

Item No.01

**BEFORE THE NATIONAL GREEN TRIBUNAL
CENTRAL ZONAL BENCH, BHOPAL**

(By Virtual Mode)

Original Application No.73/2023(CZ)

Lalman Shah & Others

Applicant(s)

Versus

State of Madhya Pradesh & Others

Respondent(s)

Date of hearing: 08.08.2023

**CORAM: HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER**

For Applicant(s) : None

For Respondent(s): Shri Venkatesh, Advocate for R-6 (Sasan Power Limited)
Mr. Anant Singh, Advocate for R-6
Mr. Kunal, Advocate for R-6
Mr. Vijay S., Advocate for R-7
Ms. Parul Bhadoria, Advocate for MPPCB

ORDER

1. This Original Application was registered on a letter petition, dated nil received on 28.03.2023, from Mr. Lalman Shah and others, taken suo moto cognizance by this Tribunal. All are farmers and residents of Village Sasan, Tehsil Singrauli, District Singrauli, State of Madhya Pradesh. It is alleged that they are victims of environmental pollution caused by Sasan Power Plant (Reliance Sasan Power Ltd.) (hereinafter referred to as '**Respondent 6**').

2. Complaint was that respondent 6 i.e., Project Proponent has not taken any steps for improvement of environment, providing medical and education facilities to local residents, crops are being damaged due to pollution caused by fly ash generated by project proponent and complainants who are dependent on agriculture, are suffering in the

matter of their right to livelihood; no employment has been generated by respondent 6; in all fairness and in interest of environment, it would be appropriate if respondent 6 unit is transferred or shifted to some other place or appropriate directions be issued for providing compensation due to damage cost to the crops and appropriate steps be directed to be taken for providing/compliance with social responsibilities like medical facilities, education and Community Social Responsibility (CSR).

3. Complaint was examined by Tribunal on 07.07.2022, and it found appropriate to obtain factual and action taken Report for which a Joint Committee was constituted comprising of Madhya Pradesh Pollution Control Board (hereinafter referred to '**MPPCB**') and District Magistrate, Singrauli.

4. Joint Committee submitted its Report along with letter dated 24.08.2022 through Madhya Pradesh Pollution Control Board.

5. Report shows that pursuant to Tribunal's order dated 07.07.2022, District Magistrate, Singrauli nominated (i) Shri Rishi Pawar, Sub Divisional Officer and Magistrate, Singrauli, (ii) Dr.Lavkush Singh, Assistant Director Agriculture, Singrauli, (iii) Dr. Abhay Ranjan Singh, Block Medical Officer, Khutaar, Singrauli.

6. On behalf of MPPCB, Shri Mukesh Shrivastav, Regional Officer, Singrauli and Shri Arvind Sawale, Sub Engineer, MPPCB, Singrauli were made members of Committee.

7. Committee visited site on 04.08.2022, interacted with some of applicants and local Revenue Officers, including Tehsildar, Revenue Inspector and Patwari etc. Unfortunately, a very cursory Report was submitted without looking into various aspects pointed out in Tribunal's

order dated 07.07.2022. Report says in para 1.7 and 1.8 that proponent has established air pollution control arrangements and pollution monitoring has been carried out by regional laboratory, MPPCB. The contents of Report in para 1.7 and 1.8 are reproduced as under:

*“1.7 M/s Sasan Power Plant (Reliance Sasan Power Limited) have established following air pollution control arrangements:
Fixed type water sprinklers to suppress the dust emission, Conveyor galleries and transfer points are covered, Dust extraction systems in transfer points is installed, Dust suppression system in conveyor belt, Plantation along the boundary wall.*

1.8 Air pollution monitoring is frequently carried out by regional laboratory, MPPCB.”

8. This Report was examined by Tribunal on 21.09.2022. It was seriously deprecated that despite serious complaints noted by Tribunal in its order dated 07.07.2022, Committee has not performed its duty properly but in a cursory and casual fashion, report without addressing various issues, has been submitted. Report is clearly incomplete with superficial and conjectural observations.

9. After deprecating Report and the manner in which Joint Committee had discharged its function, Tribunal found it appropriate to constitute another Committee comprising Regional Office of MoEF&CC, Bhopal, CPCB, MPPCB and District Magistrate, Singrauli. Tribunal also directed said newly constituted Joint Committee to deal with all relevant issues including certain aspects specifically mentioned. We find it appropriate to reproduce para 5, 6, 7 and 8 of order dated 21.09.2022 as under:

“5. We have gone through the report and find that the Joint Committee has not properly addressed the issues involved and has casually submitted incomplete report with superficial/conjectural observations. The Joint Committee has merely mentioned about installation of pollution control arrangements by the Project Proponent but has not looked into the aspects of actual functioning and efficacy thereof and has also not mentioned even a single word regarding compliance with the consent conditions by the Project Proponent as well as the aspects of fly ash generation, storage and disposal. The Joint Committee has also not gone into the question of damage to

crops of the applicant caused due to fly ash pollution. The Joint Committee felt contended with the report of the Deputy Director, Farmers Welfare and Agricultural Department, District Singhroli without noticing that in the report the above said officer had merely mentioned that there is no standard available with the Department regarding assessing destruction, damage to crop due to pollution and coal yard. The report submitted by the Joint Committee merits nothing but outright rejection. We also express our displeasure over the manner in which the Joint Committee has carried out the inspection and submitted the report without addressing all the relevant material issues involved.

6. *In the facts and circumstances of the case, we are constrained to reconstitute the Committee by adding representatives of Regional Office of MoEF & CC at Bhopal and CPCB and the Joint Committee now comprising of Regional Office of MoEF & CC at Bhopal, CPCB, State PCB and District Magistrate, Singhroli is directed to meet within three weeks, undertake site visits, look into the grievances of the applicant, verify the factual position and take requisite remedial action by following due process of law and giving opportunity of being heard to the Project Proponent. State PCB will continue to be the nodal agency for compliance and coordination.*

7. *In its report, the Joint Committee shall specifically deal with all relevant issues raised in the application including the following aspects:*

- i. Compliance with the consent conditions by the Project Proponent;*
- ii. Account of the Fly Ash generation, storage and disposal;*
- iii. Actual functioning and efficacy of the pollution control measures/arrangements;*
- iv. Quality of air and water in the plant premises and surroundings; and*
- v. Compliance with environmental norms and impact of air or water pollution if any on residents of the locality' livestock, soil, vegetation agricultural crops etc."*

8. *The Joint Committee shall also make an assessment as to whether any air/water pollution caused by the Project Proponent resulted in any damage to the agricultural crops in the vicinity of the power plant and if so make its recommendations regarding quantum of compensation required to be paid to the affected persons. For this purpose, the Joint Committee may associate one or more of the experts from any of the Agriculture University/Institute in the region and/or seek report from the concerned Revenue Officials regarding average agricultural yield in the affected land and average agricultural yield in other unaffected land in the vicinity".*

10. Tribunal also directed to implead State of Madhya Pradesh through Chief Secretary, Regional Officer, MoEF&CC, Bhopal, CPCB, MPPCB,

District Magistrate, Singrauli and project proponent as respondents 1 to 6. They were further directed to submit their response, if any, within three months.

11. Pursuant to order dated 21.09.2022, Joint Committee have submitted another Report vide letter dated 12.01.2023. Report says that Joint Committee visited site on 10th and 11th November, 2022. It visited complainant’s village as also working site of project proponent.

12. Project proponent which is a Thermal Power Plant has its own captive coal mine Moher & Moher Amlohri Coal Mine, which is situated around 25 kilometers from the plant site. Mined and crushed coal is transported to thermal power plant by a high speed overhead conveyor belt and stocked in the coal yard of thermal power plant in the form of heaps. Coal from stock yard is then taken to boilers of thermal power plant for combustion and steam generation. Committee has also placed on record that fugitive coal dust generated from coal stock yard which is about 300m (aerial) from the house of complainant in South direction, falls on applicant’s house and adjacent agricultural fields and trees.

13. Thereafter, Committee considered various issues formulated by Tribunal in its order dated 21.09.2022, which included issue (I): Compliance with consent conditions by project proponent and in this regard, has given its findings and observations as under:

**COMPLIANCE STATUS OF CONSENT TO OPERATE
(6x660 MW COAL BASED THERMAL POWER PLANT OF
SASAN POWER LIMITED)**

Sr No	Conditions	Compliance Status as per Project proponent	Committee observation 10 & 11th November 2022
CONDITIONS PERTAINING TO WATER (PREVENTION & CONTROL OF POLLUTION) ACT 1974 :-			
1.	The daily quantity of trade effluent at out fall of the unit shall not exceed 60000.000	The daily quantity of trade effluent	As per the log book records furnished during

	KL/day, and the daily quantity of sewage at out fall of the unit shall not exceed 1872.000 KL/day.	is received in ETP is less than 3600 KL/day which is reused in wet ash disposal, dust suppression, green belt development and being complied Zero Liquid Discharge (ZLD). The daily quantity of sewage is received in STPs' is less than 1370 KL/day which is reused in green belt development and gardening.	the site visit, the daily quantity of trade effluent and daily quantity of sewage at the outfall is well within the stipulated limits.																					
2.	Trade Effluent Treatment:- The applicant shall provide comprehensive effluent treatment system as per the proposal submitted to the Board and maintain the same properly to achieve following standards. <table><tr><td>pH</td><td>Between</td><td>5.5-9.0</td></tr><tr><td>Suspended Solids</td><td>Not exceed</td><td>100 mg/l</td></tr><tr><td>BOD 3 days 27 *C</td><td>Not exceed</td><td>30 mg/l</td></tr><tr><td>COD</td><td>Not exceed</td><td>250 mg/l</td></tr><tr><td>Oil & grease</td><td>Not exceed</td><td>10 mg/l</td></tr><tr><td>TDS</td><td>Not exceed</td><td>2100 mg/l</td></tr><tr><td>Chlorides</td><td>Not exceed</td><td>1000 mg/l</td></tr></table> For other parameters general standards of discharge as notified under EP Act 1986 shall be applicable.	pH	Between	5.5-9.0	Suspended Solids	Not exceed	100 mg/l	BOD 3 days 27 *C	Not exceed	30 mg/l	COD	Not exceed	250 mg/l	Oil & grease	Not exceed	10 mg/l	TDS	Not exceed	2100 mg/l	Chlorides	Not exceed	1000 mg/l	Effluent Treatment Plant is operational & treated water is being used for wet ash disposal, dust suppression & also for green belt development. SPL has engaged MOEF&CC approved and NABL accredited agency for carrying out environmental monitoring and reports are submitted to the MPPCB/CPCB and MoEF&CC.	During the site visit, the joint committee observed that the ETP of capacity 3600 KLD was operational. The joint committee perused the test reports related with ETP monitoring undertaken by NABL accredited laboratory reveal that all the monitored parameters are well within the stipulated standards.
pH	Between	5.5-9.0																						
Suspended Solids	Not exceed	100 mg/l																						
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Chlorides	Not exceed	1000 mg/l																						

		Online Effluent Monitoring system is installed at the outlet of Central Monitoring Basin & data is transferred to the CPCB/MPPCB server. IP based IR camera is also installed at the outlet of ETP and its remote surveillance given to MPPCB.																			
3.	Sewage Treatment:- The applicant shall provide comprehensive sewage treatment system as per the proposal submitted to the Board and maintain the same properly to achieve following standards- <table><tr><td>pH</td><td>Between</td><td>5.5-9.0</td></tr><tr><td>Suspended Solids</td><td>Not exceed</td><td>100 mg/l</td></tr><tr><td>BOD 3 days 27 °C</td><td>Not exceed</td><td>30 mg/l</td></tr><tr><td>COD</td><td>Not exceed</td><td>250 mg/l</td></tr><tr><td>Oil & grease</td><td>Not exceed</td><td>10 mg/l</td></tr><tr><td>Fecal coliform</td><td>Not exceed</td><td>1000 (MPN/ 100 ml)</td></tr></table> *The operator of the STP shall comply with the standards notified vide G.S.R. 1265(E) under sections 6 and 25 of the Environment (Protection) Act, 1986 by the Ministry of Environment, Forest and Climate Change New Delhi dated 13th October, 2017	pH	Between	5.5-9.0	Suspended Solids	Not exceed	100 mg/l	BOD 3 days 27 °C	Not exceed	30 mg/l	COD	Not exceed	250 mg/l	Oil & grease	Not exceed	10 mg/l	Fecal coliform	Not exceed	1000 (MPN/ 100 ml)	MBBR technology based 70 KLD & 50 KLD and RMBR technology based 1250 KLD Sewage Treatment Plants are operational. Regular monitoring of STP effluents is carried out by MOEF&CC approved and NABL accredited agency and reports are submitted to the MPPCB/CPCB and MoEF&CC. STP Operators are also complied with the standards notified vide	During the site visit, the joint committee observed that the STPs of capacities 70 KLD and 50 KLD and 1250 KLD were operational. The joint committee perused the test reports related with STP monitoring undertaken by NABL accredited laboratory/MPPCB reveal that all the monitored parameters are well within the stipulated standards.
pH	Between	5.5-9.0																			
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		G.S.R. 1265(E) under sections 6 and 25 of the Environment (Protection) Act, 1986.	
4.	<i>The effluent shall be treated up to prescribed Standards and reuse in the process, for cooling and for green belt devolvement/gardening within premises. Hence zero discharge condition shall be practiced. In no case treated effluent shall be discharged outside of industry/unit premises.</i>	<i>The effluent is being treated in Effluent Treatment Plant at par prescribed Standards & treated water is being reused for wet ash disposal, dust suppression & also for green belt development/gardening and in no case treated effluent is being discharged outside of SPL premises.</i>	<i>As per the records furnished during the site visit, the joint committee observed that the treated effluents from the ETP and STP are being used for the greenbelt developed within the plant premises. During the site visit, no discharge of treated effluent outside the plant premises was observed. However, a lot of treated effluents are seen flowing through the internal drainage network and project proponent need to take concrete measures to keep the storm water drains dry during the non-monsoon season.</i>
5.	<i>Water meter preferably electromagnetic/ultrasonic type with digital flow recording facilities shall be installed separately for category wise consumption of water for Industrial cooling/boiler feed, mine spray, process & domestic purposes and data shall be submitted online through XGN monthly patrak/statements. The industry/unit shall also monitor the treated waste water flow and report the same</i>	<i>Electromagnetic/Ultrasonic type digital water flow meters are installed at various categorized consumptive water sources viz. Raw water intake, Cooling water, DM water plant,</i>	<i>During the site visit, the joint committee observed that water meters have been installed at various locations to monitor the water consumption for various industrial applications and domestic usage. The said data is being submitted to</i>

	online monthly patrak/ statements.	Domestic/Pot able water, Fire water pump house and ETP guard pond outlet.	MPPCB through XGN monthly patraks/ statements.
6.	Any change in production capacity, process, raw material used etc. and for any enhancement of the above prior permission of the Board shall be obtained. All authorized discharges shall be consistent with terms and conditions of this consent. Facility expansions, production increases or process modifications which result new or increased discharges of pollutants must be reported by submission of a fresh consent application for prior permission of the Board.	Noted.	As per the records furnished during the site visit, the power production during the compliance period is well within the stipulated limits of CTO.
7.	All treatment /control facilities /systems installed or used by the applicant shall be regularly maintained in good working order and operate effectively/efficiently to achieve compliance of the terms and conditions of this consent.	Pollution control facilities /treatment systems are installed operated effectively and compliance is ensured as per CTO conditions.	During the site visit, all the pollution control systems like ESPs (Unit# 1 was nonoperational), ETPs and STP are functional. Perusal of the test reports (monitored by NABL accredited laboratory) related with ambient air quality, stack monitoring and treated effluent quality monitoring from ETP and STP reveal that all the monitored parameters are complying the stipulated limits.
8.	The Consent does not authorize or approve the Construction of any physical structures or facilities or the undertaking of any work in any water course	Noted and being complied.	During the site visit, it was noted that no water course was obstructed due to

	or within its high flood level (HFL) area.		the said project activity.
9.	The specific effluent limitations and pollution control systems applicable to the discharge permitted herein are set forth as above conditions.	Noted	During the site visit, all the pollution control systems like ESPs (Unit# 1 was nonoperational), ETPs and STP are functional. Perusal of the test reports (monitored by NABL accredited laboratory) related with ambient air quality, stack monitoring and treated effluent quality monitoring from ETP and STP reveal that all the monitored parameters are complying the stipulated limits.
10.	Compilation of Monitoring data:- i. Samples and measurements taken to meet the monitoring requirements specified above shall be representative of the volume and nature of monitored discharge. ii. Following promulgation of guidelines establishing test procedures for the analysis of pollutants, all sampling and analytical methods used to meet the monitoring requirements specified above shall conform to such guidelines unless otherwise specified sampling and analytical methods shall conform to the latest edition of the Indian Standard specifications and where it is not specified the guidelines as per standard methods for the examination of Water and Waste latest edition of the American Public Health	All monitoring and analysis for Air, Stack Emission, Water, Waste water and Noise is being done by MOEF&CC & NABL approved Lab following latest Indian Standards/ guidelines including latest edition of the American Public Health Association , New York U.S.A. Monitoring reports are regularly submitted to the MPPCB/CPCB	As per the records furnished during the site visit, it was noted that standard monitoring protocols are being followed and environmental monitoring is being undertaken through NABL accredited laboratory, namely, M/s. Advanced Environmental Testing and Research Lab Pvt., Ltd., Gwalior. The monitoring data generated by the agency is being reported to MPPCB online through XGN portal.

	Association, New York U.S.A. shall be used. iii. The applicant shall take samples and measurements to meet the monthly requirements specified above and report online through XGN the same to the Board.	and MoEF& CC.	
11.	Recording of Monitoring Activities & Results i. The applicant shall make and maintain online records of all information resulting from monitoring activities by this Consent. ii. The applicant shall record for each measurement of samples taken pursuant to the requirements of this Consent as follows: (I) The date, exact place and time of sampling (ii) The dates on which analysis were performed (iii) Who performed the analysis? (iv) The analytical techniques or methods used and (v) The result of all required analysis iii. If the applicant monitors any Pollutant more frequently as is by this Consent he shall include the results of such monitoring in the calculation and reporting of values required in the discharge monitoring reports which may be prescribed by the Board. Such increased frequency shall be indicated on the Discharge Monitoring Report Form. iv. The applicant shall retain for a minimum of 3 years all records of monitoring activities including all records of Calibration and maintenance of instrumentation and original strip chart regarding continuous monitoring instrumentation. The period of retention shall be extended	Being Complied.	As per the records furnished during the site visit, it was noted that standard monitoring protocols as stipulated in the said condition are being followed and environmental monitoring is being undertaken through NABL accredited laboratory, namely, M/s. Advanced Environmental Testing and Research Lab Pvt., Ltd., Gwalior. The monitoring data generated by the agency is being reported to MPPCB online through XGN portal. Records related with environmental monitoring are being retained for a minimum of 3 years.

