Compliance Status of Environment Clearance of Unit # 1 (1 × 67.5 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum, Jharkhand vide MOEF Letter no J.13011/16/91-IA dated 13.05.1994

<table>
<tr><th>S No</th><th>Conditions</th><th>Compliance status</th></tr>
<tr><td>1</td><td>A single chimney of not less than 100 meter height should be provided.</td><td>Complied.</td></tr>
<tr><td>2</td><td>Electrostatic Precipitators (ESP) with operational efficiency of not less than 99.8% should be provided. The particulate emission from the stack should not exceed the limit of 150 mg/Nm^3 under any circumstances, failing with the plant should be shutdown.</td><td>Complied.
The Electrostatic Precipitator (ESP) was provided with operational efficiency of 99.91%. The particulate emission was maintained below 75 mg/NM3 with flue gas conditioning system. The recent report with max, min and average were as follows:
<table><tr><th colspan="2">Particulate Matter Emission from stack (mg/NM3)- H1 FY24</th></tr><tr><td>Month</td><td>Unit 1</td></tr><tr><td>Limit</td><td>75</td></tr><tr><td>Apr'23</td><td>50.11</td></tr><tr><td>May'23</td><td>51.24</td></tr><tr><td>June'23</td><td>53.45</td></tr><tr><td>July'23</td><td>56.27</td></tr><tr><td>Aug'23</td><td>55.04</td></tr><tr><td>Sep'23</td><td>49.40</td></tr><tr><td>Avg</td><td>52.58</td></tr><tr><td>Max</td><td>56.27</td></tr><tr><td>Min</td><td>49.40</td></tr></table>The detailed report is attached as Annexure - I.</td></tr>
<tr><td>3</td><td>Liquid effluents including blow-down from cooling tower emanating from the plant as also waste water from the ash pond area should be properly treated to confirm to the standards stipulated by the State Pollution Control Board. Temperature of cooling water should not be more than 5°C than that of ambient temperature of receiving water body where the hot water meets.</td><td>Complied.
The Effluent Treatment plant was installed, and all wastewater is reused after treatment. The analysis report of Effluent treatment plant inlet and outlet water quality is attached as Annexure- II.</td></tr>
<tr><td>4</td><td>A plan for full utilization of fly ash should be prepared and submitted for approval within six months as follows:
20% of the fly ash should be put into use within one year of commissioning of the plant and thereafter 10% progressively for next 8 years</td><td>Complied.
We are utilizing 100% Ash generated. Roadmap compliance for Fly Ash utilization for FY22-23 is attached as Annex-III
Provision for dry fly ash collection is made with silos.</td></tr>
</table>

	and 100% within 9 years. Provision for dry fly ash collection must be made with silos.	
5	Not more than 27 hec. Of land should be used for emergency ash disposal. Ash pond area should be properly lined to avoid ground water contamination. Recycling and reuse of ash pond effluent should be done so as to achieve "zero discharge" to the extent possible.	Complied. Ash pond area is properly lined to avoid ground water contamination. All the wastewater is reused in the process and "zero discharge" have been achieved.
6.	Details of Ardelite Technology for making aggregates from fly ash should be furnished for our information and record.	Complied during project execution
7	Recommendations made in the EIA / EMP reports should be complied with.	Complying. Proactive plan for environment protection – attached as Annex-IV.
8	The report of the carrying capacity being conducted by NEERI should be submitted on its completion to the ministry.	Complied during project execution
9	Project affected villages / villagers should be properly rehabilitated in consultation with the state government.	Not Applicable.
10	A green belt of not less than 50 mt. width should be raised all around the plant. Possibility of increasing the width of green belt on all sides especially on the eastern side should be explored and details furnished to the ministry within six months.	Complied during project execution.
11	Jojobera Thermal Power Plant should incorporate design features such as noise reduction devices which will reduce noise to 85 dBA. Most of the noise generating equipment should be provided with enclosed structures so that intensity of noise transmitted outside is reduced.	Complied. The major noise generating equipment like turbine, generator etc. are provided with acoustic enclosure. Recent noise monitoring report attached as Annex - V.
12	An Environment cell with suitable qualified people to carry out various functions should be set up under the control of the Sr. Executive who will report directly to the head of the organization.	We have separate environmental management cell with suitable qualified personal set up under the control of the Chief of the unit. The organizational structure for environment management cell is as given below 1. CEO - IEL & Chief - Jamshedpur Operations 2. Chief - Operation & Maintenance 3. Head – Environment 4. Group Head - Civil 5. Group Head- Coal Handling Plant 6. Group Head - Safety & Fire 7. Group Head-Ash handling

		Monitoring agency (MOEF approved and NABL accredited) has been engaged to carry routine testing of environmental parameters at site.
13	Adequate monitoring stations for air and water quality should be provided in consultation with the SPCB. Levels of pollution (SPM, SO2 and NOx) should be monitored on regular basis and record maintained. Similarly the parameters for water quality as may be specified by the SPCB should also be monitored and the record maintained. Statistically analyzed data should be sent to the SPCB once in every three months and every six monthly to this ministry.	We are monitoring ambient air quality at four locations inside and two locations outside the plant as per MoEF notification no 826 dated 16.11.2009. The statistically analyzed ambient air quality report in details is attached as Annex No.VI and monthly report is also submitted to JSPCB. Last report was submitted with letter no. JPP/ 173 /2023 dated 16/10/2023. All the wastewater generated in the plant is treated in our effluent treatment plant and reused in the process. The analysis report of Effluent treatment plant inlet and outlet water quality is attached as Annex -II. All monitoring report is sent to Jharkhand state pollution control board monthly and Half -yearly report is being sent to Ministry of Environment, Forest & Climate change. The last report was sent vide letter no JPP/ 96 /2023 dated 29/05/2023.
14	The fugitive emissions including at coal handling areas at various stages (wagon unloading, crushing, transfer points etc.,) should be minimized by providing suitable dust suppression / extraction system at crusher unit, junction towers and wagon tippler units, etc. In addition, water spray nozzles to suppress dust generation during coal dust generating operations should also be provided such as near to the wagon tipplers, reclaim hoppers etc.	We have installed dust suppression/extraction system at crusher unit, junction towers and wagon tippler units etc and coal conveyor-bunker interface. Fixed type water spraying has been installed in coal storage area, conveyor and wagon tippler. Regular water sprinkling is done in dusty areas by mobile water sprinkler. Dry fog dust suppression system has been installed in coal crushing circuits
15	In order to conserve water at Jojobera Thermal Power Plant, efforts should be made to utilize the treated water to the maximum extent possible.	Complied. Zero discharge system is developed, and treated effluent is being reused in the plant process.
16.	To prevent dust pollution due to fly ash, ash pond should be maintained wet and tree plantation should be done on the raised embankments of ash ponds. Ground water quality should be monitored to see any contamination due to heavy metals such as Pb, Cr, As, Hg etc.	Complied. Ash pond is maintained wet and tree plantation has been done on the raised embankment. The ground water quality is monitored periodically. The last ground water quality monitoring report with heavy metal analysis such as Pb, Cr, As, Hg etc. is attached as Annex-VII.

Compliance Status of Environment Clearance of Unit # 2 & 3 (2 × 120 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum , Jharkhand vide MOEF Letter no J.13011/28/96-IA II (T) dated 20.01.1997

<table>
<tr><th>S No.</th><th>Conditions</th><th>Compliance status</th></tr>
<tr><td>1</td><td>All the conditions stipulated by Bihar State Pollution Control Board vide Memo No. T.4051 dated 23.07.96 and No. T.4457 dated 20.08.96 should be strictly implemented.</td><td>Complied.
The compliance status of Bihar state pollution control board Memo no T.4051 dated 23.07.96 is attached as Annex- A and No. T.4457 dated 20.08.96 is attached as Annex- B.</td></tr>
<tr><td>2</td><td>The height of stack 145 m with continuous monitoring facility should be installed.</td><td>Complied.
The stack of height 150 m with continuous monitoring facility has been provided.</td></tr>
<tr><td>3</td><td>Electrostatic Precipitator having efficiency of not less than 99.8% should be installed and it should be ensured that particulate emission would not exceed the prescribed limit of 150 mg/Nm^3</td><td>Complied.
The Electrostatic Precipitator (ESP) was provided with operational efficiency of 99.91%.
The PM emission is controlled within 75 mg/NM3 with flue gas conditioning system.
The recent report with max, min and average are as follows and detailed report is attached as Annexure- I.

