C20-LT1529	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT1531	C20-LT1531	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2009	C20-LT2009	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2025	C20-LT2025	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2054	C20-LT2054	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2072	C20-LT2072	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2085	C20-LT2065	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2090	C20-LT2090	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2204	C20-LT2204	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2262	C20-LT2262	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT2403	C20-LT2403	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3009	C20-LT3009	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3024	C20-LT3024	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3028	C20-LT3028	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3103	C20-LT3103	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3221	C20-LT3221	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3225	C20-LT3225	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3423	C20-LT3423	Level Transmitter
03-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3524	C20-LT3524	Level Transmitter
06-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3527	C20-LT3527	Level Transmitter

OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT3537	C20-LT3537	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT4020	C20-LT4020	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT4024	C20-LT4024	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT4025	C20-LT4025	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT4028	C20-LT4028	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT4030	C20-LT4030	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5006	C20-LT5006	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5016	C20-LT5016	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5026	C20-LT5026	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5036	C20-LT5036	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5046	C20-LT5046	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5056	C20-LT5056	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5066	C20-LT5066	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5076	C20-LT5076	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5086	C20-LT5086	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5096	C20-LT5096	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5163	C20-LT5163	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT5165	C20-LT5165	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT63009	C20-LT63009	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT63024	C20-LT63024	Level Transmitter
OG-LEVEL TRANS	LEVEL TRANSMITTI	C20-LT63028	C20-LT63028	Level Transmitter
OG-CONT VALVE	CONTROL VALVE	C20-LV1016	C20-LV1016	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV2025	C20-LV2025	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV2085	C20-LV2085	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV3028	C20-LV3028	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV3221	C20-LV3221	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV3524	C20-LV3524	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV4007	C20-LV4007	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV4025	C20-LV4025	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV4028	C20-LV4028	Control valve
