



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

गुजरात रिफ़ाइनरी, डाकघर : जवाहरनगर,
जिला - वडोदरा, गुजरात - 391 320.



Indian Oil Corporation Limited

Gujarat Refinery, P.O. Jawaharnagar,
Dist. : Vadodara, Gujarat - 391 320.

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रिफ़ाइनरीज़ प्रभाग
Refineries Division

Ref: HSE/EP/MoEF/19/03

1st Jun, 2019


To,
Dr. H.V.C.Chary Guntupalli,
Scientist 'D', Ministry of Environment, Forest & Climate Change,
Regional Office, Western Region,
Link Road No. 3, E-5, Ravi Shankar Nagar
Bhopal- 462016
Madhya Pradesh.

**Sub: Status of EC conditions for Resid Upgradation, GT-6, BS-IV & BS-VI Project
at Gujarat Refinery**

Dear Sir

The compliance status of Environmental Compliance conditions specified in EC letter of
the subject projects is enclosed herewith, for your kind information.

Thanking You,


S. Soumitra Ray (एचएसई),
Deputy General Manager (HSE)
गुजरात रिफ़ाइनरी, डाकघर : जवाहरनगर,
जिला - वडोदरा, गुजरात - 391 320.
Gujarat Refinery, P.O. Jawaharnagar,
Dist. : Vadodara, Gujarat - 391 320.

Encl: As above

CC: The Member Secretary
Gujarat Pollution Control Board
Paryavaran Bhavan
Sector - 10 A
Gandhinagar - 382021

पंजीकृत कार्यालय : जी-9, अली यावर जंग मार्ग, बान्द्रा (पूर्व) मुम्बई, महाराष्ट्र-400 051. (भारत)
Regd. Office : G-9, Ali Yavar Jung Marg, Bandra (East) MUMBAI, Maharashtra - 400 051 (India)

CIN L 23201MH1959 QOL 011288

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE TO CONDITIONS OF ENVIRONMENT CLEARANCE AND ENVIRONMENT MANAGEMENT

Compliance status (for the period of November 2018 – April 2019) of environmental clearance issued by MoEF, New Delhi. Environment Clearance Reference letter No. J-11011/35/2000-IA II (I) dated 27TH APRIL 2006.

(Detail of project: Resid Up gradation project (RUP) at Gujarat Refinery, District Vadodara, Gujarat.). Keeping in mind the future quality requirement of High Speed Diesel (HSD) and Motor spirit (MS) as per national auto fuel policy 2003, some of the main units like Diesel Hydro Treating unit (DHDT) of 2.2 Million Metric Tons per Annum (MMTPA), Isomerization Unit (ISOM) of 0.23 MMTPA, Hydrogen unit (HGU) of 72.5 Thousand Tons per annum (KTA), Delayed Coking Unit (DCU) of 3.7 MMTPA, Vacuum Gas Oil Hydrodesulphurization Unit (VGO-HDT) of 2.1 MMTPA and SRU of 2X300 Tons Per Day (TPD) under the project were envisaged.

| S.N. | Stipulation | Compliance status as on 31.05.19 | | | | | | | | | | | | | | |
|----------|--|--|-------|-------------------------|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|
| 1 | The total SO ₂ emission level from the unit after the proposed up gradation shall not exceed 940 kg/hr, which are less than the stipulated level of 982 kg/hr | <p>Presently, 59 stacks exist at Gujarat Refinery.</p> <p>Real time monitoring and manual monitoring of stack emissions is done on regular basis.</p> <p>Manual monitoring on monthly basis is done by external agency M/s Maxwell Engineers which is GPCB approved Schedule II Environment auditor.</p> <p>Total SO₂ emissions from all these stacks remain in the range of 290 - 298 kg/hr for the period Nov 2018 to Apr 2019.</p> <table border="1"> <thead> <tr> <th>Month</th> <th>SO₂ (Kg/hr)</th> </tr> </thead> <tbody> <tr> <td>Nov 2018</td> <td>296</td> </tr> <tr> <td>Dec 2018</td> <td>298</td> </tr> <tr> <td>Jan 2019</td> <td>292</td> </tr> <tr> <td>Feb 2019</td> <td>294</td> </tr> <tr> <td>Mar 2019</td> <td>291</td> </tr> <tr> <td>Apr 2019</td> <td>290</td> </tr> </tbody> </table> <p>Hence, it is complied.</p> | Month | SO ₂ (Kg/hr) | Nov 2018 | 296 | Dec 2018 | 298 | Jan 2019 | 292 | Feb 2019 | 294 | Mar 2019 | 291 | Apr 2019 | 290 |
| Month | SO ₂ (Kg/hr) | | | | | | | | | | | | | | | |
| Nov 2018 | 296 | | | | | | | | | | | | | | | |
| Dec 2018 | 298 | | | | | | | | | | | | | | | |
| Jan 2019 | 292 | | | | | | | | | | | | | | | |
| Feb 2019 | 294 | | | | | | | | | | | | | | | |
| Mar 2019 | 291 | | | | | | | | | | | | | | | |
| Apr 2019 | 290 | | | | | | | | | | | | | | | |
| 2.1 | The NO _x emission level shall be limited to 225 kg/hr | <p>Presently, 59 stacks exist at Gujarat Refinery.</p> <p>Real time monitoring and manual monitoring</p> | | | | | | | | | | | | | | |