<table>
<tr><th colspan="3">Particulate Matter Emission from stack (mg/NM3)-H1 FY24</th></tr>
<tr><td>Month</td><td>Unit 2</td><td>Unit 3</td></tr>
<tr><td>Limit</td><td>75</td><td>75</td></tr>
<tr><td>Apr'23</td><td>51.65</td><td>49.77</td></tr>
<tr><td>May'23</td><td>53.08</td><td>49.72</td></tr>
<tr><td>June'23</td><td>57.38</td><td>57.87</td></tr>
<tr><td>July'23</td><td>53.98</td><td>59.45</td></tr>
<tr><td>Aug'23</td><td>53.38</td><td>53.00</td></tr>
<tr><td>Sep'23</td><td>52.66</td><td>52.15</td></tr>
<tr><td>Avg</td><td>53.69</td><td>53.66</td></tr>
<tr><td>Max</td><td>57.38</td><td>59.45</td></tr>
<tr><td>Min</td><td>51.65</td><td>49.72</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Closed circuit cooling device with induced draft should be provided and it should be ensured that only minimum water is drawn for make-up purposes.</td><td>Complied.
Closed circuit cooling device with induced draft has been provided.</td></tr>
<tr><td>5</td><td>Acquisition of land should be restricted to 70 ha and the total area for fly ash disposal should not exceed 176 ha.</td><td>Complied.</td></tr>
<tr><td>6</td><td>Noise level should be limited to 85 dBA and regular maintenance of equipments be undertaken. For people working in the area of</td><td>Complied.
Earplugs provided to workers in high noise area. Recent reports for noise level are attached as Annex -V.</td></tr>
</table>

	generator halls and other high noise areas, earplug should be provided.	
7	For Controlling of fugitive dust, regular sprinkling of water in coal handling and other venerable areas of the plant should be ensured.	Fixed type water spraying has been installed in coal storage area, conveyor and wagon tippler. Regular water sprinkling is done in dusty areas by mobile water sprinkler. Dry fog dust suppression system has been installed in coal crushing circuits.
8	Afforestation should be undertaken covering adequate area and should be implemented in phased manner. A norm of 1500 – 2000 trees per ha should be followed. The Afforestation plan should be submitted by 31st March 1997 and the schedule given in it is adhered strictly.	Complied. Afforestation report is being attached as Annex -VIII.
9	Continuous monitoring of ground water should be undertaken in project impact area by establishing good network of observation wells in consultation with Central ground water Board. Results and data collected should be analyzed to ascertain the status of water quality and findings should be submitted.	Regular monitoring of ground water in and around existing ash pond area including heavy metals is being carried out and six-monthly reports are being sent to regional office regularly. Recent ground water monitoring report for H1-FY-24 is attached as Annexure – VII.
10	All effluents generated in various plant activities should be collected in the central effluent treatment plant and treated to ensure adherence to specified standards of discharge. The concept of zero discharge should be adopted to a maximum possible extent.	Implemented. All the effluent is collected in Effluent treatment plant pond. Zero discharge system is developed, and treated effluent is being recirculated and reused within the plant.
11	Regular monitoring for SPM, SO2 and Nox around the power plant may be carried out and records maintained. The data so collected should be properly analyzed and submitted to the ministry every six months.	Complied. Regular monitoring of SPM, Sox and Nox is carried out as per NAAQMS notification 2009 and records maintained. Periodic reports are being sent to regional office of the ministry and last half yearly report was sent vide letter no. JPP/ 96 /2023 dated 29/05/2023. Consolidated detailed report for the period April'23 to Sep'23 is attached as Annexure- VI and monthly report is also submitted to JSPCB. Last report was submitted with letter no. JPP/ 173 /2023 dated 16/10/2023.
12	The area identified for ash disposal should be suitably lined and fly ash bricks will be fully used in the construction work of the proposed power project.	Complied.

13	Old units should be phased out and modernization phase should be completed as per the details submitted to the ministry before commissioning of the proposed Thermal power project.	Noted.
14	A computer cell specifically for environmental aspects should be established for continuous monitoring and data analysis of environmental status in the region.	Complied. We have separate environmental management cell with suitable qualified personal set up under the control of the Chief of the unit for continuous monitoring and data analysis of environmental status. The organizational structure for environment management cell is as given below 1. CEO - IEL & Chief - Jamshedpur Operations 2. Chief - Operation & Maintenance 3. Head – Environment 4. Group Head - Civil 5. Group Head- Coal Handling Plant 6. Group Head - Safety & Fire 7. Group Head- Ash handling Monitoring agency (MOEF approved and NABL accredited) has been engaged to carry routine testing of environmental parameters at site.
15	The recommendations arising out of the carrying capacity studies presently undertaken by the national environmental engineering research institute should be submitted to the ministry for ascertaining the adequacy of the suggested safeguard measures.	Complied during project execution.
16	Full cooperation should be extended to the scientists / officers from the regional office of the ministry at Bhubaneshwar / the CPCB / the SPCB who would be monitoring the compliance of environment status. Complete set of impact assessment report and the management plans should be forwarded to the Regional office for their use during monitoring.	Complying
17	Monitoring committee should be constituted for reviewing the compliance to various safeguard measures by involving recognized local NGOs, Pollution Control Boards, Institutions, Experts etc.	Complied

Compliance Status of Environment Clearance of Unit # 4 (1 × 120 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum, Jharkhand vide Dept. of Forest, Govt. of Jharkhand letter no 5177 dated 3rd Sept, 2005

<table>
<tr><th>S No</th><th>Conditions</th><th>Compliance status</th></tr>
<tr><td>i)</td><td>All the conditions stipulated by Jharkhand State Pollution Control Board vide their letter No. 3484 dated 07.06.03 shall be strictly implemented.</td><td>Status of compliance of conditions by JSPCB is attached as Annexure- C.</td></tr>
<tr><td>ii)</td><td>Land is already in possession of the project authorities. No additional land shall be acquired for this expansion project.</td><td>No additional land was acquired for this expansion project.</td></tr>
<tr><td>iii)</td><td>Total coal requirement is estimated at 1800 TPD for the expansion scheme with 34-41 percent ash content and Sulphur content below 0.6 percent.</td><td>Total coal consumption for unit 4 is 1696.23 TPD for H1-FY 23-24. Average ash percent was 41.61 % for H1 FY23-24 and average sulfur content was 0.43 percent in H1 FY 23-24.</td></tr>
<tr><td>iv)</td><td>A single twin flue stack height of 150 m height shall be provided with continuous online monitoring equipment. Exit velocity of 26.8 m/s should be maintained.</td><td>A single flue stack of 150 m height is installed with continuous online monitoring equipment. The data of online monitoring equipment is transferred to Jharkhand pollution control board and central pollution control board. Exit velocity of approx. 27.81 m/s is being maintained.</td></tr>
<tr><td>v)</td><td>High efficiency Electrostatic Precipitator (ESP) having efficiency of 99.8% should be installed to limit outlet SPM emission of 100 mg/Nm^3.</td><td>Dual pass, 7 field Electrostatic precipitator (ESP) having efficiency 99.91% is installed. The SPM emission is maintained at less than 50 mg/Nm^3. The stack emission report is attached as Annexure-I and the average particulate emission for H1 FY 23-24 is as follows:
<table>
<tr><th colspan="2">Particulate Matter Emission from stack (mg/Nm3)-H1 FY24</th></tr>
<tr><td>Month</td><td>Unit 4</td></tr>
<tr><td>Limit</td><td>50</td></tr>
<tr><td>Apr'23</td><td>39.58</td></tr>
<tr><td>May'23</td><td>36.94</td></tr>
<tr><td>June'23</td><td>42.66</td></tr>
<tr><td>July'23</td><td>40.14</td></tr>
<tr><td>Aug'23</td><td>38.80</td></tr>
<tr><td>Sep'23</td><td>38.58</td></tr>
<tr><td>Avg</td><td>39.45</td></tr>
<tr><td>Max</td><td>42.66</td></tr>
<tr><td>Min</td><td>36.94</td></tr>
</table></td></tr>
</table>

		We have installed gaseous ammonia injection system for reduction of SPM.
vi)	Ash Generation will be 576 TPD fly ash and 120 TPD bottom ash. Ash will be utilized in cement production, brick manufacturing and the remaining for filling up abandoned mines. Ash generated should be used in a proved manner as per provisions of the notification on fly ash utilization issued by the ministry on September 1999 and its subsequent amendments.	The Fly ash generation was 564.62 TPD for H1 FY 23-24 and bottom ash generation was 141.16 TPD for H1 FY 23-24. Almost 52.27 % ash was utilized in cement production in H1 FY 2023-24 for the station and rest was used in brick manufacturing and reclamation of low-lying area. 100 % Fly ash utilization was done in FY 23. Ash generated is used in proved manner as per provisions of the notification on fly ash utilization and periodic report is sent to CEA, MOEF and PCBs. Unit wise coal consumption, ash generation and utilization details are attached as Annexure-XII.
vii)	Water requirement should not exceed 11557 m^3/day. Waste water shall be treated and recycled and reused in the plant. The total water withdrawal from the Subarnarekha River shall not exceed the permissible quantity from the competent authorities	Complied The average water consumption is 6153.26 m^3/day in H1 FY 23-24. Wastewater is treated in effluent treatment plant, recycled and reused in process. The total water withdrawal does not exceed the permissible quantity from the competent authorities.
viii)	Central ground water authority / board shall be consulted for the finalization of appropriate water harvesting technology within a period of two months from the date of clearance.	Complied.
ix)	Regular monitoring of water quality including heavy metals should be undertaken around ash dyke and project area to ascertain the change in water quality, if any, due to leaching of contaminants from ash disposal area.	Ground water quality including heavy metals is being monitored regularly around ash pond and project area. Analysis report for H2 FY 23 was submitted vide letter No JPP/ 96 /2023 dated 29/05/2023. Analysis report for H1 FY 24 is attached as Annexure- VII.
x)	Noise level should be limited to 75 dbA during the day hour and 70 dbA during the night hour and regular maintenance of equipment be undertaken. For people working in the area of generator and other high noise area, earplug should be provided.	Noise level is limited to 75 dbA during the day hour and 70 dbA during the night hour and regular maintenance of equipment is undertaken. The turbine is enclosed within acoustic enclosure. Earplugs provided to workers who is working in high noise area. Regular audiometric check-up / examination are included in our annual occupational health check-up schedule. The records are maintained. The noise monitoring data for period April'23 to Sep'23 is attached as annexure -V.

