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Regd. No. 5071.....of 2024
Dated this 30.1.24 of 2024**BEFORE THE NATIONAL GREEN TRIBUNAL****EASTERN ZONE BENCH, KOLKATA****Appeal No 07 (EZ) of 2024**

Sanjaya Kumar Mishra ... Applicant

- Versus -

Ministry of Environment, Forest & Climate Change & Anr

... Respondents

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MAHENDRA KUMAR BASTIA
ANGUL

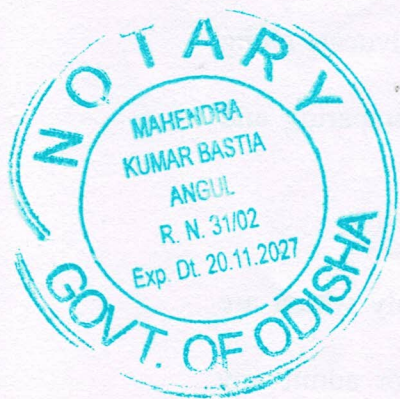
Advocate, Angul
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Staff Officer (Envt. & Forest)
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**BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA**

Appeal No 07(EZ) of 2024

Sanjaya Kumar Mishra ... Applicant

- Versus -

Ministry of Environment, Forests & Climate Change & Anr ... Respondents

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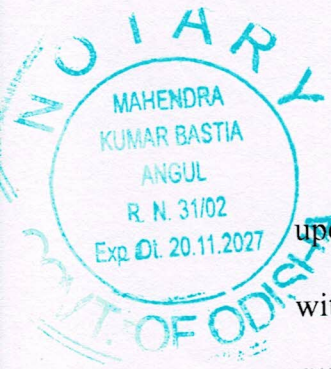
AFFIDAVIT IN OPPOSITION ON BEHALF OF THE RESPONDENT NO 2

I, Prashanta Kumar Maharaj, Son of Late Paramananda Maharaj, aged about 59 years, presently working as Staff Officer (Environment & Forest), Subhadra Area, Mahanadi Coal Fields Limited, having its office at MCL, Subhadra Area, PO - Angul, Near Biju Maidan, District: Angul, Pin - 759122, Odisha hereby solemnly affirm and state as follows:

1. That I am the Authorized Representative of the Respondent No. 2 and I am authorized and otherwise I am also competent to swear this affidavit on behalf of the Respondent No 2.
2. I state that a copy of the Instant Appeal under Section 16(h) read with Section 18(1) of the National Green Tribunal Act 2010 (NGT Act) has been served

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03/10/24
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upon Respondent No 2 who in turn forwarded the same to its advocate along with instructions and relevant documents for the purpose of preparing and filing the counter affidavit on behalf of the Respondent No 2.

3. I state that I have been advised to deal with the portions only which are material for the disposal of the instant appeal, and I do not admit any statements and allegations as made by the appellant in the instant appeal save and except those appear from the record and/or specifically admitted herein.

At the outset, I would like to place following material facts before dealing

with para-wise statements, averments, allegations made in the appeal for the purpose of effective adjudication of the real disputes involved in the instant case which are placed below

4. I state that the Respondent No 2 being Mahanadi Coalfields Limited (Hereinafter "MCL") is one of the major coal producing company of India. It is one of the eight subsidiaries of Coal India Limited. Mahanadi Coalfields Limited was carved out of South Eastern Coalfields Limited in 1992 with its headquarters at Sambalpur.

5. I state that the instant appeal has been filed praying for reliefs which are inter-alia as follows:

" ...

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a) Quash the Environmental clearance dated 06.03.2024 bearing Identification No EC23A0101OR5745830N granted by the Respondent to Subhadra Open Cast Mine with production Capacity of 25 MTPA in mine lease area of 1111.85 Ha of M/s. Mahanadi coalfields Limited located at village Gopal Prasad, Kumunda, Nisha, Kankarei, Rajjharan, Nisha P.S. Angul, Tehsil Talcher Sadar and Chhendipada, District Angul (Odisha).

b) Direct the Respondent to undertake a reappraisal of the project with traceable baseline data for the air pollutant parameter "Benzene" in ambient air. This reappraisal should utilize monitoring and testing reports from a different highly acclaimed environmental laboratory that fulfils requirements of Environmental Impact Assessment Guidelines, IS 5182 (Part I) and any other requisite Standards."