| S.N. | Stipulation | Compliance status as on 31.05.19 | | | | | | | | | | | | | | |
|----------|---|--|-------|-----------------------------|----------|------|----------|------|----------|-----|----------|-----|----------|-----|----------|------|
| | which are less than the stipulated level of 256 kg/hr. | <p>of stack emissions is done on regular basis.</p> <p>Manual monitoring on monthly basis is done by external agency M/s Maxwell Engineers which is GPCB approved Schedule II Environment auditor.</p> <p>Total NOx emission from all these stacks is in the range of 205-213 kg/hr for the period Nov 2018 to Apr 2019.</p> <table border="1" data-bbox="760 682 1266 955"> <thead> <tr> <th>Month</th> <th>NOx (Kg/hr)</th> </tr> </thead> <tbody> <tr> <td>Nov 2018</td> <td>208</td> </tr> <tr> <td>Dec 2018</td> <td>211</td> </tr> <tr> <td>Jan 2019</td> <td>213</td> </tr> <tr> <td>Feb 2019</td> <td>209</td> </tr> <tr> <td>Mar 2019</td> <td>206</td> </tr> <tr> <td>Apr 2019</td> <td>205</td> </tr> </tbody> </table> <p>Hence, it is complied.</p> | Month | NOx (Kg/hr) | Nov 2018 | 208 | Dec 2018 | 211 | Jan 2019 | 213 | Feb 2019 | 209 | Mar 2019 | 206 | Apr 2019 | 205 |
| Month | NOx (Kg/hr) | | | | | | | | | | | | | | | |
| Nov 2018 | 208 | | | | | | | | | | | | | | | |
| Dec 2018 | 211 | | | | | | | | | | | | | | | |
| Jan 2019 | 213 | | | | | | | | | | | | | | | |
| Feb 2019 | 209 | | | | | | | | | | | | | | | |
| Mar 2019 | 206 | | | | | | | | | | | | | | | |
| Apr 2019 | 205 | | | | | | | | | | | | | | | |
| 2.2 | The company shall install low NOx burners for all the proposed units. | <p>629 numbers of Low Nox burners have been installed in process units under RUP.</p> <p>All the new furnaces in HGU-3, DHDT, ISOM, SRU-3 , VGO-HDT and DCU are provided with low NOx burner.</p> <p>Hence, it is complied.</p> | | | | | | | | | | | | | | |
| 3.1 | The total effluent generation shall not exceed 1110 m3/hr. | <p>Total effluent generation for the period Nov 2018 to Apr 2019 is within 1110 m3/hr. For the period of Nov 2018 to Apr 2019, effluent generation remains in the range of 953-1071 m3/hr.</p> <table border="1" data-bbox="760 1501 1339 1806"> <thead> <tr> <th>Month</th> <th>Effluent generation (m3/hr)</th> </tr> </thead> <tbody> <tr> <td>Nov 2018</td> <td>1059</td> </tr> <tr> <td>Dec 2018</td> <td>1071</td> </tr> <tr> <td>Jan 2019</td> <td>953</td> </tr> <tr> <td>Feb 2019</td> <td>989</td> </tr> <tr> <td>Mar 2019</td> <td>982</td> </tr> <tr> <td>Apr 2019</td> <td>1002</td> </tr> </tbody> </table> <p>Based on the above data, it is evident that total effluent generation did not exceed 1110 m3/hr</p> | Month | Effluent generation (m3/hr) | Nov 2018 | 1059 | Dec 2018 | 1071 | Jan 2019 | 953 | Feb 2019 | 989 | Mar 2019 | 982 | Apr 2019 | 1002 |
| Month | Effluent generation (m3/hr) | | | | | | | | | | | | | | | |
| Nov 2018 | 1059 | | | | | | | | | | | | | | | |
| Dec 2018 | 1071 | | | | | | | | | | | | | | | |
| Jan 2019 | 953 | | | | | | | | | | | | | | | |
| Feb 2019 | 989 | | | | | | | | | | | | | | | |
| Mar 2019 | 982 | | | | | | | | | | | | | | | |
| Apr 2019 | 1002 | | | | | | | | | | | | | | | |

| S.N. | Stipulation | Compliance status as on 31.05.19 | | | | | | | | | | | | | | | | | | | | | | |
|----------|---|--|-------|---------------------------------|----------|----------|----------|----------|----------|----------|----------|---------------------------------|----------|----------|----------|-------|----------|------|----------|------|----------|------|----------|------|
| | | and is well within GPCB consented effluent generation value of 36000 kl/Day (1500 m3/hr). Hence, it is complied. | | | | | | | | | | | | | | | | | | | | | | |
| 3.2 | The fresh water consumption shall not exceed the existing requirement. | <p>The year wise total freshwater consumption data pre RUP (before 2012) and post RUP (after 2012) project as follows:</p> <table border="1" data-bbox="760 499 1333 688"> <thead> <tr> <th>Year</th> <th>Intake from Mahi River (m3//hr)</th> </tr> </thead> <tbody> <tr> <td>2011-12</td> <td>2782</td> </tr> <tr> <td>2012-13</td> <td>2376</td> </tr> <tr> <td>2013-14</td> <td>2418</td> </tr> </tbody> </table> <p>There is no increase in existing fresh water consumption.</p> <p>Industrial fresh water requirement at the time of EC was 1684 m3/hr.</p> <p>Freshwater consumption for the period Nov 2018 to Apr 2019 is in the range of 1669 -2114 m3/hr.</p> <table border="1" data-bbox="760 1024 1333 1325"> <thead> <tr> <th>Month</th> <th>Intake from Mahi River (m3//hr)</th> </tr> </thead> <tbody> <tr> <td>Nov 2018</td> <td>1724</td> </tr> <tr> <td>Dec 2018</td> <td>1687</td> </tr> <tr> <td>Jan 2019</td> <td>2114</td> </tr> <tr> <td>Feb 2019</td> <td>2017</td> </tr> <tr> <td>Mar 2019</td> <td>1873</td> </tr> <tr> <td>Apr 2019</td> <td>1669</td> </tr> </tbody> </table> <p>Hence, it is complied.</p> | Year | Intake from Mahi River (m3//hr) | 2011-12 | 2782 | 2012-13 | 2376 | 2013-14 | 2418 | Month | Intake from Mahi River (m3//hr) | Nov 2018 | 1724 | Dec 2018 | 1687 | Jan 2019 | 2114 | Feb 2019 | 2017 | Mar 2019 | 1873 | Apr 2019 | 1669 |
| Year | Intake from Mahi River (m3//hr) | | | | | | | | | | | | | | | | | | | | | | | |
| 2011-12 | 2782 | | | | | | | | | | | | | | | | | | | | | | | |
| 2012-13 | 2376 | | | | | | | | | | | | | | | | | | | | | | | |
| 2013-14 | 2418 | | | | | | | | | | | | | | | | | | | | | | | |
| Month | Intake from Mahi River (m3//hr) | | | | | | | | | | | | | | | | | | | | | | | |
| Nov 2018 | 1724 | | | | | | | | | | | | | | | | | | | | | | | |
| Dec 2018 | 1687 | | | | | | | | | | | | | | | | | | | | | | | |
| Jan 2019 | 2114 | | | | | | | | | | | | | | | | | | | | | | | |
| Feb 2019 | 2017 | | | | | | | | | | | | | | | | | | | | | | | |
| Mar 2019 | 1873 | | | | | | | | | | | | | | | | | | | | | | | |
| Apr 2019 | 1669 | | | | | | | | | | | | | | | | | | | | | | | |
| 3.3 | The additional water requirement if any shall be met through recycling of treated effluent. | <p>Recycling of treated effluent was maximized to the level of 90 %. Hence, there was no additional requirement of fresh water</p> <p>Data for reuse % as provided is indicated below:</p> <table border="1" data-bbox="760 1549 1333 1808"> <thead> <tr> <th>Month</th> <th>% Reuse</th> </tr> </thead> <tbody> <tr> <td>Nov 2018</td> <td>90.36827</td> </tr> <tr> <td>Dec 2018</td> <td>87.71073</td> </tr> <tr> <td>Jan 2019</td> <td>68.09997</td> </tr> <tr> <td>Feb 2019</td> <td>86.50105</td> </tr> <tr> <td>Mar 2019</td> <td>87.95507</td> </tr> <tr> <td>Apr 2019</td> <td>72.65</td> </tr> </tbody> </table> | Month | % Reuse | Nov 2018 | 90.36827 | Dec 2018 | 87.71073 | Jan 2019 | 68.09997 | Feb 2019 | 86.50105 | Mar 2019 | 87.95507 | Apr 2019 | 72.65 | | | | | | | | |
| Month | % Reuse | | | | | | | | | | | | | | | | | | | | | | | |
| Nov 2018 | 90.36827 | | | | | | | | | | | | | | | | | | | | | | | |
| Dec 2018 | 87.71073 | | | | | | | | | | | | | | | | | | | | | | | |
| Jan 2019 | 68.09997 | | | | | | | | | | | | | | | | | | | | | | | |
| Feb 2019 | 86.50105 | | | | | | | | | | | | | | | | | | | | | | | |
| Mar 2019 | 87.95507 | | | | | | | | | | | | | | | | | | | | | | | |
| Apr 2019 | 72.65 | | | | | | | | | | | | | | | | | | | | | | | |
| 4.1 | It is noted that no hazardous | No sludge is directly generated from the units | | | | | | | | | | | | | | | | | | | | | | |