xi)	Green Belt should be developed in vacant space and around the plant and ash pond. Tree density of 1500 – 2000 trees per ha should be maintained.	Afforestation status report is hereby submitted as Annexure- VIII.
xii)	Regular monitoring of air quality should be carried out in and around the power plant and records be maintained. Periodic six-monthly report should be submitted to this ministry	Regular monitoring of air quality is being carried out in four locations inside plant and two locations around plant and records are being maintained. Last periodic six- monthly reports was sent vide letter No. JPP/ 96/2023 dated 29/05/2023 for H2 FY 22-23. Consolidated detailed report for the period Apr'23 to Sep'23 is enclosed as Annexure-VI and monthly report is also submitted to JSPCB. Last report was submitted with letter no. JPP/ 173 /2023 dated 16/10/2023.
xiii)	For controlling fugitive dust, regular sprinkling of water in vulnerable areas of the plant should be ensured.	Fixed type water spraying has been installed in coal storage area, conveyor and wagon tippler. Regular water sprinkling is done in dusty areas is being done by mobile water sprinkler. Dry fog dust suppression system has been installed in coal crushing circuits.
xiv)	All other mitigative measures shall be taken as enumerated in chapter 7 of the EIA report	Report for proactive action for Environment is attached as Annex- IV.
xv)	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the state pollution control board.	Complied during project execution
xvi)	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	We have separate environmental management with suitable qualified personal set up under the control of the head of the unit to exclusively look after the implementation of environmental stipulation. The organizational structure for environment management cell is as given below 1. CEO – IEL & Chief – Jamshedpur Operations 2. Chief – Operation & Maintenance 3. Head – Environment 4. Group Head – Civil 5. Group Head- Coal Handling Plant 6. Group Head – Safety & Fire

<table>
<tr><td></td><td></td><td>7. Group Head-Ash handling
Monitoring agency (MOEF approved and NABL accredited) has been engaged to carry routine testing of environmental parameters at site.</td></tr>
<tr><td>xvii)</td><td>Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted to the department of Environment and forest, Government of Jharkhand, CPCB & JSPCB</td><td>Half yearly reports on the status of implementation of the stipulated conditions and environment safeguards are being submitted to Ministry of Environment and Forest, Regional office, Ranchi, Central Pollution Control Board and Jharkhand State Pollution Control Board, Ranchi. Last report submitted on 29/05/2023 vide letter no JPP/ 96 /2023.</td></tr>
<tr><td>xviii)</td><td>Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year-wise expenditure should be submitted to the department.</td><td>Separate fund has been allotted for environment management. The year wise expenditure is as follows.
<table>
<tr><th>Year</th><th>Expenditure (Rs. In lakhs)</th></tr>
<tr><td>2013-14</td><td>153</td></tr>
<tr><td>2014-15</td><td>182</td></tr>
<tr><td>2015-16</td><td>192</td></tr>
<tr><td>2016-17</td><td>171</td></tr>
<tr><td>2017-18</td><td>193</td></tr>
<tr><td>2018-19</td><td>194</td></tr>
<tr><td>2019-20</td><td>157</td></tr>
<tr><td>2020-21</td><td>168</td></tr>
<tr><td>2021-22</td><td>170</td></tr>
<tr><td>2022-23</td><td>173</td></tr>
</table>
Details of item wise breakup for FY 22-23 is provided in annexure- IX.</td></tr>
<tr><td>xix)</td><td>Full cooperation should be extended to the scientists / officers from the ministry of the environment and forests, Government of India / Regional office of the ministry at Bhubaneswar / Department of Forest and Environment, Govt. of Jharkhand / CPCB / SPCB who would be monitoring the compliance status.</td><td>Noted.</td></tr>
</table>

Compliance Status of Environment Clearance of Unit # 5 (1 × 120 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum, Jharkhand vide MOEF letter no J 13011/14/2008.IA-II (T) dated 17th December 2008

<table>
<tr><th>S No</th><th>Conditions</th><th>Compliance status</th></tr>
<tr><td>i)</td><td>The total land requirement for the project shall be restricted to 5.2 ha.</td><td>Complied.
This unit is in the existing premises.</td></tr>
<tr><td>ii)</td><td>Sulphur and ash contents in the coal to be used in the project shall not exceed 0.6% and 37% respectively.</td><td>Average sulfur content was 0.41 percent in H1 FY 23-24 and ash percent was 43.28 % in H1 FY 23-24.
100% Fly Ash Utilization was achieved in FY23.</td></tr>
<tr><td>iii)</td><td>The height of the stack shall be as per the standards prescribed in this regard or 150 m whichever is more. The stack shall be provided with continuous online monitoring equipments for SOx, NOx and particulate. Exit velocity of flue gas shall not be less than 20 m/sec</td><td>Complied
The stack of height 150 m has been provided with continuous online monitoring equipments for SOx, NOx and particulate. Exit velocity of flue gas is approx. 25.97 m/sec.</td></tr>
<tr><td>iv)</td><td>High efficiency electrostatic precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm3</td><td>Dual pass, 7 field high efficiency electrostatic precipitator (ESP) has been installed to limit SPM emission <50 mg/Nm3.Stack analysis report attached as Annexure I.
<table>
<tr><th colspan="2">Particulate Matter Emission from stack (mg/Nm3)-H1 FY24</th></tr>
<tr><td>Month</td><td>Unit 5</td></tr>
<tr><td>Limit</td><td>50</td></tr>
<tr><td>Apr'23</td><td>33.55</td></tr>
<tr><td>May'23</td><td>32.89</td></tr>
<tr><td>June'23</td><td>37.13</td></tr>
<tr><td>July'23</td><td>36.91</td></tr>
<tr><td>Aug'23</td><td>36.27</td></tr>
<tr><td>Sep'23</td><td>35.65</td></tr>
<tr><td>Avg</td><td>35.40</td></tr>
<tr><td>Max</td><td>37.13</td></tr>
<tr><td>Min</td><td>32.89</td></tr>
</table></td></tr>
<tr><td>v)</td><td>The R&M programme in respect of the existing units shall be taken up so as to ensure that the particulate emission from the existing units no. 1, 2 and 3 to be brought down to 75 mg/Nm3 and for unit no. 4 to 50 mg/Nm3. the improvement from the existing units shall be achieved within a period of 18 months from the date of clearance of this letter.</td><td>The R&M program in respect of existing units was taken and gaseous ammonia injection system was installed in electrostatic precipitator of all units to restrict the particulate emission for existing units 1,2 and 3 to be below 75 mg/Nm3 and for unit 4 to below 50 mg/NM3. The average particulate emission for H1 FY 23-24 are as follows:</td></tr>
</table>

<table>
<tr><td></td><td></td><td>Details report attached as annexure- I.

<table>
<tr><td colspan="6">Particulate Matter Emission from stack (mg/Nm3)- H1 FY24</td></tr>
<tr><th>Month</th><th>Unit 1</th><th>Unit 2</th><th>Unit 3</th><th>Unit 4</th><th>Unit 5</th></tr>
<tr><td>Limit</td><td>75</td><td>75</td><td>75</td><td>50</td><td>50</td></tr>
<tr><td>Apr'23</td><td>50.11</td><td>51.65</td><td>49.77</td><td>39.58</td><td>33.55</td></tr>
<tr><td>May'23</td><td>51.24</td><td>53.08</td><td>49.72</td><td>36.94</td><td>32.89</td></tr>
<tr><td>June'23</td><td>53.45</td><td>57.38</td><td>57.87</td><td>42.66</td><td>37.13</td></tr>
<tr><td>July'23</td><td>56.27</td><td>53.98</td><td>59.45</td><td>40.14</td><td>36.91</td></tr>
<tr><td>Aug'23</td><td>55.04</td><td>53.38</td><td>53.00</td><td>38.80</td><td>36.27</td></tr>
<tr><td>Sep'23</td><td>49.40</td><td>52.66</td><td>52.15</td><td>38.58</td><td>35.65</td></tr>
<tr><td>Avg</td><td>52.58</td><td>53.69</td><td>53.66</td><td>39.45</td><td>35.40</td></tr>
<tr><td>Max</td><td>56.27</td><td>57.38</td><td>59.45</td><td>42.66</td><td>37.13</td></tr>
<tr><td>Min</td><td>49.40</td><td>51.65</td><td>49.72</td><td>36.94</td><td>32.89</td></tr>
</table></td></tr>
<tr><td>vi)</td><td>Space provision shall be kept for retrofitting of FGD, if required at a later date.</td><td>Noted.</td></tr>
<tr><td>vii)</td><td>Adequate dust extraction system such as cyclones / bag filters and water spray systems in dusty areas such as in coal handling and ash plant points, transfer areas and other vulnerable dusty areas shall be provided.</td><td>We have installed dust extraction system.
Fixed type water spraying has been installed in coal storage area, conveyor and wagon tippler.
Regular water sprinkling is done in dusty areas is being done by mobile water sprinkler.
Dry fog dust suppression system has been installed in coal crushing circuits</td></tr>
<tr><td>viii)</td><td>Fly ash shall be collected in dry form and storage facility (silos) shall be provided. 100% utilization of fly ash shall be achieved from day one. Unutilized bottom ash shall be disposed off in the existing pond. There shall be no ash pond as part of this project. Mercury and other heavy metals (Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in effluent emanating from existing ash pond.</td><td>Fly ash being collected in dry form and storage facility (silo) is constructed with necessary dust arresting systems. The generation and utilization details attached as annexure- XII.
The details analysis heavy metal in bottom ash is attached as annexure- X.
No effluent overflows from existing pond.</td></tr>
<tr><td>ix)</td><td>Closed cycle cooling system with induced draft cooling towers shall be provided. The effluents shall be treated as per prescribed norms.</td><td>A closed cycle induced draft cooling system is installed. Effluents are being treated in effluent treatment plant and reused as fresh water.</td></tr>
<tr><td>x)</td><td>The treated effluents confirming the prescribed standards shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary</td><td>Zero discharge system is developed, and treated effluent is being recirculated and reused within the plant.</td></tr>
</table>

