



**गेल (इंडिया) लिमिटेड**

(भारत सरकार का उपक्रम - महारत्न कंपनी)

**GAIL (India) Limited**

(A Govt. of India Undertaking - A Maharatna Company)

GAIL/Noida/PD/PDH-PP/Envr/2020

गेल जुबली टॉवर,  
बी - 35 एवं 36, सैक्टर - 1, नौएडा - 201301  
जिला गौतम बुद्ध नगर (यू.पी.), इंडिया

GAIL JUBILEE TOWER,  
B - 35 & 36, SECTOR - 1, NOIDA - 201301  
DISTT GAUTAM BUDH NAGAR (UP), INDIA

फोन/PHONE : +91-120-2446400, 4862400  
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Date: 6<sup>th</sup> July 2020

To,  
Member Secretary (Industry-2)  
Vayu Wing, 3<sup>rd</sup> Floor,  
Indira Gandhi Paryavaran Bhawan  
Ministry of Environment, Forest and Climate Change  
Jor Bagh Road  
New Delhi-110003

Subject: Point-wise replies to the Additional Information Sought regarding GAIL's project -  
"Setting up 500 KTA Propane Dehydrogenation unit integrated with Polypropylene Unit at  
Usar, Raigad district, Maharashtra"

Reference: Proposal No. IA/MH/IND2/69404/2017 ; MoEFCC File No. IA-J-11011/464/2017-IA-II(I).

Dear Sir,

This is in reference to Environmental Clearance for Setting up 500 KTA Propane Dehydrogenation unit integrated with Polypropylene Unit at Usar, Alibag Tehsil, Raigad District, Maharashtra.

GAIL presented the subject proposal to the EAC (Industry-2 Sector for Petro-Chemical based projects) for consideration of Environmental Clearance at 20<sup>th</sup> EAC meeting held on 18<sup>th</sup> June, 2020. The EAC generated and uploaded Additional Details Sought (ADS) document on ministry website on 29.06.2020 seeking additional information/ documents. We are hereby submitting the replies to the ADS with supporting documents enclosed as **Annexure- I**.

Since the Project is of National importance, we request you to kindly accord priority to the Environment clearance of the Project.

With warm regards,

(M.V.S. Murthy)

General Manager (Project Development)

GAIL (INDIA) Limited

पंजीकृत कार्यालय :

गेल भवन, 16 भीकाएजी कामा प्लेस  
नई दिल्ली-110066, इंडिया

REGD. OFFICE :

GAIL BHAWAN, 16 BHIKAJI CAMA PLACE  
NEW DELHI-110066, INDIA

सीआईएन/CIN

L40200DL1984GOI018976

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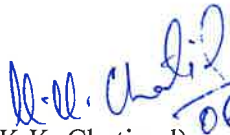
**Subject:** Authority Letter for Mr. M.V.S Murthy, General Manager (Project Development) to submit documents for Environmental Clearance of setting up 500 KTA Propane Dehydrogenation unit integrated with Polypropylene Unit at Usar, Alibag Tehsil, Raigad district, Maharashtra

Dear Sir,

GAIL (India) Limited is submitting the replies to Additional Details sought by the EAC (Industry-II) vide MoM dated 29<sup>th</sup> June 2020 of the Agenda-20.3 for the Meeting held on 18<sup>th</sup> June 2020.

Mr. M.V.S Murthy, General Manager (Project Development) is hereby authorized to sign and submit these documents for Environmental Clearance (EC) of the subject project.

