# RELIANCE INDUSTRIES LIMITED,
# HAZIRA MANUFACTURING DIVISION (HMD)
# HAZIRA, GUJARAT

## PRE-FEASIBILITY REPORT

## FOR

## 4x90 MW PETCOKE BASED
## POWER PLANT

FEASIBILITY REPORT FOR

# PETCOKE BASED POWER PLANT

## I N D E X

**List of Annexures**

## 1. Executive Summary:

Hazira Manufacturing Division (HMD) of Reliance Industries Limited (RIL) is located at village Mora, near Hazira in Choryasi Taluka of Surat District in the State of Gujarat. It is a multi-product, fully integrated complex, manufacturing a wide range of petrochemicals, polymers, polyesters and polyester intermediates. The complex comprises of a Naphtha cracker feeding downstream petrochemical, fibre intermediates and polyester plants.

The power and steam required for the process plants at RIL-HMD are produced by existing gas-based captive power plant .. But, due to uncertainty in availability and high cost of gas, a coal based Captive Cogeneration Power Plant (CCPP) of 4 X 90 MW (360 MW) capacity is being installed for which environmental clearance has been granted by SEIAA , Gujarat vide their letter SEIAA/GUJ/ EC/I(d) & 7(e) /3/2015 dated 28$^{th}$ Jan 2015. This new coal based CCPP is to cater to the power and steam requirements for the complex. Theexisting gas-based generators will be preserved for exigencies. This will also enable black start, in case of any requirement.

It is proposed to use pet coke as a fuel for the above CCPP at HMD to be sourced from from RIL Jamnagar refinery and imported.. In case of any road transport, high capacity covered trucks will be used to avoid spillage . Pet coke requirement for the project will be about 1.8 MMTPA. The auxiliary fuel will be Natural Gas. Circulating Fluidized Bed Combustion (CFBC) boilers will be used in the upcoming CCPP instead of conventional Pulverized Fuel Combustion , which is capable of using wide variety of solid fuels and also has provision to control Sulfur Dioxide at source using lime stone injection. The limestone requirement, to reduce $SO_2$ emission, will be about 1 MMTPA.

Approx. 51 ha of land within the HMD complex is being utilised for setting up of the CCPP including . Storage and other facilities required for fuel storage & Handling .

There will be no additional water requirement when the CCPP running on pet coke as fuel and the total water requirement for the purposes DM water and cooling tower make-up, will remain same at 2000 $m^3$/hr and waste water discharges will be 55,200 $m^3$/day as approved for Coal based CCPP.No additional water will be drawn from source and it is with in approved quantity by Govt. of Gujarat. .The wastewater generated will be discharged through the existing marine disposal system with diffuser arrangement.

Two stacks of 220 metres each with 3 flues are being established as per the standards prescribed by the CPCB for thermal power plants below 500 MW capacity. No change in stack design is envisaged due to Pet Coke fuel. Particulate matter emission will be controlled through electrostatic precipitator (ESP) to ensure it is limited to 50 mg/$Nm^3$. The fuel handling and transportationwill be provided with bag filters to control fugitive emissions.Limestone will be continuously injected into

furnace to reduce and control emission of $SO_2$ at source to the SEIAA approved maximum limit of 20 Tons/day/boiler for coal firing . The furnace temperature in CFBC boilers will be maintained between 800-900$^0$C, limiting thermal NOx formation to maximum of 150 ppm, as approved by SEIAA. Continuous Emission Monitoring System (CEMS) are being installed in stack to continuously monitor the emissions of PM, $SO_2$ and NOx ..

The noise standard but not more than 85 dB at 1 m from any equipment or sub-equipment will be observed from Steam Generator and auxiliaries.. Noise attenuating enclosures will be provided, as necessary, on all noisy equipment to limit the noise level within permissible standards.

The ash handling system being established for Coal based CCPP will suffice in case of pet coke usage also as the ash % in petcoke is likely to be less than coal. The ash will be collected in dry form in silos for enhanced utilization About 80 MT/hr of fly ash and 35 MT/hr of bed ash are expected to be generated, which will be utilised primarily in cement manufacturing industries. The silos will have capacity of 1 day ash storage.

## 2. Introduction of project:

Reliance Industries Limited (RIL) is currently implementing the coal-based Captive Cogeneration Power Plant (CCPP)at Hazira Manufacturing Division (HMD) in Gujarat. The objective of setting up of this coal based CCPP is to meet the Steam and power requirements economically and effectively due to shortage of natural gas. It is envisaged in this project for which approval of MoEF is sought is to have fuel conversion to pet coke which is readily available at RIL Jamnagar

For the above CCPP, the conversion to pet coke as an alternative fuel is envisaged due to the following reasons:

1) Petroleum coke (Pet coke) is a carbonaceous solid derived from oil refinery coker units or other cracking processes. The chemical composition of petroleum coke is mostly elementary Carbon (usually over the 85% C dry) with high heating value and very little ash content (usually less than 1-2 %).
2) Petroleum coke is a fuel that has long been considered an ideal fuel for the circulating fluidized bed combustion technology.
3) Despite the low volatile content of pet coke, combustion efficiency is quite good in a circulating fluidised bed (CFB) (At least 2.5% higher than that of Coal fired CFB). Thus there is no need to redesign for higher temperatures to improve combustion efficiency.
4) Lower temperatures improve the emissions performance as well as reduce the potential for agglomeration and deposition. The recommended furnace design temperature should be typically in the range of 850 - 900°C.

5) Compared to other low ash coals, pet coke has advantage in terms of bed material inventory. In spite of having low ash content, the bed material requirement is minimum, since limestone and its reacted products (gypsum) act as the bed material.