	except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	ETP Inlet & outlet water quality analysis report is attached as Annex -II.
xi)	A sewage treatment plant shall be provided and treated sewage shall be used for raising greenbelt/ plantation.	The installation of Sewage Treatment Plant is complete, and plant is operational from April 2015.The treated water is being reused.
xii)	Conservation plan for the schedule –I animals shall be prepared in consultation with state wildlife department and be implemented under their supervision and control. Separate funds for the same shall be earmarked in project cost.	Unit #5 project is within the existing industrial premise of Tata Power, wherein existing units 1, 2, 3 & 4 are installed and operating. No forest land is used for this project. The same is communicated to Divisional Forest Officer, Dalma WLS Wildlife Division, Ranchi, Jharkhand. And PCCF, Jharkhand, At- Doranda, P.O. Doranda, Ranchi.
xiii)	Rainwater harvesting should be adopted. Central Groundwater authority / board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	Complied.
xiv)	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of the measures with full details along with location plant layout shall be submitted to the ministry as well as to the regional office of the ministry at Bhubaneswar.	Adequate safety measures have been provided to check/minimize spontaneous fires in coal yard and firefighting arrangements, fire hydrants, fire extinguishers, fixed type water sprinklers are provided in the plant area to minimize spontaneous fires in coal yard.
xv)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project.	Complied during construction
xvi)	Storage facilities for liquid fuel such as LDO and HFO/LSHS shall be made in the plant area where risk is minimum to the storage facilities. Onsite and offsite disaster management plans shall be prepared to meet any eventuality in case of an accident taking place. Mock drills shall be conducted regularly and based on	Onsite and Offsite disaster management plans were prepared. Mock drills are being conducted regularly. Recent mock drill was conducted on 21/07/2023. Average Sulphur content in the liquid fuel is 0.24% in H1 FY 24.

	the same, modifications required, if any shall be incorporated in the DMP, sulphur content in the liquid fuel shall not exceed 0.26%.	
xvii)	Regular monitoring of ground water in and around the existing ash pond area including heavy metals shall be carried out, records maintained and six monthly reports shall be furnished to the regional office of this ministry.	Regular monitoring of ground water in and around existing ash pond area including heavy metals is being carried out and six-monthly reports are being sent to regional office regularly. Last six- monthly report was sent vide letter no JPP/ 96 /2023 dated 29/05/2023. Monitoring report for H1 FY24 is attached as Annexure- VII.
xviii)	A green belt of adequate width and density shall be developed around the plant periphery covering about 1/3 of the project area preferably with local species.	Three tier plantations along the boundary have been done. Afforestation report and details of tree planted is attached as Annexure- VIII.
xix)	Activities under CSR shall be enhanced with proper financial allocation. Details of these activities shall also be submitted to the regional office of the ministry, SPCB and the ministry.	Details of CSR activities submitted to regional office of the Ministry for H2 FY 23 vide letter no JPP/ 96 /2023 dated 29/05/2023. Report on CSR activities during H1 FY24 is attached as annex -XI.
xx)	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied during construction.
xxi)	Noise levels emanating from turbines shall be controlled in a manner such that the noise in the work zone is limited to 75dBA. For people working in the high noise area, requisite personal protective equipment like earplugs / ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy / less noisy areas.	Noise level is restricted to 75 dB (A) in unit 5 turbine areas. The turbine is enclosed within acoustic enclosure. Silencer to turbine start up vent is provided to minimize ambient noise level. Earplugs provided to workers in high noise area. Regular audiometric check-up / examination is included in our annual occupational health check-up schedule. The records are maintained. The noise monitoring data for period Apr'23 to Sep'23 is attached as annexure- V.
xxii)	Regular monitoring of ground level concentration of SO2, NOx, SPM, RSPM and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided	The location of the monitoring stations and frequency were decided in consultation with JSPCB. Regular monitoring of ground level concentration of SO2, NOx, SPM, RSPM and Hg is being carried out and records are maintained. Periodic reports of ambient air quality in and around the plant as per SO 826 dated 16.11.2009 are being sent to regional office of the ministry and last half

	in consultation with SPCB. Periodic reports shall be submitted to the regional office of this ministry.	yearly report was sent vide letter no JPP/ 96 /2023 dated 29/05/2023. Consolidated detailed report for the period Apr'23 to Sep'23 is attached as Annexure-VI and monthly report is also submitted to JSPCB. Last monthly report was submitted with letter no. JPP/ 173 /2023 dated 16/10/2023.
xxiii)	The project proponent shall advertise in at least two local news papers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality/municipal area/gram panchayat concerned and on the company's web site within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the state pollution control board and may also be seen at website of Ministry of Environment and Forests at http//envfor.nic.in	Complied and submitted details to regional office.
xxiv)	A separate environment management cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	We have separate environmental management cell with suitable qualified personal set up under the control of the Chief of the unit to exclusively look after the implementation of environmental safeguards. The organizational structure for environment management cell is as given below 1. CEO – IEL & Chief – Jamshedpur Operations 2. Chief – Operation & Maintenance 3. Head – Environment 4. Group Head – Civil 5. Group Head- Coal Handling Plant 6. Group Head – Safety & Fire 7. Group Head-Ash handling Monitoring agency (MOEF approved and NABL accredited) has been engaged to carry routine testing of environmental parameters at site.
xxv)	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be	Half yearly reports on the status of implementation of the stipulated conditions and environment safeguards are being submitted to Ministry of Environment and Forest, Regional office, Ranchi, Central Pollution

<table>
<tr><td></td><td>submitted to this ministry/regional office/CPCB/SPCB.</td><td>Control Board and Jharkhand State Pollution Control Board, Ranchi. Last HY report submitted on 29/05/2023 vide letter no JPP/ 96 /2023.</td></tr>
<tr><td>xxvi)</td><td>Regional office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with additional information submitted from time to time shall be forwarded to the regional office for their use during monitoring.</td><td>Half yearly compliance report is sent to Regional office, MOEF, Ranchi to monitor the compliance status of the stipulated conditions. Also desired data, information and reports are given within stipulated timeframe as per instruction of concerned authorities.</td></tr>
<tr><td>xxvii)</td><td>Separate funds shall be allotted for implementation of environmental protection measures along with item wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the ministry.</td><td>Separate fund has been allotted for environment management. The year wise expenditure is as follows.
<table>
<tr><th>Year</th><th>Expenditure (Rs. in lakhs)</th></tr>
<tr><td>2014-15</td><td>182</td></tr>
<tr><td>2015-16</td><td>192</td></tr>
<tr><td>2016-17</td><td>171</td></tr>
<tr><td>2017-18</td><td>193</td></tr>
<tr><td>2018-19</td><td>194</td></tr>
<tr><td>2019-20</td><td>157</td></tr>
<tr><td>2020-21</td><td>168</td></tr>
<tr><td>2021-22</td><td>170</td></tr>
<tr><td>2022-23</td><td>173</td></tr>
</table>
Details of item wise breakup for FY23 is provided in annexure -IX</td></tr>
<tr><td>xxviii)</td><td>The project authorities shall inform the regional office as well as the ministry regarding the data of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.</td><td>The dates of financial closure, final approval of the project by the concerned authorities, start of land development work and commissioning of the plant were communicated to ministry.</td></tr>
<tr><td>xxix)</td><td>Full cooperation shall be extended to the scientists/officers from the Ministry / Regional office of the Ministry at Bhubaneswar / the CPCB / the SPCB who would be monitoring the compliance of environmental status.</td><td>Noted.</td></tr>
</table>