OG-CONT VALVE	CONTROL VALVE	C20-LV4030	C20-LV4030	Control valve
OG-VIB PROBE	VIBRATION PROBE	C20-LVT2051	C20-LVT2051	Low vibration probe
OG-VIB PROBE	VIBRATION PROBE	C20-LVT2052	C20-LVT2052	Low vibration probe
OG-PA COMP MTR	PA COMP MOTOR	C20-MLB2051	C20-MLB2051	Motor of Process air com
OG-PA COMP MTR	PA COMP MOTOR	C20-MLB2052	C20-MLB2052	Motor of Process air com
OG-PA COMP MTR	PA COMP MOTOR	C20-MLB2053	C20-MLB2053	Motor of Process air com
OG-PA COMP MTR	PA COMP MOTOR	C20-MLB2054	C20-MLB2054	Motor of Process air com
OG-AGITATOR	AGITATOR	C20-M2201-01	C20-M2201-01	WS Make up tank agitator
OG-MOTOR	MOTOR	C20-MBB2051	C20-MBB2051	Motor of Lube Oil Pump
OG-MOTOR	MOTOR	C20-MBB2052	C20-MBB2052	Motor of Lube Oil Pump
OG-AGITATOR	AGITATOR	C20-M6171-01	C20-M6171-01	Diluted acid tank agitat
OG-AGITATOR	AGITATOR	C20-M6181-01	C20-M6181-01	Stabiliser tank agitator
OG-MOTOR	MOTOR	C20-MB1011	C20-MB1011	Motor of H2 recycle comp
OG-MOTOR	MOTOR	C20-MB1011-B	C20-MB1011-B	Motor of H2 recycle comp
OG-MOTOR	MOTOR	C20-MB2541	C20-MB2541	Motor of Blower Solvent
OG-MOTOR	MOTOR	C20-MB3221	C20-MB3221	Motor of Vaccum pump unit
OG-MOTOR	MOTOR	C20-MB4027	C20-MB4027	Motor of Concentration v
OG-MOTOR	MOTOR	C20-MBAL001	C20-MBAL001	Motor of Barrel Pump
OG-MOTOR	MOTOR	C20-MCC001	C20-MCC001	Motor of Desert Cooler
OG-MOTOR	MOTOR	C20-MCC002	C20-MCC002	Motor of Desert Cooler
OG-MOTOR	MOTOR	C20-MM2201-01	C20-MM2201-01	Motor of WS Make up tank
OG-MOTOR	MOTOR	C20-MM6171-01	C20-MM6171-01	Motor of Diluted acid tar
OG-MOTOR	MOTOR	C20-MM6181-01	C20-MM6181-01	Motor of Stabiliser tank
OG-MOTOR	MOTOR	C20-MP1022	C20-MP1022	Motor of Hydrogenator fer
OG-MOTOR	MOTOR	C20-MP1503	C20-MP1503	Motor of Circulation pum
OG-MOTOR	MOTOR	C20-MP1522	C20-MP1522	Motor of Caustic pump
OG-MOTOR	MOTOR	C20-MP1532	C20-MP1532	Motor of Solvent pump
OG-MOTOR	MOTOR	C20-MP1542	C20-MP1542	Motor of Nitric acid pump
OG-MOTOR	MOTOR	C20-MP2002	C20-MP2002	Motor of Oxidiser feed pu
OG-MOTOR	MOTOR	C20-MP2005	C20-MP2005	Motor of Primary filter t
OG-MOTOR	MOTOR	C20-MP2032	C20-MP2032	Motor of Secondary Filter
OG-MOTOR	MOTOR	C20-MP2202	C20-MP2202	Motor of WS transfer pump
OG-MOTOR	MOTOR	C20-MP2211	C20-MP2211	Motor of Regeneration ter
OG-MOTOR	MOTOR	C20-MP2228	C20-MP2228	Motor of Regeneration tec
OG-MOTOR	MOTOR	C20-MP2262	C20-MP2262	Motor of Solvent transfer
OG-MOTOR	MOTOR	C20-MP2526	C20-MP2526	Motor of Solvent Transfer
OG-MOTOR	MOTOR	C20-MP2528	C20-MP2528	Motor of Solvent Transfer
OG-MOTOR	MOTOR	C20-MP3001	C20-MP3001	Motor of Extractor feed p
OG-MOTOR	MOTOR	C20-MP3016A	C20-MP3016A	Motor of Crude product ou
OG-MOTOR	MOTOR	C20-MP3016B	C20-MP3016B	Motor of Crude product ou
OG-MOTOR	MOTOR	C20-MP3123	C20-MP3123	Motor of Bleed Solvent Fe
OG-MOTOR	MOTOR	C20-MP3224	C20-MP3224	Motor of Dryer Vaccum Wat
OG-MOTOR	MOTOR	C20-MP3232A	C20-MP3232A	Motor of Water recycle pu
OG-MOTOR	MOTOR	C20-MP3232B	C20-MP3232B	Motor of Water recycle pu
OG-MOTOR	MOTOR	C20-MP3422	C20-MP3422	Motor of Solvent pump
OG-MOTOR	MOTOR	C20-MP3510	C20-MP3510	Motor of Solvent return p