## 3. Project Description :

Hazira Manufacturing Division (HMD) of Reliance Industries Limited (RIL) is located at village Mora, near Hazira in Choryasi Taluka of Surat District in the State of Gujarat. It is a multi-product, fully integrated complex manufacturing a wide range of petrochemicals, polymers, polyesters and polyester intermediates.

Due to uncertainty in availability and high cost of gas, A 360 MW coal based CCPP is being set up to meet the steam and power requirement of the process plant for which environmental clearance has been granted by SEIIA on 28th January, 2015. The existing gas based generators will standby for exigency Due to availability of surplus pet coke at RIL Jamnagar and other sources ,It is now proposed to use pet coke as a fuel for the CCPP. The petcoke is proposed to be brought to HMD by sea route either at captive jetty and will be transferred to project site by pipe conveyors. or to nearby jetties and from there by road. In case of road transport, pet coke will be brought in high capacity covered trucks to avoid spillage.

Circulating Fluidized Bed Combustion (CFBC) technology used in the upcoming CCPP is capable of using wide variety of solid fuels and hence change of fuel to pet coke will not require any special construction or modification in the plant design. Pet coke requirement for the project will be about 1.8 MMTPA, while the corresponding limestone requirement, to control $SO_2$ emission, will be about 1 MMTPA. Pet coke storage of 15 days and 5 days storage of lime stone is considered by providing covered storage yard.

The CCPP is coming up in 51 Ha of land within HMD complex. The location map of the project within HMD complex is attached at **Annexure-A**. No alternate site is considered due to the availability of land and required infrastructure at HMD as well as the power and steam to be produced are for captive use at HMD .

**Process Description**

**CFBC Technology:**

the depleting trend of coal quality and environmental considerations due to high sulphur and high ash content fuels , the technology of circulating fluidized bed combustion (CFBC) which got invented in 1980s has become popular .

CFBC boiler consists of a boiler and a high-temperature cyclone as a solid separation device. A coarse fluidizing medium and char in the flue gas are collected by the high-temperature cyclone and recycled to the boiler. Recycling maintains the bed height and increases the denigration efficiency. To increase the thermal efficiency, a pre-heater for the fluidizing air and combustion air, and a boiler feed water heater, are installed. In CFBC boilers, combustion takes place at temperatures in the range of 800-900°C resulting in reduced NOx formation compared with pulverized coal fired units or any other coal fired technologies. $SO_2$ emission is reduced by the injection of limestone in the combustion chamber.

Circulating beds use a higher fluidizing velocity, so the particles are constantly held in the flue gases, and pass through the main combustion chamber and enter into a cyclone, from which the larger particles are extracted and returned to the combustion chamber Combustion conditions are relatively uniform through the combustor, although the bed is somewhat denser near the bottom of the combustion chamber. There is a great deal of mixing, and residence time during one pass is very short.

. The bed material is preferred either as crushed refractory or from the fuel ash or as sand in some cases. Due to the large heat capacity of the bed, combustion is stable and no supporting fuels are required, provided the fuel heating value is sufficient to raise the combustion air and the fuel itself above its ignition temperature. The intense turbulence ensures good mixing and combustion of the fuel.

The schematic of a CFBC boiler is shown at **Annexure-B**

**Limestone Feed and Control Mechanism**

Sulphur capture in CFBC boilers happens by injecting Limestone along with fuel. The fuel and Lime mixture enters into combustion chamber through multiple feed points located in furnace front close to the bottom primary zone. Limestone undergoes decomposition by taking heat from the hot bed material (endothermic) and converts into Calcium Oxide (CaO).This process is called as Calcination. The calcined Limestone being porous in nature gets entrained in flue gas and enters the top section of furnace where the mixture of Oxygen and Sulfur Dioxide reacts with Calcium Oxide and converts into Calcium Sulfate ($CaSO_4$).This Process is called Sulfation. This process is an exothermic reaction. Thus the Limestone converts gaseous $SO_2$ emission to solid Calcium Sulfate and gets removed from the system. Attributing higher particle residence time and recirculation, the Sulphur capture efficiency in CFBC boliers can be achieved to almost 95%.

Limestone injection control consists of Limestone variable speed rotary feeder. The amount of limestone that is required for a given amount of fuel depends on the sulphur content of coal. An increase in sulfur dioxide emissions will necessitate in an increase in the amount of limestone that is required for a given coal flow to the furnace. The limestone demand is a function of the main fuel flow. An increase in fuel flow demand will result in a corresponding increase in the limestone demand to provide the demand signal to the Limestone Variable Rotary Feeder.

**Technical Features of Main Plant & Equipment**

The Coal/Petcoke based power plant consists of the following major equipment:

a) Six (5 operating +1 standby) steam generators, along with all ancillaries and auxiliaries, stack and duct work, damper, suction air filters along with controls and instrumentation, suitable for base load operation with Coal/ Petcoke as fuel.

b) 4 nos. steam turbine generators set (4 x 90 MW) with deaerator & feed heating equipment, steam condenser, CEP and feed water pumps with all piping systems.

c) Other auxiliary systems and major equipment needed, while operating on pet coke as fuel:

- Limestone handling system
- NG system

The power plants will be provided with the state-of-the-art Distributed Digital Control System (DCS), which will integrate various closed loop sub-systems, open loop sub-systems, monitoring and information sub-system covering the entire plant. The system will integrate the various proprietory control packages supplied by the main equipment suppliers for harmonious plant operation.

**Fuel Quality:**

Pet coke for the project will be available either from RIL Jamnagar refinery or can be imported through the proposed jetty or nearby jetties, as required. During road transport, pet coke will be brought in high capacity covered trucks. Pet coke requirement for the project will be about 1.8 MMTPA, while the corresponding limestone requirement, to reduce $SO_2$ emission, will be about 1 MMTPA.