Annex- A

Compliance Status of Bihar State Pollution Contro Board letter 4051 dated 23/07/96 for Point 1 of Environment Clearance Unit # 2&3 (2 × 120 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum, Jharkhand vide MOEF letter no J.13011/28/96-IA II (T) dated 20.01.1997

S. No.	Conditions	Compliance Status
i	The construction work of the proposed power Plant (2X120 MW) at Jojobera shall commerce only after the Gorabandha Land which is submitted in the Project Report for the disposal of ash slurry is transferred to JAPCOL and physical Possession of the same has been made available to the unit under the forest conservation Act, 1960. Prior to the commencement of the construction of the proposed power plant, JAPCOL shall take permission from Bihar State Pollution Control Board.	Complied
ii	The unit shall obtain consent to operate under sections 25&26 of the dated Act. 1974 & section 21 of the Air Act 1981 prior to commission of the plant from Pollution Control Board.	Complied
iii	The effluence (Domestic & Trade) and emission shall conform to the standard prescribed by the Board.	Complied
iv	The noise level shall be within the prescribed limit.	Complied
v	Waste management Scheme (Including Recycling and utilization all kind of Waste) Shall be submitted within two month to S.P.C.B Patna	Complied during project execution
vi	Time bound Eco development Scheme shall be submitted within one month to SPCB for development of Green belt in the vacant spaces within the plant premises.	Complied during project execution
vii	Condenser, Boiler blow down and Cooling Tower discharges shall also be within the prescribed Limit.	Complied
viii	Stack (s)-height with porthole and platform shall be on per norms of CPCB.	Complied
ix	A operate scheme for slurry pond as well as complete utilization of ash pond water shall be submitted taking into account the total load of all power plants (existing and proposed) at Jojobera Before commencement of construction activities.	Complied
x	The unit shall use only washed coal.	Noted
xi	The unit shall provide necessary facility for desulphurization of the gas.	Noted

Annex- B

Compliance Status of Bihar State Pollution Contro Board letter 4457 dated 20/08/96 for amendment in point xi of Bihar State Pollution Contro Board letter no 4051 dated 23/07/96 for Environment Clearance Unit # 2&3 (2 × 120 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum, Jharkhand vide MOEF letter no J.13011/28/96-IA II (T) dated 20.01.1997

S. No.	Conditions	Compliance Status
xi(a)	The unit shall provide necessary facility for desulphurization of the gas, if required. However, provision to be made for retrofitting of the FGD right now.	Complied
xi(b)	If coal of higher Sulphur content is proposed to be used at any time, the B.S.P.C.B. must be informed in advance.	We are using coal of low Sulphur content (< 0.6%)

Annex- C

Compliance Status of letter no 3484 dated 07.06.2003 for Environment Clearance of Unit # 4 (1 × 120 MW) at Jojobera Power Plant, Tata Power Co. Ltd, Jamshedpur District East Singhbhum, Jharkhand vide Dept. of Forest, Govt. of Jharkhand letter no 5177 dated 3rd Sept, 2005

Sl. No.	Conditions	Status of Compliance
i)	The unit shall obtain consent to operate under section 25 and 26 of the Water (Prev. & Control of Pollution) Act, 1974 and section 21 of Air (Prev. & Control of Pollution) Act, 1981 prior to commissioning of the plant from State Pollution Control Board.	The unit obtained consent to operate vide letter no JA/2640/A/4316 dated 21/09/2005 with validity from 06./07/2005 to 30.6.2006 prior to commissioning of the plant.
ii)	The Unit shall install Effluent Treatment Plant adopting appropriate technology to treat the effluent, if any to the standard stipulated. The treated effluent from all sources should be completely recycled to ensure zero discharge from the unit.	The Effluent treatment Plant of capacity 100M3/Hr has been installed in Oct'2011.The plant is operated continuously to ensure zero discharge. The treated water is recycled to use as process water.
iii)	All tanks used for collection and treatment of effluent shall be made impervious by providing adequate cement concrete/stone of brick masonry/stone slab lining with leak proof material and Acid resistant material.	All tanks used for collection and treatment of effluent are impervious by providing acid/alkali proof lining. The surrounding areas are epoxy screeded.
iv)	The unit shall install water meters to measure the water consumed for different purposes as per the Water (Prevention & control of Pollution Act, 1977).	Complied
v)	The unit shall ensure continuous and uninterrupted power supply so that the pollution control system functions uninterruptedly. Separate energy meter shall be provided for the pollution control system.	Complying with emergency power back up. Separate energy meters are installed for Electrostatic precipitators, Effluent treatment plant etc.
vi)	The unit shall upgrade pollution control system as and when new technologies are available.	The Electrostatic precipitators are upgraded with continuous anhydrous ammonia dosing system. The automatic bagging machine for fly ash bagging has been installed.

<table>
<tr><td>vii)</td><td>The unit shall install suitable Air Pollution Control devices wherever necessary to control fugitive emission from coal crushing land conveying loading and unloading, etc. and emission from stack shall meet prescribed standard as per new Charter of CPCB.</td><td>The unit has installed fixed type sprinklers in coal storage area, ash handling area etc. to control fugitive emission.
The emission from stack meets the prescribed standard as per EC clearance of Unit # 4.
The limit prescribed and arithmetic average of emission level achieved in H1 FY 24 in Unit 4 are as follows:
<table>
<tr><td colspan="2">Particulate Matter Emission from stack (mg/Nm3)-H1 FY24</td></tr>
<tr><td>Month</td><td>Unit 4</td></tr>
<tr><td>Limit</td><td>50</td></tr>
<tr><td>Apr'23</td><td>39.58</td></tr>
<tr><td>May'23</td><td>36.94</td></tr>
<tr><td>June'23</td><td>42.66</td></tr>
<tr><td>July'23</td><td>40.14</td></tr>
<tr><td>Aug'23</td><td>38.80</td></tr>
<tr><td>Sep'23</td><td>38.58</td></tr>
<tr><td>Avg</td><td>39.45</td></tr>
<tr><td>Max</td><td>42.66</td></tr>
<tr><td>Min</td><td>36.94</td></tr>
</table></td></tr>
<tr><td>viii)</td><td>The height of Stack(s) if any, shall be as per norms of Central Pollution Control Board. Necessary porthole ladder and platform shall be provided with the stack as per norms of Control Board for stack emission monitoring.</td><td>The stack height is 100 meters for unit 1 of 67.5 MW units and 150 meters for unit 2, 3, 4 & 5 of 120 MW units. The height of stack is as per EC norms and port hole ladder and platform is provided with the stack as per norms of CPCB.</td></tr>
<tr><td>ix)</td><td>The unit shall provide Ambient Air Quality Report and Noise level monitoring report before and after commissioning of the plant. The unit shall ensure that the Noise level and AAQ shall be within the prescribed limit.</td><td>The ambient air quality monitoring is done as per NAAQMS at four locations inside plant and two locations outside plant (nearby areas). The Half yearly report of monitoring results with maximum, minimum and average is attached as annex-VI. Detailed report is submitted monthly to JSPCB. Last monthly report was submitted with letter no. JPP/ 173 /2023 dated 16/10/2023. The ambient air quality report and noise level monitoring report is submitted to Jharkhand pollution control board monthly. The noise level and AAQ is within prescribed limit.</td></tr>
<tr><td>x)</td><td>The D.G. sets shall be housed properly to minimize noise pollution in and around the factory campus.</td><td>Complying</td></tr>
</table>

xi)	The pot plantation shall be done in 10-mtr widths in zigzag way around the factory campus.	Complying. The three-tier plantation has been done around the factory.
xii)	The unit shall prepare and submit plan for rainwater harvesting.	Complied.
xiii)	The unit shall install ESP of adequate capacity to keep the dust emission from the stack within prescribed standard.	ESP of adequate capacity is installed. Also, we have installed gaseous ammonia dosing system to keep dust emission from stack within prescribed limit.
xiv)	The unit shall install water-spraying system at all the dusty places.	Fixed type water spraying has been installed in coal storage area, conveyor and wagon tippler. Regular water sprinkling is done in dusty areas is being done by mobile water sprinkler. Dry fog dust suppression system has been installed in coal crushing circuits
xv)	In case of any emergency immediate measures shall be taken as per the onsite emergency plan and concerned Govt. Official shall be informed.	Complying as per directives.
xvi)	The unit shall meet the guideline prepared under Charter on Corporate responsibility for Environmental protection by Central Pollution Control Board published on March 13, 2003.	The monthly status of charter on corporate responsibility for environmental protection is being submitted to Jharkhand state pollution control board.
xvii)	The unit shall comply with the direction issued time to time from ministry of Environment and Forest, Govt. of India regarding utilization of fly ash.	Noted
xviii)	The unit shall obtain clearance from State Govt. & MoEF, Government of India before starting the activity at the site.	Clearance obtained before starting the activities at site.