| S.N. | Stipulation | Compliance status as on 31.05.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|---|---|-------|---|----------|---|----------|---|----------|---|----------|---|----------|---|----------|---|-------|-----------------------------|----------|---|----------|---|----------|--------|----------|-------|----------|-------|----------|-------|
| | sludge like oily waste shall be generated. | <p>under RUP.</p> <p>Sludge generated from CETP (Central Effluent Treatment Plant), is tested for oil content and subsequently treated through sludge processing unit and Bio remediation.</p> <p>No hazardous waste is generated due to this project.</p> <p>Hence, it is complied.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 | The spent catalyst shall be recycled back to the licensor and balance shall be disposed of in the secured landfill facility of M/s NECL, Nandesari. | <p>Spent catalyst consisting of metal is sold to CPCB approved metal recyclers. Balance, if any, is disposed to M/s NECL.</p> <p>336 MT of spent catalyst sold to PCB approved vendor by auction through MSTC in the period Nov 2018 to Apr 2019.</p> <table border="1" data-bbox="755 798 1364 1134"> <thead> <tr> <th>Month</th> <th>Spent catalyst sold to PCB approved vendor (MT)</th> </tr> </thead> <tbody> <tr><td>Nov 2018</td><td>0</td></tr> <tr><td>Dec 2018</td><td>0</td></tr> <tr><td>Jan 2019</td><td>0</td></tr> <tr><td>Feb 2019</td><td>0</td></tr> <tr><td>Mar 2019</td><td>0</td></tr> <tr><td>Apr 2019</td><td>0</td></tr> </tbody> </table> <p>Spent Catalyst to NECL for the period Nov 2018 to Apr 2019 was 127.87 MT</p> <table border="1" data-bbox="755 1239 1364 1554"> <thead> <tr> <th>Month</th> <th>Spent Catalyst to NECL (MT)</th> </tr> </thead> <tbody> <tr><td>Nov 2018</td><td>0</td></tr> <tr><td>Dec 2018</td><td>0</td></tr> <tr><td>Jan 2019</td><td>26.415</td></tr> <tr><td>Feb 2019</td><td>52.28</td></tr> <tr><td>Mar 2019</td><td>6.365</td></tr> <tr><td>Apr 2019</td><td>42.81</td></tr> </tbody> </table> <p>Hence, it is complied.</p> | Month | Spent catalyst sold to PCB approved vendor (MT) | Nov 2018 | 0 | Dec 2018 | 0 | Jan 2019 | 0 | Feb 2019 | 0 | Mar 2019 | 0 | Apr 2019 | 0 | Month | Spent Catalyst to NECL (MT) | Nov 2018 | 0 | Dec 2018 | 0 | Jan 2019 | 26.415 | Feb 2019 | 52.28 | Mar 2019 | 6.365 | Apr 2019 | 42.81 |
| Month | Spent catalyst sold to PCB approved vendor (MT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nov 2018 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dec 2018 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Jan 2019 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Feb 2019 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mar 2019 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Apr 2019 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Month | Spent Catalyst to NECL (MT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nov 2018 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dec 2018 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Jan 2019 | 26.415 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Feb 2019 | 52.28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mar 2019 | 6.365 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Apr 2019 | 42.81 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | No further modernisation of project shall be carried out without prior permission of this Ministry | <p>It is ensured that no further modernization of project shall be carried out without prior permission of this Ministry.</p> <p>Hence, it is complied.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | The company shall store LPG in mounded bullets and replace LPG spheres by mounded bullets. | <p>All Horton Spheres are replaced with 14 numbers of Mounded Bullets having total storage capacity of 20655 m3.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| S.N. | Stipulation | Compliance status as on 31.05.19 |
|------|---|--|
| | | Hence, it is complied. |
| 7 | Recommendations made in the risk assessment report shall be complied during design construction and operation stage to contain the risk within plant boundary | All the recommendations made in the RA have been taken care during design, construction and operation stage to contain the risk within plant boundary. Hence, it is complied. |

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE TO CONDITIONS OF ENVIRONMENT CLEARANCE AND ENVIRONMENT MANAGEMENT

Compliance status (for the period of November 2018- April 2019) of Environmental clearance issued by MoEF, New Delhi. Environment Clearance Reference letter No. J-11011/49/2015-IA-II (I) Dated 22.06.2015.

Detail of project: Installation of Gas Turbine (GT) -6 (30 MW) along with Heat Recovery Steam Generator (HRSG) -6 (125 MT per hour) at Gujarat Refinery.

A. SPECIFIC CONDITIONS:

| Sr. No | Stipulations | Compliance Status (31.05.19) |
|--------|---|---|
| 1 | a) The gaseous emissions from the additional GT-6/HRSG-6 shall be dispersed through stack of adequate height as per CPCB/GPCB guidelines. | a) The gaseous emissions from GT-6 is dispersed through a stack of 60 mts height as per CPCB/GPCB guidelines. |
| | b) The stack emissions from various units shall conform to the standards prescribed under the Environment (Protection) Act. | b) The stack emissions conform to standards prescribed under Environment (Protection) Act. |

| Parameter | GPCB standard, mg/Nm ³ | Actual value mg/Nm ³ |
|-----------|-------------------------------------|---------------------------------|
| SOx | 850 (liquid fuel) 50 (gas Fuel) | 41.28 |
| NOx | 350 (liquid fuel) 250 (gas Fuel) | 122.85 |
| CO | 250 (liquid Fuel) 100 (gas Fuel) | 4.98 |

PM 50 (liquid Fuel) 4.8
5 (gas Fuel)

All values are within permissible limit, hence the conditions are complied.

The data based on manual monitoring (by Maxwell Engineers) which is GPCB approved Schedule II environment auditor. Data is averaged for the period of Nov'18-Apr'19.

c) At no time, the emission levels shall go beyond the stipulated standards.

c) The emission levels remain within stipulated standards during normal operation of the plant based on manual monitoring (by Maxwell Engineers) which is GPCB approved Schedule II environment auditor.

d) In the event of failure of pollution control systems adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.

d) Such situation did not arrive at any point of time hence, it is not applicable.

2 Additional fresh water requirement from Mahi River should not exceed 20 m³/hr.

GT-6 was commissioned in June'2015.