The proximate and ultimate analysis of pet coke, to be used for the power plant, is as follows:

| **Heating Values** | | |
|---|---|---|
| LHV | 7672.4 | kcal/kg |
| HHV | 7895 | kcal/kg |
| **Ultimate Analysis** | | |

| | | |
|---|---|---|
| **(weight %)** | | |
| Moisture | 5 | % |
| Ash | 0.2 | % |
| Carbon | 80.07 | % |
| Hydrogen | 3.71 | % |
| Nitrogen | 1.37 | % |
| Chlorine | 0.63 | % |
| Sulfur | 7.33 | % |
| Oxygen | 1.69 | % |
| Total | 100 | % |
| **Proximate Analysis (weight %)** | | |
| Moisture | 5 | % |
| Ash | 0.2 | % |
| Volatile Matter | 14.22 | % |
| Fixed Carbon | 80.58 | % |
| Total | 100 | % |

Because of the extremely low ash (<0.2% ) and high sulfur contents of petcoke 7.33%), limestone is used in the majority of bed materials of the CFBC boilers using pet coke . Limestone sizing is critical not only for efficient sulphur capture but also effective fluidization and fuel mixing there by uniform temperatures and heat transfer. Limestone of 80-90%, to be procured locally, will be used in CCPP.

**Pet coke Handling Plant:**

The pet coke handling will be done in the same system that of coal. In order to limit spread of dust, water sprinkling arrangements will be in place in the covered stockyard. Adequate dust extraction equipment will be installed at specific locations of high dust generation in transfer points..

**Ash management :**

The expected quantities of ash to be generated from the combustion of pet coke are as follows:

Fly ash : 80 TPH Bed ash : 35 TPH

Only dry ash handling & management where in it is stored in silos. Ash in dry form is transfered from the hoppers to storage silos will be done through pneumatic conveying. The fly ash will be utilized for various purposes like brick making, additive to cement and additive to concrete. The bottom ash of CFBC boilers proposed will have minimum unburnt carbon and will prove suitable for use in cement manufacture as it will be clinkerised to the required levels. Ash disposal will be carried out in closed type, top loaded, ash trucks.

**4. Site Analysis:**

**Connectivity and land details:**

RIL-HMD is located in the Hazira Industrial Area, notified by Gujarat Industrial Development Corporation at Mora village near Hazira in Choryasi Taluka of Surat District. The Gazette notification declaring Hazira as notified industrial area is attached at **Annexure-C** and the survey nos. of the HMD complex is listed on **Annexure-D**. It is about 18 kms North-West of the Surat City in Gujarat State. Estuarine region of Tapi River lies to the south of HMD complex and the Arabian Sea on the West. The Bombay-Ahmedabad National Highway No. 8 passes close to Surat City, which is well connected by Rail and Road network. Hazira is well connected by road network with Surat city. There is a navigation channel available in the Tapi estuary from sea up to Magdalla port with a branch leading to the proposed jetty , which can be used for transporting coal/pet coke. The project site is fallow land and devoid of any vegetation. HMD complex is. The CCPP is outside the CRZ area.

## Climate of the area

Hazira has a tropical climate, moderated strongly by the Arabian Sea. The annual mean air temperature is about 27.7°C. The annual mean humidity is recorded as 62%.

The summer begins in early March and lasts till June. April and May are the hottest months, the average maximum temperature being 40°C. Monsoon begins in late June and the city receives about 1,000 millimeters of rain by the end of September, with the average maximum temperature being 32°C during those months. October and November see the retreat of the monsoon and a return of high temperatures till late November. Winter starts in December and ends in late February, with average temperatures of around 23°C during the winter months.

**Soil Classification:**

The soil at the project site can be classified as loamy sand with fine sand and clay content being 46.36 and 3.20% respectively. The bulk density of the soil is 1.45 gm/cm$^3$ and water holding capacity and porosity are 22.10% & 28.59% respectively. The pH of the soil is 7.4. The fertility status of the soil is poor.

**5. Planning Brief:**

The petrochemicals, polymers, polyesters and polyester intermediates plants at Hazira Manufacturing Division (HMD) of Reliance Industries Limited (RIL) require uninterrupted power and steam for their continuous manufacturing operations which is being provided by gas based captive cogenration power plant But due to uncertainty in availability of gas and cost , it is envisaged to generate staem & power by utilizing coal based generation in CCPP , which is under implementation . The present proposal is to convert fuel firing from Coal to Pet Coke.

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## 6. Proposed Infrastructure:

Approx. 51 ha of land within RIL-HMD complex is being utilised for setting up the CCPP. This includes plants and utilities, storage and administrative block. There is no residential area proposed. Conversion to pet coke as fuel will not require any additional construction redesigning of utilities than those under implementation for the coal based plant

The RIL HMD complex. Has around 1,73,000 numbers of trees in 63 hectares of land within the complex. Species planted include Peltophorum, Australian Acacia, Casuarina, Cassia siamea, Eucalyptus, Neem, Ficus Spp., Gulmohar- Delonixregia, Pithecellobiumducle, Dalbergiasisoo, Coconut, Chiku, Jamun, Drooping Ashokha, Spathodea, Cassia fistula, Barringtonia, Putranjiva, Raintree, Bakamneem, Guava, Pomegranate, Mango, Custard Apple. RIL-HMD has developed in-house nursery for maintaining the horticultural activities within the complex. Additional green belt as a part of CCPP is also being planned.Existing green belt will be further strengthened in the CCPP area by planting native and tolerant species.

**Fuel-Requirement, Availability & Transportation**:

It is envisaged that pet coke required for the project will be imported through the proposed jetty. Alternatively, it can also be brought the nearby jetties operating in the region. From the port, pet coke will be transferred to the site in closed conveyors. Pet coke may also be available from RIL Jamnagar refinery. During road transport pet coke will be brought in closed trucks. Limestone will also be brought in trucks.