With warm regards,

  
06/07/2020

(K.K. Chatiwal)

Chief General Manager (Project Development)

GAIL (India) Limited

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## **ANNEXURE- I**

**Replies to additional information/inputs sought during 20<sup>th</sup> Meeting of the Expert Appraisal Committee (Industry-2 Sector For Petro-Chemical Based Projects) for Setting up 500 KTA Propane Dehydrogenation (PDH) unit integrated with Polypropylene (PP) Unit at Usar, Maharashtra by M/s GAIL India Limited[Proposal No: IA/MH/IND2/69404/2017, File No: IA-J-11011/464/2017-IA-II(I)]**

SI No.	Additional information/inputs sought by EAC-Industry-II	Reply from GAIL
1.	Public hearing issues, action plan along with budget provisions.	<p>➤ Action plan to address issues raised by villagers during public hearing has been updated along with the budget provision and timeline.</p> <p>Updated Public hearing action plan has been attached as <b>Annexure-A</b>.</p>
2.	Revised water balance with improvement in evaporation loss.	<p>➤ Treated water requirement has already been reduced from 500 m<sup>3</sup>/hr to 480 m<sup>3</sup>/hr after deliberation during previous EAC meeting held in Nov' 19.</p> <p>➤ The total recirculating cooling water flow rate is 17000 m<sup>3</sup>/hr. The evaporation &amp; drift losses are estimated as 356 m<sup>3</sup>/hr (~2% of recirculation flow) and liquid blow-downs are estimated as 88 m<sup>3</sup>/hr (~0.5% of recirculation flow) based on 12 deg. Centigrade temperature range as per standard design practice.</p> <p>➤ The drift loss, evaporation loss and blowdown quantity of proposed cooling towers have been re-checked as per comments by EAC and found in line with best International engineering design practices.</p> <p>➤ The cooling towers will have high efficiency drift eliminators and be installed as per available state of the art cooling tower technologies.</p> <p>Water balance diagram of the complex has been attached as <b>Annexure-B</b>.</p>
3.	Plan for ZLD along with MEE/modern technology.	<p>➤ Effluent Treatment Plant for the Complex will be a modern facility with Zero Liquid Discharge Unit, which will have Multi-effect Evaporators to maximize recycle and reuse of water.</p> <p>Water balance diagram of the complex has been attached at <b>Annexure-B</b>.</p>

SI No.	Additional information/inputs sought by EAC-Industry-II	Reply from GAIL
4.	Plan for need based health programme.	<ul style="list-style-type: none"> <li>➤ The air emission from Complex is minimal as the fuel used will be natural gas and predicted ground level concentration due to air emission is far below the National ambient air quality standard.</li> <li>➤ Proposed plant is Zero Liquid Discharge (ZLD) plant, hence no liquid effluent.</li> <li>➤ All solid wastes generated inside plant area will be handled as per Solid Waste Management Rules, 2016 and an agreement with locally approved TSDF facility will also be put up in place.</li> <li>➤ Among the chemicals to be used during operation phase, the following chemicals are toxic in nature: Iso-Propanol, Di-tert-butyl Peroxide, Hydrazine Hydrate Solution. The usage quantities of these chemicals are less and will be stored in carboys/ drums in small quantities. Hence, even if it leaks, it will not go outside of the plant boundary. For other chemicals/ hydrocarbons viz. Propane and Propylene, hazard effect zones have been identified in RRA study. The same will be addressed during detailed engineering stage and taken care in Emergency Response and Disaster Management Plan (ERDMP). Also, any accidental disaster due to leak in chemical storage will be handled as per on-site and off-site emergency plan.</li> <li>➤ Owing to above, there will be minimal effect on the environment due to the proposed plant.</li> <li>➤ A community health program will be chalked out to provide health care facilities to the villagers in surrounding areas, in consultation with gram panchayats and local administration.</li> <li>➤ GAIL will upgrade the facilities at nearest Government run Primary healthcare facility at Alibaug (~12 kms from project site) and also arrange medical camps for local people, including supplying of medicines.</li> <li>➤ GAIL has allocated Rs. 3.25 Crores for Community Health Support and welfare projects under CER activities. The CER amount will be spent in next 5 years (maximum).</li> </ul>
5.	Socio-economic status report of the study area	<ul style="list-style-type: none"> <li>➤ Baseline data for demographic characteristics, education, health and amenities for locations existing around the project area have been studied examined to assess the socio-economic status for the proposed project during December, 2017-March, 2018 as per Terms of Reference.</li> <li>➤ The socio-economic aspects of the 10 km study area are assessed using primary and secondary data. Households/ respondents were interviewed with the structured questionnaire specifically designed for this study keeping in view the objectives of the study. Secondary data was collected from published sources i.e. Census Data of 2011.</li> </ul>