	during the course of any unresolved litigation regarding the discharge of pollutants by the applicant or when requested by Central or State Board or the court.		
12.	Reporting of Monitoring Results:- Monitoring information required by this Consent shall be summarized and reported by submitting a Discharge Monitoring report on line to the Board.	Online Effluent Monitoring System is installed and data is being transferred on real time basis.	As per the records furnished during the site visit, monitoring data is being submitted to MPCCB both through XGN portal and email on quarterly basis.
13.	Limitation of discharge of oil Hazardous Substance in harmful quantities:- The applicant shall not discharge oil or other hazardous substances in quantities defined as harmful in relevant regulations into natural water course. Nothing in this Consent shall be deemed to preclude the institution of any legal action nor relive the applicant from any responsibilities, liabilities, or penalties to which the applicant is or may be subject to clauses.	Being Complied.	As per the manifest records furnished during the site visit, all hazardous substances like Wastes or residue containing oil (2.32 MT) and Spent ion exchange resin (2.69 MT) are being disposed as per norms. No unauthorized discharge of hazardous substances was observed during the site visit.
14.	Limitation of visible floating solids and foam: During the period beginning date of issuance the applicant shall not discharge floating solids or visible foam.	Being Complied.	The effluents generated from the process are being treated in the ETP of capacity 3600KLD and the domestic effluent generated from plant premises is being treated in STPs of capacities 70 KLD and 50 KLD. Treated effluents from ETP after mixing with treated effluent from 70 KLD STP is being re-used

			for greenbelt development. dust suppression, ash slurry preparation. Treated effluent from 50 KLD STP is being reused for greenbelt development. Hence, no discharge of floating solids or visible foam is anticipated.
15.	Disposal of Collected Solid waste and sludge:- All hazardous waste/sludge shall be disposed of as per the Authorization issued under Hazardous & other waste(M&TM)Rules 2016. And/other Solids Sludges, dirt, silt or other pollutant separated from or resulting from treatment shall be disposed of in such a manner as to prevent any pollutant from such materials from entering any such water Any live fish, Shall fish or other animal collected or trapped as a result of intake water screening or treatment may be returned to eaters body habitat.	Being Complied.	As per the manifest records made available by the project proponent during the site visit, following was noted: Wastes or residues containing oil is reused in-house for lubrication purposes. Spent ion exchange resin containing toxic metals, Chemical sludge from waste water treatment are being discharged to Pithampur Industrial Waste management private limited. Empty barrels, containers contaminated with hazardous waste are being sold to authorized vendors. Used oil/spent oil is being reused in-house for blasting purposes in SPL

			mines. Water intake wells in Rihand Reservoir are equipped with screens.
16.	Provision for Electric Power Failure: The applicant shall assure to the consent issuing authority that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities utilized by the applicant to maintain compliance with the terms and conditions of the Consent.	Noted for Compliance.	During the site visit, it was noted that 7 nos. of DG sets of capacities 8x1500 KVA (Main Plant) and 1x250 KVA (Central Control Room) have been made available as power backup.
17.	Prohibition of Bypass system of treatment facility: The diversion or by-pass of any discharge from facilities utilized by the applicant to maintain compliance with the terms and conditions of this Consent in prohibited except : i. Where unavoidable to prevent loss of life or severe property damage, or ii. Where excessive storm drainage or run off would damage any facilities necessary for compliance with the terms and conditions of this Consent. The applicant shall immediately notify the consent issuing authorities in writing of each such diversion or by-pass in accordance with the procedure specified above for reporting non-compliance.	Noted & Agreed.	As per the records furnished during the site visit, no intimation to MPPCB was made with respect to diversion or bypass of any discharge during the last one year as no bypass arrangement made.
18.	Industry/Institute/mine management shall submit the information online through XGN in reference to compliance of consent conditions.	Being Complied.	As per the records furnished during the site visit, compliance of consent conditions is being submitted to MPCCB both through XGN portal and e-mail on quarterly basis.
Additional Water condition:-			

1.	<i>All the recommendation made in the charter on Corporate Responsibilities for Environment Protection (CREP), for thermal power sector shall be strictly implemented.</i>	<i>Noted for compliance.</i>	<i>Perusal of the CREP compliance furnished by the project proponent reveals following compliance w.r.t. applicable recommendations of the Charter:</i> <i>1. The 6 units are complying the particulate matter emission limit of 50 mg/Nm³. Details on the emission are provided in the report below.</i> <i>2. Tendering process for installation of FGD's for each unit is under process.</i> <i>3. Continuous emission monitoring system with remote calibration facility is already installed in the flue gas stacks of all the 6 units.</i> <i>4. Dry fly ash is being sent to brick manufacturing units and RMC manufacturers.</i> <i>5. Super critical technology is being used.</i> <i>6. High concentration slurry disposal system with 75% ash is being adopted in the power plant.</i>
2.	<i>Industry shall comply with the parameters notified in Environment (Protection) Rules,</i>	<i>Being Complied.</i>	<i>As per the test report records furnished by the</i>

	1986 Notified by G.S.R. 3305(E) 7/12/15 & Amendments on dated 7/03/2016, 28/06/2018 and SO No. GSR 243€ 31/03/2021 for Thermal Power Plants along with up to date notifications.		project proponent, the power plant is complying all the parameters notified by MOEFCC from time to time. For NOx and SOx actions are in planning stage as per the timeline given under notification.
3.	The effluent generated from utilities shall be treated in ETP up to the prescribed standards and shall be used in ash slurry preparation and dust suppression. Zero discharge conditions shall be maintained.	The daily quantity of trade effluent is received in ETP is less than 3600 KL/day which is reused in wet ash disposal, dust suppression, green belt development and being complied Zero Liquid Discharge (ZLD).	During the site visit, it was seen that the ETP is operational. As per the test reports (monitored by NABL accredited laboratory) furnished during the site visit, the treated effluent from ETP is meeting the prescribed standards and the same is being used for ash slurry preparation and dust suppression. No effluent is seen being discharged outside the plant premises.
4.	The domestic effluent of plant and colony shall be treated through sewage treatment plant up to the prescribed standards and shall be used within factory premises for plantation and gardening. Zero discharge conditions shall be maintained.	The daily quantity of sewage is received in STPs' is less than 1370 KL/day which is reused in green belt development and gardening.	During the site visit, it was observed that the main STP treated water is being is transferred into CMB of ETP and their water used in various plant processes. Treated water from STP installed at Purvanchal colony is used for Mango Garden and nearby green belt development.

5.	Industry shall provide adequate facility for the treatment of industrial (including the bleed from boiler house) and domestic waste water to ensure that the treated effluent quality meets the upto date standards prescribed by M. P. Pollution Control Board in notification of Govt. of M. P. Gazette.	ETP & STP are installed & operational and treated water is reused in wet ash disposal, dust suppression, green belt development and being complied Zero Liquid Discharge (ZLD).	During the Site visit, it was seen that the outlet treated water from STP and ETP are being used for various plant processes like Wetting ash system for fly ash and bottom ash disposal, dust suppression, green belt development and no water is seen outside plant premises thus complying to Zero Liquid discharge. As per records furnished during the site visit, it was noted that Treated effluents quality is well within the parameters prescribed by MPPCB.
6.	Industry shall maintain closed cycle cooling system with cooling towers. As per the MoEF & CC notification dated 2015, the unit shall have to convert the Once Through Cooling (OTC) if any, to Cooling Tower (CT), and shall have to achieve specific water consumption up to maximum of 3.5 m³/MWh & notifications and its amendment issued time to time. All the cooling tower blowdown shall be treated up to the prescribed standards and reused in firefighting, service water, coal handling plant and ash handling after proper treatment.	FRP based induced draft cooling towers are already installed and specific water consumption is well within MoEF&CC standards. Cooling tower blow down is being used in fire fighting and ash slurry makeup.	As per the records furnished during the site visit for the period (April-Sept., 2022), the max. Specific water consumption observed is 2.62 m³/MWh, which is well within the stipulated limit of 3.5 m³/MWh. The industry is adopting closed cycle cooling system. Cooling tower blow down is being sent to ETP for treatment and the treated effluent is being used for firefighting, dust

			suppression in coal handling plant and ash slurry preparation.
7.	<i>Regular reports for proximate and ultimate analysis of the coal for all parameters including mercury shall be submitted to the Board on monthly basis.</i>	<i>Noted and Agreed.</i>	<i>As per the records furnished during the site visit, reports related to proximate and ultimate analysis of coal for all parameters including mercury is not being submitted to MPPCB on quarterly basis with monthly details. Project proponent shall ensure monthly submission of reports related with proximate and ultimate analysis of coal.</i>
8.	<i>Industry shall operate and maintained Ash Water Recirculation System (AWRS) to ensure 100% recirculation of the over flow of the ash dyke .Industry shall make arrangement for transportation of fly ash to ash pond in the form of medium slurry mode system having 38% ash and 62% water as per MoEF directive.</i>	<i>Ash Water Recirculation System is in place and recovery water is being used for wet de-ashing in the ash pond.</i>	<i>During the site visit, it was seen that ash water recirculation system is in place and the ash recovery water is being recycled to ash handling plant for ash slurry preparation and dust suppression in ash dyke and inside plant premises and grass cover on the outside slope of ash dyke.</i> <i>As per the records furnished during the site visit, high concentration slurry disposal with 75% ash and 25% water is being practiced.</i>

9.	<i>Ash pond water shall be re-circulated and utilized in the process or other beneficial purposes in the plant.</i>	<i>Ash water recirculation system is installed and recovered water is re-used for wet de-ashing.</i>	<i>During the site visit, it was seen that ash water recirculation system is in place and the ash recovery water is being recycled to ash handling plant for ash slurry preparation and dust suppression in ash dyke and inside plant premises and grass cover on the outside slope of ash dyke.</i>
10.	<i>Water table depletion/augmentation study in and around the project area shall be carried out by the project within 06 months from date of issue of this letter.</i>	<i>Water table depletion/augmentation study in and around the project area has been completed.</i>	<i>As per the records furnished during the site visit, hydrogeological study by IIT BHU was undertaken by the project authorities in year 2021 and submitted to MPPCB vide letter dt. 22.04.2022.</i>
11.	<i>All possible efforts including rain water harvesting to recharge ground water shall be taken up for the ground water enrichment in consultation with the Central Ground Water Authority and a detailed project report with nos. & areas of recharge, time bound action plan shall be submitted to the Board within 09 months from date of issue of this letter.</i>	<i>Rain water Harvesting scheme is already approved and satisfactorily implemented at the site in consultation with CGWB in the year 2011. In addition to the same, additional rainwater harvesting structures are also implemented at the site as per the Varsha Jal Sanchay Yojna.</i>	<i>As per the records furnished during the site visit, Rain water Harvesting scheme is already approved and satisfactorily implemented at the site in consultation with CGWB in the year 2011. In addition to the above, additional rainwater harvesting structures are also implemented at the site as per the Varsha Jal Sanchay Yojna. During the site visit, 8 rainwater</i>

			harvesting structures and 2 rain water ponds were seen.
12.	<i>Fly ash shall be collected in dry form and shall explore the possibility that storage facility (silo) of fly ash should be at least for one day. Un-utilized fly ash shall be disposed off in the ash pond in the form of medium concentration slurry disposal. Industry shall also monitor mercury and other heavy metals (As, Hg, Cr, Pb etc.) in the bottom ash as also in the effluents from the ash pond.</i>	<i>Being complied. Regular monitoring of mercury and other heavy metal is being done in bottom ash and effluents.</i>	<i>During the site visit, it was seen that there are 8x1200 ton silos+6x500 tons intermediate silos with a total capacity of 12600 tons, which is adequate enough to store fly ash generated in one day. It was noted that unutilized fly ash is being disposed in the ash pond by high concentration slurry disposal system. Test reports related to monitoring of heavy metals in effluents from the ash pond as monitored by NABL accredited laboratory were furnished by the project proponent. Heavy metal analysis of bottom ash also needs to be undertaken.</i>
13.	<i>For disposal of ash in low lying area/mine for void filling prior consent/permission from the Board as per CPCB guidelines shall be obtained and conditions stipulated there-in shall be followed.</i>	<i>Permission is always obtained for the filling of ash in low line areas.</i>	<i>As per the ash utilization data, Unit has not utilized the ash by dumping in low-lying area so far.</i>
14.	<i>The unit shall make the observation well to ensure impermeability of ash ponds and all ponds shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time.</i>	<i>Bentonite Lining is provided in the ash pond to prevent any leachate. Ash Water Recirculation System</i>	<i>As per the records furnished during the site visit, 10 piezometers around the ash dyke and 5 piezometers inside the plant premises were</i>

		(AWRS) is installed and recovered water being reused for wet deashing. Piezometers are also installed around the ash-pond to check water level and quantity. SPL is also in process of re-instating piezometers, those were taken off during the downstream raising of the ash pond.	installed to ensure impermeability of ash ponds. As per the ash dyke design the dykes were designed.
15.	Regular monitoring of ground water level shall be carried out on monthly basis by establishing a network of existing wells and constructing new Piezometers in the vicinity of ash pond site and report shall be submitted on 06 monthly basis.	Regular monitoring of ground water quality is carried out through tube-wells and piezometers installed in/near ash pond and Plant area and report being submitted to MPPCB/CPCB / MoEF&CC. SPL is also in process of reinstating piezometers, those were taken off during the downstream raising of the ash pond.	As per records furnished during the Site visit and, it was observed that ground water level is being monitored at 10 locations through piezometers and reports are being to all the regulatory authorities including MPPCB on quarterly as well as on six monthly basis.
16.	Industry shall regenerate the village ponds/surface water bodies located within 5 km radius of the project site as a	An ongoing activity.	1. As per records furnished during the Site visit, it was noted that 23

	part of its social welfare activities. The details and nos. of the available water bodies within 05KM radius with augmentation plan shall be submitted to the Board within 06months.		ponds were present within 5 km radius of the project site. 2. It was noted that Project proponent is yet to submit the augmentation plans for village ponds /surface water bodies to MPPCB. However, during the site visit, project proponent informed that need based budget is allocated for augmentation of water bodies as per the request received from Gram panchayats.
17.	Industry shall have to adopt stringent contingency measures for the collection and treatment of any kind of leakages, seepage, overflow etc from the industry and in no case it shall be flown into natural water bodies. Detailed plan of vigil with the name & contact Nos. of responsible officers shall be communicated to the local administration and ROMPPCB Singrauli within one month.	Noted for Compliance. A detailed Onsite and offsite Emergency plan with responsibility matrix is approved by the DIRECTORATE, INDUSTRIAL HEALTH AND SAFTY, M.P. INDORE operational and already communicated.	During the Site visit, STP & WTP were found functional and no overflow, seepage etc. was seen flowing into natural water bodies. As per records furnished during the site visit, a detailed Onsite Emergency plan is in place along with responsibility matrix and the same has been communicated to local administration and RO, MPPCB.
18.	Continuous effluent quality monitoring system(CEQMS) shall be installed and maintained for the monitoring of treated effluent quality and	CEQMS is already installed with data transfer to	During the site visit, it was seen that CEQMS is installed at the outlet of ETP and

	un interrupted connectivity with Environment Surveillance Centre at the HQ of M.P. shall be provided.					Environment Surveillance Centre.	data is being transmitted to MPPCB's Environment Surveillance Centre.																									
CONDITIONS PERTAINING TO AIR (PREVENTION & CONTROL OF POLLUTION) ACT 1981:-																																
1.	The applicant shall provide comprehensive air pollution control system consisting of control equipments as per the proposal submitted to the Board with reference to generation of emission and same shall be operated & maintained continuously so as to achieve the level of pollutants to the following standards:-					Implementing the technology for control of desired pollutant is being done based on technology selection, designing and implementation.	As per the records furnished during the site visit and the site observations thereof, pollution control equipments as mentioned in the stipulated condition have been installed and perusal of the test reports as monitored by NABL accredited laboratory reveals that all the monitored parameters are complying the stipulated standards. However, as per revised notification by MoEF&CC, timeline for FGD implementation has been revised to 31.12.2026 for Power Plants under Category C. It was noted that EPC contractor has been finalized in Dec., 2019 and few technology changes are being discussed.																									
	<table><tr><th>Name of Section</th><th>Capacity</th><th>Stack Height (meter s)</th><th>Fuel</th><th>Control equipments to be installed</th><th>PM, SOx, NOx, Hg (mg/Nm3)</th></tr><tr><td>Boiler</td><td>660 MW 6 Nos</td><td>275 (Tri Flue Chimney x 2 Nos.)</td><td>COAL 344.3 Tonn/hr/unit</td><td>Bag filter, dust collector, dust suppressor, ESP, gravity settling chamber, green belt, heater/furnace, Low sulphur Fuel, Hood cover, Low Nox burner, water sprinkler.</td><td>50,20,300,0.03 Respectively to be achieved as notified by G.S.R . 3305 (E) dated 07/12/2015</td></tr><tr><td>Material Handling</td><td>CHP</td><td>0</td><td></td><td>Bag Filter, Dust Suppressor, Hood Cover, Water Sprinkler</td><td>PM as per ambient norms.</td></tr><tr><td>Others</td><td>CHP AHP</td><td>0</td><td></td><td>Bag Filter, Dust Collector, Dust Suppressor, Green Belt, Water Sprinkler</td><td></td></tr></table>	Name of Section	Capacity	Stack Height (meter s)	Fuel	Control equipments to be installed	PM, SOx, NOx, Hg (mg/Nm3)	Boiler	660 MW 6 Nos	275 (Tri Flue Chimney x 2 Nos.)	COAL 344.3 Tonn/hr/unit	Bag filter, dust collector, dust suppressor, ESP, gravity settling chamber, green belt, heater/furnace, Low sulphur Fuel, Hood cover, Low Nox burner, water sprinkler.	50,20,300,0.03 Respectively to be achieved as notified by G.S.R . 3305 (E) dated 07/12/2015	Material Handling	CHP	0		Bag Filter, Dust Suppressor, Hood Cover, Water Sprinkler	PM as per ambient norms.	Others	CHP AHP	0		Bag Filter, Dust Collector, Dust Suppressor, Green Belt, Water Sprinkler							However, the stack monitoring of desired parameters is carried out regularly and report is being submitted to MPPCB/CPCB and MoEF&CC.	
Name of Section	Capacity	Stack Height (meter s)	Fuel	Control equipments to be installed	PM, SOx, NOx, Hg (mg/Nm3)																											
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						As per MoM circulated by CPCB dated 13.12.2021, Sasan Power plant is falling under Category 'C' with FGD implementation schedule as 31.12.2024. As far as preparedness is concerned, the FGD contract is already awarded in Dec., 19 and Financial																										

		closure is awaited.	
2	Ambient air quality at the boundary of the industry/unit premises shall be monitored and reported to the Board regularly on quarterly basis: The Ambient air quality norms are prescribed in MoEF gazette notification no. GSR/826(E), dated: 16/11/09. Some of the parameters are as follows: a. Particulate Matter (less than 10 micron) - 100 µg/m³ (PM10 µg/m³ 24 hrs. basis) b. Particulate Matter (less than 2.5 micron) - 60 µg/m³ (PM2.5 µg/m³ 24 hrs. basis) c. Sulphur Dioxide [SO₂] (24 hrs. Basis) - 80 µg/m³ d. Nitrogen Oxides [NO_x] (24 hrs. Basis) - 80 µg/m³ e. Carbon Monoxide [CO] (8 hrs. Basis) - 2000 µg/m³	Ambient air quality is being monitored at 07 locations, twice a week, for specified parameters and report is being submitted to MPPCB/CPCB and MoEF&CC.	As per records furnished during the site visit, it was noted that Ambient Air quality is being monitored at 07 locations, twice a week for specified parameters and perusal of the reports reveal that all the monitored parameters are well within the norms as prescribed by MoEF from time to time. Reports of the same are submitted to MPPCB on quarterly basis.
3	The industry shall take adequate measures for control of noise level generated from industrial activities within the premises less than 75 dB(A) during day time and 70 dB (A) during night time	Noise generating devices/machines are designed for low noise levels adopting appropriate design and state of the art technology. Proper Noise barriers/shields etc. are provided in the equipment where-ever required.	During the Site visit, it was observed that various noise barriers like acoustic enclosures are in-place in noise generating areas Turbine Floors, DG sets, OLC etc. As per the records furnished during the site visit, noise levels as monitored by NABL accredited laboratory at 7 locations reveal that the noise generated from industrial activities is less than the prescribed limits.

