

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL (SOUTH ZONE)

CHENNAI

Original Application No.105 of 2021 (SZ)

Yanati Srinivasulu Reddy & Anr.

...Applicant

Versus

The Chief Secretary,
Govt. of Andhra Pradesh & Ors.

...Respondents

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TERMS OF THE ORDER DATED 9TH FEBRUARY 2023 PASSED BY THIS HON'BLE
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Dated at Chennai this the 23rd day of March, 2023.

THROUGH



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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

SOUTHERN BENCH, CHENNAI

ORIGINAL APPLICATION NO.105 OF 2021 (SZ)

IN THE MATTER OF:

Yanati Srinivasalu Reddy,
S/o. Ramachandra Reddy,
Nelatur Village & Post,
SPSR Nellore District,
A.P. - 524 344 & Another.

... APPLICANTS

VERSUS

The Chief Secretary,
Govt. of Andhra Pradesh,
Secretariat, Velangapudi, Amravathi,
Andhra Pradesh & Others.

... RESPONDENTS

**TABULAR COLUMN BEING FILED BY RESPONDENT NO. 9 IN TERMS
OF THE ORDER DATED FEBRUARY 9, 2023 PASSED BY THIS HON'BLE
TRIBUNAL**

The 9th Respondent above named respectfully submit as follows:

1. *Vide* order dated February 9, 2023 in the captioned matter, this Hon'ble Tribunal *inter alia* had directed as follows:

"4. The learned counsels are directed to file a tabular column of the conditions which are not complied with as per the Environmental Clearance (EC) and the compliance as per the Joint Committee report and their undertaking for any future compliance."
2. By way of background, it is submitted that during the course of the last hearing, this Hon'ble Tribunal had specifically directed the Respondent No. 9 to demonstrate its compliance *vis-à-vis* the six conditions set out in the Consent for Operation dated February 24, 2015 (hereinafter referred to as "CFO"), in



relation to which the Joint Committee Report dated March 22, 2022 alleged certain non-compliances. However, the order dated February 9, 2023 directs the Respondents to prepare a tabular column in relation to the conditions set out in the Environmental Clearance. In this regard, while the Respondent No. 9 is setting out hereinbelow a tabular column with the CFO Conditions, the non-compliances as alleged in the Joint Committee Report thereof and the responses thereto, for good order, Respondent No. 9 is also setting out two additional tables containing the following information:

- (a) Conditions stipulated in the environmental clearance dated November 4, 2009 (*hereinafter referred to as the "EC"*), the observations of the Joint Committee and the responses thereto; and
 - (b) Conditions stipulated in the coastal regulation zone clearance dated December 5, 2011 (*hereinafter referred to as the "CRZ Clearance"*), the observations of the Joint Committee and the responses thereto.
3. It is noteworthy that the Joint Committee has in respect of Respondent No. 9's unit, *inter alia* observed as follows: *"The unit has obtained all requisite clearances permissions from all respective departments and operating 2x2016 TPH supercritical coal-fired boilers."*
 4. Additionally, in respect of the CFO, the Joint Committee has observed as follows: *"It is observed that the unit has taken steps to comply with 25 out of 31 conditions imposed in the integrated CTO & Authorisation under HW issued by the APPCB. Two conditions viz. (i) Closed shed for storage of coal and wind barrier/wind-breaking walls to the coal yard (ii) compliance w.r.t utilisation of 100 % fly ash and bottom ash were found not complying. Four conditions viz. (i) providing water sprinkler around the ash pond (ii) development of thick green belt in an area of 395 acres (iii) compliance with Board directions issued*



from time to time and (iv) Compliance with standards and directions issued by CPCB/MoEF& CC w.r.t disposal of fly ash were found partially complied."

5. In relation to the table below, the Respondent No.9 seeks leave of this Hon'ble Court to rely on the Joint Committee's Report and/or any other document to substantiate the contents therein. Further, words described but not specifically defined herein shall have the meaning so ascribed to them in the Reply filed by Respondent No. 9 to the Joint Committee Report.



TABULAR COLUMN SETTING OUT THE CONDITIONS STIPULATED IN THE CFO, THE OBSERVATIONS OF THE JOINT COMMITTEE AND THE RESPONSES THERETO INCLUDING SPECIFIC COMPLIANCE BY RESPONSENT NO. 9.

S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
1.	<p><i>"The industry shall provide closed sheds for storage of coal and industry shall provide wind barriers/ wind breaking walls to the coal yards as temporary arrangement to control fugitive dust emissions on immediate surroundings"</i></p>	<p><i>"Not complied. The industry has not provided closed sheds for storage of coal, as the Board has directed to provide wind barriers after the green belt buffer around coal stock yard to prevent fugitive dust emissions in all directions vide TF directions dt.24.11.2017. However, they planted Conocarpus trees all around coal yard and claiming it as wind barrier, the plants height at present is about 6 to 8 meters. The industry provided high speed water sprinklers</i></p>	<p>Respondent No. 9 humbly submits that the purpose for building covered shed is for preventing erosion of coal due to rain and wind. Respondent No. 9 submits that it is common knowledge that the its Plant is geographically located in a terrain that experiences limited rainfall, thus, Respondent No. 9 has complied with the foregoing condition by <i>inter alia</i>:</p> <p>(a) providing a three layered thick green belt all around the circumference of the coal yard comprising of tall trees of a height of more than 12 meters to act as a natural wind barrier that ensures that no fugitive dust emerges from the coal yard due to high wind;</p> <p>(b) additionally, Respondent No. 9 has taken further preventive measures to ensure that no fugitive coal dust</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
		<p><i>around the coal storage area and also provided water sprinklers on coal reclaiming stacker."</i></p>	<p>travels into the environment. These measures are on these broadlines: Respondent No. 9 has provided coal yard sprinklers, improvised dry fog dust suppression systems in the coal handling plant. Besides wet coal, if any, is dried by using an effective mechanism involving hot primary air for drying the wet coal before it is grinded. In this manner Respondent No. 9 has ensured an efficient mechanism to control fugitive coal dust. Further the said condition of "Coal Shed" has been omitted in renewed Consent for Operation issued dated November 16, 2021. A copy of the Consent for Operation issued dated November 16, 2021 has been enclosed as Annexure 14 to Respondent No. 9's Reply to the Joint Committee Report.</p> <p>In this regard it is noteworthy that the Compliance Report in respect of Respondent No. 9's compliance with the CFO</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			(enclosed as Annexure VIII to the Joint Committee Report) <i>(hereinafter referred to as the "Compliance Report")</i> ratifies the Respondent No. 9's compliance in relation to the present condition under response. The Compliance Report confirms that the Respondent No. 9 has provided fugitive dust mitigation measures such as improved dry fog dust suppression system is installed at transfer points to minimize fugitive dust, water hydrant lines are provided to suppress to fugitive emissions whenever required, wind barriers with three to five layers of thick Conocarpus trees (wind resistant plants) of 12 M height have been provided all around the coal yard which are designed to arrest any fugitive dust .
2.	"The industry shall provide water sprinklers around the ash pond area to control fugitive emissions in the	Partially complied. Water sprinklers were provided towards eastern part of the ash pond."	The Respondent No. 9 submits that the purpose of installing water sprinklers is to ensure that the ash from the ash pond does not turn fugitive such that it contaminates the environment. Respondent No. 9 unequivocally submits that it



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
	<p><i>surrounding area within 2 months and report compliance to RO, Nellore"</i></p>		<p>is complying with the corresponding condition, in the manner set out hereinbelow:</p> <p>(a) It is noteworthy that Respondent No. 9 has in fact adapted a better mechanism than the water sprinklers by making provision for a water curtain that covers almost 70% to 80% of the ash pond, thereby ensuring that coal dust does not become fugitive. Separately, water sprinklers are installed in the residual area to ensure that no fugitive ash gets into the environment.</p> <p>Further whilst the Joint Committee has not alleged any non-compliance in this regard it has in its Report indicated that around 10 % of the area in the Ash Pond has been left dry. To bring the true facts into perspective, the Respondent No. 9 submits that the reason for doing so is to facilitate use of pond ash by excavating the pond ash for onward supply to brick manufacturers etc. Besides, the 10% area that has been left dry</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
3.	<p>"The industry shall dispose 100% of fly ash generated as per the Fly ash Notification."</p>	<p>"Not complied. Bottom ash is being accumulated in ash pond. Ash generation and disposal details submitted by the industry are herewith enclosed."</p>	<p>is effectively towards the side of the sea and not towards the village, thus there is no scope for any coal dust to turn fugitive.</p> <p>Photographs of installation of the water sprinklers have been enclosed as Annexure 17 to Respondent No. 9's Reply to the Joint Committee Report.</p> <p>Respondent No. 9 submits that 100 % utilization of the fly ash and bottom ash is primarily dependent on the demand for such fly ash and bottom ash from the manufacturers of cement and brick industries. Additionally, there are several other avenues for which the fly ash and bottom ash that is generated at the Respondent No. 9's Plant can be utilized. Some of these avenues are manufacturing ash-based products such as concrete blocks, panels or other material for construction of roads, embankments, dams, dykes, or for any other construction activity.</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			<p>It is also noteworthy that the entire issue of 100% utilization of fly ash by similarly placed Thermal Power Plant Operators, was sub judice before the NGT and the Hon'ble Supreme Court of India. In this regard the Hon'ble NGT vide its order dated February 12, 2020 in OA No. 102 of 2014 (read with all subsequent orders on the subject matter) [the "Impugned Orders"] in relation to an issue pertaining to the management of fly-ash generated by Thermal Power Plants (the "TPPs"), directed that the TPPs to take prompt steps for scientific disposal of fly-ash in accordance with the statutory notification issued by the Ministry of Environment, Forest and Climate Change, dated January 27, 2016 bearing no. F.No.9-8/2005-HSMD (read with all previous notifications) requiring 100% utilization and disposal of fly ash by the TPPs (the "Notification"). Notably, the NGT vide the foregoing order</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			<p>had directed that the non-compliant TPPs, should pay environmental compensation to be determined w.e.f. the cut-off date, i.e., December 12, 2017, as stipulated in the Notification. Accordingly, the Central Pollution Control Board (the "CPCB") was directed to compute and levy environmental compensation in accordance with the formula prescribed in the aforesaid order and submit the compliance report to the NGT. Meanwhile, CPCB sent an action plan for compliance of the notification to several TPPs, in the year 2019.</p> <p>The Impugned Orders were <i>inter alia</i> impugned before the Hon'ble Supreme Court in the matter of <i>Association of Power Producers & Ors. v. Sandplast (India) Ltd. & Ors.</i> being CA no. 3236 of 2020 (along with all the connected matters) filed</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			<p>by the Association of Power Producers (“APP”) along with the Respondent No. 9 as a co-appellant.</p> <p>The Hon’ble Supreme Court <i>vide</i> its order dated September 08, 2020 stayed the operation of the Impugned Orders. Meanwhile the Ministry of Environment, Forest and Climate Change, during the pendency of the aforesaid appeals before the Hon’ble Supreme Court released a revised notification on the subject matter dated December 31, 2021 (the “Revised Notification”) which superseded the earlier notification on the subject matter and provided a comprehensive framework for ash utilisation along with revised timelines based on threshold parameters set out therein. The obligations for compliance qua 100 percent ash utilization in terms of the Revised Notification were to be applicable April 01, 2022 onwards and in terms of the timelines contemplated therein to</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			<p>ensure 100 percent utilization of fly-ash is 3 years starting from April 01, 2022.</p> <p>In light of the Revised Notification the Hon'ble Supreme Court vide its final order dated May 10, 2022 disposed of the aforesaid appeals as the Impugned Orders had been rendered infructuous. A copy of the Impugned Order, the Notification, the Revised Notification, the order of the Hon'ble Supreme Court, and the CPCB's action plan forgoing order has been enclosed as Annexure 15 (colly) to the Respondent No. 9's Reply to the Joint Committee Report.</p> <p>Whilst Respondent No. 9 was required to comply with the revised timelines for 100% utilization of fly ash in terms of the Revised Notification dated December 31, 2021 issued by the MOEF, applicability whereof was to commence from</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			<p>April 01, 2022, such that the Respondent No. 9 was required to achieve 100% utilization of fly ash within three years from April 01, 2022. However, <i>per contra</i> Respondent No. 9 has achieved 100% utilization of fresh fly ash by September 2019 that is well within the aforesaid statutory timeline. Likewise, the Respondent No. 9 is taking suitable steps to ensure compliance of 100 percent utilization of the legacy ash as well, and will ensure that it complies with the timelines stipulated in the Revised Notification. Besides the Respondent No.9 has additionally provided land to a third party for setting-up of a Fly Ash Classification Unit, to aid with the utilization of ash.</p> <p>In furtherance of its compliance of the condition under this broad head the Respondent No. 9 has exported three bulk shipments for a quantity of 1,29,082 MT (metric tonnes) to the United States of America and has additionally, exported</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
			<p>another break bulk shipment to the United States of America for a quantity of 27,500 MT. Respondent No. 9 is the first company in southern India to ship fly ash for a quantity of 3000 MT through jumbo bags in Railway rake and has so far exported to sixteen countries through container stuffing.</p> <p>Further, Respondent No. 9 submits that it has been periodically submitting its report in relation to its compliance with the conditions imposed on it under the CFO, including in relation to the implementation of its action plan on fly ash with the MOEF. Its recent report was submitted on December 27, 2022, with the APPCB. A copy of the recent report dated December 27, 2022 has been enclosed herewith as Annexure -I.</p>
4.	<p><i>"The industry shall develop the thick green belt in an area</i></p>	<p><i>"Partially complied.</i></p>	<p>Respondent No. 9 submits that it is committed to the protection of the environment and maintenance of the</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
	<p><i>of 395 acres all along the periphery of the industry and ash pond area"</i></p>	<p><i>The industry developed green belt in an extent of about 330 acres. The industry may be directed to develop more green belt to meet the condition."</i></p>	<p>ecological balance by building afforestation. It further submits that as opposed to developing a green belt of 395 acres in line with the conditions imposed on it, in terms of the latest statistics available with Respondent No. 9, it has developed a green belt in an area running into around 451 acres. Respondent No. 9 submits that the said green belt and afforestation cover around the its Plant has been developed pursuant to in depth research and study carried out of the local geography. Further the species of the trees are selected based on their adaptability, growth characteristics, flowering pattern, and canopy distribution.</p> <p>In terms of the specific data available with the Respondent No. 9, it has near its Plant planted well over 4.7 lakh trees, thus so far. It is noteworthy that approximately, each tree on an average offsets 50 pounds of carbon dioxide per year. Further, in terms of the report of the Respondent No. 9 on</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
5.	<p><i>"The industry shall comply with Board directions issued from time to time."</i></p>	<p><i>"Partially complied."</i></p>	<p>Green Belt Area Estimation, as per the application 'Google Maps', an area of over 455 acres has been calculated as the total area forming part of the Respondent No. 9's green belt development. Furthermore, even the CAD drawings indicate the said green belt to comprise an area of 451 acres. The details of the Green Belt Area Estimation and Zone-wise plantation details been enclosed as Annexure 18 to Respondent No. 9's Reply to the Joint Committee Report.</p> <p>Respondent No. 9 has complied with all the directions given from time to time and has responded giving the status as soon as received. Further the Joint Committee has not indicated even a single instance wherein Respondent No. 9 failed to comply with the directions issued by the Andhra Pradesh Pollution Control Board ("APPCB").</p>



S. No	Relevant Condition	Broad Allegation by Joint Committee	Response of Respondent No. 9
6.	"The industry shall comply with standards and directions issued by CPCB/ MoEF&CC as and when notifications are issued."	"Partially complied. The industry is meeting the emission & effluent standards. But not yet achieved 100% disposal of fly ash"	The Respondent No. 9 craves liberty to place reliance on the response provided in S. No. 3 above, and the contents thereof may be read as a response to the condition under response.



6. The Respondent No. 9 submits that the tables being set out hereinafter are in relation to the conditions stipulated in the EC and CRZ clearances. The Joint Committee report admittedly recorded that the certain minor non-compliances, albeit not of immediate danger, were observed by the Joint Committee in respect of the conditions stipulated in the EC and CRZ clearances. Subsequently, the Joint Director, Integrated Regional Office, MOEF, Vijayawada (*hereinafter referred to as the "Joint Director"*) had *vide* a letter dated April 5, 2022 had sought an action-taken report from the Respondent No. 9 in response to the alleged minor non-compliances in respect of the conditions stipulated in the EC and CRZ clearances observed in the Joint Committee Report. In response the Joint Director's letter dated April 5, 2022, the Respondent No. 9 had submitted a detailed response to each of the alleged minor non-compliances *vide* a letter dated May 31, 2022, indicating full compliance thereof. For good order, the Respondent No. 9 is reiterating the alleged minor non-compliances in respect of the EC and CRZ clearances and then its responses thereof in two separate tables hereinafter. Further, Respondent No. 9 submits that it has been periodically submitting its report in relation to its compliance with the conditions imposed on it under the EC and the CRZ Clearances with the Regional Director, MOEF. Its recent reports in relation compliance with the conditions imposed on it under the EC and the CRZ Clearance were submitted on November 26, 2022 and December 27, 2022 respectively. A copy of the Joint Director's letter



dated April 5, 2022 is annexed hereto as **Annexure – II**. A copy of the letter dated May 31, 2022 issued by the Respondent No. 9 in response to the Joint Director's letter dated April 5, 2022 is annexed hereto as **Annexure – III**. A copy of the compliance report in respect of the EC conditions dated November 26, 2022 is annexed hereto as **Annexure – IV**. A copy of the compliance report in respect of the CRZ Clearance conditions dated December 27, 2022 is annexed hereto as **Annexure – V**.



TABULAR COLUMN SETTING OUT THE CONDITIONS STIPULATED IN THE EC, THE OBSERVATIONS OF THE JOINT COMMITTEE AND THE RESPONSES THERETO INCLUDING SPECIFIC COMPLIANCE BY RESPONSENT NO.9.

S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
1.	<p><i>“Status of implementation of 100 % utilization of Fly Ash generated shall be submitted to the Ministry within six months of operation of the plant.”</i></p>	<p><i>“Partially complied”</i> Further, the Joint Committee has itself observed that the Respondent No. 9 has achieved <i>“100% fly ash utilization since September 2019.”</i></p>	<p>The Respondent No. 9 craves liberty to place reliance on the response provided in S. No. 3 in tabular column discussing the CFO conditions above, and the contents thereof may be read as a response to the present condition under response.</p>
2.	<p><i>“Fly ash shall be collected in dry form and storage facility (silos) shall be provided (as applicable). 100% fly ash utilisation shall be ensured from 4th year onwards. Unutilized fly ash shall be</i></p>	<p><i>“Partially complied”</i> The Joint Committee has further observed that <i>“fly ash is being collected in dry form and stored in silos of 3 x 2000 m3 capacity for disposal to various users. Unutilised</i></p>	<p>The Respondent No. 9 submits that it has complied with the corresponding condition and has monitored the presence of heavy metals present in effluents emanating from its existing ash pond. In this regard, an independent lab being M/s Care Labs, Hyderabad recognized by the Ministry of Environment Forest & Climate Change, Government of India and National Accreditation Board for Testing and Calibration Laboratories</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p>disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area."</p>	<p>fly ash is being disposed to the ash pond in lean slurry form..... It has been observed that the PAs have achieved 100% fly ash utilization since September 2019."</p> <p>Specifically, the Joint Committee has observed that the Respondent No. 9 is "conducting heavy metal analysis present in the fly ash, bottom ash and coal by third party monitoring agency M/s Care Labs, Hyderabad which is accredited by Ministry and NABL..... However, it has been observed that the PAs are not monitoring heavy</p>	<p>was appointed by the Respondent No. 9 for FY 2021-22 to conduct the foregoing study of the presence of heavy metals in effluents emanating from its ash pond. Copies of the quarterly reports issued by M/s Care Labs, Hyderabad for the four quarters preceding May 31, 2022 are being enclosed herewith as Annexure - VI (Colly).</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
		<p>heavy metals (As, Hg, Cr, Pb etc.) present in effluents emanating from the existing ash pond"</p> <p>Pursuant thereto, the Joint Committee has issued the following observation: "It is required to monitor Mercury and other heavy metals (As, Hg, Cr, Pb etc.) in the effluents emanating from the existing ash pond."</p>	
3.	<p>"Hydrogeological study of the area shall be reviewed annually and results submitted to the Ministry and concerned agency in the State Government. In case adverse</p>	<p>"Partially complied"</p> <p>The Joint Committee has observed as follows:</p> <p>"It has been observed that the PAs have conducted hydrogeological studies in 10 km radius area of project</p>	<p>Respondent No. 9 submits that recommendations, if any, made in Hydrogeological Study Report for the year 2021, are being complied with. A copy of the Hydrogeological Study Report for the year 2021, has been submitted the office of the Joint Director, Integrated Regional Office, MOEF, Vijayawada on April 18, 2022. Further Respondent No. 9 submits that a</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p><i>impact on ground water quality and quantity is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.</i></p>	<p><i>area in the month of November, 2019 by M/s Multi-Tech Services, Hyderabad. It has been observed that the PAs are in process of implementing recommendations made in the report.</i></p> <p>Based on the above, the Joint Committee has issued the following observation:</p> <p><i>“It is required to implement the recommendations made in the Hydrogeological study report. It is required to conduct hydrogeological study of the area annually and results submitted to the Ministry and</i></p>	<p>Hydrogeological study is being done annually by third party experts and a copy thereof has been submitted to the Ministry of Environment, Forest & Climate Change.</p> <p>A copy of the Hydrogeological Study Report for the year 2021 is enclosed herewith as Annexure - VII.</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
		concerned agency in the State Government."	
4.	<p>"An amount of Rs 32.0 crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 6.4 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation."</p>	<p>"Partially complied..... It is required to earmark an amount of Rs 32.0 crores as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 6.4 Crores per annum should be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken should be submitted within along with road map for implementation."</p>	<p>Respondent No. 9 submits that from the year 2010-11 up to the year 2021-2022, it has cumulatively spent an amount of INR 70.98 crores on CSR related activities. Details of the CSR activities undertaken from the year 2010-11 up to the year 2021-2022, are collated in an internal report which is enclosed herewith as Annexure - VIII.</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
5.	<p><i>“As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc., can form a part of such programme. Company shall provide separate budget for</i></p>	<p><i>“Partially complied”</i></p> <p>The Joint Committee has specifically set out the various CSR initiatives undertaken by the Respondent No. 9 in areas such as education, healthcare and skill development. Yet the Joint Committee has issued the following observation:</p> <p><i>“It is required to implement CSR activities as per need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides</i></p>	<p>Details of the CSR activities undertaken from the year 2010-11 up to the year 2021-2022, are collated in an internal report which is enclosed herewith as Annexure - VIII.</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs."	development of fodder farm, fruit bearing orchards, vocational training etc., can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs."	
6.	"The Environment Statement for each financial year ending 31 st March in Form V as is mandated to be submitted by the project proponent	"Partially complied.....It is required to submit the Environment Statement for each financial year ending 31 st March in Form V IRO, Vijayawada in soft copy (PDF format) only on	Respondent No. 9 submits that it is only during the recent inspection carried out by the Joint Director, Integrated Regional Office, MOEF, Vijayawada on October 22, 2021, that Respondent No. 9 was informed about commencement of operations of the Integrated Regional Office, MOEF, Vijayawada vide notification bearing No. 1-5/2013- ROHQ



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p>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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry.”</p>	<p>regularly basis to ecompliance-ap@gov.in (only). It has been observed that the PAs have uploaded Environmental Statement for FY 2019-20 on company's website (https://www.semcorpenergyindia.com/AboutUs/Disclosure). It is required to update the Environmental Statement in company's website on regular basis.”</p>	<p>dated August 13, 2020. Immediately thereafter, Respondent No. 9 has started submitting the Environmental Statements, to the Integrated Regional Office, Ministry of Environment Forest, & Climate Change, Vijayawada. Until, October 2021, Environmental Statements for each financial year, were being regularly submitted to the Member Secretary, APPCB, Vijayawada, and regional officer, APPCB, Nellore. Further, Respondent No. 9 submits that it is regularly uploading the Environmental Statement on its website annually. The said Environmental Statement can be accessed by clicking on the link: https://www.semcorpenergyindia.com/AboutUs/Disclosure For ease of reference proof of submission of the recent report for the year 2021, along with a copy thereof is being annexed herewith as Annexure- IX (Colly).</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
7.	<p>“Separate funds shall be allocated for implementation of environmental protection measures along with item wise break up. These costs 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.”</p>	<p>“Partially complied..... It is required to submit the detailed report regarding the expenditure incurred for implementation of environmental protection measures along with six monthly compliance to Ministry's Integrated Regional Office on regular basis.”</p>	<p>Respondent No. 9 submits that information relating to expenditure towards implementation of environment protection measures are part of Environment Statement Report which is being submitted yearly by Respondent No. 9. A copy of the Environmental Statement Report is enclosed herewith as Annexure- X.</p>
8.	<p>“The project authorities shall inform the Regional Office as</p>	<p>“Partially complied.....It is required to submit the details</p>	<p>Respondent No. 9 submits that Final Loan Agreement was signed on September 13, 2010, with Power Finance Corporation,</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p>well as the Ministry regarding the date of financial closure and final approval of the Project by the concerned authorities and the dates of start of land development work and commission of Plant."</p>	<p>regarding the date of financial closure and final approval of the Project by the concerned authorities and the dates of start of land development work and commission of the plant."</p>	<p>Rural Electrification Corporation, Life Insurance Corporation and Power Trading Corporation. The date of execution of the Final Loan Agreement constitutes financial closure for the Plant. It is further submitted that land development work in respect of the Plant commenced on February 17, 2011. The date of commissioning of the Plant is (a) Unit I on March 2, 2015, and (b) Unit II on September 15, 2015. The Central Electricity Authority, Ministry of Power confirmed the commercial operation date of the Plant set out hereinabove in its letters dated March 16, 2015 and October 12, 2015 for Unit I and Unit II of the Plant respectively. Additionally, APPCB issued a Consent for Operation (CFO) for Unit I on February 24, 2015 and for Unit II on August 27, 2015. Copies of the aforesaid documents are enclosed herewith as Annexure- XI (colly).</p>
9.	<p>"Long term study of radioactivity and heavy</p>	<p>"Partially complied"</p>	<p>Respondent No. 9 submits that it is conducting a quarterly Heavy Metal Analysis of coal and ash by APPCB approved third party</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p>metals contents on coal to be used shall be carried out through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place."</p>	<p>The Joint Committee has observed as follows: <i>"It has been observed that the PAs are conducting heavy metal analysis present in the fly ash, bottom ash and coal by third party monitoring agency M/s Care Labs, Hyderabad which is accredited by Ministry and NABL."</i> Yet the Joint Committee has issued the following observation: <i>"It is required to conduct long term study of radioactivity and heavy metals contents on coal to be used through a reputed institute and results thereof analysed every two year and reported</i></p>	<p>agency M/s Care Labs, Hyderabad and it has regularly submitted its Heavy Metal Analysis report to the Ministry of Environment, Forest & Climate Change. Respondent No. 9 further submits that it is regularly conducting a Radioactivity Analysis and is submitting a report to the Ministry of Environment, Forest & Climate Change. Proof of submission of the foregoing reports from the along with copies of the latest Heavy metal analysis report along with Radioactivity Analysis Report conducted by third party monitoring agency M/s Care Labs, Hyderabad and the Board of Radiation & Isotope Technology, (BRIT) GOI respectively are enclosed herewith as Annexure- XII (colly).</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
		<p>along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place."</p>	



TABULAR COLUMN SETTING OUT THE CONDITIONS STIPULATED IN THE CRZ CLEARANCE, THE OBSERVATIONS OF THE JOINT COMMITTEE AND THE RESPONSES THERETO INCLUDING SPECIFIC COMPLIANCE BY RESPONSENT NO. 9.

S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
1.	<p>“Consent For Establishment” shall be obtained from state pollution control board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.”</p>	<p>“Not complied.....It is required to submit the copy of “Consent For Establishment” granted for construction of pump house, Sea water Intake and Outfall facilities obtained from APPCB under Air and Water Act.”</p>	<p>Respondent No. 9 submits that the Consent for Establishment was granted by Andhra Pradesh Pollution Control Board vide Order. No. 177/PCB/CFE/RO/-NLR/HO/2009-433 dated May 15, 2010 (<i>hereinafter referred to as “CFE”</i>). The Schedule-B of Consent for Establishment mentions the parameters in Schedule -B which pertains to Sea Water Intake [viz. Cooling Water Make-Up & Non-Cooling Water Make-Up], Sea Water Intake and Outfall [viz. Cooling Water Blowdown], Inclusion of these parameters implies Sea Water Pump house, Sea Water Intake and Outfall facilities form part of the foregoing</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
2.	<p>Shall implement all the measures as committed to the Ministry vide their letter dated 01.08.2011, as a part of the clarifications submitted by the PP. A copy of these submissions shall be submitted to RO of MoEF."</p>	<p>Partially complied.....It is required to provide the details implementation status of all the measures as committed to the Ministry vide their letter dated 01.08.2011, as a part of the clarifications submitted by the PP."</p>	<p>CFE and is included in Schedule B of the CFE. A copy of the CFE is enclosed herewith as Annexure- XIII.</p> <p>Respondent No. 9 submits that it is complying with all conditions mentioned in the Ministry of Environment, Forest & Climate Change's letter dated December 05, 2011 vide which the CRZ clearance was issued, in response to the referenced letter of August 01,2011. A detailed implementation status of the foregoing conditions of CRZ Clearance is enclosed herewith as Annexure- XIV.</p>
3.	<p>All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each</p>	<p>Partially complied.....It is required to submit the compliance status of all mitigation measures submitted in the EIA report which are to be prepared in a matrix format to Ministry's IRO, Vijayawada."</p>	<p>Respondent No. 9 submits that it has implemented the mitigation measures as set out in the Environmental Impact Assessment Report, and a compliance report thereof in matrix format is enclosed herewith as Annexure- XV.</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	mitigation plan shall be submitted to MoEF-RO."		
4.	"The project proponents 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 the date of start of land development work."	"Partially complied..... It is required to provide the details regarding the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work."	The Respondent No. 9 craves liberty to place reliance on the response provided in S. No. 8 in tabular column discussing the EC conditions above, and the contents thereof may be read as a response to the present condition under response.
5.	"The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has	"Partially complied..... It is required to submit the copies of newspaper advertisement to Ministry's IRO, Vijayawada for records."	Respondent No. 9 submits that Advertisements were given in a Telugu newspaper on July 04, 2009, and in an English newspaper on July 03, 2009, copies whereof are enclosed herewith as Annexure- XVI .



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p><i>been accorded environmental clearance and copies of clearance letters are available with the state pollution control board and may also be seen on the website of the Ministry of Environment and Forest at http://www.envfor.nic.in. The advertisement should be made within 10 days from the date of receipt of the clearance letter and a copy of the same should be forwarded to the regional office of this Ministry at Bangalore."</i></p>		



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
6.	<p><i>"The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their 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 SPCB."</i></p>	<p><i>"Partially complied..... It is required to upload the status of compliance of the stipulated CRZ clearance conditions, including results of monitored data on their website."</i></p>	<p>Respondent No. 9 submits that the status of compliance of the stipulated CRZ Clearance conditions along with the result of the data monitored is being regularly uploaded on Respondent No. 9's official website. For ease of reference the said website can be accessed on the link set out herein below. https://www.sembcorpenergyltd.com/AboutUs/Disclosure</p>
7.	<p><i>"The Environment Statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent</i></p>	<p><i>"Partially complied.....It is required to submit the Environment Statement for each financial year ending 31st March in Form V IRO, Vijayawada in soft copy (PDF format) only on regularly basis to ecompliance-ap@gov.in (only)."</i></p>	<p>The Respondent No. 9 craves liberty to place reliance on the response provided in S. No. 6 in tabular column discussing the EC conditions above, and the contents thereof may be read as a response to the present condition under response.</p>



S. No	Relevant Condition	Observations of the Joint Committee	Response of Respondent No. 9
	<p>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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry.”</p>	<p>It has been observed that the PAs have uploaded Environmental Statement for FY 2019-20 on company's website (https://www.semcorpenergyindia.com/AboutUs/Disclosure). It is required to update the Environmental Statement in company's website on regular basis.”</p>	



7. Whilst it is writ large that the Respondent No. 9 is complying with all the existing conditions stipulated in the CFO, the EC and the CRZ Clearance, it unequivocally undertakes to comply with all the existing conditions stipulated in the CFO, the EC and the CRZ Clearance placed upon it, going forward.
8. The Respondent No. 9 craves leave of this Hon'ble tribunal to file any additional submissions to the tables set out hereinabove, pursuant to any specific queries that this Hon'ble tribunal may pose to the Respondent No. 9 or to specifically show compliance with respect to any condition in the CFO, EC or CRZ clearance that has not been discussed in the tables set out hereinabove.

Dated at Nellore on this the 21st day of March, 2023.

Counsel for 9th Respondent



VERIFICATION:

I, Pavan Kumar Rao, s/o Late Shri. J. C. Rao, aged about 56 years, residing at Pavani Pinnacle Apartment, Street-2, Jagadish Nagar, Children's Park Main Road, Nellore – 524002, being the authorized signatory of the Sembcorp Energy India Limited (Respondent No.9) herein, having its registered office at 5th floor, Tower C, Building No. 8, DLF Cybercity,

21-3-2023

D. RAMESH, B.A., B.L.
ADVOCATE & NOTARY
D.No. 16/3/922-2, Srihari Nagar,
Opp. T.D.P. Office,
Mini Bypass Road, NELLORE - 3.
Appointed by Govt. of Andhra Pradesh, India
Cell : 9885644719

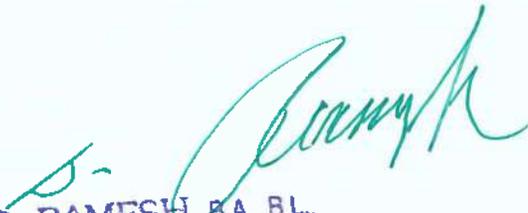


Gurgaon-122002 Haryana, India, do hereby verify that the contents of the present Compliance Table have been read by me and I have understood the same. Further, that the contents of my above Compliance Table are true and correct to the best of my knowledge and belief, and no part of it is false and no material facts have been concealed therefrom.

Verified at Nellore on this 21st day of March, 2023.



DEPONENT

21-03-2023 
D. RAMESH, B.A., B.L.,
ADVOCATE & NOTARY
D.No. 16/3/922-2, Srihari Nagar,
Opp. T.D.P. Office,
Mini Bypass Road, NELLORE - 3.
Appointed by Govt. of Andhra Pradesh, India
Cell : 9885644719



ORIGINAL APPLICATION NO.105 OF 2021

IN THE MATTER OF :

YANATI SRINIVASULU REDDY & ANR. ... APPLICANTS

VERSUS

THE CHIEF SECRETARY
GOVT. OF ANDHRA PRADESH & ANR. ... RESPONDENTSAFFIDAVIT

I, Pavan Kumar Rao, s/o Late Shri. J. C. Rao, aged about 56 years, residing at Pavani Pinnacle Apartment, Street – 2, Jagadish Nagar, Children's Park Main Road, Nellore – 524002 authorized signatory of Sembcorp Energy India Limited (Respondent No. 9) herein, having its registered office at 5th Floor, Tower – C, Building No. 8, DLF Cybercity, Gurgaon- 122002 Haryana, do hereby solemnly affirm and state as under:

1. That I am the authorized signatory of the Authorized Representative of Respondent No.9 and I am competent to sign and depose this Affidavit and am well conversant with the facts and circumstances of the present case.
2. That the accompanying Compliance Table has been drafted under my instructions and the contents of the same have been read and understood by me in their correct perspective. The same are true and correct based on the records maintained by the Respondent No.9 as well as legal advice received and believed to be true, and may kindly be read as part and parcel of the present affidavit and are not being repeated herein for the sake of brevity.



D. RAMESH, B.A., B.L.,
ADVOCATE & NOTARY
D.No. 16/3/922-2, Srihari Nagar,
Opp. T.D.P. Office,
Mini Bypass Road, NELLORE - 3
Appointed by Govt. of Andhra Pradesh, India
Cell : 9885644719

3. That no part of this affidavit is false and no materials facts have been concealed there from.

Solemnly affirmed at Nellore on this]
the 21st day of March, 2023 and]
signed his name in my presence.]



Before me.

Notary :: Nellore

21-03-2023 *[Signature]*

D. RAMESH, B.A., B.L.,
ADVOCATE & NOTARY
D.No. 16/3/922-2, Srihari Nagar,
Opp. T.D.P. Office,
Mini Bypass Road, NELLORE - 3
Appointed by Govt. of Andhra Pradesh, India
Cell : 9885644719





SEIL P1/APPCB/BZA/2022/010
27th December 2022

Sembcorp Energy India Limited
CIN: U40103TG2008PLC057031
Regd. Office: 5th Floor, Tower C, Building No 8
DLF Cybercity, Gurgaon - 122002, Haryana, India
Tel (91) 124 389 6700 / 01
Fax (91) 124 389 6710
E-mail: cs.india@sembcorp.com
Website: www.sembcorpenergyindia.com

To
The Member Secretary,
Andhra Pradesh Pollution Control Board,
D. No. 33-26-14 D/2, Near Sunrise Hospital,
Pushpa Hotel Centre, Chalamalavari Street,
Kasturibaipet,
Vijayawada- 520010.

Sub: Submission of Half Yearly CFO Compliance Report of SEIL Project-1 (formerly known as Thermal Powertech Corporation India Limited) for the period April 2022 to September 2022

Ref: CFO issued vide order: APPCB/VJA/NLR/930/HO/CFO/2016 dated 16th November 2021, valid till 30.11.2026.

Dear Sir,

This has reference to the above subject, we here by submit the Half Yearly compliance report for the period from April 2022 to September 2022 against the conditions stipulated under CFO issued to SEIL Project-1 (Formerly known as Thermal Powertech Corporation India Limited), Nellore.

Hope the above is in order.

Thanking you,

Yours faithfully,
For M/s. Sembcorp Energy India Limited,

A handwritten signature in black ink, appearing to read "P. Rao", written over a horizontal line.

Pavan Kumar Rao V
Head HSE - SEIL

Copy To: The Regional Officer, APPCB, Nellore

*M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)*

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

CFO COMPLIANCE

**Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021
for the period of**

April 2022 to September 2022

M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

Compliance against CFO Conditions		
S. No	Condition	Compliance Status
SCHEDULE-A		
1.	Any up-set condition in any industrial plant/ activity of the industry, which result in, increased effluent/ emission discharge and / or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge/emission below the limits.	Complying, being done proactively.
2.	The industry shall carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.	Complying. Environment Monitoring Reports conducted by MoEF&CC approved third party are attached as Annexure-I, II, III & IV
3.	All the rules & Regulations notified by Ministry of Law and Justice, Government of India regarding Public liability Insurance Act, 1991 shall be followed as applicable.	Complying. A Copy of PLI is attached as Annexure-V
4.	Notwithstanding anything contained in this consent order the Board hereby reserves the right and powers to review/ revoke any and /or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.	Noted.
5.	The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.	Noted.
6.	The applicant shall submit Environment Statement in Form V before 30 th September every year as per Rule no.14 of E(P) Rules 1986 & amendments thereof.	Complying. Environment Statement (Form-V) has been submitted for FY 2021-22.



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status
7.	The applicant should make applications through Online for renewal of Consent (Under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board.	Noted for Compliance.
8.	The industry shall immediately submit the revised application for consent to this Board in the event of any change in the raw material use, process employed, quantity of trade effluents & Quantity of emissions. Any change in the management shall be informed to the Board. The person authorize shall not let out the premises /lend/sell/transfer their industrial premises without obtaining prior permission of the State Pollution Control Board	Noted for Compliance.
9.	Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982 to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act 1981.	Noted.



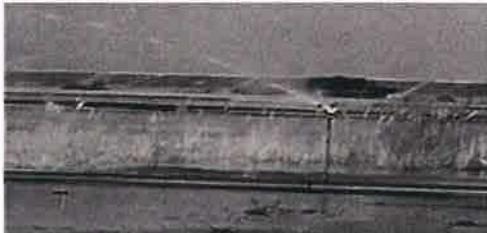
M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status
10.	The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other component authority as per the Rules in vogue.	Noted.
11.	The industry may explore the possibility of tapping the solar energy for their energy requirements.	Noted for Compliance. SEIL P-1 has installed roof top solar panels and solar streetlights. SEIL is also exploring the suitability for small capacity solar plant.
12.	The industry should educate the workers and nearby public of possible accidents and remedial measures.	Complying. Regular trainings are being given to workers. All the measures have been taken to avoid any mishap which may lead to harm outside the plant premises (Off site)

SCHEDULE-B

Special Conditions

S. No	Condition	Compliance Status
1.	The industry shall provide FGD system to meet the SO ₂ emission standards of 200 mg/Nm ³ by 31.12.2024, as per MoEF&CC, GoI notification GSR No.243 (E), dt.31.03.2021.	SEIL is committed to commission Flue Gas Desulfurization System (FGD) to meet the SO _x limits as per the latest Notifications/Directions issued.
2.	The industry shall maintain water sprinklers around the ash pond area to control fugitive emissions in the surrounding area within 2 months and report compliance to RO, Nellore.	Complied. SEIL has provided rotating water sprinklers around the ash pond to prevent fugitive emission. Consistent efforts being ensured to keep Pond Ash moist with thin layer of water above the surface. 



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status																																															
Water Pollution																																																	
3.	<p>The industry shall comply with the following effluent standards based on the disposal points permitted:</p> <table border="1"> <thead> <tr> <th>Outlet</th> <th>Parameter</th> <th>Limiting standards</th> </tr> </thead> <tbody> <tr> <td rowspan="11">1103</td> <td>pH</td> <td>6.5 to 8.5</td> </tr> <tr> <td>Suspended solids</td> <td>100 mg/l</td> </tr> <tr> <td>Oil & Grease</td> <td>10 mg/l</td> </tr> <tr> <td>Temperature</td> <td>Shall not exceeded 5° C above the receiving water temperature</td> </tr> <tr> <td>Biochemical oxygen demand (3 days at 27°C)</td> <td>100 mg/l</td> </tr> <tr> <td>Chemical Oxygen Demand (COD)</td> <td>250 mg/l</td> </tr> <tr> <td>Arsenic</td> <td>0.2 mg/l</td> </tr> <tr> <td>Mercury</td> <td>0.01 mg/l</td> </tr> <tr> <td>Lead</td> <td>2.0 mg/l</td> </tr> <tr> <td>Cadmium</td> <td>2.0 mg/l</td> </tr> <tr> <td>Hexavalent Chromium</td> <td>1.0 mg/l</td> </tr> <tr> <td rowspan="11">5 to 8</td> <td>Bio-assay test</td> <td>90% survival fish after 96 hours in 100% effluents</td> </tr> <tr> <td>pH</td> <td>5.5 - 9.0</td> </tr> <tr> <td>Suspended solids</td> <td>100 mg/l</td> </tr> <tr> <td>Oil & Grease</td> <td>10 mg/l</td> </tr> <tr> <td>Biochemical oxygen demand (3 days at 27°C)</td> <td>100 mg/l</td> </tr> <tr> <td>Arsenic (as As)</td> <td>0.2 mg/l</td> </tr> <tr> <td>Cyanide (as CN)</td> <td>0.2 mg/l</td> </tr> <tr> <td>Bio-assay test</td> <td>90% survival fish after 96 hours in 100% effluents</td> </tr> <tr> <td>Copper (Total)</td> <td>1 mg/l</td> </tr> <tr> <td>Iron (Total)</td> <td>1 mg/l</td> </tr> </tbody> </table>	Outlet	Parameter	Limiting standards	1103	pH	6.5 to 8.5	Suspended solids	100 mg/l	Oil & Grease	10 mg/l	Temperature	Shall not exceeded 5° C above the receiving water temperature	Biochemical oxygen demand (3 days at 27°C)	100 mg/l	Chemical Oxygen Demand (COD)	250 mg/l	Arsenic	0.2 mg/l	Mercury	0.01 mg/l	Lead	2.0 mg/l	Cadmium	2.0 mg/l	Hexavalent Chromium	1.0 mg/l	5 to 8	Bio-assay test	90% survival fish after 96 hours in 100% effluents	pH	5.5 - 9.0	Suspended solids	100 mg/l	Oil & Grease	10 mg/l	Biochemical oxygen demand (3 days at 27°C)	100 mg/l	Arsenic (as As)	0.2 mg/l	Cyanide (as CN)	0.2 mg/l	Bio-assay test	90% survival fish after 96 hours in 100% effluents	Copper (Total)	1 mg/l	Iron (Total)	1 mg/l	<p>Complying.</p> <p>Effluent Quality Monitoring Reports performed by MoEF&CC approved third Party consultant are attached as Annexure-I.</p>
Outlet	Parameter	Limiting standards																																															
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	4.	<p>The source of water is sea. The following is the permitted water consumption:</p> <table border="1"> <thead> <tr> <th>S. No</th> <th>Purpose</th> <th>Quantity in KLD (for 2X660 MW)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>For cooling tower make up (saline water)</td> <td>1,98,256</td> </tr> <tr> <td rowspan="7">2.</td> <td>Non-cooling water - RO First pass</td> <td></td> </tr> <tr> <td>i) Ash handling sealing</td> <td>2240</td> </tr> <tr> <td>ii) Coal handling plant dust suppression</td> <td>4768</td> </tr> <tr> <td>iii) High Vacuum AC make up</td> <td>1660</td> </tr> <tr> <td>iv) Misc. services (for firefighting etc.)</td> <td>512</td> </tr> <tr> <td>v) RO Reject</td> <td>22224</td> </tr> <tr> <td>vi) Clarifier blow down</td> <td>1056</td> </tr> <tr> <td></td> <td>RO Second pass</td> <td></td> </tr> <tr> <td></td> <td>i. DM Plant</td> <td>2080</td> </tr> <tr> <td></td> <td>ii. Domestic (Plant)</td> <td>50</td> </tr> <tr> <td></td> <td>Total</td> <td>2,32,846</td> </tr> </tbody> </table>	S. No	Purpose	Quantity in KLD (for 2X660 MW)	1.	For cooling tower make up (saline water)	1,98,256	2.	Non-cooling water - RO First pass		i) Ash handling sealing	2240	ii) Coal handling plant dust suppression	4768	iii) High Vacuum AC make up	1660	iv) Misc. services (for firefighting etc.)	512	v) RO Reject	22224	vi) Clarifier blow down	1056		RO Second pass			i. DM Plant	2080		ii. Domestic (Plant)	50		Total	2,32,846	<p>Complying.</p> <p>The average seawater with drawl during April 2022 to September 2022 is well within permissible limits.</p>													
S. No	Purpose	Quantity in KLD (for 2X660 MW)																																															
1.	For cooling tower make up (saline water)	1,98,256																																															
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M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status
5.	The industry shall maintain separate digital water meters in the intake point of sea water (i.e. at sea coast) with totalizer facility unit wise to assess daily water consumption quantity instead of cumulative water consumptions.	Complying. Separate digital water meters with totalizer facility are provided for Cooling Tower make-up and Desalination system. Monthly totalizer readings are being captured jointly along with Port Conservator, Govt. of India in a separate log book.
6.	The industry shall maintain flow meter preferably Electro Magnetic Flow meters with totalizers for water and effluent quantity measurements for different streams of effluents and different categories of water usage stipulated in this order.	Complying. SEIL has provided separate flow meters with totalizers for quantity measurement: <ul style="list-style-type: none"> ↓ Cooling Tower Makeup ↓ Desalination water ↓ Cooling Tower blowdown ↓ RO Reject water ↓ ETP outlet
7.	The industry shall provide leachate collection tank to collect the leachate from garland drain of ash pond.	Complying. The Ash Pond is provided with garland drains all around to collect leachates, if any. Separate Leachate collection tank connected to all the garland drains of Ash Pond.



M/s. Sembcorp Energy India Limited Project-I,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status						
8.	The industry shall maintain provision to collect the excess water from the ash pond into sea to control overflow of saline water from ash pond and to prevent irrigation tanks being polluted.	Complying. SEIL has ensured adequate provision at ash pond having an overflow lagoon connected to decantation well of both lagoons and the water is recirculated back to ash handling system for reuse.						
Air Pollution:								
9.	<p>The emissions shall not contain constituents in excess of the prescribed limits mentioned below:</p> <table border="1"> <thead> <tr> <th>Chimney No</th> <th>Parameter</th> <th>Emission standards in mg/Nm³</th> </tr> </thead> <tbody> <tr> <td>1 - 2</td> <td>Particulate Matter</td> <td>50</td> </tr> </tbody> </table>	Chimney No	Parameter	Emission standards in mg/Nm ³	1 - 2	Particulate Matter	50	SEIL is Complying with the Emission norms of Particulate Matter. Stack Emission Monitoring reports are attached as Annexure-II.
Chimney No	Parameter	Emission standards in mg/Nm ³						
1 - 2	Particulate Matter	50						
10.	<p>The industry shall comply with ambient air quality standards of PM₁₀ (Particulate Matter size less than 10µm)-100 µg/m³; PM_{2.5} (Particulate Matter size less than 2.5 µm)- 60 µg/m³; SO₂- 80 µg/m³; NO_x- 80 µg/m³, outside the factory premises at the periphery of the industry.</p> <p>Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.</p> <p>Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A) Night time (10 PM to 6 AM) - 70 dB (A)</p>	<p>Complying.</p> <p>SEIL is complying with Ambient Air Quality parameters as prescribed in NAAQM Standards.</p> <p>Ambient Air Quality Monitoring reports and Noise Monitoring reports conducted by MoEF&CC approved third party consultant are attached as Annexure-III.</p>						



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status												
11.	<p>The emissions shall not contain constituents in excess of the prescribed limits mentioned below:</p> <table border="1"> <thead> <tr> <th>Chimney No</th> <th>Parameter</th> <th>Emission standards</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1&2</td> <td>Particulate Matter</td> <td>50 mg/Nm³</td> </tr> <tr> <td>Sulphur Dioxide</td> <td>*200 mg/Nm³</td> </tr> <tr> <td>Oxides of Nitrogen</td> <td>*450 mg/Nm³</td> </tr> <tr> <td>Mercury (Hg)</td> <td>*0.03 mg/Nm³</td> </tr> </tbody> </table> <p>*The industry shall meet the SO₂ emission standard of 200 mg/Nm³ by 31.12.2024, as per MoEF&CC, GoI notification GSR No. 243 (E), dt.31.03.2021.</p>	Chimney No	Parameter	Emission standards	1&2	Particulate Matter	50 mg/Nm ³	Sulphur Dioxide	*200 mg/Nm ³	Oxides of Nitrogen	*450 mg/Nm ³	Mercury (Hg)	*0.03 mg/Nm ³	<p>SEIL is Complying with the Emission norms of Particulate Matter, Oxides of Nitrogen and Mercury.</p> <p>Stack Emission Monitoring Reports performed by MoEF&CC approved third Party consultant are attached as Annexure-II.</p>
Chimney No	Parameter	Emission standards												
1&2	Particulate Matter	50 mg/Nm ³												
	Sulphur Dioxide	*200 mg/Nm ³												
	Oxides of Nitrogen	*450 mg/Nm ³												
	Mercury (Hg)	*0.03 mg/Nm ³												
12.	<p>The industry shall comply with emission limits for DG sets of capacity up to 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.</p>	<p>Complying.</p> <p>SEIL is complying with the applicable emission norms.</p> <p>DG stack Emissions is being monitored by MoEF&CC approved third party consultant and attached as Annexure-VI.</p>												



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No	Condition	Compliance Status
13.	<p>The industry shall maintain wind barriers/ wind breaking walls to the coal yards as temporary arrangement to control fugitive dust emissions on immediate surroundings.</p>	<p>SEIL has provided wind barriers all around coal yard with 3-tier thick Conocarpus trees. SEIL has transplanted adequate matured plants around coal yard as per directions given in Task force committee meeting.</p>  <p>In addition, SEIL has installed adequate water sprinklers with water hydrant system in coal yard to mitigate fugitive emission.</p> 



M/s. Sembcorp Energy India Limited Project-I,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No.	Condition	Compliance Status
14.	The industry shall regularly operate water sprinklers provided to control stock yard to mitigate fugitive dust on the surroundings from coal handling area.	<p>Complying.</p> <p>SEIL has installed adequate water sprinklers in coal yard to mitigate fugitive emission. Water consumption on monthly basis is being submitted attached as Annexure-VII</p> 
15.	The industry shall provide necessary air pollution control systems at coal transfer points in coal conveyer system from port boundary to industry premises within 3 months.	<p>Complying.</p> <p>Entire coal transportation from port boundary to industry premises is through closed pipe conveyors. All the coal transfer points and coal crusher are provided with bag filter (Dust Extraction [DE] System).</p>  <p style="text-align: center;">DE system at Transfer points</p>



Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. NO.	Condition	Compliance Status
16.	The industry shall upgrade the air pollution control systems at coal crusher within 3 months.	Complying. Coal crusher is provided with Dry Fog Dust Suppression System.
17.	The industry shall provide separate energy meters along with totalizer facility for each ESP.	Complying. SEIL has provided separate energy meters to monitor ESP Power Consumption.
18.	The industry shall comply with the MoEF&CC Notification S.O. 3305(E), dated 07.12.2015 and S.O. 682 (E), dated 07.03.2016 as applicable and report compliance to RO: Nellore.	Complying. SEIL is committed to commission Flue Gas Desulfurization System (FGD) to meet the SO _x limits as per the latest Notifications/Directions issued.



Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No.	Condition	Compliance Status
General		
19.	The industry shall handover the Original Consent Order dated 15.02.2016 to the RO: Nellore after receipt of this CFO order.	Complied.
20.	<p>The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:</p> <p>a. Daily production details (ER-1 Central Excise Returns).</p> <p>b. Quantity of Effluents generated, treated, recycled/ reused and disposed.</p> <p>c. Log Books for pollution control systems.</p> <p>d. Characteristics of effluents and emissions.</p> <p>e. Hazardous/Non-Hazardous solid waste generated and disposed.</p> <p>f. Inspection book.</p> <p>g. Manifest copies of hazardous.</p>	<p>Complying.</p> <p>All such applicable records are being regularly maintained.</p>



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

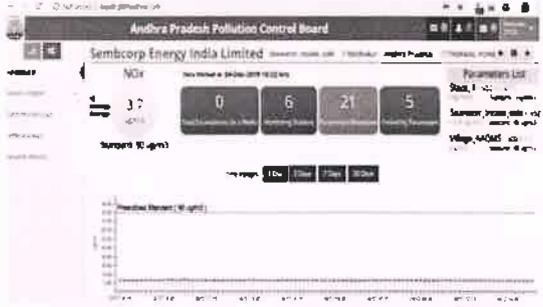
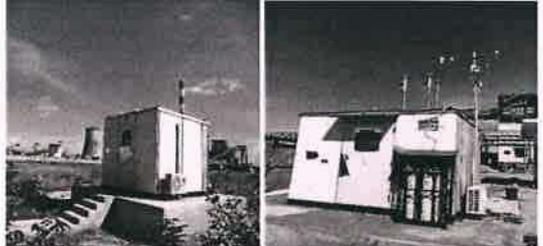
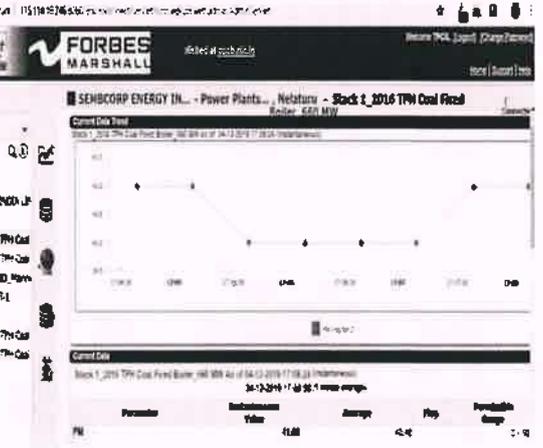
Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No.	Condition	Compliance Status												
21.	<p>The industry shall dispose solid waste (Non-Haz) as follows:</p> <table border="1" data-bbox="336 613 892 956"> <thead> <tr> <th data-bbox="336 613 400 725">S. No.</th> <th data-bbox="400 613 504 725">Name of the Solid Waste</th> <th data-bbox="504 613 655 725">Quantity</th> <th data-bbox="655 613 892 725">Disposal</th> </tr> </thead> <tbody> <tr> <td data-bbox="336 725 400 815">1</td> <td data-bbox="400 725 504 815">Fly Ash</td> <td data-bbox="504 725 655 815">0.96 Million Tons/ Annum</td> <td data-bbox="655 725 892 815">To Cement / brick units</td> </tr> <tr> <td data-bbox="336 815 400 956">2</td> <td data-bbox="400 815 504 956">Bottom Ash</td> <td data-bbox="504 815 655 956">0.24 Million Tons/ Annum</td> <td data-bbox="655 815 892 956">To cement, brick manufacturing units. Unutilized bottom ash to ash pond in slurry mode</td> </tr> </tbody> </table>	S. No.	Name of the Solid Waste	Quantity	Disposal	1	Fly Ash	0.96 Million Tons/ Annum	To Cement / brick units	2	Bottom Ash	0.24 Million Tons/ Annum	To cement, brick manufacturing units. Unutilized bottom ash to ash pond in slurry mode	<p>Complying.</p> <p>Fly ash is being collected in dry form and stored in silos of 3 x 2000 cum capacity for disposal to various users.</p>  <ul style="list-style-type: none"> SEIL has achieved 100% fly ash utilization by September 2019. Efforts are on to sustain the 100% utilization of Fly Ash and achieved the same during the period from April 2022 to September 2022. Bottom ash is being sold to Brick Manufacturers for free of cost. <p>SEIL has installed and commissioned Fly Ash classification unit of 5 Lakh Tonne per annum within the site for facilitating exports.</p> <p>SEIL is exporting fly ash to USA & Middle East.</p>
S. No.	Name of the Solid Waste	Quantity	Disposal											
1	Fly Ash	0.96 Million Tons/ Annum	To Cement / brick units											
2	Bottom Ash	0.24 Million Tons/ Annum	To cement, brick manufacturing units. Unutilized bottom ash to ash pond in slurry mode											
22.	<p>The industry shall relocate the CAAQM station provided at sea intake point to suitable location in consultation with RO: Nellore.</p>	<p>Complied.</p> <p>SEIL has provided 4 No's of Continuous AAQM stations to cover both upwind and downwind directions for all the seasons.</p> <p>The said condition was omitted in the CFO amendment order No: APPCB/ VJA/ NLR/ 930/ HO/ CFO/ 2019 issued dated 13.07.2019.</p>												



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No.	Condition	Compliance Status
23.	<p>The industry shall operate CAAQM stations for monitoring SPM, SO₂, and NO_x with recording facility and maintain connectivity to PCB server.</p>	<p>Complying.</p> <p>The Ambient Air Quality of the plant area and surroundings is being continuously monitored by using 4 No's of Continuous Air Quality Monitoring CAAQMS Stations. The data is being uploaded to PCB server on real-time basis.</p>  
24.	<p>The industry shall install online effluent and stack monitoring systems for specified parameters as per CPCB directions dated 05.02.2014 & 02.03.2015 and maintain connectivity to APPCB/CPCB websites.</p>	<p>SEIL has provided Online Stack Emission Monitoring system & Effluent Quality Monitoring system and same is connected with the APPCB/CPCB website.</p> 



M/s. Sencorp Energy India Limited Project-I,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

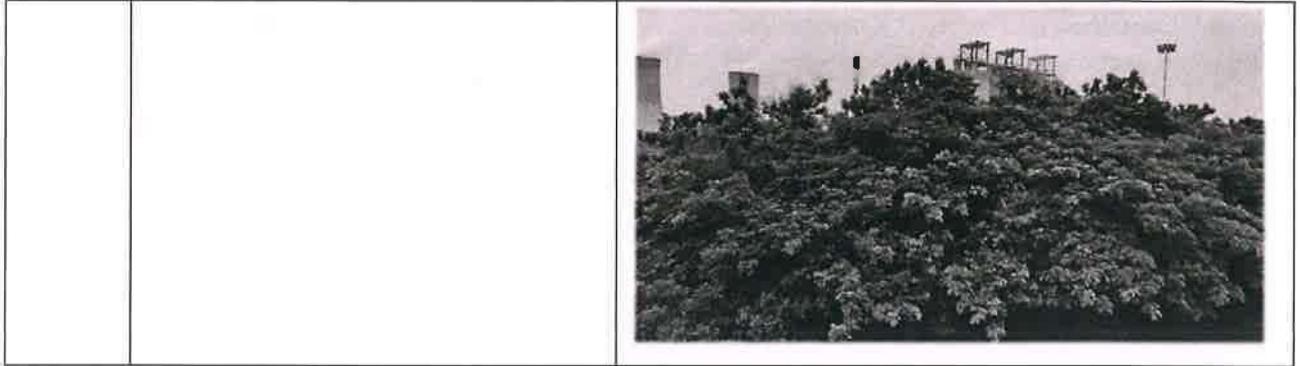
Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No.	Condition	Compliance Status
25.	The industry shall carryout regular calibration for the on-line stack monitoring systems and CAAQM stations with tamper proof mechanism.	Complying. Regular calibration of the CAAQMS system is being done. Also, the CEMS system has been provided with online Remote Calibration facility.
26.	The industry shall dispose 100% of fly ash generated as per the Fly ash Notification.	Complying. SEIL has attained 100% fly ash utilization by September 2019. SEIL is making all out efforts to sustain 100% utilization of fly ash and achieved the same. MoUs are signed with brick manufacturers, traders and cement plants for ash utilization. Dedicated Fly Ash Management Cell has been formed to have focused efforts and approach towards 100% of fly ash utilization.
27.	The industry shall develop the thick green belt in an area of 395 acres covering all along the periphery of the industry, coal stack yard and ash pond area.	Complying. Around 450 acres of green belt developed inside the plant and along the periphery of boundary. Own Nursery has been developed inside the plant premises. 



*M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)*

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021



S. No.	Condition	Compliance Status
28.	The industry shall submit a copy of policy of Public Liability Insurance (PLI) duly indicating the amount contributed towards Environmental Relief Fund (ERF) to the RO once in six months.	Complying. The copy of PLI is being submitted to APPCB Regional office on regular basis. (Policy Number: 03040058050200 Policy Effective from 19/11/2022 to 18/11/2023) PLI Policy attached as Annexure-V
29.	The industry shall comply with Board directions issued from time to time.	Noted.
30.	The industry shall comply with standards and directions issued by CPCB/MoEF&CC as and when notifications are issued.	Noted.
31.	The industry shall submit compliance report on the conditions mentioned in the consent order every six months i.e., on 1 st of January and July of every year to the RO/ ZO.	Complying. SEIL Project-1 (formerly known as Thermal Powertech corporation India Limited – TPCIL) has submitted the six-monthly CFO compliance report to APPCB vide letter No: SEIL P1/ APPCB/ BZA/2022/006 dated 27.06.2022.



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

Schedule-C		
S. No.	Condition	Compliance Status
1	The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.	Complying.
2.	The authorization shall be produced for inspection at the request of an officer authorized by the state Pollution Control Board.	Noted for Compliance.
3.	The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorisation.	Noted.
4.	Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorization.	Noted.
5.	The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site-specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.	Complying. Onsite Emergency Management Plan is in place to meet any eventuality. Periodic mock drills are being conducted.



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

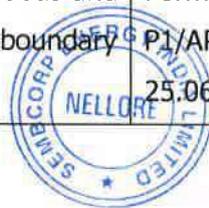
S. No.	Condition	Compliance Status
6.	The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".	Noted for Compliance.
7.	It is duty of the authorised person to take prior permission of the pollution Control Board to close down the facility.	Noted
8.	The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorisation.	Complying. All the Hazardous Wastes generated are being disposed to authorized vendors through APEMC.
9.	An application for the renewal of an authorisation shall be made as laid down under these Rules.	Noted for Compliance.
10	Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.	Noted for Compliance.
11.	Annual returns shall be filed by June 30 th for the period ensuring 31 st March of the year.	Complying. SEIL Project-1 has submitted the Hazardous Waste Annual returns in Form-4 to APPCB vide SEIL P1/APPCB/Nellore/2022/003 dated 25.06.2022.
12.	The industry shall not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management & Transboundary Movement) Rules, 2016.	Complying. Disposal of Hazardous wastes being done through APEMC Authorized Waste Receivers as per HWM rules.



M/s. Sembcorp Energy India Limited Project-1,
Painampuram & Nelaturu (V),
Muthukur (M),
SPSR Nellore (Dist.)

Order No. APPCB/VJA/NLR/930/HO/CFO/2016-, Date: 16.11.2021

S. No.	Condition	Compliance Status
13.	The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.	Complying. SEIL Project-1 is storing the Used / Waste Oil and Used Lead Acid Batteries under a secured Hazardous Waste Storage shed and being disposed through APEMC to APPCB Authorized Receivers.
14.	The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concern Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.	Complying. Hazardous wastes disposal is being done through APEMC online portal to authorized waste Receivers by following Manifest system as per HWM rules, 2016. Hazardous Waste Manifests are being submitted to RO, APPCB. TREM card is being issued to transporters during transportation.
15.	The industry shall maintain proper records for Hazardous and Other Wastes stated in Authorisation in Form-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 20(2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.	Complying. SEIL Project-1 is maintaining Hazardous waste records in Form-3. SEIL Project-1 has submitted the Hazardous Waste Annual returns in Form-4 to APPCB vide SEIL P1/APPCB/Nellore/2022/003 dated 25.06.2022.





भारत सरकार / Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय

Ministry of Environment, Forest and Climate Change
एकीकृत क्षेत्रीय कार्यालय / Integrated Regional Office
ग्रीन हाउस, गोपालारेड्डी रोड, विजयवाड़ा, आंध्र प्रदेश - 520010
Green House, Gopalareddy Road,
Vijayawada, Andhra Pradesh-520010.

ANNEXURE - II



Tel: +91 866 - 2419787, +91 866 - 2419788, E-mail: iro.vijayawada-mefcc@gov.in, suresh.pasupuleti@gov.in

File No. IRO/VIJ/EPA/MISC/111-01/2021

Date: 05.04.2022

To

The Unit Head,
Project - I,
M/s Sembcorp Energy India Limited,
Pyanampuram/Nelaturu Village,
Mutukur Mandal, Nellore - 524344,
Andhra Pradesh.
E-mail: pavan.vemulapalli@sembcorp.com

Sub: 3 X 660 MW (Stage-I: 2 X 660 MW; and Stage-II: 1 x 660 MW) Super Critical Coal Based Thermal Power Plant at village Painampuram, in Muthukur Mandal, in Nellore Distt., in Andhra Pradesh. - reg.

Ref: Environmental and CRZ Clearances:

SN	Project	Clearance No. and date
Environmental Clearance		
1	3 X 660 MW (Stage-I: 2 X 660 MW; and Stage-II: 1 x 660 MW) Super Critical Coal Based Thermal Power Plant at village Painampuram, in Muthukur Mandal, in Nellore Distt., in Andhra Pradesh	J-13011/02/2009-IA.II(T) dated 04.11.2009
2	3 X 660 MW (Stage-I: 2 X 660 MW; and Stage-II: 1 x 660 MW) Super Critical Coal Based Thermal Power Plant at village Painampuram, in Muthukur Mandal, in Nellore Distt., in Andhra Pradesh - Extention of EC validity	J-13011/02/2009-IA.II(T) dated 02.03.2015
3	2x660 MW (Stage-I) Super Critical Coal Based TPP at Village Painampuram & Nelaturu, in Muthukur Mandal, in SPSR Nellore Distt., in Andhra Pradesh by M/s Thermal Powertech Corporation (India) Ltd-reg Transfer of EC	J-13011/02/2009-IA.II(T) dated 09.10.2019
CRZ Clearance		
4	CRZ clearance for the construction of pump house, Sea water Intake and Outfall facilities at Pianapuram Village, Near Nellore, Andhra Pradesh by M/s Thermal Power Tech Corporation India Ltd.	11-129/2010-IA.III dated 05.12.2011.

Sir,

I am directed to state that the above project was monitored by undersigned on 22.10.2021 to review the status of implementation of environmental safeguard

stipulated in the Environmental Clearance letter/s as referred above. The discussion was held with concerned officer on implementation of stipulated environmental condition. It was observed that the effective measures are required to taken for following issues to ensure satisfactory compliance status:

EC No. J-13012/02/2009-IA.II (T) dated 04.11.2009

1. It is required to monitor Mercury and other heavy metals (As, Hg, Cr, Pb etc.) in the effluents emanating from the existing ash pond.
2. It is required to implement the recommendations made in the Hydrogeological study report.
3. It is required to conduct hydrogeological study of the area annually and results submitted to the Ministry and concerned agency in the State Government.
4. It is required to earmark an amount of Rs 32.0 crores as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 6.4 Crores per annum should be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken should be submitted within along with road map for implementation.
5. It is required to implement CSR activities as per need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc., can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.
6. During Inspection, it has been informed that the Ministry of Environment, Forest and Climate Change vide Gazette of India Notification No. 1-5/2013-ROHQ dated 13.08.2020 has established 09 new Integrated Regional Offices (IROs) including IRO, Vijayawada. The IRO, Vijayawada is functioning with the jurisdiction of State Andhra Pradesh. Henceforth, six monthly compliance reports will all monitored data including required enclosures should be submitted to IRO, Vijayawada in soft copy (PDF format) only on regularly basis to ecompliance-ap@gov.in (only).
7. It is required to submit the Environment Statement for each financial year ending 31st March in Form V IRO, Vijayawada in soft copy (PDF format) only on regularly basis to ecompliance-ap@gov.in (only).
8. It is required to update the Environmental Statement in company's website on regular basis.
9. It is required to submit the detailed report regarding the expenditure incurred for implementation of environmental protection measures along with six monthly compliance to Ministry's Integrated Regional Office on regular basis.

I/7958/2022

64

10. It is required to submit the details regarding the date of financial closure and final approval of the Project by the concerned authorities and the dates of start of land development work and commission of the plant.

J-13011/02/2009-IA.II(T) dated 02.03.2015 (Extension of EC validity)

11. It is required to conduct long term study of radioactivity and heavy metals contents on coal to be used through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.

CRZ Clearance No. 11-129/2010-IA.III dated 05.12.2011

12. It has been observed the CRZ clearance issued by the Ministry vide Clearance No. 11-129/2010-IA.III dated 05.12.2011 for the construction of pump house, Sea water Intake and Outfall facilities at Pianapuram Village, Near Nellore, Andhra Pradesh has granted to M/s Thermal Power Tech Corporation India Ltd. The transfer of CRZ clearance in favor of M/s Sembcorp Energy India Limited has not provided.

13. It is required to submit the copy of "Consent For Establishment" granted for construction of pump house, Sea water Intake and Outfall facilities obtained from APPCB under Air and Water Act.

14. It is required to provide the details implementation status of all the measures as committed to the Ministry vide their letter dated 01.08.2011, as a part of the clarifications submitted by the PP.

15. It is required to submit the compliance status of all mitigation measures submitted in the EIA report which are to be prepared in a matrix format to Ministry's IRO, Vijayawada.

16. It is required to provide the details regarding the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.

17. It is required to submit the copies of newspaper advertisement to Ministry's IRO, Vijayawada for records.

18. It is required to upload the status of compliance of the stipulated CRZ clearance conditions, including results of monitored data on their website.

In view of above, you are requested to submit action taken report to this office within 30 days of receipt of this letter for taking further action, failing which it will be treated as violation under the E(P) Act, 1986.

भवदीय / Yours faithfully,

Sd/-

(डॉ। सुरेश बाबु पसुपुलेटी)

(Dr. Suresh Babu Pasupuleti)

संयुक्त निदेशक (एस) / Joint Director (S)

Digitally Signed by Suresh

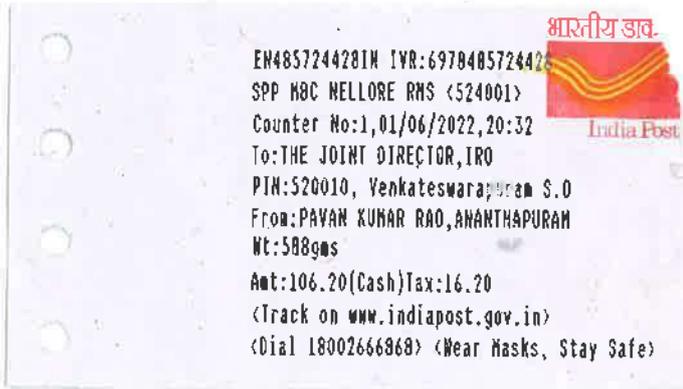
Babu Pasupuleti

Date: 05-04-2022 18:25:48

Reason: Approved

Copy to:

1. **Dr. S. Kerketta**, Director, Member Secretary (Thermal Projects), Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi – 110 003. E-mail: s.kerketta66@gov.in for kind information.
2. **Dr. Shruti Rai Bhardwaj**, Scientist-E, Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh, Aliganj, New Delhi- 110 003. Email ID: shruti.rai@nic.in for kind information.
3. Project File
4. Guard File

BY REGD. AD/SPEED POST/EMAIL**Sembcorp Energy India Limited**

CIN: U40103HR2008PLC095648

Regd. Office: 5th Floor, Tower C, Building No 8
 DLF Cybercity, Gurgaon - 122002, Haryana, India
 Tel (91) 124 389 6700 / 01

Fax (91) 124 389 6710

E-mail: cs.india@sembcorp.com

Website: www.sembcorpenergyindia.com

Date: May 31st, 2022

To,

Dr. Suresh Babu Pasupuleti,
 Joint Director (S),
 Integrated Regional Office,
 Ministry of Environment, Forest & Climate Change,
 Green House Complex, Gopal Reddy Road, Vijayawada,
 Andhra Pradesh-520010

RE:

- (a) Letter dated April 5, 2022, issued to M/s Sembcorp Energy India Limited (*hereinafter referred to as "SEIL"*) by the Joint Director (S), Vijayawada, Andhra Pradesh bearing file number: IRO/VIJ/EPA/MISC/111-01/2021 (*hereinafter referred to as the "Letter under Reply"*); and
- (b) Interim reply to the Letter under Reply issued by SEIL dated May 02, 2022 (*hereinafter referred to as the "Interim Reply"*), that is annexed herewith and marked as **Annexure-I**).

SUBJECT: Reply to the Letter under Reply by SEIL issued to Joint Director (S), Vijayawada, Andhra Pradesh.

Dear Sir,

We refer to the referenced letters *viz.* the Letter under Reply and the Interim Reply and are replying to it as under:

- a) At the outset SEIL submits that nothing contained in this present reply should be construed as an admission of any alleged circumvention/non-contravention of any applicable law. Nothing contained herein should be deemed to be an admission for absence of specific non traverse.

- b) At the further outset, SEIL submits that it is issuing this Letter under Reply in respect of the 2 X 660 MW (Stage I) Super Critical Coal Based Thermal Power Plant at village Painampuram, in Muthukur Mandal, in Nellore Distt., in Andhra Pradesh (*hereinafter referred to as the "Plant"*).
- c) For the sake of brevity SEIL in this present reply is only specifically issuing its response to the specific queries raised in the Letter under Reply with respect to the aforesaid compliance pertaining to the plant.
- d) The queries raised in the Letter under Reply have been paraphrased in this present reply and are being responded to *in seriatim* hereinbelow:

Response to the enquiry made in the Letter under Reply in respect of Environmental Clearance issued to SEIL in respect of the Plant, bearing number: EC No. J-13012/02/2009-IA. II (T) dated 04.11.2009 (*hereinafter referred to as the "EC"*).

Query No. 1: *SEIL was required to monitor Mercury and other heavy metals (As, Hg, Cr, Pb etc.) in the effluents emanating from the existing ash pond.*

Response by SEIL:

(a) SEIL submits that it has complied with the corresponding condition and has monitored the presence of heavy metals present in effluents emanating from its existing ash pond. In this regard, an independent lab being M/s Care Labs, Hyderabad recognised by the Ministry of Environment Forest & Climate Change, Government of India and National Accreditation Board for Testing and Calibration Laboratories ("NABL") was appointed by SEIL for FY 2021-22 to conduct the foregoing study of the presence of heavy metals in effluents emanating from its ash pond. For ease of reference, we are annexing quarterly reports issued by M/s Care Labs, Hyderabad for the preceding (4) quarters as **Annexure-II** colly.

Query No. 2: *SEIL was required to implement the recommendations made in the Hydrogeological study report*

Response by SEIL:

(a) SEIL submits that recommendations, if any, made in Hydrogeological Study Report for the year 2021, are being complied with. A copy of the Hydrogeological Study Report for the year 2021, has been submitted to your office on April 18, 2022. However, a copy of the same is annexed herewith and is attached as **Annexure-III**.

Query No. 3: *SEIL was required to conduct hydrogeological study of the area annually and results submitted to the Ministry and concerned agency in the State Government.*

Response by SEIL:

(a) SEIL submits that a Hydrogeological study is being done annually by third party experts and a copy thereof has been submitted to the Ministry of Environment, Forest & Climate Change.

Query No. 4: *SEIL was required to earmark an amount of Rs 32.0 crores as one-time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 6.4 Crores per annum should be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken should be submitted along with road map for implementation.*

Response by SEIL:

(a) SEIL confirms that from the year 2010-11 up to the year 2021-2022, it has cumulatively spent an amount of INR 70.98 crores on CSR related activities. Details of the CSR activities undertaken from the year 2010-11 up to the year 2021-2022, are collated in an internal report which is attached herewith for ease of your reference and is marked as **Annexure-IV**.

Query No. 5: *SEIL is required to implement CSR activities as per need-based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc., can form a part of such programme. Company shall provide separate budget for community development activities*

and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.

Response by SEIL:

(a) In compliance with the foregoing query, details of the CSR activities undertaken are collated in an internal report which is attached herewith for ease of your reference and is marked as **Annexure-IV**.

Query No. 6: *During Inspection, it has been informed that the Ministry of Environment Forest, & Climate Change vide Gazette of India Notification No. 1-5/2013-ROHQ dated 13.08.2020 has established 09 new Integrated Regional Offices (IROs) including IRO, Vijayawada. The IRO, Vijayawada is functioning with the jurisdiction of State Andhra Pradesh. Henceforth, six monthly compliance reports with all monitored data including required enclosures should be submitted to IRO, Vijayawada in soft copy (PDF format) only on regularly basis to ecompliance-ap@gov.in (only).*

Response by SEIL:

SEIL submits that it was only during the recent inspection carried out by your good offices on October 22, 2021, that SEIL was informed about commencement of operations of the Integrated Regional Office, Ministry of Environment Forest, & Climate Change, Vijayawada *vide* notification bearing No. 1-5/2013- ROHQ dated August 13, 2020. Immediately thereafter, SEIL has started submitting the compliance reports with respect to the EC and the CRZ Clearance, to the Integrated Regional Office, Ministry of Environment Forest, & Climate Change, Vijayawada. Until, October 2021, compliance reports with respect to the EC and the CRZ Clearance were being regularly submitted to (a) the Regional Office, Chennai, Ministry of Environment Forest, & Climate Change; and (b) the Director, IA.I (Thermal), New Delhi, Ministry of Environment Forest, & Climate Change. For ease of your reference—a copy of the latest compliance reports that has been submitted with your good offices *vide* our email dated March 18, 2022, dated November 25, 2021 are being annexed herewith as **Annexure-V**[colly].

Query No. 7: *SEIL is required to submit the Environment Statement for each financial year ending 31st March in Form V IRO, Vijayawada in soft copy (PDF format) only on regularly basis to ecompliance-ap@gov.in (only).*

Response by SEIL:

SEIL submits that it is only during the recent inspection carried out by your good offices on October 22, 2021, that SEIL was informed about commencement of operations of the Integrated Regional Office, Ministry of Environment Forest, & Climate Change, Vijayawada *vide* notification bearing No. 1-5/2013- ROHQ dated August 13, 2020. Immediately thereafter, SEIL has started submitting the Environmental Statements, to the Integrated Regional Office, Ministry of Environment Forest, & Climate Change, Vijayawada. Until, October 2021, Environmental Statements for each financial year, were being regularly submitted to the Member Secretary, APPCB, Vijayawada, and regional officer, APPCB, Nellore. For ease of your reference proof of submission of the recent report for the year 2021, along with a copy thereof is being annexed herewith as **Annexure-VI [colly]**.

Query No. 8: *SEIL is required to update the Environmental Statement in company's website on regular basis.*

Response by SEIL:

SEIL submits that it is regularly uploading the Environmental Statement on its website annually. The said Environmental Statement can be accessed by clicking on the link:

<https://www.sembcorpenergyindia.com/AboutUs/Disclosure>

Query No. 9: *SEIL is required to submit the detailed report regarding the expenditure incurred for implementation of environmental protection measures along with six monthly compliances to Ministry's Integrated Regional Office on regular basis.*

Response by SEIL:

SEIL submits that information relating to expenditure towards implementation of environment protection measures are part of Environment Statement Report which is being submitted yearly by SEIL. A copy of the Environmental Statement Report is annexed herewith and is marked as **Annexure-VI**.

Query No. 10: *SEIL is required to submit the details regarding the date of financial closure and final approval of the Project by the concerned authorities and the dates of start of land development work and commission of the plant.*

Response by SEIL:

SEIL submits that Final Loan Agreement was signed on September 13, 2010, with Power Finance Corporation, Rural Electrification Corporation, Life Insurance Corporation and Power Trading Corporation. The date of execution of the Final Loan Agreement constitutes financial closure for the Plant. It is further submitted that land development work in respect of the Plant commenced on February 17, 2011. The date of commissioning of the Plant is (a) Unit I on March 2, 2015, and (b) Unit II on September 15, 2015.

The Central Electricity Authority, Ministry of Power confirmed the commercial operation date of the Plant set out hereinabove in its letters dated March 16, 2015 and October 12, 2015 for Unit I and Unit II of the Plant respectively. Additionally, APPCB issued a Consent for Operation (CFO) for Unit I on February 24, 2015 and for Unit II on August 27, 2015, copies of the aforesaid documents are annexed herewith and marked as **Annexure-VII** colly.

Response to the enquiry made in the Letter under Reply in respect of the extended Environmental Clearance issued to SEIL in respect of the Plant, bearing number: EC No. J-13011/02/2009-IA.II (T) dated March 02, 2015 (hereinafter referred to as the "EC Extension").

Query No. 11: *SEIL is required to conduct long term study of radioactivity and heavy metals contents on coal to be used through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter*

mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.

Response by SEIL:

(a) SEIL submits that it is conducting a quarterly Heavy Metal Analysis of coal and ash by APPCB approved third party agency M/s Care Labs, Hyderabad and it has regularly submitted its Heavy Metal Analysis report to the Ministry of Environment, Forest & Climate Change. SEIL further submits that it is regularly conducting a Radioactivity Analysis and is submitting a report to the Ministry of Environment, Forest & Climate Change. Proof of submission of the foregoing reports from the along with copies of the latest Heavy metal analysis report along with Radioactivity Analysis Report conducted by third party monitoring agency M/s Care Labs, Hyderabad and the Board of Radiation & Isotope Technology, (BRIT) GOI respectively are annexed herewith and marked as **Annexure-VIII [colly]**.

Response to the enquiry made in the Letter under Reply in respect of CRZ Clearance issued to SEIL in respect of the Plant, bearing number: Clearance No. 11-129/2010-IA.III dated December 05, 2011 (hereinafter referred to as the “CRZ Clearance”).

Query No. 12: *It has been observed the CRZ clearance issued by the Ministry vide Clearance No. 11-129/2010-IA.III dated 05.12.2011 for the construction of pump house, Sea water Intake and Outfall facilities at Pynapuram Village, Near Nellore, Andhra Pradesh has been granted to M/s Thermal Power Tech Corporation India Ltd. The transfer of CRZ clearance in favour of M/s Sembcorp Energy India Limited has not been provided.*

Response by SEIL:

(a) SEIL submits that its name was changed from Thermal Powertech Corporation India Limited (TPCIL) to “Sembcorp Energy India Limited” with effect from February 10, 2018. SEIL applied to Ministry of Environment, Forest & Climate Change on May 7, 2019, for change of name as reflecting in the EC i.e. from TPCIL to SEIL and the same was approved vide Ministry of Environment, Forest & Climate Change office order dated October 9, 2019. Copy of the said Order is attached herewith and annexed as **Annexure-IX**. As directed, we have applied for change of

name for CRZ Clearance i.e., from TPCIL to SEIL vide our application no. IA/AP/CRZ/273835/2022 Dtd. 19th May'2022. and is annexed as **Annexure-X**.

Query No. 13: *SEIL is required to submit the copy of "Consent for Establishment" granted for construction of pump house, Sea water Intake and Outfall facilities obtained from APPCB under Air and Water Act.*

Response by SEIL:

(a) SEIL submits that the Consent for Establishment was granted by Andhra Pradesh Pollution Control Board *vide Order. No. 177/PCB/CFE/RO/-NLR/ HO/2009-433* dated May 15, 2010 (*hereinafter referred to as "CFE"*). The Schedule-B of Consent for Establishment mentions the parameters in Schedule -B which pertains to Sea Water Intake [viz. Cooling Water Make-Up & Non-Cooling Water Make-Up], Sea Water Intake and Outfall [viz. Cooling Water Blowdown]. Inclusion of these parameters implies Sea Water Pump house, Sea Water Intake and Outfall facilities form part of the foregoing CFE and is included in Schedule B of the CFE. A copy of the CFE was previously shared with your good offices on March 18, 2022. However, for ease of reference, a copy of the CFE is attached herewith and marked as **Annexure-XI**.

Query No. 14: *SEIL is required to provide the details of the implementation status of all the measures as committed to the Ministry vide their letter dated 01.08.2011, as a part of the clarifications submitted by the PP.*

Response by SEIL:

(a) SEIL submits that it is complying with all conditions mentioned in the Ministry of Environment, Forest & Climate Change's letter dated December 05, 2011 *vide* which the CRZ clearance was issued, in response to the referenced letter of August 01, 2011. A detailed implementation status of the foregoing conditions of CRZ is attached herewith and marked as **Annexure-XII**.

Query No. 15: *SEIL is required to submit the compliance status of all mitigation measures submitted in the EIA report which are to be prepared in a matrix format to Ministry's IRO, Vijayawada.*

Response by SEIL:

(a) SEIL submits that it has implemented the mitigation measures as set out in the Environmental Impact Assessment Report, and a compliance report thereof in matrix format is attached herewith for your reference and is marked as **Annexure-XIII**.

Query No. 16: *SEIL is required to provide the details regarding the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.*

Response by SEIL:

(a) Response to Query 10 be read as response to Query 16.

Query No. 17: *SEIL is required to submit the copies of newspaper advertisement to Ministry's IRO, Vijayawada for records.*

Response by SEIL:

(a) SEIL submits that Advertisements were given in a Telugu newspaper on July 04, 2009, and in an English newspaper on July 03, 2009, copies whereof are attached herewith and marked as **Annexure-XIV**.

Query No. 18: *SEIL is required to upload the status of compliance of the stipulated CRZ clearance conditions, including results of monitored data on their website.*

Response by SEIL:

(a) The status of compliance of the stipulated CRZ Clearance conditions along with the result of the data monitored is being regularly uploaded on SEIL's official website. For ease of reference the said website can be accessed on the link set out hereinbelow.

<https://www.sembcorpenergyindia.com/AboutUs/Disclosure>

Without prejudice to the aforesaid, or otherwise, SEIL submits that should there be any need for clarification or any further information in respect of the foregoing or otherwise it will be available to aid your good offices, at your earliest convenience.

Assuring you of our support, and best efforts.

Thanking you,

Sincerely,



Pavan Kumar Rao

Head-HSE, SEIL

Sembcorp Energy India Limited


Sembcorp Energy India Limited

CIN: U40103TG2008PLC057031

Regd. Office: 5th Floor, Tower C, Building No 8

DLF Cybercity, Gurgaon - 122002, Haryana, India

Tel (91) 124 389 6700 / 01

Fax (91) 124 389 6710

E-mail: cs.india@sembcorp.com

Website: www.sembcorpenergyindia.com

SEIL P1/MoEF&CC/Chennai/2022/005

 26th November 2022

To

The Regional Director,
Regional Office (South Eastern Region),
Ministry of Environment, Forests & Climate Change,
1st & 2nd Floor, HEPC Building, No. 34, Cathedral Garden Road,
Nungambakkam,
Chennai – 600034.

Sub.: Submission of Half Yearly EC Compliance Report of SEIL Project-1 (formerly known as Thermal Powertech Corporation India Limited—TPCIL) for the period from April 2022 to September 2022

Ref.: EC Letter No: J 13012/02/2009— IA.II (T) dated 04-11-2009, amended dated 02.03.2015

Dear Sir,

As per the provision of Environment Clearance and EIA Notification 2006, we hereby submits the half yearly compliance status report for the period of April 2022 to September 2022 along with supporting documents to the conditions specified with respect to Environmental Clearance issued to SEIL Project-1 (Formerly known as Thermal Powertech Corporation India Limited— TPCIL), Nellore.

Hope the above is in order.

Thanking you,

Yours faithfully,

For Sembcorp Energy India Limited,

Pavan Kumar Rao V

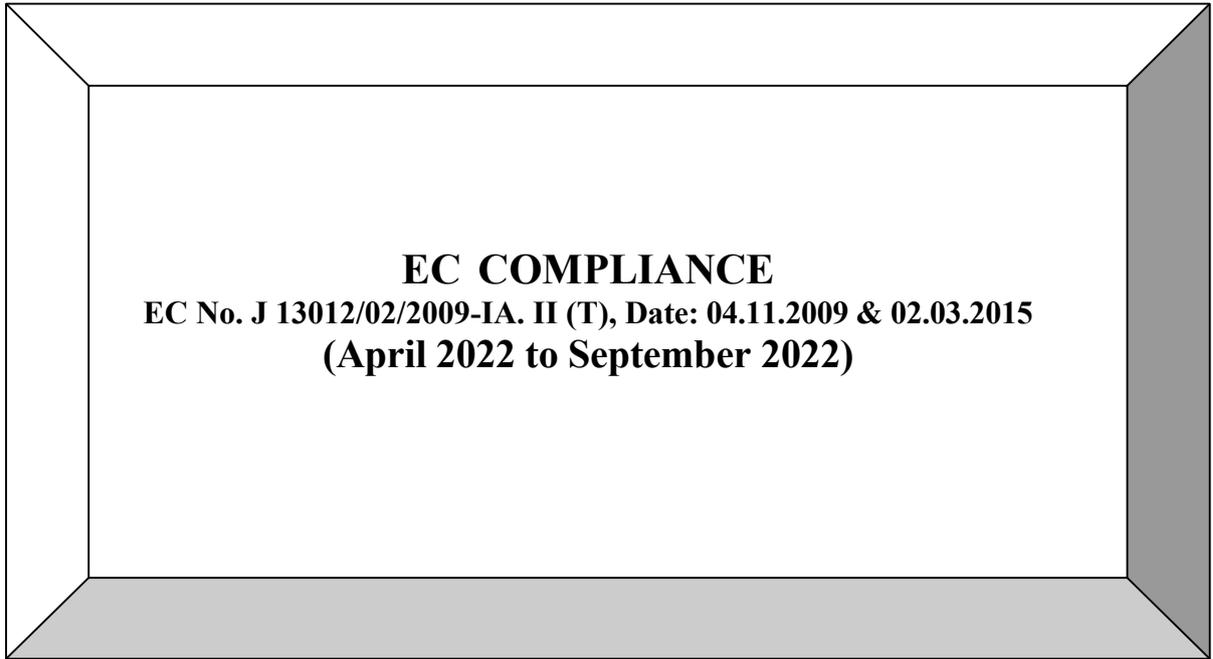
Head HSE- SEIL

Copy To:

1. The Director, IA.I, MoEF&CC, New Delhi
2. The Joint Director (S), Scientist 'D', MoEF&CC, IRO, Vijayawada
3. The Regional Officer, APPCB, Nellore

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M/s. Sembcorp Energy India Limited Project-1
(Formerly known as M/s. Thermal Powertech Corporation India Limited),
Painampuram & Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.), Andhra Pradesh.

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015



M/s. Sembcorp Energy India Limited Project-1
(Formerly known as M/s. Thermal Powertech Corporation India Limited),
Painampuram & Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.), Andhra Pradesh.

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015

01. Background:

Sembcorp Energy India Ltd (SEIL) Project-1 [formerly known as Thermal Powertech Corporation India Limited (TPCIL)] is a leading independent power company in India. SEIL is promoted by Sembcorp Utilities Pvt. Ltd., which is part of the Singapore based Sembcorp Group.

At SEIL currently, Stage-I power plant consisting of 2x660 MW is under operation since October 2015.

The location map and key map are shown in **Figure-1** & **Figure-2** respectively. The 10 km radius topographical map around the project is shown in **Figure-3**. The latitude & longitude of North South extremes of Site are 80°08'35.956''E & 14°19'5.211''N and 80°09'16.325''E & 14°21'0.874''N respectively.

M/s. Sembcorp Energy India Limited Project-1
(Formerly known as M/s. Thermal Powertech Corporation India Limited),
Painampuram & Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.), Andhra Pradesh.

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015

Fig. - 1 (LOCATION MAP)



Fig. - 2 (KEY MAP OF PROJECT SITE)

M/s. Sembcorp Energy India Limited Project-1
 (Formerly known as M/s. Thermal Powertech Corporation India Limited),
 Painampuram & Nelaturu (V), Muthukur (M),
 SPSR Nellore (Dist.), Andhra Pradesh.

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015

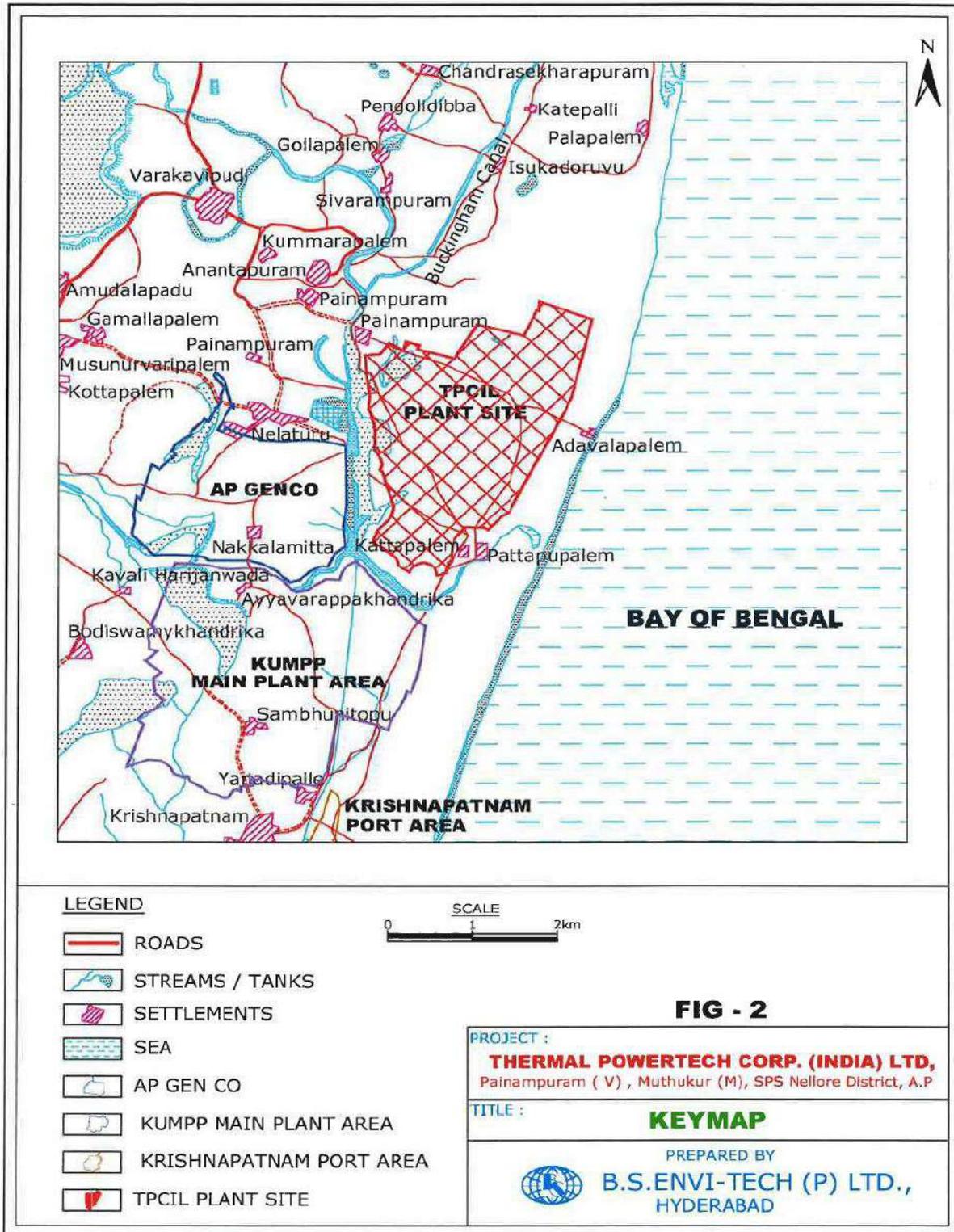
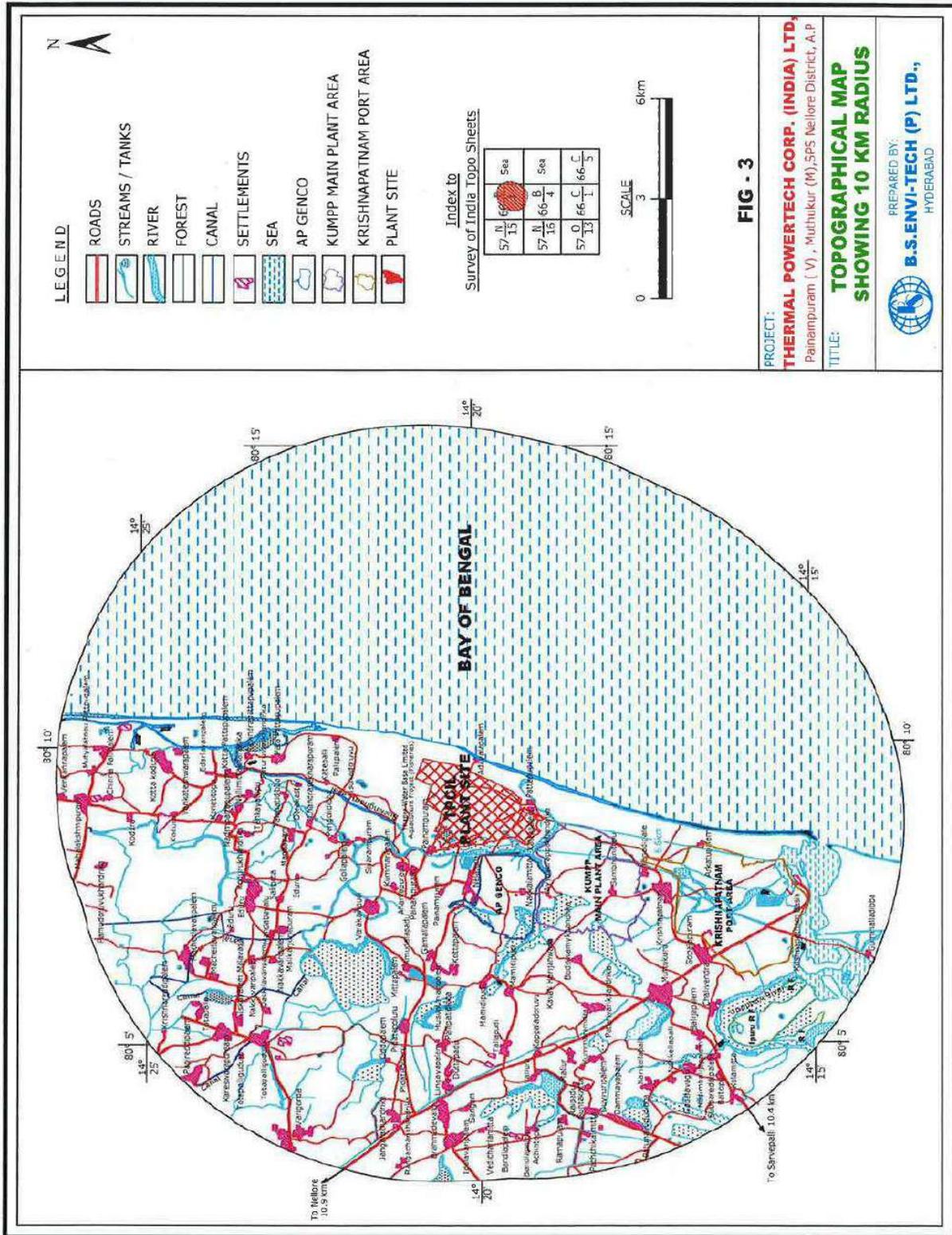


Fig. – 3 (TOPOGRAPHICAL MAP OF 10 KM RADIUS AREA)

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015



M/s. Sembcorp Energy India Limited Project-1
 (Formerly known as M/s. Thermal Powertech Corporation India Limited),
 Painampuram & Nelaturu (V), Muthukur (M),
 SPSR Nellore (Dist.), Andhra Pradesh.

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015

02. Statutory Approvals/Clearances:

The following statutory approvals and clearances were received for the Project:

S. No.	Authorization	Accorded By	Validity
1	Environment Clearance	Ministry of Environment & Forests, Govt. of India	MoEF Letter dated 4/11/2009. The validity of EC is extended to 7 years by MoEF notification to start operations. Accordingly, SEIL commenced its operations by Sept 2015, well within due date.
2	CRZ Clearance	Ministry of Environment & Forests, GOI	F. No. 11-129/2010-IA.III. Dated: 5 th December, 2011
3	Combined Consent for Operation (CFO) for two units	AP Pollution Control Board, Hyderabad	Order No. APPCB/VJA/VJA/930/HO/CFO/2016 Dated: 16 th Nov 2021. Renewed and is valid till 30th Nov 2026.

CONDITION WISE COMPLIANCE TO ACCORDED ENVIRONMENT CLEARANCE

S No.	Condition	Compliance Status
4. i	Status of implementation of 100% utilisation of Fly Ash generated shall be submitted to the Ministry within six months of operation of the plant.	<p>Complying.</p> <p>SEIL (formerly known as Thermal Powertech Corporation India Limited-TPCIL) is achieving 100% fly ash utilization since September 2019.</p> <p>Attached letter submitted to MoEF&CC on Annual Fly Ash utilization for FY2021-2022 vide letter no. SEIL P1/MoEF&CC/Chennai/2021/002 dated 28th April 2022 as Annexure-I.</p>
ii	Stacks of 275 m height (Bi-Flue for Stage -I and Single Flue for Stage II) shall be provided with continuous online monitoring equipment for SO _x , NO _x and PM. Exit Velocity of flue gases shall not be less than 25 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	<p>Complying.</p> <p>One Bi-Flue gas chimney of 275 m height (Stage-I) is provided along with continuous online emission monitoring equipment for measuring SO_x, NO_x and Particulate Matter.</p>  <p>Mercury is being monitored on quarterly basis.</p> <p>Exit velocity of flue gas is well within prescribed norms.</p> <p>Stack Emission Monitoring Reports performed by third Party consultant which is MoEF&CC approved are attached as Annexure-II.</p>
iii	Possibility for installation of combined intake with neighbouring Power Plants shall be examined and in the event of non-feasibility adequate justification shall be submitted within a period of six months.	Installation of combined intake with neighbouring Power Plant was not found feasible.