SI No.	Additional information/inputs sought by EAC-Industry-II	Reply from GAIL
		Detailed socio-economic status of the study area is given in section 3.6 of Chapter-3 of EIA report.
6.	Detailed CER plan along with action plan for drinking water facility for the people.	<p>➤ GAIL will carry out various Corporate Environment Responsibility (CER) activities like Drinking water supply &amp; Sanitation, Community Health Support and welfare, Education and Skill Development like schools for children etc. during next 5 years in the vicinity of proposed project area.</p> <p>➤ The budget for CER activities is provisioned as Rs. 20.77 Crores (approx. 0.31 % of total project cost in line with MoEFCC notification vide F.No.22-65/2017-IA.III; dated: 01.05.2018). Activity and year wise detailed CER plan has been provided as <b>Annexure-C</b>.</p> <p><b><u>Action plan for providing drinking water facility to the villagers:</u></b></p> <ul style="list-style-type: none"> <li>❖ In Usar Village, there are 270 nos. households with a total population of 1300. Major demand of the Usar Gaon villagers is supply of drinking water &amp; GAIL will arrange to supply MIDC water to the existing overhead tank through a dedicated pipeline.</li> <li>❖ GAIL will supply about 26 m<sup>3</sup>/day (equivalent to 20 litres per person per day) of drinking water to Usar village. GAIL will consult with gram panchayat and local administration while implementing the drinking water supply scheme.</li> <li>❖ Rs. 3.38 Crores has been allocated for Drinking water supply and sanitation projects under CER activities. The time duration of CER amount spending is next 5 years (maximum).</li> </ul>
7.	Provision for employment to the local people.	<p>➤ Equal opportunity is available to all the qualified youth to apply against the notified vacancies.</p> <p>➤ Beside regular employment, large number of work force during construction activities will come from local areas, which will provide opportunity for indirect employment.</p> <p>➤ During operation phase also, local people who are adequately qualified will get the opportunity for the direct/indirect employment and will be eligible for the applicable relaxations as per the applicable Govt. rules.</p>
8.	In view of several recent chemical accidents occurred in various parts of the country, the	➤ During EIA preparation stage, plot plan and equipment layout are partially available for the mega projects of Oil & Gas industries. The only tool which is available to carry out Risk Analysis, is 2D software models.