			<i>Display boards are also installed at various places to wear protective gears like ear muffs in high noise generating areas.</i>
4.	<i>The industry/unit shall provide with each stack port holes with safe platform 1 meter width with support & spiral ladder /stepped ladder with hand rail up to monitoring platform as per specifications given in part III emission regulation of CPCB .In no case monkey ladder shall be allowed as stack monitoring facility.</i>	<i>Complied. All the necessary monitoring arrangements are made in stacks as per the CPCB regulations.</i>	<i>During the Site visit, it was seen that port holes with safe monitoring platform 1 mtr width with sufficient support & handrail has been provided at each stack.</i>
5.	<i>The industry/unit shall make the necessary arrangements for control of the fugitive emission from any source of emission/ section/ activities.</i>	<i>Complied</i>	<i>During the site visit, it was seen that water sprinklers are in place to control the fugitive emissions in OLC, Coal stock yard, Bag Filters in CHP and Ash Silos. Project proponent needs to strengthen the fugitive dust control measures in the coal stock yard as well as near the coal silo.</i>
6.	<i>All other fugitive emission sources such as leakages, seepages, spillages etc shall be ensured to be plugged or sealed or made airtight to avoid the public nuisance.</i>	<i>Complied</i>	<i>During the site visit, it was seen that water sprinklers are in place to control the fugitive emissions in Coal stock yard, Bag Filters in CHP and Ash Silos. Project proponent needs to strengthen the fugitive dust control measures in the coal stock yard as well as near the coal silo.</i>

7.	<i>The industry/ unit shall ensure all necessary arrangements for control of odor nuisance from the industrial activities or process within premises.</i>	<i>Complied</i>	<i>During the site visit, it was observed that no process / activities generate odor nuisance. No odor nuisance was felt at site.</i>
8.	<i>All the internal roads shall be made pucca to control the fugitive emissions of particulate matter generated due to transportation and internal movements. Good housekeeping practices shall be adopted to avoid leakages, seepages, spillages etc.</i>	<i>Complied. All the main internal roads are made pucca. Good housekeeping is in practice</i>	<i>During the site visit, it was seen that all internal roads are made pucca by using concrete.</i> <i>Good Housekeeping practices like daily cleaning is in place in all the areas. Concrete steps needs to be taken by the project authorities to ensure that storm water drains are completely dry during nonmonsoon season.</i>
9.	<i>Industry shall take effective steps for extensive tree plantation preferably in 03 rows of the local tree species with minimum spacing of 2x2 meters within or around the industry /unit premises for general improvement of environmental conditions and preferably in the direction of habitation so that natural barrier could be created.</i>	<i>Greenbelt / green cover, covering a total 4,59,112 nos. of trees and area of 651.36 Acres, has already been developed within the plant premises in line with the CPCB guidelines, which is much higher than the MoEF&CC requirement of 474.14 Acres for development of greenbelt.</i>	<i>During the site visit, it was observed that High rise Plantation is in place mainly in CHP areas, in and around plant boundary. Dense greenbelt is also seen in all the open areas within plant premises. Two layer plantation is currently in place along the plant periphery and the same needs to be strengthened in compliance of the stipulated condition.</i>

		We would like to bring to your kind attention that almost all open areas within plant premises are already covered with Greenbelt / green cover. If any further potential space becomes available within the plant area, same will be used for plantation / greenbelt purpose. In view of above, we would like to submit that SPL has already achieved its greenbelt development target and is committed to carry out further plantation as and when additional space becomes available for the same. A detailed letter in this regard is also submitted to MS / RO, MPPCB vide no. SPL/EMG/PCB/2021-22/29 dated 15.02.2022.	As per records furnished during the site visit, total 4,59,112 nos. of trees have been planted covering 651.36 acres.
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		(Copy attached)	
Additional Air condition			
1	The industry shall have to ensure compliance of the directions issued by CPCB under section 5 of the EP Act, 1986 vide letter no. B33014/07/2019/IPC-II/TPP/10204 dated 13/12/19 pertaining to the industry, regarding compliance of emission standards pertaining to PM, Sox & NOx.FGD shall have to be installed within the time limits specified for boilers by 30/09/2022 as updated timelines. Immediate measures shall be taken by the installation of low NOx burners, providing over fire air (OFA) etc. for progressive reduction of NOx emission up to the specified limits by the year 2022 .The PM emission has to be complied Immediately.	Noted for compliance.	As per the records furnished during the site visit and the site observations thereof, pollution control equipments as mentioned in the stipulated condition have been installed and perusal of the test reports as monitored by NABL accredited laboratory reveals that all the monitored parameters are complying the stipulated standards. However, as per revised notification by MoEF&CC, timeline for FGD implementation has been revised to 31.12.2026 for Power Plants under Category C. It was noted that EPC contractor has been finalized in Dec., 2019 and few technology changes are being discussed. Financial closure in this regard is awaited. Low NOx burners with OFA to control NOx emissions is already in place. As per records furnished, values of PM, & NOX are within limits.

2	Industry shall make appropriate arrangement for protection of green belt. Massive plantation shall be undertaken under the guidance of forest department /Horticulture expert .Local species shall be planted all-around the periphery of the industry as well as the ash dyke.	On going. Till now SPL had planted approx 459112 nos of plants over 651.36 acres area.	During the site visit, it was observed that High rise Plantation is in place mainly in CHP areas, in and around plant boundary. Dense greenbelt is also seen in all the open areas within plant premises. Two layer plantation is currently in place along the plant periphery and the same needs to be strengthened in compliance of the stipulated condition. As per records furnished during the site visit, total 4,59,112 nos. of trees have been planted covering 651.36 acres. 750 nos. of plantation were undertaken along the peripheral roads around the ash dyke. Dedicated Horticulture team is leading the massive plantation drive and its protection. As per record furnished, it was noted that Local species like Ailanthus excels Acacia auriculiformis (Earleaf Acacia), Bombax ceiba (Semal), Cassia fistula (Amaltas),

			<i>Dalbergiasissoo (Sheesham), Fruit bearing trees like Syzygiumcumini (Jamun), Tamarindusindica (imli), Mango Langara (Langara), Mango Dasher (Dasher) has been planted in and around plant and Ash dyke.</i>
3	<i>Detailed plan of the plantation scheme for next year with available areas and nos.of plants to be planted shall be submitted to the Board with details of expenditures for execution of the same on or before 15th May, 2022.</i>	<i>Greenbelt / green cover, covering a total 4,59,112 nos. of trees and area of 651.36 Acres, has already been developed within the plant premises in line with the CPCB guidelines, which is much higher than the MoEF&CC requirement of 474.14 Acres for development of greenbelt. We would like to bring to your kind attention that almost all open areas within plant premises are already covered with Greenbelt / green cover. If any further potential space becomes available within the</i>	<i>As per the records furnished during the site visit, plantation scheme for every financial year is being prepared prior to next financial year.</i>

		plant area, same will be used for plantation / greenbelt purpose. In view of above, we would like to submit that SPL has already achieved its greenbelt development target and is committed to carry out further plantation as and when additional space becomes available for the same. A detailed letter in this regard is also submitted to MS / RO, MPPCB vide no. SPL/EMG/PCB/2021-22/29 dated 15.02.2022. (Copy attached)	
4	Industry shall regularly operate the CAAQMS stations to monitor ambient air quality and impact of stack emission. The management shall ensure uninterrupted connectivity of CAAQMS with Environment Surveillance Centre at the HQ of M.P. Pollution Control Board for monitoring and data transmission purpose. Similarly CEMS shall be provided to monitor the emissions at each stack and uninterrupted connectivity with Environment Surveillance	Online monitoring systems Continuous Emission monitoring system and continuous Ambient air quality monitoring system are installed and data being submitted to	During the Site Visit, Operation of 2 nos. CAAQMS installed in the plant premises was checked. Data retrieved from the CAAQMS during the 2021 and 2022 period reveal that all the monitored parameters are complying the norms in accordance with

	<i>Centre at the HQ of M.P shall be provided.</i>	<i>MPPCB/ CPCB server.</i>	<i>NAAQS, 2009 taking into consideration compliance for 98% of the time.</i> <i>As per records furnished, it was noted that connectivity of CAAQMS and CEMS with Environment Surveillance Centre at MPPCB HQ exists.</i>
5	<i>Access shall be provided to Environment Surveillance Centre of MPPCB for the remote calibration of the CAAQMS and CEMS within one month's time.</i>	<i>Already provided</i>	<i>As per records furnished during site visit, it is noted that access have been provided to Environment Surveillance Centre of MPPCB for the remote calibration of the CAAQMS and CEMS</i>
6	<i>The Industry shall install and regularly operate Outdoor HD Industrial grade IP (Internet Protocol) Cameras with pan-Tilt-Zoom (PTZ) feature, minimum focal length 20X with night vision facility and temper proof mechanism at suitable location to display all emission sources / stacks, coal yards coal conveyors / crushers and effluent discharge point and connect the same with Environment Surveillance Centre, MP Pollution control board Bhopal, and ensure its uninterrupted connectivity for remote Surveillance.</i>	<i>PTZ camera with specifications as provided by the CPCB is installed covering emission sources/ coal yards, ETP and camera link is provided to MPPCB.</i>	<i>During Site visit, it was seen that outdoor HD Industrial grade IP PTZ cameras have been installed covering emission sources and connectivity ensured with Environment Surveillance Centre at MPPCB HQ.</i>
7	<i>Industry shall have to provide & operate adequate pollution control arrangements at all points and non point sources .Suitable air pollution control equipments shall be installed for control of fugitive emission during the handling</i>	<i>Being Complied</i>	<i>As per the records furnished during the site visit and the site observations thereof, requisite air/ water pollution control</i>

	<i>/ transportation of raw material and fly ash etc.</i>	<i>equipments like ESPs, bag filters, water sprinklers, ETP and STPs have been installed and perusal of the test reports as monitored by NABL accredited laboratory reveals that all the monitored parameters are complying the stipulated standards. However, as per revised notification by MoEF&CC, timeline for FGD implementation has been revised to 31.12.2026 for Power Plants under Category C. It was noted that EPC contractor has been finalized in Dec., 2019 and few technology changes are being discussed. Financial closure in this regard is awaited.</i> <i>During Site visit, it was seen that water sprinklers have been installed at Main Fly Ash Silos and CHP Coal Stock yard for control of fugitive emission during loading of fly ash in Ash Bulklers and during transportation of coal through Stacker reclaimer and conveyors.</i>
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8	<i>In case of coal being imported, or as per statutory applicable norms being in force, the industry shall install sulfur recovery system for control of Sulphur dioxide emission.</i>	<i>Coal for the plant is used from the dedicated captive mine located at a distance of approx. 25 kms. As per MoM circulated by CPCB dated 13.12.2021, Sasan Power plant is falling under Category 'C' with FGD implementation schedule as 31.12.2024. As far the preparedness, the FGD contract is already awarded in Dec., 19 and Financial closure is awaited.</i>	<i>As per records furnished during Site visit, no coal is being imported for utilization in the plant premises. It was seen that coal from the captive coal mines having low sulphur content is being utilized in the power plant. However, as per revised notification by MoEF&CC, timeline for FGD implementation has been revised to 31.12.2026 for Power Plants under Category C. It was noted that EPC contractor has been finalized in Dec., 2019 and few technology changes are being discussed. Financial closure in this regard is awaited.</i>
9	<i>Ash and Sulphur contents in the coal shall not exceed 34% and 0.5% respectively at any given time.</i>	<i>Being complied.</i>	<i>As per records furnished during site visit, Ash and Sulphur content are well below 34% and 0.5% respectively.</i>
10	<i>Regular monitoring of ground level concentration of SO₂, NO_x, PM_{2.5} and PM₁₀ and Hg shall be carried out in the impact zone and records shall be maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be taken immediately.</i>	<i>Complied</i>	<i>As per records furnished during the site visit, it was noted that Ambient Air quality is being monitored at identified locations, twice a week for specified parameters and the monitored parameters are well within the</i>

			norms as prescribed by MoEF from time to time. Records in this regard are being maintained as per norms.
11	Coal transportation to the plant site shall be undertaken by rail and no road transportation shall be undertaken as far as possible. The entire internal road should be made pucca and good housekeeping practices shall be adopted	Complied. No road & rail transportation of coal is carried out. SPL has installed a well-covered dustproof single flight coal overland conveyor (OLC) for the transportation of coal from coal mine to power plant.	During the Site visit, it was seen that the Coal is transported through covered Over Land Conveyor system from captive mines to the plant. All internal roads have been made pucca.
12	Regular road sweepings shall be done through the mechanical road sweepers. The industry shall assess the requirement of mechanical sweepers required for cleaning of total internal roads and submit a plan for procurement of road sweepers for complete internal roads	The road and other area cleaning within plant premises is being carried out using vacuum driven cleaning machines. Additionally all the internal roads, which are used for movement, are pucca roads. It is also pertinent to mention that, the plant housekeeping is being monitored by using the technology extensively as explained below.	During the Site visit, it was seen that 6 mechanical dust sweeping machines are available. It was noted that based on an internal assessment, 6 nos. of sweeping machines were procured by the Project proponent. However, the project proponent needs to reassess the sweeping machine requirement and accordingly, plan in this regard is yet to be submitted to MPPCB. Further, mobile based software for real time monitoring of location wise

		• Plant housekeeping is performed by mechanized cleaning tools and equipments. • SPL has developed mobile application software for real time monitoring of Plant housekeeping. Location-wise / Area-wise housekeeping checklist & status is provided in the said mobile Application. • Engineer in-charge for the housekeeping work monitors and reviews the compliance of check list displayed in mobile application and ensures quality of housekeeping. In view of above, it is submitted that SPL is already complying with the said condition and hence there is no need of procurement of road sweepers.	plant housekeeping as per checklist is developed. Engineer-incharge is responsible for the housekeeping works.
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		A detailed letter in this regard is also submitted to MS / RO, MPPCB vide no. SPL/EMG/PCB/2021-22/29 dated 15.02.2022. (Copy attached)	
13	Industry shall install adequate dust extraction and dust suppression system to control fugitive emissions from the crushing house, dumper, conveyor belt, moving vehicles, pneumatic compressors, raw material handling and other vulnerable dusty areas.	Being Complied. Dust extraction/suppression systems are installed at all required sources.	During Site Visit, it was seen that Dust extraction and suppression system have been installed at required locations and details are as under: Dust Extraction System Total- 27 nos.)-12 nos. of dust extraction systems are installed at each intersection of 6 coal Bunkers, 1 no. DE system at the top of Coal Silo, 8 nos. atop Main Ash Silo, 6 nos. At Intermediate Ash Silos. It has capacity of dust filtration up to 45 micron. Size of bag is 160mm*3000mm. Dust Suppression System (Total- 14 nos)-Transfer points of the conveyor belt inside the plant are fitted with Dust suppression system for the suppression of dust

			Rain Gun type Water Sprinklers (Total- 180 nos) - In the coal stacking area, rain gun type water sprinklers are installed for the control of fugitive dust emissions. Project proponent needs to strengthen the fugitive dust control measures in the coal stock yard as well as near the coal silo.
14	Management of flyash shall be done as per the directions of MoEF&CC and the Gazettenotificationdated:14/09/99 (amended in2003, 2009& 2016) and regular progress shall be submitted to MoEF&CC/CPCB and MPPCB.	Noted for Compliance.	During Site Visit, it was seen that the Fly Ash is being utilized for Ash Dyke Bund raising works, in-house Fly Ash Brick Manufacturing, Ready Mix Concrete, Civil works and also given to other Brick manufacturing industries. Thus, the management of fly ash is being done in accordance with the Notifications issued by the Ministry from time to time. Progress of implementation is being submitted to all regulatory authorities on a six-monthly compliance reports.
15	Industry shall submit concrete time bound action plan within 02 months for utilization of fly ash in compliance of fly ash notification as amended up to	Setting up of any new clinker grinding unit	As per records furnished during site visit, it is observed that Fly Ash is being

	date. Industry shall make effort to obtain abandoned mines for disposal of fly ash, if required, as per notification. Other alternatives like setting up of clinker grinding unit, encouragement of ancillary units for ensuring use of flyash for other building products.	is not envisaged. A detailed action plan for fly ash utilization is already submitted to the MPPCB. Further, it is also intimated that study by Central Institute of Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAE-OCP is under progress. A pilot project is presently under field trial. The erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24 subject to the receipt of due statutory and regulatory approvals.	utilized in Ash Dyke Bund raising works, in-house Fly Ash Brick Manufacturing, Ready Mix Concrete, Civil works and also given to other Brick manufacturing industries. As per the records furnished during the site visit, detailed action plan for fly ash utilization for next year is being planned by disposal through pipeline to their captive Mines, where it will be mixed with OB. It was noted that necessary approval was accorded by DGMS after a study by M/s. CIMFR.
16	Dry fly ash collection systems shall be installed for regular disposal of generated fly ash in dry form	06 numbers of ash silos are installed for the collection and disposal of dry fly ash.	During site visit, it was seen that 6 nos. Silos of Capacity 500 T each are installed for regular disposal of generated fly ash.

17	The industry shall ensure that any railway siding used/developed by it, shall have proper dust control arrangements as well as consent under Water (Prevention & Control of Pollution) Act, 1974 & Air (Prevention & Control of Pollution) Act, 1981 from this Board. Coal handling, loading and unloading at the sidings shall be strictly as per the guide lines prepared by CPCB. The transportation of coal shall be done in accordance with the orders passed by Hon. NGT and other competent courts from time to time. The road transportation if permitted shall be undertaken fully mechanized trucks covered with tarpaulin or as ordered by Hon. NGT and other competent courts. The roads for transportation shall be properly maintained and avenue plantation along it shall be undertaken.	Transportation of coal from coal mine to power plant is carried out using dedicated overland coal conveyor (OLC).	During the Site visit, it was seen that the Coal is being transported through covered Over Land Conveyor system. No rail/road transportation of coal was neither seen nor envisaged in future.
18	Industry shall install low nitrogen oxide burner for control of oxides of nitrogen as per the norms fixed by MoEF&CC.	Being Complied. Low NOx burners are already installed for control of oxides of nitrogen as per the norms fixed by MoEF&CC.	As per the records furnished during the site visit, it was noted that Low NOx burners with OFA dampers are used for control of oxides of nitrogen.
19	The industry shall procure sufficient nos. of mechanical vacuum based sweepers for road dust cleaning as per the road length available within 06 months to improve fugitive emission in the plant.	The road and other area cleaning within plant premises is being carried out using vacuum driven cleaning machines. Additionally all the internal	During the Site visit, it was seen that 6 mechanical dust sweeping machines are available. It was noted that based on an internal assessment, 6 nos. of sweeping machines were procured by the Project proponent.

		roads, which are used for movement, are pucca roads. It is also pertinent to mention that, the plant housekeeping is being monitored by using the technology extensively as explained below. • Plant housekeeping is performed by mechanized cleaning tools and equipments. • SPL has developed mobile application software for real time monitoring of Plant housekeeping. Location-wise / Area-wise housekeeping checklist & status is provided in the said mobile Application. • Engineer in-charge for the housekeeping work monitors and reviews the compliance of check list displayed in mobile application and ensures	However, the project proponent needs to reassess the sweeping machine requirement and accordingly, plan in this regard is yet to be submitted to MPPCB.
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		quality of housekeeping. In view of above, it is submitted that SPL is already complying with the said condition and hence there is no need of procurement of road sweepers.										
GENERAL CONDITIONS:												
1	The non hazardous solid waste arresting in the industry/unit/unit premises sweeping, etc. be disposed off scientifically so as not to cause any nuisance/pollution. The applicant shall take necessary permission from civic authorities for disposal to dumping site. If required. Non Hazardous Solid wastes:- <table><tr><th>Type of waste</th><th>Quantity</th><th>Disposal</th></tr><tr><td>Scrap/ Plastic packing material wood, card board, gunny bags etc.</td><td>To be inventoried</td><td>Sale to authorized party/As per CPCB, MoEF guide lines/others</td></tr><tr><td>Fly ash</td><td>150000 MT/ Month</td><td>As per fly ash notification 31/12/2021</td></tr></table>	Type of waste	Quantity	Disposal	Scrap/ Plastic packing material wood, card board, gunny bags etc.	To be inventoried	Sale to authorized party/As per CPCB, MoEF guide lines/others	Fly ash	150000 MT/ Month	As per fly ash notification 31/12/2021	Solid waste is being disposed of through our in-house waste management system. A detailed action plan for fly ash utilization is already submitted to the MPPCB. Further, it is also intimated that study by Central Institute of Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAE-OCP is under progress. A pilot project is presently under field trial. The	As per records furnished during the site visit by the Project Authorities, following non-hazardous Solid Waste is being generated in the plant premises : 1. Card boards 2. Plastic waste 3. Wood waste 4. Scrap 5. Gunny bags Scrap, wood waste and card boards are being sent to local scrap vendors. Plastic waste is being managed as per Plastic waste management rules. Inventory of the said nonhazardous waste is yet to be undertaken. During Site Visit, it was seen that the Fly Ash is being utilized for Ash Dyke Bund
Type of waste	Quantity	Disposal										
Scrap/ Plastic packing material wood, card board, gunny bags etc.	To be inventoried	Sale to authorized party/As per CPCB, MoEF guide lines/others										
Fly ash	150000 MT/ Month	As per fly ash notification 31/12/2021										

		erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24 subject to the receipt of due statutory and regulatory approvals.	raising works, Fly Ash Brick Manufacturing, Ready Mix Concrete, Civil works and also given to other Brick manufacturing industries in accordance with the provisions of Fly ash notification as amended from time to time. As per the records furnished during the site visit, a detailed action plan for fly ash utilization for next year is being planned by disposal through pipeline to captive coal Mines for mixing with OB. It was noted that necessary approval was accorded by DGMS after a study by M/s. CIMFR.
2	The applicant shall allow the staff of Madhya Pradesh Pollution Control Board and/or their authorized representative, upon the representation of credentials: a. To inspect raw material stock, manufacturing processes, reactors, premises etc to perform the functions of the Board. b. To enter upon the applicant's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this Consent.	Agreed and being Complied.	The Joint committee comprising of MPPCB representative noted that the contents of the stipulated condition is being complied.

	c. To have access at reasonable times to any records required to be kept under the terms and conditions of this Consent. d. To inspect at reasonable times any monitoring equipment or monitoring method required in this Consent: or, e. To sample at reasonable times any discharge or pollutants.		
3	This consent/authorization is transferable innature, in case of any change in ownership/management, the new owner/partner /directors/proprietor shall immediately apply for the consent with new requisite information.	Noted for Compliance.	Project proponent stated that the stipulated condition is noted for compliance.
4	The issuance of this Consent does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Central, State or local laws or regulations.	Noted & Agreed.	Project proponent stated that the stipulated condition is noted for compliance.
5	Industry shall install separate electric metering arrangement for running of pollution control devices and this arrangement shall be made in such fashion that any non functioning of pollution control devices shall immediately stop electric supply to the production and shall remain tripped till such time unless the pollution control device/devices are made functional. The record of electricity consumption for running of pollution control equipment shall be maintained and submitted to the Board every month.	Noted & complied.	During the Site Visit, it was seen that Separate Metering system for major pollution control device i.e. for Electro Static Precipitator. As per records furnished during the visit, records for energy consumption for Unit-wise ESP are maintained.
6	This consent is granted in respect of Water pollution control Act 1974 or Air Pollution	Noted & Agreed.	As per documents furnished during site visit, it was