6. At the outset, I state that the instant appeal is not maintainable in the eyes of law on the ground that it is not the case of the Appellant that before grant of Environmental Clearance Certificate (Hereinafter EC), due procedure as envisaged in the EIA Notification of 2006 has not been followed, or that there is any violation of Environment Protection Act 1986 and or rules framed thereunder. Furthermore, it is not the case of the Appellant that the objection raised by the Appellant was not considered and that therefore rules of natural justice have not been followed.

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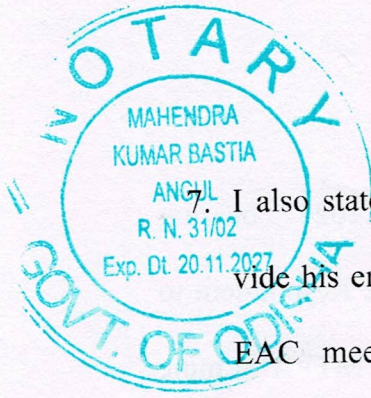
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MCL Subhada Area

Staff Officer



7. I also state that the objection against the project as raised by the Appellant vide his email dated 15.01.2024, 10.02.2024 was duly considered in Seventh EAC meeting held on 12.02.2024 and published on 24.02.2024 under additional agenda 7.14 and such objection was duly dealt with in the said meeting with specific reasons as to why the objection raised by the appellant is baseless and without merit. It is needless to mention that jurisdiction vested with the Hon'ble NGT is limited to reviewing the decision making process rather than deciding the correctness and otherwise of the decision taken by the Respondent No 1. It is admittedly not the case of the Appellant that no public hearing was given in the locality and objection, if any, raised by the public was not redressed before the grant of EC. Therefore, the instant appeal, on the face of it is not maintainable.

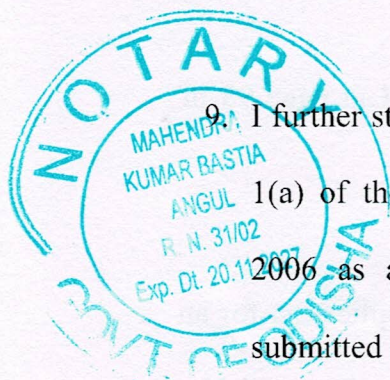
8. I state that the Subhadra Open Cast Mine (Utkal-A Coal Mine) was allocated to M/s Mahanadi Coalfield Limited (MCL) by the Ministry of Coal through order number NA- 103/1/2021-NA dated November 18, 2021. The project is situated in the villages of Gopal Prasad, Kurunda, Nisha, Kankarei, Raijharan, under Nisha P.S. Angul, Tehsil, Talcher Sadar and Chhendipada in the Angul District of Odisha.

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I further state that since the instant project falls under Category- A of Activity 1(a) of the Schedule to the EIA Notification, 2006 dated 14th September, 2006 as amended from time to time, M/s Mahanadi Coalfield Limited submitted an application for the Terms of Reference (ToR) on October 13, 2021, under Online Proposal No. IA/OR/CMIN/232524/2021 for the Subhadra Open Cast Project (Utkal- A Coal Mine). This project aims to achieve a production capacity of 25 MTPA within a mine lease area of 1111.85 hectares, located in the villages of Gopal Prasad, Kumunda, Nisha, Kankarei, and Raijharan, under Nisha P.S Angul, Tehsil-Talcher Sadar, and Chhendipada in the Angul District of Odisha. The Ministry of Environment, Forest and Climate Change (MoEFCC) considered this proposal during the 21st meeting of the sectoral Expert Appraisal Committee (EAC), held on October 27, 2021, through video conferencing. Following the EAC's recommendation, the MoEFCC granted the ToR on November 22, 2021, for preparing the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports, including public consultations, as per the provisions of the EIA Notification, 2006, and subsequent amendments. The final approval would remain subject to compliance with standard ToR conditions for opencast coal mines and additional conditions, such as the collection of baseline data, including benzene levels. A copy of the ToR letter

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dated November 22, 2021 would appear from Annexure R1/1 at page 98 of the Affidavit in reply filed by Respondent No 1.