SI No.	Additional information/input sought by EAC-Industry-II	Reply from GAIL
	<p>risk studies need to be carried out based on the following protocol using 3 D modelling which incorporates dispersion of vertical component vital for developing &amp; placing accident prevention program in place:</p> <ul style="list-style-type: none"> <li>• Material Safety Data Sheet (MSDS/MDS)</li> <li>• Hazard Identification, Consequence analysis in terms of effect / threat zone distances.</li> <li>• Risk need to be carried out for Small, Medium, Larger and Catastrophic ruptures /leak and to be modeled as representative cases.Frequency/ Probability of leak per year.</li> <li>• Risk needs to be quantified in terms of Individual Risk Contours</li> <li>• Societal risk</li> <li>• F-N curves to assess against risk acceptance criteria (HSE,UK etc.).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Hazard associated has been identified with the Material Safety Data Sheet (MSDS) of the materials being handled in the plant.</li> <li>➤ Risk analysis (RRA) is done using PHAST software which involved identification of various potential hazards &amp; credible or reasonably believable failure scenarios for various units based on their frequency of occurrence &amp; resulting consequence. Two types of scenarios are identified spanning across various process facilities: <ul style="list-style-type: none"> <li>(i) Cases with high chance of occurrence but having low consequence, e.g. Instrument Tapping Failure and</li> <li>(ii) Cases with low chance of occurrence but having high consequence, e.g., Large Hole on the bottom outlet of Pressure Vessels.</li> </ul> </li> <li>➤ Effect zones for various outcomes of failure scenarios (Flash Fire, Jet Fire, Pool Fire, Blast overpressure, toxic release, etc.) are studied and identified in terms of distances on plot plan. Based on effect zones, measures for mitigation of the hazard/risk are suggested. Detailed Risk Analysis report is attached as Annexure-V of EIA report. The Observations and recommendations arising out of the Rapid Risk analysis study will be suitably incorporated in detailed engineering stage.</li> <li>➤ However, Computational Fluid Dynamics (CFD) is performed on 3D layout/ actual geometry of plant considering effect of ignition location and remote obstacles on pressure build-up based on confined/congested area due to open and closed structures, piping, buildings and other facilities associated with process to predict hazard associated with plant. This is realistic determination of impacts that can be made to minimize the risk to population near the release locations.</li> <li>➤ Presently, details required to carry out 3D CFD analysis shall not be finalized until final licensor selection for PP and PDH units. Performing 3D CFD analysis at this stage will not capture actual confined and congestion associated with plant and will not predict actual hazard and risk associated with it. MoEFCC would appreciate that the data from a similar plant will also not capture the correct scenario, as every equipment layout and its selection is tailor made.</li> <li>➤ Quantitative Risk Analysis shall be performed during detail engineering based on finalised process conditions and layout</li> <li>➤ Hence, we confirm to carry out 3D CFD analysis during detailed engineering phase of project when all the process design activities are completed and exact locations of equipment layouts, open and closed structures, piping, buildings etc. are finalized to identify individual risk and societal risk. Based on which FN curve shall be plotted. Process Safety and Risk Management (PSRM) report using 3D CFD modelling shall be shared with MoEFCC.</li> </ul>

SI No.	Additional information/inputssought by EAC-Industry-II	Reply from GAIL
9.	Plan for installation of solar power and utilization in the plant	<ul style="list-style-type: none"> <li>➤ GAIL has Roof top and ground mounted Solar Projects at some of its existing locations.</li> <li>➤ For Usar also, a study will be carried out for assessment of roof surface areas of buildings like warehouse, admin building etc., based upon which feasibility will be carried out and accordingly solar project will be set up. After provision of green belt, empty land area will not be available for ground mounted Solar panels.</li> </ul>
10.	Details of wildlife sanctuary/ESA within 10 km of the project site	There is no wildlife sanctuary/ESA/National Park within 10 km of the project site.