**Pet coke quantity**:

Considering pet coke with gross calorific value (GCV) of 7895 kCal/kg and plant load factor of 100%, the annual pet coke requirement for Co-generation Plant works out to be about 1.8 Million Tonnes. The daily pet coke requirement with 100% PLF works out to about 5000 Tons for the capacity of 4 x 90 MW.

Other infrastructure facilities like access roads, housing facility for the construction staff with supply of water and electricity, community facilities viz. market, housing, construction power, health care etc. are already set up at HMD for other on-going expansion projects.

## 7. Rehabilitation and Resettlement (R & R) Plan:

The CCPP project is coming up within the existing HMD complex area of Reliance Industries Limited in a vacant plot of land. There is no requirement of additional land and therefore no displacement of people involved.

**8. Project Schedule & Cost Estimate:**

The coal-based CCPP is under implementation at project site within HMD complex. No additional facilities required for the project to operate on pet coke as fuel ..

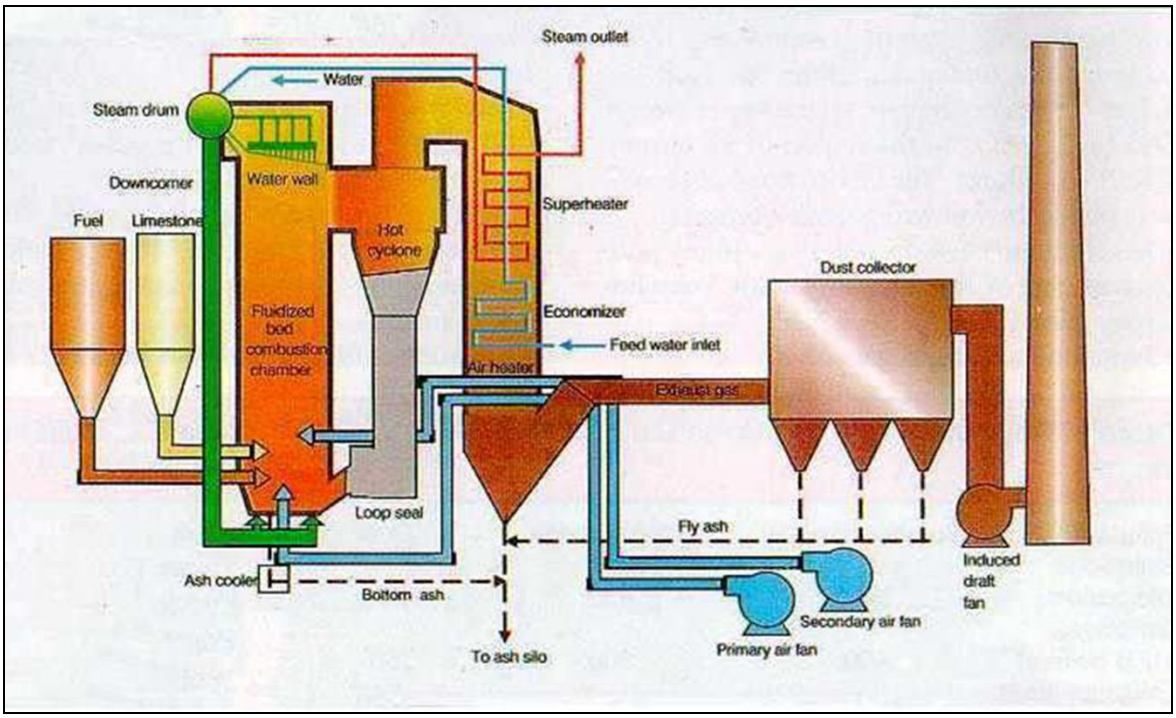
**9. Analysis of Proposal:**

The pet coke based captive cogeneration power plant will ensure supply of power and steam at competitive cost, providing greater flexibility and viability to the Hazira Manufacturing operations..

The establishment of the plant will provide additional employment opportunities for people during construction and operational phases. Additional investment for the project will also bring in growth opportunities in other sectors.

**Annexure-A**

**Annexure-B**


Steam outlet
Water
Steam drum
Downcomer
Water wall
Superheater
Fuel
Limestone
Hot cyclone
Dust collector
Fluidized bed combustion chamber
Economizer
Feed water inlet
Air heater
Exhaust gas
Loop seal
Fly ash
Induced draft fan
Ash cooler
Bottom ash
Secondary air fan
To ash silo
Primary air fan

# NOTIFIED AREA OFFICE - HAZIRA

Office of the Chief Officer
30 - Ambica Nagar, Near to Hotel Excellency,
Surat Hazira Road, Village : Ichhapor, Post : Bhatha, Surat - 394510.
Fax & Ph. No. 0261-2840208