10. I state that M/s Mahanadi Coalfield Limited submitted an application for an amendment to the ToR on December 11, 2021, under Online Proposal No. IA/OR/CMIN/244489/2021. The sectoral Expert Appraisal Committee (EAC) reviewed the amendment request during its 24th meeting on December 30, 2021 and its 25th meeting held from January 18-20, 2022. Based on the EAC's recommendations, the MoEF&CC approved the amendment on February 28, 2022, while maintaining all conditions stipulated in the original ToR dated November 22, 2021. A copy of the amended ToR letter dated 28.02.2022 would appear from Annexure R1/2 at page 111 of the Affidavit in reply filed by Respondent No 1.

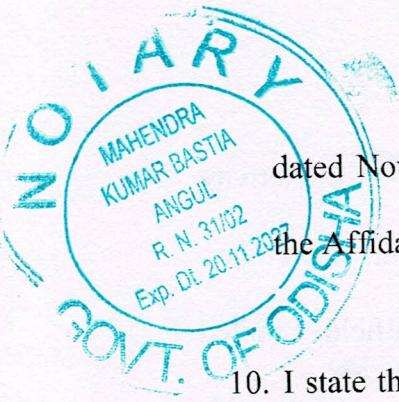
11. I state that in terms of the ToR's General conditions and requirements, the baseline data for specific parameters such as micro-meteorology, ambient air quality including the level of benzene, waste quality, noise levels, soil, and flora & fauna were collected during the post-monsoon season from October to December 2022 by the QCI NABET accredited Consultant Vardan Environet.

12. I also state that Public Hearing for the project was conducted on August 25th 2023, under the chairmanship of Shree Pratap Pritimaya, O.A.S. (S), ADM,

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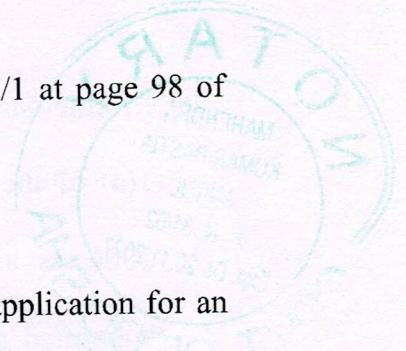
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Angul, at the ground near Pirakhaman Primary School under Kankarei Gram Panchayat of Chhendipada Tehsil in Angul District. During this hearing, major issues raised by the public were addressed, and an action plan to address these issues was chalked out and later on it was included in Chapter 7 of the Final EIA/EMP report along with the EC Application submitted on the PARIVESH portal on 12.10.2023.

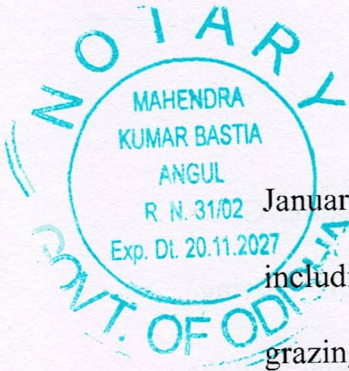
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13. The proposal for grant of EC of the project was submitted to the Ministry of Environment, Forest and Climate Change (MoEF&CC) vide proposal number IA/OR/CMIN/445297/2023 on October 12, 2023, seeking prior Environmental Clearance (EC) as per the provisions of the EIA Notification 2006 and its subsequent amendments. This was a fresh EC application for a Greenfield project and thus the Respondent no 2 was all along aware of the strict conditions and environmental ramification of the new project and accordingly a strong Environment Management plan was also drafted and submitted along with the proposal for grant of EC.

14. I state that the proposal was first appraised by the Expert Appraisal Committee (EAC) in its 3rd meeting held on November 16-17, 2023. After detailed deliberation, the EAC deferred the project, requesting additional information. MCL submitted the required information on the PARIVESH portal, and the proposal was reconsidered by the EAC in its 6th meeting on

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January 17-18, 2024. The EAC discussed various project-related issues, including public hearing concerns, the Environment Management Plan (EMP), grazing land, plantation, mineral transportation, water requirements, and the diversion of nallah within the mining lease area. After thorough deliberation, the EAC recommended the proposal for grant of Environmental Clearance subject to stipulation of specific and standard EC conditions under the EIA Notification, 2006, and its amendments. Copies of the Minutes of the 3rd and 6th EAC Meeting would appear from Annexure R1/3 and Annexure R1/4 at page 114 and page 124 of the Affidavit in reply filed by Respondent No 1.