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015

S No.	Condition	Compliance
iv	<p>High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³.</p>	<p>Complying.</p> <p>Electrostatic Precipitators (ESPs) with more than 99.9% efficiency (72 fields each) are installed to control the Particulate Matter Emission less than 50 mg/Nm³.</p>  
v	<p>Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.</p>	<p>Complying.</p> <p>Bag filters are provided for coal crusher.</p> 

EC No. J 13012/02/2009-IA. II (T), Date: 04.11.2009 & 02.03.2015

S No.	Condition	Compliance
		<p>Dust Suppression systems has been provided at Transfer Points to further minimize fugitive dust.</p> <p>Additional water sprinklers have been provided to suppress fugitive emissions at coal yard.</p> <p>SEIL has also provided wind barriers with 3-5 layers of thick Conocarpus trees (wind resistant plants) all around coal yard, which are designed to arrest spreading of fugitive dust emissions.</p>

S No.	Condition	Compliance
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vi	<p>Fly ash shall be collected in dry form and storage facility (silos) shall be provided (as applicable). 100% fly ash utilisation shall be ensured from 4th year onwards. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.</p>	<p>Fly ash is collected in dry form and stored in silos of 3x2000 cum capacity for disposal to various users. Unutilised fly ash is being disposed to the ash pond in lean slurry form.</p>  <p>SEIL Project-1 (formerly known as Thermal Powertech Corporation India Limited - TPCIL) is achieving 100% fly ash utilization since September 2019. Attached letter submitted to MoEF&CC on Annual Fly Ash utilization for FY2021-2022 vide letter no. SEIL P1/MoEF&CC/Chennai/2021/002 dated 28th April 2022 as Annexure-I.</p> <p>SEIL has installed and commissioned fly ash classification unit of 5 Lakh Tonne per annum within the site.</p> <p>Bottom Ash heavy metals analysis reports, Piezo Wells ground water quality reports & Ash Pond Effluent Quality Monitoring reports performed by third Party consultant which is MoEF&CC approved are attached as Annexure- III, IV & V respectively.</p>
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S No.	Condition	Compliance
vii	Ash Pond shall be lined with HDP/LDP lining. Adequate safety measures shall also be implemented to protect the ash dyke from breached.	<p>Complying.</p> <p>Ash pond is lined with impervious HDPE liner.</p>  <p>The dyke is designed and incorporated safety measures adequate.</p>
viii	Closed cycle cooling system with natural draft cooling towers shall be provided. The Effluents shall be treated as per the prescribed norms.	<p>Complying.</p> <p>Natural Draft Cooling Towers are installed at the site.</p>  <p>ETP consists of Flash Mixer, Lamella Clarifier, Sludge Pit, Oily Water Separation Unit, Oily water collection tank and Central Monitoring Basin & Dosing system is used to treat the effluent to meet the prescribed norms. Reports are attached as Annexure-VI.</p> 

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S No.	Condition	Compliance
ix	No ground water shall be extracted for the project work at any stage.	Complied. No ground water was extracted for the project work. Entire water requirement of the plant is being met from seawater.
x	Hydrogeological study of the area shall be reviewed annually and results to be submitted to the Ministry and concerned agency in the State Government. In case adverse impact on ground water quality and quantity is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.	Complying. Ground water is not being used at SEIL. Hydrogeology studies are carried out for the site and surroundings. Hydrogeology Study is being reviewed annually and latest report submitted on 18 th April 2022 and the same is attached as Annexure-VII .
xi	Minimum required environmental flow suggested by the Competent Authority of the State Government shall be maintained in the Channel/rivers even in lean season.	Not applicable. Not applicable as SEIL is not extracting any River/canal water. Entire water requirement for plant operations is being met through seawater.
xii	The treated effluents conforming to the prescribed standards should be only discharged. Arrangement shall be made that effluents and storm water do not get mixed.	Complying. ETP and STP are in operation for treating wastewater generated in the plant to meet the prescribed standards. Treated water is being used for Dust suppression and Green Belt.  Storm water system is adequately designed to avoid mixing with effluents and has a separate disposal system. ETP treated effluent and Marine outfall water analysis reports are attached as Annexure-VI &

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S No.	Condition	Compliance
		VIII respectively.
xiii	A sewage treatment plant shall be provided, and the treated sewage shall be used for raising greenbelt/plantation.	<p>Complying.</p> <p>Sewage Treatment Plant (STP) is provided and operational for treating the domestic sewage generated.</p>  <p>The treated domestic wastewater is used for greenbelt development.</p> <p>STP Treated effluent analysis reports are attached as Annexure-IX.</p>
xiv	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.	<p>Complying.</p> <p>Approved Third party studies are carried out and rainwater harvesting pits are constructed and maintained along the storm water drains.</p> <p>The rainwater from storm water drains is collected in RWH ponds.</p>
xv	Adequate safety measures shall be provided in the plant area to check /minimize spontaneous fires in coal yard, especially during summer season. Copy of these 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.	<p>Complying.</p> <p>The coal yard is provided with fire hydrant system and water sprinklers arrangement to control spontaneous combustion of coal. Photos provided in the report. Plant layout map with coal yard location is attached as Annexure-X.</p>

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S No.	Condition	Compliance
xvi	Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made in the plant areas in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	<p>Complying.</p> <p>SEIL has provided storage facilities for LDO and HFO.</p> <p>These facilities are certified by the Chief Controller of Explosives, Nagpur. Adequate firefighting systems are provided.</p> <p>Onsite Emergency Management Plan is in place to meet any eventuality and the same is annexed as Annexure-XI.</p>
xvii	Regular monitoring of ground water in and around the ash pond area including heavy metals (Hg, Cr, As, Pb) shall be carried out, records maintained and six monthly reports shall be furnished to the Regional office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the Project.	<p>Complying.</p> <p>Piezometer wells are provided around ash pond site.</p> <p>Regular monitoring of ground water in and around the ash pond area is being carried out. Piezo well Analysis Reports are attached as Annexure-IV.</p>
xviii	Shelter Belt consisting of 3 tiers of plantation around the plant of 100 m width and adequate tree density shall be developed.	<p>Complying.</p> <p>SEIL is developing scientifically designed greenbelt with adequate tree density. Native species have been chosen for plantation. An area of about 450 acres area is being brought under green cover in phased manner.</p> <p>Photos are provided in this report.</p>
xix	First Aid and sanitation arrangement shall be made for the drivers and other contract workers during construction phase.	<p>Complied.</p> <p>Necessary facilities have been provided during construction period.</p> <p>Currently, there are no constructional activities, and the labour camp is not in operational.</p>

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S No.	Condition	Compliance
xx	<p>Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area requisite personal protective equipment like earplugs / earmuffs 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.</p>	<p>Complying.</p> <p>SEIL has ensured that the ambient noise level at the plant boundary shall comply with National ambient noise standards. Quarterly monitoring of noise level data is Complying to the standards.</p> <p>Workers are provided with adequate personal protective equipment.</p> <p>Necessary medical examinations are conducted, and records are being maintained.</p> <p>APPCB approved third party Noise Quality Monitoring Reports are attached as Annexure- XII.</p>
xxi	<p>Regular monitoring of ground level concentration of SO_x, NO_x, 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 the frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.</p>	<p>Complied.</p> <p>Continuous AAQM stations (with online analysers) are provided at 4 locations. The data is continuously uploaded to CPCB & APPCB websites on real time basis.</p> <p>In addition, manual ambient air quality monitoring is carried out by engaging third party laboratory (approved by state PCB). The locations and monitoring are in consultation with PCB.</p> <p>MoEF&CC approved third party Ambient Air Quality Monitoring Reports are attached as Annexure-XIII.</p> <div style="display: flex; justify-content: space-around;">   </div>

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S No.	Condition	Compliance
xxii	A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.	Not Applicable
xxiii	An amount of Rs.32.0 crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs.6.4 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	<p>Complying.</p> <p>SEIL has cumulatively spent an amount of INR 71.6 crores on CSR related activities. The details of CSR activities being implemented during April 2022 to September 2022 by SEIL are attached as Annexure- XIV.</p>

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S No.	Condition	Compliance
xxiv	<p>As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc., can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.</p>	<p>Complying. Company CSR Policy was prepared and executed based on Socio Economic study which was initially conducted.</p>
xxv	<p>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 structures to be removed after the completion of the project</p>	<p>Complied during construction phase.</p>

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S No.	Condition	Compliance
xxvi	<p>The Project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned 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/Committee and may also be seen at the Website of the Ministry of Environment and Forests at http://envfor.nic.in.</p>	<p>Complied. Advertisements have been given in Telugu newspaper on dated: 04th July- 2009 and in English newspaper on dated: 03rd July 2009.</p>
xxvii	<p>A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad /Municipal corporation, urban local body and the local NGO, if any from whom suggestions/representations, if any, received while processing the proposal. The Clearance letter shall also be put on the website of the Company by the Proponent.</p>	<p>Complied. Clearance letter was sent to concerned Panchayat, Zilla Parishad/ Municipal Corporation, urban local body. Clearance letters are also uploaded in Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p>
xxviii	<p>A dedicated Environment Management Cell with suitable qualified personnel shall be set up under the control of a Senior executive who will report directly to the head of the organization.</p>	<p>Complied. SEIL has established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE, who reports directly to the Station Head. Details of Environment Management Cell is attached Annexure-XV.</p>

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S No.	Condition	Compliance
xxix	<p>The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their 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 SPCB. The criteria pollutant levels namely: SPM, RSPM, SO_x, NO_x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.</p>	<p>Complied.</p> <p>Regular compliance reports are submitted to ministry. SEIL has uploaded the status reports including the monitored data in the Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p> <p>The environmental monitored data including Ambient Air Quality for criteria pollutants and stack emission are displayed at the main gate.</p>  <p style="text-align: center;"><u>Main Gate display of AAQ data</u></p>
xxx	<p>The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data to the respective Regional Office of MOEF, the respective Zonal office of CPCB and SPCB.</p>	<p>Complying.</p> <p>Six Monthly reports against EC compliance is being submitted to MOEF&CC, the respective Zonal office of CPCB and SPCB.</p>

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S No.	Condition	Compliance
xxxii	The Environment Statement for each financial year ending 31 st 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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry.	<p>Complying.</p> <p>Environment Statement (Form-V) for FY2021-22 has been submitted to APPCB (Ref. No.: SEIL P1/APPCB/BZA/2022/008 dated 26th September 2022 and the same is attached as Annexure–XVI.</p>
xxxiii	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	<p>Complying.</p> <p>SEIL is submitting the six-monthly reports on status of compliance and the monitored data to the concerned regulatory authorities. The reports are being uploaded on APPCB & Sembcorp website.</p> <p>https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p> <p>https://pcb.ap.gov.in/UI/Submission_Compliance_of_EC_CFE_CFO_Direction.aspx</p>

S No.	Condition	Compliance
xxxiii	<p>Regional Office of the Ministry of Environment and Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will upload the compliance status in their website and update the same from time to time at least six monthly basis. Criteria pollutants levels including NO_x (from Stack and ambient air) shall be displayed at the main gate of the power plant.</p>	<p>Noted. Being complied.</p> <p>The compliance reports are also uploaded in Sembcorp website. https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p> <p>The environmental monitored data including Ambient Air Quality for criteria pollutants and stack emission data is being displayed at the main gate.</p>  <p style="text-align: center;"><u>Main Gate display of AAQ data</u></p>
xxxiv	<p>Separate funds shall be allocated for implementation of environmental protection measures along with item wise break up. These costs 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.</p>	<p>Expenditure related to Environment protection measures for the reporting period is attached as Annexure-XX.</p>
xxxv	<p>The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the Project by the concerned authorities and the dates of start of land development work and commission of Plant.</p>	<p>Complied and communicated.</p>

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S No.	Condition	Compliance
xxxvi	Full cooperation shall be extended to the Scientists/Officers from the Ministry /Regional Office of the Ministry at Bangalore/CPCB/SPCB who should be monitoring the compliance of environmental status.	Noted for compliance.
xxxvii	Harnessing Solar Power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring reports.	Complying. Solar panels have been installed at canteen roof.
xxxviii	Long term study of radioactivity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Complying. Quarterly monitoring reports of heavy metal analysis of Coal and Radioactive Analysis reports of Coal & Ash are attached as Annexure-XVII & Annexure-XVIII.

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S No.	Condition	Compliance
xxxix	Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land.	<p>Complying.</p> <p>Stock Pile Dust Suppression system around coal yards, Dry Fog dust suppression System along conveyor belts, Cyclone separators & bag filters at crusher house, Vacuum truck for road dust cleaning are implemented to avoid fugitive dust emissions and prevent the impact on agricultural or non-agricultural land.</p> 
xl	Space for FGD shall be provided for future installation as may be required.	<p>Complying.</p> <p>Adequate space provision is available.</p>
xli	No ground water shall be extracted for use in operation of the power plant even in lean season. No water bodies including natural drainage system in the area shall be distributed due to activities associated with the setting up / operation of the power plant.	<p>Complying.</p>

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S No.	Condition	Compliance
xlii	Fly ash is not to be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close coordination with the State Pollution Control Board.	Complying.
xliii	Green belt shall also be developed around the ash pond over and above the green belt around the plant boundary.	Complying.
xliv	A Common Green Endowment Fund shall be created and the interest earned out of it shall be used for the development and management of green cover of the area.	Complied. Separate fund centre has been earmarked for Green belt development and maintenance.

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S No.	Condition	Compliance
xlv	<p>For proper and periodic monitoring of CSR activities, a CSR committee or a social audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.</p>	<p>Complied.</p> <p>CSR Committee has been formed and is working. CSR committee stake holders meetings conducted.</p>    

S No.	Condition	Compliance
xlvi	An Environment Cell comprising of at least one expert in environment science / engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement / mitigation measures.	<p>Complying.</p> <p>SEIL has established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE, who reports directly to the Station Head.</p> <p>Services of Marine biologist & ecologist will be hired based on the requirement.</p>
xlvii	The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.	<p>Complied.</p> <p>Environmental Policy has been incorporated in the QHSE Policy.</p> <p>QHSE Policy is attached as Annexure-XIX.</p>
5	The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.	<p>Noted.</p>
6	The environmental clearance accorded shall be valid for a period of 5 years to start operations by the Power Plant.	<p>Noted.</p> <p>The validity of EC is extended to 7 years by MoEF&CC.</p> <p>The 2x660 MW project has already commenced operations since 2015.</p>

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S No.	Condition	Compliance
7	Concealing factual data or submission of false /fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act 1986.	Noted.
8	In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed to add additional environmental protection measures required, if any	Noted for compliance.
9	The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	Noted.
10	Any appeal against this environmental clearance shall lie with the National Environmental Appellate Authority, if preferred, within 30 days as prescribed under Section 11 of National Environmental Appellate Act, 1997.	Noted.

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GREEN BELT/ GREEN COVER DEVELOPMENT IN SITE

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GREEN COVER AROUND PERIPHERY

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GREEN COVER ALONG THE PLANT ROADS

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GREEN COVER ALONG PIPE RACK & INTERNAL ROADS



GREEN COVER INSIDE THE PLANT

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GREEN COVER ALONG MAIN PLANT ROAD



AVENUE PLANTATION

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GREEN COVER NEAR PLANT SERVICE BUILDING



GREEN COVER NEAR SERVICE BUILDING

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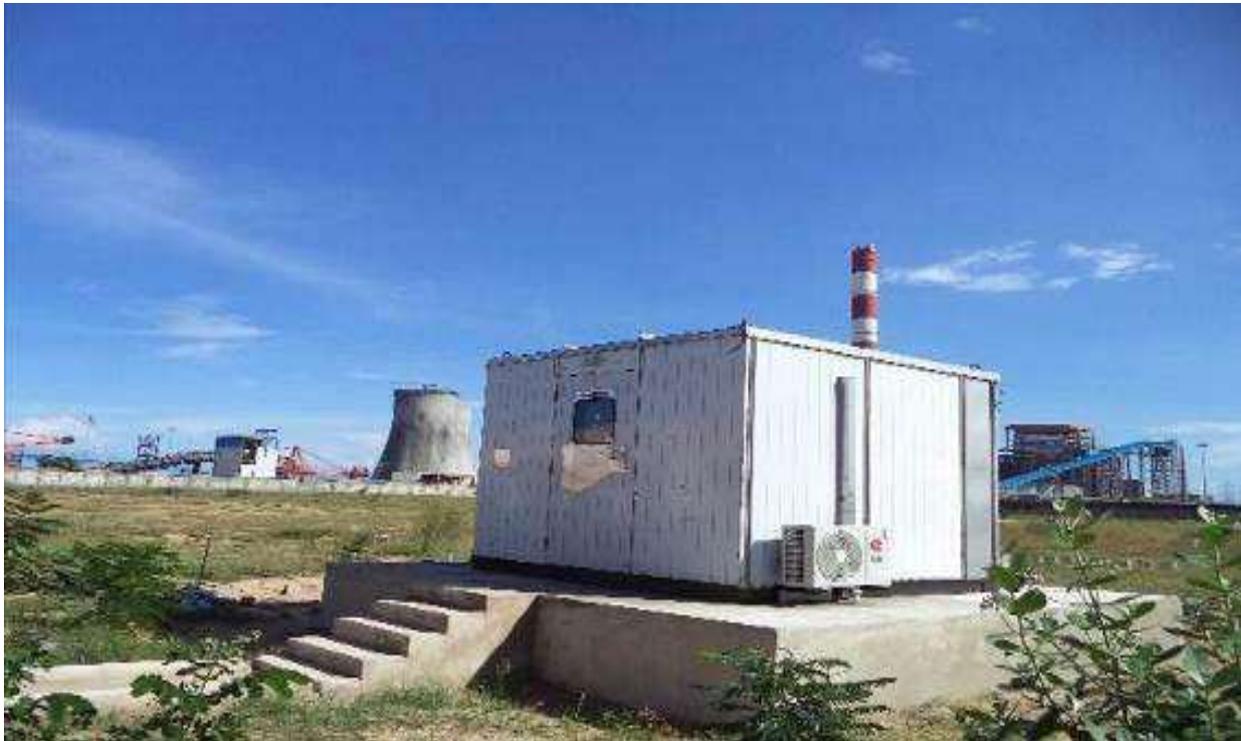
GREEN COVER IN NORTH EAST AREA



COAL YARD WATER SPRINKLING

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CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION INSIDE THE PLANT

M/s. Sembcorp Energy India Limited Project-1
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WIND BREAK PLANTATION AROUND COAL YARD



CONTINUOUS MONITORING OF DUST SUPPRESSION SYSTEM AT COAL YARD USING PTZ CAMERAS

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DUST EXTRACTION SYSTEM AT TRANSFER POINTS



MAIN GATE DISPLAY BOARD - AMBIENT AIR QUALITY & EMISSIONS DATA DISPLAY



SEIL P1/MoEF&CC/Chennai/2022/006
27th December 2022

Sembcorp Energy India Limited

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E-mail: cs.india@sembcorp.com

Website: www.sembcorpenergyindia.com

To
The Regional Director,
Regional Office (South Eastern Region),
Ministry of Environment, Forests & Climate Change,
1st & 2nd Floor, HEPC Building, No. 34, Cathedral Garden Road,
Nungambakkam,
Chennai- 600034.

Sub.: Submission of Half Yearly CRZ Compliance Report of Sembcorp Energy India Limited Project-1 (formerly known as Thermal Powertech Corporation India Limited) for the period from April 2022 to September 2022.

Ref.: CRZ clearance Letter No. F.No. 11-129/2010-IA – III dated 5th December 2011

Dear Sir,

This has reference to the above subject, we hereby submit the Half Yearly compliance status report for the period from April 2022 to September 2022 along with supporting documents to the conditions specified under CRZ Clearance issued to Sembcorp Energy India Limited Project-1 (Formerly known as Thermal Powertech Corporation India Limited), Nellore.

Hope the above is in order.

Thanking you,

Yours faithfully,
For Sembcorp Energy India Limited

Pavan Kumar Rao V
Head HSE- SEIL

Copy To:

1. The Director, IA.I, MoEF&CC, New Delhi
2. The Joint Director (S), Scientist 'D', MoEF&CC, IRO, Vijayawada
3. The Regional Officer, APPCB, Nellore

**CRZ COMPLIANCE
Of
Sembcorp Energy India Limited Project-1
(Formerly Thermal Powertech Corporation India Limited)
Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011
April 2022 to September 2022**



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

Background:

Sembcorp Energy India Ltd Project-1 [formerly known as Thermal Powertech Corporation India Limited (TPCIL)] is a leading independent power company in India. SEIL is promoted by Sembcorp Utilities Pvt. Ltd., which is part of the Singapore based Sembcorp Group.

SEIL Project-1 is currently consisting of 2x660 MW is under operation since March 2015.

The latitude & longitude of North South extremes of Site are 80°08'35.956"E & 14°19'5.211"N and 80°09'16.325"E & 14°21'0.874"N respectively.

CRZ Clearance for the project is obtained from Ministry of Environment & Forests, Vide F.No.11-129/2010-IA.III Dated: 5th Dec 2011. The condition wise compliance to the clearance letter is detailed below.



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

Compliance of CRZ Conditions		
S. NO.	Condition	Compliance
Specific Conditions		
	"Consent For Establishment" shall be obtained	Complied.
i.	from state pollution control board under air and water act and a copy shall be submitted to the Ministry before start of any construction work at the site.	Consent For Establishment (CFE) from AP Pollution Control Board has been obtained vide Order. No. 177/PCB/CFE/RO/-NLR/HO/2009-433, Dated: 15/05/2010.
ii.	Cutter suction dredging shall be adopted instead of grab technology so as to control the sediments during dredging.	Complied. Cutter suction dredging was adopted during the said activities.
	Top of the pipeline buried shall be minimum 2 m below the sea bed. The PP shall obtain a certificate of compliance from the agency executing the pipeline, with supporting documentation and shall submit to RO of MoEF and to State PCB.	Complied. Pipeline is buried at 2 m below the seabed. The compliance certificate submitted to RO of MoEF and APPCB. Copy of the same is given here.
iii.		<div style="text-align: right;">  <p>GAYATRI</p> </div> <p>Date: 24th June' 2014 Sub.: Sea Water Intake Pipeline Installation Certificate</p> <p style="text-align: center;"><u>TO WHOMSOEVER IT MAY CONCERN</u></p> <p>Dear Sir,</p> <p>Vide Order No. TPCIL/INFRA-01/SWI & EXT CHP/SUPPLY/001 & TPCIL/INFRA-01/SWI & EXT CHP/SERVICES/002 dated 29-12-10 from TPCIL we have executed the work of laying the sea water intake and outfall pipelines including offshore Intake System and Diffusers for their 2X660MW Coal based Thermal Power Project at Painampuram and Nelaturu Villages, Muthukur Mandal, SPSR Nellore district.</p> <p>Entire offshore intake pipeline and Outfall pipeline of length 2000Mtrs and 1200Mtrs respectively are installed and buried in the sea bed with a minimum back fill of 2Mtrs from top of the pipeline. This is ensured through conducting post pipeline laying and post backfilling offshore depth survey through Ecosounder (Bathymetry survey). Cross section profiles for offshore change from LFP to Intake Header and Outfall diffuser has been attached for your reference.</p> <p>Thanking You</p> <p style="text-align: center;">For GAYATRI PROJECTS LIMITED</p> <div style="text-align: center;">   <p>I. S. M. MURTHY DGM- Projects, GPL (EPC-PP)</p> </div>

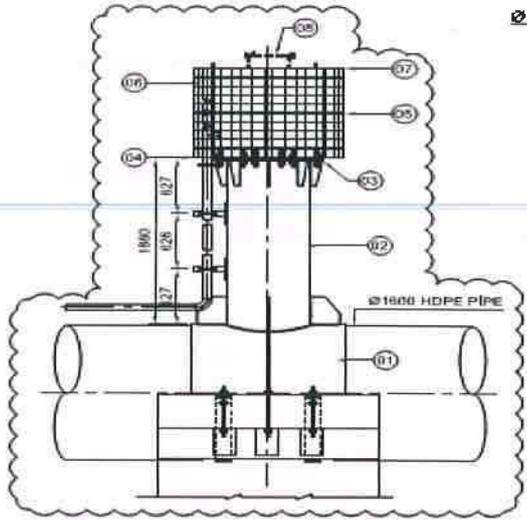


Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

S. NO.	Condition	Compliance
iv.	No effluent from fly ash system is permitted to discharge into the marine system as committed by PP. The effluent from fly ash shall be treated and the entire quantity shall be recycled in the cooling tower makeup etc., and suitable meter shall be installed to record the quantity of effluent recycled.	Complying. No effluent from fly ash system is discharged into marine water. The entire effluent water from ash pond is collected and recycled. Flow Meters are installed for recording the quantity.
v.	Shall implement all the measures as committed to the Ministry vide their letter dated 01.08.2011, as a part of the clarifications submitted by the PP. A copy of these submissions shall be submitted to RO of MoEF.	Complied. SEIL has implemented all the conditions as given in CRZ clearance.
vi.	A suitable STP shall be provided to treat the domestic effluent and treated effluent shall be used for green belt, dual plumbing system etc. Measuring meters shall be provided to record the treated effluent used for different purposes.	Complied. STP is provided to treat the domestic sewage generated at the site. The treated water is being used for greenbelt development.
vii.	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.	Complying. The compliance in matrix format of mitigation measures submitted in EIA report is attached as Annexure-I .
viii	The proponent shall commit himself to be one of the partners / proponents (who have undertaken / will be undertaking similar power projects in the close proximity of site) as and when instructed by the MoEF/State Government Authorities in preparing an	Noted for compliance.



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

S. NO.	Condition	Compliance
	overall EIA report comprising both terrestrial / marine EIA components for the region and share the cost of the study and proposed mitigation measures for the coastal stretch as decided by the authorities in the best interest of protecting the environment.	
	Appropriate screens and trash bars shall be put in place at the intake to avoid fish entering into the pipe due to heavy quantity of water drawl by once through water intake system.	<p>Complied.</p> <p>Appropriate screens and trash bars are provided to avoid fish entering into the pipe.</p>  <p style="text-align: center;">INTAKE VELOCITY CAP UNIT TYP. DETAIL</p>
x	Temperature and salinity level shall be monitored regularly by providing on-line monitoring system at the appropriate location on the outfall system.	<p>Complying.</p> <p>The parameters are being monitored regularly by providing online EQMS which is connected to APPB/CPCB on real time basis.</p>
xi	Periodic monitoring of coastal water shall be carried out at outfall location.	<p>Complying.</p> <p>Monthly joint sampling of coastal water is being practiced along with state PCB office. Also Marine Outfall monitoring</p>



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

S. NO.	Condition	Compliance
		report conducted by APPCB approved third party consultant is attached as Annexure-II.
xii.	No construction work other than those permitted in coastal regulation zone notification shall be carried out in coastal regulation zone area.	Complied.
xiii.	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a senior executive.	Complied. SEIL established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE.
xiv.	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	Complying.



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

General Conditions		
S. NO.	Condition	Compliance
i.	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Noted for compliance.
ii.	Full support shall be extended to the officers of this Ministry / regional office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Noted for compliance.
iii.	A six – monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bangalore regarding the implementation of the stipulated conditions.	Complying. Latest Half Yearly compliance report submitted vide Letter No: SEIL P1/ MoF&CC/Chennai/2022/004 dated 27 th June 2022.
iv.	Ministry of Environment & Forests or any other competent Authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted and shall be complied.
v.	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with satisfaction of the Ministry.	Noted.
vi.	In the event of change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted for compliance.



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

S. NO.	Condition	Compliance
vii.	The project proponents 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 the date of start of land development work.	Complied and communicated.
viii.	A copy of the clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom any suggestions / representation has been made received while processing the proposal.	Complied.
ix.	Tamil Nadu Pollution Control Board shall display a copy of the clearance letter at the Regional Office, district industries centre and Collector's Office/ Tahsildar's office for 30 days.	Noted. Copy of compliance has been submitted to APPCB.
7.	These stipulations would be enforced among others under the provisions of water (prevention and control of pollution) Act 1974, the air (prevention and control of pollution) Act 1981, the environment (protection) Act, 1986, the public liability (Insurance) Act 1991 and EIA notification 1994, including the amendments and rules made thereafter.	Noted.
8.	All other statutory clearances such as the approvals for storage of diesel from chief controller of explosives, fire department, civil aviation department, forest conservation Act, 1980 and wild life (Protection) Act, 1972 etc., shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied and all the necessary approvals are obtained from respective authorities.



Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

S. NO.	Condition	Compliance
9.	The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental clearance and copies of clearance letters are available with the state pollution control board and may also be seen on the website of the Ministry of Environment and Forest at http://www. envfor.nic.in . The advertisement should be made within 10 days from the date of receipt of the clearance letter and a copy of the same should be forwarded to the regional office of this Ministry at Bangalore.	Complied and communicated.
10.	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in writ Petition (civil) No.460 of 2004 as may be applicable to this project.	Noted.
11.	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Noted and compliance statement is being uploaded on Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure
12.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad / Municipal corporation, Urban local body and local NGO, if any from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied. 

Order No. F. No. 11-129/2010-IA.III-, Date: 05.12.2011

S. NO.	Condition	Compliance
13.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their 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 SPCB.	Noted and uploaded on the Sembcorp website. The reports are being sent to concern regulatory bodies.
14.	The proponent shall also submit six monthly reports on the status of compliance of the stipulated EC 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 the SPCB.	Complied. Six monthly EC Compliance reports are being submitted to concern regulatory bodies.
15.	The Environmental statement for each financial year ending 31 st 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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	Complied. Environmental Statement (Form-V) for each financial year is being submitted to APPCB and the same is uploaded on company Website. Reports are being submitted to concern regulatory bodies.



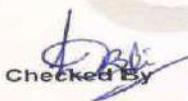
ISSUED TO:

M/s. Sembcorp Energy India Limited Project-1
 (2x660 MW Coal Based Thermal Power Plant),
 Near Pynampuram / Nelaturu (V), Muthukur (M),
 SPSR Nellore (Dist.)- 524344.

Issue Date: 07.06.2021**Sample Registration No:** 7022/06/21**Date of Sampling:** 02.06.2021**Sample Registration Date:** 03.06.2021**Analysis Starting Date:** 03.06.2021**Analysis Completed Date:** 07.06.2021**Sample Description****Discipline:** Chemical**Group:** Waste Water**Sample Particulars:** Ash Pond Effluent Water**Sample Collected By:** (Mr. Sridhar)**Lab Ref:** CL/WW/8837/12/21-001**TEST RESULTS**

S.NO	TEST PARAMETERS	UNIT	TEST METHOD	RESULT	STANDARD
1.	pH	---	IS:3025(Part-11)1983	7.9	6.5-8.5
2.	Color	Hazen	IS-3025(Part-4)2021	Colorless	Colorless
3.	Odor	---	IS-3025(Part-5)	Agreeable	Agreeable
4.	Total Suspended Solids	mg/l	IS:3025(Part-11)1983	8.0	100
5.	Chemical Oxygen Demand (COD)	mg/l	IS:3025(Part-58)-2006	70	250
6.	Biochemical Oxygen Demand (BOD) (3 days at 27 °C)	mg/l	IS:3025(Part-44)-1993	18	100
7.	Oil & Grease	mg/l	IS:3025(Part-39)-1991	2.0	10
8.	Total Arsenic as As	mg/l	IS:3025(Part-37)-1988	< 0.01	0.2
9.	Mercury as Hg	mg/l	IS:3025(Part-48)-1994	< 0.001	0.01
10.	Lead as Pb	mg/l	IS:3025(Part-47)-1994	< 0.01	2.0
11.	Cadmium as Cd	mg/l	IS:3025(Part-41)-1992	< 0.001	2.0
12.	Hexavalent Chromium as Cr ⁶⁺	mg/l	IS:3025(Part-52)-2003	< 0.001	1.0

IS-Indian Standard, APHA-American Public Health Association


 Checked By


 Authorized Signatory

ISSUED TO:

M/s. Sembcorp Energy India Limited Project-1
 (2x660 MW Coal Based Thermal Power Plant),
 Near Pynampuram / Nelaturu (V), Muthukur (M),
 SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-001

Date of Sampling: 13.09.2021

Sample Registration Date: 15.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description

Discipline: Chemical

Group: Waste Water

Sample Particulars: Ash Pond Effluent Water

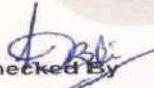
Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/WW/8019/09/21-001

TEST RESULTS

S.NO	TEST PARAMETERS	UNIT	TEST METHOD	RESULT	STANDARD
1.	pH	---	IS:3025(Part-11)1983	7.8	6.5-8.5
2.	Color	Hazen	IS-3025(Part-4)2021	Color less	Color less
3.	Odor	---	IS-3025(Part-5)	Agreeable	Agreeable
4.	Total Suspended Solids	mg/l	IS:3025(Part-11)1983	14	100
5.	Chemical Oxygen Demand (COD)	mg/l	IS:3025(Part-58)-2006	50	250
6.	Biochemical oxygen demand (BOD) (3 days at 27 °C)	mg/l	IS:3025(Part-44)-1993	16	100
7.	Oil & Grease	mg/l	IS:3025(Part-39)-1991	1.0	10
8.	Total Arsenic as As	mg/l	IS:3025(Part-37)-1988	< 0.01	0.2
9.	Mercury as Hg	mg/l	IS:3025(Part-48)-1994	< 0.001	0.01
10.	Lead as Pb	mg/l	IS:3025(Part-47)-1994	< 0.01	2.0
11.	Cadmium as Cd	mg/l	IS:3025(Part-41)-1992	< 0.001	2.0
12.	Hexavalent Chromium as Cr ⁶⁺	mg/l	IS:3025(Part-52)-2003	< 0.001	1.0

IS-Indian Standard, APHA-American Public Health Association

Checked By 



Authorized Signatory 

ISSUED TO:

M/s. Sembcorp Energy India Limited Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram / Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 15.12.2021

Sample Registration No: 8837/12/21

Date of Sampling: 07.12.2021

Sample Registration Date: 08.12.2021

Analysis Starting Date: 08.12.2021

Analysis Completed Date: 15.12.2021

Sample Description

Discipline: Chemical

Group: Waste Water

Sample Particulars: Ash Pond Effluent Water

Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/WW/8837/12/21-001

TEST RESULTS

S.NO	TEST PARAMETERS	UNIT	TEST METHOD	RESULT	STANDARD
1.	pH	---	IS:3025(Part-11)1983	7.5	6.5-8.5
2.	Color	Hazen	IS-3025(Part-4)2021	Colorless	Colorless
3.	Odor	---	IS-3025(Part-5)	Agreeable	Agreeable
4.	Total Suspended Solids	mg/l	IS:3025(Part-11)1983	8.0	100
5.	Chemical Oxygen Demand (COD)	mg/l	IS:3025(Part-58)-2006	54	250
6.	Biochemical Oxygen Demand (BOD) (3 days at 27 °C)	mg/l	IS:3025(Part-44)-1993	18	100
7.	Oil & Grease	mg/l	IS:3025(Part-39)-1991	1.0	10
8.	Total Arsenic as As	mg/l	IS:3025(Part-37)-1988	< 0.01	0.2
9.	Mercury as Hg	mg/l	IS:3025(Part-48)-1994	< 0.001	0.01
10.	Lead as Pb	mg/l	IS:3025(Part-47)-1994	< 0.01	2.0
11.	Cadmium as Cd	mg/l	IS:3025(Part-41)-1992	< 0.001	2.0
12.	Hexavalent Chromium as Cr ⁶⁺	mg/l	IS:3025(Part-52)-2003	< 0.001	1.0

IS-Indian Standard, APHA-American Public Health Association

Checked By




Authorized Signatory


ISSUED TO:

M/s. Sembcorp Energy India Limited Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram / Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 11.02.2022

Sample Registration No: 0284/02/22-005

Date of Sampling: 02.02.2022

Sample Registration Date: 05.02.2022

Analysis Starting Date: 05.02.2022

Analysis Completed Date: 10.02.2022

Sample Description

Discipline: Chemical

Group: Waste Water

Sample Particulars: Ash Pond Effluent Water

Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/WW/0284/02/22-005

TEST RESULTS

S.NO	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS	STANDARDS
1.	pH	---	IS:3025(Part-11)1983	7.6	6.5-8.5
2.	Color	Hazen	IS-3025(Part-4)2021	colorless	colorless
3.	Odor	---	IS-3025(Part-5)	Agreeable	Agreeable
4.	Total Suspended Solids	mg/l	IS:3025(Part-11)1983	10	100
5.	Chemical Oxygen Demand (COD)	mg/l	IS:3025(Part-58)-2006	52	250
6.	Biochemical oxygen demand (3 days at 27 °C)	mg/l	IS:3025(Part-44)-1993	14	100
7.	Oil & Grease	mg/l	IS:3025(Part-39)-1991	3.0	10
8.	Total Arsenic as As	mg/l	IS:3025(Part-37)-1988	< 0.01	0.2
9.	Mercury as Hg	mg/l	IS:3025(Part-48)-1994	< 0.001	0.01
10.	Lead as Pb	mg/l	IS:3025(Part-47)-1994	< 0.01	2.0
11.	Cadmium as Cd	mg/l	IS:3025(Part-41)-1992	< 0.001	2.0
12.	Hexavalent Chromium as Cr ⁶⁺	mg/l	IS:3025(Part-52)-2003	< 0.001	1.0

IS-Indian Standard, APHA-American Public Health Association

Checked By




Authorized Signatory




SEIL P1/MoEF&CC/Chennai/2022/001
18th Apr 2022

Sembcorp Energy India Limited
CIN: U40103HR2008PLC095648
Regd. Office: 5th Floor, Tower C, Building No 8
DLF Cybercity, Gurgaon - 122002, Haryana, India
Tel (91) 124 389 6700 / 01
Fax (91) 124 389 6710
E-mail: cs.india@sembcorp.com
Website: www.sembcorpenergyindia.com

To

1. The Regional Director,
Regional Office (South Eastern Region),
Ministry of Environment, Forests & Climate Change,
1st & 2nd Floor, HEPC Building, No. 34, Cathedral Garden Road,
Nungambakkam,
Chennai – 600034.
2. The Joint Director (S),
Scientist 'D',
Ministry of Environment, Forest & Climate Change,
Integrated Regional Office (IRO),
Vijayawada- 520010.

Sub.: Submission of annually reviewed Hydrogeology Study Report for the year 2021-22 of Sembcorp Energy India Limited Project-1 (formerly known as Thermal Powertech Corporation India Limited– TPCIL), Nellore.

Ref.: EC Letter No: J 13012/02/2009— IA.II (T) dated 04-11-2009.

Dear Sir,

This has reference to the above subject and reference. We hereby submit the annually reviewed Hydrogeology study report of Sembcorp Energy India Limited Project-1 (formerly known as Thermal Powertech Corporation India Limited– TPCIL), Nellore for the year 2021-22 as per Environment Clearance Clause No. 04 (X).

Hope the above is in order.

Thanking you,

Yours faithfully,
For **M/s. Sembcorp Energy India Limited**

Pavan Kumar Rao V
Head HSE- SEIL

by E-mail

Enclosure: Hydrogeology Study report along with Annexures

Copy to:

1. The Director (IA) Thermal, MoEF&CC, New Delhi
2. The Member Secretary, APPCB, Vijayawada
3. The Regional Officer, APPCB, Nellore

HYDRGEOLOGY STUDY REPORT

130

2021



Report prepared and submitted by:

M/s Care Labs

Corp Office:

#3-11-482/2, Plot No. 1, 3rd Floor,

Sai Sadan Complex, Above Punjab National Bank,

Shiva Ganga Colony, L.B. Nagar,

Hyderabad- 500074.

SEMBCORP ENERGY INDIA LIMITED

PROJECT-1,

THERMAL POWER PLANT

NEAR PAINAMPURAM VILLAGE,

MUTHUKUR MANDAL,

SPSR NELLORE DISTRICT,

ANDHRA PRADESH

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1.0 INTRODUCTION

1.1. Background

Sembcorp Energy India Limited (SEIL Project-1) is leading independent power company in India, with a successful track record of identifying, developing and operating power generation assets across the thermal and renewable power sectors in India.

SEIL is promoted by Sembcorp Utilities Pte. Ltd., which is part of the Sembcorp Group and a wholly owned subsidiary of Sembcorp Industries. Sembcorp Industries is a leading energy, water and on-site logistics, marine and urban development group operating across five continents. With facilities about 11000 megawatts of gross power capacity and close to nine million cubic meters of water per day in operation and under development, Sembcorp is a trusted provider of essential energy and water solution to both industrial and municipal customers. It is also a world leader in marine and offshore engineering as well as an established brand name in urban development.

SEIL has two thermal power plants – Sembcorp Energy India Limited Project-1 (Formerly Thermal Powertech Corporation India Limited) in Painampuram village, Muthukur mandal and Sembcorp Energy India Limited Project-2 (Formerly Sembcorp Gayatri Power Limited) Ananthavaram village, Thotapalli Gudur mandal in SPSR Nellore district, Andhra Pradesh.

1.2 Project

M/s. Sembcorp Energy India Limited Project-1 (SEIL P-1), subsidiary of Sembcorp Industries, Singapore implementing a 1320 MW (2 X 660 MW) Coal Based Thermal Power Plant near Painampuram Village, Muthukur mandal, SPSR Nellore District, and Andhra Pradesh.

1.3 Scope of Work

The scope of works includes:

- Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed industrial activities.
- To obtain, study and synthesize background information including the geology, hydrogeology for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports.
- To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water

quality and potential infringement of National standards, Assessment of availability of ground water and Impact of proposed activity on aquifer, water quality and other abstractors.

1.4 Location, Extent and Communication

SEIL Project-1 is located in near Painampuram village, Muthukur Mandal, SPSR Nellore District of Andhra Pradesh. The site is covered in Survey of India Topo sheet No.66 B/3, (1:50000 scale). The site falls between 80°08'0.372"-80°09'0.422" East Longitude and 14°19'05.211"-14°21'0.874" North Latitude with an average MSL of 2.70 m.

The total extent of the plant is about 1367 acres (553.205 ha) and the Coal conveyor occupies another 100 acres (40.469 Ha.). The plant site falls in the jurisdiction of the villages Painampuram & Nelaturu in Muthukur mandal allotted by the Andhra Pradesh industries Infrastructure Corporation Limited (APIIC).

SEIL Project-1 is accessible from the Nellore town, located at a distance of 26 km and the nearest railway station is Nellore railway station. The nearest airport is Tirupati International airport at Renigunta (Tirupati) at a distance of 137 km. Krishnapatnam Port is at a distance of 8 km from SEIL Project-1.

Geographically, the study area lies between 14°13'47.55"N to 14°26'33.35"N latitudes and 80°02'35.63"E to 80°15'07.65"E longitudes and is covered by Survey of India toposheet nos. 66B3 and 66B4 at 1:50000 scale. The study area encompasses the geographical area of part of Muthukur and Thotapalli Gudur mandals of SPSR Nellore district. Location of SEIL Project-1 is shown in **Figure-1** and the study area is presented in **Figure-2**.





Figure-1. Location Map of SEIL Project-1, Painampuram

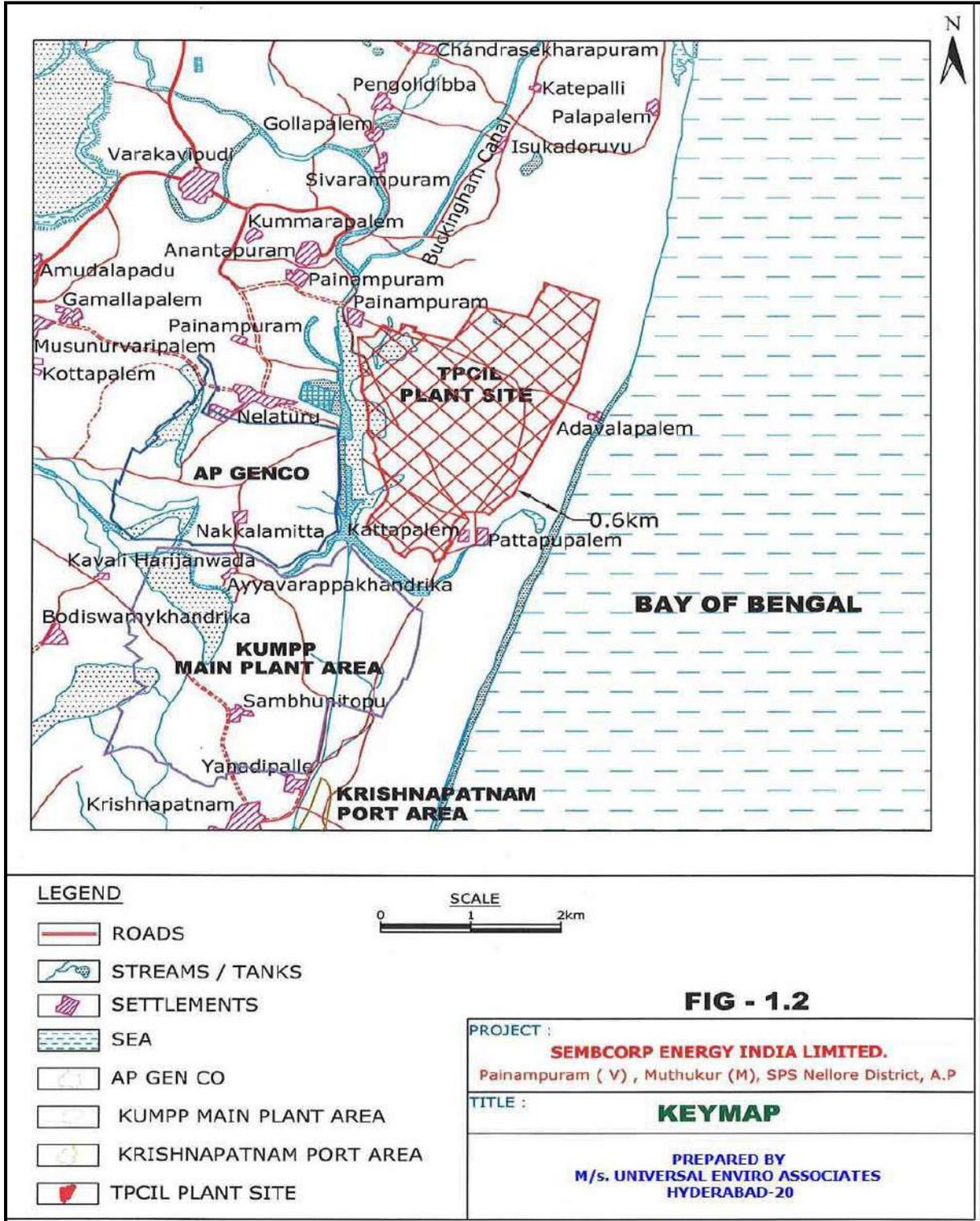


Figure-1.2. Key Map of SEIL Project-1

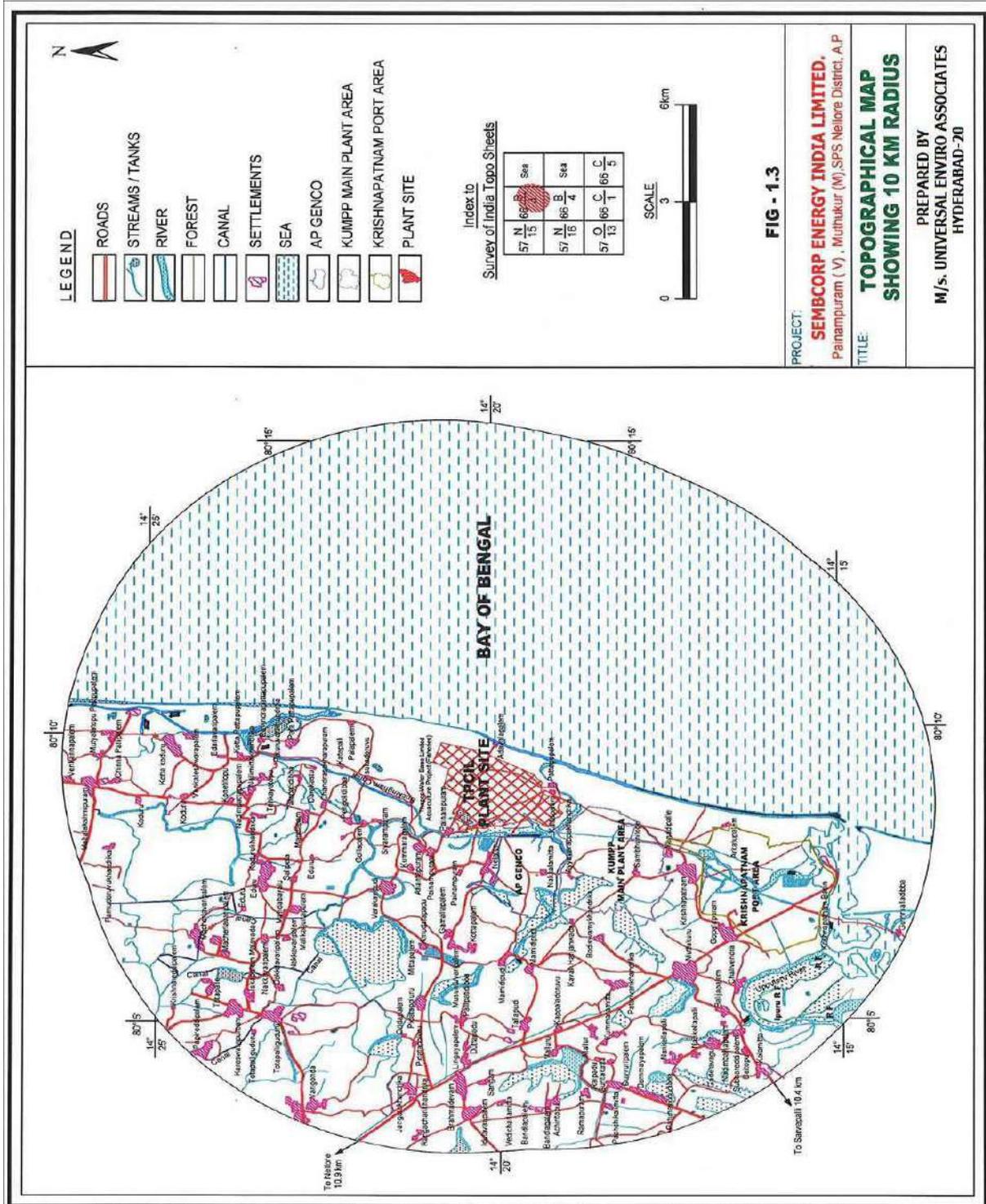


Figure-2: (Study area map - 10 Km Radius Plan)

1.5 Process

The power generating facility uses the most commonly encountered Rankine based thermodynamic cycle. This facility generates electricity by producing steam in a steam generator and expanding the steam through a turbine that is coupled to generator. The steam is then condensed in a condenser, and the condensed steam is heated again in the steam generator. The coal handling system receives coal and then crushes stacks, reclaims and conveys the same to coal bunkers is pulverized in mills and produce the steam. The steam turbine converts the steam thermal energy to rotating mechanical energy, and the generator, which is coupled the steam turbine, converts the mechanical energy to electrical energy.

Steam exhausted from the low-pressure section of the steam turbine is condensed to water in the condenser. The condensed water is removed from the condenser by condensate pumps through low pressure regenerative feed water heaters to a deaerated. Boiler feed pumps move the deaerated water through high pressure regenerative heaters to the steam generator. Extraction steam from the steam turbine is supplied to the low- and high-pressure feed water heaters for regenerative heating, which improves the thermal cycle efficiency.

Forced draft fans supply combustion air to the steam generator and the primary air fans for transport of pulverized coal in to steam generator and exhaust them into the plant stack (Chimney).

Cooling water for the condenser is supplied by the circulating water system, which takes the heat removed from the condenser to cooling tower where the water is cooled for recirculation back to condenser A COC (Cycles of Concentration) of 1.3 is envisaged as sea water is being used. The plant control system enables the operator to direct the plant operation for reliable and efficient production of electrical energy.

1.6 Water Source and Requirement

The average water consumption of the existing SEIL Project-1 is about 84000 cum/hr which is being drawn through intake from Bay of Bengal.

Detailed water balance is represented below in **Fig-3** & attached as **Annexure-I**.

2.0 HYDROLOGY

2.1 Climate

As per Agro-Ecological Sub Region classification of National Bureau of Soil Survey & Land Use Planning (NBSSLUP), the study area falls in Andhra Plain, hot dry sub-humid Ecological Sub Region (S7Cd5) with deep, clayey Coastal and Deltaic alluvium derived soils, low to medium Available Water Capacity (AWC) and a Length of Growing Period (LGP) 150-180 days.