Ref. No. NAO / HAZIRA / SRT / 11 DATE : 15.04.2010

**TO WHOM SO EVER IT MAY CONCERN**

This is to confirm that

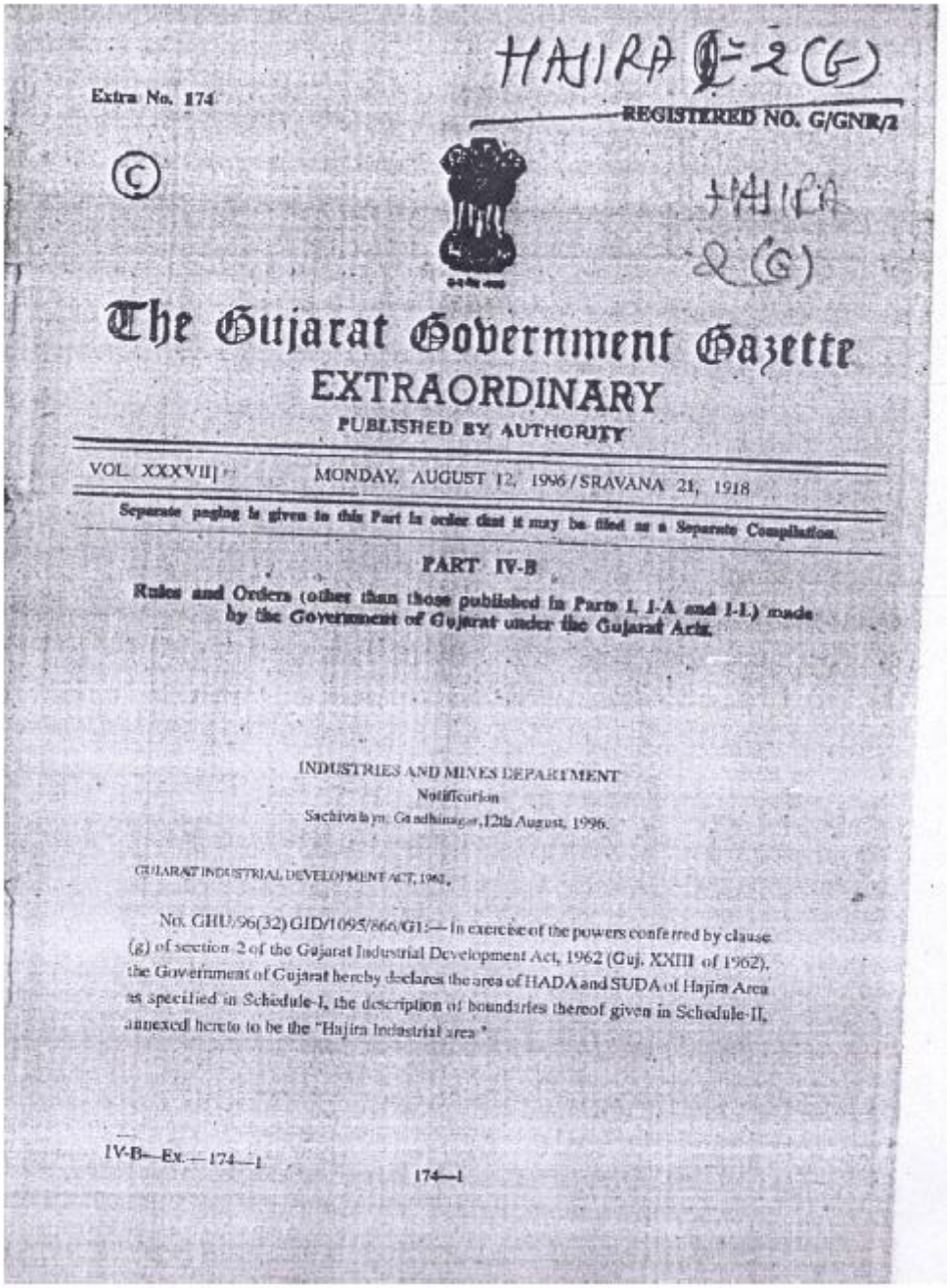
1. The **"Hajira Industrial Area"** has been declared under clause (g) of section-2 of the Gujarat Industrial Development Act, 1962 by Govt of Gujarat in Industries & Mines Dept. vide Notfn No. GHU/96(32) GID/1095/866/G1 dt 12.08.1996.
2. M/s Reliance Industries Ltd holds possession of the following Industrial-purpose lands at Vill : Mora, Tal : Choryasi, Dist : Surat
   a) 30,14,088 SqM land allotted by GIDC
   b) 10,38,684 SqM land allotted by Govt of Gujarat
3. The lands (as per Sr No. - 2 above) held by Reliance Industries Ltd - Hazira Manufacturing Division are situated within the **"Hajira Industrial Area"**, as per Schedule - II of Notification mentioned at Sr. No. - 1 above.
4. The copy of Notification at Sr. No. - 1 alongwith Relevant Extract of Schedule - II showing the Survey Nos. in possession of Reliance Industries Ltd - Hazira is attached herewith.

This Certificate is being issued on request of M/s Reliance Industries Ltd - Hazira for submission to various Govt Authorities for obtaining necessary clearances for their ongoing / upcoming projects.

**Chief Officer**
**Hazira Notified Area**

Encl : As above (Page no. 1 - 9)

**To,**
**M/s. Reliance Industries Ltd.,**
**Hazira Manufacturing Division,**
**Village : Mora, P.O. Bhatha,**
**Dist : Surat.**



HAJIRA 1=2(G)

Extra No. 174

REGISTERED NO. G/GNR/2

HAJIRA 2(G)

# The Gujarat Government Gazette

## EXTRAORDINARY

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Separate paging is given to this Part in order that it may be filed as a Separate Compilation.

**PART IV-B**

**Rules and Orders (other than those published in Parts I, I-A and I-I) made by the Government of Gujarat under the Gujarat Acts.**

INDUSTRIES AND MINES DEPARTMENT

Notification

Sachivalaya, Gandhinagar, 12th August, 1996.

GUJARAT INDUSTRIAL DEVELOPMENT ACT, 1962.

No. GHU/96(32) GID/1095/866/G1:— In exercise of the powers conferred by clause (g) of section 2 of the Gujarat Industrial Development Act, 1962 (Guj. XXIII of 1962), the Government of Gujarat hereby declares the area of HADA and SUDA of Hajira Area as specified in Schedule-I, the description of boundaries thereof given in Schedule-II, annexed hereto to be the "Hajira Industrial area."