	Control act, 1981 or Authorization under the provisions of Hazardous and other Waste (Management & Trans boundary Movement) Rules 2016 only and does not relate to any other Department/Agencies. License required from other Department/Agencies have to be obtained by the unit separately and have to comply separately as per there Act / Rules.		seen that Project Authorities have taken various separate permissions as per applicable Act / rules.
7	Balance consent/ authorization fee, if any shall be recoverable by the Board even at a later date.	Noted & agreed.	Project proponent stated that the stipulated condition is noted for compliance. As per records furnished during site visit, consent / authorization fee is duly paid by the Project Authorities and there are no dues as of date.
8	The applicant shall submit such information, forms and fees as required by the board not letter than 180 day prior to the date of expiration of this consent/authorization.	Noted and agreed	As per records furnished during site visit, information, forms and fees are duly submitted before 180 days of consent expiry.
9	The industry /Unit shall established a separate environmental cell ,headed by senior officer of unit for reporting the environmental compliances ,The industry/ unit shall submit environmental statement for the previous year ending 31st march on or before 30th September every year to the board.	Environment cell with qualified persons is in place. Latest environment statement report of F.Y. 2021-22 has been submitted vide letter no. SPL/EMG/MP PCB/ ES/ 2022- 23/19 dated 07.09. 2022.	During site visit, it was seen that Environment department is headed by Senior person – Mr. Jitendra Prasad (Addl. Vice President) with three experienced executives from Environment background. As per records furnished during the site visit, latest environment statement report of F.Y. 2021-22

			has been submitted vide letter no. SPL/EMG/MPPCB / ES/ 2022-23/19 dated 07.09. 2022.
10	Industry shall obtain membership of Emergency Response Center of the Board if needed.	Already obtained, shall be renewed, if needed	As per records furnished during site visit, Project Authorities are already member of Emergency Response Center of the Board and is in the process for applying for re-validation.
11	Knowingly making any false statement for obtaining consent or compliance of consent conditions shall result in the imposition of criminal penalties as provided under the section 42(g) of the Water Act or section 38 (g) of the Air Act.	Noted & agreed.	Project proponent stated that the stipulated condition is noted for compliance.
12	After notice and opportunity for the hearing, this consent may be modified, suspended or revoked by the Board in whole or in part during its term for cause including, but not limited to, the following : (a) Violation of any terms and conditions of this Consent. (b) Obtaining this Consent by misrepresentation of failure to disclose fully all relevant facts. (c) A change in any condition that requires temporary or permanent reduction or elimination of the authorized discharge	Noted & agreed.	Project proponent stated that the contents of the stipulated condition are noted for compliance.
13	On violation of any of the above-mentioned conditions the consent granted will automatically be taken as canceled and necessary action	Noted & agreed.	Project proponent stated that the stipulated condition is noted for compliance.

	will be initiated against the industry.		
Additional Conditions			
A. MANAGEMENT & DISPOSAL OF FLYASH SHALL BE AS PER FOLLOWING CONDITIONS			
1	The industry management shall ensure all the compliances regarding disposal and utilization of fly ash from its TPP as stipulated in MOEF&CC notifications no. S.O. 763(E) dated 14/9/99 and its amendments vide notification no. S.O. 979(E) dated 27/8/03, S.O.2804(E) dated 03/03/09 and S.O.254(E) dated 25/1/16.	A detailed action plan for fly ash utilization is already submitted to the MPPCB. Further, it is also intimated that study by Central Institute of Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAEOCP is under progress. A pilot project is presently under field trial. The erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24 subject to the receipt of due statutory and regulatory approvals.	During Site Visit, it was seen that the Fly Ash is being utilized for Ash Dyke Bund raising works, Fly Ash Brick Manufacturing, Ready Mix Concrete, Civil works and also given to other Brick manufacturing industries in accordance with the provisions of Fly ash notification as amended from time to time. As per the records furnished during the site visit, a detailed action plan for fly ash utilization for next year is being planned by disposal through pipeline to captive coal Mines for mixing with OB. It was noted that necessary approval was accorded by DGMS after a study by M/s. CIMFR.
2	The industry management shall procure/make provision of the Bulkers/closed transport vehicles under its control to ensure fast and quick delivery of fly ash for ensuring free delivery of flyash within the	A detailed action plan for fly ash utilization is already submitted to the MPPCB.	During Site Visit, it was seen that the Fly Ash is being utilized for Ash Dyke Bund raising works, Fly Ash Brick

	radius of 100 km and up to 300 km radius to the prospective users as per clauses 2(10) & 2(14) respective of the Flyash Notification.	Further, it is also intimated that study by Central Institute of Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAEOCP is under progress. A pilot project is presently under field trial. The erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24 subject to the receipt of due statutory and regulatory approvals.	Manufacturing, Ready Mix Concrete, Civil works and also given to other Brick manufacturing industries in accordance with the provisions of Fly ash notification as amended from time to time. As per the records furnished during the site visit, a detailed action plan for fly ash utilization for next year is being planned by disposal through pipeline to captive coal Mines for mixing with OB. It was noted that necessary approval was accorded by DGMS after a study by M/s. CIMFR. Currently, no Bulklers / closed transport vehicles were procured by the project authorities. In light of the future plans for fly ash disposal in captive mines, project proponent informed that there are no plans to procure the Bulklers / closed transport vehicles.
3	The industry management shall maintain and update the record of all the prospective users of fly ash within the radius of 100 km keep constant liaison with them to provide fly ash in a timely manner and	A detailed action plan for fly ash utilization is already submitted to the MPPCB.	As per the records furnished during the site visit, it was noted that industry management shall maintain and

	submit quarterly compliance report to the Board.	Further, it is also intimated that study by Central Institute of Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAEOCP is under progress. A pilot project is presently under field trial. The erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24 subject to the receipt of due statutory and regulatory approvals. Quarterly ash utilization report is submitted to MPPCB.	update the record of all the prospective users of fly ash within the radius of 100 km and quarterly compliance report in this regard is being submitted to MPPCB.
4	Industry shall submit concrete time bound action plan for utilization of fly ash in compliance of fly ash notification as amended up to date. Other alternatives like setting up of clinker grinding unit, encouragement of ancillary units for ensuring use of fly ash for other building products.. Dry fly ash collection system shall be installed for	A detailed action plan for fly ash utilization is already submitted to the MPPCB. Further, it is also intimated that study by Central Institute of	As per the records furnished during the site visit, time bound action plan for utilization of fly ash is being submitted to all the regulatory authorities vide e-mail dated 19.11.2022. Dry fly ash collection

	regular disposal of generated fly ash in dry form. The filling of low lying area inside the premises shall be undertaken strictly in accordance with the permission granted by the MPPCB.	Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAEOCP is under progress. A pilot project is presently under field trial. The erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24 subject to the receipt of due statutory and regulatory approvals. Clearance was and will further be obtained from MPPCB for filling of any low lying areas with ash.	system is also in place. As per the records furnished during the site visit, fly ash has been disposed in low lying areas with the prior approval of MPPCB, the details of which are as follows: 1. MPPCB letter dated 13.02.2018 for low lying areas within plant premises designated as C1 (6.09 ha), C2 (6.72 ha), C3 (8.78 ha) and C4 (15.46 ha), C5 (41.62 ha) with fly ash quantity of 19775418 T 2. MPPCB letter dated 28.04.2020 for low lying areas around ash dyke in an area of 9.825 ha with fly ash quantity of 288300 T.
5	The TPP management shall adhere to the office memorandum (OM) of MoEF&CC dated 28-08-19 and the conditions stipulated therein pertaining to the use of fly ash as mentioned in the para 7 of the OM. TPP shall have to follow the same and the guidelines of the CPCB entitled "Guidelines for disposal/utilization of Fly ash for reclamation of Low Lying	Noted	Project proponent stated that the stipulated condition is noted for compliance.

	Areas and in stowing of abandoned mines/Quarries” for the disposal of fly ash.		
B. OTHER CONDITIONS:			
1	The industry shall have to comply with the orders of Hon’ble NGT and other competent courts regarding the deposition of environmental compensation levied upon it, if any, from time to time.	Noted	Project proponent stated that the stipulated condition is noted for compliance.
2	The industry shall comply with all conditions stipulated by the GOI, MoEF&CC in the EC in toto.	Noted	As per the records furnished during site visit by Project Authorities and the site observations noted against each of the conditions stipulated in the CTO, all the EC conditions found to be complied except for the partial compliances observed w.r.t. greenbelt development around the ash dykes.
3	The management shall inventorise the other solid wastes generated in the plant & colony and detailed plan of disposal of the same shall be submitted to the Board within one month.	Agreed and noted	Project proponent is yet to inventorise the other solid wastes generated in the plant and colony like MSW.
4	This consent renewal in no way be taken as measures of proof that the industry has not violated any pollution control laws at any time in the past. Hence, whatsoever may be decision of the Hon’ble Courts/NGT, shall be binding to both industry and this court.	Noted	Project proponent stated that the stipulated condition is noted for compliance.
5	In case of change in management, consent shall be obtained in the name of new organization with complete responsibilities & liabilities of	Noted	Project proponent stated that the stipulated condition is noted for compliance

	<i>existing unit with respect to compliance of environment laws/licenses/consents.</i>		
6	<i>The industry shall not raise any ash dyke without permission from Board and submission of stability study reports</i>	<i>As per Ash Dyke Design Basis Report (DBR) prepared at the time of taking Consent to Establish (CTE) from MPPCB, five bund raisings of the ash dyke were envisaged to ensure uninterrupted plant operation. Further, we would like to seek your kind attention to our letter no. SPL /2020-21/16 dated 25.04.2020 wherein we had clearly brought out the requirement of ash dyke raising. The said letter was duly acknowledged by the MPPCB vide its letter no. 47/MPPCB/M S/TS Singrauli/2020 dated 01.05.2020. As mentioned above SPL has always kept MPPCB informed about the requirement of</i>	<i>During Site visit, it was seen that the height of the ash dyke was raised previously by the PP.</i> <i>As per the design carried out by M/s. V Engineering and same is vetted by IIT-BHU.</i> <i>As per records furnished during site visit, Stability report of Ash dyke is also furnished by IIT BHU and same has been submitted to MPPCB vide letter dated 16.09.2020.</i> <i>The industry shall not undertake ash dyke raising in future without permission from the Board.</i>

		the bund raising. Additionally, we also would like to submit that the design and drawing of the ash dyke was carried out by a highly reputed design and engineering consultant i.e. M/s V Engineering. Further, to ensure that the dyke design complies with high degree of design and safety standards, we got the said design vetted by IIT-BHU. Further, the design documents vetted by IIT-BHU were also submitted by hand to the Regional Officer MPPCB, Singrauli and Director (Environment), MPPCB, Bhopal during their plant visit on 29.06.2020. It would be pertinent to mention here that the dyke stability analysis study including of	
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		ash bud raising is also carried out by IIT-BHU and the said report was also submitted to the Regional and Head Offices of MPPCB vide letter dated 20.08.2020. Moreover, the dyke raising work is being regularly inspected by the Regional Officer, MPPCB Singrauli and representatives from MPPCB Head office, Bhopal and their suggestion for the improvement are always implemented. A detailed letter in this regard is also submitted to MS / RO, MPPCB vide no. SPL/EMG/PCB/2021-22/29 dated 15.02.2022. (Copy attached)	
7	Free board shall be maintained in all the ash dykes as stipulated/directed and shall keep additional free board for accommodating the peak rainfall of last 50 years. A bench mark level bearing report and marking in the dykes shall be submitted to the	Noted	During the site visit, it was seen that addl. free board for accommodating the peak rainfall of last 50 years is provided. Benchmark level bearing report and

	<i>Board within one month from date of issue of this letter.</i>		<i>marking in the dykes is yet to be submitted to MPPCB.</i>
8	<i>The cleanup of the ash from the nalah, river and pond shall be done in accordance with the directions issued by MPPCB time to time.</i>	<i>Noted</i>	<i>Unit need to clean the drains where fly ash was flown during the ash dyke failure incidents of years 2020 & 2021.</i>
9	<i>The industry shall comply with the commitments given during technical presentation dated 12/11/2021 and the reply submitted/uploaded in XGN on 15/11/2021 and reply dated 10/12/2021.</i>	<i>Noted</i>	<i>As per the records furnished during site visit and the site observations thereof, project proponent was seen complying the commitments made during the technical presentation and various correspondences.</i>
10	<i>This consent renewal in no way be taken as measures of proof that the industry has not violated any pollution control laws at any time in the past. Hence, whatsoever may be decision of the Hon'ble Courts/ NGT, shall be binding to both industry and this Board.</i>	<i>Noted</i>	<i>Project proponent stated that the stipulated condition is noted for compliance.</i>
11	<i>The industry shall comply with the direction issued by MPPCB in the matter of NGT OA No. 164/2018 & order dated 18/01/2022.</i>	<i>Noted</i>	<i>Perusal of the compliance status w.r.t. directions issued by MPPCB reveal that the stipulated condition is considered as complied.</i>

14. On the question of medical facility, education, employment and land acquirement, Committee has given its observations based on information received from project proponent as under:

“1. Medical facility for the Sasan village:

- Support to 4 Nos of Govt Aanganwadis of Sasan Gadahra village in terms of resource upgradation by providing office related Almirah, Rach, curtain with fittings, high scale, white board, table, chair etc.
- Under safe motherhood project-healthy baby kit distribution to women opted for institutional delivery-approx. 55 Nos. annually.
- Under menstrual hygiene project regular distribution of sanitary napkin to eligible women 1145 nos. approx.
- Medical camps, HIV/AIDS awareness camps
- 24x7 hr ambulance facility on call
- During COVID-19, Covid kit (medicine, pulse oximeter, contactless thermometer, surgical masks, sanitizer) given to Panchayats, distribution of mask, sanitizers and Ration kits to needy
- Distribution of mosquito net, blankets in the village

2. Educational facility for the Sasan village:

- Approx 66 students from Sasan village getting completely free education upto Std XII in English medium CBSE Board affiliated DAV School run by company, where uniform, shoe, bags, sweater, stationery and bus transportation is completely free. Student stipend is given to eligible students in the range of Rs. 150-300/pm. Average expenditure per students is Rs. 28,000-30,000/-
- Different activities conducted for Govt/Pvt schools of the village like industrial visits, Hariyali Mahotsav, indoor sports competition, world Yoga Day, World Toilet Day, World Earth Day.

3. Employment for the Sasan village:

- Total 83 persons from Sasan village getting direct employment at Plant and more than 100 are getting indirect employment.
- Total 95 Project Affected Person (PAPs) from Sasan village is getting monthly Sustenance Allowance @Rs. 9325/pm.

4. Plan for Land acquisition of Sasan village

- No plan for expansion and acquire of new land.”

15. Having noted the information as supplied by proponent, Committee has given its own observations and recommendations in respect to above aspect i.e., medical facility, irrigation facility, as under:

“As per the records furnished during the site visit and the visit to R&R colony at Surya Vihar, it was noted that number of amenities were provided in accordance with plan. Other entities of plan like compensation, employment generation, sustenance allowance, free education, health services, etc. have been duly addressed by the project authorities. However, project proponent needs to make provisions for supply of drinking water through piped water network system in a phased manner under CSR funds, for which a time targeted action plan needs to be submitted to all regulatory authorities.

Further, on perusal of the point-wise compliance status of the conditions stipulated in the Consent to Operate, it was noted that the project proponent is complying majority of the conditions except for the following lapses, which directly does not have significant impact on the environment:

- 1. Periodic documentary submissions to MPPCB w.r.t. Bottom ash analysis, augmentation plans for village ponds /surface water bodies, plantation scheme for subsequent financial year, plan assessing the requirement of addl. mechanical dust sweeping machines, Inventorization of nonhazardous and other solid wastes generated, electrical energy consumption records pertaining to pollution control equipment, Benchmark level bearing report and markings in the dykes*
- 2. 2-tier plantation is present instead of a 3-tier plantation as stipulated.*

However, marginal environmental impact on the adjoining habitation and agricultural yield (particularly around the coal stock yard) was noticed which can be reduced by taking better dust suppression measures at the coal stock piles, which seem to be a cause of dust in the vicinity of the applicant Lalman Shah’s residence. Improvised water sprinkling arrangements as well as through creation of high rise wind breaking wall / barrier , rising above the max. height of coal stock pile on three sides of the coal stock yards through out the entire length of the stock pile needs to be made in a scientific manner, so as to control the spread of the coal dust during handling of coal towards the applicant’s house & fields.”

16. Issue of fly ash generation, storage and disposal has been conceived by Joint Committee as issue no. (II). Its observations and findings are as under:

“ISSUE (ii) Account of the Fly Ash generation, storage and disposal

M/s Sasan Power Limited located at GPS location 23.977922°, 82.627159° of Sasan village. It has 06 units of 660MW capacity i.e., total 3960MW. The coal is transported from its own mine Moher & Moher through about 25KM Overland-Conveyor (OLC) system. The coal is stored in coal hoppers and from there coal is stacked at coal yard through conveyor belt and stacker machines.

The details of the units, capacity & commissioning date are as tabulated below:

Unit	Capacity	Date of Commissioning
1.	660MW	16.8.2013
2.	660MW	28.1.2014
3.	660MW	12.4.2014
4.	660MW	27.5.2014
5.	660MW	12.12.2014
6.	660MW	19.3.2015

The annual unit-wise power generation, Coal utilization & %Ash generation details are as tabulated below:

Financial Year	Unit-wise Annual Gross power generation (Mega Unit)					
	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
2021-22	5624.59	4928.56	5551.47	5585.80	5716.33	5266.29
2022-23 (Upto Oct 2022)	1714.34	3172.26	3341.52	3223.09	3365.52	3284.60

Unit#1 was not in operation during 21st July to 31st Oct 2022.

Financial Year	Unit-wise Annual Coal Consumption (MT)					
	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
2021-22	3140031	2739616	3130424	3174788	3157294	2966269
2022-23 (Upto Oct 2022)	965357	1772024	1866711	1829129	1861458	1864130

Financial Year	Unit-wise annual % Ash generation					
	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
2021-22	28.94	28.64	29.36	29.71	28.57	29.43
2022-23 (Upto Oct 2022)	30.35	28.36	28.36	28.95	27.90	28.96

The unit-wise per Mega Unit, coal consumption in Metric Ton is as tabulated below:

Financial Year	Coal consumption (in MT) per Mega Unit					
	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
2021-22	558	556	564	568	552	563
2022-23 (Upto Oct 2022)	563	559	559	568	553	568

The average coal consumption per MW power generation during FY 2021-22 & 2022-23 (Upto Oct 22) varies from 0.552 to 0.568MT.

Ash generation & utilization:

The ash percentage during FY 2021-22 & 2022-23 (Upto Oct 22) varies from 27.9 to 30.35. The details of ash generation, its utilization, disposal is as tabulated below:

Month	Coal Consumption in MT	Ash Generation (in MT)		
		Total Ash	Fly Ash	Bottom Ash
April	1450287	417133	333706	83427
May	1591587	449952	359961	89990
June	1590211	501912	401530	100382
July	1494128	455018	364014	91004
August	1456783	463136	370509	92627
September	1378441	416427	333142	83285
October	1604400	467865	374292	93573
November	1602618	476433	381146	95287
December	1632947	468032	374426	93606
January	1548732	419038	335230	83808
February	1392870	371277	297022	74255
March	1565418	441261	353009	88252
Total (21-22)	18308422	5347484	4277987	1069497

Against the total ash generation in FY 2021-22 i.e., 5.3Million MT, on average 80% was fly ash & 20% was bottom ash.

Month	Total Ash Utilization in MT						Utilization in MT	Unutilized in MT
	Brick		RMC		Ash Bund Raising			
	FA	BA	FA	BA	BA	FA		
April	53	0	25	0	59040	300000	359117	58015
May	75	0	14	0	27648	310000	337737	112214
June	98	0	26	0	19008	300000	319131	182781
July	30	0	19	0	15960	288333	304342	150675
August	68	0	28	0	65040	258333	323468	139668
September	8000	0	168	0	70800	260000	338968	77459
October	6225	24	53	114	12800	153500	172715	295150
November	1915	19	51	130	4320	141840	148275	328158
December	2800	41	10	47	2100	140800	145798	322234
January	3520	51	15	43	19080	123400	146108	272930
February	4563	32	20	56	18346	83157	106172	265105
March	8459	47	41	111	20520	68400	97578	343683
Total (21-22)	35804	212	471	500	334662	2427763	2799412	2548072

Note: FA-Fly ash, BA-Bottom Ash, RMC- Ready Mix Concrete

The ash generated during FY 2021-22 was majorly utilized in Ash bund raising, brick making and ready-mix concrete. **NIL** quantity of ash utilized in low lying area, cenosphere, coal mine, cement manufacturing & others. 52.35% was the total ash utilization due to that 47.65% (i.e., 2.548 MMT) was dumped in ash dyke.