15. In the meanwhile, a representation dated 15.01.2024 without any documentary proof against the project was received from the appellant by the MoEF&CC, New Delhi via e-mail, alleging that the results reported in respect of Benzene in all the villages for December 2022 need review. The allegations stated that the Benzene concentration in these villages varied between 2.2 to 6.4 micrograms per cubic meter, with the maximum being found in Golabandha. However, these allegations, similar to this appeal, lacked any evidentiary proof or any supporting documents to substantiate the same.

16. It is submitted that, despite the absence of documentary evidence provided by the complainant/appellant, the EAC (Coal Mining), MoEF&CC considered

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the representation and vide Email dated 13.02.2024 addressed to the General Manager, Mahanadi Coalfield Ltd. (MCL), the Member Secretary, EAC (Coal Mining), MoEF&CC asked for the following information:

“Please find attached herewith the Grievance submitted by Sanjay Kumar Mishra which is self explanatory. In this regard, it is requested to provide the justification for the same, so that same may be placed before EAC for its consideration.”

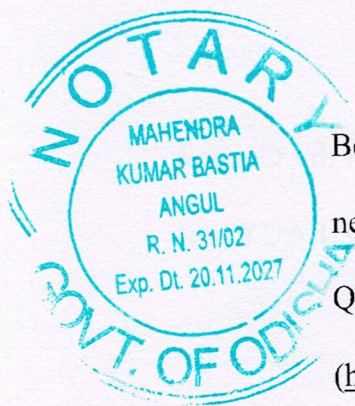
In response, MCL through E-mail dated 20.02.2024 submitted the following clarification which contained several annexures along with a Reply. The main reply read as follows:-

“..... the testing of Benzene was done as per IS: 5182 (P-11): 2006 RA: 2017 Standards using the GC-FID Method. (Indian Standard Methods for Measurement of Air Pollution is attached for reference as **Annexure- 2)**

The test results show that the level of Benzene in all the locations was BLQ (Below Limit of Quantification, Limit of Quantification (LOQ) is $0.5 \mu\text{g}/\text{m}^3$) and was as per NAAQS prescribed limits for Benzene i.e. $5.0 \mu\text{g}/\text{m}^3$ (https://cpcb.nic.in/upload/NAAQS_2019.pdf) both within the core and buffer zone of Subhadra OCP of MCL.

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Besides, the study results at 02 below mentioned locations (which are nearer to Subhadra OCP of MCL) of Central Control Room for Air Quality Management - All India, Govt of India (<https://airquality.cpcb.gov.in>) during the period from October to December 2022, for Benzene vide CAAQMS (CPCB) were found within the NAAQS Standards. (Reports Attached for Reference as **Annexure-3&4**).

Locations of CAAQMS (CPCB) monitoring stations:

Hakimapada, Angul (Distance of 15 Km from Project Site and 5 Km from Buffer Zone)

Talcher Coalfields, Talcher (Distance of 17 Km from Project Site and 7Km from Buffer Zone)

This is to confirm that the baseline data generation and its testing was done as per the approved Protocols for Ambient Air Quality Monitoring.

Hence, *the Benzene concentration in all these villages found to be as per the study and as per CPCB reports (reference CPCB station- Hakimpada Station nearer to Golabandha Village which is approx. 11 km) found to be within prescribed limits during the period October-December 2022.*

Basanta Kumar Das
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The annexures 3 and 4 referred to in this Reply have also been annexed with this counter affidavit as Annexure R2/7. The above reply of MCL was deliberated by EAC in its 7th meeting held on February 12-14, 2024 and it has been well documented in Agenda 7.14 of the 7th EAC Meeting.

A copy of the representation dated 15.01.2024 by the appellant and the subsequent clarification sought by MoEF&CC on 13.02.2024 along with the corresponding Reply by MCL dated 20.02.2024 and the main reply is annexed herewith and marked as Annexure R2/1

17. In the 7th EAC Meeting, based on the submission/reply of MCL, the EAC noted that the EIA/EMP report was prepared by the NABET Accredited consultant and MCL also submitted an undertaking in Form-1 that

".. Data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information is found to be false or misleading at any stage, the project will be rejected and clearance given, if any, to the project will be revoked at our risk and cost."