SCHEDULE-I
Hajira Industrial Area

| S. No. | Name of Village, Taluka, District | Survey Numbers | Area H-RA-SqM | Remarks |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| 1 | | 208/P | 0-60-70 | |
| 2 | | 209/P | 1-52-23 | |
| 3 | | 211/P | 0-26-31 | |
| 4 | Bhatpore | 212 | 0-71-84 | |
| 5 | Choryasi | 213 | 0-51-60 | |
| 6 | Surat | 214 | 2-21-57 | |
| 7 | | 215 | 0-91-05 | |
| 8 | | 216 | 0-27-32 | |
| 9 | | 217 | 0-38-46 | |
| 10 | | 218 | 0-11-13 | |
| 11 | | 219 | 0-58-68 | |
| 12 | | 220/P | 0-32-38 | |
| 13 | | 221/P | 0-15-11 | |
| 14 | | 225/A+B/P | 0-01-00 | Government Land |
| 15 | | 426/P | 0-40-47 | |
| 16 | | 427/P | 0-12-96 | |
| 17 | | 428 | 0-67-79 | |
| 18 | | 429/A | 0-64-75 | |
| 19 | | 429/B | 0-30-35 | |
| 20 | | 430 | 0-24-08 | |
| 21 | | 431/A/P, 431/B/P | 0-40-76 | |
| 22 | | 432/P | 0-36-27 | |
| 23 | | 433/P | 2-27-63 | |
| 24 | | 434/P | 1-44-45 | |
| 25 | | 435/P | 2-14-48 | |
| 26 | | 436/P | 0-51-60 | |
| 27 | | 437 | 1-11-29 | |
| 28 | | 438 | 0-67-79 | |
| 29 | | 439 | 1-69-97 | |
| 30 | | 440 | 1-27-48 | |
| 31 | | 441,451/P | 0-56-66 | |
| 32 | | 442 | 0-30-35 | |
| 33 | | 443 | 1-40-62 | |
| 34 | | 444 | 1-07-24 | |
| 35 | | 445/A | 0-49-57 | |
| 36 | | 445/B | 0-34-40 | |
| 37 | | 446 | 0-88-02 | |
| 38 | | 447 | 0-66-77 | |
| 39 | | 448/A | 0-82-96 | |
| 40 | | 448/B | 0-33-39 | |
| 41 | | 449 | 0-99-15 | |
| 42 | | 451 | 0-44-52 | |
| 43 | | 452 | 0-62-73 | |
| 44 | | 453/P | 0-61-71 | |
| 45 | | 454/P | 0-45-53 | |
| 46 | | 455 | 0-53-82 | |
| 47 | | 456 | 0-62-73 | |
| 48 | | 457 | 1-32-54 | |
| 49 | | 458/P | 0-24-28 | |
| 50 | | 459/P | 0-66-77 | |

SCHEDULE-I

Hajira Industrial Area

| S. No. | Name of Village, Taluka, District | Survey Numbers | Area H-RA-SqM. | Remarks |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| 1 | Mora Choryasi Surat | 148/B | 6-00-96 | Reliance [Sr No. - 2(a)] |
| 2 | | 213/P | 2-12-10 | |
| 3 | | 214 | 2-36-73 | |
| 4 | | 216 | 2-36-74 | |
| 5 | | 217/1 | 0-82-73 | |
| 6 | | 217/2 | 0-76-89 | |
| 7 | | 218/P | 5-19-65 | |
| 8 | | 219/P | 0-19-84 | |
| 9 | | 221 | 3-28-81 | |
| 10 | | 222/1 | 0-99-15 | |
| 11 | | 222/2 | 0-99-15 | |
| 12 | | 223 | 3-95-58 | |
| 13 | | 224 | 2-37-75 | |
| 14 | | 225 | 1-91-21 | |
| 15 | | 226 | 2-09-43 | |
| 16 | | 227 | 0-93-08 | |
| 17 | | 228/1 | 0-30-35 | |
| 18 | | 228/2 | 4-67-65 | |
| 19 | | 228/3 | 2-98-46 | |
| 20 | | 228/4 | 1-52-77 | |
| 21 | | 229/1 | 0-52-31 | |
| 22 | | 229/2 | 0-27-32 | |
| 23 | | 181/1P | 0-35-10 | |
| 24 | | 195/A/P | 4-89-97 | |
| 25 | | 195/B/P | 2-02-34 | |
| 26 | | 197/P | 2-84-02 | |
| 27 | | 231 | 0-91-05 | |
| 28 | | 233/1 | 5-85-79 | |
| 29 | | 234/P | 1-30-00 | |
| 30 | | 233/2 | 1-55-80 | |
| 31 | | 148/A | 84-30-00 | Government Land |
| 32 | | 195/A | 125-04-31 | Government Land |
| 33 | | 196 | 1-42-65 | |
| 34 | | 215 | 0-99-15 | |
| 35 | | 241 | 31-92-00 | Reliance [Sr No. - 2(a)] |
| 36 | | 220 | 1-48-72 | |
| 37 | | 148/A/P | 32-00-00 | |
| 38 | | 230/P | 75-78-32 | |
| 39 | | 235/P | 9-21-68 | |
| 40 | | 167/P | 0-80-64 | |
| 41 | | 168 | 1-17-36 | |
| 42 | | 150/P | 0-74-88 | |
| 43 | | 151/P | 6-42-48 | |
| 44 | | 152/P | 6-84-96 | |
| 45 | | 157 | 2-27-64 | |
| 46 | | 158/P | 1-30-56 | |
| 47 | | 159 | 1-45-69 | |
| 48 | | 160/P | 5-78-60 | |
| 49 | | 253/P | 2-76-80 | |