## ANNEXURE-A

### ACTION PLAN AGAINST THE ISSUES RAISED DURING PUBLIC HEARING

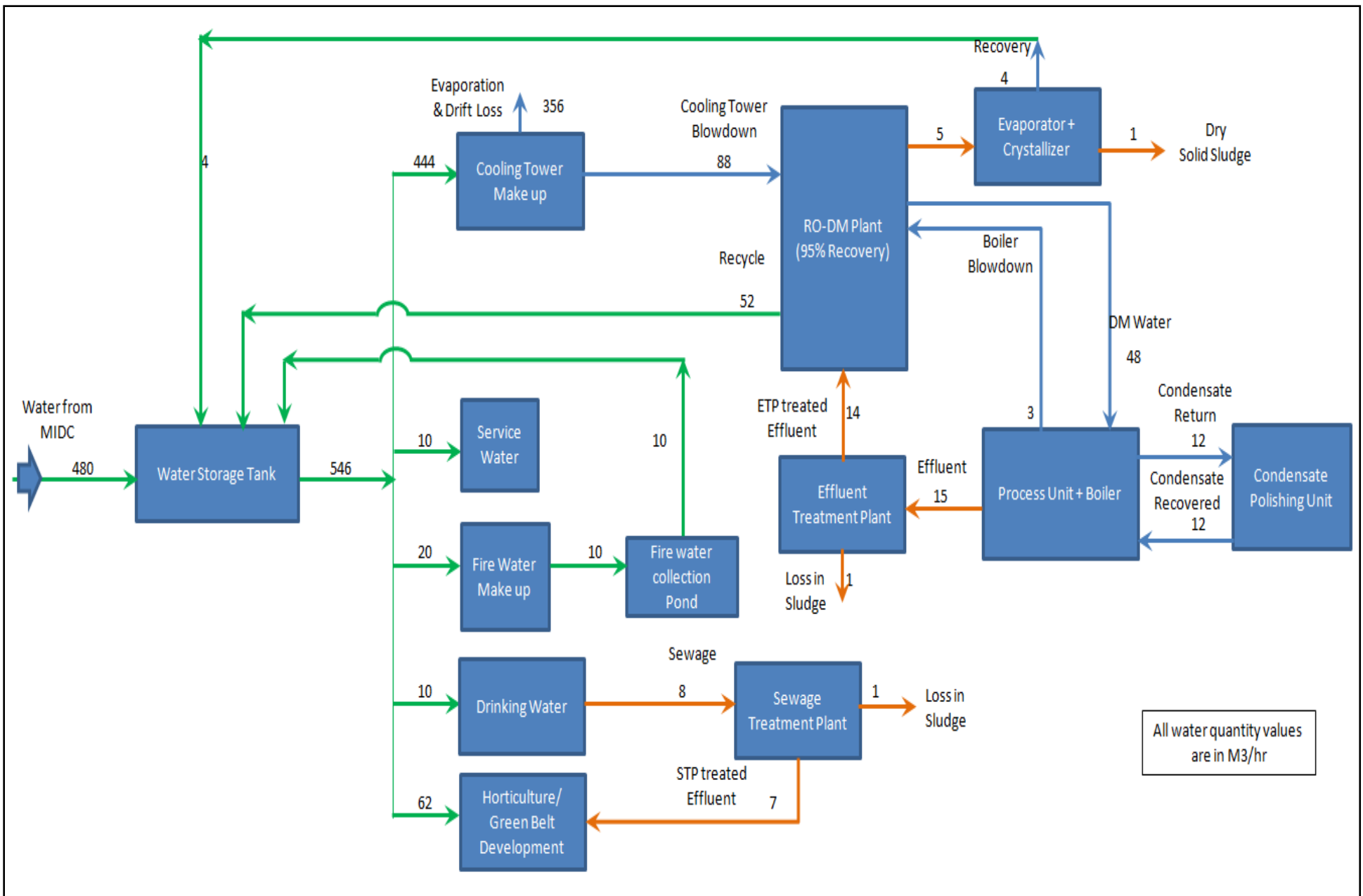
Sl. No.	Issues/suggestions/ representations made during Public Hearing	Topic	Action Plan/replies by Project Proponent	Time Line and Financial
1.	<p>Land of the local people was acquired for existing GAIL plant since 1981. As per the information of the local people, 246 persons are Project Affected Persons (PAPs)/ Khatedar. The project proponent has not made available the list of PAPs, their present condition. It was further demanded that list of PAPs should be made available by the Project Proponent.</p> <p>Only 23 or 24 PAPs were given job opportunities under that project. All the PAPs should be given job opportunities. An agreement in writing should be made with project proponent for solving the issues of PAPs and farmers.</p>	Job opportunities to Project Affected Persons.	<ul style="list-style-type: none"><li>• There were 246 PAPs out of which 25 no. PAPs were recruited for direct employment as per Govt. of India (GoI) regulations and 47 no. PAPs were employed through contract.</li><li>• Those who are over-aged can't be employed.</li><li>• Those who are fully qualified will be given priority in job opportunities.</li><li>• Those are not qualified, will be considered for suitable contract jobs.</li></ul>	NA
2.	While acquiring the land for the existing project, very less rate was given. As per the new policy, the rate is given five times of the present market rate, which is given to PAPs residing at other areas in the country. The agriculturists were given fixed rate, but the rate given previously and given today has a vast difference. Only 5% farmers have got the Fixed Rate amount. 25% people did not get the Fixed Rate amount.	Land price rate during acquiring	<ul style="list-style-type: none"><li>• The land was acquired by MIDC. GAIL paid MIDC land lease premium amount for 95 years as per GOI/States rules &amp; regulation.</li><li>• The matter is between MIDC and PAP and under subjudice. The decision of the court will be honored.</li></ul>	NA
3.	Local youths should be given job opportunities in the project.	Job opportunities for local youths	All suitable qualified people would be given first priority, as per the rules of Govt. of India.	NA