The climate of the region is moderate and characterized by sub-tropical climate. The period from December to middle of February is generally season of fine weather. The summer season is from March to May. Nellore receives less rainfall from the south-west monsoon. Most of the monsoon rainfall in Nellore area occurs between the months of October and December due to north-east monsoon and the winter season from January to February.

The hottest month of the year is June with maximum temperature in the area rising up to 46.3°C during June and minimum temperature is around 15.0°C during January.

The annual normal rainfall based on IMD, Nellore station for 29 years between 1991 and 2020 is 1021.2 mm with an average number of rainy days as 48.0. The peculiarity of this area is that contribution of SW monsoon is far less than the contribution of NE monsoon rainfall. About 61.17% of the annual rainfall is contributed by the NE monsoon between October and December whereas SW monsoon contributes 30.68% of the annual rainfall. In general, the amount of rainfall increases from west to east about 900 to 1300 mm in the district. November in general received highest monthly rainfall of 287.1 mm and the heaviest rainfall.

The area experiences high humidity, which is in the range of 51-89%. January, December recorded highest humidity of 89% at 08:30 Hrs. and 88% at 17:30 Hrs. respectively whereas June during summer recorded lowest humidity of 51% at 17.30 hrs.

The maximum atmospheric pressure observed was 1013.3 mb at 08:30 Hrs. in the months of December and January and 1010.3 mb at 17:30 Hrs. in the month of December during winter season. The minimum pressure observed was 998.7 mb at 17.30 Hrs. during summer in the month of June.

Table-1: Meteorological Data, IMD, Nellore (1991-2020)

Month	Atmospheric Pressure (mb)		Temperature (°C)		Relative Humidity (%)		Rainfall (mm)	No. of Rainy Days
	08:30	17:30	Mean Max.	Mean Min.	08:30	17:30		
January	1013.3	1010	35.6	15	86	64	26	1.2
February	1011.6	1008.3	39.4	16.1	82	61	1.7	0.2
March	1009.6	1006	43.9	17.2	78	61	3.5	0.2
April	1007.1	1003.2	45.6	11.1	71	62	8.7	0.4
May	1003.8	1000	46.7	20.2	63	55	43.1	1.6
June	1002.5	998.7	46.7	21.1	64	51	28.9	3
July	1003.1	999.6	42.2	22.2	69	56	85.9	6.1
August	1004	1000.4	40.6	21.7	71	56	96	6.4
September	1005.6	1001.8	41.7	21.5	74	62	97.2	5.4
October	1008.2	1004.9	39.4	18.9	82	71	287.1	8.7
November	1010.9	1008	36.7	16.7	85	74	290.9	9.1
December	1013.3	1010.2	35.0	14.4	86	71	100.4	3.7
Range/ Total	1004.3-1007.8		27.7-31		62-76		1069.4	46

(Source: IMD, Nellore 1991-2020)

2.2 Physiography

Of the total study area of 416.24 sq km, 178.26 sq km (42.83%) of the eastern part is covered by Bay of Bengal. The inland area forms a flat alluvial plain with minor undulations and occasional isolated dunes. The elevation within the study area varies from 0.0 m above mean sea level (amsl) along the beach to around 11.0 m in northwest with isolated dunes at few places rising up to around 60.0m. The general slope in the inland area is towards Bay of Bengal in the east.

Upputeru River emptying into Bay of Bengal near Krishnapatnam Port is the major stream in the study area. Buckingham Canal, once a fresh water navigation canal runs parallel to the coast. No forest covers in the study area. Physiography of the study area is presented in **Figure-4**.

Elevation in the project site varies from 0.5 m to 7.0 m amsl in the beginning. Major part of the area is graded at present for setting up of the plant. Central and northern part of the project site is having higher elevation sloping towards Buckingham canal in the west, creek in the south and Bay of Bengal in the east.

2.3 Drainage

According to River Basin Atlas of India, Ministry of Water Resources, the study area forms part of C17PAL52 and 53 watersheds in Palar and Other Sub-basin of East Flowing Rivers between Pennar and Kanyakumari Basin.

Of the total study area of 416.24 sq km, 178.26 sq km (42.83%) of the eastern part is covered by Bay of Bengal. The principal stream in the study area is Upputeru River, which drains into Bay of Bengal in the southernmost part of the study area as Kandleru Creek. It runs as Kandleru River in the upper reaches until its tributary, Kolleru River joins it and flows as Upputeru River afterwards. Two smaller creeks with their drainage network originating within and just outside the study area joins Bay of Bengal south of SEIL Project-1 and Pathapalli respectively.

Major part of the study area is drained by the drainage network of smaller creeks intercepted by small to medium sized water bodies/tanks. The general drainage pattern in the study area is dendritic to sub-dendritic. Being an alluvial plain with near flat topography, the study area has a low dense network of drainage pattern with a drainage density of 0.17 km/sq km. There are a number of small to medium water bodies/tanks serving as local irrigation source spread in the entire study area. Of these, tanks near Kodur, Thotapalli Guduru, Amudalapadu, Mamidipudi, Valluru, Pantapalem and Muthukur are of reasonable size supporting local irrigation needs.

Buckingham Canal, once a fresh water navigation canal runs parallel to the coast. Secondary channels from Nellore Barrage on Penna River runs from west up to Muthukur in the study area with other minor channels inter-connecting bigger water bodies spread in major part of inland area.

There are no well-defined stream courses passing through the project site, but as per the original pre-project drainage, a small water body with an approximate water spread area of 19.96 ha exists in the north-western part of the project site. A natural depression is developed into a small water body in the eastern part of the project site from which, water is being used for nursery and nearby gardening.

Drainage network in the study area is attached as **Annexure-II**.

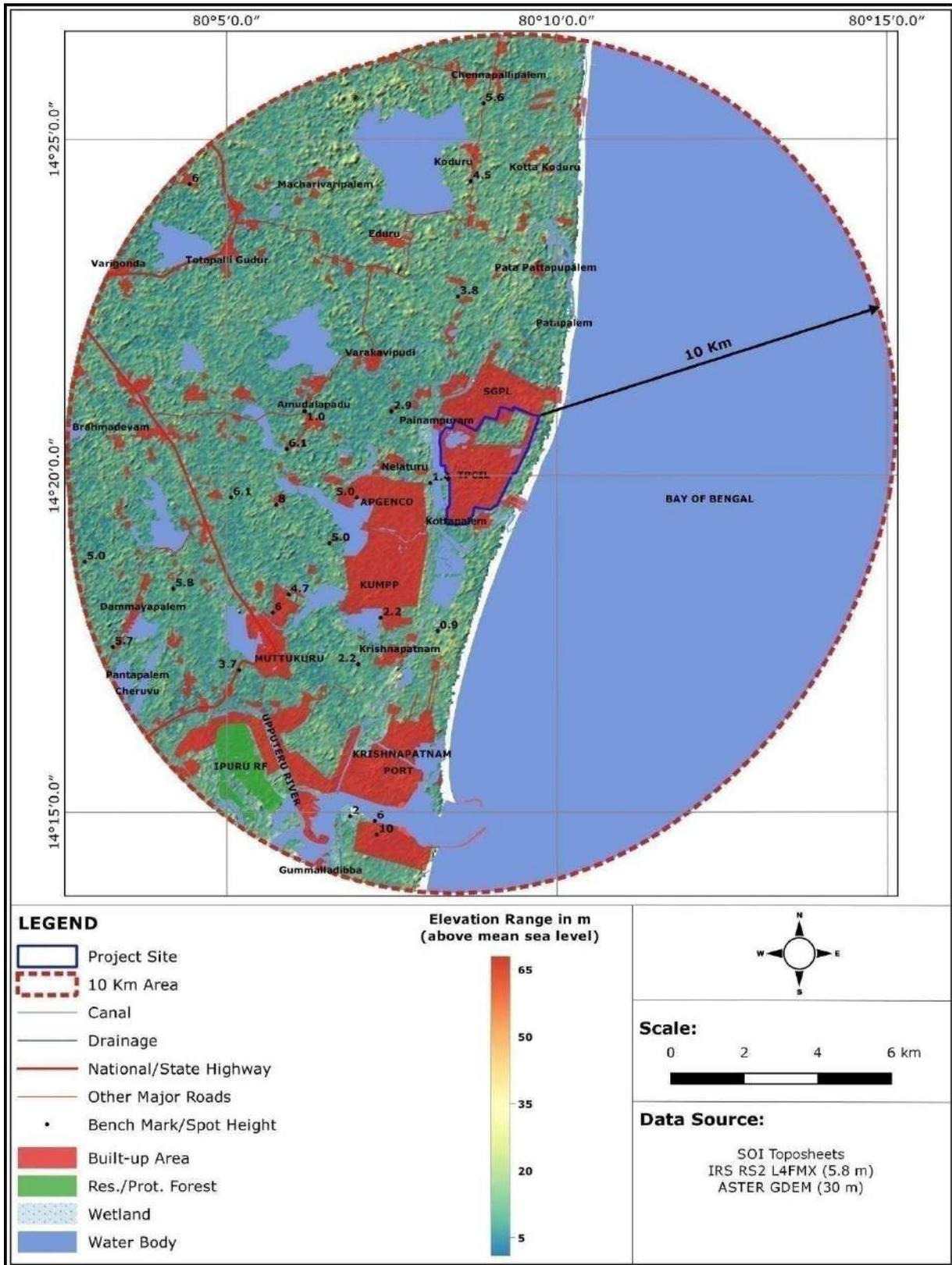


Figure-4: Physiography of the study area

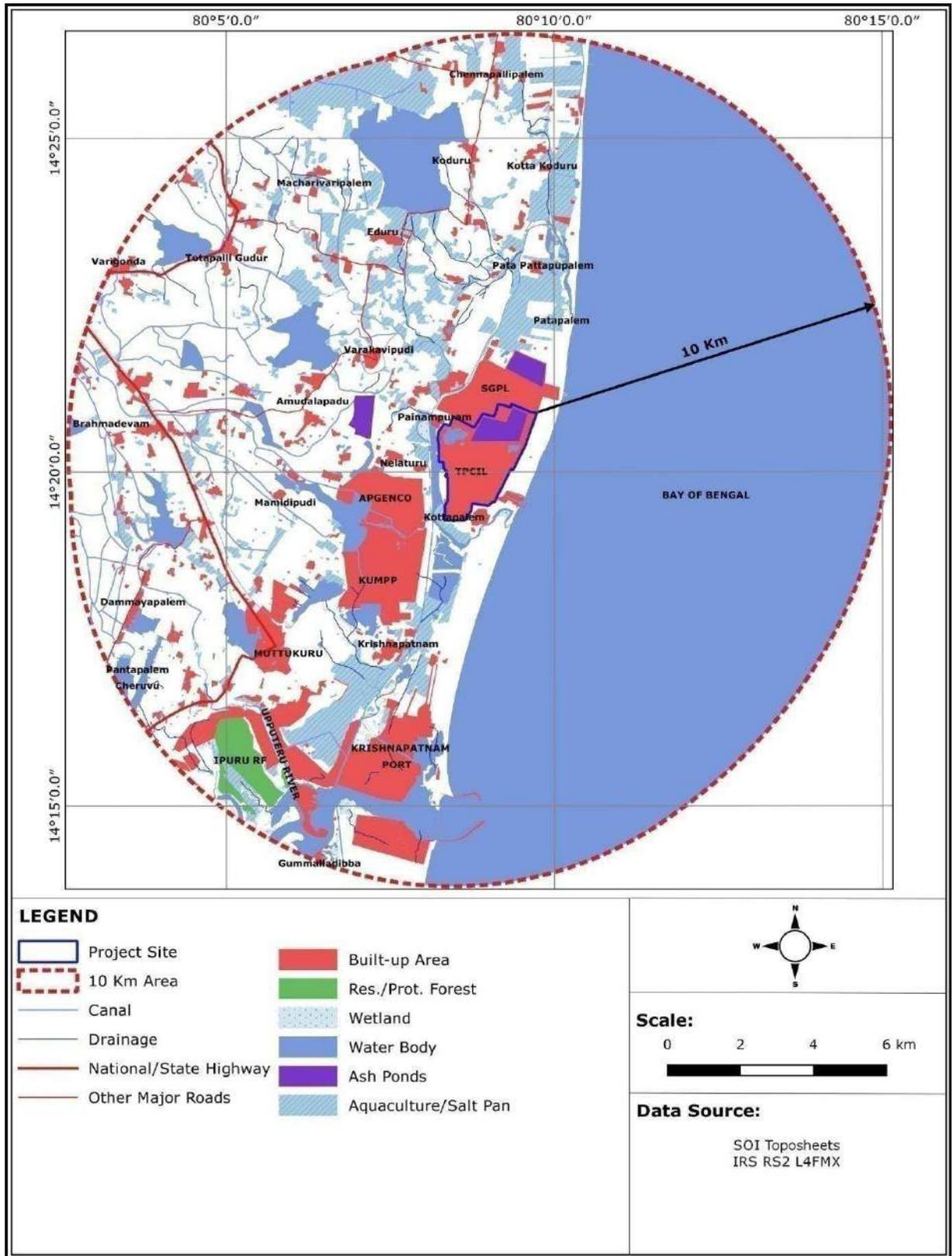


Figure-5: Drainage Map of the Study Area

3.0 GEOLOGY

3.1 Regional Geology

The district comprises older metamorphic of presumably Archaean age, Dharwar Supergroup of Archaean to lower Proterozoic age, post-Dharwar intrusives, sedimentary rocks of Cuddapah Supergroup and Cuddalore Formation of middle Miocene age and laterite/alluvium of Quaternary age.

The Archaean rocks occupy major part of the district and are represented by older metamorphic comprising migmatized garnetiferous quartz-mica schist with associated amphibolites, quartz-muscovite mica biotite schist, with kyanite/staurolite and the Peninsular Gneissic Complex comprising biotite-granite gneiss. The migmatized schist covers a large in the central part of the district from west of Kavali in the north to Suler in the south.

Quartzite is exposed as several outliers, scattered over the migmatized schists. Kyanite and staurolite bearing quartz-muscovite-biotite schist occurs as linear or circular shaped outcrops. These are exposed along the eastern boundary of the Dharwar suite of rocks to the west of Kaligiri peninsular gneiss, along the eastern margin of the Cuddapah Basin. It comprises pink to grey granite and gneiss.

The rocks of Dharwar Supergroup form a prominent NW-SE trending belt from north of Udayagiri to south of Gudur attaining a width of 25 km in a broad synformal structure. It comprises an inter-bedded sequence of metavolcanic and metasedimentary rocks. The various lithotypes present in this group are chlorite schist, hornblende schist, actinolite schist, tuff/agglomerate, quartz-sericite schist, actinolite schist, phyllite and quartzite.

The post-Dharwar intrusives correspond to the Eparchaean interval and are represented by gabbro, anorthosite, carbonatite, granite and pegmatite. Pegmatite veins are seen mostly concentrated in the area between Degapudi and Saidapuram. Carbonatite in the district occurs as a narrow NW-SE trending band within the Dharwa rmetavolcanics, having a width of 50 to 60 m over a strike length of 8 km close to the margin of Dharwars with older schist in the northern part of the area. A north site occurs as a circular body having a width of 1 to 1.5 km near Degapudi. Gabbro is exposed as small mounds within Dharwars in the western part of the district.

The rocks of Cuddapah Supergroup, occupying the western part of the district, are exposed as an outlier, west of Udayagiri. Only upper part of the Cuddapah Supergroup, viz., Nallamalai Group, consisting of quartzites is well exposed in the district. Rocks of Cuddalore Formation consisting of sandstone, gravel bed, grit and conglomerate are exposed as isolated patches to the north, south and SE of Nellore. Remnants of these presumably show relicts of the eastern seabed of India during the Tertiary era.

Laterite cappings are seen to occur at the eastern end of the district. Deposition of beach sands by present day

sedimentation, formation of gypsum, lime, in Pullicat Lake, accumulation of alluvium along Penner and Swarnamukhi river tracts and formation soils represent recent geological activity in the district. The stratigraphic succession of the region based on GSI publication, 2001 is given in **Table-2**.

Table-2: Regional Stratigraphic Succession

Lithology	Formation/Group	Super group/Series	Age
Clay with sand	Palero channel	Fluvial	Holocene - Quaternary
Clay and silt	Flood Basin-Swarnamukhi Formation		
Fine grained silts	Paleo Flood Plain-Kalnagi Formation		
Gravel, sand with clay; fine grained silt and sand	Channel bar, Point bar-Penner Formation		
Coarse grained sand with gravel	Older alluvial terrace – Buchireddipalem Formation		
Sand with shell fragments; silt clay	Active beach; spit, mudflat, tidal flat - Pattapupalem Formation	Marine	
Silt, clay; Shell lime	Lagoon-Pulicat Formation		
Medium to coarses and with shell fragments	Younger beach-barrier ridge-Ullipalem Formation		
Fine sand	Old beach-barrier ridge-Chakicherla Formation		
Clay and silt	Old tidal flat-Uparapalem Formation		
Laterite			Pleistocene-quaternary
Sandstone	Cuddalore Formation		Mio-Pliocene
Quartzite	Cumbum Formation	Nallamalai Group Cuddapah Supergroup	Middle Proterozoic
Quartzite	Bairenkonda Formation		
Pegmatite			Lower Proterozoic
Granite			
Carbonate			
Anorthosite			
Gabbro			
Quartzite		Dharwar Supergroup	Archaean to Lower Proterozoic
Metavolcanic(Chlorite schist), hornblende schists, Tuff agglomerate, Metaandesite, Metasedimentaries (Quartz-sericite, schist phyllite)			
Biotite granite gneiss		Peninsular Gneissic Complex	Archaean
Quartz-muscovite-biotite schist		Older Metamorphics	
Quartzite			
Migmatized garniferous Quartz-mica schist with amphibolite bands			

3.2 Geology of Study Area

Of the total study area of 416.24 sq km, 178.26 sq km (42.83%) of the eastern part is covered by Bay of Bengal. The inland area forms a flat alluvial plain with minor undulations and occasional isolated dunes.

The inland area is entirely occupied by unconsolidated alluvial formations of fluvial and marine origin belonging Recent/Quaternary period. The river and flood plain alluvium of fluvial origin occurs all along the banks of major rivers and the deltaic areas formed by rivers and cover an area of 57.31 sq km. Active beach, tidal flat and other marine alluvium occurs along the coast and in the southwestern part of the study area covering 155.23 sq km.

The project site falls in Ullipalem Formation of marine origin consisting of medium to coarse sand with shell fragments. A major fault trending NW-SE and extending from north of Dagadathi to the coast near Tammenapatnam for about 60 km passes through the study area from northwest to south. A major lineament trending SSW-ENE and extending from west of Naidupeta to Patapalem for about 62 km runs from SSW of study area to Patapalem and passes through western part of the project site.

Geology of the study area based on GSI publication 2001 is presented in **Figure-6**.

3.3 Sub-surface Lithology/Soils in the Project Site

Based on field observations and visual identification during the study, the general/average sub-surface lithology has been designated into 5 different layers as detailed below:

Layer	Description	Depth (m BGL-Below Ground Level)
Layer 1	Silty Sand	GL - 6.0 to 8.0
Layer 2	Silty soft to medium stiff Clay	6.0 to 8.0 - 25.0 to 30.0
Layer 3	Medium dense Sand	25.0 to 30.0 - 40.0
Layer 4	Stiff to hard Clay	40.0 - 50.0
Layer 5	Dense Sand	50.0 to termination depth

A review of the sub-surface lithological data from the bore hole drilling indicate that the project site has alternate layers of sand and clay with varied thickness, grain size and hardness. The sub-soil water table was observed to be at about 1.1 to 2.0 m bgl at the time of investigation.

3.4 Earthquake and Seismic Zone

The Indian subcontinent has a history of devastating earthquakes. The major reason for the high frequency and intensity of the earthquakes is that the Indian plate is driving into Asia at a rate of approximately 47 mm/year. Geographical statistics of India show that almost 54% of the land is vulnerable to earthquakes. The latest version seismic zoning map of India given in the earthquake resistant design code of India (IS 193 (Part 2) 2002) assigns four levels seismicity for India in terms of zone factors. In other words, the earthquake zoning map of India divides India into 4 seismic zones (Zone 2, 3, 4 and 5) unlike its previous version, which consisted of five or six zones for the country. According to the present zoning map, Zone 5 expects the highest-level seismicity whereas Zone 2 is associated with the lowest level of seismicity. The MSK (Medvedev-Sponheuer-Karnik) intensity broadly associated with the various seismic zones is VI (or less), VII, VIII and IX (and above) for Zone 2, 3, 4 and 5 respectively, corresponding to Maximum Considered Earthquake (MCE). Each zone indicates the effects of an earthquake at a particular place based on the observations of the affected areas and can also be described using a descriptive scale like Modified Mercalli Intensity Scale or the Medvedev-Sponheuer-Karnik Scale.

As per Earthquake Hazard Map of India, Building Materials and Technology Promotion Council (BMTPC), the study area falls in Moderate Damage Risk Zone – Zone 3 (MSK VII).

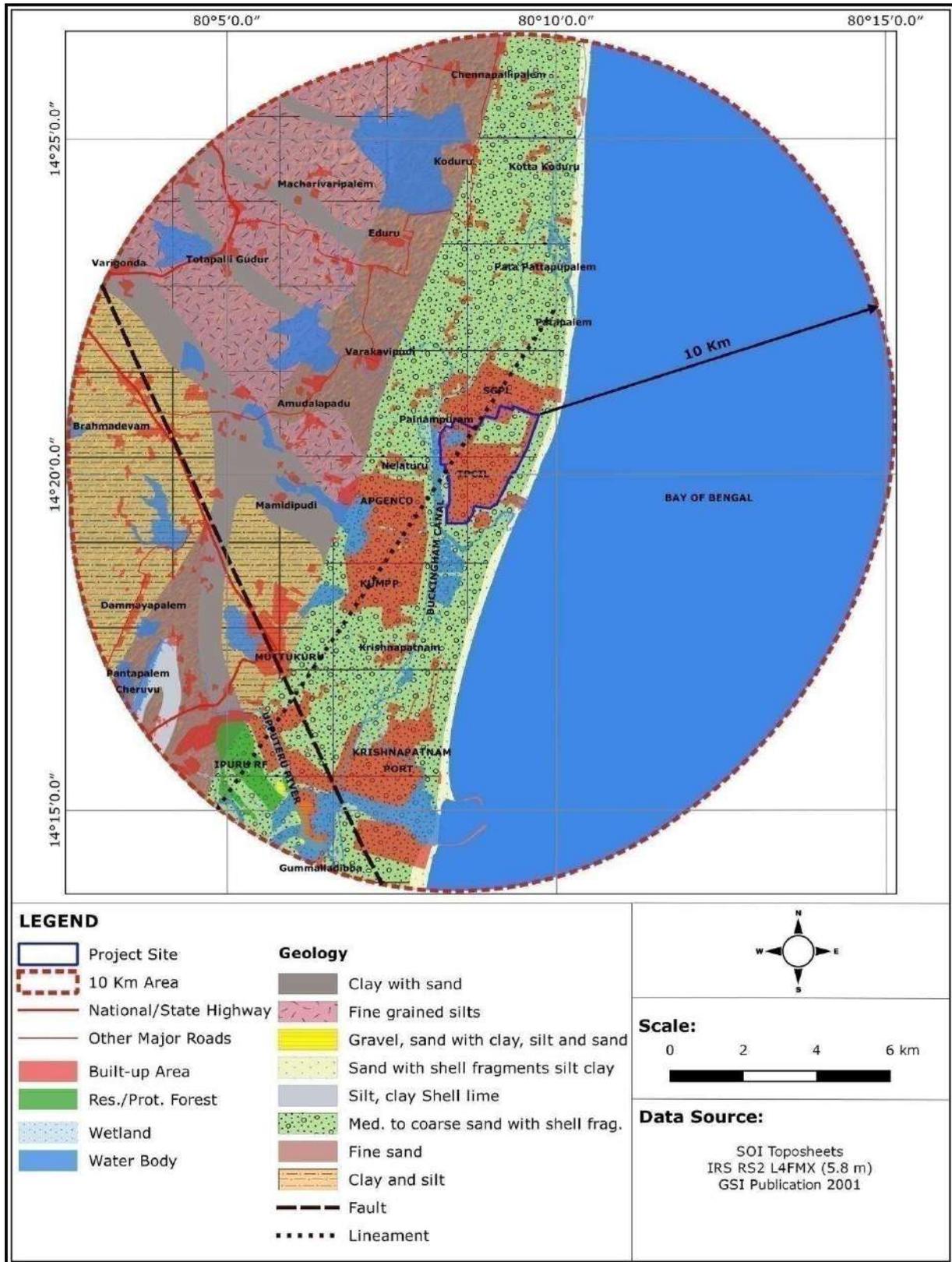


Figure-6: Geology of the Study Area

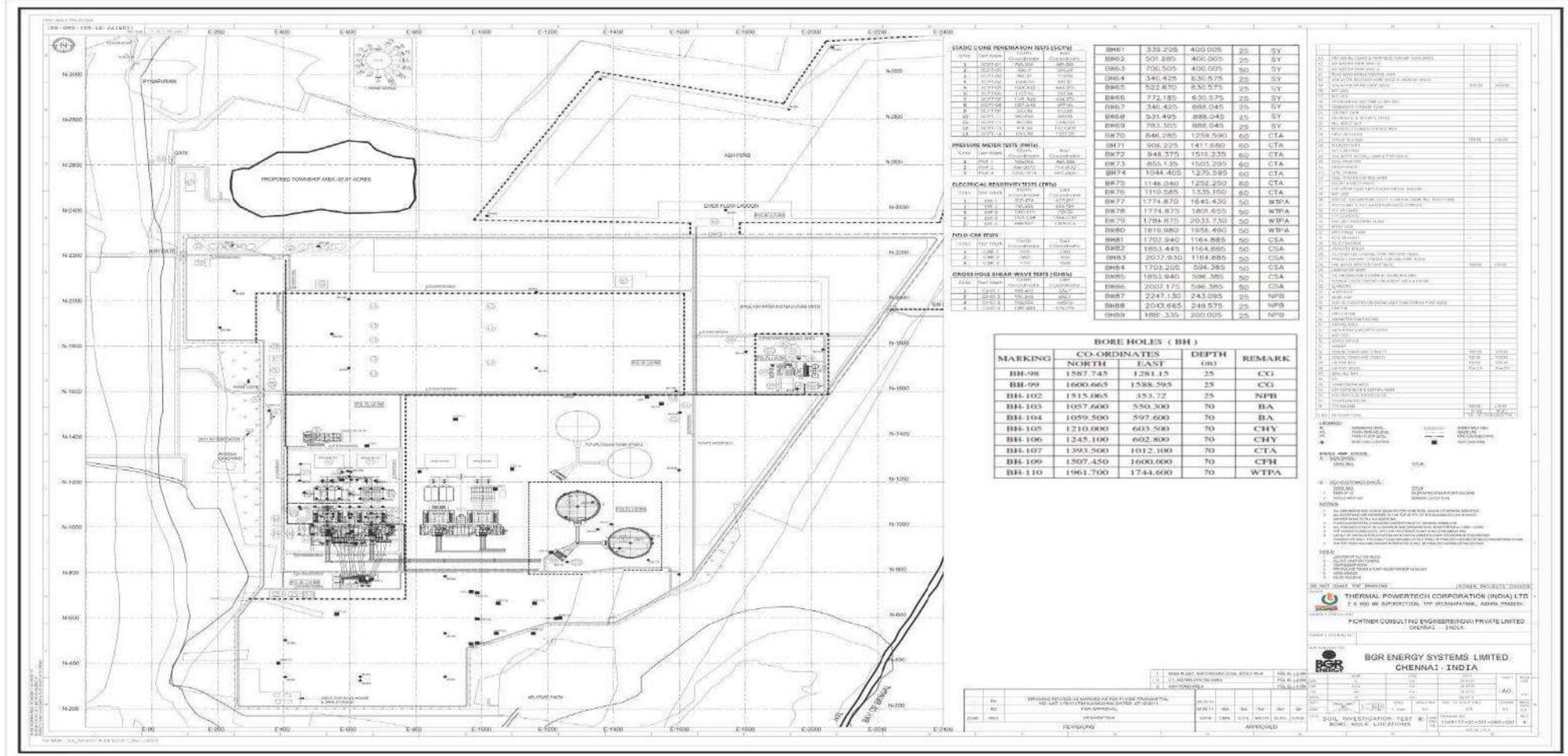


Figure-7: Locations of Bore Holes (Sub-surface Investigations)

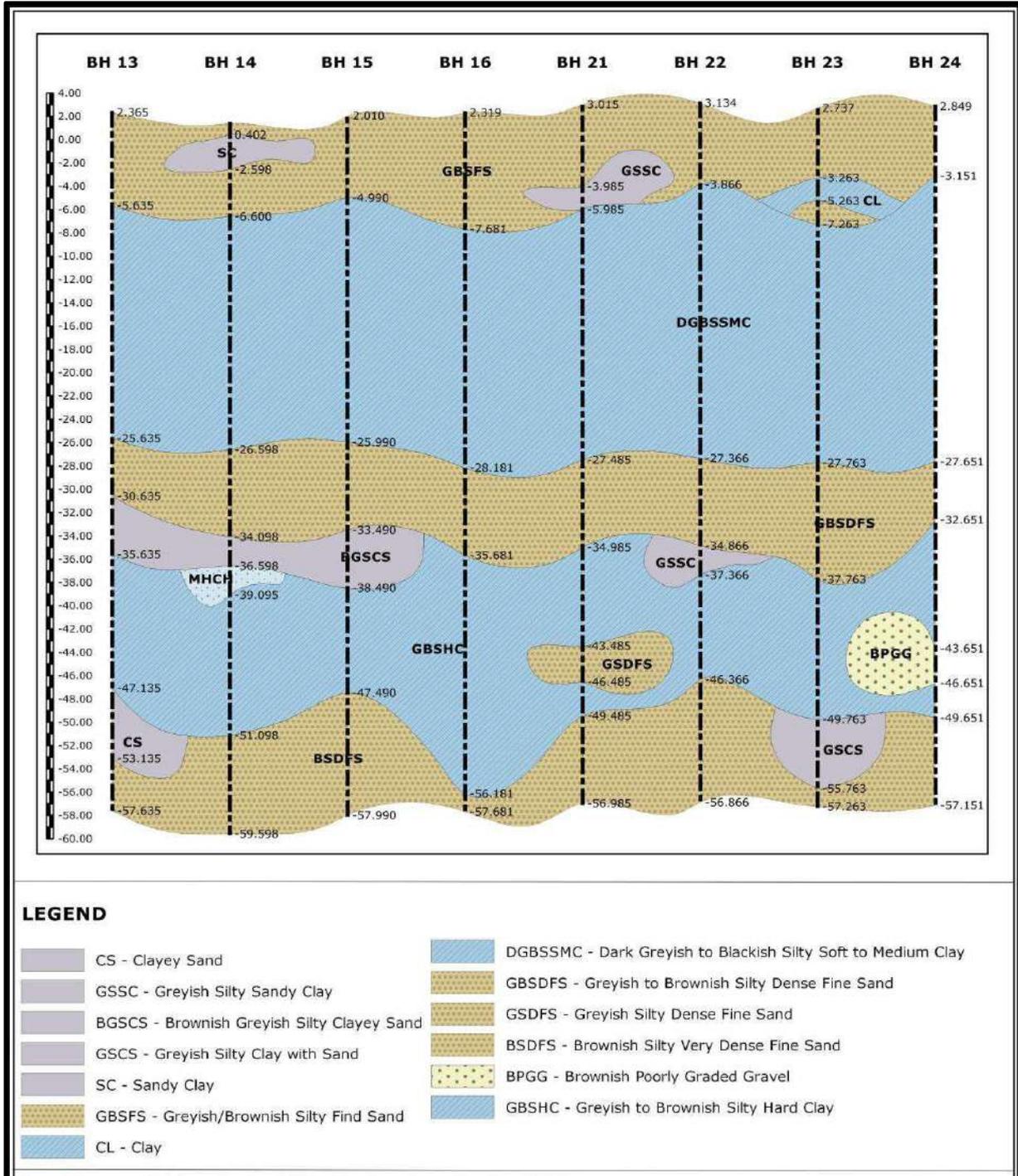


Figure-8: Lithological cross section A-A'

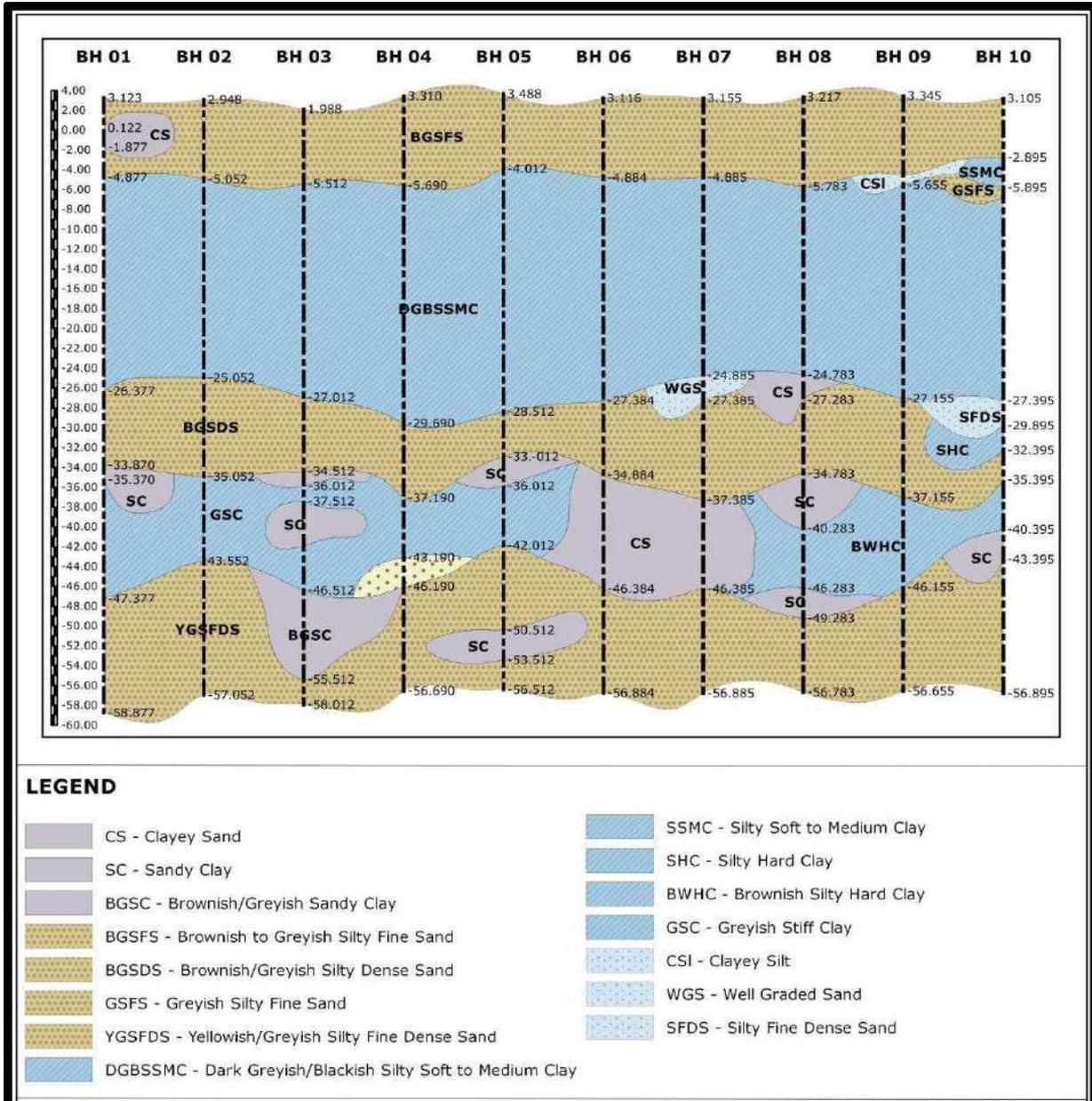


Figure-9: Lithological cross section B-B'

4.0 HYDROGEOLOGY

Hydrogeology is the area of geology that deals with the distribution and movement of ground water in the soil and rocks of earth's crust commonly in aquifers. Ground water systems are a result of the complex combination of different lithological and structural types within an area that together constitute an aquifer within which ground water accumulates and moves. Rather than describing individual lithologies and their tendencies to form aquifers or otherwise, it is useful to describe the ground water as one continuous across various lithological types (Kulkarni and Deolankar, 1995). *Hydrogeology of the study area is presented in Figure-10.*

4.1 Nature of Occurrence of Ground Water

Of the total study area of 416.24 sq km, 178.26 sq km (42.83%) of the eastern part is covered by Bay of Bengal. The inland area forms a flat alluvial plain with minor undulations and occasional isolated dunes. The inland area is entirely occupied by unconsolidated alluvial formations of fluvial and marine origin belonging Recent/Quaternary period.

Among the unconsolidated formations, river alluvium i.e., in deltaic area form potential aquifers. In deltaic area, ground water occurrence is controlled by landforms and also in this area, a lot of heterogeneity in hydrogeological conditions exist both spatially and vertically. In the delta area, fresh water is generally limited to a depth of 15 m. Most of coastal alluvium aquifers are brackish or saline. Paleochannels are favourable locations for fresh water aquifers. Wind-blown sand/sand dunes are fresh water aquifers. Ground water occurs under phreatic to confined conditions.

4.2 Wells, Water Levels and Yields

Ground water in the study area is developed through shallow dug wells, filter points and tube wells for domestic, irrigation, aquaculture and industrial purposes. Many of the dug wells in the study area have been abandoned while constructing new houses and with the increased use of filter points for domestic purpose in the recent past. Dug wells that exist at present are mainly within the premises of temples.



Latitude: 14°34'51.73"N
Longitude: 80°13'65.03"E
Painampuram Village



Latitude: 14°34'95.79"N
Longitude: 80°13'09.43"E
Nelaturu Village



Latitude: 14°32'23.41"N
Longitude: 80°14'64.44"E
Nelaturupalem Village



Latitude: 14°34'58.58"N
Longitude: 80°10'46.98"E
Musunurivari palem Village

4.2.1 Water Levels from Well Inventory

Water levels during field visit are recorded measuring depth to standing water and post monsoon water levels are recorded up to the moisture indication in the dug wells. Pre monsoon water levels are recorded through interaction with well owner or local person available at the site. Detailed Well inventory data is furnished in **Table-6**.

4.2.2 Water Levels from SEIL Project-1 Piezometers

Piezometers were installed –

Piezo Well -1- Near to CHP Control room of SEIL P-2, (East Side)

Piezo Well -2- Between SEIL P1 Periphery wall & New Ash Pond (South Side)

Piezo Well -3- Between P1 to P2 road and New Ash Pond (West Side)

Piezo Well -4 - Between SEIL P2 Periphery wall & New Ash Pond (North Side)

Piezo Well -5– Between SEIL P2 Periphery wall & New Ash Pond (North-West side)

Details of well inventory in study area is represented in **Table No.-3**.

Details of these piezo wells and water level monitoring data are given in **Table-4a & Table-4b** respectively.

Typical section of Piezometer well is attached as **Annexure-III**.

Table-3: Details of Well Inventory in Study Area

Sl. No.	Well No	Village	Latitude	Longitude	Well Type	Purpose	Total Depth (m)	Dia (m)	Static Water Level (m)		Fluctuation (m)	Aquifer	TDS	pH
									Pre-Monsoon (May)	Post-Monsoon (Nov)				
1	GW1	Nelaturu Village	14.349579	80.130943	Tube Well	Domestic	1.8	1.8	1.42	1.02	0.74	Alluvium	865.0	7.5
2	GW2	Painampuram Village	14.345173	80.136503	Tube Well	Domestic	2.5	1.64	2.2	0.93	1.22	Alluvium	980.0	7.1
3	GW3	Nelaturupalem Village	14.322341	80.146444	Tube Well	Domestic	2.3	2.25	2.8	1.2	2.5	Alluvium	1,050.0	7.6
4	GW4	Musunurivari Palem Village	14.345858	80.104698	Tube Well	Domestic	1.2	1.9	3.8	1.4	0.5	Alluvium	1,080.0	7.1
5	GW5	Amudalapadu Village	14.353089	80.103195	Tube Well	Domestic	1.4	1.2	3.6	2.4	3.1	Alluvium	1,128.0	7.9
6	GW6	Kothapalem village	14.341648	80.100746	Tube Well	Domestic	1.6	0.48	4.7	1.36	4.92	Alluvium	1,094.0	7.4
Average							1.92	1.55	3.09	1.39	1.68			

Table-4a: Details of Piezometers Installed in SEIL Project-1 Premises

Sl. No.	Well No.	Location
1	PW1	Piezo Well No-1- Water – EAST SIDE
2	PW2	Piezo Well No-2- Water – SOUTH SIDE
3	PW3	Piezo Well No-3- Water – WEST SIDE
4	PW4	Piezo Well No-4- Water – NORTH SIDE
5	PW5	Piezo Well No-5– NORTH WEST SIDE

Photographs of Piezometer Wells



Piezo Well No-1- Water – EAST SIDE



Piezo Well No-2- Water – SOUTH SIDE



Piezo Well No-3- Water – WEST SIDE



Piezo Well No-4- Water – NORTH SIDE

Table-4b: Water Level Monitoring Data of Piezometers

Month	Piezo Well No-1 EAST SIDE (PW-1) (m)	Piezo Well No-2 SOUTH SIDE (PW-2) (m)	Piezo Well No-3 WEST SIDE (PW-3) (m)	Piezo Well No-4 NORTH SIDE (PW-4) (m)	Piezo Well No-5 NORTH WEST SIDE (PW-5) (m)
	PW1	PW2	PW3	PW4	PW5
Dec'19	2.1 m	1.70 m	2.21 m	1.28 m	2.11m
Jan'20	1.89 m	1.64 m	2.18 m	2.2 m	2.12 m
Feb'20	2.57 m	1.12 m	2.13 m	1.45 m	1.54 m
Mar'20	2.22 m	2.21 m	2.28 m	1.39 m	1.45 m
Apr'20	2.71 m	2.28 m	2.24 m	1.48 m	1.52 m
May'20	3.71 m	2.24 m	2.12 m	1.42 m	1.47 m
Jun'20	3.69 m	2.29 m	2.22 m	1.24 m	1.75 m
Jul'20	3.7 m	2.27 m	2.31 m	1.44 m	1.23 m
Aug'20	2.62 m	2.37 m	2.19 m	1.40 m	1.78 m
Sep'20	3.5 m	2.14 m	2.25 m	1.34 m	1.32 m
Oct'20	3.21 m	2.07 m	2.39 m	1.43 m	1.45 m
Nov'20	2.5 m	1.86 m	2.37 m	1.23 m	1.34 m
Dec'20	2.2 m	1.74 m	2.12 m	1.67 m	2.04 m
Jan'21	1.6 m	1.7 m	2.42 m	2.12 m	2.13 m
Feb'21	1.45 m	1.61 m	2.45 m	2.18 m	2.14 m
Mar'21	1.23 m	1.38 m	2.24 m	2.42 m	2.13 m
Apr'21	1.27 m	1.28 m	2.25 m	2.32 m	2.23 m
May'21	1.31 m	1.42 m	2.28 m	2.31 m	2.36 m
Jun'21	1.29 m	1.36 m	2.28 m	2.39 m	2.23 m
Jul'21	1.31 m	1.20 m	2.21 m	2.36 m	2.12 m
Aug'21	1.34 m	1.28 m	2.23 m	2.14 m	2.34 m
Sep'21	1.32 m	1.23 m	2.28 m	2.31 m	2.25 m
Oct'21	1.38 m	1.46 m	2.27 m	2.22 m	2.23 m

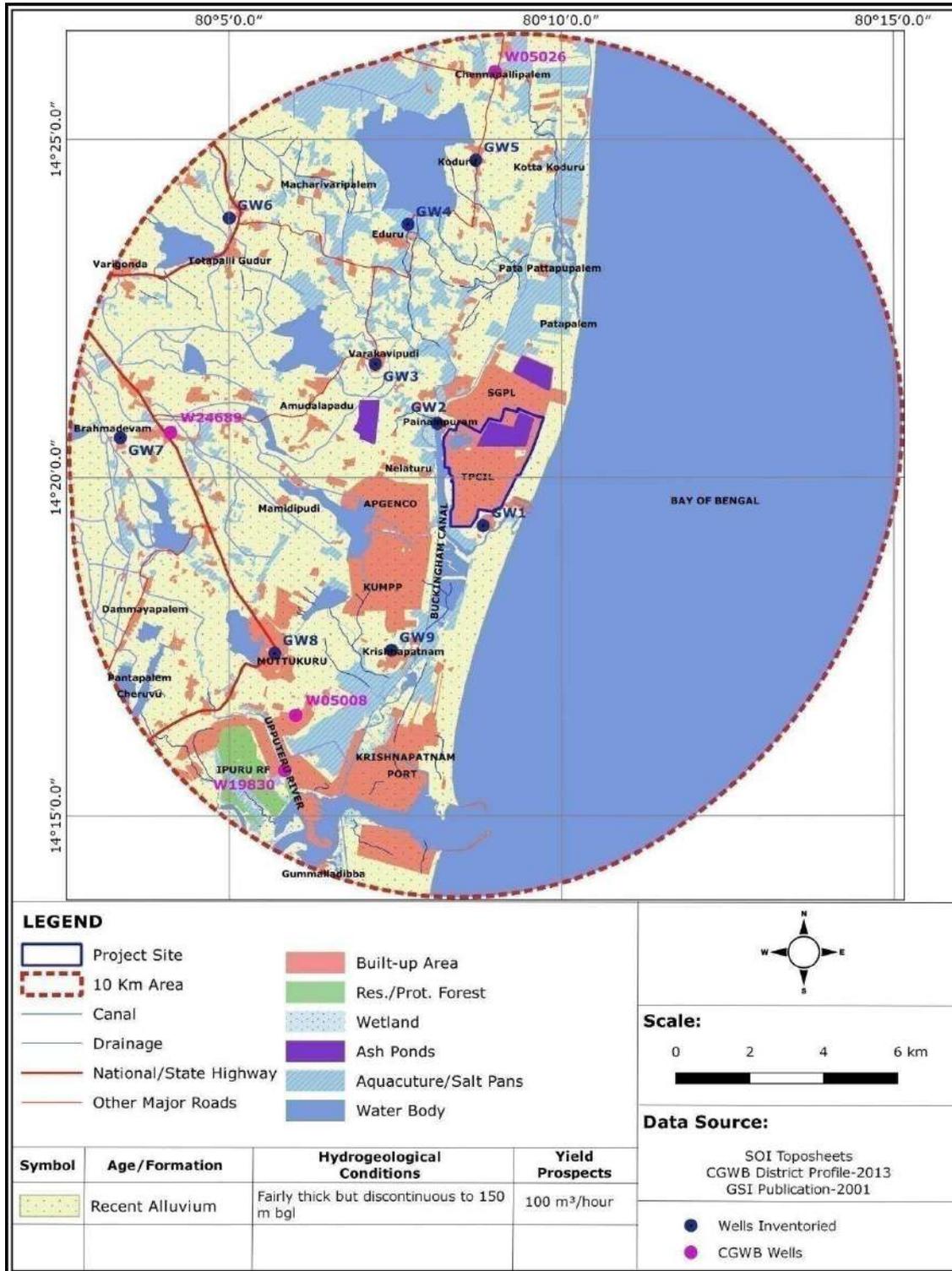


Figure-10: Hydrogeology of the study area

5.0 Movement of Ground Water

Ground water movement mainly takes place through the fractures and joints of the crystalline rocks and the ground water is transmitted through voids and interstitial openings in sedimentary rocks and unconsolidated formations. In other words, movement of ground water is controlled by the hydraulic conductivity of the aquifer and hydraulic gradient.

A review of the topography and drainage pattern reveals that Upputeru River and other creeks empties into Bay of Bengal in the east and the general slope in the inland area is towards Bay of Bengal in the east. The water table contours in the study area almost follow the topography and drainage pattern showing flow direction towards Bay of Bengal. Ground water movement within SEIL Project-1 is towards southwest towards Buckingham canal indicating that the ground water flow direction locally varies.

The hydraulic gradient in the study area in general is observed to be low and across the project site, it is around 1.087 m/km. The hydraulic gradient near coast is observed to be higher as moving away from the coastal area towards inland. Water level contours with respect to mean sea level in the study area vary from 0.0 m along coast to 9.80 amsl in the western part.

The detailed piezo well water quality monitoring data is enclosed as **Annexure-IV**.

6.0 GROUND WATER RESOURCES

6.1 Ground Water Recharge

Ground water recharge or deep drainage or deep percolation is a hydraulic process where water moves downward from surface water to ground water. Recharge is the primary method through which water enters an aquifer. This process usually occurs in the vadose zone below plant roots and is often expressed as a flux to the water table surface. Recharge occurs both naturally through the water cycle (rainfall) and through anthropogenic processes (artificial ground water recharge), where rain water and or reclaimed water is routed to the sub-surface. Most of the rainfall flows downstream as run-off and the amount of rainfall reaching ground water naturally after meeting evaporation and evapo-transpiration losses are very limited. The anthropogenic processes of ground water recharge in the area include return flow from irrigation, unlined canals etc.

Of the total study area of 416.24 sq km, 178.26 sq km (42.83%) of the eastern part is covered by Bay of Bengal. The inland area forms a flat alluvial plain with minor undulations and occasional isolated dunes. The inland area is entirely occupied by unconsolidated alluvial formations of fluvial and marine origin belonging Recent/Quaternary period. Hence only inland area of 237.97 sq km including streams and other water bodies has been considered for recharge estimation. Recharge in the study area has been worked out by rainfall infiltration and increment in ground water storage methods as per the guidelines of Ground Water Estimation Committee (GEC), 1997. Recharge by rainfall infiltration is estimated considering average rainfall of IMD, Nellore from 1991 to 2020 and rainfall infiltration factors of geological units in the study area. The average ground water fluctuation between pre and post monsoon in the study area has been considered to estimate recharge by increment in ground water storage.

7.0 WATER QUALITY

For any water body to function adequately in satisfying the desired use, it must have corresponding degree of purity. Drinking water should be highest purity. As the magnitude of demand for water is fast approaching the availability supply, the concept of management of the quality of water is becoming as important as its quantity. Each water use has specific quality need. IS 2296:1992 specifies surface water quality standards based on the following designated best uses:

- A. Drinking water source without conventional treatment but after disinfection
- B. Outdoor bathing (organized)
- C. Drinking water source after conventional treatment and disinfection
- D. Propagation of wildlife and fisheries
- E. Irrigation, industrial cooling, controlled waste disposal

Drinking water is water intended for human consumption for drinking and cooking purposes from any source. It includes water (treated or untreated) supplied by any means for human consumption. IS10500:2012, Indian Standard was formulated with the objective of assessing the quality of water resources and specified the acceptable and the permissible limits in the absence of alternate source. It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under “acceptable” render the water not suitable. Such value may, however, be tolerated in the absence of an alternate source.

pH and TDS of both surface water and ground water from the wells inventoried was measured using portable water testing instruments. Analysis results of 2 surface and 6 ground water samples carried out by M/s Care Labs, Hyderabad. Results of Ground water quality analysis are enclosed as **Annexure-V**.

7.1 Surface Water

The average water consumption of the existing SEIL Project-1 plant is about 1,59,517.72 m³/day (58.22 MCM per year), which is being drawn through intake from Bay of Bengal and used for the plant and all other purposes after treatment in R.O plant.

A review of detailed analysis of surface water samples attached as **Annexure-VI**.

7.2 Ground Water

Total 6 No's of ground water samples were collected and tested. Analysis reports attached as **Annexure-V**.

8.0 IMPACT OF PROPOSED PROJECT ON WATER REGIME AND MITIGATION MEASURES

The construction, commissioning and expansion of any type of developmental projects have significant influence on the existing physical, biological and social components of environment.

The impact of existing SEIL Project-1 on water regime may be in different ways and on surface or ground water or both. Water environment may be affected by the existing SEIL Project-1 in terms of disturbing natural water courses or change in drainage pattern of the area, quantity and quality – due to drawl of water, discharge of polluted/waste water, by contaminated leachate from disposal/dumping of solid waste etc.