LIST OF ANNEXURE							
Sl No	Annex No	Page no	Compliance of EC point				Description
			U#1	U#2,3	Unit 4	Unit 5	
1		2-4					EC Compliance status Unit 1
2		5-7					EC Compliance status Unit 2&3
3		8-11					EC Compliance status Unit 4
4		12-17					EC Compliance status Unit 5
5	A & B	18-19		EC Point (i)			compliance of conditions by BSPCB vide Memo no T.4051 dated 23.07.96 attached as Annex- A and T.4457 dated 20.08.96 as Annex-B
6	C	20-22	....	....	EC Point (i)	....	compliance of conditions by JSPCB vide letter no 3484 dated 07.06.2003 as Annex-C
7		23					**List of Annexure**
8	I	24-28	EC Point (ii)	EC Point (iii)	EC Point (v)	EC Point (iv), (v)	Stack Analysis report for H1-FY 24
9	II	29-40	EC Point (iii)	....	.....	EC Point (x)	Effluent treatment plant Inlet & Outlet analysis for H1- FY 24
10	III	41	EC Point (iv)	....	....	.....	Road map compliance Fly Ash Utilisation FY22-23
11	IV	42	EC Point (vii)	.....	EC Point (xiv)	....	Proactive action for environment
12	V	43-48	EC Point (xi)	EC Point (vi)	EC Point (x)	EC Point (xxi)	Noise monitoring report -H1 - FY24
13	VI	49-54	EC Point (xiii)	EC Point (xi)	EC Point (xii)	EC Point (xxii)	Summery sheet of ambient air quality report as Annex VI for H1- FY 24
14	VII	55-58	EC Point (xvi)	EC Point (ix)	EC Point (ix)	EC Point (xvii)	Ground water analysis report -H1- FY24
15	VIII	59-60	....	EC Point (viii)	EC Point (xi)	EC Point (xviii)	Afforestation status - H1 - FY24
16	IX	61	....	....	EC Point (xviii)	EC Point (xxvii)	Report on expenditure for Environment FY 22-23
17	X	62	....	....	EC Point (ix)	EC Point (viii)	Heavy metal analysis report of Bottom Ash
18	XI	63-69	....	....	....	EC Point (xix)	CSR plan and compliance- H1- FY 24
19	XII	70-73	....	....	EC Point (vi)	EC Point (viii)	Coal consumption, Ash generation & utilisation report -H1- FY24
20	XIII	74-75	....	....	....	....	Compliance status for Office Memorandum - Amendment in Environment Clearance for change in coal source by MOEF & CC dated 11.11.2020
21	XIV	76	....	....	....	....	Compliance Status of New Emission Norms with Status

Stack Emission Report Unit #1

	Month		Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sep-23		
SL	Parameter	Units	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg
1	Barometric Pressure	mmHg	754	754	754.0	755	755	755.0	751	751	751.0	747	747	747.0	748	748	748.0	749	749	749.0
2	Stack Temperature	(°C)	130	130	130.0	138	139	138.5	136	138	137.0	132	133	132.5	126	128	127.0	123	125	124.0
3	Exit Velocity of Flue Emission	(m/sec)	16.38	16.51	16.45	17.46	17.59	17.53	16.88	17.18	17.03	16.98	17.23	17.11	16.62	16.80	16.71	16.57	17.25	16.91
4	Particulate Matter (PM)	mg /Nm3	47.19	49.68	48.43	46.55	51.80	49.18	54.59	50.18	52.39	56.76	52.74	54.75	54.09	54.51	54.30	49.91	48.22	49.06
5	PM Corrected to 6% O_2	mg /Nm3	49.17	51.05	50.11	48.51	53.97	51.24	55.33	51.56	53.45	58.33	54.20	56.27	54.82	55.25	55.04	50.58	48.22	49.40
6	Sulphur Dioxide (as SO_2)	mg /Nm3	559.94	578.61	569.27	562.88	583.49	573.19	555.91	576.93	566.42	565.29	586.05	575.67	581.39	602.16	591.78	565.56	584.42	574.99
7	SO_2 Corrected to 6% O_2	mg /Nm3	583.44	594.57	589.00	586.50	607.97	597.24	563.48	592.85	578.17	580.89	602.21	591.55	589.30	610.35	599.83	573.26	584.42	578.84
8	Oxides of Nitrogen (as NO_2)	mg /Nm3	446.38	461.47	453.93	475.76	467.78	471.77	463.38	455.77	459.58	475.12	457.96	466.54	483.73	467.54	475.64	476.90	489.35	483.12
9	NO_2 Corrected to 6% O_2	mg /Nm3	465.11	474.21	469.66	495.72	487.40	491.56	469.69	468.34	469.02	488.23	470.59	479.41	490.73	473.90	482.32	483.39	489.35	486.37
10	Carbon monoxide (as CO)	(% v/v)	< 0.2	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
11	Oxygen	(% v/v)	6.6	6.4	6.5	6.6	6.6	6.60	6.2	6.4	6.3	6.4	6.4	6.40	6.2	6.2	6.20	6.2	6.0	6.10
12	Carbon dioxide	(% v/v)	12.2	12.6	12.4	12.4	12.6	12.50	12.6	12.2	12.4	12.2	12.4	12.30	12.4	12	12.20	12.2	12.4	12.30

Annex-I

Stack Emission Report Unit #2

	Month		Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sep-23		
SL	Parameter	Units	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg
1	Barometric Pressure	mmHg	754	754	754	755	755	755.00	751	751	751	747	747	747.00	748	748	748.00	749	749	749.00
2	Stack Temperature	(°C)	138	139	138.5	141	141	141.00	140	139	139.5	137	138	137.50	133	132	132.50	132	132	132.00
3	Exit Velocity of Flue Emission	(m/sec)	17.01	16.64	16.83	16.65	16.78	16.72	16.84	16.92	16.88	16.98	17.10	17.04	16.53	16.40	16.47	16.87	16.50	16.69
4	Particulate Matter (PM)	mg /Nm3	52.44	49.48	50.96	52.78	50.53	51.66	54.66	57.82	56.24	51.77	54.73	53.25	55.12	50.88	53.00	50.94	52.97	51.95
5	PM Corrected to 6% O_2	mg /Nm3	53.15	50.16	51.65	54.23	51.93	53.08	56.16	58.60	57.38	52.47	55.48	53.98	55.87	50.88	53.38	51.63	53.69	52.66
6	Sulphur Dioxide (as SO_2)	mg /Nm3	636.65	655.38	646.02	642.06	660.90	651.48	634.63	651.76	643.20	621.82	659.51	640.67	639.78	620.96	630.37	620.13	582.50	601.32
7	SO_2 Corrected to 6% O_2	mg /Nm3	645.32	664.30	654.81	659.78	679.13	669.46	652.13	660.63	656.38	630.28	668.48	649.38	648.49	620.96	634.73	628.57	590.43	609.50
8	Oxides of Nitrogen (as NO_2)	mg /Nm3	465.30	446.30	455.80	463.05	454.66	458.86	443.71	456.25	449.98	441.13	460.43	450.78	463.33	474.43	468.88	457.21	468.30	462.76
9	NO_2 Corrected to 6% O_2	mg /Nm3	471.63	452.38	462.01	475.82	467.21	471.52	455.95	462.46	459.21	447.13	466.70	456.92	469.63	474.43	472.03	463.43	474.67	469.05
10	Carbon monoxide (as CO)	(% v/v)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
11	Oxygen	(% v/v)	6.2	6.2	6.2	6.4	6.4	6.40	6.4	6.2	6.3	6.2	6.2	6.20	6.2	6	6.10	6.2	6.2	6.20
12	Carbon dioxide	(% v/v)	12.8	12.8	12.8	12.8	12.6	12.70	12.2	12.4	12.3	12.2	12.4	12.30	12.2	12.2	12.20	12.4	12.2	12.30

Stack Emission Report Unit #3

	Month		Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sep-23		
SL	Parameter	Units	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg
1	Barometric Pressure	mmHg	754	754	754	755	755	755.00	751	751	751	747	747	747.00	748	748	748.00	749	749	749.00
2	Stack Temperature	(°C)	137	138	137.5	138	139	138.50	134	135	134.5	138	139	138.50	133	134	133.50	134	133	133.50
3	Exit Velocity of Flue Emission	(m/sec)	20.94	20.88	20.91	20.02	19.86	19.94	19.83	20.04	19.94	19.99	20.31	20.15	19.27	19.49	19.38	19.17	19.34	19.26
4	Particulate Matter (PM)	mg /Nm3	49.60	51.96	50.78	51.51	45.95	48.73	54.59	58.78	56.69	57.50	59.01	58.26	53.74	50.84	52.29	52.40	49.81	51.10
5	PM Corrected to 6% O_2	mg /Nm3	48.94	50.60	49.77	52.21	47.22	49.72	55.34	60.4	57.87	59.09	59.81	59.45	54.47	51.53	53.00	53.11	51.18	52.15
6	Sulphur Dioxide (as SO_2)	mg /Nm3	709.29	730.28	719.79	698.66	712.97	705.82	653.86	677.37	665.62	640.60	678.35	659.48	658.56	698.49	678.53	638.89	676.52	657.70
7	SO_2 Corrected to 6% O_2	mg /Nm3	699.89	711.19	705.54	708.17	732.64	720.41	662.75	696.06	679.41	658.27	687.58	672.93	667.52	708.00	687.76	647.58	695.18	671.38
8	Oxides of Nitrogen (as NO_2)	mg /Nm3	450.95	470.78	460.86	459.35	467.78	463.57	461.71	445.81	453.76	473.83	460.72	467.28	485.93	477.79	481.86	488.53	494.15	491.34
9	NO_2 Corrected to 6% O_2	mg /Nm3	444.98	458.47	451.72	465.60	480.68	473.14	467.99	458.11	463.05	486.90	466.99	476.95	492.54	484.29	488.42	495.18	507.78	501.48
10	Carbon monoxide (as CO)	(% v/v)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
11	Oxygen	(% v/v)	5.8	5.6	5.7	6.2	6.4	6.30	6.2	6.4	6.3	6.4	6.2	6.30	6.2	6.2	6.20	6.2	6.4	6.30
12	Carbon dioxide	(% v/v)	13.0	13.2	13.1	13.2	12.8	13.00	12.8	12.8	12.8	12.4	12.6	12.50	12.2	12.4	12.30	12.4	12.2	12.30