Total freshwater consumption for the period May 2015 to July 2015 is as follows:

| SR No. | Months | Intake from Mahi river (m ³ /hr) |
|--------|----------|---|
| 1 | May'2015 | 2617 |
| 2 | Jun'2015 | 2400 |
| 3 | Jul'2015 | 2153 |

Freshwater consumption has decreased in July 2015 (post GT-6 Project) as compared to Jun 2015 (pre GT-6 Project).

There has not been any need of fresh water increase.

Hence, it is complied.

For the period Nov 2018 to Apr 2019, total freshwater consumption remains in the range of 1669-2114 m³/hr.

| Month | Freshwater consumption (m ³ //hr) |
|----------|--|
| Nov 2018 | 1724 |
| Dec 2018 | 1687 |
| Jan 2019 | 2114 |

| | |
|----------|------|
| Feb 2019 | 2017 |
| Mar 2019 | 1873 |
| Apr 2019 | 1669 |

3 Additional industrial effluent generation should not exceed 16 m³/hr. Additional effluent shall be treated in the CETP of Refinery.

The effluent generation for the period May 2015 to July 2015 is as follows:

| Sr No. | Months | Effluent Generation (M ³ /hr) |
|--------|----------|--|
| 1 | May'2015 | 1119 |
| 2 | Jun'2015 | 1126 |
| 3 | Jul'2015 | 1120 |

Hence after the commissioning of GT-6 (22.06.2015) the industrial effluent generation remains the same and is well within GPCB consented effluent generation value of 36000 KI/Day (1500 m³/hr). So, it is complied.

Effluent generation for the period Nov 2018 to Apr 2019 is in the range 953-1071 m³/hr.

| Month | Effluent generation |
|----------|---------------------|
| Nov 2018 | 1059 |
| Dec 2018 | 1071 |
| Jan 2019 | 953 |
| Feb 2019 | 989 |
| Mar 2019 | 982 |
| Apr 2019 | 1002 |

4 a) Automatic/online monitoring system (24*7 monitoring devices) for flow measurement and relevant pollutants in the tertiary system to be installed.

a) Online monitoring of COD, TOC, flow, pH, Oil, BOD, TSS is available in the tertiary system.

b) The data to be made available to the respective SPCB and in the Company's website.

b) Connectivity of pH, COD, BOD, TSS with GPCB/CPCB server has been completed by May'2016. Flow has been connected to CPCB server on 04.09.2017.

5 All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.

No major recommendations in RA report of GT-6 unit.

Recommendations in disaster management plan like:

- Maintenance of ERDMP Records.

- Roles & responsibilities of Functionaries of Onsite Emergency Plan
- Implementation of Safety guidelines.

ERDMP certified by M/s Tata Projects Pvt Ltd. already exists. Under that, a Disaster management team headed by Executive Director with roles and responsibilities of functionaries as per onsite/ offsite Disaster management plan is in place.

B. GENERAL CONDITIONS:

| Sr. No. | Stipulations | Compliance Status (31.05.2019) |
|---------|---|--|
| 1 | The project authorities must strictly adhere to the stipulations made by the Gujarat Pollution Control Board, State Government and any other statutory authority. | <p>Gujarat Refinery strictly adheres to the stipulations made by the Gujarat Pollution Control Board with respect to air, water, and hazardous waste.</p> <p>GPCB has accorded consolidated Consent & Authorization (CCA) vide consent order No: AWII 83554 valid up to 30.09.2021.</p> <p>In addition to EC conditions, it has also been specified by GPCB to comply with Fugitive emission standards.</p> <p>Various measures have been undertaken at Gujarat refinery to control fugitive emission like :</p> <ul style="list-style-type: none"> • Monthly measurement of volatile organic carbon (VOC) • Monthly detection of leaks in pumps, compressors, tanks etc. through Leak Detection and Repair (LDAR) program (Conducted monthly). • Provision of double seals in floating roof tanks etc. • Provision of double mechanical seals in Class A product tanks. |
| 2 | No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the | <p>Gujarat Refinery shall apply to MoEF, New Delhi for installation and commissioning of any upcoming Project. No work shall be taken up till the Environment Clearance is obtained. So it is compiled that no further expansion or</p> |

project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.

- 3 a) The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 2000 as amended subsequently.
- a) Gujarat Refinery strictly complies with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 2000.

For example:

- Safety report is sent to Chief Inspectorate of factories and
- Disaster management plan is in place at refinery.

- b) Prior approvals from Chief Inspectorate of factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable
- b) Relevant approvals from Chief Inspectorate of factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. has been obtained.

- 4 The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules 1989 viz. dBA (day time) and 70 dBA (night time).
- Noise level is regularly monitored at plant and at periphery of the Refinery. Outside the plant it remains around 85 dBA. Within the plant, in some areas it is higher than 85 dBA. In that cases, ear plugs and ear muffs are compulsory for all the working personnel's for maintaining noise level below 85 dBA.

| Location | Noise level (dBA) |
|----------|-------------------|
| TPS | 61.3 |
| CGP II | 62.3 |
| ISOM | 83.2 |
| HGU III | 82.3 |
| AC III | 83.1 |

- 5 A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the
- A separate Environmental Management Cell consisting of 6 no of qualified officers is already set up.

environmental management and monitoring functions.

| Name | Designation | Qualification |
|------------------------------|-------------|------------------|
| Shri. Debashish Chakraborty | CGM, HSE | B.tech, Chemical |
| Shri. Soumitra Ray Chaudhury | DGM, HSE | B.tech, Chemical |
| Shri. Anuj Katiyar | M, HSE | B.tech Chemical |
| Shri. Ajay Kumar | M, HSE | AMIE, Chemical |
| Ms. Annesha Bhattcharjee | O, HSE | B.tech, Chemical |
| Shri. Varun T.R | O, HSE | B.tech, Chemical |

A full-fledged NABL accredited laboratory with a separate environment section for Environment related testing / analysis is available at Gujarat Refinery. This laboratory caters round the clock support for all the samples received. Pollution control laboratory equipped with sophisticated analytical equipment as per requirement of APHA and IS 3025 standards.

6 a) Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government alongwith the implementation schedule for all the conditions stipulated therein.

a) Adequate funds are available for implementation of the conditions stipulated by MoEF.

For financial year 2018-19, Rs 69.16 lakhs were earmarked towards capital cost and Rs. 19.61 crores towards recurring cost for environment pollution control measures.

b) The funds so provided shall not

b) This is ensured that these funds are not

7 be diverted for any other purposes. a) The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. a) Monthly reports containing water cess, treated effluent quality and stack reports is sent to GPCB. Latest monthly report to GPCB was sent on 05.11.2018.

b) A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly. b) Six monthly compliance report is sent to MoEF, Bhopal. Latest report to MoEF, Bhopal was sent on 1st Dec, 2018.