Therefore, it is submitted that in the absence of any proof by the complainant, the Ministry may take further necessary action as per the recommendation already given by the EAC. Consequently, the MoEF&CC granted


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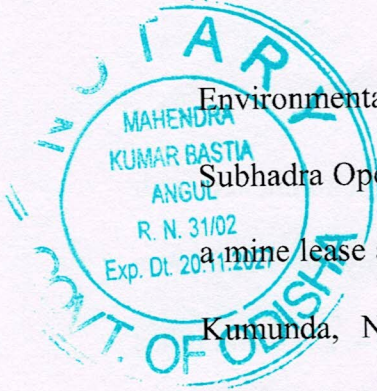
Environmental Clearance vide letter dated March 6, 2024 to MCL for the Subhadra Open Cast Project with a production capacity of 25 MTPA spanning a mine lease area of 1111.85 hectares, situated in the villages of Gopalprasad, Kumunda, Nisha, Kankarei, Raijharan, under Nisha P.S. Angul, Tehsil Talcher Sadar, and Chhendipada in the Angul District of Odisha with the specified conditions, under the EIA Notification, 2006, and its amendments. Copies of the Minutes of the 7th EAC Meeting held on February 12-14, 2024 would appear from Annexure R1/5 and a copy of EC letter dated 06.03.2024 would appear from Annexure R1/6 annexed at page 372 and page 379 respectively of the Affidavit in reply filed by Respondent No 1.


18. I state that the main grievance of the appellant relates to grant of EC which he is challenging on the grounds of deficiency in baseline data of Test Result of Benzene. According to the appellant, the same does not conform to IS: 5182(P-11): 2006 standards and that MoEF failed to consider the same and other essential technical aspects. In this regard the Respondent No 2 reiterates what it had stated previously. It is reiterated that merely because the Test reports published by Vardan Envirolab do not contain the logo of NABET or NABL that does not ipso facto invalidate the report. I state that M/s Vardan Environet, has many years of experience in conducting investigation, testing and publishing of reports for various reputed clients, for preparing of the EIA

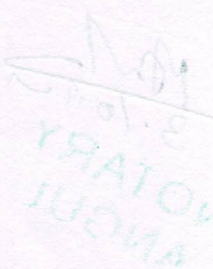

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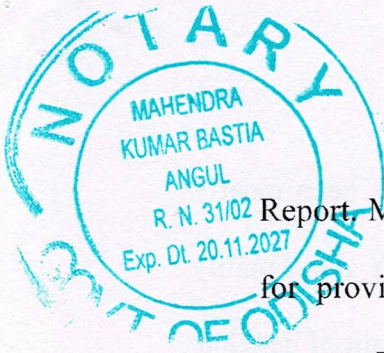

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Report. M/s Vardan Environet engaged its sister concern ie Vardan Envirolab for providing reliable and precise testing services for preparing the EIA reports. The environment consultant ie Vardan Environet has disclosed its profile and accreditation and the accreditation of M/s Vardan Envirolab in its Chapter 12 of the EIA Report. Upon perusal of the disclosure it would be very easily apparent that M/s Vardan Environet's accreditation to NABET is valid upto 04.05.2026 while M/s Vardan Envirolab's accreditation to NABL is valid upto 27.08.2024.

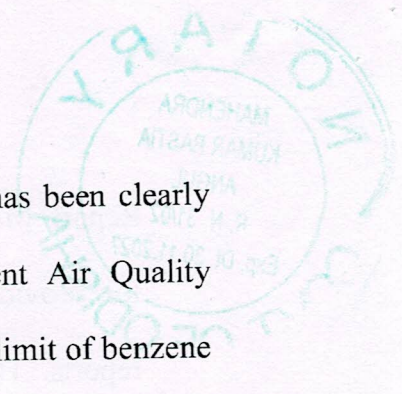
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19. I submit that the fact of these accreditations along with some other accreditations were disclosed in the EIA Report, which is a public document and could have been accessed by anyone including the Appellant himself and hence the Appellant should be deemed to have constructive knowledge of the same. Thus, the appellant being aware of the accreditation, by way of filing this appeal has simply abused the process of law and used the same as a tool for harassing the Respondent No 2 and derailing the project by raising flimsy grounds of absence of watermark of NABET/NABL in test reports or that the quantity of benzene being not specified in numerals and rather being stated as Below Quantifiable Levels.

A Copy of Disclosure Statement found in Chapter 12 of the EIA Report is annexed herewith and marked as Annexure R2/2.