Stack Emission Report Unit #4

	Month		Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sep-23		
SL	Parameter	Units	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg
1	Barometric Pressure	mmHg	754	754	754	755	755	755.00	751	751	751	747	747	747.00	748	748	748.00	749	749	749.00
2	Stack Temperature	(°C)	141	143	142	145	145	145.00	142	140	141	151	148	149.50	142	144	143.00	140	141	140.50
3	Exit Velocity of Flue Emission	(m/sec)	27.76	27.84	27.80	27.57	27.51	27.54	27.19	26.87	27.03	27.90	31.15	29.53	27.07	27.97	27.52	27.13	27.75	27.44
4	Particulate Matter (PM)	mg /Nm3	37.55	40.55	39.05	35.27	37.11	36.19	40.81	42.79	41.80	39.71	38.94	39.33	37.31	39.25	38.28	36.89	38.74	37.81
5	PM Corrected to 6% O_2	mg /Nm3	38.06	41.10	39.58	35.75	38.14	36.94	41.94	43.37	42.66	40.81	39.47	40.14	37.81	39.78	38.80	37.90	39.26	38.58
6	Sulphur Dioxide (as SO_2)	mg /Nm3	580.49	561.76	571.13	604.29	585.41	594.85	580.57	576.94	578.76	567.12	586.05	576.59	583.34	602.14	592.74	657.68	638.89	648.29
7	SO_2 Corrected to 6% O_2	mg /Nm3	588.39	569.41	578.90	612.51	601.55	607.03	596.59	584.79	590.69	582.76	594.02	588.39	591.28	610.34	600.81	675.82	647.58	661.70
8	Oxides of Nitrogen (as NO_2)	mg /Nm3	473.71	470.17	471.94	480.77	488.71	484.74	476.82	492.41	484.62	487.65	476.47	482.06	494.45	484.33	489.39	422.78	428.03	425.41
9	NO_2 Corrected to 6% O_2	mg /Nm3	480.15	476.56	478.36	487.31	502.19	494.75	489.97	499.11	494.54	501.10	482.95	492.03	501.18	490.92	496.05	434.45	433.86	434.16
10	Carbon monoxide (as CO)	(% v/v)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
11	Oxygen	(% v/v)	6.2	6.2	6.2	6.2	6.4	6.30	6.4	6.2	6.30	6.4	6.2	6.30	6.2	6.2	6.20	6.4	6.2	6.30
12	Carbon dioxide	(% v/v)	12.6	12.8	12.7	12.8	12.6	12.70	12.4	12.8	12.60	12.4	12.6	12.50	12.2	12.4	12.30	12.2	12.4	12.30

Stack Emission Report Unit #5

	Month		Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sep-23		
SL	Parameter	Units	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg	Pass A	Pass B	Avg
1	Barometric Pressure	mmHg	754	754	754	755	755	755.00	751	751	751.00	747	747	747.00	748	748	748.00	749	749	749.00
2	Stack Temperature	(°C)	136	137	136.5	142	143	142.50	137	138	137.5	146	141	143.50	140	139	139.50	141	140	140.50
3	Exit Velocity of Flue Emission	(m/sec)	25.62	25.48	25.55	24.58	24.51	24.55	23.79	23.73	23.76	30.01	27.53	28.77	26.26	26.93	26.60	26.17	26.98	26.58
4	Particulate Matter (PM)	mg /Nm3	33.22	31.62	32.42	31.79	33.11	32.45	35.97	36.77	36.37	37.97	34.38	36.18	36.11	35.44	35.78	35.75	34.60	35.17
5	PM Corrected to 6% O_2	mg /Nm3	34.61	32.49	33.55	32.23	33.56	32.89	36.46	37.79	37.13	38.49	35.32	36.91	36.11	36.42	36.27	36.23	35.07	35.65
6	Sulphur Dioxide (as SO_2)	mg /Nm3	634.60	617.94	626.27	617.10	637.91	627.51	615.38	636.63	626.01	621.79	642.72	632.26	641.94	623.86	632.90	676.50	657.71	667.11
7	SO_2 Corrected to 6% O_2	mg /Nm3	661.23	634.98	648.11	625.50	646.59	636.05	623.75	654.19	638.97	630.25	660.45	645.35	650.68	641.07	645.88	685.70	666.66	676.18
8	Oxides of Nitrogen (as NO_2)	mg /Nm3	466.66	453.05	459.85	479.89	472.23	476.06	472.24	464.26	468.25	475.31	456.26	465.79	482.72	465.72	474.22	435.56	430.91	433.24
9	NO_2 Corrected to 6% O_2	mg /Nm3	486.24	465.54	475.89	486.42	478.65	482.54	478.67	477.07	477.87	481.78	468.85	475.32	482.72	465.72	474.22	441.48	436.78	439.13
10	Carbon monoxide (as CO)	(% v/v)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
11	Oxygen	(% v/v)	6.6	6.4	6.5	6.2	6.2	6.20	6.2	6.4	6.30	6.2	6.4	6.30	6.2	6.4	6.30	6.2	6.2	6.20
12	Carbon dioxide	(% v/v)	12.0	12.2	12.1	12.4	12.6	12.50	12.8	12.4	12.60	12.6	12.4	12.50	12.4	12.4	12.40	12.4	12.6	12.50

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Annex-II

[ULR- TC764923000000996F]

[Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 299-2023 Dated: 21.04.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Inlet			
Sample Identification No.	:	WW- 299-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	10.04.2023	Sample Receiving Date	:	10.04.2023
Analysis Started On	:	10.04.2023	Analysis Completed On	:	21.04.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-299-2023	Test Specification
1.	Colour,	Hazen Units	5	15	APHA 23rd Edition, 2120 B
2.	pH	--	2	8.34	APHA 23rd Edition., 4500-H+B
3.	Total Dissolved Solids	mg/L	10	810	APHA 23rd Edition., 2540 C
4.	Total Suspended Solids	mg/L	2	54	APHA 23rd Edition., 2540 D
5.	Dissolved Oxygen	mg/L	1	4.6	APHA 23rd Edition, 4500 O C
6.	Chemical Oxygen Demand	mg/L	8	94	APHA 23rd Edition, 5220 B
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	20	IS 3025 (Part 44) : 1993
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5.0	APHA 23rd Edition., 5220 B

Tripti Ghosh
(Authorized Signatory)

-----End of Test Report-----
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[ULR- TC764923000000997F]

[Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 300-2023 Dated: 21.04.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Outlet			
Sample Identification No.	:	WW- 300-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	10.04.2023	Sample Receiving Date	:	10.04.2023
Analysis Started On	:	10.04.2023	Analysis Completed On	:	21.04.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-300-2023	Test Specification	Limit CPCB*
1.	Colour	Hazen Units	5	10	APHA 23rd Edition, 2120 B	--
2.	pH	--	2	7.62	APHA 23rd Edition., 4500-H+B	6.5-9.0
3.	Total Dissolved Solids	mg/L	10	520	APHA 23rd Edition., 2540 C	--
4.	Total Suspended Solids	mg/L	2	12	APHA 23rd Edition., 2540 D	<100
5.	Dissolved Oxygen	mg/L	1	5.4	APHA 23rd Edition, 4500 O C	--
6.	Chemical Oxygen Demand	mg/L	8	60	APHA 23rd Edition, 5220 B	250
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	13	IS 3025 (Part 44) : 1993	30
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5.0	APHA 23rd Edition., 5220 B	--

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[ULR- TC764923000001346F]

[Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 434-2023 Dated: 27.05.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Inlet			
Sample Identification No.	:	WW- 434-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	13.05.2023	Sample Receiving Date	:	13.05.2023
Analysis Started On	:	13.05.2023	Analysis Completed On	:	26.05.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-434-2023	Test Specification
1.	Colour,	Hazen Units	5	10	APHA 23rd Edition, 2120 B
2.	pH	--	2	7.62	APHA 23rd Edition., 4500-H+B
3.	Total Dissolved Solids	mg/L	10	760	APHA 23rd Edition., 2540 C
4.	Total Suspended Solids	mg/L	2	30	APHA 23rd Edition., 2540 D
5.	Dissolved Oxygen	mg/L	1	4.2	APHA 23rd Edition, 4500 O C
6.	Chemical Oxygen Demand	mg/L	8	102	APHA 23rd Edition, 5220 B
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	26	IS 3025 (Part 44) : 1993
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5.0	APHA 23rd Edition., 5220 B