Sl. No.	Issues/suggestions/ representations made during Public Hearing	Topic	Action Plan/replies by Project Proponent	Time Line and Financial
4.	Qualified local youth be given training for minimum six months and then job opportunities should be extended. Skill Development Programme should be implemented for the local school students.	Skill Development training to local youths	<ul style="list-style-type: none"> <li>Skill development opportunities shall be explored &amp; provided for local school students.</li> <li>Apprentices will be engaged and given training in GAIL work centers at Usar / nearby locations.</li> </ul>	Rs. 3.3 Crores has been allotted for Education and Skill Development under CER activities. The time duration of CER amount spending is plant construction/ commissioning time (5 years maximum).
5.	The insurance facility needs to be extended to the people residing near and around the project.	Insurance to nearby villagers	Nearby villagers will be covered under Insurance policy towards any liability arising out of public liability act and other Industrial Accidents in GAIL's premises.	NA
6&7	<p>The proposed project falls under the two Grampanchayat. But no development work is carried in the Usar village by the Project Proponent.</p> <p>There is scarcity of drinking water in the area. The project proponent has not carried any development work in the Usargaon. Only one bus stop is built. The CSR fund used outside rather than in the local area by the project proponent.</p> <p>The wells, lakes in the area need to be developed and maintained well for drinking purposes.</p>	<p>Development works in Usar village</p> <p>&amp;</p> <p>Supply of Drinking water to Usar village</p>	<ul style="list-style-type: none"> <li>In Usar Village, there are 270 nos. households with a total population of 1300.</li> <li>Major demand of the UsarGaon villagers is supply of drinking water and GAIL will arrange to supply MIDC water to the existing overhead tank of UsarGaon through a dedicated pipeline.</li> <li>GAIL will supply about 26 m<sup>3</sup>/day (equivalent to 20litres per person per day) of drinking water to Usar village. GAIL will consult with gram panchayat and local administration while implementing the drinking water supply scheme.</li> <li>GAIL has been carrying out various public welfare &amp; development activities in and around Usar under its CSR program and is ready to help the local people through CSR, by providing facilities based on the needs of that area, in consultation with District Administration.</li> </ul>	Total Rs. 20.77 Crores will be spent under various CER activities, out of which Rs 3.8.Cr. has been allocated towards drinking water supply & sanitation. The time duration of CER amount spending is plant construction/ commissioning time (5 years maximum). Additionally, CSR budget will be allocated as per Govt. guidelines.