7 a) A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. a) The EC letter was sent to Sarpanch of nearby villages like Sherkhi, Karachiya, Koyali, Bajwa, Undera, Fajalpur, Angad etc, SDM Vadodara, Collector vadodara and Mamlatdar (Rural), Vadodara on 26th Aug, 2015.

b) The clearance letter shall also be put on the website of the company by the proponent. b) Clearance letter was put up Under reports section of Gujarat Refinery website (Sabarmati) on 2nd Jul: 2015.

8 a) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of the monitored data on their website and shall update the same periodically. a) The EC compliance report is regularly updated on the Company Website (Sabarmati) under Statutory notices Section.

b) It shall simultaneously be sent to the Regional Office of the MoEF, the respective Zonal Office of CPCB and the SPCB. b) EC compliance report is sent to MoEF, Bhopal.

c) The criteria pollutant levels c) Following measures are taken for monitoring of pollutants level: Last EC Compliance report was sent to MoEF, Bhopal on Dec 2018.

namely PM10, PM2.5, SO2, NOx, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

- Real-time monitoring and manual monitoring of stack emissions and ambient air quality is done on regular basis.
- 1 no's of mobile van for measurement of Ambient air quality in and around refinery is also available.
- Manual monitoring on monthly basis is done by third party M/S Maxwell Engineers, which is GPCB approved Schedule II environment auditor.
- SO2, NOx, CO and PM emissions are also displayed at the Refinery Gate Main entrance.

- 9 The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry/CPCB/SPCB shall monitor the stipulated conditions. Last EC compliance was sent to MoEF, Bhopal in Dec, 2018.
- 10 The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MoEF by email. Environment Statement for each financial year is submitted to GPCB, Gandhinagar with a copy to GPCB Regional Office. Last Environment Statement was sent on 29th Sep, 2018. The same has been updated on Company's website.
- 11 a) The project proponent should inform the public that the project a) Information regarding EC was published in two newspapers i.e. English

has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This should be advertised within seven days from the date of issue of the clearance letter. at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office.

newspaper and Gujarati newspaper on 7th July 2015.

Copy of the advertisement was forwarded to GPCB, Vadodara on 27th Jul, 2015.

- 12 Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

Date of capitalization of GT-6: 22.06.2015.

Consent to Establish (CTE) and Consent to Operate (CTO) has been obtained from GPCB and final approval of the project informed to GPCB during CTE/CTO application.

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE TO CONDITIONS OF ENVIRONMENT CLEARANCE AND ENVIRONMENT MANAGEMENT

Compliance status (for the period of November 2018- April 2019) of Environmental clearance issued by MoEF, New Delhi. Environment Clearance Reference letter No. J-11011/96/2015-IA-II (I) Dated 20.03.2017.

Detail of project: BS-IV and BS-VI project at Gujarat Refinery. As per the Auto fuel vision and policy 2025, refinery has to switch over completely to BS-IV by April'17 and 100% BS-VI by Apr'20.

A. SPECIFIC CONDITIONS:

| Sr. Stipulations | Compliance Status as on (31.05.19) |
|------------------|------------------------------------|
|------------------|------------------------------------|

No

1. All Pollution control and monitoring equipment shall be installed, tested and interlocked with the process, SPCB shall grant 'consent to Operate' after ensuring that all the mentioned pollution control equipment, construction of storm water drain, rain water harvesting structure, Green belt, uploading of compliance report on the website etc have been implemented.

Gujarat Refinery has applied for Consent to Operate. Inspection by GPCB, Vadodara was done on 30.10.2018 GPCB, Gandhinagar granted the consent to Operate on 28.02.2019 for phase 1 project. It will be ensured that all pollution control and monitoring equipment are installed, tested and interlocked with the process.

Storm water drain and rainwater harvesting structures already exist at Gujarat Refinery.

For the period Nov 18 to Apr 19, 1600 saplings has been planted. Total of 16000 saplings have been planted in head works area. Existing green belt of 148 acres is being maintained and every year about 5000 trees are planted to overcome any loss of trees.

Compliance report is regularly updated on GPCB Website.

2. SO₂ emissions after expansion from the plant shall not exceed 900 kg/hr and further efforts shall be made for reduction of SO₂ load through use of low sulphur fuel. Sulphur recovery units shall be installed for control of H₂S emissions.

Total SO₂ emissions from all stacks remain in the range of 290-298 kg/hr for the period Nov 2018 to Apr 2019.

| Month | SO ₂ (Kg/hr) |
|----------|-------------------------|
| Nov 2018 | 296 |
| Dec 2018 | 298 |
| Jan 2019 | 292 |
| Feb 2019 | 294 |
| Mar 2019 | 291 |
| Apr 2019 | 290 |

Reduction of SO₂ load is being achieved using low sulphur fuel. Sulphur recovery units are already in place to control H₂S emissions.

3. Ambient air quality data shall be collected as per NAAEQS standards notified by the Ministry vide G.S.R. No. 826(E) dated 16th September, 2009. The Levels of PM₁₀, PM_{2.5}, SO₂, NO_x, VOC and Co shall be monitored in the ambient air emissions from the stacks

The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. no. 826(E) dated 16th November, 2009 are being followed at Gujarat Refinery.

Following measures are taken for monitoring of pollutants level:

- Real-time monitoring and manual monitoring of stack emissions and ambient air quality is

and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the result of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective zonal office of CPCB and the state pollution Control Board (SPCB).

done on regular basis.

- 1 no's of mobile van for measurement of Ambient air quality in and around refinery is also available.
- Manual monitoring on monthly basis is done by third party M/S Maxwell Engineers, which is GPCB approved Schedule II environment auditor.
- SO₂ and NO_x emissions are also displayed at the Refinery Gate Main entrance.
- SO₂, NO_x, CO and PM emissions are also continuously displayed at the Refinery Gate Main entrance.

Monitoring report is regularly updated in the company website under the folder statutory notices.

Stack monitoring report is sent to GPCB, Gandhinagar on monthly basis. Last stack monitoring report sent on 05.11.2018.

| PARAMETER | PERMISSIBLE LIMIT ANNUAL | PERMISSIBLE LIMIT 24 HRS. | | | |
|---------------------------------|--------------------------|---------------------------|------|------|---------|
| | | MIN. | MAX. | AVG. | AVERAGE |
| Particulate Matter-10 [PM10] | 60 Microgram/NM3 | 100 Microgram/NM3 | 0.7 | 61.9 | 22.5 |
| Particulate Matter-2.5 | 40 Microgram/NM3 | 60 Microgram/NM3 | 0.4 | 42.4 | 14.2 |
| Oxides of Sulphur | 50 Microgram/NM3 | 80 Microgram/NM3 | 0 | 48.1 | 26.9 |
| Oxides of Nitrogen | 40 Microgram/NM3 | 80 Microgram/NM3 | 7.7 | 31.6 | 20.5 |
| H ₂ S | ----- | 100 Microgram/NM3 | | | |
| Hydrocarbons as CH ₄ | ----- | 160 Microgram/NM3 | 1.5 | 1.6 | 1.6 |
| CO ₂ | ----- | 2000 Microgram/NM3 | | | |

4. In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage. Closed handling & conveyance of chemicals/materials. multi

Control measures for checking fugitive emissions from vulnerable sources have been provided.