OG-MOTOR	MOTOR	C20-MP3532A	C20-MP3532A	Motor of Demineralised wa
OG-MOTOR	MOTOR	C20-MP3532B	C20-MP3532B	Motor of Demineralised wa
OG-MOTOR	MOTOR	C20-MP3536A	C20-MP3536A	Motor of AO plant DMW fee
OG-MOTOR	MOTOR	C20-MP3536B	C20-MP3536B	Motor of AO plant DMW fee
OG-MOTOR	MOTOR	C20-MP3540A	C20-MP3540A	Motor of Concentrator fee
OG-MOTOR	MOTOR	C20-MP3540B	C20-MP3540B	Motor of Concentrator fee
OG-MOTOR	MOTOR	C20-MP3550A	C20-MP3550A	Motor of Conc plant DMW
OG-MOTOR	MOTOR	C20-MP3550B	C20-MP3550B	Motor of Conc plant DMW
OG-MOTOR	MOTOR	C20-MP4011	C20-MP4011	Motor of Vaporiser circul
OG-MOTOR	MOTOR	C20-MP4014A	C20-MP4014A	Motor of Condensate pump
OG-MOTOR	MOTOR	C20-MP4014B	C20-MP4014B	Motor of Condensate pump
OG-MOTOR	MOTOR	C20-MP4023A	C20-MP4023A	Motor of Chemical grade
OG-MOTOR	MOTOR	C20-MP4023B	C20-MP4023B	Motor of Chemical grade
OG-MOTOR	MOTOR	C20-MP4025	C20-MP4025	Motor of Distillate pump
OG-MOTOR	MOTOR	C20-MP5021	C20-MP5021	Motor of Product transfer
OG-MOTOR	MOTOR	C20-MP5027	C20-MP5027	Motor of Product storage
OG-MOTOR	MOTOR	C20-MP5029A	C20-MP5029A	Motor of Product storage
OG-MOTOR	MOTOR	C20-MP5029B	C20-MP5029B	Motor of Product storage
OG-MOTOR	MOTOR	C20-MP5035A	C20-MP5035A	Motor of Conc feed pump
OG-MOTOR	MOTOR	C20-MP5035B	C20-MP5035B	Motor of Conc feed pump
OG-MOTOR	MOTOR	C20-MP6003	C20-MP6003	Motor of Filling station
OG-MOTOR	MOTOR	C20-MP6004	C20-MP6004	Motor of Filling station
OG-MOTOR	MOTOR	C20-MP6004B	C20-MP6004B	Motor of Filling station
OG-MOTOR	MOTOR	C20-MP6005	C20-MP6005	Motor of Recycle Pump Unc
OG-MOTOR	MOTOR	C20-MP63001	C20-MP63001	Motor of New Extractor fe
OG-MOTOR	MOTOR	C20-MP63016	C20-MP63016	Motor of New Extractor cr
OG-MOTOR	MOTOR	C20-MP7002	C20-MP7002	Motor of Pump pit pump
OG-MOTOR	MOTOR	C20-MP7013B	C20-MP7013B	Motor of Seperated water
OG-MOTOR	MOTOR	C20-MP7017	C20-MP7017	Motor of Solvent pump(fro
OG-MOTOR	MOTOR	C20-MP7025	C20-MP7025	Motor of Filling hall pit
OG-MTRIZED VAL	MOTORIZED VALVE	C20-MPV01	C20-MPV01	Motorized valve
OG-PRESS TRANS	PRESSURE TRANSM	C20-CFDT2051	C20-CFDT2051	Oil filter DP TX
OG-PRESS TRANS	PRESSURE TRANSM	C20-CFDT2052	C20-CFDT2052	Oil filter DP TX
OG-PRESS TRANS	PRESSURE TRANSM	C20-CPT2051	C20-CPT2051	Oil inlet PT
OG-PRESS TRANS	PRESSURE TRANSM	C20-CPT2052	C20-CPT2052	Oil inlet PT
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P101A	C20-P101A	Feed H2O2 Pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P101B	C20-P101B	Feed H2O2 Pump
OG-CAN MTR PUM	CANNED MOTOR PUI	C20-P1022	C20-P1022	Hydrogenator feed pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P102A	C20-P102A	H2O2 Pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P102B	C20-P102B	H2O2 Pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P103A	C20-P103A	Methanol Pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P103B	C20-P103B	Methanol Pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P104	C20-P104	Product H2o2 Pump
OG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P105	C20-P105	Waste Methanol Pump
OG-VERTICAL PUM	VERTICAL PUMP	C20-P1503	C20-P1503	Circulation pump
OG-VERTICAL PUM	VERTICAL PUMP	C20-P1522	C20-P1522	Caustic pump
OG-VERTICAL PUM	VERTICAL PUMP	C20-P1532	C20-P1532	Solvent pump
OG-VERTICAL PUM	VERTICAL PUMP	C20-P1542	C20-P1542	Nitric acid pump