Financial Year	Ash Generated (MT)	Ash Utilized (MT)	Ash Unutilized (MT)	Ash already dumped upto	Ash dumped upto

				March 2021 (MT)	March 2022 (MT)
2021-22	5347484	2799412	2548072	22158503	24706575

The coal consumptions & fly ash generation (FY 2022-23 (Upto Oct 2022)) is as tabulated below:

Month	Coal Consumption in MT	Ash Generation (in MT)		
		Total Ash	Fly Ash	Bottom Ash
April	1528836	463378	370702	92676
May	1628524	496083	396866	99217
June	1579395	482120	385696	96424
July	1541058	449706	359765	89941
August	1300845	341643	273314	68329
September	1296861	350274	280219	70055
October	1283292	337202	269761	67440
Total (22- 23) Upto Oct 2022	10158811	2920404	2336323	584081

Against the total ash generation in FY 2022-23 (upto Oct 2022) i.e., 2.92 million MT, on average 80% was fly ash & 20% was bottom ash.

Month	Total Ash Utilization in MT						Utilization in MT	Unutilized in MT
	Brick		RMC		Ash Bund Raising			
	FA	BA	FA	BA	FA	BA		
April	819	0	40	95	0	0	954	462424
May	2020	0	105	267	0	0	2392	493691
June	4563	0	131	331	0	0	5026	477094
July	4078	0	118	328	4500	393000	402023	47683
August	1957	0	83	252	4000	378000	384291	-42648
September	2219	0	50	147	4500	372000	378915	-28641
October	1271	0	23	68	5000	453000	459962	-122760
Total (22-23) Upto Oct 2023	16926	0	550	1488	18000	1596600	1633563	1286843

Note: FA-Fly ash, BA-Bottom Ash, RMC- Ready Mix Concrete

The details of the Pond Ash / Legacy Ash Utilization in MT for FY 2022-23 (Upto Oct 2022) are as tabulated below:

Month	Pond Ash / Legacy Ash Utilization in MT
April	347200
May	390746
June	372500
July	0.00
August	0.00
September	0.00
October	0.00

Total (22- 23) Upto Oct 2023	1110446
---------------------------------	---------

The ash generated during FY 2022-23 (upto Oct 2022) was only utilized in brick making and ready-mix concrete and Ash Bund Raising. NIL quantity of ash utilized in low lying area, Cenosphere, coal mine, cement manufacturing & others. 55.9% was the total ash utilization due to that 44.06% (i.e., 1.28 MMT) was dumped in ash dyke. The details are as tabulated below:

Financial Year	Ash Generated (MT)	Ash Utilized (MT)	Ash Unutilized (MT)	Ash already dumped upto March 2022 (MT)	Ash dumped upto Oct 2023 (MT)
2022-23 (Upto Oct 2022)	2920404	1633563	1286843	24706575	24882972

Status of Ash (Fly ash & Bottom Ash) utilization as per the MoEF&CC Notification S.O. 5481(E) dated 31.12.2021

The notification set targets to achieve 100% utilization of the ash generated during that year of 05 years from FY 2021-22 to the Thermal Power Plants who were utilizing <60% of the ash.

M/s Sasan Power Limited, Sasan has only utilized 52.35% ash (fly ash & Bottom Ash) during FY 2021-22. Based on the above timeline of first compliance cycle to meet 100% utilisation, M/s Sasan Power Limited has 05 years. Also, the minimum target of utilization i.e., 80% is also relaxed for initial 02 years as the ash utilization as per FY 2021-22 falls below 60%.

Similarly, for utilizing the legacy ash, M/s Sasan Power Limited has following targets

Year from date of publication i.e., 31.12.2021	1 st	2 nd	3 rd – 10 th
Utilisation of legacy ash (in percentage of Annual ash)	At least 20%	At least 35%	At least 50%

In compliance of the notification M/s Sasan Power Ltd has complied as:

Financial Year	Utilization of Annual Ash generated	Utilization of legacy waste of annual ash generation
2021-22	52.35%	-
2022-23 (Upto Oct 2022)	55.9%	34.17%

Copy of the coal consumption, ash utilization is enclosed as Annexure-IV.

Action plan for Fly ash Utilization as per the Notification

M/s Sasan Power Ltd has submitted action plan in compliance of the notification dated 31.12.2021. Copy of the same is enclosed as Annexure-V.

It is planned to utilize Fly ash by mixing with Overburden of Captive coal mine in phased manner from FY 2023-24 onwards as per latest norms of fly ash utilization whereas the legacy ash shall be utilized as per the requirement of the notification.

Ash utilization plan for the next 5 years cycle starting from FY 2022-23 is as tabulated below:

S. No	Description	Unit	FY 2022-23 (Est.)	FY 2023-24 (Est.)	FY 2024-25 (Est.)	FY 2025-26 (Est.)	FY 2026-27 (Est.)
A	Ash Generation	MT	4628834	5314400	5352360	5390320	5314400
B. Ash (Fly + Bottom) utilization							
i.	Brick manufacturing	MT	23415	40000	40000	40000	40000
ii.	Ready mix concrete	MT	3926	6000	6875	6970	5750
iii.	Low lying area filling/area development	MT	0	0	0	0	0
iv.	Cement	MT	0	0	0	0	0
v.	Sasan Coal Mine (OB Dump)	MT	0	5009569	5305485	5343350	5268650
vi.	Dyke Raising	MT	3907600	0	0	0	0
Total Fly ash utilization		MT	3934941	5055569	5352360	5390320	531440
Fly Ash Utilization percentage		%	85	95	100	100	100
C	Legacy Ash Utilization from 01-04-2022:						
	Dyke raising (Legacy)	MT	1110446	1944000	2916000	2916000	3032640
	% Legacy Ash Utilization (% of Annual Ash as per Notification)	%	24	37	54	54	57

17. Next aspect considered by Joint Committee is actual functioning and efficacy of pollution control measures/arrangements which it has

considered at issue no. (III). Joint Committee’s findings and comments on actual functioning and efficacy of pollution control measures are as under:

“ISSUE (III) Actual functioning and efficacy of the pollution control measures/arrangements

M/s Sasan Power Limited transport coal from own mine i.e., Moher & Moher through Overland conveyor (OLC). NO road transportation is in practice for coal transportation. The key features of the OLC are as tabulated below:

S.NO.	Description	Parameters
1.	OLC belt conveyor Capacity	4500TPH
2.	Conveyor length	14.2 KMs
3.	Belt Width	1.8 M
4.	Conveyor Speed	5.6 m/sec
5.	Belt washing	Nozzle mounted Belt washing placed at the Tail end
6.	Belt Cover	Belt covered at full length

Details of the Coal Silo, Stock Yard are as tabulated below:

S.NO.	Description	Parameters
COAL SILO		
1.	Coal Silo Capacity	1400MT
2.	Height	27.4 M
3.	Diameter	16 M
STOCK YARD		
4.	Coal Stoke Pile (LxBxH)	700M x 35M x 12M
5.	Coal Stock pile Capacity	1.25 Lacs MT
6.	Total Stock Pile	06 Nos.
7.	Total Coal Stock Yard Capacity	7.5 Lacs MT (15 days operation for 06 Units)

Air Pollution Control Devices (APCDs):

The details of the APCDs provided to control the dust emission during loading, unloading, transportation of the coal & fly ash and source emissions are as tabulated below:

S.NO.	Plant Activities	Pollution Control Measures		
1.	Coal yard	180 nos. rain gun type water sprinkler system. (15 sprinklers in 12 lines)		
		S. NO.	Location	Quantity (Nos.)
		1.	Stacker Reclaimer Yard-1	60
		2.	Stacker Reclaimer Yard2	60
		3.	Stacker Reclaimer Yard-3	60

2.	Coal Silo	01 No. Bag filter of 56 bags		
3.	Coal Transfer Point	14 Nos. dust suppression system		
		S. NO.	Location	Quantity (Nos.)
		1.	Transfer Point 1	01
		2.	Transfer Point 1A & 1B	02
		3.	Transfer Point 2B & 2C	02
		4.	Transfer Point 3 & 3A	02
		5.	Transfer Point 4 & 4A	02
		6.	Transfer Point 17 to 21	05
4.	Coal Bunker	12 Nos. dust suppression system		
		S. NO.	Location	Quantity (Nos.)
		1.	Coal bunkers Unit# 1	02
		2.	Coal bunkers Unit# 2	02
		3.	Coal bunkers Unit# 3	02
		4.	Coal bunkers Unit# 4	02
		5.	Coal bunkers Unit# 5	02
		6.	Coal bunkers Unit# 6	02
5.	Intermediate Ash Silo	06 Nos. Bag filters		
		S. NO.	Location	Quantity (Nos.)
		1.	Intermediate fly ash silo Island I	03
		2.	Intermediate fly ash silo Island II	03
6.	Fly Ash Storage Silos	08 Nos. Bag filters		
		S. NO.	Location	Quantity (Nos.)
		1.	Main ash silo Island I	04
		2.	Main ash silo Island II	04

Electrostatic Precipitator of 05 field for each of the Unit of 660MW are installed to achieve the prescribed emission standards i.e., 50mg/NM3. Copy of the APCDs details is enclosed as Annexure-VI.

Comments on the functioning & efficacy of the APCDs

To access the actual functioning & efficacy of the APCDs installed at various pollution generating sources viz. transfer points, coal yard, source emission, committee visited the major pollution generating sources and observed that the rain guns provided at 03 stacker reclaimer yards 1 to 3 in 180 Nos. are adequate in numbers but the

height of the rain gun reduces on operating the all guns at same time and didn't result in wetting the top at the height of 12- 13M of the coal stock. Due to which, coal dust blow with the wind.

It was submitted by the representative of the Unit that all the guns are not operated together, only on the operational reclaimer yard the rain gun is used and during that time there is a sufficient wetting at the top. Unit has also provided a thick greenbelt towards North direction (or towards the petitioner's house) by planting 10-12M heighted Casuarina trees; that works as a barrier. However, during visit thin layer of coal dust was found deposited on the nearby (within about 300M) trees, vegetation of North direction. This reveals that the emission control measures deployed at the coal yard are not being operated regularly and also not absolutely effective to control the spread of coal dust. The committee is of the view that this non-point source of emission is the main cause of spread of dust in the nearby areas. The applicant as well as his son Shri Balram Shah have also pointed out that the handling of the coal at the stock pile is the main cause of dust spread in their vicinity. By increasing the pressure of the rain guns and regular operation, unit can overcome the issue effectively. The marginal environmental impact on the adjoining habitation and agricultural yield (particularly around the coal stock yard) can be reduced by taking better dust suppression measures at the coal stock piles, which seem to be a cause of dust in the vicinity of the applicant Lalman Shah's residence. Improvised water sprinkling arrangements as well as through creation of high rise wind breaking wall / barrier, rising above the max. height of coal stock pile on three sides of the coal stock yards throughout the entire length of the stock pile to be made in a scientific manner, so as to control the spread of the coal dust towards the applicant's house & fields, during its handling at the stock plie.

Further to assess the efficacy of the ESPs installed to control the emission; Unit-wise power consumption of the ESPs was assessed w.r.t. the Online Continuous Emission Monitoring (OCEMS) Data of September & October 2022.

The Daily Average Power consumption (in KWH) at each field (transformer) in **SEPTEMBER 2022** is as tabulated below:

Units of M/s Sasan Power Ltd	Daily Average Power consumption (in KWH) at each field (transformer) in SEPTEMBER 2022					Remarks
	Field# 1	Field#2	Field#3	Field#4	Field#5	
Unit#01	1034	51	667	42	36	Non-operational
Unit#02	12399	12046	11616	11941	54	Operational
Unit#03	12471	11468	11825	11955	60	
Unit#04	13955	14147	10591	14074	52	
Unit#05	12823	12187	13315	13987	40	
Unit#06	10847	10707	11963	14251	15	

The Daily Average Power consumption (in KWH) at each field (transformer) in **October 2022** is as tabulated below:

Units of M/s Sasan Power Ltd	Daily Average Power consumption (in KWH) at each field (transformer) in OCTOBER 2022					Remarks
	Field#1	Field#2	Field#3	Field#4	Field#5	
Unit#01	1144	55	837	45	32	Non-operational
Unit#02	12359	11391	11771	11411	1056	Operational
Unit#03	11773	11523	11191	12116	49	
Unit#04	12914	13549	9511	13298	647	
Unit#05	11962	11650	13962	12678	235	
Unit#06	11244	10664	10579	13190	45	

The Daily Average Air Flow (M3/Hr) in **SEPTEMBER & OCTOBER 2022** as tabulated below:

Month	Daily Average Air Flow (M ³ /Hr) in SEPTEMBER & OCTOBER 2022					
	Unit# 1	Unit#2	Unit#3	Unit#4	Unit#5	Unit#6
Sep-22	0	2514	2312	2365	2596	2296
Oct-22	0	2495	2426	2357	2521	2024

Details of unit-wise power consumption at ESPs are enclosed as Annexure-VII.

The OCEMS data of Particulate matters emission (mg/NM³) during September & October 2022 gathered from MPPCB server of all the 06 units are as tabulated below:

Date	Unit#1	Unit#2	Unit#3	Unit#4	Unit#5	Unit#6
9/1/2022	NA	NA	NA	31.53	36.05	38.42
9/2/2022	NA	NA	NA	32.36	36.17	39.79
9/3/2022	NA	NA	NA	32.94	37.22	40.43
9/4/2022	NA	NA	NA	34.76	37.23	34.91
9/5/2022	NA	NA	NA	32.21	36.63	26.67
9/6/2022	NA	NA	NA	30.8	36.77	30.06
9/7/2022	NA	NA	NA	31.91	37.62	31.48
9/8/2022	NA	NA	NA	31.24	37.06	28.8
9/9/2022	NA	NA	NA	33.03	37.56	29.92
9/10/2022	NA	NA	NA	32.04	35.81	28.97
9/11/2022	NA	NA	NA	35.12	38.2	40.27
9/12/2022	NA	NA	NA	35.32	36.74	34.17
9/13/2022	NA	NA	NA	32.63	34.88	37.21
9/14/2022	NA	NA	NA	31.99	37.42	36.8
9/15/2022	NA	NA	NA	33.93	37.32	37.11
9/16/2022	NA	NA	NA	34.55	36.75	38.73
9/17/2022	NA	NA	NA	32.84	36.56	36.69
9/18/2022	NA	NA	NA	32.14	37.12	34.29
9/19/2022	NA	NA	NA	33.52	36.78	34.58

9/20/2022	0.26	99.36	30.01	32.9	36.51	28.73
9/21/2022	0.26	91.33	39.38	32.64	36.89	27.09
9/22/2022	0	63.91	41.36	34.92	37.16	30.5
9/23/2022	0.11	64.08	34.55	30.99	35.48	26.97
9/24/2022	0.22	53.58	47.12	30.94	34.61	20.8
9/25/2022	0	56.46	69.22	29.91	35.8	20.32
9/26/2022	0	223.91	32.36	28.9	35.68	24.34
9/27/2022	0	80.46	32.9	30.36	36.5	23.98
9/28/2022	0	152.93	37.47	32.29	36.72	27.71
9/29/2022	0	62.31	41.07	36.24	36.44	16.65
9/30/2022	0	33.36	30.7	33.03	36.05	37.09
10/1/2022	0.16	32.78	25.47	30.72	35.02	16.41
10/2/2022	0.15	27.22	24.27	27.67	34.72	23.04
10/3/2022	0	22.61	19.74	30.1	36.05	17.63
10/4/2022	0	21.64	19.56	25.58	34.91	15.04
10/5/2022	0.17	23.59	34.02	28.23	35.9	17.19
10/6/2022	0	109.48	32.4	33.14	36.75	21.81
10/7/2022	0.16	0.02	44.96	32.23	35.5	24.14
10/8/2022	0	89.36	27.45	27.33	35.13	19.61
10/9/2022	0.15	29.36	48	32.49	36.48	24.08
10/10/2022	0	23.97	58.11	30.92	35.13	16.61
10/11/2022	0	22.89	6.59	25.64	34.47	33.77
10/12/2022	0	22.92	26.02	26.82	34.54	26.3
10/13/2022	0	19.38	35.43	28.21	35.1	15.59
10/14/2022	0	21.33	38.28	29.82	34.83	17.67
10/15/2022	0	23.39	39.16	30.45	35.46	15.83
10/16/2022	0	19.34	36.15	28.66	35.26	16.24
10/17/2022	0	27.34	37.25	29.03	33.47	14.67
10/18/2022	0	27	46.85	29.71	29.78	18.05
10/19/2022	8.27	121.88	121.7	27.64	30.34	18.48
10/20/2022	0	167.2	123.59	25.41	30.7	16.23
10/21/2022	0.23	167.32	122.4	22.73	9.3	29.71
10/22/2022	0.26	168.07	122.94	20.96	16.26	9.93
10/23/2022	0	170.21	128.27	19.55	31.6	41.24
10/24/2022	0	172.72	130.9	22.22	30.97	36.49
10/25/2022	0	173.24	130.04	21.3	29.69	33.24
10/26/2022	0.23	165.56	122.08	22.71	31.83	33.14
10/27/2022	0	107.55	95.57	26.64	31.95	37.78
10/28/2022	0.21	26.8	34.02	24.53	31.33	37.81
10/29/2022	0	18.15	48.53	25.72	31.42	39.52
10/30/2022	0.23	13.18	53.42	18.86	31.23	38.42
10/31/2022	0.47	13.02	26.14	18.63	31.83	39.76

Note: NA-Not applicable

As the unit# 1 was not in operation during Sept & Oct 2022; the values were recorded either as “NA” or “0” or “<10”.

However, the emission values were found exceeding the prescribed emission standards i.e., 50mg/NM³ on few occasions in Unit#2 (20-29th Sept, 6th Oct, 8th Oct & 19th to 27th Oct) & Unit #3 (25th Sept, 10th Oct, 19th to 27th Oct and 30th Oct). However, there was no exceedance recorded in Unit#4 to 6. But since the height of the stacks are 275 m, there seems to be no scope for the dust fall with in the near vicinity of the applicant's house due to these occasional high emissions from the stacks.

The exceedance in emission values recorded in Unit#2 & #3 are due to fewer efficacies of the ESPs fields. The charge was probably inadequate to trap the particles at the level of prescribed standards. By maintaining the charge level as per the Unit#4 to #6 ESP fields in the Unit#2 & #3 ESP fields unit may achieve the standards, which need to be timely repaired / maintained to avoid high emissions.”

18. The issue relating to quality of air and water in plant premises and surroundings has been considered at serial no. (IV). Joint Committee’s observations, findings and recommendations are as under:

“ISSUE (IV) Quality of air and water in the plant premises and surroundings

To assess the Ambient Air Quality & water quality in & around the plant surroundings; sampling was carried out at representative locations as per the prescribed protocol of CPCB. The samples were analysed at MPPCB laboratory. The details of the sampling locations distance from industry, PM10 concentration are as tabulated below:

Sr. no.	Location	Co-ordinates	Date of monitoring	Distance	Results PM ₁₀ µg / m ³
1.	Shri Lalman Shah House (Complainer)	23.995285, 82.6262127	11.11.2022	Approx. 400mt. North	114
2.	Shri Siyasaran Sahu’s House	23.993108, 82.626569	11.11.2022	Approx. 50mt. North	113
3.	Shri Siyaram House	23.9971189, 82.630111	11.11.2022	Approx. 2.0 Km. North	142
4.	Primary School Bhandi (Harrhawa)	23.982264, 82.635122	24.11. 2022	Approx. 100mt East	152
5.	Govt. Middle school Siddhikhurd	23.988737, 82.61379	24.11. 2022	Approx. 500mt South	82
6.	Shri Avdhesh Dubey’s House Open field	23.9611, 82.6135	24.11. 2022	Approx. 500mt South West	66
7.	Near construction Office Sasan power plant	23.97759, 82.6309557	24.11. 2022	Inside the plant	131

The records of prominent wind direction from June 2021 to Sept 2022 are as tabulated below:

Month	Prominent Wind Direction
June 2021	West
July 2021	West

August 2021	West
Sept 2021	East-South-West
Oct 2021	West
Nov 2021	West
Dec 2021	East-South-West
Jan 2022	West
Feb 2022	West-North
March 2022	West-North-North
April 2022	West-North
May 2022	West-North
June 2022	West
July 2022	West-South
August 2022	West-South
Sept 2022	North-North-East

Details of wind direction are given at Annexure-VIII.