8.1 Natural Drainage and Water Bodies

There are no well-defined stream courses passing through the project site, but as per the original pre-project drainage, a small water body with an approximate water spread area of 19.96 ha exists in the north-western part of the project site. It shall be revived to its original capacity through de-silting and strengthening the bund.

A natural depression is developed into a small water body in the eastern part of the project site from which, water is being used for nursery and nearby gardening.

8.1.1 Water Availability

Use of sea water is in favour of saving fresh water resources, easing tensions in industrial water, availability in abundant quantity, scope of economy, environment etc.

As per the GEC 97 norms, areas where ground water resources assessment shows stage of ground water development at 70% or lower and there is no significant long-term decline of pre or post monsoon ground water levels are categorized as “Safe” areas with potential for development.

8.2 Water Quality

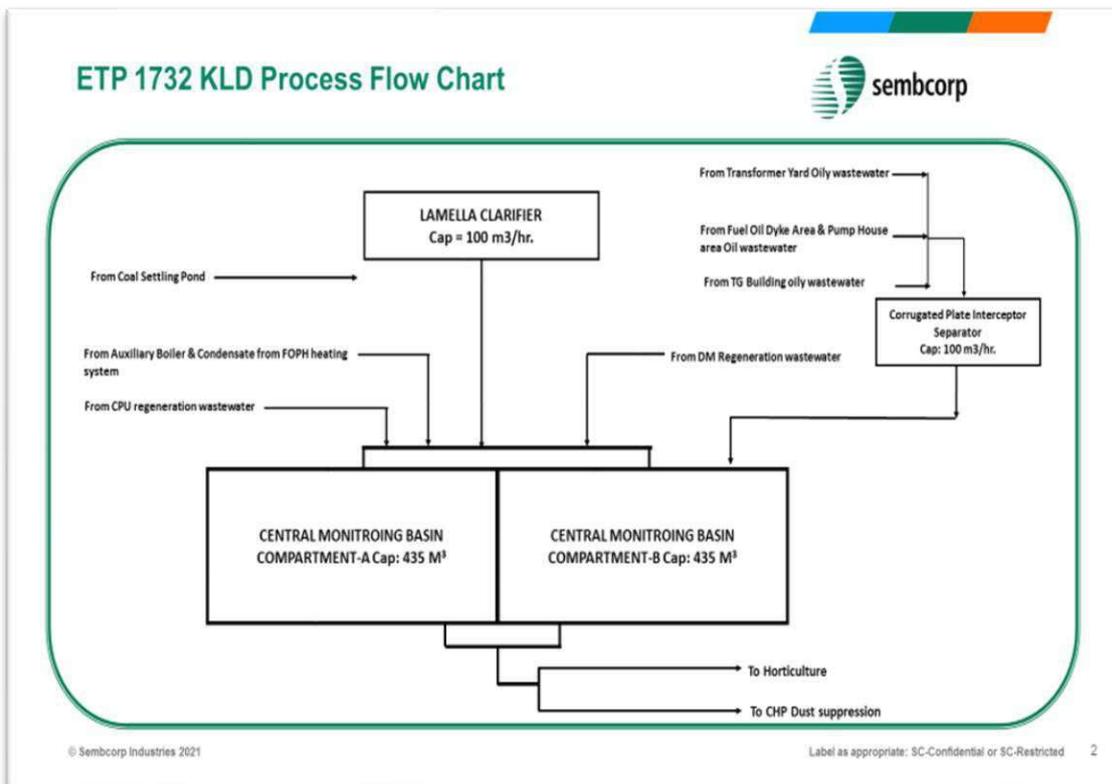
Impact on water quality during construction and operation of any industry may be due to sewage generated from the domestic facilities, waste water generated from different plant operations, waste and oil spillage from the workshop, ash or other waste disposal etc. it is important to ensure that the water discharged from the project meet the relevant disposal norms and water being used in the project meets the relevant national standards. The major consumptive units and/or waste generation units in the

existing SEIL Project-1 plant are cooling towers, DM plant, seal quenching, AC ventilation, dust suppression, miscellaneous service water, ash transport etc.

1732 KLD capacity of ETP is installed which involves treatment process of

- Sedimentation
- Aeration
- Oil water separation
- pH adjustment
- Coagulation
- Flocculation

A detailed schematic diagram is represented below:



Flow diagram of Effluent Treatment Plant

Photographs of Effluent Treatment Plant



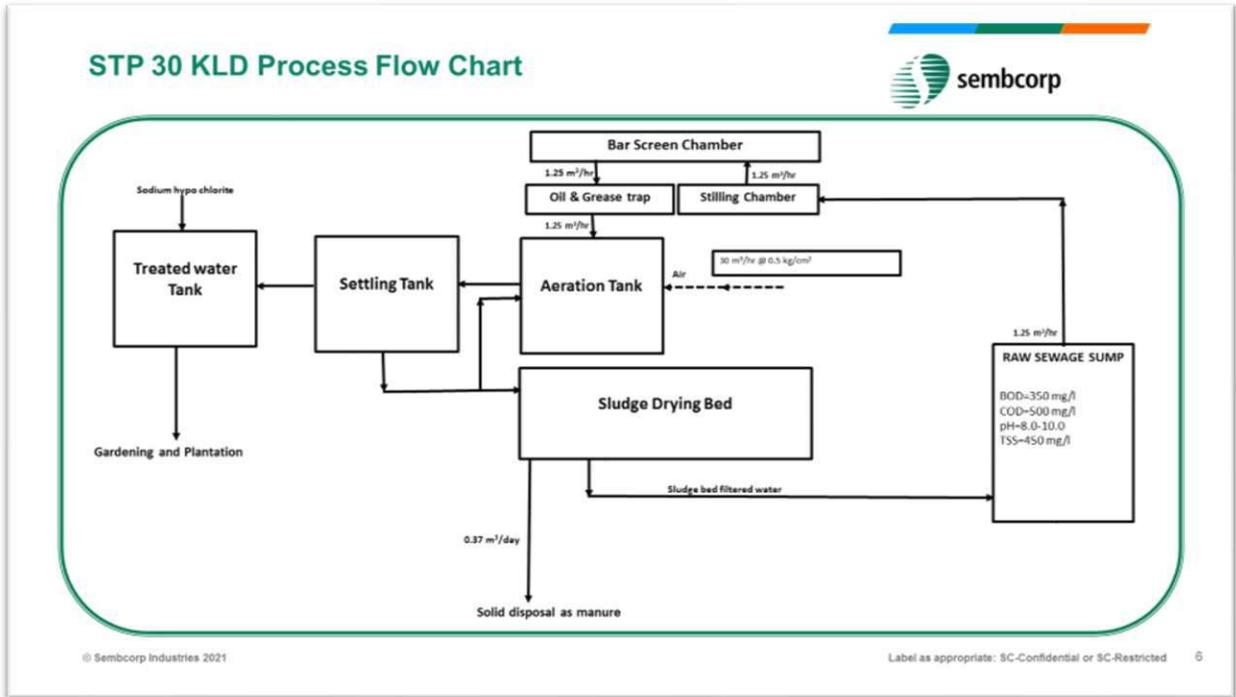


The treated water generated is used in CHP dust suppression system and green belt development.

STP Details

30 KLD capacity of STP is installed. It involves treatment process for

- Equalization
- Aerobic biological activity
- Sedimentation
- Disinfection
- Filtration
- Solid water separation



Flow Diagram of Sewage Treatment Plant

And the treated water is used for greenbelt development.

Photograph of Sewage Treatment Plant



9.0 WATER RESOURCE MANAGEMENT PLAN

9.1 Ground Water Development

No ground water is being abstracted for the plant activities. The present stage of ground water development in the study area is estimated as 52.96% and the long-term trend of water level (1999 to 2019) of CGWB monitoring wells indicates that during pre-monsoon, a raise in the range of 0.0123 to 0.1700 m/year in Kondapuram, Dagadarthi, Podalakuru, Venkatachalam, Muthukur and DF Satram area. Hence the study area can be categorized as “Safe” in terms of ground water development.

9.2 Water Conservation and Artificial Recharge

9.2.1 Rain Water Potential

To understand the quantum of water available from the project area for rain water harvesting, reuse and ground water recharge, a tentative run-off estimation based on different land uses in the area is worked out and presented in **Table-6**. A compound wall was constructed all along the plant boundary and hence no run-off from the catchment outside plant premises is expected. The annual volume of rain water available from the existing plant area spread in 1367.0 acres (553.21 ha) is estimated at 348.425 m³. Considering only 80% of the run-off as available volume after

evaporation, spillage and first flush wastage, of rain water is available for harvesting, reuse and ground water recharge.

Table-5: Annual & Monsoon Run-Off from Project Site

Sl. No.	Land Use	Area (ha)	Run-off Coefficient	Annual Rainfall (m)	Annual Run- off (m ³)
1	Buildings	8.09	0.7	1.069	6.054
2	Plant area	217.32	0.7	1.069	162.621
3	Roads & paved area	8.09	0.9	1.069	7.783
4	Open area (mostly sandy with grass)	40.47	0.3	1.069	12.979
5	Greenbelt	157.83	0.25	1.069	42.180
6	Ash Pond	121.41	0.9	1.069	116.809
					348.425

Considering the ground water scenario in the area in terms of 1) ground water development in the area is categorized as “**Safe**”, 2) there is a marginal raise in long term pre monsoon water level as per CGWB findings, 3) post monsoon water level in the project site is less than 2.50 mbgl, the water conservation and artificial recharge system in SEIL Project-1 plant area may be more on water harvesting and reuse to reduce the dependency on external water and less on artificial recharge.

9.2.2 Scope for Further Rain Water Harvesting/Recharge Measures

As discussed under 8.2.1, the water harvesting and artificial recharge system in SEIL Project-1 plant area may be more on water harvesting and reuse to reduce the dependency on external water and less on artificial recharge. Further rain water harvesting measures in SEIL Project-1 may include the following:

Roof Top Rain Water Harvesting

Buildings with RCC roof covering an area of 73600 sq m (7.36 ha) are found to be feasible to take up roof top rain water harvesting and reuse for green belt/plantation, toilets and other non-potable uses. The annual quantity of rain water expected from the roof tops of these buildings is

about 55692.03 m³ (0.056 MCM).

The volume of storage tank/sump can be determined by the following factors:

- 9.2.2.1 Average annual rainfall
- 9.2.2.2 Water requirement
- 9.2.2.3 Period of water scarcity
- 9.2.2.4 Type and size of catchment
- 9.2.2.5 Space constraint for storage tank

The storage tank/sump size may vary from the lowest in case of immediate/simultaneous use to hold at least 15-minute peak rainfall to highest in case of later use to hold at least 24- hour peak rainfall. The sump/tank capacities for 15-minute, 1 hour and 24-hour peak rainfall events for the cumulative roof area of buildings are presented in **Table-7**. A tentative roof top rain water harvesting design is shown in **Figure-11**.

Table-7: Rain Water Availability for Roof Areas and Storage Details

Sl. No.	Measure Description	Run-off Coefficient	Area (m ²)	Annual Rainfall (m)	Annual Quantity of Water Harvested (m ³)
1	Fire Station	0.80	37.56	1.069	32.121312
2	Fuel Oil Pump House	0.80	590.31	1.069	504.833112
3	RO & DM Building	0.80	2115.46	1.069	1809.141392
Total					2346.095816

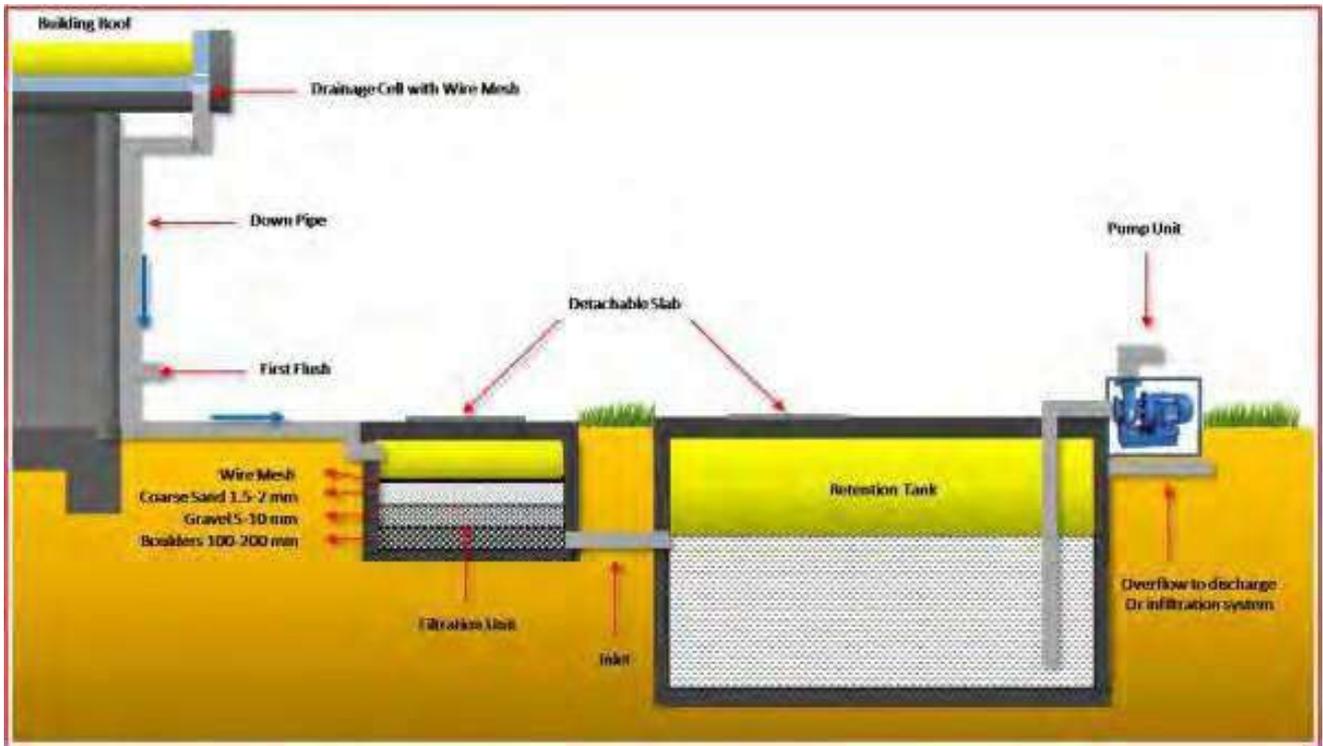


Figure-11: Roof Top Rain Water Harvesting Design

Photographs- Rainwater Harvesting



9.3 Storm Water Management

About 60 to 65% of the rainfall received in the project site is expected as run-off after rain water harvesting and recharge measures.

Storm water management is already developed by installing intercepting drains in the plant area. The storm water drain network has main and secondary drains covering 260.00 ha approximately with 7 outfalls – 6 in the western side towards Buckingham canal and one in the north-eastern side towards Bay of Bengal. Storm water from plant, coal handling and other pollution prone areas shall be separated and diverted to ETP for treatment and reused for plantation and other non-portable uses. Part of the storm water from open and non-polluted areas shall be diverted to a rain water harvesting system and used for non-potable uses.

The rain water collected in garland drain provided around the ash pond is diverted to storm water drain before it is discharged into Bay of Bengal. Water from the wet ash dumped in ash pond is drained by gradient towards south-eastern part of the ash pond and is treated in ETP and reused for plantation. Layout of storm water drains is presented in **Figure-12**.

Storm water and garland drains are observed to be silted up at some places not allowing free flow of water downstream. It is also noticed that during peak rainfall and high tidal events, storm water flow at the outlet points is restricted creating backflow into the drains. This can be reduced diverting part of storm flow from the drains to process water usage with necessary filtration arrangement.

Storm Water Management System

Storm water from plant, coal handling and other pollution prone areas shall be separated and diverted to ETP for treatment and reused for plantation and other non-portable uses. Part of the storm water from open and non-polluted areas shall be diverted to a rain water harvesting system and used for non-potable uses.

The rain water collected in the garland drain provided around the ash pond is diverted to storm water drain before it is discharged into Bay of Bengal. Water from the wet ash dumped in ash pond is drained by gradient in to a separate pond through a filtration system. This water collected in the water pond is treated in clarifier before discharging into sea.

SEIL Project-1 has already implemented artificial recharge measures at 7 locations with side walls pitched with cuddapah stone and cement leaving the bottom open to allow direct infiltration. Cement lined diversion channels from storm water drains are connected to these recharge ponds to get additional inflow. Gratings were installed before storm water reaches recharge ponds to remove suspended pollutants and silt from storm water diverted.

Storm water and garland drains, drains leading to rain water harvesting/recharge measures and filtration units shall be regularly monitored and maintained at least before monsoon.

10.0 CONCLUSION

Of the total study area of 416.24 sq km, 178.26 sq km (42.83%) of the eastern part is covered by Bay of Bengal. The inland area forms a flat alluvial plain with minor undulations and occasional isolated dunes. Elevation in the project site varies from 0.5 m to 7.0 m amsl in the beginning. Major part the area is graded at present for setting up of the plant. Central and northern part of the project site is having higher elevation sloping towards Buckingham canal in the west, creek in the south and Bay of Bengal in the east.

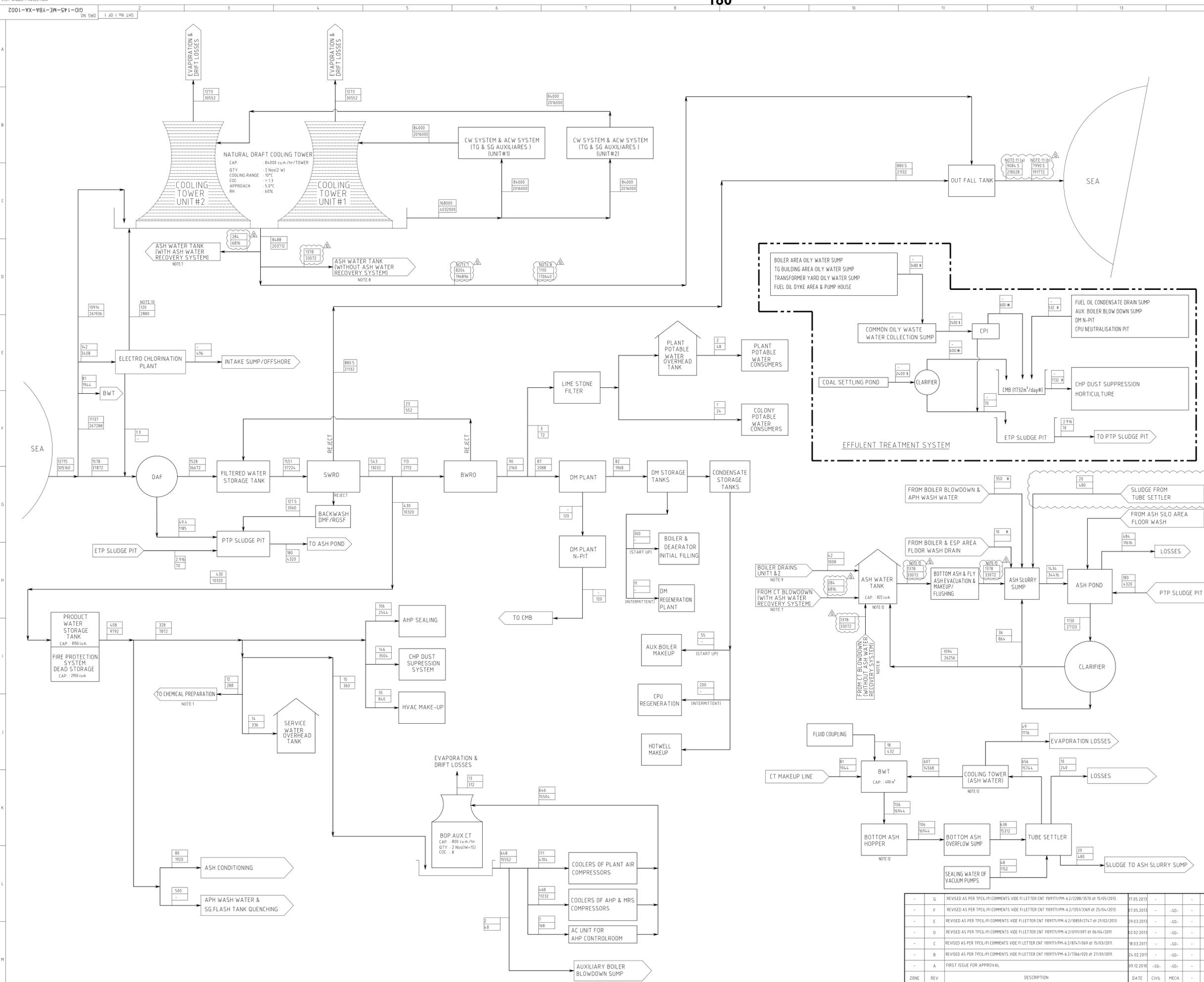
The principal stream in the study area is Upputeru River, which drains into Bay of Bengal in the southernmost part of the study area as Kandleru Creek. It runs as Kandleru River in the upper reaches until its tributary, Kolleru River joins it and flows as Upputeru River afterwards. Two smaller creeks with their drainage network originating within and just outside the study area joins Bay of Bengal south of SEIL Project-1 and Pathapalli respectively. Major part of the study area is drained by the drainage network of smaller creeks intercepted by small to medium sized water bodies/tanks. Buckingham Canal, once a fresh water navigation canal runs parallel to the coast. Secondary channels from Nellore Barrage on Pennar River runs from west up to Muthukur in the study area with other minor channels inter- connecting bigger water bodies spread in major part of inland area.

The inland area is entirely occupied by unconsolidated alluvial formations of fluvial and marine origin belonging Recent/Quaternary period. As per Earthquake Hazard Map of India, Building Materials and Technology Promotion Council (BMTPC), the study area falls in Moderate Damage Risk Zone – Zone 3 (MSK VII).

From the water quality results, it is observed that the ground water quality around aquaculture ponds is poor indicating the influence of backwaters and poor-quality ground water being used in large quantities.

The present stage of ground water development is estimated as 51.90% and the long-term trend of water level (1999 to 2019) of CGWB monitoring wells indicates that during pre- monsoon, a raise in the range of 0.0123 to 0.1700 m/year in Kondapuram, Dagadathi, Podalakuru, Venkatachalam, Muthukur and DF Satram area. Hence the study area can be categorized as “**Safe**” in terms of ground water development.

ANNEXURE- I



- LEGEND**
- Flow Rate - m³/hr
 - Flow Rate - m³/day
 - AHP ASH HANDLING PLANT
 - AUX AUXILIARY
 - BOP ACW CT BOP AUXILIARY COOLING TOWER
 - BWRO BRACKISH WATER REVERSE OSMOSIS
 - BWT BLENDED WATER TANK
 - CHP COAL HANDLING PLANT
 - CMB CENTRAL MONITORING BASIN
 - CPI CORRUGATED PLATE INTERCEPTOR
 - CPU CONDENSATE POLISHING UNIT
 - CW COOLING WATER
 - DM DE MINERALISED
 - HVAC HEAT VENTILATION & AIR CONDITIONING
 - MRS MILL REJECT SYSTEM
 - N-PIT NEUTRALISATION PIT
 - SWRO SEA WATER REVERSE OSMOSIS
 - # INTERMITTENT FLOW
 - * 6 hrs. OPERATION CONSIDERED
 - \$ AS PER TENDER
 - PTP PRETREATMENT PLANT
 - ETP EFFLUENT TREATMENT PLANT
 - DAF DISSOLVED AIR FLOTATION
- ENGG. REF DWGS:**
- BGR DWGS:**
- | DWG. NO. | TITLE |
|---------------------------|--|
| 1. GID-145-ME-GAA-XB-1033 | P&ID FOR SEA WATER INTAKE SYSTEM |
| 2. GID-145-ME-PTP-XB-5101 | P&ID FOR WATER PRE-TREATMENT SYSTEM |
| 3. GID-145-ME-WTP-XB-5102 | P&ID FOR SWRO SYSTEM |
| 4. GID-145-ME-WTP-XB-5103 | P&ID FOR BWRO SYSTEM |
| 5. GID-145-ME-WTP-XB-5104 | P&ID FOR DM MIXED BED EXCHANGERS SYSTEM |
| 6. GID-145-ME-PAC-XB-1016 | P&ID FOR MAIN CW SYSTEM |
| 7. GID-145-ME-PCC-XB-1017 | P&ID FOR BOP ACW SYSTEM |
| 8. GID-145-ME-GCK-XB-1022 | P&ID FOR DM WATER DISTRIBUTION SYSTEM |
| 9. GID-145-ME-GHA-XB-1023 | P&ID FOR PRODUCT WATER/SERVICE WATER DISTRIBUTION SYSTEM |
- NOTES**
- PTP / ETP & ASH HANDLING CHEMICAL PREPARATION
 - RECOVERY OF SWRO & BWRO IS CONSIDERED AS 35% & 80% RESPECTIVELY.
 - WATER REQUIRED FOR AHP IS WORKED OUT CONSIDERING 30% CONCENTRATION (DURING FLY ASH SLURRY EVACUATION) & 20% CONCENTRATION (DURING BOTTOM ASH SLURRY EVACUATION). IN DRY BASIS TOTAL QUANTITY OF 388.5 TON OF ASH (BOTH BOTTOM ASH & FLY ASH) WILL BE EVACUATED PER HOUR FOR UNIT 1 & 2.
 - AHP SEALING WATER IS CONSIDERED FOR JIVACUUM PUMP SEALING, WASH SLURRY PUMP SEALING, iii) TO CLINKER GRINDER SEALING, iv) BOTTOM ASH OVERFLOW PUMPS, v) FLUID COUPLING, vi) MILL REJECT SYSTEM QUENCHING.
 - AUX. BOILER REQUIREMENT IS ONLY DURING PLANT STARTUP STAGE AND IT IS NOT CONTINUOUS REQUIREMENT.
 - THE FLOWS FROM BOILER BLOWDOWN & AHP WASH WATER ASH SILO AREA FLOOR WASH AND BOILER & ESP AREA DRAIN TO ASH SLURRY SUMP ARE INTERMITTENT AND NOT CONSIDERED FOR THE CALCULATION OF WATER BALANCE DIAGRAM.
 - WATER FROM CT BLOWDOWN SUPPLIED TO ASH WATER TANK WITH ASH WATER RECOVERY SYSTEM.
 - WATER FROM CT BLOWDOWN SUPPLIED TO ASH WATER TANK WITH ASH WATER RECOVERY SYSTEM.
 - BOILER DRAINS ARE INTERMITTENT AND NOT CONSIDERED FOR THE CALCULATION OF WATER BALANCE DIAGRAM.
 - ELECTRO CHLORINATION SYSTEM FLOW IS CONSIDERED FOR CALCULATION IN WATER BALANCE DIAGRAM FOR CW SYSTEM.
 - THE FLOW FROM OUT FALL TANK TO SEA IS CONSIDERED (a) WITH ASH WATER RECOVERY SYSTEM - (9004.5m³/hr) (b) WITHOUT ASH WATER RECOVERY SYSTEM - (17990.5m³/hr).
 - PLEASE REFER WATER & SLURRY BALANCE DIAGRAM (BOTTOM ASH SYSTEM) AND (FLY ASH SYSTEM) GID-145-ME-ET-CA-5408.

FICHTNER Consulting Engineers (India) Private Limited, PFI Chennai.

VENDOR DRAWING REVIEW STATUS

- Action - I: Approved
- Action - II: Approved except as noted on drawing. Review drawing and resubmit for records.
- Action - III: Resubmit with Comments. Resubmit for approval.
- Action - IV: Rejected
- Action - V: Information received
- Action - VI: Information noted (noted for reference and records)

This document has been reviewed as noted with regard to general conformity with the Contract specifications and requirements. The Vendor Contractor is responsible for completeness of design calculation and details. Approval of this document does not release the Vendor Contractor of his responsibility in carrying out the work correctly and fulfilling the contract requirements of the contract nor does it limit the purchaser's rights under the contract.

FL Letter Ref. No. Date: 28.05.2013
 CNT 1109171/ PM-6-2/2840/0676
 Signature: [Signature] Initials: AS

DO NOT SCALE THE DRAWING (POWER PROJECTS DIVISION)

OWNER: **THERMAL POWERTECH CORPORATION (INDIA) LTD**
 2 X 660 MW SUPERCRITICAL TPP KRISNAPATNAM, ANDHRA PRADESH.

OWNER'S CONSULTANT: **FICHTNER CONSULTING ENGINEERS (INDIA) PRIVATE LIMITED**
 CHENNAI - INDIA

OWNER'S DRAWING NO: [Blank]

BOP CONTRACTOR: **BGR ENERGY SYSTEMS LIMITED**
 CHENNAI - INDIA

NO.	REV	DESCRIPTION	DATE	CIVIL	MECH	H.O.D.
-	G	REVISED AS PER TPCIL/FI COMMENTS VIDE FI LETTER CNT 1109171/PM-6-2/2288/3570 dt 15/05/2013	17.05.2013	-	-	-
-	F	REVISED AS PER TPCIL/FI COMMENTS VIDE FI LETTER CNT 1109171/PM-6-2/1351/2369 dt 25/04/2013	07.05.2013	-	-SD-	-SD-
-	E	REVISED AS PER TPCIL/FI COMMENTS VIDE FI LETTER CNT 1109171/PM-6-2/10859/2747 dt 21/02/2013	29.03.2013	-	-SD-	-SD-
-	D	REVISED AS PER TPCIL/FI COMMENTS VIDE FI LETTER CNT 1109171/PM-6-2/1111/097 dt 06/04/2011	02.02.2013	-	-SD-	-SD-
-	C	REVISED AS PER TPCIL/FI COMMENTS VIDE FI LETTER CNT 1109171/PM-6-2/8747/869 dt 15/03/2011	18.03.2011	-	-SD-	-SD-
-	B	REVISED AS PER TPCIL/FI COMMENTS VIDE FI LETTER CNT 1109171/PM-6-2/7366/020 dt 27/01/2011	24.02.2011	-	-SD-	-SD-
-	A	FIRST ISSUE FOR APPROVAL	09.12.2010	-SD-	-SD-	-SD-

NO.	REV	DESCRIPTION	DATE	CIVIL	MECH	H.O.D.
DRN	P	P BASKARAN	09.12.2010	-	-	-
PRP	K	K BHARATHIRAJA	09.12.2010	-	-	-
CHD	K	K GOKULA KRISHNAN	09.12.2010	-	-	-
APPD	S	S RAMANI	09.12.2010	-	-	-
DEPT.						
CODE						

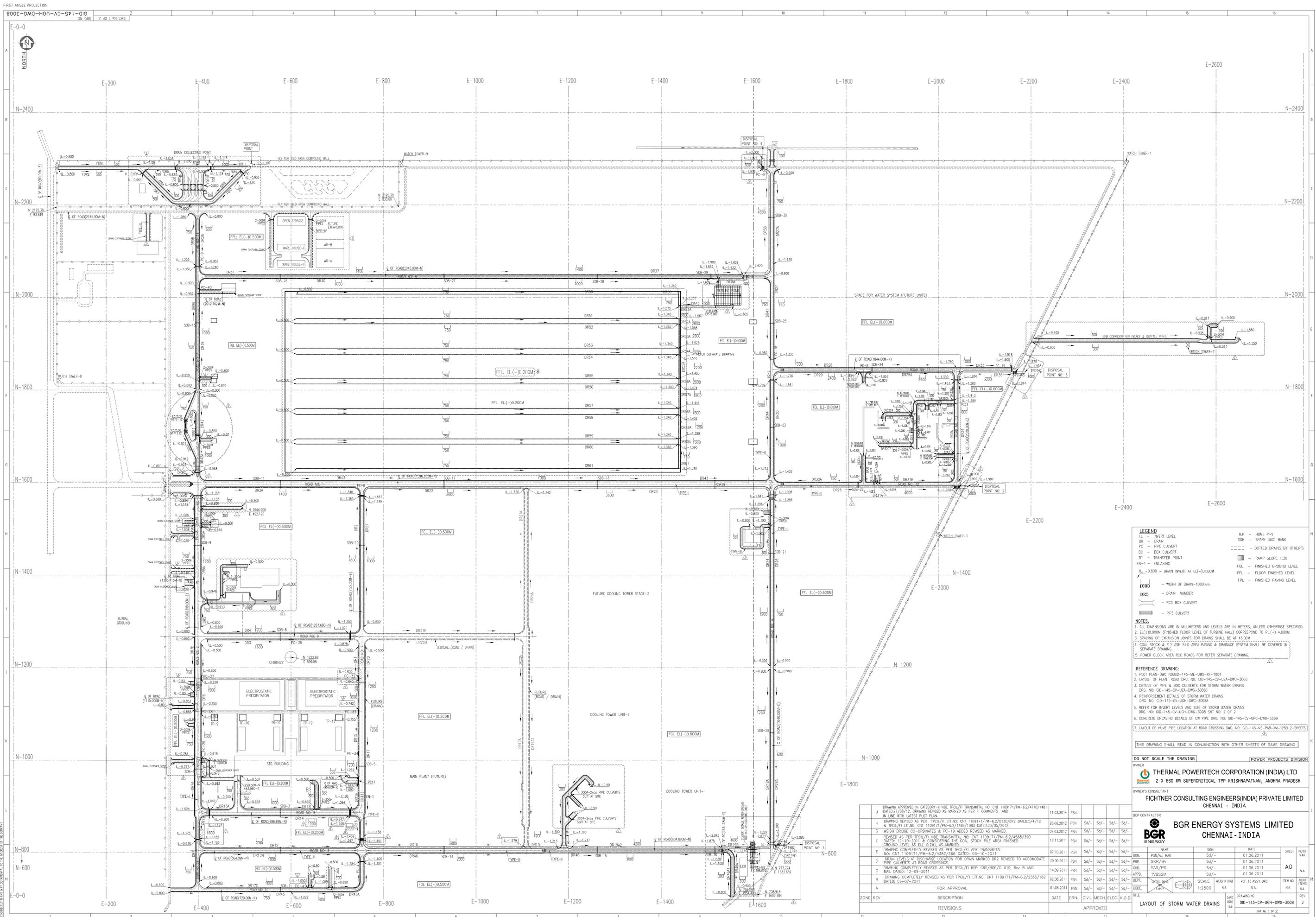
WATER BALANCE DIAGRAM

SCALE: 1:1

DRAWING NO: **GID-145-ME-YBA-XA-1002**

SHEET No. 1 OF 16

ANNEXURE- II



- LEGEND**
- IL - INVERT LEVEL
 - DR - DRAIN
 - PC - PIPE CULVERT
 - BC - BOX CULVERT
 - TP - TRANSFER POINT
 - EN-1 - ENCASING
 - 1000 - WIDTH OF DRAIN-1000mm
 - DR5 - DRAIN NUMBER
 - DR6 - RCC BOX CULVERT
 - PIPE CULVERT
 - H.P - HUME PIPE
 - SDB - SPARE DUCT BANK
 - - DOTTED DRAINS BY OTHER'S
 - - RAMP SLOPE 1:30
 - FFL - FINISHED FLOOR LEVEL
 - FPL - FINISHED PAVING LEVEL

- NOTES**
- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
 - EL(+0.000) (FINISHED FLOOR LEVEL OF TURBINE HALL) CORRESPOND TO RL(+4) 4.000M
 - SPACING OF EXPANSION JOINTS FOR DRAINS SHALL BE AT 45.00M
 - COAL STOCK & FLY ASH SILO AREA PAVING & DRAINAGE SYSTEM SHALL BE COVERED IN SEPARATE DRAWING.
 - POWER BLOCK AREA RCC ROADS FOR REFER SEPARATE DRAWING.

- REFERENCE DRAWING:**
- PLOT PLAN-DWG NO:GD-145-ME-UMS-XF-1001
 - LAYOUT OF PLANT ROAD DRG. NO: GD-145-CV-UZA-DWG-3006
 - DETAILS OF PIPE & BOX CULVERTS FOR STORM WATER DRAINS
DRG. NO: GD-145-CV-UZA-DWG-3006C
 - REINFORCEMENT DETAILS OF STORM WATER DRAINS
DRG. NO: GD-145-CV-UZH-DWG-3008A
 - REFER FOR INVERT LEVELS AND SIZE OF STORM WATER DRAINS
DRG. NO: GD-145-CV-UZH-DWG-3008 SHD NO. 2 OF 2
 - CONCRETE ENCASING DETAILS OF CW PIPE DRG. NO: GD-145-CV-UPC-DWG-3569
 - LAYOUT OF HUME PIPE LOCATION AT ROAD CROSSING DRG. NO: GD-145-ME-PAB-MM-1259 2-SHEETS

THIS DRAWING SHALL READ IN CONJUNCTION WITH OTHER SHEETS OF SAME DRAWING

DO NOT SCALE THE DRAWING

OWNER: THERMAL POWERTECH CORPORATION (INDIA) LTD
2 X 660 MW SUPERCRITICAL TPP KRISHNAPATNAM, ANDHRA PRADESH

OWNER'S CONSULTANT: FICHTNER CONSULTING ENGINEERS(INDIA) PRIVATE LIMITED
CHENNAI - INDIA

NO.	DATE	BY	CHKD.	APPD.	REVISIONS
J	11.02.2014	PSN			DRAWING APPROVED IN CATEGORY-B VIDE TPCIL/FI TRANSMITTAL NO: CNT 110917/FM-6/2/4710/1481 DATED:27/08/12 DRAWING REVISED AS MARKED AS PER FI COMMENTS AND IN LINE WITH LATEST PLOT PLAN.
H	26.08.2012	PSN	Sd/-	Sd/-	DRAWING REVISED AS PER TPCIL/FI LIT NO: CNT 110917/FM-6/2/150/872 DATED:5/4/12 & TPCIL/FI LIT NO: CNT 110917/FM-6/2/1489/1985 DATED:23/05/2012.
G	07.03.2012	PSN	Sd/-	Sd/-	WEIGH BRIDGE CO-ORDINATES & PC-19 ADDED REVISED AS MARKED.
F	18.11.2011	PSN	Sd/-	Sd/-	REVISED AS PER TPCIL/FI WIDE TRANSMITTAL NO: CNT 110917/FM-6/2/4568/390 DATED: 12-10-2011 & CONSIDERING THE COAL STOCK PILE AREA FINISHED GROUND LEVEL AS EL(-0.2M), AS MARKED.
E	07.10.2011	PSN	Sd/-	Sd/-	DRAWING COMPLETELY REVISED AS PER TPCIL/FI WIDE TRANSMITTAL NO: CNT 110917/FM-6/2/4587/366 DATED: 03-10-2011
D	30.09.2011	PSN	Sd/-	Sd/-	DRAIN LEVELS AT DISCHARGE LOCATION FOR DRAIN MARKED DR2 REVISED TO ACCOMMODATE PIPE CULVERTS AT ROAD CROSSINGS
C	14.09.2011	PSN	Sd/-	Sd/-	DRAWING COMPLETELY REVISED AS PER TPCIL/FI REF: CR5/BOP/C-010, Rev-B AND MAIL DATED: 12-09-2011
B	02.08.2011	PSN	Sd/-	Sd/-	DRAWING COMPLETELY REVISED AS PER TPCIL/FI LIT NO: CNT 110917/FM-6/2/2355/182 DATED: 06-07-2011
A	01.06.2011	PSN	Sd/-	Sd/-	FOR APPROVAL

NO.	DATE	BY	CHKD.	APPD.	REVISIONS
DR1	01.06.2011	PSN	Sd/-	Sd/-	SCALE 1:2500
DR2	01.06.2011	PSN	Sd/-	Sd/-	WEIGHT MGI
DR3	01.06.2011	PSN	Sd/-	Sd/-	REF TO ASSY DRG.
DR4	01.06.2011	PSN	Sd/-	Sd/-	ITEM NO
DR5	01.06.2011	PSN	Sd/-	Sd/-	NO OF ITEMS

LAYOUT OF STORM WATER DRAINS

DWG NO: GD-145-CV-UZH-DWG-3008

SHT NO. 1 OF 2

ANNEXURE- III

SEIL 184

[TPCIL]



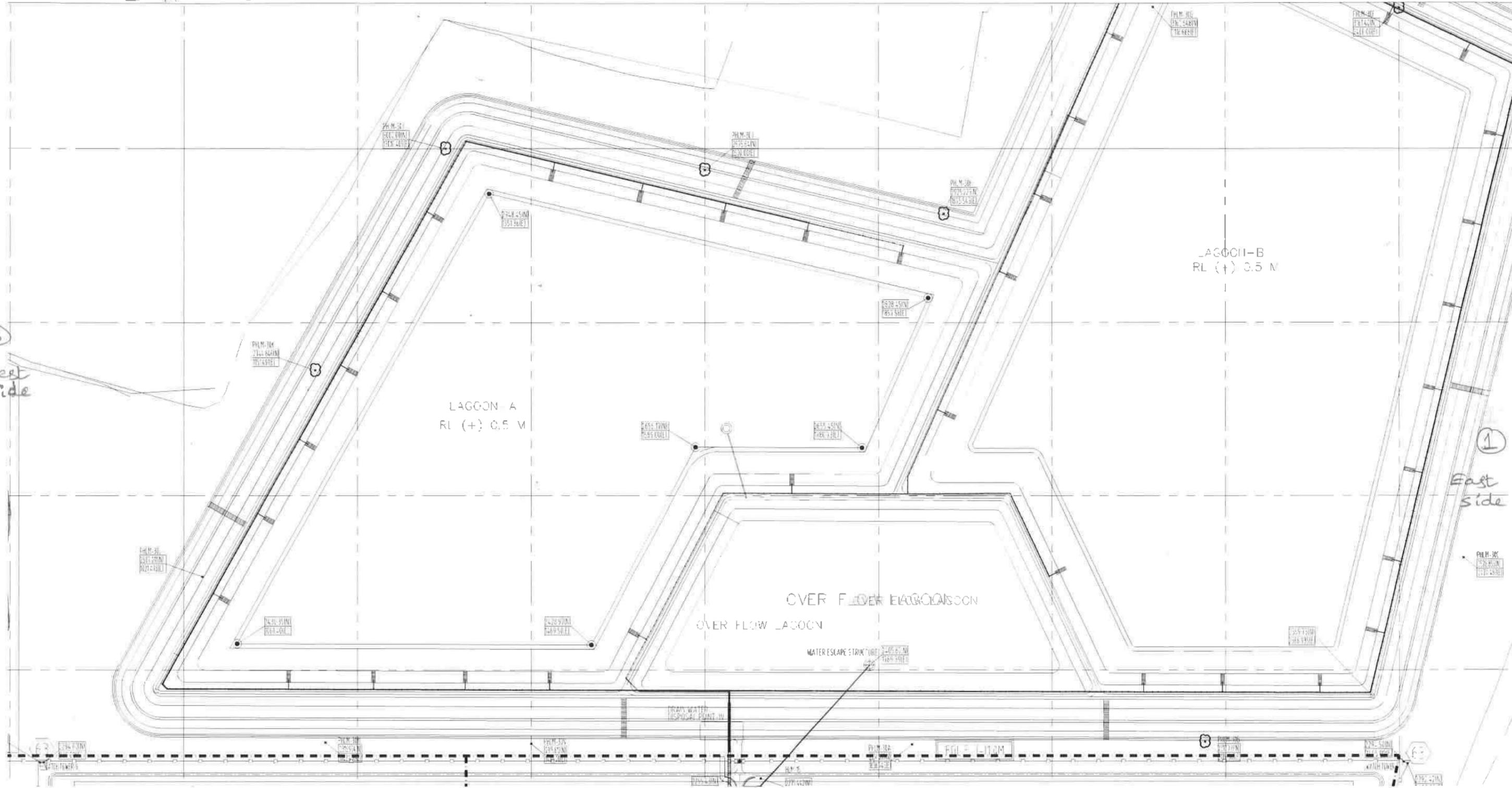
⑤ North West (NW) side

④ North side

③ West side

① East side

② South side



ANNEXURE- IV

TEST REPORT

ISSUED TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-001

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Piezo Well No-1- Water – EAST SIDE (PW-1)

Sample Particulars: Piezo Well No-2- Water – SOUTH SIDE (PW-2)

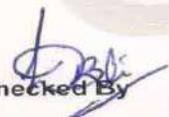
Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/W/8019/09/21-001&002/21

TEST RESULTS

S. NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS		STANDARDS AS PER IS: 10500	
				PW-1	PW-2	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.4	7.6	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	1.0	5.0
3.	Turbidity	NTU	APHA-2130-B	0.4	0.6	1.0	5.0
4.	Electric Conductivity	µs/cm	APHA-2510-B	858	896	--	--
5.	Temperature	°C	--	29.2	29.4	--	--
6.	Total Suspended Solids	mg/l	APHA-2340-B	6.0	8.0	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	414	438	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	148	162	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	174	182	200	600
10.	Calcium as Ca	mg/l	APHA-3120Ca-B	42.6	45.2	75	200
11.	Magnesium as Mg	mg/l	APHA-3120Mg-B	10.2	11.8	30	100
12.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	<0.1	<0.1	0.2	No Relaxation
13.	Boron as B	mg/l	APHA-3111-B	<0.1	<0.1	0.5	1.0
14.	Calcium Hardness as CaCO ₃	mg/l	APHA-3120Ca-B	86	94	--	--
15.	Magnesium Hardness as CaCO ₃	mg/l	APHA-3120Mg-B	62	68	--	--

Page no 01 of 02
Conti.

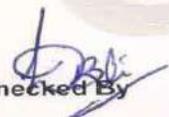
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16.	Sodium as Na	mg/l	APHA-3120Na-B	116	120	--	--
17.	Potassium as K	mg/l	APHA-3120 K-B	6.0	8.0	--	--
18.	Chloride as Cl	mg/l	APHA-4500-Cl-C	132	142	250	1000
19.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	57.2	58.8	200	400
20.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	22.4	24.6	45	No Relaxation
21.	Chemical oxygen demand	mg/l	APHA-5220B	<5.0	<5.0		
22.	Biochemical oxygen demand (3 days at 27°C)	mg/l	IS:3025(Part-44)-1993	<3.0	<3.0	--	--
23.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.16	0.18	<0.3	No Relaxation
24.	Fluoride as F	mg/l	APHA-4500-F-E	0.60	0.68	<1.0	<1.5
25.	Copper as Cu	mg/l	APHA-3111B	<0.01	<0.01	<0.05	<1.5
26.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	< 0.1	<0.1	<0.3
27.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	< 0.001	<0.001	<0.002
28.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	< 0.001	<0.003	No Relaxation
29.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	< 0.001	<0.001	No Relaxation
30.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	< 0.01	<0.01	No Relaxation
31.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	< 0.01	<0.01	<0.20
32.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	< 0.01	<0.05	No Relaxation
33.	Lead as Pb	mg/l	APHA-3111B	< 0.01	< 0.01	<0.01	No Relaxation
34.	Zinc as Zn	mg/l	APHA-3111B	<0.01	<0.01	<5.0	<15
35.	Total Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.01	< 0.01	<0.005	<1.0
36.	Aluminium as Al	mg/l	APHA-3111B	<0.01	<0.01	0.5	1.0
37.	Pesticides	mg/l	As per STP	< 0.01	< 0.01	--	No Relaxation
38.	Dissolved Oxygen	mg/l	APHA-4500-C	4.4	4.8	--	--
39.	Oil & Grease	mg/l	APHA-5520-C	<1.0	<1.0	--	--
40.	Phosphates as PO ₄	mg/l	APHA-4500-A	<0.01	<0.01	--	--
41.	Percent Sodium	%	APHA-3120Na-B	38.4	39.2	--	--
42.	E-Coli	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
43.	Total Coliforms	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
44.	Fecal Coliforms	MPN/100ml		Absent	Absent	--	--

IS-Indian Standard, APHA-American Public Health Association.

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Authorized Signatory

TEST REPORT

ISSUED TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-003&004

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Piezo Well No-3- Water – WEST SIDE (PW-3)

Sample Particulars: Piezo Well No-4- Water – NORTH SIDE (PW-4)

Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/W/8019/09/21-003&004/21

TEST RESULTS

S. NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS		STANDARDS AS PER IS: 10500	
				PW-3	PW-4	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.2	7.3	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	1.0	5.0
3.	Turbidity	NTU	APHA-2130-B	0.6	0.4	1.0	5.0
4.	Electric Conductivity	µs/cm	APHA-2510-B	808	788	--	--
5.	Temperature	°C	--	29.4	29.1	--	--
6.	Total Suspended Solids	mg/l	APHA-2340-B	5.4	4.0	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	484	472	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	142	138	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	164	158	200	600
10.	Calcium as Ca	mg/l	APHA-3120Ca-B	41.4	40.8	75	200
11.	Magnesium as Mg	mg/l	APHA-3120Mg-B	9.4	8.8	30	100
12.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	<0.1	<0.1	0.2	No Relaxation
13.	Boron as B	mg/l	APHA-3111-B	<0.1	<0.1	0.5	1.0
14.	Calcium Hardness as CaCO ₃	mg/l	APHA-3120Ca-B	82	80	--	--
15.	Magnesium Hardness as CaCO ₃	mg/l	APHA-3120Mg-B	60	58	--	--
16.	Sodium as Na	mg/l	APHA-3120Na-B	110	106	--	--
17.	Potassium as K	mg/l	APHA-3120 K-B	5.0	4.0	--	--

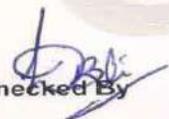
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18.	Chloride as Cl	mg/l	APHA-4500-Cl-C	126	122	250	1000
19.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	54.0	51.8	200	400
20.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	21.8	20.6	45	No Relaxation
21.	Chemical oxygen demand	mg/l	APHA-5220B	<5.0	<5.0		
22.	Biochemical oxygen demand (3 days at 27°C)	mg/l	IS:3025(Part-44)-1993	<3.0	<3.0	--	--
23.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.14	0.10	<0.3	No Relaxation
24.	Fluoride as F	mg/l	APHA-4500-F-E	0.54	0.51	<1.0	<1.5
25.	Copper as Cu	mg/l	APHA-3111B	<0.01	<0.01	<0.05	<1.5
26.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	< 0.1	<0.1	<0.3
27.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	< 0.001	<0.001	<0.002
28.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	< 0.001	<0.003	No Relaxation
29.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	< 0.001	<0.001	No Relaxation
30.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	< 0.01	<0.01	No Relaxation
31.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	< 0.01	<0.01	<0.20
32.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	< 0.01	<0.05	No Relaxation
33.	Lead as Pb	mg/l	APHA-3111B	< 0.01	< 0.01	<0.01	No Relaxation
34.	Zinc as Zn	mg/l	APHA-3111B	<0.01	<0.01	<5.0	<15
35.	Total Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.01	< 0.01	<0.005	<1.0
36.	Aluminium as Al	mg/l	APHA-3111B	<0.01	<0.01	0.5	1.0
37.	Pesticides	mg/l	As per STP	< 0.01	<0.01	--	No Relaxation
38.	Dissolved Oxygen	mg/l	APHA-4500-C	3.8	5.8	--	--
39.	Oil & Grease	mg/l	APHA-5520-C	<1.0	<1.0	--	--
40.	Phosphates as PO ₄	mg/l	APHA-4500-A	<0.01	<0.01	--	--
41.	Percent Sodium	%	APHA-3120Na-B	40.2	36.2	--	--
42.	E-Coli	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
43.	Total Coliforms	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
44.	Fecal Coliforms	MPN/100ml		Absent	Absent	--	--

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TEST REPORT

ISSUE TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-005&006

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Piezo Well No-5- NORTH WEST SIDE (PW-5)

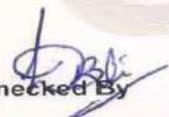
Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/W/8019/09/21-005&006/21

TEST RESULTS

S. NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS	STANDARDS AS PER IS: 10500	
				PW-5	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.5	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	5.0
3.	Turbidity	NTU	APHA-2130-B	0.5	1.0	5.0
4.	Electric Conductivity	µs/cm	APHA-2510-B	878	--	--
5.	Temperature	°C	--	29.8	--	--
6.	Total Suspended Solids	mg/l	APHA-2340-B	10	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	426	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	156	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	178	200	600
10.	Calcium as Ca	mg/l	APHA-3120Ca-B	43.8	75	200
11.	Magnesium as Mg	mg/l	APHA-3120Mg-B	11.4	30	100
12.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	<0.1	0.2	No Relaxation
13.	Boron as B	mg/l	APHA-3111-B	<0.1	0.5	1.0
14.	Calcium Hardness as CaCO ₃	mg/l	APHA-3120Ca-B	92	--	--
15.	Magnesium Hardness as CaCO ₃	mg/l	APHA-3120Mg-B	66	--	--

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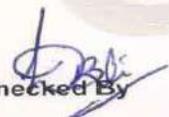
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16.	Sodium as Na	mg/l	APHA-3120Na-B	122	--	--
17.	Potassium as K	mg/l	APHA-3120 K-B	8.0	--	--
18.	Chloride as Cl	mg/l	APHA-4500-Cl-C	144	250	1000
19.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	59.2	200	400
20.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	24.0	45	No Relaxation
21.	Chemical oxygen demand	mg/l	APHA-5220B	<5.0		
22.	Biochemical oxygen demand (3 days at 27°C)	mg/l	IS:3025(Part-44)-1993	<3.0	--	--
23.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.26	<0.3	No Relaxation
24.	Fluoride as F	mg/l	APHA-4500-F-E	0.68	<1.0	<1.5
25.	Copper as Cu	mg/l	APHA-3111B	<0.01	<0.05	<1.5
26.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	<0.1	<0.3
27.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	<0.001	<0.002
28.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	<0.003	No Relaxation
29.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	<0.001	No Relaxation
30.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	<0.01	No Relaxation
31.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	<0.01	<0.20
32.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	<0.05	No Relaxation
33.	Lead as Pb	mg/l	APHA-3111B	< 0.01	<0.01	No Relaxation
34.	Zinc as Zn	mg/l	APHA-3111B	<0.01	<5.0	<15
35.	Total Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.01	<0.005	<1.0
36.	Aluminium as Al	mg/l	APHA-3111B	<0.01	0.5	1.0
37.	Pesticides	mg/l	As per STP	< 0.01	--	No Relaxation
38.	Dissolved Oxygen	mg/l	APHA-4500-C	6.0	--	--
39.	Oil & Grease	mg/l	APHA-5520-C	<1.0	--	--
40.	Phosphates as PO ₄	mg/l	APHA-4500-A	<0.01	--	--
41.	Percent Sodium	%	APHA-3120Na-B	39.2	--	--
42.	E-Coli	Per/100ml	ISO 9308-1	Absent	Absent/100 ml	Absent/100ml
43.	Total Coliforms	Per/100ml	ISO 9308-1	Absent	Absent/100 ml	Absent/100ml
44.	Fecal Coliforms	MPN/100ml		Absent	--	--

IS-Indian Standard, APHA-American Public Health Association.