CG-CAN MTR PUM	CANNED MOTOR PU	C20-P2002	C20-P2002	Oxidiser feed pump
CG-CAN MTR PUM	CANNED MOTOR PU	C20-P2005	C20-P2005	Primary filter backwash p
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2032	C20-P2032	Secondary Filter Collecti
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2202	C20-P2202	WS transfer pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2211	C20-P2211	Regeneration feed pump 1
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2228	C20-P2228	Regeneration feed pump 2
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2262	C20-P2262	Solvent transfer pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2526	C20-P2526	Solvent Transfer Pumps
CG-VERTICAL PUM	VERTICAL PUMP	C20-P2528	C20-P2528	Solvent Transfer Pumps
CG-CAN MTR PUM	CANNED MOTOR PU	C20-P3001	C20-P3001	Extractor feed pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3016A	C20-P3016A	Crude product pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3016B	C20-P3016B	Crude product pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3123	C20-P3123	Bleed Solvent Return Pum
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3224	C20-P3224	Dryer Vaccum Water Circul
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3232A	C20-P3232A	Water recycle pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3232B	C20-P3232B	Water recycle pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3422	C20-P3422	Solvent pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3510	C20-P3510	Solvent return pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P3532A	C20-P3532A	Demineralised water pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P3532B	C20-P3532B	Demineralised water pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P3536A	C20-P3536A	AO plant DMW feed pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P3536B	C20-P3536B	AO plant DMW feed pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3540A	C20-P3540A	Concentrator feed pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P3540B	C20-P3540B	Concentrator feed pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P3550A	C20-P3550A	Conc plant DMW feed pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P3550B	C20-P3550B	Conc plant DMW feed pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P4011	C20-P4011	Vaporiser circulation pur
CG-VERTICAL PUM	VERTICAL PUMP	C20-P4014A	C20-P4014A	Condensate pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P4014B	C20-P4014B	Condensate pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P4023A	C20-P4023A	Chemical grade product pu
CG-VERTICAL PUM	VERTICAL PUMP	C20-P4023B	C20-P4023B	Chemical grade product pu
CG-VERTICAL PUM	VERTICAL PUMP	C20-P4025	C20-P4025	Distillate pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5021	C20-P5021	Product transfer pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5027	C20-P5027	Product storage pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5029A	C20-P5029A	Product storage pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5029B	C20-P5029B	Product storage pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5035A	C20-P5035A	Concentrated feed pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5035B	C20-P5035B	Concentrated feed pump
CG-DOZING PUMP	DOZING PUMP	C20-P5172 A	C20-P5172 A	Dozing pump
CG-DOZING PUMP	DOZING PUMP	C20-P5172 B	C20-P5172 B	Dozing pump
CG-DOZING PUMP	DOZING PUMP	C20-P5174 C	C20-P5174 C	Dozing pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P5182	C20-P5182	Stabilizer Dosing Pump
CG-DOZING PUMP	DOZING PUMP	C20-P5196A	C20-P5196A	Dozing Pump
CG-DOZING PUMP	DOZING PUMP	C20-P5196B	C20-P5196B	Dozing Pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P6003	C20-P6003	Filling station feed pum
CG-VERTICAL PUM	VERTICAL PUMP	C20-P6004	C20-P6004	Filling station feed pum
CG-VERTICAL PUM	VERTICAL PUMP	C20-P6004 A	C20-P6004 A	Filling pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P6004B	C20-P6004B	Filling station feed pum
CG-VERTICAL PUM	VERTICAL PUMP	C20-P6005	C20-P6005	Recycle Pump Underground
CG-CAN MTR PUM	CANNED MOTOR PU	C20-P63001	C20-P63001	New Extractor feed pump
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P63016	C20-P63016	New Extractor crude Produ
CG-HORIZ MEC SE	HORIZONTAL PUMP	C20-P7002	C20-P7002	WS Recovery pit pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P7013B	C20-P7013B	Seperated water pump
CG-VERTICAL PUM	VERTICAL PUMP	C20-P7017	C20-P7017	Solvent pump(from T7016)
CG-MSP	MONO BLOCK PUMP	C20-P7025	C20-P7025	Filling hall pit pump
CG-MAINT AR CTR	MAINTENANCE ARE	C20-PA COMPRESSOR CBT	C20-PA COMPRESSOR CBT	Process Air Compressor Ca
CG-MAINT AR GEN	MAINTENANCE ARE	C20-PA COMPRESSOR GWORK	C20-PA COMPRESSOR GWORK	Process Air Compressor gr
CG-MAINT AR PIP	MAINTENANCE ARE	C20-PA COMPRESSOR PIPING	C20-PA COMPRESSOR PIPING	Process Air Compressor Pi