| (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|
| 50 | | 148/B/P | 10-62-72 | Government Land |
| 51 | | 149/P | 7-11-36 | Government Land |
| 52 | | 195/P | 6-65-44 | Government Land |
| 53 | Mora | 169/P | 2-28-17 | |
| 54 | Choryasi | 155 | 2-87-33 | |
| 55 | Surat | 156 | 3-11-61 | |
| 56 | | 164 | 1-03-23 | |
| 57 | | 165 | 2-84-29 | |
| 58 | | 166 | 0-93-08 | |
| 59 | | 167/P | 1-03-52 | |
| 60 | | 168/P | 1-52-00 | |
| 61 | | 90/A/P | 12-96-00 | |
| 62 | | 148/A | 28-33-00 | |
| 63 | | 230 | 36-10-76 | |
| 64 | | 241/P | 16-50-00 | |
| 65 | | 175 | 4-39-09 | |
| 66 | | 181 | 2-83-28 | |
| 67 | | 182/P | 1-34-56 | |
| 68 | | 182/P | 0-99-15 | |
| 69 | | 182/P | 0-90-04 | |
| 70 | | 183 | 1-08-25 | |
| 71 | | 184,185 | 2-05-38 | |
| 72 | | 188/P | 1-56-81 | |
| 73 | | 188/P | 1-56-81 | |
| 74 | | 174/A | 17-01-71 | Government Land |
| 75 | | 174/B | 1-91-21 | Government Land |
| 76 | | 186 | 9-91-06 | Government Land |
| 77 | | 242/P | 0-48-56 | Government Land |
| 78 | | 243/P | 1-08-26 | Government Land |
| 79 | | 244/P | 33-05-29 | |
| 80 | | 192 | 22-37-92 | |
| 81 | | 195/A/P | 56-58-60 | |
| 82 | | 241/P | 0-32-37 | |
| 83 | | Kotar | 2-19-54 | KH (East side of S.No. 191) |
| 84 | | 158/1/P | 0-36-30 | |
| 85 | | 158/2/P | 0-41-48 | |
| 86 | | 160/5 | 0-77-90 | |
| 87 | | 160/6 | 0-44-52 | |
| 88 | | 162/1 | 1-24-44 | |
| 89 | | 252/3 | 0-82-96 | |
| 90 | | 161/1 | 2-48-19 | |
| 91 | | 161/2 | 0-57-12 | |
| 92 | | 161/3 | 1-05-23 | |
| 93 | | 161/4 | 0-13-16 | |
| 94 | | 252/1 | 0-75-89 | |
| 95 | | 162/2 | 2-10-43 | |
| 96 | | 162/3 | 0-21-25 | |
| 97 | | 163/5 | 2-07-41 | |
| 98 | | 169/P | 0-55-64 | |
| 99 | | 170/P | 0-97-13 | |
| 100 | | 171/P | 0-45-53 | |
| 101 | | 170/P | 0-22-02 | |
| 102 | | 172/P | 2-39-78 | |
| 103 | | 173/1 | 1-71-99 | |

Reliance [Sr No. - 2(b)]

| (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|
| 104 | | 173/2 | 1-69-99 | |
| 105 | | 189/P | 1-50-75 | |
| 106 | | 174/C | 2-22-58 | |
| 107 | Mora | 176/P | 1-44-68 | |
| 108 | Choryasi | 177/P | 0-97-13 | |
| 109 | Surat | 177/P | 1-30-57 | |
| 110 | | 178 | 1-52-77 | |
| 111 | | 179 | 5-49-36 | |
| 112 | | 180/P | 1-62-89 | |
| 113 | | 187/P | 1-36-58 | |
| 114 | | 189/P | 2-32-64 | |
| 115 | | 189/P | 2-32-64 | |
| 116 | | 190/P | 1-44-68 | |
| 117 | | 191/1/1 | 0-69-81 | |
| 118 | | 191/1/2 | 0-68-80 | |
| 119 | | 191/1/3 | 0-70-82 | |
| 120 | | 191/2 | 2-43-82 | |
| 121 | | 193/1 | 2-25-61 | |
| 122 | | 193/2 | 0-74-87 | |
| 123 | | 193/3 | 1-50-75 | |
| 124 | | 194/1 | 0-37-43 | |
| 125 | | 194/2 | 0-37-44 | |
| 126 | | 197/P | 1-23-70 | |
| 127 | | 198/P | 3-72-31 | |
| 128 | | 198/P | 1-81-88 | |
| 129 | | 206/P | 1-73-00 | |
| 130 | | 208/1 | 1-95-26 | |
| 131 | | 209/1 | 0-19-22 | |
| 132 | | 199/P | 1-40-63 | |
| 133 | | 199/P | 1-40-63 | |
| 134 | | 200+201 | 1-63-90 | |
| 135 | | 202 | 0-96-11 | |
| 136 | | 203 | 2-42-81 | |
| 137 | | 204/1 | 1-79-07 | |
| 138 | | 204/2 | 1-81-10 | |
| 139 | | 205 | 3-41-96 | |
| 140 | | 209/2 | 2-10-84 | |
| 141 | | 210/P | 1-91-22 | |
| 142 | | 210/P | 1-90-29 | |
| 143 | | 211/1 | 0-81-85 | |
| 144 | | 211/2 | 0-79-93 | |
| 145 | | 212 | 1-57-93 | |
| 146 | | 213/P | 0-78-26 | |
| 147 | | 208/2 | 1-97-58 | |
| 148 | | 219/P | 0-74-23 | |
| 149 | | 219/P | 1-56-20 | |
| 150 | | 252/2 | 0-83-98 | |
| 151 | | 252/4 | 0-39-48 | |
| 152 | | 174/A | 4-04-69 | |
| 153 | | 207 | 1-16-35 | Reliance [Sr No. - 2(b)] |
| 154 | | 208/3 | 0-50-59 | |
| 155 | | NALA | 0-30-36 | Govt. Khar Land |
| 156 | | 195/A | 6-56-26 | Government Land |
| 157 | | 241/P | 1-95-60 | Government Land |
| 158 | | 242/P | 7-78-02 | Government Land |
| 159 | | 243/P | 0-65-76 | Government Land |
| 160 | | 244/P | 68-79-52 | Government Land |