The satellite image of the AAQM stations is as below:

Google Earth Image omitted

The prominent wind direction is WEST. This suggests that the probability of fall of stack emission in North direction is minimal. The petitioner’s house is in the North direction from the plant at around 300 m and the chimney height is also high enough for not to cause a dust fall so near.

Out of the 07 monitoring locations, 04 are not meeting the 24-hourly ambient air quality standard i.e.; 100ug/m³. During the monitoring period, crop harvesting was ongoing. The highest concentration observed in East direction, this is majorly due to prominent Western wind direction. Industry need to place barrier in the eastern direction of the coal yard & increase water sprinkling to improve the ambient air quality.

Industry has installed 02 Continuous Ambient Air Quality Monitoring System (CAAQMS) at following locations:

S.NO.	Code	Location	GPS location
1.	CAAQMS_1	Purvanchal Transit guest house	23.97148,82.63503
2.	CAAQMS_2	Behind Switch yard (B/w material gate & fire station)	23.97890,82.61814

The Ambient Air Quality data recorded at these CAAQMS during 2021 & 2022 (Upto Oct 2022) were assessed in light of the stipulated 24-hourly standards for PM10 & PM2.5 i.e. 100µg/m³ & 60µg/m³.

Duration	CAAQMS-1				CAAQMS-2			
	PM10		PM2.5		PM10		PM2.5	
	Total number of monitored days	No. of days exceeded the PM10	Total number of monitored days	No. of days exceeded the PM2.5 standard	Total number of monitored days	No. of days exceeded the PM10 standard	Total number of monitored days	No. of days exceeded the PM2.5 standard

		stand ard						
Jan- Dec 2021	351	07 (105- 118 µg/m³)	345	00	355	08 (101- 126 µg/m³)	347	00
Jan- Oct 2022	274	21 (101- 133 µg/m³)	272	07 (61-70 µg/m³)	271	38 (104- 118 µg/m³)	271	08 (61- 71 µg/m³)

It is revealed on assessing the recorded AAQ data that majorly the ambient air was under the prescribed standards for PM10 & PM2.5; however, there are few days reported that showed higher values in the range of 101 to 133µg/m³ & 61- 71µg/m³ for PM10 & PM2.5 respectively. The increase is not that significant and may be due to wind blow events. However, as per the NAAQS, 2009, the ambient air quality is meeting the standards more than 98% of the times.

The CAAQMS results are enclosed as Annexure-IX.

The water quality in and around the industry

The water quality reported at 13 locations (Groundwater & surface water) in and around the industry revealed that **None** of the parameter is exceeding the prescribed standards viz. IS 10500:2012, IS: 2296. The details of the locations and the water quality for specified parameters are as tabulated below:

S.No.	Location	Type	Source
1.	Near Dev Khoj Temple, Sidhi Kallan	GW	Handpump
2.	Malaiya Dand Near Ram Prakash Baishya	GW	Handpump
3.	Harrahawa village near Primary School	GW	Handpump
4.	Sidhikhurd village (near M.G.B)	GW	Handpump
5.	Sasan Village (Near SBI ATM)	GW	Handpump
6.	Township E Block	GW	Piezometer
7.	Mango Garden CHP Area	GW	Piezometer
8.	Near Ash Dyke	GW	Piezometer
9.	Near Old Labor Camp (Island 3 & 4)	GW	Piezometer
10.	Near Security Training Center	GW	Piezometer
11.	Rihand River	SW	River
12.	Gavaiya Nalla (Harrahwa village)	SW	Nalla
13.	Mayar River	SW	River

Water quality at 13 locations is as tabulated below as reported and recorded upto September 2022:

Parameters														
Loc	pH	T D S	BO D	Cl	F	SO 4	NO 3	AS	Cu	Fe	Zn	Cd	Cr	Pb
1	7.3	452	-	57.1	0.618	41.9	2.08	BDL	BDL	0.131	0.178	BDL	BDL	BDL
2	7.35	472	-	55.7	0.688	52.1	3.63	BDL	BDL	0.152	0.171	BDL	BDL	BDL
3	7.37	473	-	47.6	0.66	61.8	2.28	BDL	BDL	0.163	1.47	BDL	BDL	BDL

4	7.35	488	-	49	0.646	60.2	2.93	BDL	BDL	0.179	0.552	BDL	BDL	BDL
5	7.28	486	-	60.8	0.696	51.6	1.9	BDL	BDL	0.155	1.78	BDL	BDL	BDL
6	7.48	446	-	50.9	0.652	39.2	4.36	BDL	BDL	0.182	1.31	BDL	BDL	BDL
7	7.43	462	-	41.8	0.611	46.7	4.63	BDL	0.031	0.142	0.678	BDL	BDL	BDL
8	7.41	472	-	44.6	0.558	47.1	3.26	BDL	0.042	0.182	1.36	BDL	BDL	BDL
9	7.36	470	-	51.7	0.566	47.9	5.13	BDL	0.022	0.108	1.61	BDL	BDL	BDL
10	7.44	458	-	48.1	0.558	47.1	3.26	BDL	BDL	0.151	1.38	BDL	BDL	BDL
11	7.41	310	2.02	40.6	0.507	44.1	5.11	BDL	BDL	0.342	0.216	BDL	BDL	BDL
12	7.36	388	2.38	62.3	0.389	44.1	10.8	BDL	BDL	0.358	0.156	BDL	BDL	BDL
13	7.61	366	2.28	55.6	0.578	59.1	13.6	BDL	BDL	0.442	0.256	BDL	BDL	BDL

Note: All parameters are in mg/l except pH. BDL- Below Detection Limit

The water quality was assessed for heavy metal concentration at 03 locations by MPPCB (sampled during 10th & 11th Nov 2022). The concentration found was well within the prescribed limits as per IS 10500:2012. Copy of the report enclosed as Annexure-X.

S. No	Analyses Tested	Unit	Method	Handpump at Primary school, Bhadi, Harawaha	Hand pump at Govt School, Sidhikhurd	Borewell of Shri Awadesh Dubey, Sasan
1.	Copper	Mg/l	3111 B, APHA, 23 rd Edition. 2017	0.053	0.035	0.073
2.	Iron	Mg/l		0.50	0.18	0.72
3.	Zinc	Mg/l		0.02	0.08	0.01
4.	Lead	Mg/l		BDL	BDL	BDL
5.	Chromium	Mg/l		BDL	BDL	BDL
6.	Cobalt	Mg/l		BDL	BDL	BDL
7.	Cadmium	Mg/l		BDL	BDL	BDL
8.	Nickel	Mg/l		BDL	BDL	BDL
9.	Boron	Mg/l	4500-B B, APHA, 23 rd Edition. 2017	0.81	0.17	BDL

19. Lastly, the issue relating to compliance with environmental norms and impact of air or water pollution if any on the residents of locality, livestock, soil, vegetation and agricultural crops etc., has been considered in issue no. (V). Committee’s recommendations, findings and observations are as under:

“ISSUE (V) Compliance with environmental norms and impact of air or water pollution if any on residents of the locality, livestock, soil, vegetation, agricultural crops etc.

To assess the compliance status of all the units of M/s Sasan Power Limited w.r.t. emission standards i.e. 50mg/NM³; source emission monitoring as per the CPCB protocol was carried out during 24th & 25th Nov 2022. Out of all the 06 units, Unit# 1 was not in operation.

Sr. no.	Stack/Unit	Date of monitoring	Result Pm mg/ m3	Prescribed limit
1	Unit no.04	24.11.2022	48.91	50mg/ m3
2	Unit no.05	24.11.2022	40.25	50mg/ m3
3	Unit no.06	24.11.2022	47.95	50mg/ m3
4	Unit no.02	25.11.2022	46.72	50mg/ m3
5	Unit no.03	25.11.2022	37.23	50mg/ m3

The source monitoring results shows that the observed values are compiling the prescribed limit.

Further, the prominent wind direction is WEST. This suggests that the probability of fall of stack emission in North direction is minimal. The petitioner’s house is in the North direction from the plant. Also, Out of the 07 monitoring locations, 04 are not meeting the 24-hourly ambient air quality standard i.e.; 100ug/m³. During the monitoring period, crop harvesting was ongoing. The highest concentration observed in East direction, this is majorly due to prominent Western wind direction. Industry need to place barrier in the eastern direction of the coal yard & increase water sprinkling to improve the ambient air quality. It is revealed on assessing the recorded CAAQMS data (2021 & 2022 (up-to Oct) that majorly the ambient air was under the prescribed standards for PM10 & PM2.5; however, there are few days reported that showed higher values in the range of 101 to 133ug/m³ & 61-71ug/m³ for PM10 & PM2.5 respectively. The increase is not that significant and may be due to wind blow events.

The water quality reported at 13 locations (Groundwater & surface water) in and around the industry revealed that **None** of the parameter is exceeding the prescribed standards viz. IS 10500:2012, IS: 2296.

The industry is majorly complying on the ground of Source emission, Ambient air & water quality ; however as submitted by the representative of the industry that all (180 Nos.) the rain guns are not operated together, only on the operational reclaimer yard the rain gun is used and during that time there is a sufficient wetting at the top. Unit has also provided a thick greenbelt towards North direction (or towards the petitioner’s house) by planting 10-12M heighted Casuarina trees; that works as a barrier. However, during visit thin layer of coal dust was found deposited on the nearby (within about 300M) trees, vegetation of North direction. This reveals that the emission control measures deployed are not being operated regularly. In addition to above, a high 20 meter wind breaking wall in combination with thick plantation needs to be installed near the coal

stock pile through out its entire length for better dust mitigation from coal yard and coal handling section.

Considering the above, committee opined to carry out a rapid health survey w.r.t. lungs functioning and study the soil quality to assess if there is any short of pollution that may result in reduced agricultural production. Also the crop cutting experiment was also conducted at petitioner's agri field and at control agricultural field.

Soil Sampling

The soil sampling was carried out on 11.11.2022, at Petitioner's Sh Lalman Shah Field (GPS location 23.99528, 82.62618) at 05 different depths viz. 0- 15cm, 15-30cm, 30-45cm, 45-60cm & 60-90cm. Homogenous samples were collected at each depth. Similarly, soil sampling at control area agri field of Sh Sriram, Tusakhand village (GPS location 24.01090, 82.62760) at 2KMs distance from industry boundary in North direction.

The samples were analysed at ICAR-Indian Institute of Soil Science (IISS), Bhopal.

Sample code for Lalman shah was LF & for S. Sriram was SF.

Soil Analysis Report

Methods of soil and water sample analysis:

The soil total micronutrient and heavy metal content was determined after digestion in microwave digestion system (MDS) following the EPA 3052 protocol. 0.5 gm soil sample was taken in MDS digestion vessel and 8 ml concentrated HNO₃ and 4 ml HF was added. The sample digestion vessel was digested in MDS following EPA 3052 protocol. After cooling the vessel, the digested solution was filtered through Whatman No. 42 filter paper in 50 ml volumetric flask and thereafter, volume was made upto the mark with double distilled water. The total heavy metal contents in the digested solution of soil samples as well as in the water samples were analyzed through inductively coupled plasma optical emission spectrometer (ICP-OES). Each sample was digested in triplicate and mean values of the triplicate analysis were reported. Soil pH, EC, SOC, available N, P and K was determined following the standard protocol (Jackson (1973) for pH & EC, Walkley and Black (1934) for SOC, Subbiah and Asija (1956) for available N, Olsen et al. (1954) for available P and Black 1.0 NNAA method (1965) for available K.

Result

The soil samples were analyzed for soil fertility parameters along with the micronutrient and heavy metal content following standard protocol. The results of soil samples at different depths are presented in Table no. 1 and 2. Also water samples were analyzed w.r.t. pH, Electrical Conductivity (EC), micro nutrient and heavy metal content and the results are presented in Table no. 1 and 2.

The result indicates that the soil pH and EC was slightly higher in LF as compared to SF samples irrespective of soil depth. Similarly, pH and EC in water samples was also slightly higher in LF as compared

to SF samples. Regarding the soil fertility parameters, the Soil Organic Carbon (SOC) content at the surface sample is higher in SF as compared to LF; whereas with increase in soil depth the SOC content between SF and LF sample is almost similar. Similar results were also observed in case of available Nitrogen (N) that no significant changes between SF and LF sample at all the soil depth. In general, the available P and K content were significantly higher in SF samples as compared to LF sample. Overall the result indicates higher EC in LF water samples as compared to SF water sample. The soil fertility parameter difference between SF and LF may be attributed mainly to management practices followed during crop production.

Table 1: Soil Fertility Parameters of soil samples collected at various depth and pH & EC content in water samples

Sample ID	Parameters					
	pH	EC (ds/m)	SOC (%)	Available N (Kg/ha)	Available P(Kg/ha)	Available K(Kg/ha)
Soil Sample						
SF-1 (0-15 cm)	6.67	0.409	0.50	168.34	17.20	235.31
SF-2 (15 -30 cm)	7.41	0.382	0.27	144.26	19.84	212.13
SF-3 (30-45cm)	7.43	0.353	0.32	148.65	8.21	246.40
SF-4 (45-60 cm)	7.35	0.399	0.21	142.32	6.75	281.68
SF-5 (60-90cm)	7.06	0.519	0.14	135.68	5.87	291.20
LF-1 (0-15 cm)	7.76	0.504	0.36	163.07	10.86	139.10
LF-2 (15 -30 cm)	7.86	0.414	0.23	156.80	3.46	119.39
LF-3 (30-45cm)	7.63	0.463	0.26	152.45	2.93	145.49
LF-4 (45-60 cm)	7.61	0.443	0.23	138.56	3.58	139.44
LF-5 (60-90cm)	7.6	0.409	0.14	131.71	2.40	130.59
Water Sample						
SF-1 (WATER)	7.19	831 (µS/cm)	-	-	-	-
LF-1 (WATER)	7.26	1158 (µS/cm)	-	-	-	-

The average content of micronutrient and heavy metals in the soil samples of varying soil depth from SF location were 0.80 mg/kg Cd (range 0.70 to 1.0 mg/kg), 19.42 mg/kg Co (range 11.3 to 29.8 mg/kg), 53.83 mg/kg Cr (range 47.7 to 60.6 mg/kg), 20739 mg/kg Fe (range 18143 to 23683 mg/kg), 38.16 mg/kg Pb (range 29.2 to 48.9 mg/kg), 26.06 mg/kg Zn (15.5 to 34.0 mg/kg) and 15.18 mg/kg Cu (range 13.7 to 17.0 mg/kg). Similarly, the average content of micronutrient and heavy metals in the soil samples of varying soil depth from LF location were 0.80 mg/kg Cd (range 0.50 to 1.0 mg/kg), 22.16 mg/kg Co (range 16.5 to 27.7 mg/kg), 47.16 mg/kg Cr (range 44.5 to 49.8 mg/kg), 24593 mg/kg Fe (range 18093 to 29663 mg/kg), 31.7 mg/kg Pb (range 26.8 to 40.2 mg/kg), 29.28 mg/kg Zn (20.9 to

38.9 mg/kg) and 15.46 mg/kg Cu (range 10.0 to 21.2 mg/kg). The above results indicate that **there is no significant change in the micro nutrient and heavy metal contents in the soils of SF location when compared to the soils of LF location**. In view of these, it can be concluded that the contents of micro nutrient and total heavy metals Cd, Co, Cr, Fe, Pb, Zn and Cu in the SF and LF soil samples are within the range normally observed in case of soils of unpolluted area.

Based on water sample analysis report, it can be concluded that the contents of micro nutrient and total heavy metals Cd, Co, Cr, Fe, Pb, Zn and Cu in the SF and LF water samples are within the range of water quality suitable for irrigation purpose (Ayers R.S. and Westcott.D.W.1985; Rowe and Abdel-Magid, 1995).

Table 2: Micronutrient and Heavy metal content in soil and water samples

Sample ID	Parameters						
	Cd (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Fe (mg/kg)	Pb (mg/kg)	Zn (mg/kg)	Cu (mg/kg)
Soil Sample							
SF-1 (0-15cm)	0.7	21.2	56.5	21853.1	46.5	26.9	14.5
SF-2 (15-30cm)	0.7	29.8	60.6	23683.1	48.9	29.8	17.0
SF-3 (30-45CM)	1.0	22.5	50.6	19533.1	34.8	34	14.8
SF-4 (45-60cm)	0.8	12.3	47.7	18143.1	31.4	24.1	13.7
SF-5(60-90cm)	0.8	11.3	51.5	20483.1	29.2	15.5	15.9
Average	0.8	19.42	53.38	20739.1	38.16	26.06	15.18
LF-1 (0-5cm)	0.7	16.5	47.1	18093.1	29.2	20.9	15.3
LF-2 (15-30cm)	0.8	22	49.8	26163.1	40.2	26.5	10.0
LF-3 (30-45cm)	1.0	21.4	44.5	29663.1	27.6	38.2	12.9
LF-4 (45-60cm)	1.0	27.7	46.6	24903.1	34.7	38.9	17.9
LF-5 (60-90CM)	0.5	23.2	47.8	24143.1	26.8	21.9	21.2
Average	0.8	22.16	47.16	24593.1	31.7	29.28	15.46
Water Sample							
SF-1 (WATER)	0.0005	0.005	0.005	0.791	0.026	0.116	0.003
LF-1 (WATER)	0.0004	0.004	0.005	0.518	0.026	0.118	0.003

Normal soil value: Cd content in soil ranges from **0.06 to 1.1 mg/kg** Cd- McBride, 1994

Normal soil value:Co content ranges from 5 to 60 mg/kg- Murthy 2008
Normal soil value:Cr content ranges from 7 to 221 mg/kg Cr- McBride, 1994
Normal soil value:Fe content ranges from 20,000 to 550,000 mg/kg- Bodek et al. (1988)
Normal soil value:Pb content ranges from 10 to 84 mg/kg- McBride, 1994
Normal soil value:Zn content ranges from 17 to 125 mg/kg- McBride, 1994
Normal soil value:Cu content ranges from 6 to 80 mg/kg- McBride, 1994

Standards of water sample for irrigation purpose based on long term/continuous use (Ayers R.S. and Westcott.D.W.1985; Rowe and Abdel-Magid, 1995) are 0.01 mg/kg for Cd, 0.05 mg/kg for Co, 0.1 mg/kg for Cr, 5.0 mg/kg for Fe & Pb, 2.0 mg/kg for Zn and 0.2 mg/kg for Cu

Crop Cutting Experiment

As per the discussion with Revenue officer, Patwari & agriculture department official present during the field visit, the crop cutting experiment was carried out as per the defined protocol. The area of 5 m by 5 m was selected in the agriculture field of petitioner's (Lalman shah). The paddy crop cut down in 25 SQMT each from 02 plots on 10.11.2022 was kept for drying. On drying the dry weight of the rice seeds were measured on 14.11.2022 in presence of petitioner. The wet weight of rice recorded in two plots was 18.5kg & 15Kg. The dry weight recorded was 17.5Kg & 14Kg.

The rice is cultivated in 0.390Ha area by the petitioner. The rice was cultivated in total 245 Acre land of Sasan village in the year 2022-23.

The average production was 40 Quintal per hectare (i.e. 10kg/25SQMT). The Minimum Support price (MSP) was Rs. 2040/- quintal. The average rice production in Sasan village was recorded as 40 Quintal/Hectare i.e. 10kg/25 SQMT which is lower than the crop cutting experiment values of petitioners field i.e. 17.5kg & 14kg per 25SQMT respectively. Hence, it is concluded that there is no adverse effect of pollution on crop productivity in the Lalman Shah's fields.

The detailed report of revenue department dated 30.12.2022 is enclosed as Annexure-XI.

Health Survey

The health survey was conducted on 12.11.2022 by Block Medical Officer and staff of Govt. Hospital, Waidhan, Singrauli. Firstly, the Indian Study on Epidemiology of Asthma Respiratory Symptoms and Chronic Bronchitis (INSEARCH) questionnaire of Indian Council of Medical Research (ICMR) was used for recording the information related to the individuals w.r.t. the fuel used for cooking, habit of smoking, chewing tobacco, Passive smoking, occupation, issue related to respiratory illness etc. was filled by the nursing staff after interviewing and discussion with resident of Sasan village and nearby area. Total 91 subjects were surveyed and gone through the Pulmonary function Test (PFT) with the help of Spirometry (Make: MIR Spirolab); as per the medical advice, out of total 91 subjects, 15 were went to Complete Blood Count (CBC).