CG-PRES RED VAL	PRESSURE REDUCI	C20-PC1055	C20-PC1055	Pressure reducing valve
CG-PRES RED VAL	PRESSURE REDUCI	C20-PC1070	C20-PC1070	Pressure reducing valve
CG-PRES RED VAL	PRESSURE REDUCI	C20-PC2020	C20-PC2020	Pressure reducing valve
CG-PRES RED VAL	PRESSURE REDUCI	C20-PC2023	C20-PC2023	Pressure reducing valve
CG-DPT TRANS	DPT TRANSMITTER	C20-PDT2565	C20-PDT2565	DPT Transmitter
CG-DPT TRANS	DPT TRANSMITTER	C20-PDT2566	C20-PDT2566	DPT Transmitter
CG-DPT TRANS	DPT TRANSMITTER	C20-PDT2567	C20-PDT2567	DPT Transmitter
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1001B	C20-PI 1001B	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1007B	C20-PI 1007B	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1015	C20-PI 1015	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1017	C20-PI 1017	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1022	C20-PI 1022	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1026	C20-PI 1026	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1034	C20-PI 1034	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1037	C20-PI 1037	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1049	C20-PI 1049	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1050	C20-PI 1050	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1053	C20-PI 1053	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1056	C20-PI 1056	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1062	C20-PI 1062	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1065	C20-PI 1065	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1069	C20-PI 1069	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1156	C20-PI 1156	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1174	C20-PI 1174	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1175	C20-PI 1175	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1177	C20-PI 1177	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1178	C20-PI 1178	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1179	C20-PI 1179	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1180	C20-PI 1180	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1181	C20-PI 1181	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1182	C20-PI 1182	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1510	C20-PI 1510	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1517	C20-PI 1517	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1527	C20-PI 1527	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1528	C20-PI 1528	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1530	C20-PI 1530	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 1532	C20-PI 1532	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2019	C20-PI 2019	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2029	C20-PI 2029	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2033	C20-PI 2033	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2051/1	C20-PI 2051/1	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2051/2	C20-PI 2051/2	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20511	C20-PI 20511	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20512	C20-PI 20512	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2052/1	C20-PI 2052/1	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2052/2	C20-PI 2052/2	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20521	C20-PI 20521	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20522	C20-PI 20522	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2053/1	C20-PI 2053/1	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2053/2	C20-PI 2053/2	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2053/3	C20-PI 2053/3	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20531	C20-PI 20531	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20532	C20-PI 20532	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 20533	C20-PI 20533	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2054	C20-PI 2054	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2055	C20-PI 2055	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2057	C20-PI 2057	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2058	C20-PI 2058	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2059	C20-PI 2059	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2060	C20-PI 2060	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2065	C20-PI 2065	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2067	C20-PI 2067	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2068	C20-PI 2068	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2069	C20-PI 2069	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2070	C20-PI 2070	Pressure Gauge
CG-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2092	C20-PI 2092	Pressure Gauge