Various measures have been undertaken at Gujarat refinery to control fugitive emission like :

- Monthly measurement of volatile organic carbon (VOC)
- Monthly detection of leaks in pumps, compressors, tanks etc through Leak Detection

cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits stipulated by the SPCB.

and Repair (LDAR) program (conducted monthly).

- Provision of primary and secondary seal (double seals) in floating roof tanks.
- Provision of double mechanical seals in Class A product tanks.
- Provision of double mechanical seals to prevent VOC Emissions.
- Provision of cyclone separator at Delayed Coker Unit (DCU).
- Provision of Dust Suppression system at Pet Coke yard.

Gas detectors in all process units and tank farm area are present to detect gas leakage at minimum concentrations.

In addition to this, VOC emissions are monitored by VOC Leak Detection and repair (LDAR) Program. Gujarat Refinery engaged an external agency, to monitor the leaks as per defined monthly schedule. Every month around 1,000 points and yearly total 14000 points are measured for controlling the fugitive VOC emissions. Any leaks detected, even not reportable (up to 100 ppm) are attended within minimum possible time and next month the leaks are verified by the agency.

5. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollutions.

Emergency power is taken from Gujarat Electricity Board (GEB) and DG sets are not available at Gujarat Refinery. Hence, the condition is not applicable.

6. The total fresh water requirement from Mahi River shall not exceed 60.07 MLD and prior permissions shall be obtained from the Competent Authority. No ground water shall be used without permission.

Total freshwater requirement from Mahi River will remain within 60.07 MLD. No additional groundwater will be used without prior permission.

For the period Nov 2018 - Apr 2019, it ranges from 40.056 -48.408 MLD.

| Month | Freshwater consumption (MLD) |
|-------|------------------------------|
|-------|------------------------------|

| | |
|----------|--------|
| Nov 2018 | 41.376 |
| Dec 2018 | 40.488 |
| Jan 2019 | 50.736 |
| Feb 2019 | 48.408 |
| Mar 2019 | 44.906 |
| Apr 2019 | 40.056 |

7. Waste water shall be sent to CETP and balanced quantity of treated effluent shall be discharge to Vadodara Enviro Channel Ltd. (VECI) which is finally discharged into Gulf of Khambat. Wastewater from all process units are sent to CETP. Treated water from CETP is maximized in refinery operations. Remaining treated effluent is discharged to VECI, which is finally discharged into Gulf of Khambat.
8. Automatic/online monitoring system (24 X 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the Company's website. a) Online monitoring system for flow measurement and pH, COD, BOD and TSS in the treatment system is already installed. b) Connectivity of online analysers for pH, COD, BOD and TSS with GPCB/CPCB server has been completed by May 2016.
9. Adequate odour management plan and its mitigation measure to be implemented on priority. VOC LDAR Programme and Work Environment Monitoring for chemicals are being carried out regularly. Gujarat refinery has installed odour control system at the boundary wall of CETP to eliminate any foul smell.
10. Regular VOC monitoring to be done at vulnerable points. VOC emissions are monitored by VOC Leak Detection and repair (LDAR) Program. Gujarat Refinery engaged an external agency, to monitor the leaks as per defined monthly schedule. Every month around 1,000 points and yearly total 14000 points are measured for controlling the fugitive VOC emissions. Any leaks detected, even not reportable (up to 100 ppm) are attended within minimum possible time and next month the attended leaks are verified by the agency.
11. The oily sludge shall be subjected to melting pit for oily recovery and the residue shall be bio-remediated. The oily sludge is subjected to melting pit and oil recovery is done by M/s. Plantech. The residual sludge thereby generated is sent for bio-remediation.

- | | |
|--|---|
| <p>sludge shall be stored in HDPE lined pit with proper leachate collection system.</p> | <p>The sludge is stored in HDPE lined pit.</p> |
| <p>12. Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC, Outcome from the report to be implemented for conservation scheme.</p> | <p>Comprehensive water audit is being carried out by Engineers India limited (EIL) in association with Centre of High technology (CHT) via w.o No: 25590290 dated 31.07.2018. After completion audit, report of the same shall be shared with concerned MoEF &CC. Outcome of the report shall be implemented for conservation of water. Water audit done by Gujarat refinery by internal committees and many points implemented. As a result of which water reduction over last six years is represented below.</p> |
| <p>13. Oil catchers / oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.</p> | <p>Oil catchers are provided at strategic locations like near UDEX unit, near flare, near Dhaula kuan pump house and final outlet of open channel in rain/storm water drainage system to prevent the possibility of oil contamination in storm water channel. Storm water channel going outside remains completely dry during non monsoon season.</p> |
| <p>14. Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm. Solvent transfer shall be by pumps.</p> | <p>Hazardous chemicals are stored in tanks, tank farms, drums, carboys etc. Flame arresters are provided on tank farm. Solvent transfer is being done by pumps in the process units.</p> |
| <p>15. The company shall Strictly comply with the rules and guidelines under Manufacture, Storage and import of Hazardous Chemicals (MSIHC) Rule, 1989 as amended time to time. All Transportation of Hazardous chemicals shall be as per the Motor Vehicle Act (MVA), 1989.</p> | <p>Rules and guidelines under Manufacture, Storage and import of Hazardous Chemicals (MSIHC) Rule, 1989 are being followed. Transportation of Hazardous Chemicals are as per the Motor Vehicle Act, 1989.</p> |
| <p>16. The unit shall make the arrangement for the protection of possible fire hazards during manufacturing process in</p> | <p>Gujarat Refinery is in operation for last 50 years and full-fledged fire protective measures are available, which includes:</p> <ul style="list-style-type: none"> • 11 fire tenders consists of 2 foam nurser. • One emergency tender |

material handling. Fire fighting system shall be as per the norms.

- One Pronto having hydraulic platform for firefighting at height.
- Charged Fire water network all across the units and building

Fire fighting facilities are updated time to time as per norms.

17. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

Occupational health surveillance of workers are being done on regular basis and records are being maintained as per the Factories Act.

The Gujarat Refinery has a well-established Occupational Health Centre, which harmoniously combines environmental protection and health promotion of the employee.

To maintain the healthy workforce, refinery's OHC focuses on:

- Regular PME checkups of employees handling hazardous material like Benzene, CO, Cl₂, H₂S, SO₂, LPG and employees working as welders, loco operator, drivers, and radiographers.
- Well person medical examination of executives above 40 years of age.
- Audiometry of employees working in high noise areas (Turbines, Boilers, Steam-air line, Pump houses).
- Titmus Vision testing of all employees.
- Pulmonary function test of all employees.
- CISF yearly medical checkup.
- Health education training to the employees.
- Pre-employment medical checkup
- Industrial canteen visit by Dietician.
- Regular Toxic Gas level monitoring & sound level monitoring by industrial hygienist.