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20. I also submit that in the EIA Report at Page 94 and 95, it has been clearly indicated in Table 3.7 as to what is the National Ambient Air Quality Standards vide GSR 826 (E), Dt.16.11.09 and the permissible limit of benzene and that has been stated to be 5 µg/m³ on an annual basis and in Table 3.8 Techniques Adopted/Protocols for Ambient Air Quality Monitoring has been stated. In the table, the method adopted for measuring benzene while preparing the report has been stated to be GC-FID Method falling under IS: 5182 (P-11): 2006 standards technical protocol. These information being part of the EIA report and already available in the public domain, it is absolutely mischievous on the part of the appellant to submit that there are deficiencies in baseline data or that the test has not been conducted according to IS:5182 (P-11):2006 standards and amounts to unnecessary harassment with the intent to derail a project.

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Copy of the relevant pages of the EIA Report containing details of National Ambient Air Quality Standards for various parameters are being annexed herewith and marked as Annexure – R2/3.

21. Save and except what are matters of record, each and every allegation contained in the various paragraphs of the application is denied and disputed as if set out seriatim herein and specifically traversed. However for the sake of brevity, I am dealing with those portions only which are material and relate to

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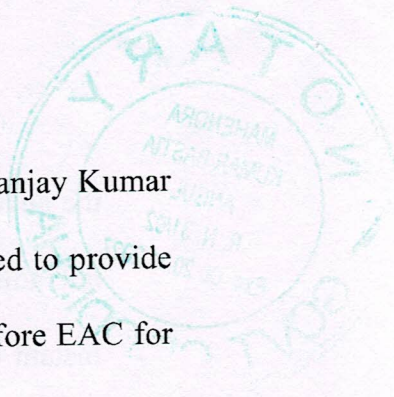
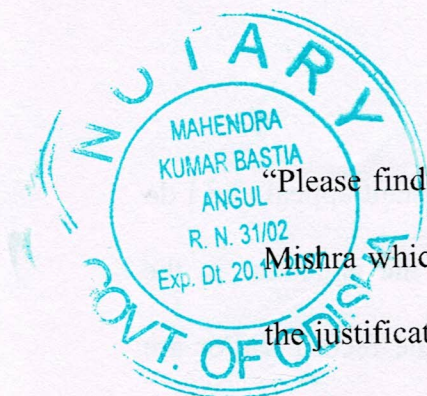
the answering Respondent no 2 for the disposal of the instant appeal and I do not admit any statements and allegations as made by the appellant in the instant appeal save and except those that appear from the record and/or are specifically admitted herein.

22. Save and except what are matters of record, the statements/averments/allegations made in paragraph 1, 2, 3 and 4 of the appeal are denied and disputed. The respondents have no comments to offer as to those which are matters of records.

23. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.1 of the appeal is denied and disputed. Having regards to the submission above, it is strongly denied that the EC has been wrongfully issued or that "the issuance occurred despite a concern raised to the Respondent regarding potential inaccuracies in the test reports of Benzene within the baseline data." I rather state that there was no discrepancy whatsoever in reporting. I state that after considering the questions raised by the appellant vide Email dated 15.01.2024, the Member Secretary, EAC (Coal Mining), MoEF&CC vide its email dated 13.02.2024 to General Manager, Mahanadi Coalfield Ltd. (MCL) asked for the following information:

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“Please find attached herewith the Grievance submitted by Sanjay Kumar Mishra which is self explanatory. In this regard, it is requested to provide the justification for the same, so that same may be placed before EAC for its consideration.”

In response to the above GM, MCL vide email dated 20.02.2024 to clarify the query of the EAC submitted its reply to MoEF&CC, all of which have been previously annexed as Annexure R2/1.

The reply dated 20.02.2024 was accepted by MoEF&CC and after taking the same into their account in relation to query of the Appellant and only after being satisfied with the same, the EC was granted by the MoEF&CC.

24. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.2 of the appeal is denied and disputed. I state that as per the Terms of Reference, with respect to Subhadra OCP granted by MoEF&CC on date 22.11.2021 it has been stated in standard condition (x) that:

“Collection of one-season (non-monsoon) primary baseline data on environmental quality air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-season met data.”