Dr.Jyotirmoy Majumdar
(Authorized Signatory)

-----End of Test Report-----
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[ULR- TC764923000001347F]

[Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 435-2023 Dated: 27.05.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Outlet			
Sample Identification No.	:	WW- 435-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	13.05.2023	Sample Receiving Date	:	13.05.2023
Analysis Started On	:	13.05.2023	Analysis Completed On	:	26.05.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-435-2023	Test Specification	Limit CPCB*
1.	Colour,	Hazen Units	5	5	APHA 23rd Edition, 2120 B	--
2.	pH	--	2	7.09	APHA 23rd Edition., 4500-H+B	6.5-9.0
3.	Total Dissolved Solids	mg/L	10	440	APHA 23rd Edition., 2540 C	--
4.	Total Suspended Solids	mg/L	2	8	APHA 23rd Edition., 2540 D	<100
5.	Dissolved Oxygen	mg/L	1	5.6	APHA 23rd Edition, 4500 O C	--
6.	Chemical Oxygen Demand	mg/L	8	42	APHA 23rd Edition, 5220 B	250
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	9	IS 3025 (Part 44) : 1993	30
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5.0	APHA 23rd Edition., 5220 B	--

Dr.Jyotirmoy Majumdar
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[ULR- TC764923000001663F] [Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 575-2023 Dated: 20.06.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Inlet			
Sample Identification No.	:	WW- 575-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	09.06.2023	Sample Receiving Date	:	09.06.2023
Analysis Started On	:	09.06.2023	Analysis Completed On	:	20.06.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-575-2023	Test Specification
1.	Colour,	Hazen Units	5	10	APHA 23rd Edition, 2120 B
2.	pH	--	2	7.82	APHA 23rd Edition., 4500-H+B
3.	Total Dissolved Solids	mg/L	10	820	APHA 23rd Edition., 2540 C
4.	Total Suspended Solids	mg/L	2	28	APHA 23rd Edition., 2540 D
5.	Chemical Oxygen Demand	mg/L	8	104	APHA 23rd Edition, 5220 B
6.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	22	IS 3025 (Part 44) : 1993
7.	Oil & Grease(Hexane Extract)	mg/L	5	<5.0	APHA 23rd Edition., 5220 B
8.	Dissolved Oxygen	mg/L	1	5.2	APHA 23rd Edition, 4500 O C

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TC-7649

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[ULR- TC764923000001664F] [Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 576-2023 Dated: 20.06.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Outlet			
Sample Identification No.	:	WW- 576-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	09.06.2023	Sample Receiving Date	:	09.06.2023
Analysis Started On	:	09.06.2023	Analysis Completed On	:	20.06.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-576-2023	Test Specification	Standard/ Limit*
1.	Colour,	Hazen Units	5	10	APHA 23rd Edition, 2120 B	--
2.	pH	--	2	7.35	APHA 23rd Edition., 4500-H+B	5.5 to 9
3.	Total Dissolved Solids	mg/L	10	458	APHA 23rd Edition., 2540 C	--
4.	Total Suspended Solids	mg/L	2	7	APHA 23rd Edition., 2540 D	100
5.	Dissolved Oxygen	mg/L	1	6.1	Dissolved Oxygen	--
6.	Chemical Oxygen Demand	mg/L	8	19	APHA 23rd Edition, 5220 B	250
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	5	IS 3025 (Part 44) : 1993	30
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5.0	APHA 23rd Edition., 5220 B	10

Note: * EPA Notification [S.O. 844(E), dt 19th Nov; 1996]

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[ULR- TC764923000002103F] [Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 701-2023 Dated: 27.07.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Inlet			
Sample Identification No.	:	WW- 701-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	15.07.2023	Sample Receiving Date	:	15.07.2023
Analysis Started On	:	15.07.2023	Analysis Completed On	:	27.07.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-701-2023	Test Specification
1.	Colour,	Hazen Units	5	20.0	APHA 23rd Edition, 2120 B
2.	pH	--	2	7.87	APHA 23rd Edition., 4500-H+B
3.	Total Dissolved Solids	mg/L	10	890	APHA 23rd Edition., 2540 C
4.	Total Suspended Solids	mg/L	2	39	APHA 23rd Edition., 2540 D
5.	Dissolved Oxygen	mg/L	1	3.8	APHA 23rd Edition, 4500 O C
6.	Chemical Oxygen Demand	mg/L	8	107	APHA 23rd Edition, 5230 B
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	26	IS 3025 (Part 44) : 1993
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5	APHA 23rd Edition., 5230 B

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[ULR- TC764923000002104F] [Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 702-2023 Dated: 27.07.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Outlet			
Sample Identification No.	:	WW- 702-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Clear
Water Sampling Date	:	15.07.2023	Sample Receiving Date	:	15.07.2023
Analysis Started On	:	15.07.2023	Analysis Completed On	:	27.07.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-702-2023	Test Specification	Standard/ Limit*
1.	Colour,	Hazen Units	5	10	APHA 23rd Edition, 2120 B	--
2.	pH	--	2	7.17	APHA 23rd Edition., 4500-H+B	5.5 to 9
3.	Total Dissolved Solids	mg/L	10	420	APHA 23rd Edition., 2540 C	--
4.	Total Suspended Solids	mg/L	2	16	APHA 23rd Edition., 2540 D	100
5.	Dissolved Oxygen	mg/L	1	5.6	APHA 23rd Edition, 4500 O C	--
6.	Chemical Oxygen Demand	mg/L	8	36	APHA 23rd Edition, 5230 B	250
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	10	IS 3025 (Part 44) : 1993	30
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5	APHA 23rd Edition., 5230 B	10

Note: * EPA Notification [S.O. 844(E), dt 19th Nov; 1996]

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[ULR- TC764923000002458F] [Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 784-2023 Dated: 30.08.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Inlet			
Sample Identification No.	:	WW- 784-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Cloudy
Water Sampling Date	:	12.08.2023	Sample Receiving Date	:	12.08.2023
Analysis Started On	:	12.08.2023	Analysis Completed On	:	30.08.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results WW-784-2023	Test Specification
1.	Colour,	Hazen Units	5	20.0	APHA 23rd Edition, 2120 B
2.	pH	--	2	7.12	APHA 23rd Edition., 4500-H+B
3.	Total Dissolved Solids	mg/L	10	810	APHA 23rd Edition., 2540 C
4.	Total Suspended Solids	mg/L	2	46	APHA 23rd Edition., 2540 D
5.	Dissolved Oxygen	mg/L	1	3.2	APHA 23rd Edition, 4500 O C
6.	Chemical Oxygen Demand	mg/L	8	97	APHA 23rd Edition, 5230 B
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	27	IS 3025 (Part 44) : 1993
8.	Oil & Grease(Hexane Extract)	mg/L	5	6.0	APHA 23rd Edition., 5230 B

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[ULR- TC764923000002459F] [Format No. : SRL / FRM / 17]

TEST REPORT

[Report No. SRL / TPCL(J) / WW- 785-2023 Dated: 30.08.2023]

A. SAMPLE DETAILS:-

Name & Address of the Customer	:	**The Tata Power Company Limited Jojobera Power Plant Jamshedpur – 831 016**			
Sample Type	:	Waste Water			
Sampling Location	:	ETP Outlet			
Sample Identification No.	:	WW- 785-2023			
Test Requirement	:	Chemical			
Sampling Method	:	APHA 23rd Edition, 1060B			
Sample Collected By	:	Scientific Research Laboratory			
Sample Preservation	:	Preserved	Environmental Condition	:	Cloudy
Water Sampling Date	:	12.08.2023	Sample Receiving Date	:	12.08.2023
Analysis Started On	:	12.08.2023	Analysis Completed On	:	30.08.2023

B. RESULTS

Sl. No.	Parameters	Unit	Minimum Detection Limit	Results	Test Specification	Standard/ Limit*
				WW-785-2023		
1.	Colour,	Hazen Units	5	10.0	APHA 23rd Edition, 2120 B	--
2.	pH	--	2	7.01	APHA 23rd Edition., 4500-H+B	5.5 to 9
3.	Total Dissolved Solids	mg/L	10	446	APHA 23rd Edition., 2540 C	--
4.	Total Suspended Solids	mg/L	2	12.0	APHA 23rd Edition., 2540 D	100
5.	Dissolved Oxygen	mg/L	1	5.6	APHA 23rd Edition, 4500 O C	--
6.	Chemical Oxygen Demand	mg/L	8	42.0	APHA 23rd Edition, 5230 B	250
7.	Biochemical Oxygen Demand 3 Days at 27°C	mg/L	2	9.0	IS 3025 (Part 44) : 1993	30
8.	Oil & Grease(Hexane Extract)	mg/L	5	<5	APHA 23rd Edition., 5230 B	10

Note: * EPA Notification [S.O. 844(E), dt 19th Nov; 1996]

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