In addition to that Gujarat Refinery has a well-established 24 bedded Hospital well equipped with all sorts of modern facilities available to handle any mishap.

| TYPE | Yearly Target 2018-19 | APRIL | MAY | JUNE | JULY | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | TOTAL |
|----------------------|-----------------------|-----------------------------|-------------|------|------------|--|--|------------------------|--------|------------------------|--|---|-----|------------|
| OH | 1047 | PRODUCTION LAB, MISC. PPU-2 | CGP-1 GRSPF | | Instrument | TRUB-SOUTH (BLOCK) OCCURP NORTH (GR-IM) TRUB-NORTH BLOCK (RU) LUB MAINT. | DMK S-R CM & S-LFG CM & S- DEHCU-2 FISH HGV 19102 + PPU-IT'S | Mechanical Maintenance | CC LAB | Electrical Maintenance | P&U-COP-2 TRU-SGP DEFCR 201 2102-203 AUG-AUG | Fire & Safety Medical PH-S-R (PHDT HGU3 KCBM) | | |
| | TARGET | | 95 | 114 | 99 | 77 | 98 | 104 | 88 | 105 | 133 | 134 | | 1047 |
| | REPORTED EMPLOYEES | | 76 | 114 | 93 | 70 | 75 | 82 | 42 | 78 | 81 + | 11 | | 798 |
| | NOT REPORTED | | 19 | 00 | 06 | 07 | 23 | 22 | 46 | 27 | 52 | 47 | | 249 |
| | COMPLIANCE | | 76.8% | 100% | 93.93% | 90.9% | 68% | 73.07% | 47.8% | 72.38% | 61.61% | 85.67% | | 76.21% |
| TOTAL PENDING | | | | | | | | | | | | | | 249 |

| TYPE | TOTAL NUMBERS OF EXECUTIVES - A & B | Target for the year 2018-2019 | Action | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | TOTAL |
|----------------|-------------------------------------|-------------------------------|--------------|-----|------|-----|------|------|-------|------|-------|-----|-----|-----|-----|-----------|
| EXE | 150 | 96 | Target | 04 | 16 | 07 | 02 | 04 | 04 | 00 | 11 | 08 | 12 | 10 | 18 | 96 |
| | | | Reported | 05 | 15 | 7 | 02 | 03 | 03 | 03 | 10 | 04 | 06 | 05 | 08 | 71 |
| | | | Not reported | +1 | 01 | 00 | 00 | 01 | 01 | +3 | 01 | 04 | 06 | 05 | 10 | 29 |
| | Compliance | 100% | 100% | 96% | 100% | 98% | 96% | 100% | 90.9% | 100% | 90.9% | 50% | 50% | 50% | 44% | 73% |
| PENDING | | | | | | | | | | | | | | | | 25 |

| TYPE | Target for the year 18-19 | Action | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | TOTAL |
|---------|---------------------------|--------------|-------|-------|-----|------|--------------------|------|------|-------------------------|------|-----|-------------------------|-------|--------|
| EXE | 190 | Target | 07 | 30 | 21 | 22 | 16 | 10 | 08 | 16 | 18 | 20 | 11 | 11 | 190 |
| | | Reported | 02 | 25 | 19 | 21 | 06 | 09 | 08 | 12+1 | 18 | 16 | 06 | 05 | 148 |
| | | Not reported | 05 | 05 | 02 | 01 | 09+ (01 retire) | 01 | 00 | 02+ (01 man sfer) | 00 | 04 | 02+ (01 man sfer) | 06 | 42 |
| | | COMPLIANCE | 28.5% | 71.8% | 88% | 95% | 41.17% | 90% | 100% | 75% | 100% | 75% | 54.54% | 45.4% | 77.89% |
| PENDING | | | | | | | | | | | | | | | 42 |

18. At least 2.5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ECS) based on local needs and action plan with financial and physical breakup details shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured accordingly in a time bound manner.

As per EC total cost of BSIV & BSVI project is 3701.44 crores and 2.5% of the project cost comes out to be 92.58 crores.

Considering such high project cost and correspondingly high ESC amount for the project, an application vide Ref No MoEF&CC/Corr/2017-18/1 dtd 19.06.17 had been sent to MoEF&CC from Refinery Headquarters requesting waiver/reduction of mandatory funds towards ESC for all refineries of IOCL.

Subsequently, a new regulation with respect to fund allocation for Corporate Environment Responsibility (CER) has been introduced vide F.No. 22-65/2017-IA.III dtd 1st May'18. As per the new regulation, the cost of CER fund to be allocated has been categorized based on type of project and the investment involved.

However, based on discussions of Refinery Headquarters with MoEF&CC, it has been communicated to Gujarat refinery that the new CER regulation is applicable only for projects with Environmental Clearance post 1st May'18 (regulation enforcement date).

Projects having EC previous to new regulation will comply with the conditions as given in original Environmental Clearance. Hence, implementation of actions for ESC shall be taken up by Gujarat Refinery

19. All the commitments made during the public Hearing/public Consultation meeting held on 5.11.2016 should be satisfactorily implemented and adequate budget provision should be made accordingly. Commitments made during Public Hearing (PH) meeting held on 05.11.2016 towards Drinking water, Health care, Environmental sustainability and rural development were implemented.
20. As proposed, green belt over 70 acres area shall be developed at Refinery Township area and dense plantation of around 21 acres shall be undertaken at Head works area. Selection of plant species shall be as per the CPCB guidelines in consultations with the DFO. Existing Green belt of 148 acres shall be maintained around the periphery of Refinery with a total of about 215,000 trees in the green belt. 70 acres green patch is available at JR township. Dense plantation completed in headwork's area. For the period Nov 18 to Apr 19, 1600 saplings has been planted. Total of 16000 saplings have been planted in head works area. Existing green belt of 148 acres is being maintained and every year about 5000 trees are planted to overcome any loss of trees.

B. GENERAL CONDITIONS:

| Sr. No. | Stipulations | Compliance Status as on (31.05.2019) |
|---------|--|--|
| 1. | The project authorities must strictly adhere to the stipulations made by the state Pollution control Board (SPCB), State Government and any other statutory authority. | Gujarat Refinery strictly adheres to the stipulations made by the Gujarat Pollution Control Board with respect to air, water, and hazardous waste. GPCB has accorded consolidated Consent & Authorization (CCA) vide consent order No: AWH 83554 valid up to 30.09.2021. |

Time to time inspection of facility is also done by GPCB.

In addition to EC conditions , it has also been specified by GPCB to comply with Fugitive emission standards.

Various measures have been undertaken at Gujarat refinery to control fugitive emission like :

- Monthly measurement of volatile organic carbon (VOC)
- Monthly detection of leaks in pumps, compressors, tanks etc through Leak Detection and Repair (LDAR) program (Conducted monthly).
- Provision of double seals in floating roof tanks etc.
- Provision of double mechanical seals in Class A product tanks.