05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2205	C20-PI 2205	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2218	C20-PI 2218	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2221	C20-PI 2221	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2222	C20-PI 2222	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2231	C20-PI 2231	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2240	C20-PI 2240	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2253	C20-PI 2253	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2257	C20-PI 2257	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2258	C20-PI 2258	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2259	C20-PI 2259	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2260	C20-PI 2260	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2550	C20-PI 2550	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 2551	C20-PI 2551	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3032	C20-PI 3032	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3036A	C20-PI 3036A	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3036B	C20-PI 3036B	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3038	C20-PI 3038	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3101	C20-PI 3101	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3102	C20-PI 3102	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3213	C20-PI 3213	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3214	C20-PI 3214	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3217	C20-PI 3217	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3223	C20-PI 3223	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3410	C20-PI 3410	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3426	C20-PI 3426	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3533	C20-PI 3533	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3534	C20-PI 3534	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3536	C20-PI 3536	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3542	C20-PI 3542	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3543	C20-PI 3543	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3544	C20-PI 3544	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3546	C20-PI 3546	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3549	C20-PI 3549	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 3555	C20-PI 3555	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4043	C20-PI 4043	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4046	C20-PI 4046	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4047	C20-PI 4047	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4048	C20-PI 4048	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4049	C20-PI 4049	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4050	C20-PI 4050	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4051	C20-PI 4051	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4054	C20-PI 4054	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4056	C20-PI 4056	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4057	C20-PI 4057	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4085	C20-PI 4085	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 4086	C20-PI 4086	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5053	C20-PI 5053	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5053A	C20-PI 5053A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5053B	C20-PI 5053B	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5073	C20-PI 5073	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5079	C20-PI 5079	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5089A	C20-PI 5089A	Pressure Gauge
03-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5089B	C20-PI 5089B	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5097	C20-PI 5097	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5166	C20-PI 5166	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5167	C20-PI 5167	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 5168	C20-PI 5168	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 6018	C20-PI 6018	Pressure Gauge
05-PRESS GAUGE	PRESSURE GAUGE	C20-PI 6019	C20-PI 6019	Pressure Gauge
05-PLC CON SYS	PLC CONTROL SYST	C20-PLC82051	C20-PLC82051	PLC SIEMENS
05-PLC MARS CAB	PLC MARSHALLING	C20-PLC82051MCP	C20-PLC82051MCP	PLC Marshalling Cabinet
03-PLC CON SYS	PLC CONTROL SYST	C20-PLC82052	C20-PLC82052	PLC SIEMENS
05-PLC MARS CAB	PLC MARSHALLING	C20-PLC82052MCP	C20-PLC82052MCP	PLC Marshalling Cabinet
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV1001	C20-PSV1001	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV1003	C20-PSV1003	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV1004	C20-PSV1004	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV1005	C20-PSV1005	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV1006	C20-PSV1006	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV2001	C20-PSV2001	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV2002	C20-PSV2002	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV2003	C20-PSV2003	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV2005	C20-PSV2005	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3001	C20-PSV3001	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3002	C20-PSV3002	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3003	C20-PSV3003	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3004	C20-PSV3004	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3005	C20-PSV3005	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3006	C20-PSV3006	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3007	C20-PSV3007	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3101	C20-PSV3101	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3102	C20-PSV3102	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3401	C20-PSV3401	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3501	C20-PSV3501	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3502	C20-PSV3502	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3503	C20-PSV3503	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV3504	C20-PSV3504	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV4031	C20-PSV4031	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV4032	C20-PSV4032	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV4035	C20-PSV4035	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV4036	C20-PSV4036	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV4099	C20-PSV4099	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5001	C20-PSV5001	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5002	C20-PSV5002	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5003	C20-PSV5003	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5004	C20-PSV5004	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5005	C20-PSV5005	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5006	C20-PSV5006	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5007	C20-PSV5007	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5008	C20-PSV5008	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5009	C20-PSV5009	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5010	C20-PSV5010	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5011	C20-PSV5011	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5020	C20-PSV5020	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5021	C20-PSV5021	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5022	C20-PSV5022	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5023	C20-PSV5023	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5024	C20-PSV5024	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5025	C20-PSV5025	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5026	C20-PSV5026	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV5027	C20-PSV5027	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6001	C20-PSV6001	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6002	C20-PSV6002	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6003	C20-PSV6003	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6004	C20-PSV6004	Pressure safety valve
05-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6005	C20-PSV6005	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6101	C20-PSV6101	Pressure safety valve
03-PRESS SF VAL	PRESSURE SAFETY	C20-PSV6201	C20-PSV6201	Pressure safety valve
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1005B	C20-PT1005B	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1008	C20-PT1008	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1013	C20-PT1013	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1013B	C20-PT1013B	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1021	C20-PT1021	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1038	C20-PT1038	Pressure Transmitter
03-PRESS TRANS	PRESSURE TRANSMI	C20-PT1039	C20-PT1039	Pressure Transmitter