Classification of the 91 subjects as per Age, cooking practice, habit of smoking/chewing tobacco, occupation, complaint of respiratory illness are as below:

<i>Age interval (in years)</i>	<i>No. of Subjects surveyed</i>
<i>>10</i>	<i>0</i>
<i>10-20</i>	<i>7</i>
<i>21-30</i>	<i>21</i>
<i>31-40</i>	<i>22</i>
<i>41-50</i>	<i>19</i>
<i>51-60</i>	<i>16</i>
<i>61-70</i>	<i>5</i>
<i>>70yr</i>	<i>1</i>

<i>No. of subjects practicing cooking on</i>		<i>Occupation</i>			<i>No. of subjects habit of smoking/ tobacco chewing</i>	<i>No. of subjects reported issue of related to respiration</i>
<i>Wood/ Coal</i>	<i>Gas</i>	<i>Farmer</i>	<i>Labour</i>	<i>Others (Home maker, student/ Driver, insurance agent)</i>		
<i>60</i>	<i>31</i>	<i>72</i>	<i>15</i>	<i>04</i>	<i>11</i>	<i>14</i>

As per the Spirometry test, subjects were classified normal, mild restriction, moderate restriction category based on following:

<i>Classification</i>	<i>FEV1/FVC% Pred</i>	<i>FVC % Pred</i>	<i>No. of subjects observed under</i>
<i>Normal</i>	<i>>95</i>	<i>>80</i>	<i>69</i>
<i>Mild restriction</i>	<i><95</i>	<i><80</i>	<i>15</i>
<i>Moderate restriction</i>	<i>>95</i>	<i><64</i>	<i>07</i>

Subjects with respiratory restriction are as tabulated below:

<i>Age interval (in years)</i>	<i>No. of subjects with mild & moderate respiratory restriction</i>	<i>Remarks</i>
<i><10</i>	<i>0</i>	<i>Majorly all of them reported cooking on wood & coal. Few reported habit of smoking too.</i>
<i>10-20</i>	<i>0</i>	
<i>21-30</i>	<i>2</i>	
<i>31-40</i>	<i>4</i>	
<i>41-50</i>	<i>4</i>	
<i>51-60</i>	<i>6</i>	<i>One of the subject named as Laxmaniya Devi tested for low hemoglobin (8.7g).</i>
<i>61-70</i>	<i>5</i>	
<i>>70yr</i>	<i>1</i>	

These identified 22 subjects (25% of the studied population) with mild & moderate restriction needs to be provided with cleaner cooking fuel and medical facility.

The detailed report & survey reports are enclosed as Annexure-XII.

Para 8. The Joint Committee shall also make an assessment as to whether any air/water pollution caused by the Project Proponent resulted in any damage to the agricultural crops in the vicinity of the power plant and if so, make its recommendations regarding quantum of compensation required to be paid to the affected persons. For this purpose, the Joint Committee may associate one or more of the experts from any of the agriculture University/Institute in the region and/or seek report from the concerned Revenue Officials regarding average agricultural yield in the affected land and average agricultural yield in other unaffected land in the vicinity.

As per the discussion with Revenue officer, Patwari & agriculture department official present during the field visit, the crop cutting experiment was carried out as per the defined protocol. The area of 5 m by 5 m was selected in the agriculture field of petitioner's (Lalman shah). The crop cut down in 25 SQMT each from 02 plots on 10.11.2022 was kept for drying. On drying the dry weight of the rice seeds were measured on 14.11.2022 in presence of petitioner. The wet weight of rice recorded in two plots was 18.5kg & 15Kg. The dry weight recorded was 17.5Kg & 14Kg. The rice is cultivated in 0.390Ha area by the petitioner.

The rice (Paddy) was cultivated in total 245 Acre land of Sasan village in the year 2022-23. The average production was 40 Quintal per hectare (i.e. 10kg/25SQMT). The Minimum Support price (MSP) was Rs. 2040/- quintal.

The average rice production in Sasan village was recorded as 40 Quintal/Hectare i.e. 10kg/25 SQMT which is lower than the crop cutting experiment values of petitioners field i.e. 17.5kg & 14kg per 25SQMT respectively. Hence, it is concluded that there is no adverse effect on crop production/harvesting.

Specific Observations:

- 1. Perusal of the point-wise compliance status of the conditions stipulated in the Consent to Operate, it was noted that the project proponent is complying majority of the conditions except for the following lapses, which directly does not have significant impact on the environment:*
 - i. Periodic documentary submissions to MPPCB w.r.t. Bottom ash analysis, augmentation plans for village ponds /surface water bodies, plantation scheme for subsequent financial year, plan assessing the requirement of addl. mechanical dust sweeping machines, inventorization of non-hazardous and other solid wastes generated, electrical energy consumption records pertaining to pollution control equipments,*

Benchmark level bearing report and markings in the dykes

- ii. *2-tier plantation is present instead of a 3 tier plantation as stipulated, for which the project proponent needs to strengthen the greenbelt.*
2. *A comparative analysis of the data related to soil and water quality in the agricultural land of the complainant and control area reveals no significant contamination due to the said project activity.*
3. *A comparative analysis of the agricultural yield from the land of the complainant and average production of Sasan village reveals no significant contamination due to the said project activity.*
4. *The health survey revealed that 25% of the studied population i.e. 91 was found with mild or moderate respiratory restriction. Majorly all reported cooking with wood/coal and few reported smoking or chewing tobacco. These needs to be provided with cleaner cooking fuel and medical facility.*
5. *Exceedance in emission values recorded (Sept & Oct 2022) in Unit#2 & #3 are due to fewer efficacies of the ESPs fields. The charge was probably inadequate to trap the particles at the level of prescribed standards.*
6. *Industry has provided 180 rain guns & a thick greenbelt towards North direction (or towards the petitioner's house) by planting 10-12M heighted Casuarina trees; that works as a barrier and help in minimizing the coal dust emission. However, during visit thin layer of coal dust was found deposited on the nearby (within about 300M) trees, vegetation of North direction. This reveals that the emission control measures deployed are not being operated regularly and effectively.*

Filed photographs are enclosed as Annexure-XIII.

Recommendations:

1. *Project proponent may be directed to operate Electro-Static-Precipitators (ESPs) adequately to achieve prescribed emission norms especially for Unit #2 & #3.*
2. *Project proponent may be directed to increase the pressure head on the rain guns to minimize the fugitive coal dust.*
3. *Project proponent may be directed for creation of 15-16M high-rise wind breaking wall/barrier, rising above the max. height of coal stock pile on three sides of the coal stock yards throughout the entire length of the stock pile in a scientific manner, so as to control the spread of the coal dust from the coal stock piles towards outside the*

campus of the industry as well as the applicant's house & fields.

- 4. District Administration & Project proponent may be directed to provide the cleaner cooking fuel in the houses of compromised health (mild & moderate respiratory restriction) as recorded during health survey and to provide adequate health support.*
- 5. Project authorities may be directed to ensure periodic submissions to MPPCB w.r.t. documentation lapses pointed in the compliance status furnished against the Consent Conditions.”*

20. Copy of Joint Committee’s Report was made available to all respondents including project proponent.

21. Project proponent has filed its reply dated 25.03.2023 wherein general observations and recommendations of Committee as such have not been objected but in substance, response of project proponent towards compliance has been demonstrated issue wise. With regard to compliance of consent conditions, the stand of proponent is given in para 12.1 in the form of chart, as under:

S.No.	SUBJECT ISSUE	OBSERVATION OF The JC	RESPONSE OF SPL
1.	Sewage Treatment	<i>With respect to the Sewage Treatment, JC has observed that the effluents from the TPP are being reused in the greenbelt. However, JC observed that a substantial amount of treated effluents is passing through the inner drainage system/ network for which SPL was recommended to keep the inner drain dry during the non-monsoon seasons.</i>	<i>Water observed by the JC in the rain water drainage network was due to rain water accumulation and the fire water pipeline leakages. However, SPL has taken into consideration the said observation of the JC and has attended the said issues and also have put in place the standard Operating procedure (“SOP”) to ensure that the storm water drains are dry during non-monsoon seasons.</i>
2.	Regular Reports for Proximate and	<i>The JC has observed that SPL has not submitted reports pertaining to proximate</i>	<i>SPL has been carrying out the proximate and ultimate analysis of coal on a regular basis</i>

	<i>Ultimate analysis of the coal shall be submitted to MPPMCB</i>	<i>and ultimate analysis of coal for all parameters including mercury to MPPMCB on a quarterly basis.</i>	<i>and that the reports for the period of October, 2022 to December, 2022 have Already been submitted to MPPCB along with its CTO compliance report of Quarter 3 of Financial Year (“FY”) 2022-2023 uploaded on MPPCB portal 01.02.2023.</i>
<i>3.</i>	<i>Fly ash shall be collected and un-utilized fly ash shall be disposed of in the ash pond</i>	<i>JC has observed that SPL is complying with the conditions of the CTO by disposing the un-utilized fly ash in the ash pond, however the JC observed that heavy metal analysis of bottom ash needs to be undertaken by SPL.</i>	<i>SPL has duly complied with its CTO obligations by submitting the analysis report of bottom ash with heavy metals for the period of October, 2022 to December, 2022 and the same has also been submitted to MPPCB along with the CTO compliance report of Quarter 3 of FY 2022- 2023 uploaded on MPPCB portal 01.02.2023.</i>
<i>4.</i>	<i>SPL shall regenerate water bodies/ ponds within 5 km radius</i>	<i>As part of its social welfare conditions, SPL is bound by its CTO obligations to regenerate water bodies/ ponds in the village area within the radius of 5km and SPL shall submit the augmentation plan to the Board within 6 months. It was further observed by JC that SPL was yet to submit the augmentation plans for the aforesaid purpose to MPPCB.</i>	<i>SPL has initiated a Preliminary identification process of the nearby ponds and water bodies and the same shall be completed before the forthcoming monsoon season. SPL has also been submitting on a regular basis reports pertaining to water table, underground and surface water quality to MPPCB for the augmentation study. SPL has also conducted a detailed hydrological study through Indian Institute of Technology (BHU) Varanasi and report of the same has already been submitted to MPPCB.</i>
<i>5.</i>	<i>SPL must</i>	<i>SPL is obligated under</i>	<i>SPL has undertaken all</i>

	take necessary steps to control fugitive dust from any source of emission	the CTO conditions to deploy all indispensable methods to control the fugitive dust from any source of emission/section/activities or any leakages, Seepages, spillages, etc. The JC has in its report observed that SPL has installed water sprinklers in place to curb the fugitive dust in OLC, Coal Stock yard, bag filters in CHP and Ash Silos, however, SPL is required to “take steps to strengthen the fugitive dust control measures in the coal stock yard as well as near the coal silo”.	reasonable steps to control the emission of the fugitive dust. In this regard the following is submitted to substantiate the aforesaid claim made by SPL: (a) Installed Dust Extraction System (Total – 27 Nos.) (b) Installed Dust Suppression (“DS”) System (Total – 14 Nos.) (c) Installed Rain Gun Type Water Sprinklers (Total – 180 Nos.) (d) Reduced the height of the Coal Heap from 12-13 metres to 8-9 metres as per JC’s recommendation. (e) Installed high pressure pumps to increase the height of the water jet used to control the fugitive dust emission. (f) Development of the greenbelt all around the vicinity of SPL which also helps in preventing the emission of the fugitive dust.
6.	SPL should take good housekeeping steps to avoid any leakages, seepages, spillages etc	SPL is bound under its CTO obligations to maintain the internal roads for the purpose of smooth transportation of material and should also take all reasonable steps to ensure that there are	SPL has been on a regular basis complying with its CTO obligations in an extremely professional and diligent manner. It has undertaken adequate remedial

		no leakages, seepages, spillages etc. The JC in this regard has observed that SPL is maintaining a “Good Housekeeping” practice however, it should take steps in ensuring that the storm water drains are completely dry during the non-monsoon season.	steps in ensuring that the storm water drain is dry during non-monsoon season and on a regular basis review is done for the same.
7.	SPL should take effective steps for extensive green plantation belt	SPL is under a bounden duty under its CTO obligations to install greenbelt plantation within and around its premises. The JC has observed in its report that “two layer plantation is currently in place along with the plant periphery and the same needs to be strengthened in compliance of the stipulated conditions.”	SPL has taken reasonable care and precaution and has duly complied with its CTO obligations by developing the greenbelt of 652 acres by planting around 4,60,000 nos. of plants within the said region as against the Ministry of Environment, Forest and Climate Change (“ MoEF&CC ”) mandate of developing greenbelt of 475 acres. It is further submitted that SPL has developed substantial greenbelts even in the adjoining areas where no project activities are planned.
8.	Non Hazardous waste must be disposed of scientifically	SPL is bound under its CTO obligations to dispose of the non-hazardous waste in a manner which is not causing any nuisance/ Pollution. The JC in this regard has observed in its report that SPL is majorly generating the following Non-hazardous waste in the plant premises: i. Card Boards ii. Scrap iii. Wood waste iv. Plastic Waste v. Gunny Bags The JC had further observed that SPL is disposing off i. to iii.To	SPL has been taking all reasonable care and precaution in disposing off the non-hazardous waste like metallic and non-metallic scrap, packing materials, woods etc on a regular basis and also any ash that is collected from cleaning and maintenance activities is disposed of in ash dyke. Inventory of the said on hazardous waste is being undertaken on regular basis.

		the local scrap vendors, for iv. It is being managed as per the Plastic waste management rules. However, the JC submitted that the inventory list of the said non-hazardous waste is yet to be undertaken.	
9.	SPL has to comply with all the conditions stipulated by the Government of India, MoEF&CC in The Environment Clearance	It is submitted that SPL has to mandatorily comply with all the conditions specified by the Government of India, MoEF&CC which is prescribed in the Environment Clearance ("EC"). The JC in this regard has observed that "all the EC conditions found to be complied except for the partial compliances observe w.r.t. greenbelt development around the ash dyke."	SPL has duly complied with all the conditions prescribed under the EC. It is submitted that SPL has taken reasonable care by developing the greenbelt of 652 acres by planting around 4,60,000 plants within the said region as against the MoEF&CC mandate of developing 475 acres. It is further submitted that SPL is working on to remove the unauthorized encroachments from the peripheral areas and developing the greenbelt in the same thereby strengthening greenbelt in dyke area. It is also pertinent to note that almost all the open areas within the plant premises have been developed by greenbelt plantation.
10.	SPL has to inventories solid wastes generated in the plant	SPL under its CTO obligations has to mandatorily inventorise solid waste generated in the plant and to submit a detailed plan of disposal to the MPPCB within a month. The JC in this regard has observed in its report that SPL "..is yet to inventorise the other solid wastes generated in the plant and colony like MSW."	SPL has ample amount of resources which is responsible for in house management of non-hazardous waste generated within plant and township. It also has installed organic waste converter for conversion of kitchen waste in to manure. Scrap and other non-hazardous wastes are inventorised and concerned department sends the scrap to store situated in plant and

			<i>thereafter it is segregated and disposed off in appropriate manner.</i>
<i>11.</i>	<i>SPL shall maintain free board in all ash dykes as stipulated / directed and shall submit a bench mark bearing report to the MPPCB</i>	<i>SPL is bound to maintain and keep additional free board for accommodating peak rainfall of last 50 years and also to submit a report bearing bench mark level and markings in the ash dykes to the MPPCB within one month from the date of the issuance of the letter. The JC submitted in its report that SPL is maintaining additional free board for accommodating and that SPL is yet to submit the benchmark level bearing report and marking in the dykes to MPPCB.</i>	<i>The Ash dyke raising work is under progress. SPL would be able to submit the marking and level bearing report to the MPPCB post completion of said bund raising work</i>
<i>12.</i>	<i>SPL is under a bounden duty to clean-up the ash from the drains, nullahs, river and ponds</i>	<i>SPL is bound to clean all the ash from all the nullahs, drains and other water bodies in accordance with the directions issued by MPPCB on a regular basis. The JC in its report has observed that SPL needs to clean the drains where fly ash was flown during the ash dyke failure incidents in 2020.</i>	<i>SPL has undertaken the cleaning process of all the water bodies, drains and nullahs in guidance/ consultation with PPCB and the periodical progress reports are also submitted to MPPCB regularly.</i>
<i>13.</i>	<i>SPL is duty bound to ensure supply of clean drinking water</i>	<i>The JC has in its report observed that SPL is duty bound to ensure supply of clean drinking water to the people in the vicinity through piped water network system in a phased manner which should be borne out of its Corporate Social Responsibility ("CSR") fund.</i>	<i>Water supply in the vicinity is either done through hand pumps owned by self/panchayat or now overhead tank and pipelines. Overhead tank with pipeline and tap scheme (Amrit Jal Scheme/Nal Jal Scheme) is already being implemented. SPL is providing necessary access support for laying the pipeline under the said scheme and our CSR</i>

			team is assisting people in the vicinity to avail the benefit of these schemes. There is no further requirement of a separate scheme for drinking water supply through pipeline in nearby areas/villages; however in areas where pipeline is still not reached or not feasible, installation of hand pumps are done through Company CSR. Around 500 hand pumps have been installed since start of the project.
14.	Installation of better DS system	The JC has stated in its report that SPL should install better DS measures at the coal stock piles, which might be causing dust in the neighbouring areas including the vicinity of the Applicant.	SPL has taken adequate measures and counter measures to curb the spread/emission of the dust or even fugitive emission. SPL has reduced the height of the Coal Heap from 12-13 metres to 8-9 metres which has been done pursuant to the JC's recommendation. It is further submitted that two high pressure pumps are also installed to increase in the height of the water jet used to control the fugitive dust emission. SPL has further developed greenbelt all around the vicinity of plant for further preventing the emission of the fugitive dust.
15.	Comments on the functioning and the efficacy of the Air Pollution Control Devices	The JC during the site visit has observed that the rain guns at 03 stacker reclaimer yards 1 to 3 in 180 nos. are adequate in numbers, however the height of the all the rain guns when	SPL has taken adequate measures and counter measures to curb the spread/emission of the coal dust. SPL has reduced the height of the Coal Heap from 12-13

	<i>(APCD) and also thin layer of coal dust was found during visit</i>	<i>operated at the same time did not result in adequate result of wetting the top at the height of 12 – 13 metres of the coal stock and as a result of which the wind was blowing the coal dust. The JC further observed that during visit it had found deposits on the nearby trees and vegetation a thin layer of coal dust which was indicative of the fact that the APCD measures were not in use on a regular basis.</i>	<i>metres to 8-9 metres which has been done pursuant to the JC 's recommendation. It is further submitted that two high pressure pumps are also being operated to increase the height of the water jet used to control the fugitive dust emission. SPL has further developed greenbelt all around the vicinity of plant for further preventing the emission of the fugitive dust. With respect to the thin layer of coal dust found by the JC, that the fugitive dust may be on account of local transportation activities, use of coal as fuel for household cooking and also burning of stubble.</i>
16.	<i>High Emissions observed</i>	<i>The JC had observed high levels of emission which exceeded the prescribed emission standards i.e. 50mg/NM3 were recorded on few occasions in Unit 2. The following are the dates when the same was recorded:</i> <i>• 20-29 September</i> <i>• 06 October</i> <i>• 08 October</i> <i>• 19 – 27 October</i> <i>For Unit 3 emission was observed on the following dates:</i> <i>• 25 September</i> <i>• 10 October</i> <i>• 19 – 27 October</i> <i>• 30 October</i> <i>However no exceedance was recorded for Unit 4 to Unit 6. The JC observed that the exceedance in Unit 2 and 3 were recorded on account of fewer</i>	<i>Normally Emission levels do not exceed prescribed limits when the plant is operating at normal conditions. However, Emission levels sometimes exceed when the plant is under coasting down after tripping of related equipment/shutdown of unit or during unit start up activities. It is SPL's case that the exceedance was observed by the JC due to the tripping of related equipment/shutdown and start-up activities.</i>

		<i>efficacies of the Electro Static Precipitators (“ESP”) fields and the charge was inadequate to trap the particles at the level of prescribed standards. It was further pointed out that by maintaining the charge level as per Unit 4 and 6, ESP fields in the Unit 2 and 3, ESP filed units may achieve the standards and to control high emission, timely repair and maintenance is integral.</i>	
17.	<i>Measures to be taken by SPL to curb down the air pollution in the eastern direction</i>	<i>The JC had submitted that the SPL should develop more barriers in the eastern direction to curb down the air pollution in the eastern direction.</i>	<i>SPL has undertaken all reasonable steps to control the emission of the fugitive dust. In this regard the following is submitted to substantiate the aforesaid claim made by SPL:</i> <i>(a) Installed Dust Extraction System (Total – 27 Nos.)</i> <i>(b) Installed Dust Suppression (“DS”) System (Total – 14 Nos.)</i> <i>(c) Installed Rain Gun Type Water Sprinklers (Total 180 Nos.)</i> <i>(d) Reduced the height of the Coal Heap from 12-13 metres to 8-9 metres as per JC’s recommendation.</i> <i>(e) Installed high pressure pumps to increase the height of the water jet used to control the fugitive dust emission.</i>

			Development of the greenbelt all around the vicinity of SPL which also helps in preventing the emission of the fugitive dust.
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22. On the issue of improvement on the quality of environment of local area, stand of project proponent is in para 13, as under:

“13. In so far as the present issue is concerned, the Applicant has raised a specific objection that SPL has not taken any efforts qua the improvement of environment, also to provide medical and educational services for local residents around the vicinity of the TPP. However, the Applicant has miserably failed to place on record any such document/ photograph which indicates that SPL has acted in a manner which has been detrimental to the environment around the TPP vicinity.