Checked By




Authorized Signatory


ANNEXURE- V

TEST REPORT

ISSUED TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-001&002

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Ground Water – Nelaturu Village (GW-1)

Sample Particulars: Ground Water – Pynampuram Village (GW-2)

Sample Collected By: (Mr. Sridhar)

Lab Ref: CLW/8019/09/21-001&002/21

TEST RESULTS

S. NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS		STANDARDS AS PER IS: 10500	
				GW-1	GW-2	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.3	7.2	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	1.0	5.0
3.	Taste	--	IS-3025(Pt-8)	Agreeable	Agreeable	Agreeable	Agreeable
4.	Odour	--	IS-3025(Pt-5)	Agreeable	Agreeable	Agreeable	Agreeable
5.	Turbidity	NTU	APHA-2130-B	0.3	0.6	1.0	5.0
6.	Electric Conductivity	µs/cm	APHA-2510-B	1,310	1,428	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	628	740	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	260	380	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	318	324	200	600
10.	P- Alkalinity as CaCO ₃	mg/l	APHA-2320-B	Nil	Nil	---	---
11.	Calcium as Ca	mg/l	APHA-3120Ca-B	74	86	75	200
12.	Magnesium as Mg	mg/l	APHA-3120Mg-B	202	38	30	100
13.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	0.1	0.1	0.2	No Relaxation
14.	Boron as B	mg/l	APHA-3111-B	0.1	0.1	0.5	1.0

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15.	Sodium as Na	mg/l	APHA-3120Na-B	108	168	--	--
16.	Potassium as K	mg/l	APHA-3120 K-B	10	14	--	--
17.	Chloride as Cl	mg/l	APHA-4500-Cl-C	226	218	250	1000
18.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	48	86	200	400
19.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	25.2	30.6	45	No Relaxation
20.	Anionic Detergents as MBAS	mg/l	Annex K of IS 13428	< 0.1	< 0.1	<0.2	<1.0
21.	Mineral Oil	mg/l	IS 3025(Pt-39)	0.1	< 0.5	<0.5	No Relaxation
22.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.06	0.04	<0.3	No Relaxation
23.	Fluoride as F	mg/l	APHA-4500-F-E	1.6	1.0	<1.0	<1.5
24.	Copper as Cu	mg/l	APHA-3111B	0.01	0.01	<0.05	<1.5
25.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	< 0.1	<0.1	<0.3
26.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	< 0.001	<0.001	<0.002
27.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	< 0.001	<0.003	No Relaxation
28.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	< 0.001	<0.001	No Relaxation
29.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	< 0.01	<0.01	No Relaxation
30.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	< 0.01	<0.01	<0.20
31.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	< 0.01	<0.05	No Relaxation
32.	Lead as Pb	mg/l	APHA-3111B	< 0.01	< 0.01	<0.01	No Relaxation
33.	Zinc as Zn	mg/l	APHA-3111B	0.01	0.02	<5.0	<15
34.	Hexavalent Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.005	< 0.005	<0.005	<1.0
35.	Silica as SiO ₂	mg/l	APHA-4500SiO ₂ -C	Nil	Nil	---	---
36.	Pesticides	mg/l	As per STP	< 0.01	<0.01	--	No Relaxation
37.	E-Coli	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
38.	Total Coliforms	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml

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TEST REPORT

ISSUED TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-003&004

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Ground Water – Nelaturupalem Village (GW-3)

Sample Particulars: Ground Water – Musunuruvari palem Village (GW-4)

Sample Collected By: (Mr. Sridhar)

Lab Ref: CL/W/8019/09/21-003&004/21

TEST RESULTS

S. NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS		STANDARDS AS PER IS: 10500	
				GW-3	GW-4	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.4	7.2	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	1.0	5.0
3.	Taste	--	IS-3025(Pt-8)	Agreeable	Agreeable	Agreeable	Agreeable
4.	Odour	--	IS-3025(Pt-5)	Agreeable	Agreeable	Agreeable	Agreeable
5.	Turbidity	NTU	APHA-2130-B	0.4	0.5	1.0	5.0
6.	Electric Conductivity	µs/cm	APHA-2510-B	1,620	1680	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	632	674	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	217	206	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	195	214	200	600
10.	P- Alkalinity as CaCO ₃	mg/l	APHA-2320-B	Nil	Nil	---	---
11.	Calcium as Ca	mg/l	APHA-3120Ca-B	86	92	75	200
12.	Magnesium as Mg	mg/l	APHA-3120Mg-B	44	40	30	100
13.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	< 0.1	< 0.1	0.2	No Relaxation
14.	Boron as B	mg/l	APHA-3111-B	0.1	0.1	0.5	1.0

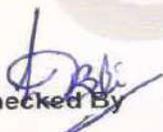
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15.	Sodium as Na	mg/l	APHA-3120Na-B	178	182	--	--
16.	Potassium as K	mg/l	APHA-3120 K-B	18	20	--	--
17.	Chloride as Cl	mg/l	APHA-4500-Cl-C	286	324	250	1000
18.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	94.6	96.2	200	400
19.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	32.4	33.8	45	No Relaxation
20.	Anionic Detergents as MBAS	mg/l	Annex K of IS 13428	< 0.1	< 0.1	<0.2	<1.0
21.	Mineral Oil	mg/l	IS 3025(Pt-39)	< 0.5	< 0.5	<0.5	No Relaxation
22.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.04	0.06	<0.3	No Relaxation
23.	Fluoride as F	mg/l	APHA-4500-F-E	1.4	0.6	<1.0	<1.5
24.	Copper as Cu	mg/l	APHA-3111B	0.02	0.01	<0.05	<1.5
25.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	< 0.1	<0.1	<0.3
26.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	< 0.001	<0.001	<0.002
27.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	< 0.001	<0.003	No Relaxation
28.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	< 0.001	<0.001	No Relaxation
29.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	< 0.01	<0.01	No Relaxation
30.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	< 0.01	<0.01	<0.20
31.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	< 0.01	<0.05	No Relaxation
32.	Lead as Pb	mg/l	APHA-3111B	< 0.01	< 0.01	<0.01	No Relaxation
33.	Zinc as Zn	mg/l	APHA-3111B	0.02	0.02	<5.0	<15
34.	Hexavalent Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.005	< 0.005	<0.005	<1.0
35.	Silica as SiO ₂	mg/l	APHA-4500SiO ₂ -C	Nil	Nil	---	---
36.	Pesticides	mg/l	As per STP	< 0.01	<0.01	--	No Relaxation
37.	E-Coli	Per/ 100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
38.	Total Coliforms	Per/ 100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml

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TEST REPORT

ISSUED TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-005&006

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Ground Water – Amudalapadu Village (GW-5)

Sample Particulars: Ground Water – Kothapalem Village (GW-6)

Sample Collected By: (Mr. Sridhar)

Lab Ref: CLW/8019/09/21-005&006/21

TEST RESULTS

S. NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS		STANDARDS AS PER IS: 10500	
				GW-5	GW-6	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.8	7.3	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	1.0	5.0
3.	Taste	--	IS-3025(Pt-8)	Agreeable	Agreeable	Agreeable	Agreeable
4.	Odour	--	IS-3025(Pt-5)	Agreeable	Agreeable	Agreeable	Agreeable
5.	Turbidity	NTU	APHA-2130-B	0.5	0.6	1.0	5.0
6.	Electric Conductivity	µs/cm	APHA-2510-B	1,720	1,780	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	1,114	1,120	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	450	428	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	412	418	200	600
10.	P- Alkalinity as CaCO ₃	mg/l	APHA-2320-B	Nil	Nil	---	---
11.	Calcium as Ca	mg/l	APHA-3120Ca-B	100	98	75	200
12.	Magnesium as Mg	mg/l	APHA-3120Mg-B	48.4	42.4	30	100
13.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	0.1	0.1	0.2	No Relaxation
14.	Boron as B	mg/l	APHA-3111-B	0.001	0.001	0.5	1.0

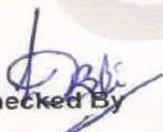
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15.	Sodium as Na	mg/l	APHA-3120Na-B	186	196	--	--
16.	Potassium as K	mg/l	APHA-3120 K-B	16	14	--	--
17.	Chloride as Cl	mg/l	APHA-4500-Cl-C	316	328	250	1000
18.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	94.8	72.6	200	400
19.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	32.3	33.4	45	No Relaxation
20.	Anionic Detergents as MBAS	mg/l	Annex K of IS 13428	< 0.1	< 0.1	<0.2	<1.0
21.	Mineral Oil	mg/l	IS 3025(Pt-39)	< 0.5	< 0.5	<0.5	No Relaxation
22.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.08	0.06	<0.3	No Relaxation
23.	Fluoride as F	mg/l	APHA-4500-F-E	1.0	0.8	<1.0	<1.5
24.	Copper as Cu	mg/l	APHA-3111B	0.01	0.01	<0.05	<1.5
25.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	< 0.1	<0.1	<0.3
26.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	< 0.001	<0.001	<0.002
27.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	< 0.001	<0.003	No Relaxation
28.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	< 0.001	<0.001	No Relaxation
29.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	< 0.01	<0.01	No Relaxation
30.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	< 0.01	<0.01	<0.20
31.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	< 0.01	<0.05	No Relaxation
32.	Lead as Pb	mg/l	APHA-3111B	< 0.01	< 0.01	<0.01	No Relaxation
33.	Zinc as Zn	mg/l	APHA-3111B	0.02	0.02	<5.0	<15
34.	Hexavalent Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.005	< 0.005	<0.005	<1.0
35.	Silica as SiO ₂	mg/l	APHA-4500SiO ₂ -C	Nil	Nil	---	---
36.	Pesticides	mg/l	As per STP	µg/l	<0.01	--	No Relaxation
37.	E-Coli	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
38.	Total Coliforms	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml

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ANNEXURE- VI

TEST REPORT

ISSUED TO:

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Issue Date: 21.09.2021

Sample Registration No: 8019/09/21-007&008

Date of Sampling: 13.09.2021

Sample Registration Date: 16.09.2021

Analysis Starting Date: 16.09.2021

Analysis Completed Date: 21.09.2021

Sample Description:

Discipline: Chemical

Group: Water

Sample Particulars: Surface Water – Pynampuram Village (SW-1)

Sample Particulars: Surface Water – Nelaturu Village (SW-2)

Sample Collected By: (Mr. Sridhar)

Lab Ref: CLW/8019/09/21-007&008/21

TEST RESULTS

S.NO.	TEST PARAMETERS	UNITS	TEST METHOD	RESULTS		STANDARDS AS PER IS: 10500	
				SW-1	SW-2	ACCEPTABLE	PERMISSIBLE
1.	pH	---	APHA-4500-B	7.0	7.6	6.5- 8.5	No Relaxation
2.	Color	Hazen	APHA-2120-B	1.0	1.0	1.0	5.0
3.	Taste	--	IS-3025(Pt-8)	Agreeable	Agreeable	Agreeable	Agreeable
4.	Odour	--	IS-3025(Pt-5)	Agreeable	Agreeable	Agreeable	Agreeable
5.	Turbidity	NTU	APHA-2130-B	0.4	0.4	1.0	5.0
6.	Electric Conductivity	µs/cm	APHA-2510-B	1,412	1,620	--	--
7.	Total Dissolved Solids	mg/l	APHA-2540-B	920	998	500	2000
8.	Total Hardness as CaCO ₃	mg/l	APHA-2340-B	368	356	200	600
9.	Total Alkalinity as CaCO ₃	mg/l	APHA-2320-B	320	324	200	600
10.	P- Alkalinity as CaCO ₃	mg/l	APHA-2320-B	Nil	Nil	---	---
11.	Calcium as Ca	mg/l	APHA-3120Ca-B	82	86	75	200
12.	Magnesium as Mg	mg/l	APHA-3120Mg-B	40.8	32.3	30	100
13.	Free Residual Chlorine	mg/l	APHA-4500-Cl-C	0.1	0.1	0.2	No Relaxation
14.	Boron as B	mg/l	APHA-3111-B	< 0.001	< 0.001	0.5	1.0

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15.	Sodium as Na	mg/l	APHA-3120Na-B	168	202	--	--
16.	Potassium as K	mg/l	APHA-3120 K-B	16	18	--	--
17.	Chloride as Cl	mg/l	APHA-4500-Cl-C	272	312	250	1000
18.	Sulphates as SO ₄	mg/l	APHA-4500SO ₄ -C	64.8	70.6	200	400
19.	Nitrates as NO ₃	mg/l	APHA-4500NO ₃ -C	32.4	33.6	45	No Relaxation
20.	Anionic Detergents as MBAS	mg/l	Annex K of IS 13428	< 0.1	< 0.1	<0.2	<1.0
21.	Mineral Oil	mg/l	IS 3025(Pt-39)	< 0.5	< 0.5	<0.5	No Relaxation
22.	Iron as Fe	mg/l	APHA-3120-Fe-B	0.08	0.06	<0.3	No Relaxation
23.	Fluoride as F	mg/l	APHA-4500-F-E	1.0	1.0	<1.0	<1.5
24.	Copper as Cu	mg/l	APHA-3111B	0.01	0.01	<0.05	<1.5
25.	Manganese as Mn	mg/l	APHA-3111B	< 0.1	< 0.1	<0.1	<0.3
26.	Phenolic Compounds as C ₆ H ₅ OH	mg/l	APHA-5530-C	< 0.001	< 0.001	<0.001	<0.002
27.	Cadmium as Cd	mg/l	APHA-3111B	< 0.001	< 0.001	<0.003	No Relaxation
28.	Mercury as Hg	mg/l	APHA-3111Hg	< 0.001	< 0.001	<0.001	No Relaxation
29.	Selenium as Se	mg/l	APHA-3111Se	< 0.01	< 0.01	<0.01	No Relaxation
30.	Total Arsenic as As	mg/l	APHA-3111As	< 0.01	< 0.01	<0.01	<0.20
31.	Cyanide as CN	mg/l	APHA-3111B	< 0.01	< 0.01	<0.05	No Relaxation
32.	Lead as Pb	mg/l	APHA-3111B	< 0.01	< 0.01	<0.01	No Relaxation
33.	Zinc as Zn	mg/l	APHA-3111B	0.01	0.01	<5.0	<15
34.	Hexavalent Chromium as Cr ⁺⁶	mg/l	APHA-3111B	< 0.005	< 0.005	<0.005	<1.0
35.	Silica as SiO ₂	mg/l	APHA-4500SiO ₂ -C	1.0	1.0	---	---
36.	Pesticides	mg/l	As per STP	µg/l	<0.01	--	No Relaxation
37.	E-Coli	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml
38.	Total Coliforms	Per/100ml	ISO 9308-1	Absent	Absent	Absent/100ml	Absent/100ml

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Compilation of CSR Reports

FY 2010-15

Education:

- Construction of School Compound Wall & Toilets at Pynampuram Wagardha
- Providing the evening bus facility for school children – Nelaturu Gramapanchayat (Nelaturupalem, Nelaturu and Nelaturu Harizanawada)
- Distribution of School bags, T-shirts and Geometry Boxes to M. V Palem and other 16 hamlets
- Sponsoring for Talent Driven Competition for 10th Class Students of Fishermen Families at District Level, Nellore

Health:

- Distribution of Uniforms to Aanganwadi Children at Nelaturu Palem
- Conducting of Free Medical Camps
- Construction of School Compound Wall & Toilets at Pynampuram Wagardha
- Construction of Aanganwadi Building at Musunurivaripalem
- Construction of Kitchen Room and Toilets for Aanganwadi Center in Musunurivaripalem
- Conducting of Free medical camps in Inner ring road villages – Pynapuram Wagardha, DHW, Devaradibba, Nelaturu Harizanawada, TPCIL Labor Colony and Nelaturupalem
- Distribution of Uniforms to the Aanganwadi Children – Nelaturu palem
- Distribution of Soaps, Shampoos and Coconut oil to primary school children – Devaradibba

Water Provision:

- Supplying of Household water to Nelathuru Harizanawada Village People.
- Supplying of R.O. Drinking Water to Nelaturupalem
- Supply of Drinking Water – Pynapuram (Pynapuram Wagardha, Debbamida Harizanawada and Chinna Sangam)

Infrastructure:

- Laying of C.C Roads and Drainages in Krishnapattnam Village
- Leveling of Land in Nelathuru Harizanawada
- Renovation of Veterinary Building, Musunurivaripalem

Livelihood:

- Sponsoring for Talent Driven Competition for 10th Class Students of Fishermen Families at District Level
- Livelihood support to Fishing folk families for Damage of Fishing Nets
- Support to Fishermen families of Nelaturupalem through Rice and Cash
- Support to District administration for the construction of Nelaturupalem Fishermen Houses

FY 2015-16

Education:

- Three Anganwadi centres constructed/ Renovated at Ananthavaram, Nelaturu Harijana Wada and Dibbameeda Harijanawada
- Two additional Classrooms, Compound Wall and site Levelling (Playground) made at Musunurivaripallem ZP High School

- Regular conveyance Facility made to students from surrounding villages to Two Major High Schools Made Zero dropouts in the Surrounding Communities. 240 School children were Provided this Conveyance facility
- Evening tuition centres were Conducted at 2 Locations to benefit the student to obtain merit in the examinations, subject teachers teach to the students at evening tuition centres
- Education Kits In the form of school Bags, Books, T. Shirts, Benches provided to schools and School children. The education material is provided to all schools surrounding to the Project site. This intervention is carried out in all Schools on August 15th of Every Year
- Evening Snacks were provided to around 2000 Students after school hours before appearing for Final SSC Examination for a duration of 45 days every year. This enhances pass percentage
- 25 poor and meritorious students were provided with Scholarships through Saraswathi Nidhi Programme taken up by District Collector SPSR Nellore, SembCorp is the Major Contributor for this programme
- Supported another 55 students with Scholarships enable them to continue their education
- Supported 100 Anganwadis (Pre School) Children and 200 Pregnant and lactating Mothers by providing quality Infrastructure Facilities

Health Care:

- Mobile medical Clinic Operates in all the Villages by SEIL. SembCorp Conducts specialised medical Camps with support from Apollo and Narayan Hospitals. reached 1800 families with basic Health care and free Medicine
- Ten RO Plants were installed and being operated by Sembcorp to provide Safe Drinking water to 2,800 Families
- RO Plant at iskon play pivotal Role in supplying Food to 25,000 School children through Akshaya Patra Programme
- Sembcorp collaborated with Naandhi Community Water services for operation and Maintenance of all RO Plants and Community water awareness and Health awareness on waterborne Diseases in community
- Drinking water is being supplied through Nine water tankers in Four Villages
- 600 Live stocks were reached through para veterinarian services
- Installation of RO Water Pamt in Nalaturu, Pynapuram , Pynapuram (DH Wada).
- Installation of R.O Mineral Water Plant Nelaturu Girijana Colony
- Installation of R.O Mineral Water Plant at Pynampuram Wagardha

Village infrastructure:

- To develop Infrastructure in the Social context SEIL Undertook Canal works, repairing school buildings, Laying of Internal roads, Multiple Pond deepening works, rainwater harvesting,
- Reached 2500 schoolchildren by improving educational Infrastructure in 25 schools
- Renovation of Bridge at Varakavipudi Improved Transportation Facility
- Complete CC Roads in the Krishnapatnam Panchayat
- BT Road Increased access to Nelaturupalem Village

Skill Development and Sustainable Livelihood:

- Provided Training to Locals in Different trades Like Fire& safety, Security, Housekeeping, Green Belt, Electrical, Mechanical, IT and provided employment to locals at the SEIL Project
- Involved women SHG In Green Plantation development and paid the loan amount of Rs 12 Lacs to women SHG of Nelaturupalem which are loan waivers and made SHG in active state and initiated Entrepreneurship Training Programmes to women of Nelaturupalem

Other CSR Activities

- To promote Tradition and Culture women were provided Competitions in the villages During Festivals
- Employee engagement programmes on environment sustainability in villages and schools
- Mana Vooru Mana Sabratha is a Flagship Programme in SEIL Community Villages brings Awareness on Village Cleaning and Development. All Sembcorp Employees involve in this Volunteering intervention in the community Villages
- During 2015 Floods CSR Team responded swiftly 32000 Food Packets supplied for 3 days and 4000 Flood relief family Kits
- National Highway restored within 4 Days of record time with the support from SEIL
- Nellore City Cleaned with Dozers, dumpers, and earth movers in record time
- This Initiative well appreciated by district administration
- 423 Individual Household toilets supported in the Pynapuram Gram Panchayats to support the Government Open defecation Free Programme
- Implemented Clean drive campaigns in 4 villages reaching around 600 Families
- Loan waived off to 40 women SHG of 400 women of Nelaturupalem Village
- Benefitted 1000 Families by repairs of Internal roads during floods
- More than 300 Company employees have Volunteered for CSR Works in the Villages Contributing more than 1,000 Manhours
- Rice & Cash to Nelaturu fishermen provided for 6 Months to all families, Cash amount was also Disbursed
- Money Deposited for Fishermen houses to the District Administration , District Collector, SPSR Nellore District
- Distribution of Blankets and Sanitation Kit to Hostel children
- Support to District administration for the construction of Nelaturupalem Fishermen Houses
- Distribution of Blankets and Other Material to Hostel children, Muthukuru Boys & Girls Hostel; Brahamadevi Boys Hostel; T.P. Gudur Girls, B.C & ST Hostels; Nellore Orphan School
- Construction of Dining Hall and Toilets at Z.P.High School at M V Palem.
- Distribution of Blankets and Sanitation Kit to Hostel children, Muthukuru

FY 2016-17

Education:

- During the year, scholarships and study materials were provided to deserving children from surrounding villages. We also worked on improving the living conditions of 640 students residing at the Muthukur Government Girls' Social Welfare Hostel.
- Regarding healthcare, we installed four drinking water plants in the surrounding villages and while another at Varigonda village near the SGPC Township is being readied. TPCIL, in partnership with Naandi Community Water Services, maintains these plants and provides clean drinking water to 1,150 families in these surrounding villages, thereby improving their health and overall quality of life.

- People in the villages around TPCIL have been receiving free medical consultations and medicines through health camps that are organised in partnership with Narayana Hospitals and Apollo Hospitals.
- Through Mana Vooru, Mana Subrata (a cleanliness drive) programme, our volunteers work with the neighbouring villagers to drive home the message and encourage them to dispose of their garbage in designated areas outside the villages.
- TPCIL has also supported the Nellore District administration in the construction of 667 Individual Household Latrines (IHHLs) under the Prime Minister's Swachh Bharat Yojana. Through the Vanam Manam Programme (a green initiative), 4,000 saplings of fruit bearing trees were distributed and planted in the surrounding villages
- Skill Development
- During the year, TPCIL continued its efforts towards ensuring gainful employment to the local villagers and is further working towards establishing entrepreneurship Development Programme in the surrounding villages
- Other CSR activities
- Providing Rice and Cash for 6 Months to Nelaturupalem villagers to support Livelihood
- Year 2017-18

Education:

- We contributed towards several school renovations, renovation of library, setting up computer laboratories, providing safe drinking water, constructing toilets, conducting medical camps and planted trees in the school vicinity. We also provided electrical fittings, benches, desks and other basic infrastructure in these classrooms. To encourage children living far away to come to school, we have continued facilitating transportation to schools in and around our Nellore operational site. These efforts have resulted in more youngsters gaining access to better education.
- Provided Scholarships: -Affordability continues to be a hurdle in rural areas for Students to pursue an education. Low disposable income of parents prevents deserving students from pursuing higher education. A survey undertaken by our team in Nellore identified 52 such meritorious students from Nelaturu Palem village who have financial constraints. These students were given scholarships to pursue higher studies in reputed educational institutes in the academic years 2015-16 and 2016-17. The impact is as follows. Engineering 8students, BSC Science/ Arts- 12 Students, PG- 5 students, ITI 11 students, 2 Nursing and 16 vocational students

Health

- Providing RO Water through 10 RO Plants to the surrounding Communities
- Medical camps with Narayana Medical College and Hospitals

Other CSR activities:

- Providing Rice and Cash for 6 Months to Nelaturupalem villagers to support Livelihood

FY 2017-18

Education:

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Health

- Providing RO Water through 10 RO Plants to the surrounding Communities
- Medical camps with Narayana Medical College and Hospitals

Other CSR activities:

- Providing Rice and Cash for 6 Months to Nelaturupalem villagers to support Livelihood

FY 2018-19

Skill Development

- As part of Skill Development Programs in SEDC, 7 batches of women have completed their course. 200 Women in tailoring, 80 women in beautician and 18 Numbers In Basic Computers Course in Which 7 Boys and 11 Girls Completed the Course.

Education Highlights

- School toilet repairs done in SEIL P1 Schools to ensure 100% running water in Government school toilets.
- RO drinking water Supplied through Naandhi regularly to SEIL side Government schools.
- SEIL sponsored State Level Kabaddi Championship by Partnering with District Sports Authority benefitted around 400 state level Kabaddi Players at Muthukuru.
- Celebrated School annualdays, National fire safety Days, Republic Day and other national festivals in the schools benefitting around 650 School children.
- School beautification works done in ZPH School, MV Palem Benefiting 350 Students, infrastructure support and all school needs fulfilled.
- Sports kits were distributed to youth from Nelaturu Panchayat benefiting 120 Youth.

- Botany lab renovated in Muthukur Social welfare girls high school benefiting 320 Girls.
- Scholarships were Provided to the 13 Numbers students of Academic Year 2016-18 Sponsored by District Collector, Nellore.
- Project 'Parivartan' Conducted in 2 Schools and one college from Jan to March 2019. The Main objective of 'Parivartan' is bringing the behavioural change among the young students.
- Awareness sessions were conducted on Personality Development & Personal hygiene and women health by Eminent in the field of Education, Counsellors and Doctors benefiting 1150 students in which 700 Girl and 450 are boys.
- Awareness programme conducted for the children on importance of Hand washing and prevention of water borne diseases benefiting 120 School Children.
- Conveyance of school Bus Facility was provided to the students benefiting around 120 members of SEIL Side.

Healthcare

- Periodical medical camps conducted in the villages of SEIL P1 as part of Preventive health care benefitted around 800 villagers.
- Door to door Health awareness done and have reached about 450 households with behaviour change communication material. All Schools in the Vicinity of project operations were also covered in this project.
- Solid waste Management introduced in Pynapuram and Nelaturu Panchayats to prevent unhygienic conditions in the village benefitting 900 Families. Concrete dust Bins Provided in the panchayath and Daily waste Management Measures taken up by SEIL to keep the village clean and prevent health issues from seasonal fevers.
- Ensured uninterrupted protected drinking water to 1040 families through 3 RO plants of SEIL P1 side.
- New pipelines laid for providing quality raw water to RO Plant Nelaturu Palem.

FY 2019-20

Education

- Providing conveyance to school children to prevent dropouts. Due to zero dropouts Govt. Schools retain students & achieved 98% pass in SSC with Good Grading. This initiative is being implemented with the support from SEIL Admin and CSR benefiting 120 students.
- Providing Education Kits to students on the Eve of Independence Day. SC&ST Students Benefited by this initiative and APPCB appreciated this CSR Gesture benefiting 60 School children.
- Providing Evening Snacks to students appearing for SSC Examinations in Five Mandal's covering 2387 Students. Students studying in the extra hours got refreshed and leading to Achieve Excellent pass percentages in Government Schools.

- Corona Awareness Preventive Measures Conducted in Schools by CSR Team of Project surrounding area. Pamphlets with Pictures and Description in Native Language Distributed with awareness to the school children benefiting 600 school children of SEIL P1 side.

Skill Development

- Tailoring-98
- Beautician-21
- AcandRefrigeration-20
- SanitaryNapkinmaking-22
- JuteBagmaking-30
- BangleMaking-80

FY 2020-21

Education

- Poly Carbonate roofing sheets were provided to Muthukur Girls Hostel open places.
- Conveyance of school children arranged with Covid protocols from SEIL P1.

Health

- Community Emergency Health Ambulance services by SEIL to
- Community Villages of SEIL P1 shifting 36 needy to nearest hospitals.
- 14 Community Sanitization drives Conducted in SEIL P1 Community Villages.
- 9 numbers Haematology Analysers were donated to Nellore District hospitals.
- Medical equipment's were provided to COVID Care Centre located at Krishnapatnam.
- Covid containment through testings.
- Maintenance of 3 RO Plants by providing safe drinking water to Community.
- Covid -19 health safety awareness in the Villages & Schools of SEIL P1.

Skill Development

- 10,000 masks stitching program by 20 SEDC trained women.
- Virtual Computer skills training program for 22 members.

Albert Peter

Head-CSR

SEIL



SEIL P1/MoEF&CC/Chennai/2021/004
25th November 2021

Sembcorp Energy India Limited

CIN: U40103HR2008PLC095648

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E-mail: cs.india@sembcorp.com

Website: www.sembcorpenergyindia.com

To

The Regional Director,
Regional Office (South Eastern Region),
Ministry of Environment, Forests & Climate Change,
1st & 2nd Floor, HEPC Building, No. 34, Cathedral Garden Road,
Nungambakkam,
Chennai – 600034.

Sub.: Submission of Half Yearly EC Compliance Report of SEIL Project-1 (formerly known as Thermal Powertech Corporation India Limited— TPCIL) for the period from April 2021 to September 2021

Ref.: EC Letter No: J 13012/02/2009— IA.II (T) dated 04-11-2009, amended dated 02.03.2015

Dear Sir,

As per the provision of Environment Clearance and EIA Notification 2006, we are herewith submitting the half yearly compliance status report for the period of April 2021 to September 2021 along with supporting documents to the conditions specified with respect to Environmental Clearance issued to SEIL Project-1 (Formerly known as Thermal Powertech Corporation India Limited— TPCIL), Nellore.

Hope the above is in order.

Thanking you,

Yours faithfully,

For Sembcorp Energy India Limited,

Pavan Kumar Rao V

Head HSE- SEIL

Copy To:

1. The Director, IA.I, MoEF&CC, New Delhi
2. The Joint Director (S), Scientist 'D', MoEF&CC, IRO, Vijayawada
3. The Environmental Engineer, APPCB, Nellore

210 COMPLIANCE STATUS REPORT OF

Sembcorp Energy India Limited Project-1

(Formerly Known as THERMAL POWERTECH CORPORATION INDIA LTD)

1980 MW COAL FIRED SUPERCRITICAL THERMAL POWER PLANT

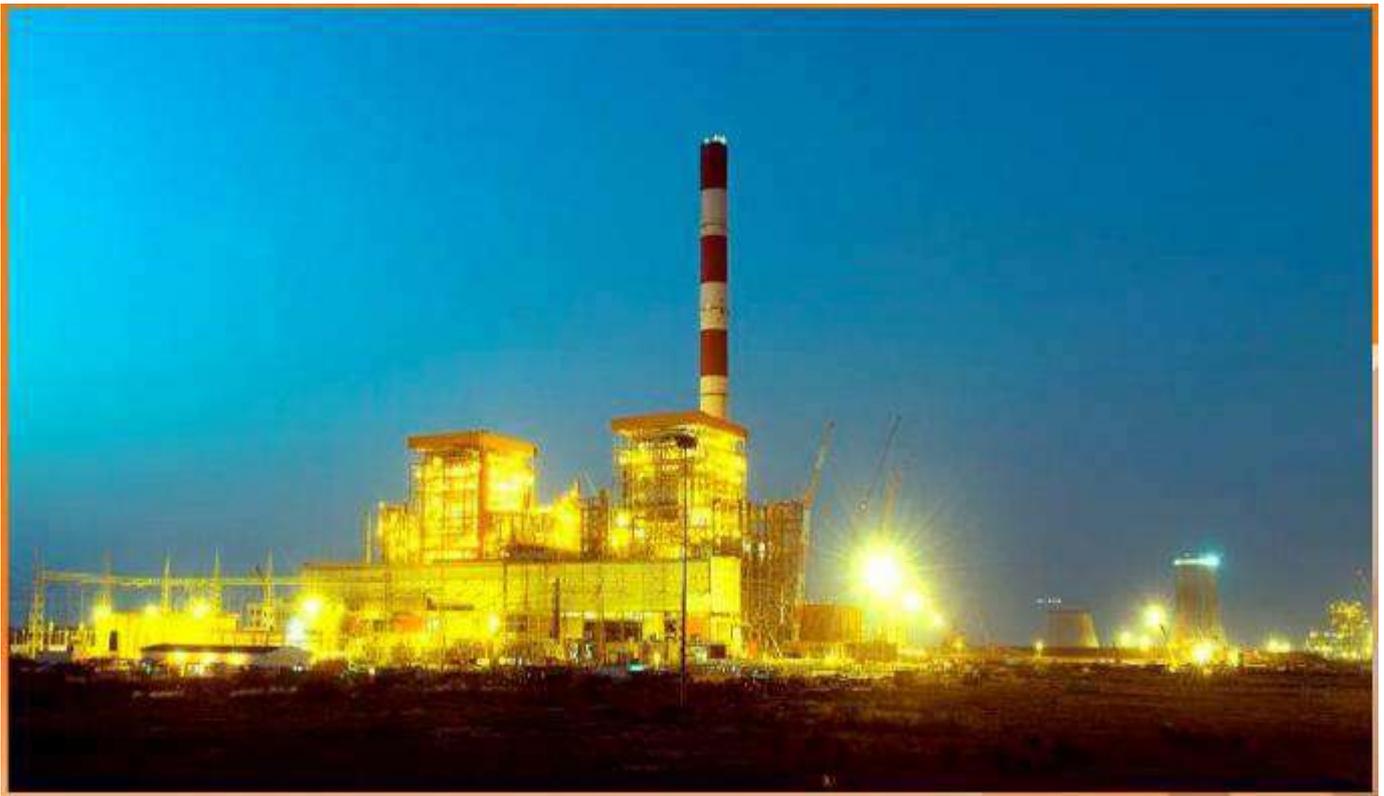
(STAGE I - 2 X 660 MW & STAGE II – 1 X 660 MW)

AT PAINAMPURAM & NELATURU VILLAGES, MUTHUKUR MANDAL

SPSR NELLORE DISTRICT

ANDHRA PRADESH

INDIA



Compliance to Environment Clearance Conditions

Period: April 2021 to September 2021

01. Background:

211

Sembcorp Energy India Ltd (SEIL) Project-1 [formerly known as Thermal Powertech Corporation India Limited (TPCIL)] is a leading independent power company in India. SEIL is promoted by Sembcorp Utilities Pvt. Ltd., which is part of the Singapore based Sembcorp Group.

At SEIL currently, Stage-I power plant consisting of 2x660 MW is under operation since October 2015.

The location map and key map are shown in **Figure-1** & **Figure-2** respectively. The 10 km radius topographical map around the project is shown in **Figure-3**. The latitude & longitude of North South extremes of Site are 80°08'35.956"E & 14°19'5.211"N and 80°09'16.325"E & 14°21'0.874"N respectively.



FIGURE- 1
LOCATION MAP

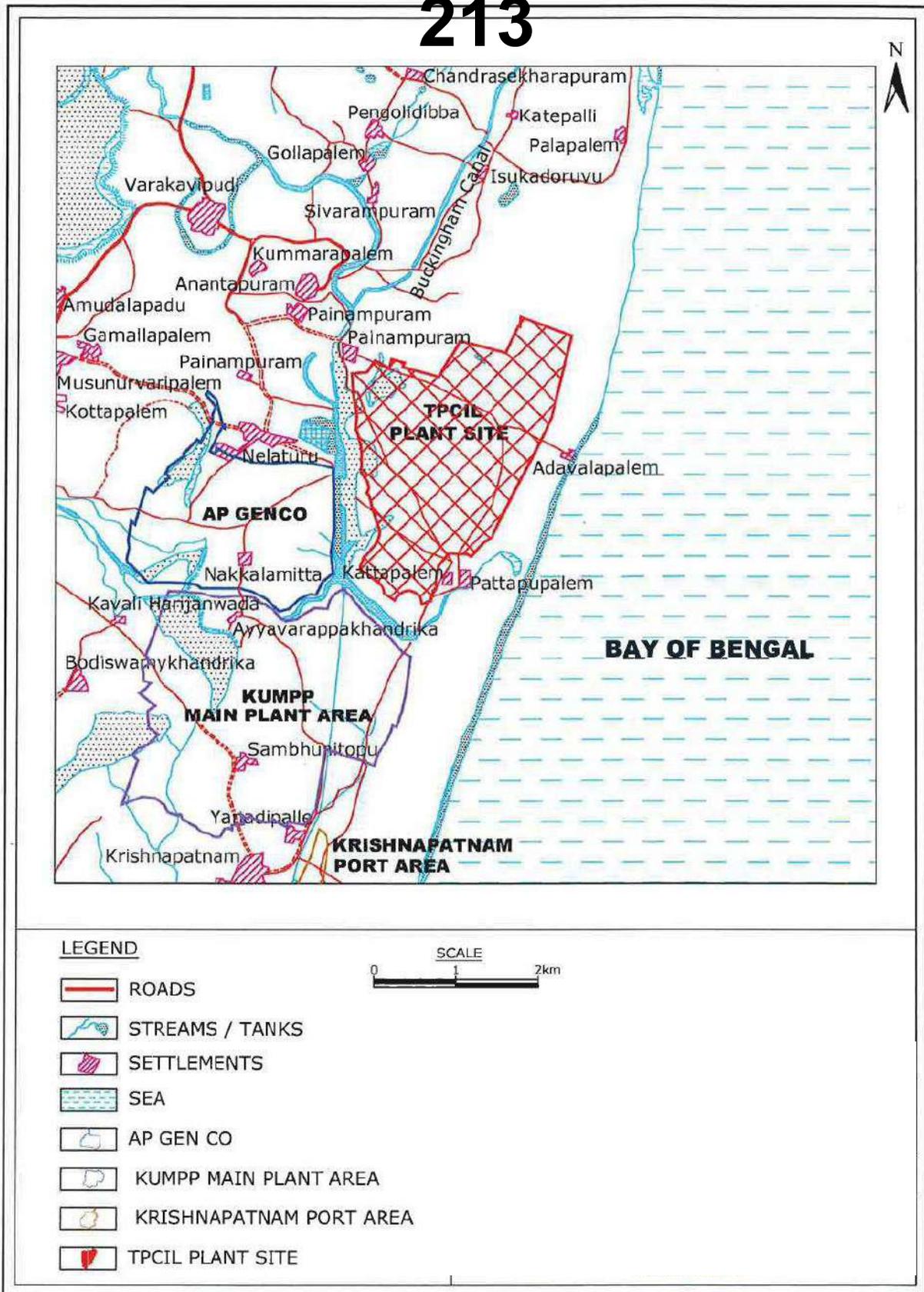


FIGURE- 2
KEY MAP OF PROJECT SITE

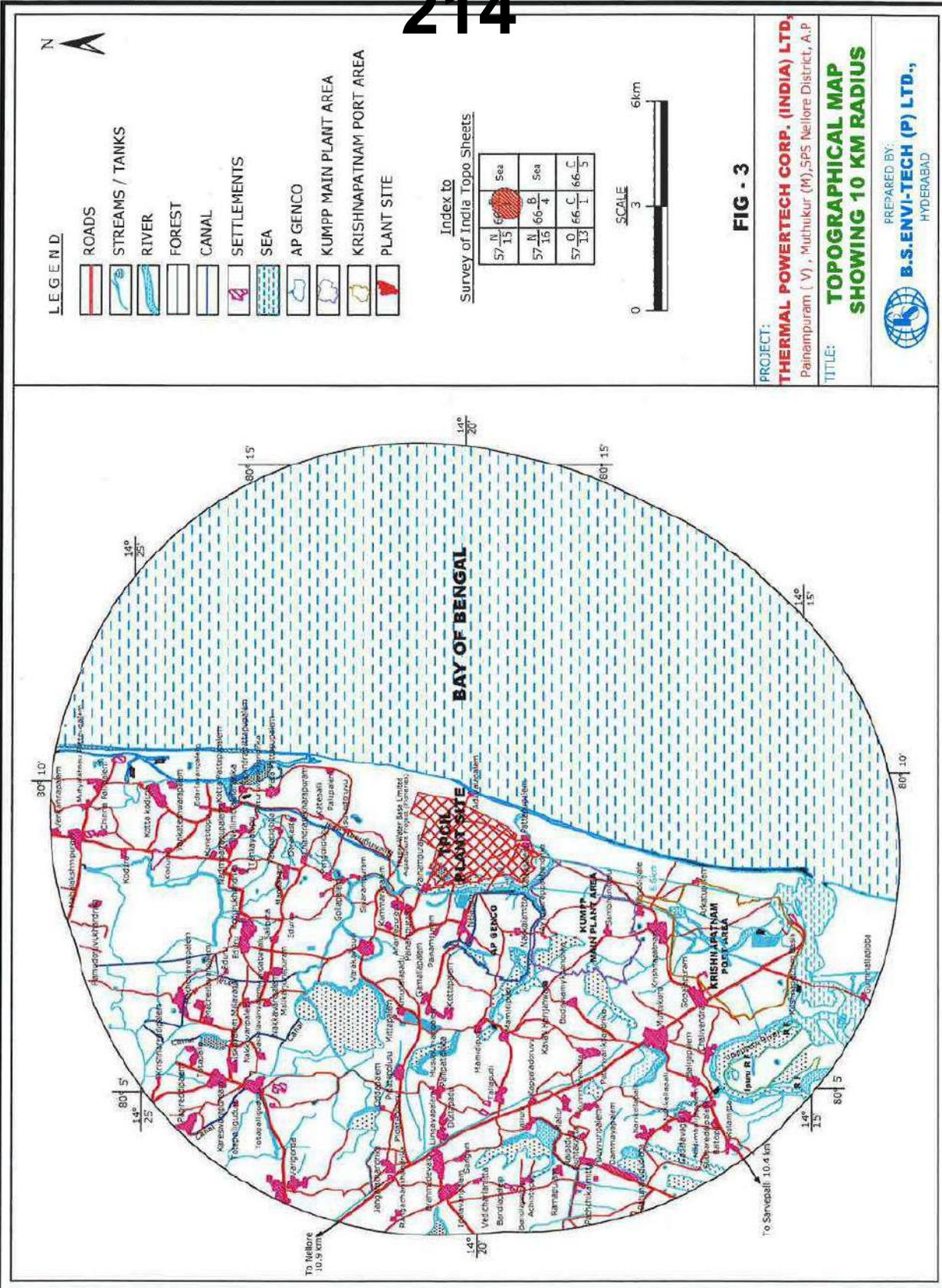


FIGURE-3
TOPOGRAPHICAL MAP OF 10 RADIUS AREA

02. Statutory Approvals/Clearances: **215**

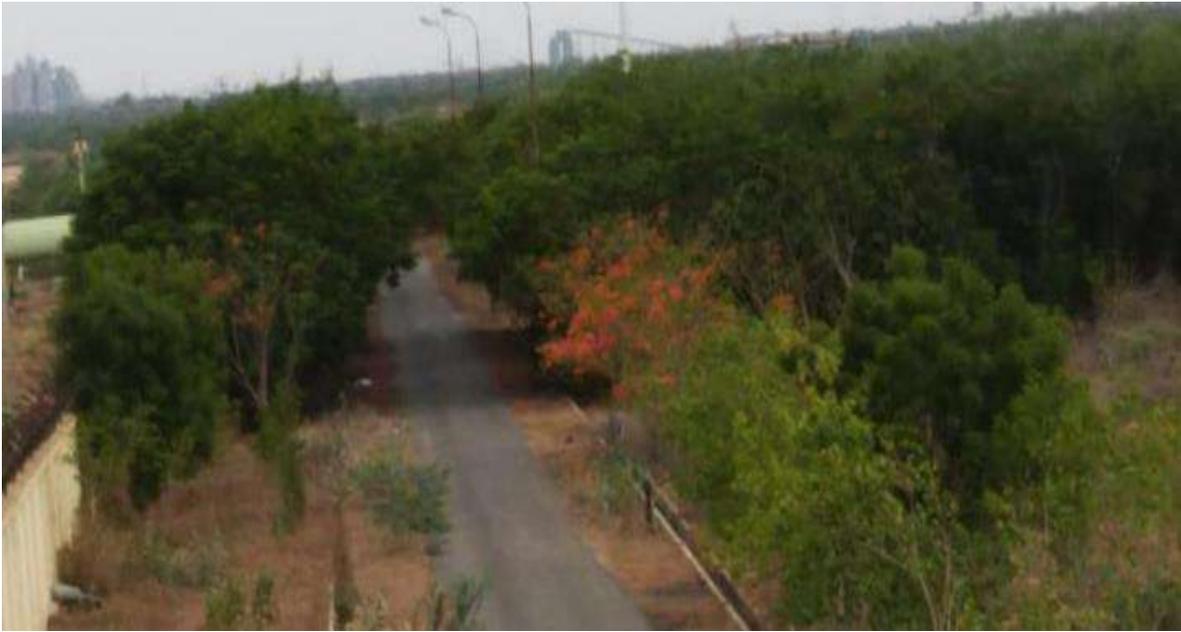
The following statutory approvals and clearances were received for the Project:

S. No.	Authorization	Accorded By	Validity
1	Environment Clearance	Ministry of Environment & Forests, Govt. of India	MoEF Letter dated 4/11/2009. The validity of EC is extended to 7 years by MoEF notification to start operations. Accordingly, SEIL commenced its operations by Sept 2015, well within due date.
2	CRZ Clearance	Ministry of Environment & Forests, GOI	F.No. 11-129/2010-IA.III. Dated: 5 th December, 2011
3	Combined Consent for Operation (CFO) for two units	AP Pollution Control Board, Hyderabad	Order No. APPCB/VJA/VJA/930/HO/CFO/2016 Dated: 16 th Nov 2021. Renewed and is valid till Nov 2026.

216



GREEN BELT/ GREEN COVER DEVELOPMENT IN SITE



217



GREEN COVER AROUND PERIPHERY



GREEN COVER ALONG THE PLANT ROADS

218



GREEN COVER ALONG PIPE RACK & INTERNAL ROADS



GREEN COVER INSIDE THE PLANT

219



GREEN COVER ALONG MAIN PLANT ROAD



AVENUE PLANTATION



GREEN COVER NEAR PLANT SERVICE BUILDING



GREEN COVER NEAR SERVICE BUILDING

221



GREEN COVER IN NORTH EAST AREA



COAL YARD WATER SPRINKLING

222



CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION INSIDE THE PLANT

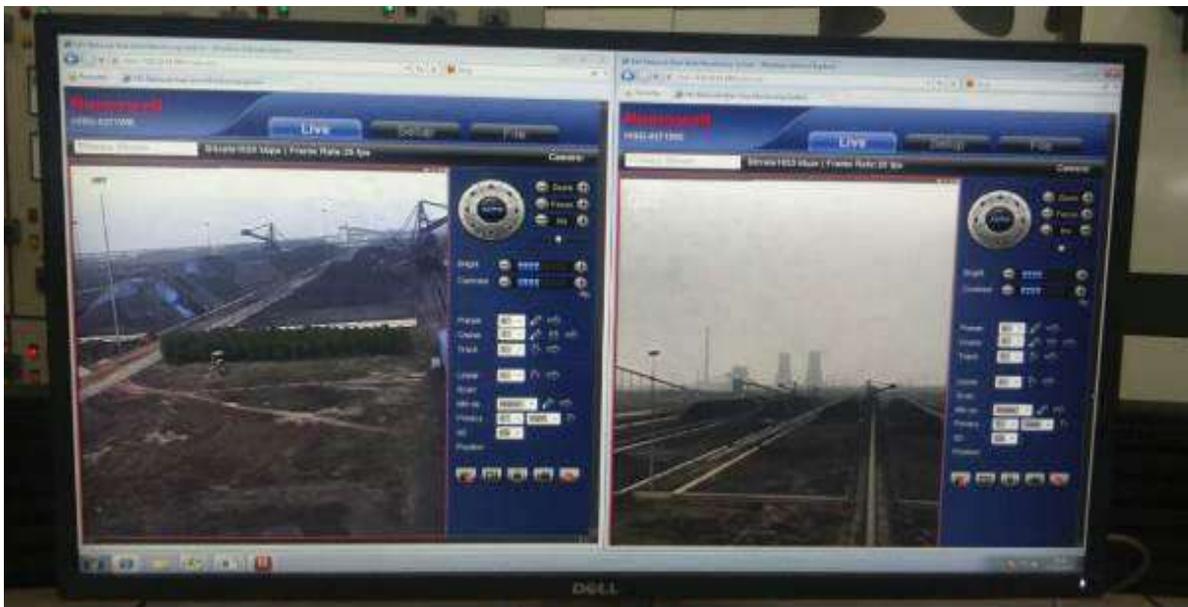


CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION INSIDE THE PLANT

223



WIND BREAK PLANTATION AROUND COAL YARD



CONTINUOUS MONITORING OF DUST SUPPRESSION SYSTEM AT COAL YARD USING PTZ CAMERAS



DUST EXTRACTION SYSTEM AT TRANSFER POINTS



MAIN GATE DISPLAY BOARD - AMBIENT AIR QUALITY & EMISSIONS DATA DISPLAY

225
CONDITIONS OF COMPLIANCE TO
ACCORDED ENVIRONMENT CLEARANCE

Sr. No.	Condition	Compliance
4. i	Status of implementation of 100% utilisation of Fly Ash generated shall be submitted to the Ministry within six months of operation of the plant.	<p>Complying.</p> <p>SEIL (formerly known as Thermal Powertech Corporation India Limited - TPCIL) is achieving 100% fly ash utilization since September 2019.</p> <p>Attached letter submitted to CPCB on Annual Fly Ash utilization for FY2020-2021 vide letter no. SEIL P1/CPCB /Delhi/2021/001 dated 15th April 2021 as Annexure- I</p>
ii	Stacks of 275 m height (Bi-Flue for Stage -1 and Single Flue for Stage II) shall be provided with continuous online monitoring equipment for SO _x , NO _x and PM. Exit Velocity of flue gases shall not be less than 25 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	<p>Complying.</p> <p>One Bi-Flue gas chimney of 275 m height (Stage-I) is provided along with continuous online emission monitoring equipment for measuring SO_x, NO_x and Particulate Matter.</p> <p>Mercury is being monitored on quarterly basis.</p> <p>Exit velocity of flue gas is well with in prescribed norms.</p> <p>Stack Emission Monitoring Reports performed by third Party consultant which is approved by APPCB are attached as Annexure- II.</p>
iii	Possibility for installation of combined intake with neighbouring Power Plants shall be examined and in the event of non-feasibility adequate justification shall be submitted with a period of six months.	Compliance submitted through Ltr. No: TPICL/MoEF/007 on dated: 7 th March 2011.