ANNEXURE-Q

STAKEHOLDER' CONSULTATION FORMS

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Ali Raza

Residence: Sheikhupura

CNIC: 3310418945117

Gender: ☑ Male ☐ Female

Qualification: F.A

Profession: Shopkeeper

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed Shivaz

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Muhammad Ammar

Residence: Sheikhupura

CNIC: 36103780754-9

Gender: ☑Male ☐Female

Qualification: B.A

Profession: factory worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Ammar

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Mehboob

Residence: Sheikhupura

CNIC: 3310105591429

Gender: ☑Male ☐Female

Qualification: F.A

Procession: Shopkeeper

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☐	☑
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed Mehboob.

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Muhammad Jahangir

Residence: SKP Kunpura

CNIC: 3310040632995

Gender: ☑Male ☐Female

Qualification: MBA

Profession: Banker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: N. Shahbaz

Residence: Shei Kewpura

CNIC: 3310394381079

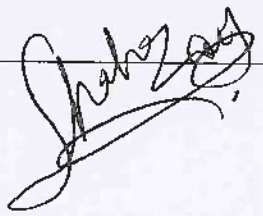
Gender: ☑ Male ☐ Female

Qualification: B.A

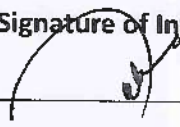
Profession: factory worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed



Signature of Interviewer



PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Babber Ali

Residence: Sheikhupura

CNIC: 3430285432495

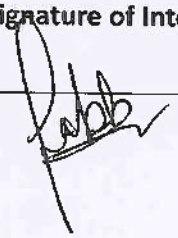
Gender: ☑ Male ☐ Female

Qualification: Matric

Procession: Shopkeeper

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed



Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Muteeb Faisal

Residence: Sheikhupura

CNIC: 3310248370057

Gender: ☑Male ☐Female

Qualification: Matric

Profession: Factory Worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Asad Ali

Residence: Sheikhupura

CNIC: 3310169383675

Gender: ☑ Male ☐ Female

Qualification: BS (IT)

Procession: Engineer

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Noor Bibi

Residence: Sheikhupura

CNIC: 3310060571535

Gender: ☐Male ☐Female

Qualification: Master

Procession: Teacher

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☒	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☒	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed Noor Bibi

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: Shahzaib Basharat

Residence: Sheikhupura

CNIC: 34202 93231485

Gender: ☑Male ☐Female

Qualification: Matric

Profession: factory worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☐	☑
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed شہزیب

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "EXTENSION OF EXISTING PLANT (HYDROGEN PER OXIDE MANUFACTURING PLANT) AND ALLIED SERVICES"

Name: M. Haroon

Residence: Sheikhupura

CNIC:

Gender: ☑ Male ☐ Female

Qualification: B.A

Profession: Engineer

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed

Signature of Interviewer

ANNEXURE-R

LIST OF ABBREVIATIONS

LIST OF ABBREVIATIONS

W & D	Works and Development
OSHA	Occupational Safety and Health Administration
EPA Punjab	Environmental Protection Agency, Punjab
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
PEQS	Punjab Environmental Quality Standards
PEPA	Punjab Environmental Protection Act
TORs	Term of references
WAPDA	Water And Power Development Authority

ANNEXURE-S

GLOSSARY

GLOSSARY

Words	Dictionary
Mitigation	The action of lessening in severity or intensity
Legislation	law enacted by a legislative body
Compliance	Acting according to certain accepted standards
Flora	All the plant life in a particular region or period
Fauna	All the animal life in a particular region or period
Demarcated	Separate clearly, as if by boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted for another
Regulations	An authoritative rule
Stakeholders	A person or organization with an interest or concern in something
Vulnerable	Susceptible to attack

ANNEXURE-T

STUDY TEAM

#	Name of Team Members	Designation	Qualification
1	Maham Ahsan	Environmentalist	M.S Environmental Science
2	Ali Ramzan	Environmentalist	B.S Environmental Sciences
3	Asma Akram	Environmentalist	M.S Environmental Science
4	Taha Nadeem	Environmentalist	B.S Environmental Sciences
5	Shahzad Ahmad Khan	Project Manager	MBA Marketing

ANNEXURE-U

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REFERENCES

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