*13.1. It is submitted that SPL since the very beginning, has strived to act in terms of Clean Development Mechanism (“**CDM**”) as per which SPL has taken various steps to undertake the Project with utmost care and safety for the environment and also for the people around the vicinity of the TPP. In this regard the following submissions are noteworthy:-*

- (a) SPL has been taking adequate steps with regards to improving the environment by providing compensatory services to the Project Affected People (“**PAP**”). SPL provides medical, educational, and also employment opportunities to the people living in the vicinity of the UMPP.*
- (b) It is submitted that like any Power Generator, SPL is obligated to obtain a CTO under the Air (Prevention and Control of Pollution) Act, 1981 for uninterrupted power generation.*
- (c) It is not out of place to mention that SPL has undertaken various steps to curb down the pollution and to also preserve the environment for the residents and natives residing in the vicinity.*

13.2. In view of the above submissions, it is amply clear that SPL has taken all the necessary and remedial steps to curb the emission of coal dust and other gases.

13.3 Without prejudice to the above, there are various steps that have been taken by SPL for the betterment as well as the safety of the people living in the nearby areas. The said steps are also taken keeping in mind the safety and protection of the personnel working in the TPP. For the ease of reference and for the consideration of this Hon’ble Tribunal, the said steps are stated herein below:-

- (a) **Overland Conveyor** – SPL uses the single flight overland covered coal conveyor belt facility to transport coal from the captive mine to the TPP. By using this facility there is no leakage of coal and it is also safe for the environment. A photograph demonstrating the said overland conveyor belt is annexed hereto and marked as ANNEXURE R6/ 1.
- (b) **Dust Extraction System** – SPL uses this system to ensure that there is no fugitive emission of dust. It uses a total of thirteen (13) Dust Extraction (“**DE**”) systems. One (1) is installed atop the coal silo and the remaining twelve (12) are installed at each intersection of 6 coal bunkers. It is imperative to state herein that each and every single DE system have a filtration capacity of up to 45µm. The sizes of the said bags are 160mm X 3000mm. The location of the DE system installed at each unit is provided as below:-

SL. NO.	LOCATION OF DE SYSTEMS	QUANTITY (IN NOS.)
1	Coal Silo	1
2	Coal Bunkers : Unit 1	2
3	Coal Bunkers : Unit 2	2
4	Coal Bunkers : Unit 3	2
5	Coal Bunkers : Unit 4	2
6	Coal Bunkers : Unit 5	2
7	Coal Bunkers : Unit 6	2
Total DE Systems in Coal Handling Plant		13

In addition to the above it may be noted that in the Ash Handling Plant (“**AHP**”) there are a total of 14 DE systems installed. The breakup for the same is provided in a tabular form for an easy reference:

SL. NO	LOCATION OF DE SYSTEMS	QUANTITY (IN NOS.)
1	Main Ash Silo situated at Unit 1, 2 and 3	4
2	Main Ash Silo situated at Unit 4, 5 and 6	4
3	Intermediate Fly Ash Silo of Unit 1, 2 and 3	3
4	Intermediate Fly Ash Silo of Unit 4, 5 and 6	3
Total DE Systems in AHP:		14

The photographs of the DE System in the CHP and in the AHP is annexed hereto and marked as ANNEXURE R6/ 2 (COLLY).

- (c) **DS System** – SPL uses this technology to suppress the emission and exposure of dust in the environment and to curb the pollution. For the same, SPL has equipped its each transfer points of the coal conveyor belt inside the plant with DS System. The breakup of the aforesaid system is provided in a tabular form below for easy reference:

SL. NO.	LOCATION OF DE SYSTEMS	QUANTITY (IN NOS.)
1	TP : 1	1
2	P: 1A and TP: 1B	2

3	TP: 2B and TP: 2C	2
4	TP: 3 and TP: 3A	2
5	TP: 4 and TP: 4A	2
6	TP 17, TP, 18, TP 19, TP 20 and TP 21	5
Total DS Systems in CHP:		14

A photograph of the DS System in the CHP is annexed hereto and marked as ANNEXURE R6/3.

- (d) **Installation of RGTWS**– SPL has also installed RGTWS in the coal stacking area for curbing the emission of dust pollution. The location of the installed RGTWS system is tabularised below for easy reference:

SL. NO.	LOCATION OF RGTWS SYSTEMS	QUANTITY (IN NOS.)
1	Stacker Reclaimer Yard- 1	60
2	Stacker Reclaimer Yard- 2	60
3	Stacker Reclaimer Yard- 3	60
Total RGTWS situated in the Coal Stacking Yard:		180

The Photographs of the RGTWS System in the CHP along with the photographs of the roads being cleaned with water sprinklers is annexed hereto and marked as ANNEXURE R6/4 (COLLY).

- (e) **Coal Settling Pond** – SPL has also installed coal settling ponds which are effective in separating the coal particles from the water and then recycle the water for yard sprinkling as well as belt washing. A photograph showcasing the coal settling pond in the CHP is marked and annexed to as ANNEXURE R6/5.
- (f) **Ash Water Recirculation System (“AWRS”)** – This system is used by SPL to recycle almost 70% of the ash slurry water. Further, the bottom ash collected from the TPP is disposed into the Ash Dyke near the plant in lean slurry form with water and the fly ash on the other hand is disposed in high concentration slurry form. The decanted water from the ash dyke is brought back to the plant and is reused for ash disposal. Surface of the ash deposit in dyke remain wet due to bottom ash slurry and hence does not pose any threat of fugitive emission. The quality and level of the ground water in the ash pond and other areas within plant premises is continuously monitored using 12 numbers of piezometers.

The Photographs of the AWRS System is annexed hereto and marked as ANNEXURE R6/6 (COLLY).

- (g) **Low NOx Burners** – SPL has installed Low Nox burner which help in reducing the emission of the Nitrogen Oxide. A photograph of the Low Nox burner is annexed hereto and marked as ANNEXURE R6/7.

(h) **High Stacks for better dispersion of pollutants** – SPL has installed two (2) tri-flue stacks of 275m height for the purpose of better dispersion of gaseous and particulate emissions. A photograph of the high stacks installed at the project site by SPL is annexed hereto and marked as ANNEXURE R6/8.

(i) **High Efficiency Electrostatic Precipitators** – SPL has installed electro static precipitator with 64 fields each operating at 99.96% efficiency thereby drastically reducing the emission of the particulate emission below the National Standard of 50mg/ Nm³ and which is also in compliance with the Emission Regulations of 2015. A photograph of the Electrostatic Precipitator is annexed hereto and marked as ANNEXURE R6/9.

(j) **Effluent Treatment Plant** – SPL has also installed a 150 m³/Hr capacity effluent treatment plant for the purpose of treatment of all the pre-treated effluents. Post treatment, the effluents are collected in the Central Monitoring Basin and then after checking the quality of the effluent both online and offline; it is used for the wet de ashing, water sprinkling and plantation activities. The plant at the end is a zero discharge unit.

A photograph of the aforesaid plant is annexed hereto and marked as ANNEXURE R6/10.

(k) **Sewage Treatment Plant** – SPL has installed a 70 KLD, 50 KLD and 1250 KLD capacity sewage treatment plant. The water collected in this plant is used for green belt development. A photograph of the aforesaid plant is annexed and marked hereto as ANNEXURE R6/11.

(l) **Online Environmental Monitoring System** – SPL has also installed a system which is responsible for continuous ambient quality monitoring system and online effluent water quality system for twenty four by seven of the year. These systems along with IP based camera at the outlet of ETP are connected to MP SPCB and Central Pollution Control Board (“**CPCB**”) server.

i. 3 nos. of Continuous AAQ Monitoring System (“**CAAQMS**”) are installed covering upwind, downwind, and cross wind direction.

ii. Continuous emission monitoring system (“**CEMS**”) is installed in the flue of all 6 units and the data is being transferred on a real-time basis to the PCB servers.

iii. In order to monitor the quality of effluent on a continuous basis Online Effluent Monitoring System (“**OEMS**”) is installed at ETP outlet, which is the first installation in Madhya Pradesh.

iv. In order to monitor the effluent and emission sources, IP based PTZ camera is installed, which is also connected to the PCB servers. The Photographs of the OEMS

collectively is annexed hereto and marked as ANNEXURE R6/ 12 (COLLY).

- (m) **Electronic Environmental Parameter Display Board** – SPL has also installed an electronic environmental parameter display board for the purposes of indicating the air quality index etc. A photograph of the said display board is annexed and marked hereto as ANNEXURE R6/ 13.
- (n) **Water flow meters**– SPL has also installed the Electromagnetic/Ultrasonic type digital water flow meters which are situated at various categorized consumptive water source. A photograph of the water flow meters is annexed and marked hereto as ANNEXURE R6/ 14.
- (o) **Water conservation** – SPL has also installed and constructed water consumption meters for the purpose of keeping a check on the consumption of water and for preventing any wastage of the water.
- (p) **Jal Sanchay Yojana** – SPL has taken an active part in the Jal Sanchay Yojana which essentially means “Giving Back to the Nature” and under this scheme SPL has installed “Rain Water Harvesting and Ground Water Recharging” (“**RWHGWR**”).

It is pertinent to mention herein that these structures are installed in the following manner:-

S. No.	TOWNSHIP	GROUND WATER RECHARGE (IN LAKH)
1.	Rain Water Harvesting# 1	10.5
2.	Rain Water Harvesting# 2	3.2
3.	Poorvanchal Rain Water Harvesting# 3	10.7
4.	Site Office Rain Water Harvesting# 4	9.7
Total		34.1

The Photographs of the Rain Water Harvesting in line with the Jal Sanchay Yojana in SPL township is annexed and marked hereto as ANNEXURE R6/ 15.

- (q) **Bio-methanation plant** – SPL has installed bio-methanation plant within the premises for the purpose of utilization of the organic waste generated from canteens of the pant area. This plant is also responsible to produce cooking gas as well as green manure. The former is re-used in the canteen itself and the latter is used in horticulture.

A photograph of the Bio-methanation plant is annexed and marked hereto as ANNEXURE R6/ 16.

- (r) **Wealth from Wastage**- SPL has successfully established a system which is in line with the Wealth and Waste program

under the umbrella of the Environmental Department of SPL. Using this system SPL has been successful to convert 3000 kg of used paper into useful manure. This system involves the following process:-

- i. Collection of the waste paper from various departments,
- ii. Shredding at the installed waste shredding unit,
- iii. Transportation to the paper waste processing pits,
- iv. Conversion to manure. The end product is the manure which is in turn used in the horticulture purposes.

(s) **Installation of the Plastic/ wastage shredding units** – SPL has installed the requisite technology which is responsible for shredding plastic and then converting the same into materials responsible for making of roads. The Photographs of the plastic shredder used to convert plastic for road making is annexed and marked hereto as ANNEXURE R6/ 17.

It is pertinent to present the waste disposal in a table as follows:-

Sl. No.	Waste	Source	Estimation Method	Disposal Method
1	Biological Sludge	Treatment of sewage	Based on biological process theory and weight after generation	Composed by mixing fine grass moved from lawns and fly ash. Compost used as manure for gardening.
2	Treated Sewage	Domestic Use of water use	Based on the water supplied for domestic use and measurement at STP	Used in water sprinkling horticulture after treatment
3	Fly Ash	Combustion of coal	Based on ash % in coal	Disposed of through fly ash silo to several cement industries for cement admixture, readymade concrete mixture, fly ash brick manufacturing
4	Biomedical waste	Occupational health Center	Weight after generation	Disposed of through authorized agency
5	Hazardous Waste	Plant Process	Weight/ Volume	Disposed off through SPCB

			after generation	authorized recycler
6	Electronic waste	Use of electrical and electronic instruments	Weight after generation	Disposed of through supplier take back policy

(t) **Greenbelt Plantation** – There is a greenbelt covering a total 4,60,000 nos. of trees in the total area of 652 acres which has already been developed by SPL, which is in synchronisation with the guidelines issued by the CPCB. Further it may be noted that any available open area within the TPP is also covered by greenbelt plantation. In this regard the location of the greenbelt plantation located within the premises of the plant is as follows:-

Sl. No.	LOCATION (CHP & AROUND)	PLANTATION AREA (IN ACRE)	TYPE OF PLANTS	NO. OF TREES (IN NOS.)
1	Near CHP	15	Casuarina, Shubh Babool, Karanj, Jangal Jilebi, Cacea & other	10,500
2	Near Dozer yard	4.1	Karanj, Cassia Siamea, cassia rengeria	2,498
3	Near OLC control room	19.05	Peltoform, kadamb, Kaisurana	11,246
4	Near Material Gate	6.42	Pungamia glubra	3,000
5	Weigh bridge area	5.56	Karanj, Gulmohar, Jakaranda, Jangal Jalebi	5,941
6	Near Hydrogen plant	8.94	Guava, pomegranate, Casuarina, arjuna	7,400
7	Behind work shop	12.2	Mango, Thebitiya, Akesia, Bogenbeliya	3,319
Total greenbelt in CHP area		71.27		43,904

The photographs of the greenbelt plantation within the premises of the plant is annexed and marked hereto as ANNEXURE R6/ 18 (COLLY).

(u) **Environmental Monitoring** – SPL has installed a dedicated environmental monitoring system which frequently monitors

the air quality, the ground water, surface water and drinking water quality. It is also pertinent to mention herein that SPL has installed an Environmental Monitoring Laboratory, which is equipped with advance equipment and is manned by skilful and qualified staff.”

23. Proponent has also taken certain preliminary objections and stated that no actual agricultural damage has been sustained by complainant which is attributable to proponent; no material has been placed on record to show such damage; health check-ups have been regularly held by conducting health camps and other health related check-ups in different villages and no health related issue has been identified which can be attributed to emissions from the unit of project proponent; allegation of deterioration of health of the complainant and others is unsubstantiated and without any basis; adequate employment opportunities have been provided to local residents; it is not the responsibility of proponent to purchase land of complainants or others or to supply cooking fuel to them and even otherwise there are no adverse observations made against proponent in Joint Committee's Report. Proponent has concluded the submissions in para 21 by stating as under:

- “(a) SPL has deployed adequate measures to counter the emission of dust and other fugitive emission.*
- (b) SPL has provided employment within the vicinity, and has employed around 83 people and pertinently more than 100 people are being provided indirect employment.*
- (c) SPL is also providing sustenance allowance to 95 people of INR. 9325/ month.*
- (d) No liability can be attributable upon SPL even in case of ambient air quality in the vicinity of Applicant's house is found to be PM 100.0µg / m³ data, though not admitted, as the same is for factors and reasons attributable to others as specified hereinabove and cannot be solely attributed to SPL.*
- (e) SPL has developed greenbelt of 652 acres whereby it has planted around 4,60,000 plants and trees against the mandate of MoEF&CC of 475 acres. SPL has also developed 2/3/4/ tier greenbelt all along the periphery wherever any the project construction / development (FGD) work was never contemplated.*

- (f) SPL has CSR teams deployed to assess the needs of the community for health, education, employment of people in affected areas.*
- (g) In order to curb the fugitive emissions, SPL has developed a multilayer plantation of casurina trees of 12-15 metres.*
- (h) SPL is also using rain guns with two pumps simultaneously to better address the aspect of DS and also the height of the coal stock piles has been reduced from 12-13 metres to 8-9 metres.”*

24. Replies have been filed by CPCB and MPPCB. CPCB in its reply dated 13.01.2023 has generally denied complaints made in letter petition by complainant and stated that as a Member of Joint Committee, official of CPCB have visited the site and submitted a detailed Report which may be looked into by Tribunal.

25. MPPCB in its reply dated 18.03.2023 has also referred to Joint Committee Report dated 11.01.2023 filed on 12.01.2023 and virtually reproduced contents of said Report and in brief in para 4, 5 and 6 of its reply which are reproduced as under:

“4. In response to the averment regarding compliances by the Project Proponent with the Consent to Operate (CTO) conditions issued by the answering respondent, i.e Madhya Pradesh Pollution Control Board (MPPCB), it is pertinent to note that the compliance sheet filed in the Action taken Report dated 11.01.2023 indicates that the project proponent has indeed complied with the conditions set forth by the answering respondent. Specifically, the project proponent has met the conditions under the Water (Prevention and Control of Pollution) Act of 1974, which includes the daily quantity of trade effluent, trade and sewage effluent treatment, and additional water condition requirements along with the conditions outlined in the Air (Prevention and Control of Pollution) Act of 1981 and the general conditions, including the installation of a separate electric meter and the establishment of a separate environmental cell headed by a senior officer of the unit. Furthermore, the industry management has pledged to ensure compliance with the disposal and utilization of fly ash from its TPP as prescribed in MOEF&CC notifications and additional conditions. The detailed observations form a part of the Action Taken Report dated 11.01.2023, therefore the same is not being repeated for the sake of brevity.

5. That in response to the averment in the petition regarding the Account of the Fly Ash generation, storage and disposal, it is pertinent to note that this has been addressed in the Action taken Report dated 11.01.2023 wherein it was found that water sprinklers have been installed at the main fly ash silos and CHP coal stock yard to control fugitive emissions during the loading of fly ash in Ash Bulkheads and

transportation of coal through Stacker reclaimers and conveyors. The average coal consumption per MW power generation during FY 2021-22 & 2022-23 (up to Oct 22) ranged from 0.552 to 0.568 MT, while the ash percentage varied from 27.9% to 30.35%. Of the total ash generated in FY 2021-22, 80% was fly ash, and 20% was bottom ash. Most of the ash was used in Ash bund raising, brick making, and ready-mix concrete, with no ash used in low lying areas, chemosphere, coal mines, cement manufacturing, or other areas. The total ash utilization was 52.35%. M/s Sasan Power Ltd, the project proponent, has submitted an action plan to utilize fly ash by mixing it with Overburden of Captive coal mine in a phased manner from FY 2023-24 onwards, following the latest norms of fly ash utilization, while the legacy ash will be used as per the notification's requirements. The detailed account of the Fly Ash generation, storage and disposal form a part of the Action Taken Report dated 11.01.2023, therefore the same is not being repeated for the sake of brevity.

6. That in response to the averment in the petition pertaining to quality of air and water in the plant premises and surroundings along with compliance with environmental norms and Impact of air or water pollution if any on residents of the locality, livestock, soil, vegetation, agricultural crops etc, the answering respondent conducted air and water quality sampling at the location as per the prescribed protocol of CPCB. Wherein out of the seven monitoring locations, four were found to be exceeding the 24-hour ambient air quality standard of 100 µg/m³. The project proponent was instructed to place barriers in the eastern direction of the coal yard and increase water sprinkling to improve ambient air quality. However, upon assessing the recorded AAQ data during 2021 and 2022 (up to October 2022), it was found that the ambient air was generally under the stipulated standards for PM₁₀ and PM_{2.5}. The water quality at 13 locations, including groundwater and surface water, was reported to be within the prescribed standards as per IS 10500:2012 and IS 2296. The concentration of heavy metals in the water was assessed at three locations, and the levels were found to be well within the prescribed limits as per IS 10500:2012. To assess whether there was any pollution in the soil that might result in reduced agricultural production, soil sampling was conducted at five different depths at the petitioner's field on 11th November 2022. The results showed no significant change in the micro nutrient and heavy metal contents in the soil of the project's site location compared to the soils of the local field location. The soil samples were analysed at ICAR-Indian Institute of Soil Science (IISS), Bhopal. The detailed observations form a part of the Action Taken Report dated 11.01.2023, therefore the same is not being repeated for the sake of brevity."

26. Having heard Learned Counsel for proponent and after perusal of the entire record as already discussed above, we find that substantially allegations made by complainant have not been found correct by Joint Committee in the manner the complainants had stated in their letter petition. However, on certain aspects, Joint Committee has made its

observations and recommendations also. Learned Counsel for project proponent stated that in substance they have no objection to recommendations made by Joint Committee and all steps have already been taken to comply with the observations and recommendations by Joint Committee and if anything is wanting that shall also be complied with substantially and rigorously.

27. In these facts and circumstances, and particularly, when no objection has been filed to the Joint Committee Report dated 12.01.2023, we accept the same and direct project proponent to take all steps for compliance of all recommendations, observations and suggestions made by Joint Committee and to rectify the defects, if any, pointed out by Joint Committee, in running its unit so as not to cause any damage to environment and loss to local people. Compliance of all environmental norms, laws including recommendations made by Joint Committee in its Report dated 12.01.2023, shall be ensured by MPPCB by periodical visit and checking the unit's functioning and all other relevant aspects.

28. With the above observations and direction, this Original Application is disposed of.

Sudhir Agarwal, JM

Dr. Afroz Ahmad, EM

August 08, 2023
Original Application No.73/2023(CZ)
R & MK