Sl. No.	Issues/suggestions/ representations made during Public Hearing	Topic	Action Plan/replies by Project Proponent	Time Line and Financial
			<ul style="list-style-type: none"> <li>GAIL will also carry out public welfare &amp; development activities in and around Usar under CER activities.</li> </ul>	
8.	There is need of Hospital in the area.	Healthcare to nearby villagers	<ul style="list-style-type: none"> <li>The nearest primary health care centre (PHC) is at Alibaug, which is about 12 Kms from the project site. GAIL will upgrade the facility and provide medical health support to local people including supplying of medicines through the PHC.</li> </ul>	Rs. 3.25 Crores has been allotted for Community Health Support and welfare projects under CER activities. The time duration of CER amount spending is plant construction/ commissioning time (5 years maximum).
9.	One villager said that during the process there will be release of Nitrate and Sulphate. It will affect the surrounding areas. Hence policy of compensation should be worked out on priority.	Pollution	<ul style="list-style-type: none"> <li>The air emission from Complex is minimal as the fuel used will be primarily natural gas.</li> <li>Predicted ground level concentration due to air emission is far below the National ambient air quality standard.</li> <li>Proposed plant is Zero Liquid Discharge (ZLD) plant and no liquid effluent will be discharged from proposed plant.</li> </ul> <p>Hence question of release of Nitrate and Sulphate doesn't arise.</p>	NA
10.	Some villagers appealed that a Committee should be constituted to work as co-ordinator to solve their long pending demands.	Welfare Committee	GAIL will closely work with district administration.	NA

## ANNEXURE-B



**Water balance diagram for the proposed PDH-PP unit project**

## **ANNEXURE-C**

### **Corporate Environment Responsibility (CER)**

Corporate Environmental Responsibility (CER) refers to a company's duties to abstain from damaging natural environments. The idea of corporate environmental responsibility (CER) is for humans to be more aware of the environmental impact and counteract their pollution/carbon footprint on the natural resources.

The following factors cover the environmental implications of a company's operations:

- ❖ Eliminate waste and emissions
- ❖ Maximize the efficient use of resources and productivity
- ❖ Minimize activities that might impair the enjoyment of resources by future generations.

Various CER activities will be carried out by GAIL in the vicinity of proposed project area during next 5 years (maximum). The budget for CER activities is provisioned as Rs. 20.77 Crores (approx. 0.31 % of total project cost in line with MoEFCC notification vide F.No.22-65/2017-IA.III; dated: 01.05.2018) and the calculation of CER cost is also given below:

**Table-1: CER Budget calculation for proposed project**

<b>S. No.</b>	<b>Capital Investment / Additional capital Investment (Rs. in Crores)</b>	<b>Brownfield Project - % of Additional Capital Investment</b>	<b>CER Budget Cost (Rs. in Crores)</b>
1	Upto 100	1.0 %	1
2	400	0.75 %	3
3	500	0.5 %	2.5
4	5707.67	0.25 %	14.27
<b>Total CER Budget</b>			<b>20.77</b>

The above funds will be spent in various CER activities during 5 years like Solar Lighting/Solar pump (Irrigation) system, Drinking Water Facilities, greenbelt development, Air quality monitoring in surrounding area etc. in addition to the cost envisaged for the implementation of the EIA/EMP which includes the measures for the pollution control, environmental protection and conservation. Detailed of CER activities plan with cost break up over the 5 years is given below:

**Table-2: CER activities plan with cost break up over the 5 years**

<b>Sl. No.</b>	<b>CER Activities</b>	<b>1<sup>st</sup> Year (Rs. In Lakhs)</b>	<b>2<sup>nd</sup> Year (Rs. In Lakhs)</b>	<b>3<sup>rd</sup> Year (Rs. In Lakhs)</b>	<b>4<sup>th</sup> Year (Rs. In Lakhs)</b>	<b>5<sup>th</sup> Year (Rs. In Lakhs)</b>
1.	Drinking water supply & Sanitation	110	80	90	30	70
2.	Education and Skill Development, like schools for children.	50	70	50	70	90
3.	Community Health Support and welfare	75	70	60	70	50
4.	Support in Infrastructure/ Transport facility , Technical Support to local farmers, Awareness for solar electrification and solid waste management, Rain water harvesting and Tree plantation	180.4	195.4	215.4	245.4	205.4
<b>Total Expense (Rs. In Lakhs)</b>		<b>415.4</b>	<b>415.4</b>	<b>415.4</b>	<b>415.4</b>	<b>415.4</b>