226

Complying.

Electrostatic Precipitators (ESPs) with more than 99.9% efficiency (72 fields each) are installed to limit the Particulate Matter Emission to limit less than 50 mg/Nm³.

iv

High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³.



Complying.

Bag filters are provided for coal crusher, transfer points, ash silos and mill bunker etc.



Dust extraction and dust suppression systems with auto mode are provided in coal crusher and coal stack yard.



Dry Fog Dust Suppression System is being installed to further minimize fugitive dust.

Additional water hydrant lines are provided to suppress fugitive emissions, whenever required.

SEIL has also provided wind barriers with 3-5 layers of thick Conocarpus trees (wind resistant plants) all around coal yard, which are designed to arrest spreading of fugitive dust emissions.



Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.

v

<p>vi</p>	<p>Fly ash shall be collected in dry form and storage facility (silos) shall be provided (as applicable). 100% fly ash utilisation shall be ensured from 4th year onwards. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.</p>	<p>Fly ash is collected in dry form and stored in silos of 3x2000 cum capacity for disposal to various users. Unutilised fly ash is being disposed to the ash pond in lean slurry form.</p>  <p>SEIL Project-1 (formerly known as Thermal Powertech Corporation India Limited - TPCIL) is achieving 100% fly ash utilization since September 2019.</p> <p>Attached letter submitted to CPCB on Annual Fly Ash utilization for FY2020-2021 vide letter no. SEIL P1/CPCB /Delhi/2021/001 dated 15th April 2021 as Annexure- I</p> <p>SEIL has installed and commissioned fly ash classification unit of 5 Lakh Tonne per annum within the site.</p> <p>Bottom Ash heavy metals analysis reports and Piezo Wells ground water quality reports are attached as Annexure- III.</p>
<p>vii</p>	<p>Ash Pond shall be lined with HDP/LDP lining. Adequate safety measures shall also be implemented to protect the ash dyke from breached.</p>	<p>Complying.</p> <p>Ash pond is lined with impervious HDPE liner.</p>  <p>The dyke is designed and incorporated adequate safety measures.</p>

viii	Closed cycle cooling system with natural draft cooling towers shall be provided. The Effluents shall be treated as per the prescribed norms.	<p>Complying.</p> <p>Natural Draft Cooling Towers are installed at the site.</p> <p>ETP consists of Flash Mixer, Lamella Clarifier, Sludge Pit, Oily Water Separation Unit, Oily water collection tank and Central Monitoring Basin & Dosing system is used to treat the effluent to meet the prescribed norms.</p> 
ix	No ground water shall be extracted for the project work at any stage.	<p>Complied.</p> <p>No ground water was extracted for the project work.</p> <p>Entire water requirement of the plant is being met from seawater.</p>
x	Hydrogeological study of the area shall be reviewed annually and results to be submitted to the Ministry and concerned agency in the State Government. In case adverse impact on ground water quality and quantity is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.	<p>Complying.</p> <p>Ground water is not being used at SEIL.</p> <p>Periodic hydrogeology studies are carried out for the site and surroundings.</p> <p>Hydrogeology Study is being reviewed annually and submitted.</p>
xi	Minimum required environmental flow suggested by the Competent Authority of the State Government shall be maintained in the Channel/rivers even in lean season.	<p>Not applicable.</p> <p>Not applicable as SEIL is not extracting any River/ canal water. Entire water requirement for plant operations is being met through seawater.</p>

xii	The treated effluents conforming to the prescribed standards should be only discharged. Arrangement shall be made that effluents and storm water do not get mixed.	<p>Complying.</p> <p>ETP and STP are in operation for treating waste water generated in the plant to meet the prescribed standards. Treated water is being used for Dust suppression and Green Belt.</p> <p>Storm water system is adequately designed to avoid mixing with effluents and has a separate disposal system.</p> <p>ETP treated effluent and Marine water analysis reports are attached as Annexure- IV.</p>
xiii	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/plantation.	<p>Complying.</p> <p>Sewage Treatment Plant (STP) is provided and operational for treating the domestic sewage generated.</p> <p>The treated domestic wastewater is used for greenbelt development.</p> <p>STP Treated effluent analysis reports are attached as Annexure- V.</p>
xiv	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.	<p>Complying.</p> <p>Approved Third party studies are carried out and rainwater harvesting pits are constructed and maintained along the storm water drains.</p> <p>The rainwater from storm water drains is collected in RWH ponds and is reused. Photo provided in this report.</p>
xv	Adequate safety measures shall be provided in the plant area to check /minimize spontaneous fires in coal yard, especially during summer season. Copy of these 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.	<p>Complying.</p> <p>The coal yard is provided with fire hydrant system and water sprinklers arrangement to control spontaneous combustion of coal. Photos provided in the report.</p>

xvi	Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made in the plant areas in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	<p>Complying.</p> <p>SEIL has provided storage facilities for LDO and HFO.</p> <p>These facilities are certified by the Chief Controller of Explosives, Nagpur. Adequate firefighting systems are provided.</p> <p>Onsite Emergency Management Plan is in place to meet any eventuality.</p>
xvii	Regular monitoring of ground water in and around the ash pond area including heavy metals (Hg, Cr, As, Pb) shall be carried out, records maintained and six monthly reports shall be furnished to the Regional office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the Project.	<p>Complying.</p> <p>Piezometer wells are provided around ash pond site.</p> <p>Regular monitoring of ground water in and around the ash pond area is being carried out. Piezo well Analysis Reports are attached as Annexure-III.</p>
xviii	Shelter Belt consisting of 3 tiers of plantation around the plant of 100 m width and adequate tree density shall be developed.	<p>Complying.</p> <p>SEIL is developing scientifically designed greenbelt with adequate tree density. Native species have been chosen for plantation. An area of about 450 acres area is being brought under green cover in phased manner.</p> <p>Photos are provided in this report.</p>
xix	First Aid and sanitation arrangement shall be made for the drivers and other contract workers during construction phase.	<p>Complied.</p> <p>Necessary facilities have been provided during construction period.</p> <p>Currently, there are no constructional activities and the labour camp is not operational.</p>

232

xx	<p>Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. 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.</p>	<p>Complying.</p> <p>SEIL has ensured that the ambient noise level at the plant boundary shall comply with National ambient noise standards. Quarterly monitoring of noise level data is Complying the standards.</p> <p>Workers are provided with adequate personal protective equipment.</p> <p>Necessary medical examinations are conducted and records are being maintained.</p> <p>APPCB approved third party Noise Quality Monitoring Reports are attached as Annexure- VI.</p>
xxi	<p>Regular monitoring of ground level concentration of SO_x, NO_x, 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 the frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional office of this Ministry. The data shall also be put on the website of the company.</p>	<p>Complied.</p> <p>Continuous AAQM stations (with online analysers) are provided at 4 locations. The data is continuously uploaded to CPCB & APPCB websites on real time basis.</p> <p>In addition, manual air quality monitoring is carried out by engaging third party laboratory (approved by state PCB). The locations and monitoring are in consultation with PCB.</p> <p>APPCB approved third party Ambient Air Quality Monitoring Reports are attached as Annexure- VII.</p> <div data-bbox="911 1413 1414 1615"></div>

233

Complying.

xxii

A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.

An amount of Rs. 25 crores paid as R&R package for shifting of fisher man of Nelaturupalem. Also, as per the directives by Dist. Administration, we are providing Rs. 2500 to 504 identified families of fisher man for 6 months which is a cost of Rs. 75,60,000.

In Addition to that Sembcorp is providing 30 Kg rice to 504 fisherman families at the rate of Rs.50 for 6 months which is cost of Rs. 45,36,000.

xxiii

An amount of Rs 32.0 crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 6.4 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.

Complying.

An amount of Rs. 20 crores deposited with District Administration in (Rs. 5.6 crores in 2014 & Rs. 14.4 crores in 2016) for shifting of Fishermen Village of Nelaturupalem.

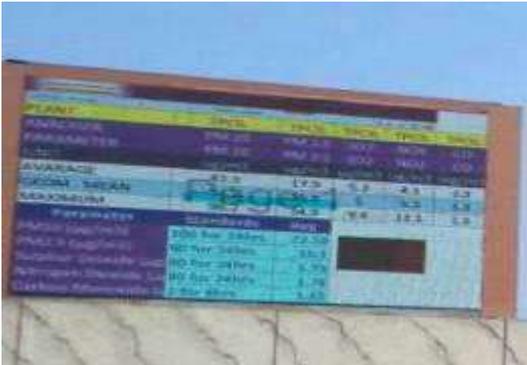
In addition, an amount of Rs. 22 crores spent in surrounding area during Project Period.

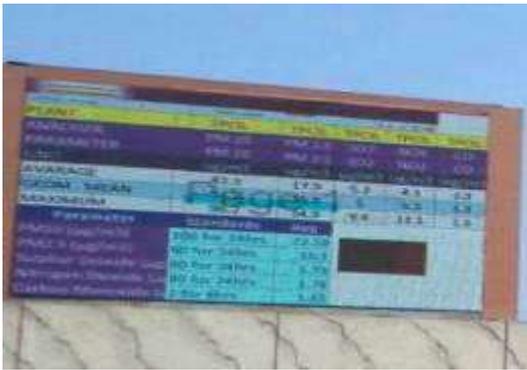
The details of CSR activities being implemented by SEIL are attached as **Annexure- VIII.**



Sl. No.	Account No.	Account Name	Debit/Credit	Amount	Balance
001	00010001	STATE COLLECTOR, NELLUR	DEBIT	144,600,000.00	
002	00010001	STATE COLLECTOR, NELLUR	CREDIT	144,600,000.00	

xxiv	<p>As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc., can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.</p>	<p>Complying.</p> <p>CSR Update from April 2021 to September 2021 in Annexure- VIII.</p> <ul style="list-style-type: none"> • 40 No's of Oxygen concentrators and 2600 Home Isolation Medical Kits for Covid patients donated to District Administration • 19 Community sanitation drives conducted in 25 villages benefitting 2589 families. • Uninterrupted safe drinking water supply has been provided through 9 RO Plants. • Conveyance facility is being provided to govt. schools for 240 children • Covid vaccination awareness competitions conducted in schools to 2000 school children • Covid vaccination awareness conducted through Red FM and Act Channel (Through Digital Media)
xxv	<p>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 structures to be removed after the completion of the project</p>	<p>Complied.</p>
xxvi	<p>The Project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned 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/Committee and may also be seen at the Website of the Ministry of Environment and Forests at http://envfor.nic.in.</p>	<p>Complied.</p> <p>Advertisements have been given in Telugu newspaper on dated: 04th July-2009 and in English newspaper on dated: 03rd July 2009.</p>

xxvii	<p>A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad /Municipal corporation, urban local body and the local NGO, if any from whom suggestions/representations, if any, received while processing the proposal. The Clearance letter shall also be put on the website of the Company by the Proponent.</p>	<p>Complied.</p> <p>Clearance letter was sent to concerned Panchayat, Zilla Parishad/ Municipal Corporation, urban local body. Clearance letters are also uploaded in Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p>
xxviii	<p>A dedicated Environment Management Cell with suitable qualified personnel shall be set up under the control of a Senior executive who will report directly to the head of the organization.</p>	<p>Complied.</p> <p>SEIL has established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE, who reports directly to the Station Head.</p>
xxix	<p>The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their 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 SPCB. The criteria pollutant levels namely: SPM, RSPM, SO_x, NO_x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.</p>	<p>Complied.</p> <p>Regular compliance reports are submitted to ministry. SEIL has uploaded the status reports including the monitored data in the Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p> <p>The environmental monitored data including Ambient Air Quality for criteria pollutants and stack emission are displayed at the main gate.</p>  <p style="text-align: center;"><u>Main Gate display of AAQ data</u></p>
xxx	<p>The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data to the respective Regional Office of MOEF, the respective Zonal office of CPCB and SPCB.</p>	<p>Complying.</p> <p>Six Monthly reports against EC compliance is being submitted to MOEF&CC, the respective Zonal office of CPCB and SPCB.</p>

<p>xxxix</p>	<p>The Environment Statement of 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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry.</p>	<p>Complying.</p> <p>Environment Statement (Form V) for FY2020-21 has been submitted to APPCB (Ref. No.: SEIL P1/APPCB/BZA/2021/006 dated 28th September 2021).</p>
<p>xxxix</p>	<p>The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.</p>	<p>Complying.</p> <p>SEIL is submitting the six monthly reports on status of compliance and the monitored data to the concerned regulatory authorities.</p> <p>The reports are being uploaded on APPCB & Sembcorp website.</p> <p>https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p> <p>https://pcb.ap.gov.in/UI/Submission_Compilance_of_EC_CFE_CFO_Direction.aspx</p>
<p>xxxix</p>	<p>Regional Office of the Ministry of Environment and Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will upload the compliance status in their website and update the same from time to time at least six monthly basis. Criteria pollutants levels including NO_x (from Stack and ambient air) shall be displayed at the main gate of the power plant.</p>	<p>Noted. Being complied.</p> <p>The compliance reports are also uploaded in Sembcorp website.</p> <p>https://www.sembcorpenergyindia.com/AboutUs/Disclosure</p> <p>The environmental monitored data including Ambient Air Quality for criteria pollutants and stack emission data is being displayed at the main gate.</p>  <p><u>Main Gate display of AAQ data</u></p>

xxxiv	<p style="text-align: center;">237</p> <p>Separate funds shall be allocated for implementation of environmental protection measures along with item wise break up. These costs 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.</p>	Complied.
xxxv	<p>The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the Project by the concerned authorities and the dates of start of land development work and commission of Plant.</p>	Complied and communicated.
xxxvi	<p>Full cooperation shall be extended to the Scientists/Officers from the Ministry /Regional Office of the Ministry at Bangalore/CPCB/SPCB.</p>	Noted for compliance.
xxxvii	<p>Harnessing Solar Power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring reports.</p>	<p>Complying.</p> <p>Solar panels have been installed above canteen roof and solar power light fixtures are installed at plant and township.</p>
xxxviii	<p>Long term study of radioactivity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.</p>	<p>Complying.</p> <p>Quarterly Coal heavy metal analysis reports are attached as Annexure-IX.</p>

<p>Xxxix</p>	<p>Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land.</p>	<p>Complying.</p> <p>Stock Pile Dust Suppression system around coal yards, Dry Fog dust suppression System along conveyor belts, Cyclone separators & bag filters at crusher house, Vacuum truck for road dust cleaning are implemented to avoid fugitive dust emissions and prevent the impact on agricultural or non-agricultural land.</p>  
<p>xl</p>	<p>Space for FGD shall be provided for future installation as may be required.</p>	<p>Complying.</p> <p>Adequate space provision is done.</p>
<p>Xli</p>	<p>No ground water shall be extracted for use in operation of the power plant even in lean season. No water bodies including natural drainage system in the area shall be distributed due to activities associated with the setting up / operation of the power plant.</p>	<p>Complying.</p> <p>Plant water requirement is met with Sea Water treated at WTP.</p>

Xlii	<p>Fly ash is not to be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of the time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close coordination with the State Pollution Control Board.</p>	Complying.
Xliii	<p>Green belt shall also be developed around the ash pond over and above the green belt around the plant boundary.</p>	Complying.
Xliv	<p>A Common Green Endowment Fund shall be created and the interest earned out of it shall be used for the development and management of green cover of the area.</p>	<p>Complied.</p> <p>Separate fund centre has been earmarked for Green belt development and maintenance.</p>

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Complied.

CSR Committee has been formed and is working. CSR committee stake holders meetings conducted.



RO Plant Maintenance as part of CSR activity

- 40 No's of Oxygen concentrators and 2600 Home Isolation Medical Kits for Covid patients donated to District Administration
- 19 Community sanitation drives conducted in 25 villages benefitting 2589 families.



- Uninterrupted safe drinking water supply has been provided through 9 RO Plants.
- Conveyance facility is being provided to govt. schools for 240 children
- Covid vaccination awareness competitions conducted in schools to 2000 school children
- Covid vaccination awareness conducted through Red FM and Act Channel (Through Digital Media)

For proper and periodic monitoring of CSR activities, a CSR committee or a social audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.

Xlv

Xlvi	<p>An Environment Cell comprising of at least one expert in environment science / engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement / mitigation measures.</p>	<p>Complying.</p> <p>SEIL has established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE, who reports directly to the Station Head.</p> <p>Services of Marine biologist & ecologist will be hired based on the requirement.</p>
Xlvii	<p>The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.</p>	<p>Complied.</p> <p>Environmental Policy has been incorporated in the QHSE Policy.</p> <p>QHSE Policy is attached as Annexure- X.</p>
5	<p>The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.</p>	<p>Noted.</p>
6	<p>The environmental clearance accorded shall be valid for a period of 5 years to start operations by the Power Plant.</p>	<p>Noted.</p> <p>The validity of EC is extended to 7 years by MoEF notification.</p> <p>The 2x660 MW project has already commenced operations since 2015.</p>
7	<p>Concealing factual data or submission of false /fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act 1986.</p>	<p>Noted.</p>

8	<p style="text-align: center; font-size: 24pt; font-weight: bold;">242</p> <p>In case of any deviation or alteration in the project proposed including the transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed to add additional environmental protection measures required, if any</p>	Noted for compliance.
9	<p>The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.</p>	Noted.
10	<p>Any appeal against this environmental clearance shall lie with the National Environmental Appellate Authority, if preferred, within 30 days as prescribed under Section 11 of National Environmental Appellate Act, 1997.</p>	Noted.

SEIL P1/MoEF&CC/Chennai/2021/005
27th December 2021

Sembcorp Energy India Limited
CIN: U40103HR2008PLC095648
Regd. Office: 5th Floor, Tower C, Building No 8
DLF Cybercity, Gurgaon - 122002, Haryana, India
Tel (91) 124 389 6700 / 01
Fax (91) 124 389 6710
E-mail: cs.india@sembcorp.com
Website: www.sembcorpenergyindia.com

To
The Regional Director,
Regional Office (South Eastern Region),
Ministry of Environment, Forests & Climate Change,
1st & 2nd Floor, HEPC Building, No. 34, Cathedral Garden Road,
Nungambakkam,
Chennai- 600034

**Sub.: Submission of Half Yearly CRZ Compliance Report of Sembcorp Energy India Limited
Project-1 (formerly known as Thermal Powertech Corporation India Limited— TPCIL)
for the period from April 2021 to September 2021**

Ref.: CRZ clearance Letter No. F.No. 11-129/2010-IA – III dated 5th December 2011

Dear Sir,

This has reference to the above subject, we are hereby submitting the Half Yearly compliance status report for the period from April 2021 to September 2021 along with supporting documents to the conditions specified under CRZ Clearance issued to Sembcorp Energy India Limited Project-1 (Formerly known as Thermal Powertech Corporation India Limited— TPCIL), Nellore.

Hope the above is in order.

Thanking you,

Yours faithfully,
For Sembcorp Energy India Limited



Pavan Kumar Rao V
Head HSE- SEIL

Copy To: 1. The Director, IA.I, MoEF & CC, New Delhi
2. The Environmental Engineer, APPCB, Nellore

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**SIX-MONTHLY
CRZ CLEARANCE COMPLIANCE
REPORT
OF
Sembcorp Energy India Limited Project-1**

(Formerly Known as THERMAL POWERTECH CORPORATION INDIA LIMITED)

2 X 660 MW COAL BASED SUPERCRITICAL THERMAL POWER PLANT

(STAGE I - 2 X 660 MW)

AT PAINAMPURAM & NELATURU VILLAGES, MUTHUKUR MANDAL

SPSR NELLORE DISTRICT

ANDHRA PRADESH

INDIA



Period: April 2021 to September 2021

Background:

Sembcorp Energy India Ltd Project-1 [formerly known as Thermal Powertech Corporation India Limited (TPCIL)] is a leading independent power company in India. SEIL is promoted by Sembcorp Utilities Pvt. Ltd., which is part of the Singapore based Sembcorp Group.

SEIL Project-1 is currently consisting of 2x660 MW is under operation since March 2015.

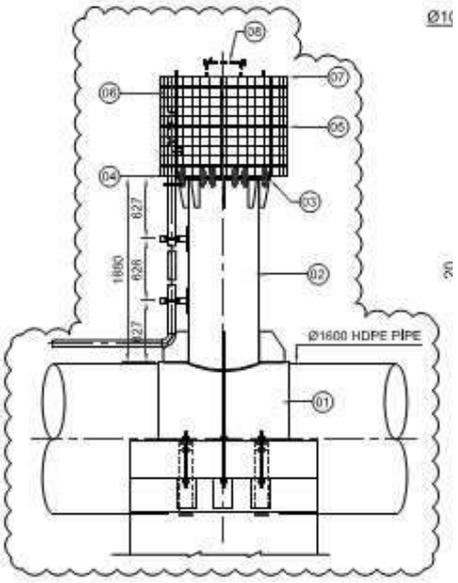
The latitude & longitude of North South extremes of Site are 80°08'35.956"E & 14°19'5.211"N and 80°09'16.325"E & 14°21'0.874"N respectively.

CRZ Clearance for the project is obtained from Ministry of Environment & Forests, Vide F.No.11-129/2010-IA.III Dated: 5th Dec 2011. The condition wise compliance to the clearance letter is detailed below.

CONDITION WISE COMPLIANCE AGAINST CRZ CONDITIONS

S. No.	CRZ CONDITIONS	COMPLIANCE STATUS
<u>SPECIFIC CONDITIONS:</u>		
i.	“Consent For Establishment” shall be obtained from state pollution control board under air and water act and a copy shall be submitted to the Ministry before start of any construction work at the site.	<p>Complied.</p> <p>Consent For Establishment (CFE) from AP Pollution Control Board has been obtained vide Order. No. 177/PCB/CFE/RO/-NLR/HO/2009-433, Dated: 15/05/2010.</p>
ii.	Cutter suction dredging shall be adopted instead of grab technology so as to control the sediments during dredging.	<p>Complied.</p> <p>Cutter suction dredging was adopted during the said activities.</p>
iii.	Top of the pipeline buried shall be minimum 2 m below the sea bed. The PP shall obtain a certificate of compliance from the agency executing the pipeline, with supporting documentation and shall submit to RO of MoEF and to state PCB.	<p>Complied.</p> <p>Pipeline is buried at 2 m below the seabed. The compliance certificate submitted to RO of MoEF and APPCB. Copy of the same is given here.</p> <div style="text-align: right; margin-bottom: 10px;">  </div> <p>Date: 24th June 2014</p> <p>Sub.: Sea Water Intake Pipeline Installation Certificate</p> <p style="text-align: center;"><u>TO WHOMSOEVER IT MAY CONCERN</u></p> <p>Dear Sir,</p> <p>Vide Order No. TPCIL/INFRA-01/SWI & EXT CHP/SUPPLY/001 & TPCIL/INFRA-01/SWI & EXT CHP/SERVICES/002 dated 29-12-10 from TPCIL we have executed the work of laying the sea water intake and outfall pipelines including offshore Intake System and Diffusers for their 2X660MW Coal based Thermal Power Project at Painapuram and Nelatur Villages, Muthukuru Mandal, SPSR Nellore district.</p> <p>Entire offshore intake pipeline and Outfall pipeline of length 2000Mtrs and 1200Mtrs respectively are installed and buried in the sea bed with a minimum back fill of 2Mtrs from top of the pipeline. This is ensured through conducting post pipeline laying and post backfilling offshore depth survey through Ecosounder (Bathymetry survey). Cross section profiles for offshore chainage from LFP to Intake Header and Outfall diffuser has been attached for your reference.</p> <p>Thanking You.</p> <p style="text-align: center;">For GAYATRI PROJECTS LIMITED</p> <div style="display: flex; align-items: center; justify-content: center;">   </div> <p style="font-size: small;">L.S.N. MURTHY DGM - Projects, GPL (EPC-PP).</p> <div style="font-size: x-small; margin-top: 20px;"> <p style="text-align: center;">Gayatri Projects Limited, B-1-1190, TDR Towers 110, Ginnery Street, Chennai-600 016, India CIN: L28000AP1900PLC067289</p> <p style="text-align: center;">T: +91-40-5551 0500 / 8284 / 8036 F: +91-40-2359 4132 E: info@gayatri.com www.gayatri.com</p> </div>

iv.	No effluent from fly ash system is permitted to discharge into the marine system as committed by PP. The effluent from fly ash shall be treated and the entire quantity shall be recycled in the cooling tower makeup etc., and suitable meter shall be installed to record the quantity of effluent recycled.	<p>Complying.</p> <p>No effluent from fly ash system is discharged into marine water. The entire effluent water from ash pond is collected and recycled. Flow Meters are installed for recording the quantity.</p>
v.	Shall implement all the measures as committed to the Ministry as a part of the clarifications submitted by the PP. A copy of these submissions shall be submitted to RO of MoEF.	<p>Complied.</p> <p>SEIL has implemented all the measures as committed to the Ministry.</p>
vi.	A suitable STP shall be used for green belt, dual plumbing system etc., measuring meters shall be provided to record the treated effluent used for different purposes.	<p>Complied.</p> <p>STP is provided to treat the domestic sewage generated at the site. The treated water is being used for greenbelt development.</p>
vii.	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF-RO.	<p>Complying.</p> <p>The mitigation measures along with compliance are being followed at SEIL.</p>

<p>viii.</p>	<p>The proponent shall commit himself to be one of the partners / proponents (who have undertaken / will be undertaking similar power projects in the close proximity of site) as and when instructed by the MoEF/State Government Authorities in preparing an overall EIA report comprising both terrestrial / marine EIA components for the region and share the cost of the study and proposed mitigation measures for the coastal stretch as decided by the authorities in the best interest of protecting the environment.</p>	<p>Noted for compliance.</p>
<p>ix.</p>	<p>Appropriate screens and trash bars shall be put in place at the intake to avoid fish entering into the pipe due to heavy quantity of water drawl by once through water intake system.</p>	<p>Complied.</p> <p>Appropriate screens and trash bars are provided to avoid fish entering into the pipe.</p> <div style="text-align: center;">  <p style="text-align: center;">INTAKE VELOCITY CAP UNIT TYP. DETAIL</p> </div>

x.	Temperature and salinity level shall be monitored regularly by providing on-line monitoring system at the appropriate location on the outfall system.	<p>Complying.</p> <p>The parameters are being monitored regularly by providing online EQMS which is connected to APPB/CPCB on real time basis.</p>
xi.	Periodic monitoring of coastal water shall be carried out at outfall location.	<p>Complying.</p> <p>Monthly joint sampling of coastal water is being practiced along with state PCB office.</p>
xii.	No construction work other than those permitted in coastal regulation zone notification shall be carried out in coastal regulation zone area.	<p>Complied.</p>
xiii.	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a senior executive.	<p>Complied.</p> <p>SEIL established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE.</p>
xiv.	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	<p>Complied.</p>

S. No.	CRZ CONDITIONS	COMPLIANCE STATUS
<u>GENERAL CONDITIONS:</u>		
i.	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Noted for compliance.
ii.	Full support shall be extended to the officers of this Ministry / regional office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Noted for compliance.
iii.	A six – monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bangalore regarding the implementation of the stipulated conditions.	Complying. Latest Half Yearly compliance report submitted vide Letter No: SEIL P1/MoF&CC/Chennai/2021/003 dated 08 th June 2021.
iv.	Ministry of Environment & Forests or any other competent Authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted and shall be complied.
v.	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with satisfaction of the Ministry.	Noted.

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vi.	In the event of change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted for compliance.
vii.	The project proponents 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 the date of start of land development work.	Complied and Communicated.
viii.	A copy of the clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom any suggestions / representation has been made received while processing the proposal.	Complied.
ix.	Tamil Nadu Pollution Control Board shall display a copy of the clearance letter at the Regional Office, district industries centre and Collector's Office/ Tahsildar's office for 30 days.	Noted. Copy of compliance has been submitted to APPCB.
x.	These stipulations would be enforced among others under the provisions of water (prevention and control of pollution) Act 1974, the air (prevention and control of pollution) Act 1981, the environment (protection) Act, 1986, the public liability (Insurance) Act 1991 and EIA notification 1994, including the amendments and rules made thereafter.	Noted.
xi.	All other statutory clearances such as the approvals for storage of diesel from chief controller of explosives, fire department, civil aviation department, forest conservation Act, 1980 and wild life (Protection) Act, 1972 etc., shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied and all the necessary approvals are obtained from respective authorities.

Xii.	The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental clearance and copies of clearance letters are available with the state pollution control board and may also be seen on the website of the Ministry of Environment and Forest at http://www.envfor.nic.in . The advertisement should be made within 10 days from the date of receipt of the clearance letter and a copy of the same should be forwarded to the regional office of this Ministry at Bangalore.	Complied and Communicated.
xiii.	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in writ Petition (civil)No.460 of 2004 as may be applicable to this project.	Noted.
xiv.	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Noted and compliance statement is being uploaded on Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure
xv	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad / Municipal corporation, urban local body and local NGO, if any from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied.

xvi.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their 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 SPCB.	Noted and uploaded on the Sembcorp website. The reports are being sent to concern regulatory bodies.
xvii.	The proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data to the respective Regional Office of MoEF, the respective zonal office of CPCB and the SPCB.	Complied. Six monthly EC Compliance reports are being submitted to concern regulatory bodies.
xviii.	The Environmental statement for each financial year ending 31 st 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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	Complied. Environmental Statement (Form-V) for each financial year is being submitted to APPCB and the same is uploaded on company Website. Reports are being submitted to respective regulatory bodies.



Sembcorp Energy India Limited

CIN: U40103HR2008PLC095648

Regd. Office: 5th Floor, Tower C, Building No 8

DLF Cybercity, Gurgaon - 122002, Haryana, India

Tel (91) 124 389 6700 / 01

Fax (91) 124 389 6710

E-mail: cs.india@sembcorp.com

Website: www.sembcorpenergyindia.com

SEIL P1/APPCB/BZA/2021/006

28th September 2021

To
The Member Secretary
Andhra Pradesh Pollution Control Board
D. No. 33-26-14 D/2, Near Sunrise Hospital
Pushpa Hotel Centre, Chelamavari Street
Kasturibaipet
Vijayawada- 520010.

Sub.: **Submission of Environment Statement for the year 2020-21 of Sembcorp Energy India Limited Project-1 (formerly known as Thermal Powertech Corporation India Limited-TPCIL), Nellore.**

Ref: CFO order issued to TPCIL vide Ref: APPCB/VJA/NLR/930/HO/CFO/2018 dated 23.03.2018 valid till 30.11.2021.

Dear Sir,

This has reference to captioned subject and the cited reference. Please find enclosed herewith Environment Statement of Sembcorp Energy India Limited Project-1 (formerly known as Thermal Powertech Corporation India Limited- TPCIL), Nellore for the year 2020-21 duly filled in Form V.

Thanking you,

Yours faithfully,
For M/s. Sembcorp Energy India Limited

Pavan Kumar Rao V
Head HSE- SEIL

Encl: Environment Statement in Form-V along with Annexures

Copy To: The Regional Officer, APPCB, Nellore

**ENVIRONMENTAL STATEMENT
FOR THE YEAR 2020-21**

Of

**2x660 MW
Super Critical Coal Based Thermal Power Plant**

At

***Painampuram & Nelaturu villages
Muthukur Mandal
SPSR Nellore District
Andhra Pradesh***

Submitted By

Sembcorp Energy India Limited Project-1
(Formerly known as Thermal Powertech Corporation India Ltd)
SPSR NELLORE, ANDHRA PRADESH

September 2021

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FORM V
(See Rule 14)

Environmental Statement Report for the financial year ending the 31st March 2021

PART- A

- (i) Name and address of the Owner/Occupier of the Industry, Operation or process : Mr. Ramesh Raman
Plant Manager
Sembcorp Energy India Limited
Project-1
(Formerly known as Thermal Powertech Corporation India Ltd)
Pyanampuram / Nelaturu Village
Muthukur Mandal, SPSR Nellore
524 344
0861-3052311
0861-3052309
- (ii) Industry Category : -
(Coal based thermal power plant)
- (iii) Production capacity : 1320 MW (2X660 MW)
- (iv) Year of Establishment : 2015
- (V) Date of the last Environmental statement Submitted : 15th May 2020

PART- B

Water and Raw Material consumption

1. Water Consumption, m³/d:

- Plant Process : 15,645 m³/Day
Cooling : 146640 m³/Day
Domestic : 53 m³/Day

Name of Product	Process Water Consumption per Unit of Product Output	
	During the Previous Financial Year (2019-20)	During the Current Financial Year (2020-21)
Electricity	0.585 m ³ /MWH (Excl. Cooling Tower makeup) 6.0 m ³ /MWH (Incl. Cooling Tower makeup)	0.64 m ³ /MWH (Excl. Cooling Tower makeup) 6.6 m ³ /MWH (Incl. Cooling Tower makeup)

2. Raw Material Consumption

Name of Products	Name of Raw Materials	Unit	Consumption of raw material per unit of output	
			During the Previous Financial year (2019-20)	During the current Financial year (2020-21)
Electricity	Coal	MT/MWH	0.57	0.59
	Fuel Oil	ML/KWH	0.05	0.17

*Industry may use codes if disclosing details of raw materials would violate contractual obligations, otherwise all industries have to name the raw material used.

PART- C

Pollution Discharged to Environment/Unit of Output
(Parameters as specified in the consent issued)

(i) Pollution	Quantity of pollutants discharged	Concentrations of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
a) Water	Please refer Annexure-I (Effluent Water Quality Monitoring third party reports)		
b) Air	Please refer Annexure-II (Stack Emission Monitoring third party reports)		

PART- D

Hazardous Wastes

(As specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016)

(a) From Process:

S.No.	Hazardous Wastes	Total Quantity	
		During the Previous Financial year (2019-20)	During the Current Financial year (2020-21)
1	Expired Paints/ Paint Waste/ Empty Paint Cans	-	0
2	Expired Chemicals/ Chemical Waste/ Empty Chemical	-	0.10 MT
3	Spent Ion Exchange Resins	-	7.50 MT
4	Oil Soaked or Chemicals coated Cotton waste	-	0
5	Used Oil Filters/ Damaged Filters	-	0
6	ETP Sludge/ Oil Sludge	-	0
7	Used Lubricant Oil	25 MT	45.48 MT
8	Waste Oil from DG Sets	-	0
9	Aerosol Cans	-	0.07 MT
10	Used Empty Chemical Jar/	-	0

	Bottles		
11	Used Empty PVC oil sample Bottles	-	0.03 Kg
12	Used Grease	-	-
13	Lead Acid Batteries	-	154 No's
14	E-Waste	1.266 MT	2.433 MT

PART- E Solid Wastes

(b) From pollution control facilities:

S.No.	Solid Wates	Total Quantity (MT)	
		During the Previous Financial year (2019-20)	During the Current Financial year (2020-21)
1	Ash (Fly Ash+ Bottom Ash)	12,26,543	13,39,535

(c)

(1) Quantity recycled or re-utilized with in the plant:

S.No.	Solid Wates	Total Quantity (MT)	
		During the Previous Financial year (2019-20)	During the Current Financial year (2020-21)
1	Ash (Fly Ash+ Bottom Ash)	70,136	3,24,355

(2) Sold:

S.No.	Solid Wates	Total Quantity (MT)	
		During the Previous Financial year (2019-20)	During the Current Financial year (2020-21)
1	Ash (Fly Ash+ Bottom Ash)	9,00,880	10,65,368

(3) Disposed:

S.No.	Solid Wates	Total Quantity (MT)	
		During the Previous Financial year (2019-20)	During the Current Financial year (2020-21)
1	Ash (Fly Ash+ Bottom Ash)	-	-

PART- F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Characteristics of Solid Wastes

Fly Ash

Parameter	Unit	Fly Ash
Chromium (as Cr ⁺⁶)	mg/kg	BDL (DL:1.0)
Chloride (as Cl)	%(w/w)	0.01
Arsenic (as As)	mg/kg	ND (DL:0.5)
Selenium (as Se)	mg/kg	ND (DL:0.5)
Lead (as Pb)	%(w/w)	0.0059
Mercury (as Hg)	mg/kg	ND (DL:0.1)
1,4-Dioxane	mg/kg	BDL (DL: 1.0)

Disposal practice of Solid Waste:

(a) Disposal Practice of Hazardous Waste:

S.No.	Name of Hazardous Waste	Disposal Practice
1	Expired Paints/ Paint Waste/ Empty Paint Cans	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
2	Expired Chemicals/ Chemical Waste/ Empty Chemical	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
3	Spent Ion Exchange Resins	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
4	Oil Soaked or Chemicals coated Cotton waste	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
5	Used Oil Filters/ Damaged Filters	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
6	ETP Sludge/ Oil Sludge	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
7	Used Lubricant Oil	Disposal to Authorized recyclers/ Reprocessors/ Incinerators/ Pre-processors
8	Waste Oil from DG Sets	Disposal to Authorized recyclers/ Reprocessors/ Incinerators/ Pre-processors
9	Aerosol Cans	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
10	Used Empty Chemical Jar/ Bottles	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
11	Used Empty PVC oil sample Bottles	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
12	Used Grease	Disposal to Authorized recyclers/ Reprocessors/ Incinerators
13	Lead Acid Batteries	Return to manufacturers/dealers on buyback basis/ Authorized recyclers
14	E-Waste	Authorized recyclers/ Reprocessors

(b) Disposal Practice of Solid Waste:

S.No.	Name of Solid Waste	Disposal Practice
1	Ash (Fly Ash+ Bottom Ash)	Utilization in Cement/ AAC blocks/ Brick Industry/ RMC/ Export to other countries/ Disposal in Ash pond/ Filling of Low lying Areas

PART- G

Impact of the pollution control measures on conservation of natural resources and on the cost of production.

- Bulk chemical storage areas are having dykes to handle any chemical leakages and avoid contamination to the ground.

Energy Conservation Initiatives

1. Replacement of existing lighting system with Energy efficient LED bulbs- 85 KW
2. Through Prudent O&M Practices like below the energy savings are up to 12 Kcal/Kwh
 - a) Overhauling of Turbines
 - b) Improvement of Turbine Efficiency
 - c) Condenser Tube cleaning
 - d) Enhancement of Heat energy drain passing valves and thermal insulations
3. Through Prudent O&M Practices like below savings of up to 1000 KW
 - a) Due to Boiler sides improvement during overhauling
 - b) Corrocoating of CW & ACW pumps
 - c) Water resistant coating on Fire hydrant pumps
4. Heat rate reduction of Approx. 5 Kcal/Kwh because of SPARK (Smart Performance Analysis for Real-time KPI) – Online cloud based performance monitoring system implemented to improve performance by tracking critical parameters like THR, Boiler Efficiency, GHR, Equipment performance and their loss breakups/gaps etc.,) and to control the various controllable losses on real time.
5. Boiler Computational Fluid Dynamics (CFD) modelling developed to analyze boiler performance and resulting in optimized performance.
 - Field log sheets replaced by Mobile app in order to digitalize in our internal operations. This enhances reduction in paper consumption.
 - A total of about Rs. 28 Lakh is spent on Environment monitoring, Waste disposal, Maintenance of Pollution Control Monitoring equipment like CEMS, CAAQMS & EQMS for the financial year 2020–21.
 - Regular monitoring of Ambient Air Quality, Stack emissions and Effluent quality have been taken up to evaluate the efficiency of the pollution control systems and control measures. Both CEMS, CAAQMS & EQMS are connected to APPCB / CPCB websites and data is being transmitted on real time basis.

PART- H

Additional measures/ investment proposal for environmental protection including abatement of pollution, prevention of pollution

Capital investment on Energy conservation equipment

- a) Installation of additional Thermo Couples in Final Super Heater (FSH) incurred a cost of Rs. 1,00,000,00
- SEIL has erected the structural platform for container stuffing (jumbo bags stuffing into container) for export purpose of Ash.
 - SEIL has hired two JCBs for free loading of pond ash to supply customers.
 - Bulk shipment and Break Bulk shipment done to USA around 70,000 MT (44K MT +26K MT)
 - Exploring the international markets.
 - Finding other modes of transportation of fly ash to the customers. (one Rake sent to Cement factory at Kerala around 3000 MT)
 - R&D study conducted on boiler tube failure reduction, chemical regime improvement and Oxide growth & exfoliation reduction by M/s Structural Integrity Associates Incorporation, USA, cost incurred around Rs. 23,11,000.
 - 407 acres of massive tree plantation done inside as well as outside of the Plant premises. Lawns/ gardens also are developed inside the plant premises to enhance aesthetics.
 - Conocarpus plantation is done all around the coal stack area to suppress the wind borne coal dust.
 - Upgraded DFDS System installed for dust suppression
 - All internal roads are either concreted or black topped to reduce the fugitive dust emission inside the plant premises.
 - Rainwater harvesting ponds are constructed in the site.
 - Good Housekeeping practices and 5S system has been implemented in the company by deploying approx. 200 No. of manpower.

PART- I

Any other particulars for improving the quality of environment

- Sembcorp Energy India Limited certified with ISO 9001:2015 (QMS), ISO 14001:2015 (EMS) & ISO 45001:2018 (OHS)
- More than **450 acres** of Greenbelt development completed inside & all along the periphery of the plant boundary
- World Environment Day celebrated to build up environmental awareness among employees and community



Pavan Kumar Rao
Head-HSE
On Behalf of Plant Head

Mr. Ramesh Raman
Plant Manager
Sembcorp Energy India Limited
Date: 28-09-2021

e-mail: omd_ cea@rediffmail.com
 Fax: 011-2673 9235/ 2616 9984
 Ph: 011-2673 2356, 2616 9965



**GOVERNMENT OF INDIA
 MINISTRY OF POWER
 CENTRAL ELECTRICITY AUTHORITY
 OPERATION MONITORING DIVISION
 SEWA BHAWAN, R.K.PURAM
 NEW DELHI-110066**



(I.S.O. 9001:2008)

No. CEA/Plg/OM/1/1/COD/2015/456-66 Dated : 16th March, 2015

To,

The Chairman,
 Coal India Ltd.,
 10, Netaji Subhash Marg,
 Kolkata-700016

Subject: Intimation of Commercial Operation Date (COD) in respect of Pynampuram TPS, Unit - 1 (660 MW).

Sir,

This is to inform that M/s Thermal Powertech Corporation India Limited, has declared Commercial Operation Date (COD) in respect of Pynampuram TPS, Unit - 1 (660 MW) on 02nd March, 2015. In view of above, it is requested that concerned coal company may be advised to commence coal supply at the earliest.

Yours faithfully,


 (M. P. Singh)
 Director (OM)

Copy to:

1. Joint Secretary (LA), Ministry of Coal, Shastri Bhawan, New Delhi.
2. Joint Secretary (Thermal), Ministry of Power, S.S. Bhawan, New Delhi.
3. Executive Director (TTC), Ministry of Railways, Rail Bhawan, New Delhi.
4. The Chief General Manager (S&M), CIL, Apeejay House, B-Block, 6th Floor, 15, Park Street, Kolkata-700016
5. The General Manager (S&M), CIL, Scope Minar, 4th Floor, District Centre, Laxmi Nagar, New Delhi - 110092.

N.O.O.

Copy for information to: M/s Thermal Powertech Corporation India Limited, 6-3-1090, A - Block, 5th Floor. TSR Towers, Rajbhavan Road, Somajiguda, Hyderabad - 500 082, Telagana w.r.t. your letter TPCIL/COM/14-15/244 dated 4th March, 2015.

Copy to: Chief Engineer (TPM/OPM/DMLF/IRP), CEA



**Government of India
Ministry of Power
Central Electricity Authority
Fuel Management Division
Sewa Bhawan, R.K.Puram
New Delhi-110066**



(I.S.O. 9001:2008)

No. CEA/Plg/FM/1/1/COD/2015/1546-59

Dated 12th October, 2015

To,

The Chairman,
Coal India Ltd.,
Coal Bhawan
Plot No. AF-III, Action Area-IA,
New Town, Rajarhat,
Premise No. 04 MAR,
Kolkata-700156

Subject: Intimation of Commercial Operation Date (COD) in respect Pynampuram,
Unit-2 (660 MW) of Thermal Powertech Corporation India Ltd (TPCIL).

Sir,

This is to inform that TPCIL has declared Commercial Operation Date (COD) in respect of respect Pynampuram, Unit-2 (660 MW) on 15.09.2015. In view of above, it is requested that concerned coal company (MCL) may be advised to commence coal supply at the earliest.

Yours faithfully,

(A.K. Mishra)

Chief Engineer

Copy to:

1. Joint Secretary (LA), Ministry of Coal, Shastri Bhawan, New Delhi.
2. Joint Secretary (Thermal), Ministry of Power, S.S. Bhawan, New Delhi.
3. Executive Director (TTC), Ministry of Railways, Rail Bhawan, New Delhi.
4. The Chief General Manager (S&M), CIL, Coal Bhawan, Premise No. 04 MAR, Plot No. AF-III, Action Area-IA, New Town, Rajarhat, Kolkata-700156
5. The General Manager (S&M), CIL, Scope Minar, Core No.-2 5th Floor, District Centre, Laxmi Nagar, New Delhi - 110092.
6. The General Manager (S&M), Mahanadi Coalfields Limited, P.O. - Jagriti Vihar, Burla, District : Sambalpur, Orissa - 768020

Copy for information to:

1. The Chief Executive Director, Thermal Powertech Corporation India Ltd, 6-3-1090, A Block, 5th Floor, TSR Tower, Rajbhavan Road, Somajiguda, Hyderabad-50082, Telangana w.r.t letter dated 15.9. 2015.
2. Member Secretary, Southern Regional Power Committee, Bangalore-56009 w.r.t letter dated 28.09. 2015.

Copy to: Chief Engineer (TPM-I & II/OPM/PDM/IRP), CEA



BY REGD. POST WITH ACKN. DUE
CONSENT & AUTHORIZATION ORDER

Consent Order No : APPCB/VJA/NLR/HO/CFQ/2015- 1675

Date :24.02.2015

Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation / Renewal of Authorisation under Rule 5 of the Hazardous Wastes (Management, Handling & Transboundary, Movement) Rules 2008 & Amendments thereof.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorisation under the provisions of HW (MH & TM) Rules (hereinafter referred to as 'the Acts', 'the Rules') and the rules and orders made thereunder to

M/s. Thermal Powertech Corporation India Ltd.,
Painampuram & Nelaturu (Villages),
Muthukur (M),
SPSR Nellore District – 524 344.
E-Mail: infor@tcpcl.com

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

i) Out lets for discharge of effluents:

S.No	Outlet discription	Max daily discharge Qty in m ³ /day (For 1 x 660 MW Unit)	Point of disposal
1.	Cooling Water Blow down	58,000.0	144890.0 M ³ /day of waste water shall be discharged into sea marine outfall facility.
2.	First pass RO reject	11,112.0	
3.	Ash pond outlet	3333.0	
4.	Clarifier blow down	558.0	To ash pond
5.	DM Plant regeneration	56.0	Shall be reused within plant premises for green belt development after treatment.
6.	Boiler blow down	40.0	
7.	Misc. Service water (floor wash)	40.0	
8.	Domestic (Plant)	20.0	After treatment in STP, shall be used for greenbelt development within the plant premises & colony area.

ii) Emissions from chlmneys:

No.	Description of Chlmney
1.	Attached to Super Critical Boiler of capacity 1 x 2016 TPH
2.	Attached to Auxiliary Boiler of capacity 1 x 50 TPH
3.	Attached to DG set of capacity 1 x 1000 KVA
4.	Attached to DG set of capacity 1 x 1000 KVA
5.	Attached to DG set of capacity 1 x 1000 KVA

iii) HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 5 (4)]

M/s. Thermal Powertech Corporation India Ltd., Painampuram & Nelaturu (Villages), Muthukur (M), SPS Nellore District., is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

• **Hazardous wastes with recycling option:**

S. No.	Name of hazardous waste	Stream	Quantity	Disposal Option
1.	Used lubricant oil	5.1 of schedule - I	15 KL/annum	Reprocessors / Recyclers authorized by APPCB

This consent order is valid for power generation of following quantity only:

S.No.	Activity	Capacity
1	Electric Power generation	1 x 660 MW (Stage - I)

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorisation shall be valid for a period ending with the 30th day of November, 2015.

**Sd/-
MEMBER SECRETARY**

Encl: Schedule A, B & C.

To
M/s. Thermal Powertech Corporation India Ltd.,
Painampuram & Nelaturu (Villages),
Muthukur (M), SPS Nellore District - 524 344.

//T.C.F.B.O//

K. Srinivas
23/11/15
JOINT CHIEF ENVIRONMENTAL ENGINEER
UNIT HEAD - IV

SCHEDULE - A

1. The applicant should make application through online for renewal of Consent (under Water and Air Acts) and Authorizatlon under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board.
2. This order is issued in line with Board's CFE order dated 15.05.2010. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
3. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
4. The project occupier should immediately submit the revised application for consent to this Board in the event of any change in the building and site specifications, quantity of trade effluents & quantity of emissions etc.
5. The applicant should not change or alter either the quality or the quantity or the rate of the discharge or the route of discharge and should not change or alter either the prescribed quality or the rate of emission without the previous written permission of the Board.

6. The applicant should, not later than 30 days from the date of issue of this consent order, certify in writing to the Board that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent. In absence of alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent, production should be stopped.
7. Any up-set condition in the project, which results in increased effluent discharge and/ or violation of standards stipulated in this order or the emission of any Air Pollutant into the environment in excess of the standards laid down by the Board occurs or is apprehended to occur due to accident, or other unforeseen act or event, the person-in-charge of the premises, from where such discharge / emission occurs or is apprehended to occur should forthwith intimate the fact of such occurrence or the apprehension of such occurrence to this Board, by fax / email under intimation to the Collector and District Magistrate.
8. In case of such episodal discharges / emissions mentioned in Item 5 above, the project should take immediate action to bring down the discharge / emission below the limits prescribed in this order.
9. A good housekeeping should be maintained in the premises. All hoods, pipes, valves, sewers and drains should be leak proof. Floor washings should be admitted into the effluent collection system only and should not be allowed to find their way into storm drains or open areas.
10. a) The project should carryout analysis of waste water discharges or emissions through chimneys, for the parameters mentioned in Schedule – B of this Order at regular intervals.
b) The project should maintain following records for access to the Board, whenever required.
 - a) Analysis reports of waste water/ emissions.
 - b) Log book for operation of pollution control systems.
 - c) Inspection book
11. Separate power connection with energy meter should be provided for the Pollution Control Equipments and record of power consumption and chemicals consumption for the operation of pollution control equipment should be maintained separately.
12. The applicant should comply with the directives/orders issued by the Board in this order and at all subsequent times without any negligence on his part. The applicant should be liable for such legal action against him as per provisions of the Law/Act in case of non-compliance of any order/directive issued at any time and/or violation of the terms and conditions of this consent order.
13. The applicant should furnish to the visiting officer and / or the Board any information regarding the construction, installation or operation of the effluent treatment system / air pollution control equipment / secured storage area of Hazardous Waste and such other particulars as may be pertinent for preventing and controlling pollution.
14. The project is liable to pay compensation for any environmental damage caused by it, as fixed by the Collector and District Magistrate as Civil liability.
15. All the rules & regulations notified by Ministry of Environment and Forests, Government of India in respect of management, handling, transportation and storage of hazardous chemicals and wastes should be followed.
16. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed.
17. The occupier should educate the workers and nearby public of possible accidents and remedial measures.
18. For any accident or spillage of hazardous wastes causing damage to the Environment, the occupier or the transporter as the case should be held responsible.
19. The occupier should prepare/update Emergency preparedness plan for safe handling of hazardous waste from time to time and submit the same to APPCB. Emergency preparedness plan must be implemented immediately whenever there is fire, explosion or release of hazardous waste or hazardous waste constituents, which could endanger to human health or environment.