| (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|
| 161 | | 245/P | 11-16-09 | Reliance [Sr No. - 2(b)] |
| 162 | | 150 | 1-35-57 | |
| 163 | | 151/1 | 0-89-03 | |
| 164 | Mora | 151/2 | 3-46-01 | |
| 165 | Choryasi | 151/3 | 2-14-48 | |
| 166 | Surat | 152/1 | 0-62-78 | |
| 167 | | 152/2/A | 1-02-18 | |
| 168 | | 152/2/A | 1-02-19 | |
| 169 | | 152/2/B/P | 0-93-08 | |
| 170 | | 152/2/B/P | 0-93-08 | |
| 171 | | 153/2/1+2+3 | 1-93-24 | |
| 172 | | 152/4 | 1-24-44 | |
| 173 | | 152/6 | 1-31-52 | |
| 174 | | 153/1 | 0-81-95 | |
| 175 | | 153/2 | 1-04-21 | |
| 176 | | 153/3 | 0-70-82 | |
| 177 | | 153/4/P | 0-85-99 | |
| 178 | | 153/4/P | 0-85-99 | |
| 179 | | 153/5 | 2-21-57 | |
| 180 | | 157/1 | 0-62-79 | |
| 181 | | 157/2 | 1-64-91 | |
| 182 | | 158/1 | 0-07-99 | |
| 183 | | 158/2/1+2+3 | 1-93-24 | |
| 184 | | 159/1 | 0-42-49 | |
| 185 | | 159/2+3 | 1-03-20 | |
| 186 | | 160/1 | 2-16-51 | |
| 187 | | 160/2 | 1-19-38 | |
| 188 | | 160/3+4 | 1-39-55 | |
| 189 | | 251/3 | | |
| 190 | | 160/4 | 1-36-58 | |
| 191 | | 160/5 | 0-64-75 | |
| 192 | | 165/A/P | 6-66-59 | |
| 193 | | 253 | 0-27-32 | |
| 194 | | 253/1 | 0-81-95 | |
| 195 | | 241 | 30-59-00 | |
| 196 | | 245 | 63-05-00 | |
| 197 | | 246 | 26-09-00 | |
| 198 | | 247 | 144-74-00 | Gajara Island |
| 199 | | 248 | 40-16-00 | Aliya Island |
| 200 | | 235 | 9-21-68 | Government Land |
| 201 | | 234 | 1-46-77 | Government Land |
| 202 | | 230 | 140-18-39 | Government Land |
| 203 | | 148/P | 6-41-85 | Government Land |
| 204 | | 148/P | 3-43-99 | |
| 205 | | 149/P | 4-07-56 | |
| 206 | | 151/P | 0-20-70 | |
| 207 | | 152/P | 2-82-83 | |
| 208 | | 153/P | 1-70-15 | |
| 209 | | 156/P | 0-42-71 | |
| 210 | | 164/P | 0-07-80 | |
| 211 | | 165/P | 0-19-80 | |
| 212 | | 166/P | 0-28-32 | |
| 213 | | 167/P | 0-32-37 | |
| 214 | | 168/P | 0-11-80 | |
| 215 | | 171/P | 0-03-03 | |
| 216 | | 236 | 0-24-28 | |
| 217 | | 237 | 1-45-52 | |

**Annexure-D**

**Details of Land Allotment to Reliance Inbdustries Ltd.**

**Village : Mora  Tal : Choryasi  Dist : Surat**

| S No | Reveue Survey No |
|---|---|
| | |
| **Lot 1** | **All Order : GIDC/ALT/SUR/HZR/3(I) dtd 28.04.86**<br>**Possn Date : 08.10.86** |
| 1) | 148/P |
| 2) | 195/A / P |
| | |
| **Lot 2** | **All Order : GIDC/ALT/RW-LND/HZR/1584 dtd 26.05.89**<br>**Possn Date : 07.06.89** |
| 1) | 148/A |
| 2) | 195/A |
| 3) | 196 |
| 4) | 215 |
| 5) | 241 |
| 6) | 220 |
| 7) | 228/1 |
| 8) | 228/2 |
| 9) | 229/2 |
| 10) | 228/4 |
| 11) | 229/1 |
| 12) | 229/3 |
| 13) | 148/B |
| 14) | 222/1 |
| 15) | 222/2 |
| 16) | 224 |
| 17) | 226 |
| 18) | 213/P |
| 19) | 214 |
| 20) | 216 |
| 21) | 219/P |
| 22) | 217/1 |
| 23) | 221 |
| 24) | 223 |
| 25) | 225 |
| 26) | 227 |
| 27) | 217/2 |
| 28) | 218/P |
| | |
| **Lot 3** | **All Order : GIDC/ALT/RAW-LAND/Hazira/3753 dtd 19.11.90**<br>**Possn Date : 29.11.90** |
| 1) | 195/A /P |
| 2) | 195/B /P |
| | |
| **Lot 4** | **All Order : GIDC/ALT/RAW-LAND/Hazira/533 dtd 04.03.91**<br>**Possn Date : 12.03.91** |
| 1) | 197/P |
| | |
| **Lot 5** | **All Order : GIDC/ALT/RW-LND/HZR/1516 dtd 22.10.93**<br>**Possn Date : 23.10.93** |
| 1) | 148/P |
| | |
| **Lot 6** | **All Order : A/પ્રમા/૫ - ૩૬૨૦/૬૪ dtd 01/12/94 (Triangular Plot)** |
| 1) | 195/A |
| 2) | 241/P |
| 3) | 242/P |
| 4) | 243/P |
| 5) | 244/P |
| 6) | 245/P |
| | |
| | |