2. No further expansion of modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environment protection measure required, if any. Gujarat Refinery shall apply to MoEF, New Delhi for installation and commissioning of any upcoming Project. No work shall be taken up till the Environment Clearance is obtained. So it is complied that no further expansion or modernization in the plant is carried out without prior approval of the Ministry of Environment and Forests.
3. The locations of ambient air quality monitoring stations shall be decided in consultation with the state pollution control Board (SPCB) and it shall be ensured that at least one stations is installed in the upwind and downwind direction as well as Ambient air quality monitoring has been carried out as per the Gujarat Pollution Control Board(GPCB) consent conditions. As advised, Air quality monitoring stations are positioned in the upwind and downwind direction at spots where maximum ground level concentrations are anticipated. Monitoring stations are placed

where maximum ground level concentrations are anticipated.

at Technical building observatory, QC lab, SRC, 6th Gantry, Bajwa gate and township BOD and one at Vadodara city.

Presently 7 ambient air quality monitoring stations have been installed out of which 6 stations are surrounding the refinery and one monitoring station is in the Vadodara City. The monitoring station in the city was recommended by Gujarat Pollution Control Board (GPCB).

4. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).

Noise level is regularly monitored at plant and at periphery of the Refinery. Outside the plant it remains around 85 dBA. Within the plant, in some areas it is higher than 85 dBA. In that cases, ear plugs and ear muffs are compulsory for all the working personnel for maintaining noise level below 85 dBA.

| Location | Noise level (dBA) |
|----------|-------------------|
| TPS | 61.3 |
| CGP II | 62.3 |
| ISOM | 83.2 |
| HGU III | 82.3 |
| AU III | 83.1 |

5. The company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.

Company has already installed 21 rainwater harvesting (RWH) wells out of which 5 are rooftop harvesting wells.

Additional 57 rooftop rainwater harvesting wells have been installed inside refinery battery area limit as well as in township in year 2017-2019.

Hence total of 78 no of RWII well are installed at Gujarat refinery and its township covering more than 80% of catchment area as per IOCL policy of RWII.

6. Training shall be imparted to all employees on safety and health

Training is being imparted to all employees on safety and health aspects of

aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.

7. The company shall also comply with all the environmental protection measure and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.

chemicals handling. Pre-employment and routine periodical medical examinations for all employees are conducted on regular basis. Apart from this, Material Safety Datasheet (MSDS) of the chemicals is being displayed at all process units.

Gujarat Refinery strictly adheres to all the environmental protection measure and safeguards proposed in the documents submitted to the Ministry. All recommendations made in the EMP and risk analysis reports have been implemented.

For example:

- Air monitoring through four continuous monitoring stations as well high volume sample of air is also done by third party M/s Maxwell Engineers on 7 defined locations in bimonthly basis.
- Process waste water is treated in Centralized Effluent Treatment Plant (CETP)
- Continuous stack monitoring is available for SO₂, NO_x, PM & CO. In addition to this third party monitoring is also done for all stacks on monthly basis by GPCB approved agency.
- Ground water and soil monitoring is being done by 3rd party on quarterly basis by GPCB approved agency.
- Environment audit by GPCB appointed external agency is being carried out every year.
- Rain water harvesting (RWH) is also done on yearly basis to main the surrounding water table. Presently there are total 78 no. of recharge wells (49 no. inside and 29 no. outside Refinery) covering more than 80% of catchment area as per IOCI. policy on RWH.

- Regular acoustics checking is done.
- IFO with sulfur content less than 0.5 % is used
- Fuel gas is used with less than 100 ppm H₂S

Similarly for risk mitigation measures have been implemented like:

- Use of superior metallurgy for H₂S handling lines
- Use of piping of increased wall thickness,
- Higher corrosion allowance
- 100% radiography for all welds
- Proper inspection and maintenance procedures of mounded bullets etc are complied.

8. The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration. CSR activities are done every year involving local villages and administration. In last 5 yrs expenditure of Rs.1403 Lakhs was done on CSR.

9. The company shall undertake co-developmental measures including community welfare measure in the project area for the overall improvement of the environment. As stated above in the pt no. 9 company is undertaking co-developmental measures including community welfare measure in the project area for the overall improvement of the environment.

10. A Separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the environmental Management and Monitoring functions. A separate Environmental Management Cell consisting of 6 no of qualified officers is already set up.

| Name | Designation | Qualification |
|------------------------------|-------------|------------------|
| Shri. Debashish Chakraborty | CGM, HSE | B.tech, Chemical |
| Shri. Soumitra Ray Choudhuri | DGM, HSE | B.tech, Chemical |

| | | |
|--------------------------|---------|---------------------|
| Shri. Anuj Katiyar | M, IISE | B.tech Chemical |
| Shri. Ajay Kumar | M, IISE | AMIE, Chemical |
| Ms. Annesha Bhattacharje | O, IISE | B.tech, Chemical |
| Shri. Varun T.R | O, IISE | B.tech, Chemical |

A full-fledged NABL accredited laboratory with a separate environment section for Environment related testing / analysis is available at Gujarat Refinery. This laboratory caters round the clock support for all the samples received. Pollution control laboratory equipped with sophisticated analytical equipment as per requirement of APIIA and IS 3025 standards.

11. The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the condition stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- a) Adequate funds are available for implementation of the conditions stipulated by MoEF.
For financial year 2017-18 Rs 147.43 lakhs were earmarked towards capital cost and Rs. 15.98 crores towards recurring cost for environment pollution control measures. Similarly for financial year 2018-19, Rs 69.16 lakhs were earmarked towards capital cost and Rs. 19.61 crores towards recurring cost for environment pollution control measures.
- b) This is ensured that these funds are not diverted for any other purposes
12. A copy of the clearness letter shall be sent by the project proponent to concerned Panchayat, Zilaparisad/Municipal Corporation.
- The EC letter was sent to Sarpanch of nearby villages like. Bajwa. Koyal. Karachiya, Undera. Karodiya. Angad. ganpat pura . Mahapura.

Urban local body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. Rayaka, Asaram, Sokhada, Nandesari, Ankodiya, Sindhrot, Hathiपुर, Khanpur, Fajalpur Sherahi, etc, on 15.04.2017

13. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and concerned SPCB. A copy of environmental clearance and six monthly compliance status reports shall be posted on the website of the company.
- a) Six monthly reports are submitted to MoEF, Bhopal. Last report submitted on 1st Dec, 2018.
- The Environment Clearance and EC compliance report is uploaded on the Company Website in folder Statutory notices.

14. The environmental statement for each financial year ending 31st March in Form V as is mandated shall be submitted to the concerned State Pollution control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of MoEF by e-mail.
- a) Environmental Statement for each financial year is submitted to Gujarat Pollution Control Board.
- Last Environment Statement for financial year 2017-18 was submitted to GPCB on 29th September, 2018.
- b) Environment Statement is regularly updated on Company Website under the folder of Statutory notices.

15. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/ committee and may also be seen at website of the Ministry at <http://moef.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter. at
- Information regarding EC was published in two newspapers i.e. English newspaper and Gujrati newspaper on 5th April 2017 and 6th April 2017 respectively.

least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

16. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and date of start of the project. Details will be furnished after completion of the project