20. Packaging, labeling and transportation of Hazardous Wastes should be in accordance with the provisions of the rules issued by the Central Govt. under the Motor Vehicles Act, 1988 and other guidelines issued from time to time. The packaging and labeling should be based on the composition and hazardous constituent of the waste, however all Hazardous Waste containers should be provided with a general label.
21. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card (as given in the guidelines for management and handling of hazardous wastes) duly filled by the Hazardous Waste generator.
22. No Hazardous Wastes should be mixed with any other wastes or should be discharged to a common, other internal, external sewerage or other drainage system without prior approval of APPCB.
23. If MS/HDPE bags or drums are used for storing Hazardous Wastes, these drums / bags should be ensured that they are perfectly sealed.
24. The project should comply with the provisions of Batteries (Management & Handling) Rules, 2001.
25. The project should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate. The first sign board should provide information on specific conditions of CFO and Hazardous Waste Authorisation. The second sign board should display waste water, air emissions and solid waste generated within the factory premises.
26. The applicant should exhibit the Consent & HW Authorisation order of the Board in the factory premises at a prominent place for the information of the inspecting officers of the different departments.
27. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and its amendments thereof and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and its amendments thereof to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
28. The authorisation issued under Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 and its amendments thereof, should comply with the provision of the Environment (Protection) Act, 1986.
29. The facility may explore the possibility of tapping the solar energy for their energy requirements.
30. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE - B

1. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S.No.	Purpose	Quantity in (M ³ /day) (For 1 x 660 MW Unit)
1.	For cooling tower make up (saline water)	99,128.0
2.	Non-cooling water – RO First pass	
	i) Ash handling sealing	1120.0
	ii) Coal handling plant dust suppression	2384.0
	iii) High Vacuum AC make up	830.0
	iv) Misc. services (for fire fighting etc.)	256.0
	v) RO Reject	11112.0
	vi) Clarifier blow down	528.0
	RO Second pass	
	i) DM Plant	1040.0
	ii) Domestic (Plant)	25.0
	Total	1,16,423.0

2. The industry shall provide Separate digital water meters with totalizer, for assessing the quantity of water used for each of the purposes mentioned above and maintain records for the same.

3. The industry shall file the water cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the 5th of every calendar month, showing the quantity of water consumed in the previous month along with water meter readings. The industry shall remit water cess as per the assessment orders as and when issued by Board.

4. The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below.

Outlet No.	Parameter	Limiting Standards
1 to 3	p ^H	5.5 to 9
	Suspended Solids	100.0 mg/l
	Oil & Grease	20.0 mg/l
	Temperature	Shall not exceed 5° C above the receiving water temperature.
	Biochemical Oxygen demand (3 days at 27° C)	100 mg/l
	Chemical Oxygen Demand (COD)	250 mg/l
	Arsenic	0.2 mg/l
	Mercury	0.01 mg/l
	Lead	2.0 mg/l
	Cadmium	2.0 mg/l
	Hexavalent Chromium	1.0 mg/l
Bio assay test	90% survival fish after 96 hours in 100% effluents	
4	p ^H	6.5–8.5
	Suspended Solids	100.0 mg/l
	Oil & Grease	20.0 mg/l
5 to 8	p ^H	5.5 – 9.0
	Suspended Solids	200.0 mg/l
	Oil & Grease	10.0 mg/l
	Biochemical Oxygen Demand (BOD)	100.0 mg/l

5. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards
1 & 2	Particulate matter	50 mg/Nm ³

6. The industry shall maintain interlocking facility between APC equipment (ESP) and fuel feeding system for the boilers, so that the feeding of the fuel will be stopped automatically, in case, the ESP fails / tripping's are occurred.
7. The industry shall comply with emission limits for DG sets upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

8. The industry shall comply with ambient air quality standards of PM₁₀ (Particulate Matter size less than 10 µm) - 100 µg/ m³; PM_{2.5} (Particulate Matter size less than 2.5 µm) - 60 µg/ m³; SO₂ - 80 µg/ m³; NO_x - 80 µg/ m³, outside the factory premises at the periphery of the industry.

Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)

Night time (10 PM to 6 AM) - 70 dB (A).

9. The industry shall not increase produce the power generation beyond the permitted capacity mentioned in this order, without obtaining CFO of the Board.

10. The industry shall provide online temperature recording facility to record the temperature of water before discharging into sea marine outfall and maintain required temperature before discharging into sea marine outfall.
11. The industry shall not provide any pipeline arrangements into the Buckingham canal in future as per the instructions of Irrigation & CAD Department, Govt. A.P vide letter No.487 Dt.04.08.2014
12. The industry shall provide transit storage facility for storage of fly ash.
13. The industry shall not store fly ash within the premises openly in dry condition. Efforts shall be taken to dispose all fly ash in dry form as much as possible instead of diverting it to wet ash pond. Dry ash collection system shall be maintained properly.
14. The industry shall achieve 100% disposal of Fly ash as per MoE&F Fly Ash Notification, 1999 and amendments thereof.
15. The industry shall provide the garland drain to the ash pond with collection tank to pump the water for ash slurry preparation.
16. The industry shall take measures around the ash pond area to avoid entry of animals in order to prevent accidents, breakage of emergency ponds and protection of greenbelt.
17. The industry shall submit the agreements made with the cement plants & brick units to dispose the boiler ash to the Regional office, Nellore.
18. The industry shall provide Piezometric wells around the ash pond as per the CPCB guidelines.
19. The industry shall monitor all ground water pezo wells and submit report to RO, Nellore every three months indicating trends.
20. Garland canal shall be maintained around the fly ash pond to collect water that is expected to leach out and monitoring of such leachates shall be carried out.
21. The industry shall construct the closed shed for storage of coal and provide water sprinklers to control fugitive emissions.
22. The industry shall submit the actual coal consumption for 660 MW unit to the Regional office, Nellore once the commercial production commenced.
23. The industry shall relocate the 3 nos. of online AAQM stations from the existing locations to the following locations as directed by the regional officer, Nellore:
 - a) One AAQM station at coal yard
 - b) One station at ash handling area
 - c) One at security gate.
24. The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection.
 - a) Daily power generation details.
 - b) Quantity of Effluents generated, disposed.
 - c) Log Books for pollution control systems.
 - d) Daily Fly ash generated and disposed.
25. The industry shall develop the thick green belt in an area of 396 acres all along the periphery of the Industry and ash pond area.
26. The industry shall maintain good housekeeping in the plant premises.
27. The industry shall maintain energy meters to the air pollution control equipment. The industry shall maintain separate power consumption records pertaining to pollution control equipment.
28. The industry shall comply with the conditions stipulated in the CFE order dt.15.05.2010.
29. The applicant shall submit Environment statement in Form V before 30th September of every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
30. The industry shall comply with directions issued by Board from time to time.

31. The conditions stipulated are without prejudice to the rights and contentions of this Board in any Hon'ble Court of Law.

SCHEDULE - C

[See rule 5(4)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The industry should give top priority for waste minimization and cleaner production practices.
2. The industry should not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and amendments thereof.
3. The industry should store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
4. The industry should not dispose Waste oils to the traders and the same should be disposed to the authorized Reprocessors/ Recyclers.
5. The industry should dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
6. The industry should take necessary practical steps for prevention of oil spillages and carry over of oil from the premises.
7. The industry should maintain 6 copy manifest system for transportation of waste generated and a copy should be submitted to Board Office and concerned Regional Office.
8. The industry should maintain good house keeping & maintain proper records for Hazardous Wastes stated in Authorisation.
9. The industry should maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and amendments thereof.
10. The Industry should dispose of e-waste to the authorised recyclers only.
11. The unit should submit the condition wise compliance report of the conditions stipulated in Schedule A, B & C of this Authorisation on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-
MEMBER SECRETARY

To
M/s. Thermal Powertech Corporation India Ltd.,
Painampuram & Nelaturu (Villages),
Muthukur (M),
SPSR Nellore District - 524 344.

//T.C.F.B.O//

10/2/15
JOINT CHIEF ENVIRONMENTAL ENGINEER
UNIT HEAD - IV

M



ANDHRA PRADESH POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A-3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018.

Phone: 040-23887500
Fax: 040- 23815631
Grams : Kalusya Nivaranana
Website : appcb.ap.nic.in

**BY REGD. POST WITH ACKN. DUE
CONSENT ORDER**

Consent Order No : APPCB/VJA/NLR/HO/CFO/2015- 3594

Date : 27.08.2015

Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 (hereinafter referred to as 'the Acts', 'the Rules') and the rules and orders made thereunder to

M/s. Thermal Powertech Corporation India Ltd.,
Painampuram & Nelaturu (Villages),
Muthukur (M),
SPSR Nellore District - 524 344.
E-Mail: infor@tcpcl.com

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

i) Out lets for discharge of effluents:

S.No	Outlet discription	Max daily discharge Qty in m ³ /day (For 2 nd Unit of 660 MW Power plant of Stage-I)	Point of disposal
1.	Cooling Water Blow down (saline water)	58,000.0	72445 M ³ /day of waste water shall be discharged into sea marine outfall i.e. Bay of Bengal through marine out fall.
2.	First pass RO reject	11,112.0	
3.	Ash pond outlet	3333.0	
4.	Clarifier blow down	558.0	To ash pond
5.	DM Plant regeneration	56.0	After treatment shall be reused within plant premises for green belt development
6.	Boiler blow down	40.0	
7.	Misc. Service water (floor wash)	40.0	
8.	Domestic (Plant)	20.0	
			After treatment in STP, shall be used for greenbelt development within the plant premises & colony area.

ii) Emissions from chimneys:

No.	Description of Chimney
1.	Attached to Super Critical Boiler of capacity 1 x 2016 TPH (By flue)

This consent order is valid for power generation of following quantity only:

S.No.	Activity	Capacity
1	Electric Power generation	1 x 660 MW (2 nd Unit of Stage - I)

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A & B enclosed to this order.

This combined order of consent shall be valid for a period ending with the 31st day of July, 2016.

Sd/-
MEMBER SECRETARY

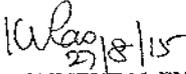
Encl: Schedule A & B.

To
M/s. Thermal Powertech Corporation India Ltd.,
Painampuram & Nelaturu (Villages),
Muthukur (M), SPS Nellore District – 524 344.

Copy to:

1. The JCEE, Zonal Office, Vijayawada for information and necessary action. He is directed to closely monitor the Units for ensuring compliance of the conditions and submit the compliance report to the Board.
2. The JCEE (Cess), APPCB, Hyderabad for information.
3. The Environmental Engineer, Regional Office, Nellore for information and necessary action. He is directed to closely monitor the Units for ensuring compliance of the conditions and submit the compliance report to the Board.

//T.C.F.B.O//


JOINT CHIEF ENVIRONMENTAL ENGINEER
(UH-IV)

SCHEDULE - A

1. The applicant shall make application through online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board.
2. This order is issued in line with Board's CFE orders dated 15.05.2010, 17.06.2015 and CFO order dt.24.02.2015. Concealing the factual data or submission of false information/fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
3. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
4. The project occupier shall immediately submit the revised application for consent to this Board in the event of any change in the building and site specifications, quantity of trade effluents & quantity of emissions etc.
5. The applicant shall not change or alter either the quality or the quantity or the rate of the discharge or the route of discharge and shall not change or alter either the prescribed quality or the rate of emission without the previous written permission of the Board.
6. The applicant shall, not later than 30 days from the date of issue of this consent order, certify in writing to the Board that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent. In absence of alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent, production shall be stopped.

7. Any up-set condition in the project, which results in increased effluent discharge and/ or violation of standards stipulated in this order or the emission of any Air Pollutant into the environment in excess of the standards laid down by the Board occurs or is apprehended to occur due to accident, or other unforeseen act or event, the person-in-charge of the premises, from where such discharge / emission occurs or is apprehended to occur shall forthwith intimate the fact of such occurrence or the apprehension of such occurrence to this Board, by fax / email under intimation to the Collector and District Magistrate.
8. In case of such episodal discharges / emissions mentioned in item 5 above, the project shall take immediate action to bring down the discharge / emission below the limits prescribed in this order.
9. A good housekeeping shall be maintained in the premises. All hoods, pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the effluent collection system only and shall not be allowed to find their way into storm drains or open areas.
10. a) The project shall carryout analysis of waste water discharges or emissions through chimneys, for the parameters mentioned in Schedule – B of this Order at regular intervals.
b) The project shall maintain following records for access to the Board, whenever required.
 - a) Analysis reports of waste water/ emissions.
 - b) Log book for operation of pollution control systems.
 - c) Inspection book
11. Separate power connection with energy meter shall be provided for the Pollution Control Equipments and record of power consumption and chemicals consumption for the operation of pollution control equipment shall be maintained separately.
12. The applicant shall comply with the directives/orders issued by the Board in this order and at all subsequent times without any negligence on his part. The applicant shall be liable for such legal action against him as per provisions of the Law/Act in case of non-compliance of any order/directive issued at any time and/or violation of the terms and conditions of this consent order.
13. The applicant shall furnish to the visiting officer and / or the Board any information regarding the construction, installation or operation of the effluent treatment system / air pollution control equipment / secured storage area of Hazardous Waste and such other particulars as may be pertinent for preventing and controlling pollution.
14. The project is liable to pay compensation for any environmental damage caused by it, as fixed by the Collector and District Magistrate as Civil liability.
15. All the rules & regulations notified by Ministry of Environment and Forests, Government of India in respect of management, handling, transportation and storage of hazardous chemicals and wastes shall be followed.
16. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 shall be followed.
17. The occupier shall educate the workers and nearby public of possible accidents and remedial measures.
18. The project shall comply with the provisions of Batteries (Management & Handling) Rules, 2001.
19. The project shall put up two sign boards (6x4 ft. each) at publicly visible places at the main gate. The first sign board shall provide information on specific conditions of CFO. The second sign board shall display waste water, air emissions and solid waste generated within the factory premises.
20. The applicant shall exhibit the Consent order of the Board in the factory premises at a prominent place for the information of the inspecting officers of the different departments.
21. Not withstanding anything contained in this conditional letter or consent, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and its amendments thereof and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and its amendments thereof to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.

22. The facility may explore the possibility of tapping the solar energy for their energy requirements.
23. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE - B

1. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S.No.	Purpose	Quantity in (M ³ /day) (For 2 nd Unit of 660 MW Power plant of Stage-I)
1.	For cooling tower make up (saline water)	99,128.0
2.	Non-cooling water – RO First pass	
	i) Ash handling sealing	1120.0
	ii) Coal handling plant dust suppression	2384.0
	iii) High Vacuum AC make up	830.0
	iv) Misc. services (for fire fighting etc.)	256.0
	v) RO Reject	11112.0
	vi) Clarifier blow down	528.0
	RO Second pass	
	i) DM Plant	1040.0
	ii) Domestic (Plant)	25.0
Total		1,16,423.0

2. The industry shall provide Separate digital water meters with totalizer, for assessing the quantity of water used for each of the purposes mentioned above and maintain records for the same.
3. The industry shall file the water cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the 5th of every calendar month, showing the quantity of water consumed in the previous month along with water meter readings. The industry shall remit water cess as per the assessment orders as and when issued by Board.
4. The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below.

Outlet No.	Parameter	Limiting Standards
1 to 3	p ^H	6.5 to 8.5
	Suspended Solids	100.0 mg/l
	Oil & Grease	20.0 mg/l
	Temperature	Shall not exceed 5 ^o C above the receiving water temperature
	Biochemical Oxygen demand (3 days at 27 ^o C)	100 mg/l
	Chemical Oxygen Demand (COD)	250 mg/l
	Arsenic	0.2 mg/l
	Mercury	0.01 mg/l
	Lead	2.0 mg/l
	Cadmium	2.0 mg/l
	Chromium(Total)	0.2 mg/l
	Phosphate	5.0 mg/l
	Zinc	1.0 mg/l
	Free available chlorine	0.5
	Bio assay test	90% survival fish after 96 hours in 100% effluents
4	p ^H	6.5– 8.5
	Suspended Solids	100.0 mg/l

	Oil & Grease	20.0 mg/l
5 to 8	p ^H	5.5 – 9.0
	Suspended Solids	200.0 mg/l
	Oil & Grease	10.0 mg/l
	Copper (Total)	1.0
	Iron (Total)	1.0
	Biochemical Oxygen Demand (BOD)	100.0 mg/l

5. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards
1	Particulate matter	50 mg/Nm ³

6. The industry shall maintain interlocking facility between APC equipment (ESP) and fuel feeding system for the boilers, so that the feeding of the fuel will be stopped automatically, in case, the ESP fails / tripping's are occurred.
7. The industry shall comply with ambient air quality standards of PM₁₀ (Particulate Matter size less than 10 µm) - 100 µg/ m³; PM_{2.5} (Particulate Matter size less than 2.5 µm) - 60 µg/ m³; SO₂ - 80 µg/ m³; NO_x - 80 µg/m³, outside the factory premises at the periphery of the industry.
Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009
Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A).
8. The industry shall not increase the power generation beyond the permitted capacity mentioned in this order, without obtaining CFO of the Board.
9. The industry shall provide online temperature recording facility to record the temperature of water before discharging into sea marine outfall and maintain required temperature before discharging into sea marine outfall.
10. The industry shall not provide any pipeline arrangements into the Buckingham canal in future as per the instructions of Irrigation & CAD Department, Govt. A.P vide letter No.487 Dt.04.08.2014
11. The industry shall provide transit storage facility for storage of fly ash.
12. The industry shall not store fly ash within the premises openly in dry condition. Efforts shall be taken to dispose all fly ash in dry form as much as possible instead of diverting it to wet ash pond. Dry ash collection system shall be maintained properly.
13. The industry shall achieve 100% disposal of Fly ash as per MoE&F Fly Ash Notification, 1999 and amendments thereof and shall submit time bound action plan before 30.09.2015 for 100% disposal of Fly ash generated from both generation units of Stage-I.
14. The industry shall provide the garland drain to the ash pond with collection tank to pump the water for ash slurry preparation.
15. The industry shall take measures around the ash pond area to avoid entry of animals in order to prevent accidents, breakage of emergency ponds and protection of greenbelt.
16. The industry shall submit the agreements made with the cement plants & brick units to dispose the boiler ash to the Regional office, Nellore within one month.
17. The industry shall provide Piezometric wells around the ash pond as per the CPCB guidelines.
18. The industry shall monitor all ground water pezo wells and submit report to RO, Nellore every three months indicating trends.
19. Garland canal shall be maintained around the fly ash pond to collect water that is expected to leach out and monitoring of such leachates shall be carried out.
20. The industry shall construct the closed shed for storage of coal and provide water sprinklers to control fugitive emissions.

21. The industry shall submit the actual coal consumption for 660 MW unit to the Regional office, Nellore once the commercial production commenced.
22. The industry shall establish and maintain the 3 nos. of online AAQM stations at the following location:
 - a) One AAQM station at coal yard
 - b) One station at ash handling area
 - c) One at security gate.
23. The industry shall install online continuous stack monitoring equipment for all the stacks for the parameters prescribed in this consent order and connect the same to the website of the Board within two months from the date of issue of this order. They shall submit purchase order within one month.
24. The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection.
 - a) Daily power generation details.
 - b) Quantity of Effluents generated, disposed.
 - c) Log Books for pollution control systems.
 - d) Daily Fly ash generated and disposed.
25. The industry shall develop the thick green belt in an area of 396 acres all along the periphery of the industry and ash pond area.
26. The industry shall maintain good housekeeping in the plant premises.
27. The industry shall maintain energy meters to the air pollution control equipment. The industry shall maintain separate power consumption records pertaining to pollution control equipment.
28. The industry shall comply with all the conditions stipulated in the CFE order No.177/PCB/CFE/RO-NLR/HO/2009-433, dt.15.05.2010 and in the CFO order No.APPCB/VJA/NLR/HO/CFO/2015-1675 dt. 24.02.2015 (1st Unit of Stage-I of 2 x 660 MW) within one month, otherwise the Board will be constrained to withdraw the consent issued to the Unit without any further notice.
29. The industry shall comply with directions issued by Board from time to time.
30. The applicant shall submit Environment statement in Form V before 30th September of every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
31. The conditions stipulated are without prejudice to the rights and contentions of this Board in any Hon'ble Court of Law.
32. The industry shall comply with CPCB directions dated 05.02.2014 and 02.03.2015 regarding installation of online monitoring systems.

Sd/-

MEMBER SECRETARY

To
M/s. Thermal Powertech Corporation India Ltd.,
Painampuram & Nelaturu (Villages),
Muthukur (M),
SPSR Nellore District – 524 344.

//T.C.F.B.O//

10/22/8/15

JOINT CHIEF ENVIRONMENTAL ENGINEER
(UH-IV)

A3



Recognized by Ministry of Environment Forest &
Climate Change, Govt. of India
An NABL Accredited Laboratory, Chemical & Biological Scope.
Approved by Food Safety Standards Authority of
India (FSSAI) Govt. of India
An ISO 45001 : 2018 Certified Laboratory

277

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Office Contact : 9885436529
Mobile : +91 8019 58 8820
E-mail: mail2carelabs@gmail.com
Web : www.carelabs.in

**ISSUED TO:**

Issue Date: 15.12.2021

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Sample Registration No: 8837/12/21-001

Date of Sampling: 06.12.2021

Analysis Starting Date: 08.12.2021

Analysis Completed Date: 15.12.2021

Sample Particulars: Heavy Metal Analysis of Coal- Dec 2021

Sampling Location: Coal Feeder - 2

Lab Ref: CL/HM/8837/12/21-001/21

TEST RESULTS

S.NO	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS	STANDARDS
1.	Arsenic as As	USEPA-3050B Dec-1996(Rev.2)	ppm	0.45	5.0
2.	Mercury as Hg	USEPA-3050B Dec-1996(Rev.2)	ppm	<0.02	0.2
3.	Chromium as Cr	USEPA-3050B Dec-1996(Rev.2)	ppm	1.30	5.0
4.	Lead as Pb	USEPA-3050B Dec-1996(Rev.2)	ppm	0.65	5.0

Note: USEPA- Environmental Protection Agency

Checked By



Authorized Signatory

ISSUED TO:

Issue Date: 15.12.2021

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Sample Registration No: 8837/12/21-001

Date of Sampling: 06.12.2021

Analysis Starting Date: 08.12.2021

Analysis Completed Date: 15.12.2021

Sample Particulars: Heavy Metal Analysis of Fly Ash- DEC 2021

Lab Ref: CL/HM/8837/12/21-001/21

TEST RESULTS

S.NO	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS	STANDARD
1.	Arsenic as As	UDECA-3050B Dec-1996(Rev.2)	ppm	0.40	5.0
2.	Mercury as Hg	UDECA-3050B Dec-1996(Rev.2)	ppm	<0.02	0.2
3.	Chromium as Cr	UDECA-3050B Dec-1996(Rev.2)	ppm	1.10	5.0
4.	Lead as Pb	UDECA-3050B Dec-1996(Rev.2)	ppm	0.40	5.0

Note: UDECA- Environmental Protection Agency

Checked By




Authorized Signatory


ISSUED TO:

Issue Date: 15.12.2021

M/s. Sembcorp Energy India Limited, Project-1
(2x660 MW Coal Based Thermal Power Plant),
Near Pynampuram/ Nelaturu (V), Muthukur (M),
SPSR Nellore (Dist.)- 524344.

Sample Registration No: 8837/12/21-001	
Date of Sampling: 06.12.2021	
Analysis Starting Date: 08.12.2021	Analysis Completed Date: 15.12.2021
Sample Particulars: Heavy Metal Analysis of Bottom Ash- DEC 2021	
Lab Ref: CL/HM/8837/12/21-001/21	

TEST RESULTS

S.NO	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS	STANDARD
1.	Arsenic as As	UDECA-3050B Dec-1996(Rev.2)	ppm	0.35	5.0
2.	Mercury as Hg	UDECA-3050B Dec-1996(Rev.2)	ppm	<0.02	0.2
3.	Chromium as Cr	UDECA-3050B Dec-1996(Rev.2)	ppm	0.80	5.0
4.	Lead as Pb	UDECA-3050B Dec-1996(Rev.2)	ppm	0.36	5.0

Note: UDECA- Environmental Protection Agency

Checked By




Authorized Signatory




क्रम सं. / SL NO. : 522 A 52189

विआप्रौवो / बीएआरसी वाशी कॉम्प्लेक्स,
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भारत सरकार / GOVERNMENT OF INDIA

परमाणु ऊर्जा विभाग / DEPARTMENT OF ATOMIC ENERGY

विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड / BOARD OF RADIATION & ISOTOPE TECHNOLOGY

रेडियोसक्रियता परीक्षण प्रमाण-पत्र / RADIOACTIVITY TEST CERTIFICATE

Page 1 of 1

RADIOANALYTICAL LABORATORY

Ref: BRIT/RAL/D/665-88/MISC/588-611/21-22
TO
M/S. CARE LABS
PLOT NO. 1, 3RD FLOOR, SAI SADAN COMPLEX
ABOVE PUNJAB NATIONAL BANK,
SHIVA GANGA COLONY, L.B. NAGAR,
HYDERABAD-500074.

OCT 27, 2021

This is regarding the SAMPLES sent by you vide your letter dated 13.10.2021, for radioactivity analysis with the following details as shown in italics :

SAMPLE NO.	SAMPLE DESCRIPTION	DATE OF SAMPLING
1.	COAL SAMPLE 1	15.09.2021
2.	COAL SAMPLE 2	15.09.2021
3.	FLY ASH SAMPLE 1	15.09.2021
4.	FLY ASH SAMPLE 2	15.09.2021
5.	BOTTOM ASH SAMPLE 1	15.09.2021
6.	BOTTOM ASH SAMPLE 2	15.09.2021

The samples were analysed for U-238, Ra-226, Th-232 and K-40 and the values obtained are as follows:

SR. NO.	SAMPLE DESCRIPTION	U-238 (Bq/Kg)	Ra-226 (Bq/Kg)	Th-232 (Bq/Kg)	K-40 (Bq/Kg)
1	COAL SAMPLE 1	34.4 ± 2.1	29.2 ± 3.0	46.6 ± 5.1	134.7 ± 9.9
2	COAL SAMPLE 2	5.7 ± 0.6	MDL 1.23	2.7 ± 0.3	39.6 ± 3.6
3	FLY ASH SAMPLE 1	87.2 ± 3.2	103 ± 6.7	129.6 ± 5.2	304.5 ± 15.9
4	FLY ASH SAMPLE 2	69.1 ± 2.1	66 ± 4.8	94.7 ± 9.6	308.9 ± 15.3
5	BOTTOM ASH SAMPLE 1	71.7 ± 2.3	68.6 ± 5.1	108.1 ± 4.4	288.4 ± 15.4
6	BOTTOM ASH SAMPLE 2	66.3 ± 3.3	77.4 ± 6.3	94.4 ± 4.1	312.5 ± 18.7

Date of receipt of sample: 22.10.2021

Date of completion of test: 23.10.2021

The measurement values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table-3) dated 26/11/2010.

Note: (i) The report pertains to the given sample only. (ii) The sample will be retained in this laboratory for a period of one month from certificate date and thereafter it will be disposed off. (iii) This report shall not be reproduced except in full, without written approval of the laboratory. (iv) The sampling is not done by this laboratory.

checked by:

Authorized Signatory

****End of Report****

अजय एन. ठमके / Ajay N. Thamke
प्रभारी अधिकारी / Officer-In-Charge
रेडियोसक्रियता प्रयोगशाला / Radioanalytical Laboratory
विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड
Board of Radiation & Isotope Technology
सेक्टर - 20 / वाशी संकुम / Vashi Complex
नवी मुंबई / Navi Mumbai - 400 703



No. J-13012/2/2009-IA.I (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 09.10.2019

OFFICE ORDER

Sub: 2x660 MW (Stage-I) Super Critical Coal Based TPP at Village Painampuram & Nelaturu, in Muthukur Mandal, in SPSR Nellore Distt., in Andhra Pradesh by M/s Thermal Powertech Corporation (India) Ltd.-reg. Transfer of EC

The undersigned is directed to refer the online application No. **IA/AP/THE/10458/2009** submitted by M/s Sembcorp Energy India Ltd. for transferring the Environmental Clearance dated 4.11.2009.

2. The Environmental Clearance for establishing 3x660 MW Thermal Power Project in Nellore District near Krishnapatnam Port has been issued to M/s Thermal Powertech Corporation (India) Ltd. vide Ministry's letter dated 4.11.2009 and valid for 5 years (till 3.11.2014). The EC validity was extended for another year (till 3.11.2015) vide Ministry's letter dated 2.3.2015. As the EC was valid on the date of EIA Amendment Notification (29.4.2015) which changed the validity of EC from 5 to 7 years, the validity of this EC has also become seven years (till 3.11.2016).

3. It has been noted that the first two units (2x660 MW) were commissioned and in operation since March, 2015 and September, 2015, respectively. Since the third unit is in the design stage and proposed to be implemented in future, M/s Thermal Powertech Corporation (India) Ltd. vide online application dated 27.10.2016 applied for extension of validity of EC for further period of 05 years. The EAC (Thermal Power) in its meeting held on 20.1.2017, recommended for extension of validity of EC for a period of two years (till 3.11.2018) subject to submission of certified compliance report from Regional Office and details of coal linkage from Ms/ MCL and Power Purchase Agreement (PPA). The Ministry vide letter dated 6.3.2017 communicated to M/s Thermal Powertech Corporation (India) Ltd. to submit the additional information sought by the EAC. However, M/s Thermal Powertech Corporation (India) Ltd. has not responded to the Ministry's letter even after 6 months. As the additional information was pending for more than 06 months, the proposal was de-listed from the pendency with the approval of Competent Authority.

4. In the present application, M/s Sembcorp Energy India Limited vide their online application sought transfer of EC to their name. It is mentioned that the company name has been changed from M/s Thermal Powertech Corporation (India) Ltd. to M/s Sembcorp Energy India Limited and this does not affect any rights and obligations of the company and company remains to be same entity for all practical purposes with same rights, privileges and liabilities as before.

5. The pattern of Shareholding of the company asset between M/s Thermal Powertech Corporation (India) Ltd. and M/s Sembcorp Energy India Ltd. from the date of EC till date.

Details	Date	% of shareholding	
		Parent Company:	Parent Company:
		M/s Gayatri Energy Ventures Pvt. Ltd. Subsidiary Company: M/s Thermal Powertech Corporation (India) Ltd.	M/s Sembcorp Utilities Pte Ltd. Subsidiary Company: M/s Sembcorp Energy India Limited
EC issued	4.11.2009	100%	Nil
Current shareholding pattern	11.3.2019	6.27%	93.73%

6. The Registrar of the Companies has issued the certificate under Companies (Incorporation) Rules, 2014 for changing the name of the company from M/s Thermal Power tech Corporation India Limited to M/s Sembcorp Energy India Limited vide dated 20.2.2018.

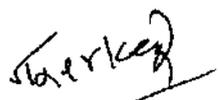
7. It has been noted that the construction of unit-3 (660 MW) has not been commenced and established till date, the validity of EC has not been extended beyond 7 years (beyond 3.11.2016), the EC transfer/name change is applicable only for two units (2x660 MW) which are currently under operation.

8. The Ministry has examined the application. In view of the information/clarification furnished by you, and as per the para 11 of EIA Notification, 2006, **the Ministry hereby transfers the Environmental Clearance dated 4.11.2009 and its validity extension letter dated 2.3.2015 in favour of M/s Sembcorp Energy India Ltd. subject to the following additional conditions:**

- The Environmental Clearance is valid only for 2x660 MW (Stage-I).
- Revised emission standards (PM: 50 mg/Nm³; SO₂: 200 mg/Nm³; NO_x: 300 mg/Nm³; Mercury: 0.03 mg/Nm³) and the specific water consumption as per the Ministry's notification dated 07.12.2015, 28.6.2018 and subsequent amendments notified from time to time shall be complied with.

9. All other conditions mentioned in this Ministry's EC letter dated 4.11.2009 and validity extension letter dated 2.3.2015 shall remain same, as applicable.

This issues with the approval of the Competent Authority.


(Dr. S. Kerketta)
Director, IA.I

M/s Sembcorp Energy India Ltd.
(Formerly Thermal Powertech Corporation India Ltd)
Pyanampuram / Nelaturu Village
Muthukur Mandal, SPSR Nellore-524344.

Copy to:-

- The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
- The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
- The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.

4. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (SEZ), Ist and IInd Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Principal Secretary, Environment, Science and Technology, Government of Andhra Pradesh, Secretariat Office, 4th Block, Ground Floor, Room no.187, Velagapudi, Amaravathi-522238, Andhra Pradesh.
6. The Chairman, Andhra Pradesh State Pollution Control Board, D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada - 520008.
7. The District Collector, SPSR Nellore District, Govt. of Andhra Pradesh, Achari Street, Nellore, Andhra Pradesh-524001.
8. Guard file/Monitoring File.
9. Website of MoEF&CC.


Director, IA. I

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CRZ AMENDMENTS

(Form Submitted Report)

CATEGORY - A

Note : If space provided against any parameter is inadequate, Kindly upload supporting document under 'Additional Attachments if any' at the last part of the Form1. Please note that all such Annexures must be part of single pdf document.

(I) Basic Informations

S.No.	Item	Details				
1.	Name of the Project	SEMBCORP ENERGY INDIA LIMITED				
2.	Proposal No.	IA/AP/CRZ/273835/2022				
3.	CRZ Clearance Issued	YES				
3.a	File No.					
3.b	Crz Clearance Details	CRZ Clearance for the construction of pump house, sea water intake and outfall facilities				
3.c	Date Of CRZ Clearance Issued	2011-12-05 00:00:00.0000000				
3.d	CRZ Issued Letter	CRZ Issued Letter				
4.	Affidavit by Transferor	Affidavit by Transferor				
5.	Affidavit by Transferee	Affidavit by Transferee				
6.	Attach Documents (if Any)	Additional Documents				
7.	Covering Letter	Covering Letter				
8.	Reason For Transfer	Change of Company Name				
9.	Copy of NCLBT Order	Copy of NCLBT Order				
10.	Validity of CRZ clearance	31/12/2024				
11.	Location of the Project					
	Plot No./Survey No./Khasra No.	State	District	Tehsil	Village/Town	Pincode
	278-2, 279-2	Andhra Pradesh	Nellore	Muthukur	PAINAMPURAM	524344
	Essential Details Sought					
S. No.	EDS Sought Date	EDS Sought			Letter	
NO Record						
	Additional Details Sought					
S. No.	ADS Sought Date	ADS Sought			Letter	
NO Record						

Undertaking

I hereby give undertaking that the data and information given in the application and enclosures are true to be best of my knowledge and belief and nothing contravening the provisions of CRZ Notification, 2011 has been concealed therefore. I am aware that if any part of the data and information found to be false or misleading at any stage, the project will be rejected and

clearance given, if any to the project will be revoked at our risk and cost. In addition to above, I hereby give undertaking that no activity/ construction/ expansion has since been taken up.

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25.	Name of Applicant Designation Name of Company (Applicant Name should not be given here) Address	Pavan Kumar Rao HeadHSE SEMBCORP ENERGY INDIA LIMITED Painampuram, Nelaturu villages, Muthukuru Mandal
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SEIL P1/MoEF&CC/Chennai/2021/005
27th December 2021

To
The Regional Director,
Regional Office (South Eastern Region),
Ministry of Environment, Forests & Climate Change,
1st & 2nd Floor, HEPC Building, No. 34, Cathedral Garden Road,
Nungambakkam,
Chennai- 600034

Sembcorp Energy India Limited
CIN: U40103HR2008PLC095648
Regd. Office: 5th Floor, Tower C, Building No 8
DLF Cybercity, Gurgaon - 122002, Haryana, India
Tel (91) 124 389 6700 / 01
Fax (91) 124 389 6710
E-mail: cs.india@sembcorp.com
Website: www.sembcorpenergyindia.com

**Sub.: Submission of Half Yearly CRZ Compliance Report of Sembcorp Energy India Limited
Project-1 (formerly known as Thermal Powertech Corporation India Limited— TPCIL)
for the period from April 2021 to September 2021**

Ref.: CRZ clearance Letter No. F.No. 11-129/2010-IA – III dated 5th December 2011

Dear Sir,

This has reference to the above subject, we are hereby submitting the Half Yearly compliance status report for the period from April 2021 to September 2021 along with supporting documents to the conditions specified under CRZ Clearance issued to Sembcorp Energy India Limited Project-1 (Formerly known as Thermal Powertech Corporation India Limited— TPCIL), Nellore.

Hope the above is in order.

Thanking you,

Yours faithfully,
For Sembcorp Energy India Limited


Pavan Kumar Rao V
Head HSE- SEIL

Copy To: 1. The Director, IA.I, MoEF & CC, New Delhi
2. The Environmental Engineer, APPCB, Nellore

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**SIX-MONTHLY
CRZ CLEARANCE COMPLIANCE
REPORT
OF
Sembcorp Energy India Limited Project-1**

(Formerly Known as THERMAL POWERTECH CORPORATION INDIA LIMITED)

2 X 660 MW COAL BASED SUPERCRITICAL THERMAL POWER PLANT

(STAGE I - 2 X 660 MW)

AT PAINAMPURAM & NELATURU VILLAGES, MUTHUKUR MANDAL

SPSR NELLORE DISTRICT

ANDHRA PRADESH

INDIA



Period: April 2021 to September 2021

Background:

Sembcorp Energy India Ltd Project-1 [formerly known as Thermal Powertech Corporation India Limited (TPCIL)] is a leading independent power company in India. SEIL is promoted by Sembcorp Utilities Pvt. Ltd., which is part of the Singapore based Sembcorp Group.

SEIL Project-1 is currently consisting of 2x660 MW is under operation since March 2015.

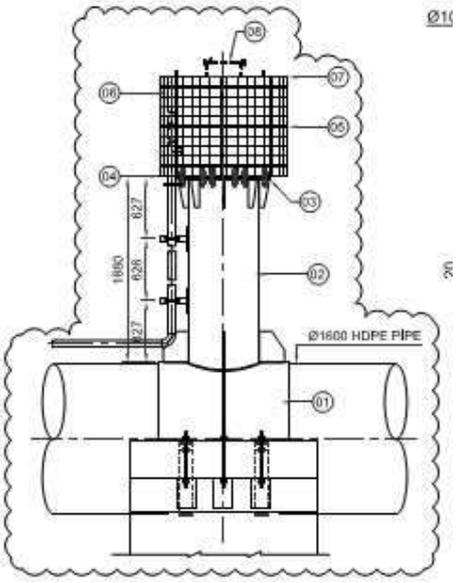
The latitude & longitude of North South extremes of Site are 80°08'35.956"E & 14°19'5.211"N and 80°09'16.325"E & 14°21'0.874"N respectively.

CRZ Clearance for the project is obtained from Ministry of Environment & Forests, Vide F.No.11-129/2010-IA.III Dated: 5th Dec 2011. The condition wise compliance to the clearance letter is detailed below.

CONDITION WISE COMPLIANCE AGAINST CRZ CONDITIONS

S. No.	CRZ CONDITIONS	COMPLIANCE STATUS
<u>SPECIFIC CONDITIONS:</u>		
i.	"Consent For Establishment" shall be obtained from state pollution control board under air and water act and a copy shall be submitted to the Ministry before start of any construction work at the site.	<p>Complied.</p> <p>Consent For Establishment (CFE) from AP Pollution Control Board has been obtained vide Order. No. 177/PCB/CFE/RO/-NLR/HO/2009-433, Dated: 15/05/2010.</p>
ii.	Cutter suction dredging shall be adopted instead of grab technology so as to control the sediments during dredging.	<p>Complied.</p> <p>Cutter suction dredging was adopted during the said activities.</p>
iii.	Top of the pipeline buried shall be minimum 2 m below the sea bed. The PP shall obtain a certificate of compliance from the agency executing the pipeline, with supporting documentation and shall submit to RO of MoEF and to state PCB.	<p>Complied.</p> <p>Pipeline is buried at 2 m below the seabed. The compliance certificate submitted to RO of MoEF and APPCB. Copy of the same is given here.</p> <div style="text-align: right;">  </div> <p>Date: 24th June' 2014</p> <p>Sub.: Sea Water Intake Pipeline Installation Certificate</p> <p style="text-align: center;"><u>TO WHOMSOEVER IT MAY CONCERN</u></p> <p>Dear Sir,</p> <p>Vide Order No. TPCIL/INFRA-01/SWI & EXT CHP/SUPPLY/001 & TPCIL/INFRA-01/SWI & EXT CHP/SERVICES/002 dated 29-12-10 from TPCIL we have executed the work of laying the sea water intake and outfall pipelines including offshore Intake System and Diffusers for their 2X660MW Coal based Thermal Power Project at Painapuram and Nelatur Villages, Muthukuru Mandal, SPSR Nellore district.</p> <p>Entire offshore intake pipeline and Outfall pipeline of length 2000Mtrs and 1200Mtrs respectively are installed and buried in the sea bed with a minimum back fill of 2Mtrs from top of the pipeline. This is ensured through conducting post pipeline laying and post backfilling offshore depth survey through Ecosounder (Bathymetry survey). Cross section profiles for offshore chainage from LFP to Intake Header and Outfall diffuser has been attached for your reference.</p> <p>Thanking You.</p> <p>For GAYATRI PROJECTS LIMITED</p> <div style="text-align: center;">  </div> <p>L.S.N. MURTHY DGM - Projects, GPL (EPC-PP).</p> <div style="text-align: center;">  </div> <p style="font-size: small;">Gayatri Projects Limited, B-1, 5-3-1190, TDR Towers 110, Jinnah Road, Somajiguda, Hyderabad-500 082 CIN: L28080AP1909PLC067289</p> <p style="font-size: x-small;">T: +91-90 8551 0507 / 8284 / 8036 F: +91-90 2259 4132 E: info@gayatri.com www.gayatri.com</p>

iv.	No effluent from fly ash system is permitted to discharge into the marine system as committed by PP. The effluent from fly ash shall be treated and the entire quantity shall be recycled in the cooling tower makeup etc., and suitable meter shall be installed to record the quantity of effluent recycled.	<p>Complying.</p> <p>No effluent from fly ash system is discharged into marine water. The entire effluent water from ash pond is collected and recycled. Flow Meters are installed for recording the quantity.</p>
v.	Shall implement all the measures as committed to the Ministry as a part of the clarifications submitted by the PP. A copy of these submissions shall be submitted to RO of MoEF.	<p>Complied.</p> <p>SEIL has implemented all the measures as committed to the Ministry.</p>
vi.	A suitable STP shall be used for green belt, dual plumbing system etc., measuring meters shall be provided to record the treated effluent used for different purposes.	<p>Complied.</p> <p>STP is provided to treat the domestic sewage generated at the site. The treated water is being used for greenbelt development.</p>
vii.	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF-RO.	<p>Complying.</p> <p>The mitigation measures along with compliance are being followed at SEIL.</p>

<p>viii.</p>	<p>The proponent shall commit himself to be one of the partners / proponents (who have undertaken / will be undertaking similar power projects in the close proximity of site) as and when instructed by the MoEF/State Government Authorities in preparing an overall EIA report comprising both terrestrial / marine EIA components for the region and share the cost of the study and proposed mitigation measures for the coastal stretch as decided by the authorities in the best interest of protecting the environment.</p>	<p>Noted for compliance.</p>
<p>ix.</p>	<p>Appropriate screens and trash bars shall be put in place at the intake to avoid fish entering into the pipe due to heavy quantity of water drawl by once through water intake system.</p>	<p>Complied.</p> <p>Appropriate screens and trash bars are provided to avoid fish entering into the pipe.</p>  <p style="text-align: center;">INTAKE VELOCITY CAP UNIT TYP. DETAIL</p>

x.	Temperature and salinity level shall be monitored regularly by providing on-line monitoring system at the appropriate location on the outfall system.	<p>Complying.</p> <p>The parameters are being monitored regularly by providing online EQMS which is connected to APPB/CPCB on real time basis.</p>
xi.	Periodic monitoring of coastal water shall be carried out at outfall location.	<p>Complying.</p> <p>Monthly joint sampling of coastal water is being practiced along with state PCB office.</p>
xii.	No construction work other than those permitted in coastal regulation zone notification shall be carried out in coastal regulation zone area.	<p>Complied.</p>
xiii.	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a senior executive.	<p>Complied.</p> <p>SEIL established an Environment Management Cell with suitable qualified personnel under the supervision of Head-HSE.</p>
xiv.	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	<p>Complied.</p>

S. No.	CRZ CONDITIONS	COMPLIANCE STATUS
<u>GENERAL CONDITIONS:</u>		
i.	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Noted for compliance.
ii.	Full support shall be extended to the officers of this Ministry / regional office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Noted for compliance.
iii.	A six – monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bangalore regarding the implementation of the stipulated conditions.	Complying. Latest Half Yearly compliance report submitted vide Letter No: SEIL P1/MoF&CC/Chennai/2021/003 dated 08 th June 2021.
iv.	Ministry of Environment & Forests or any other competent Authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted and shall be complied.
v.	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with satisfaction of the Ministry.	Noted.

vi.	In the event of change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted for compliance.
vii.	The project proponents 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 the date of start of land development work.	Complied and Communicated.
viii.	A copy of the clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom any suggestions / representation has been made received while processing the proposal.	Complied.
ix.	Tamil Nadu Pollution Control Board shall display a copy of the clearance letter at the Regional Office, district industries centre and Collector's Office/ Tahsildar's office for 30 days.	Noted. Copy of compliance has been submitted to APPCB.
x.	These stipulations would be enforced among others under the provisions of water (prevention and control of pollution) Act 1974, the air (prevention and control of pollution) Act 1981, the environment (protection) Act, 1986, the public liability (Insurance) Act 1991 and EIA notification 1994, including the amendments and rules made thereafter.	Noted.
xi.	All other statutory clearances such as the approvals for storage of diesel from chief controller of explosives, fire department, civil aviation department, forest conservation Act, 1980 and wild life (Protection) Act, 1972 etc., shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied and all the necessary approvals are obtained from respective authorities.

Xii.	The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded environmental clearance and copies of clearance letters are available with the state pollution control board and may also be seen on the website of the Ministry of Environment and Forest at http://www.envfor.nic.in . The advertisement should be made within 10 days from the date of receipt of the clearance letter and a copy of the same should be forwarded to the regional office of this Ministry at Bangalore.	Complied and Communicated.
xiii.	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in writ Petition (civil)No.460 of 2004 as may be applicable to this project.	Noted.
xiv.	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Noted and compliance statement is being uploaded on Sembcorp website at https://www.sembcorpenergyindia.com/AboutUs/Disclosure
xv	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad / Municipal corporation, urban local body and local NGO, if any from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied.

xvi.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their 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 SPCB.	Noted and uploaded on the Sembcorp website. The reports are being sent to concern regulatory bodies.
xvii.	The proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data to the respective Regional Office of MoEF, the respective zonal office of CPCB and the SPCB.	Complied. Six monthly EC Compliance reports are being submitted to concern regulatory bodies.
xviii.	The Environmental statement for each financial year ending 31 st 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 along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	Complied. Environmental Statement (Form-V) for each financial year is being submitted to APPCB and the same is uploaded on company Website. Reports are being submitted to respective regulatory bodies.

A.P. POLLUTION CONTROL BOARD
 Environmental Public Hearing Notification

ENVIRONMENTAL PUBLIC HEARING NOTIFICATION
 In accordance with the Notification no. 1533/08
 dt. 14.09.2008 of Ministry of Environment & Forests,
 Government of India, We hereby notify for a Public Hearing on
 the project establishment of steel based power project by
 M/s. Thermal PowerTech Corporation India Ltd., Panchpuram
 (Panchpuram) and Naluru villages of Mathuramandal, SPS
 Nellore Dist.

The details of the activities are as follows:

Name of the Company: M/S. THERMAL POWERTECH CORPORATION
 NOX-110, 4-9-1000 B, T.S.R Towers,
 Rajagopal Road, Somanguda,
 Hyderabad-500 082

Place of the activity: Panchpuram (Panchpuram) and
 Naluru Villages

Panchpuram (Panchpuram) Village Survey Details			
226/12	272/12	280/12	281
226	285	288	287
294	291	292	293
296	297	298	299
300	303	304	305
310	313	314	315
311	340	341	342
350	351	352	353
378	379	380	381
384	385	386	387
389	391	392	393
395	397	398	399

Naluru Village Survey Nos			
242	243	244/12	245/12
250	252	253	254
260	261	262	263
264/12	265/12	266/12	267/12
268	269	270	271
282/12	283/12	284	285/12
286/12	287	288/12	289
291/12	292/12	293	294
300	301	302	303

3. Name of the Project and Address: M/S. Oxygen Project Ltd.,
 C-3, 1200, B-1,
 T.S.R. Towers, Rajagopal Road,
 Somanguda, Hyderabad-500 082

4. Name of the Authorized person to be contacted with address & phone No.:
 Mr. S. S. Raju
 Vice-President
 M/s Thermal PowerTech Corp. India Ltd
 C-3-1200, B-1, T.S.R. Towers,
 Rajagopal Road, Somanguda,
 Hyderabad-500082
 Tel No. 944 0821 0200/428 4208

5. Capital cost of the Project: Rs. 13,874 Cr.

6. Line of activity / capacity: Thermal Power - 1400 MW

7. Date, Time, Venue: 29th August 2009
 11:00 A.M.
 Naluru Mandal Panchayat Primary School
 Panchpuram (Panchpuram) Village,
 Mathuramandal, S.P.S. Nellore Dist.

8. Place of availability of the details of above project:
 a) Control Director Office, Nellore. b) District In-charge, Nellore.
 c) Office of the CEO, 2 to 3, Nellore. d) M.O. of
 Revenue, Hyderabad. e) District In-charge, Nellore. f) M.O. of
 Revenue, Hyderabad. g) District In-charge, Nellore. h) District
 In-charge, Nellore. i) District In-charge, Nellore. j) District
 In-charge, Nellore. k) District In-charge, Nellore. l) District
 In-charge, Nellore. m) District In-charge, Nellore. n) District
 In-charge, Nellore. o) District In-charge, Nellore. p) District
 In-charge, Nellore. q) District In-charge, Nellore. r) District
 In-charge, Nellore. s) District In-charge, Nellore. t) District
 In-charge, Nellore. u) District In-charge, Nellore. v) District
 In-charge, Nellore. w) District In-charge, Nellore. x) District
 In-charge, Nellore. y) District In-charge, Nellore. z) District
 In-charge, Nellore.

Suggesting, views, comments and objections of the public if
 any are invited within 30 days from the date of the publication
 of the notification from all persons including local residents,
 concerned persons and Environmental Groups, should be
 submitted to the designated office at A.P. Pollution
 Control Board, Nellore. All these persons can participate in the public
 hearing on the date and venue specified above.

Sd/- XXXX
 Environmental Engineer
 A.P. Pollution Control Board
 Nellore Office, Nellore

Date: 03/07/2009

ANNEXURE - 20

PUBLIC HEARING - NOTIFICATION
 DECLAN CHRONICLE
 03/07/2009.

BEFORE THE HON'BLE NATIONAL
GREEN TRIBUNAL
(SOUTHERN ZONE)
CHENNAI

O.A. No. 105 of 2015 (SZ)

Yanati Srinivasulu & Anr.

... Applicant

Versus

The Chief Secretary, Govt. of AP
And others

... Respondents

**TABULAR COLUMN BEING FILED
BY THE 9TH RESPONDENT IN TERMS
OF THE ORDER DATED 9TH
FEBRUARY 2023 PASSED BY THIS
HON'BLE TRIBUNAL**

M/s. Kapil Arora (D/1421/03),
Juvraj Singh Bindra,
Gautam S.Raman (Ms.1583/13)&
Palak Nagar (D/5755/18)

COUNSEL FOR 9TH RESPONDENT

99400 71160

gautamraman@gmail.com

No. 89, Kasthuri Avenue, M.R.C. Nagar,
R.A. Puram, Chennai – 600 028.