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MCL Subhada Area

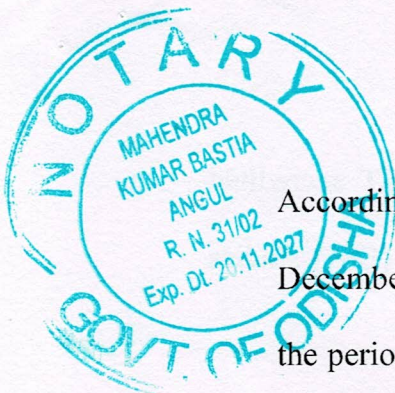
Accordingly, one season non-monsoon data was collected from October-December 2022 at the interval of twice in a week. It is noteworthy that during the period in which the data was collected, at all times the level of benzene in ambient air came to be even below $0.5 \mu\text{g}/\text{m}^3$ and it was of so less quantity that the devices could not measure it. Though, the the permissible limit of benzene in accordance with National Ambient Air Quality Standards vide GSR 826 (E), Dt.16.11.09 is $5 \mu\text{g}/\text{m}^3$ on an annual average, here only data of 3 months was recorded. In any event, given the extremely low level of benzene present in the air, even if the test would have been conducted over the period of one year, then also it would not have breached the permissible standards.

The Copy of Terms of Reference has already been annexed by the respondent No.1 as Annexure R1/1 and the test reports have been annexed by the appellatant as Annexure A/4.

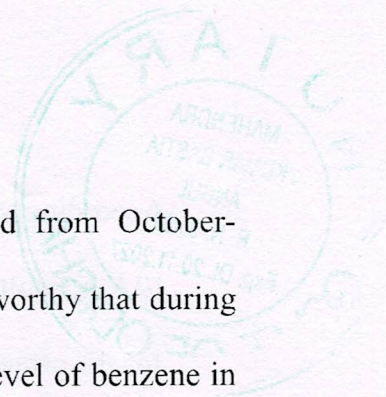
25. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.3 of the appeal is denied and disputed. I state that M/s Subhadra Coal Mining Limited (SCML) has signed a Contract Agreement & Pure Agency Agreement with MCL on date 17.06.2022 as mine developer and operator (MDO) for Subhadra Opencast Project and thereafter .

03/10/24
Basanta Kumar Das
 Advocate, Angul
 Odisha Bar Council ENRL No-120/1983
 Mob-9437368153

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Staff Officer(Envt. & Forest)
MCL Subhada Area
[Signature]



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Accordingly, SCML engaged Vardan Environet, a QCI-NABET accredited EIA consultant to conduct Environmental Impact Assessment (EIA) studies for the project.

Copy of work order dated 11.08.2022 is attached as Annexure R2/4. At the time of engagement, the M/s Vardan Environet had its QCI-NABET accreditation of Vardan Environet and the same is annexed as Annexure R2/5. Further at the time of conducting the test also and submitting its report and thereafter during preparing the EIA Report (which has been uploaded on the Parivesh Portal) as stated above, the said M/s Vardan Environet continued to be accredited. Also its sister concern laboratory ie. M/s Vardan Envirolab which conducts the tests had its NABL Accreditation. Thus, considering the fact that these information was always in the public domain and the appellant could have found the same easily, the objections raised doubting the veracity of the data is outrightly malafide and intended to harass the Respondent no 2 and M/s SCML to continue with the project. However, MCL has responded diligently to the query of MoEF&CC pursuant to the grievance of the appellant and thus the email sent by the Appellant to the Respondent No 1 (MoEF&CC) is gravely misplaced.

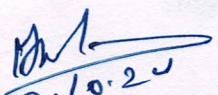
26. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.4 of the appeal is

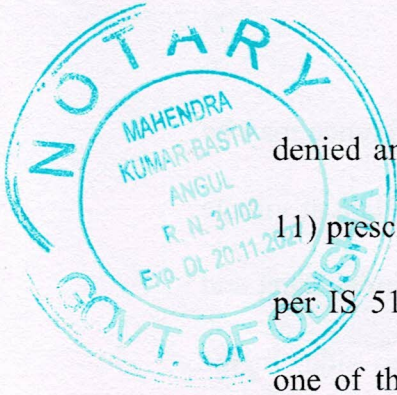

Basanta Kumar Das

Advocate, Angul
Odisha Bar Council ENRL.No-120/1983
Mob-9437368158


Staff Officer(Envnt.& Forest)
MCL Subhada Area




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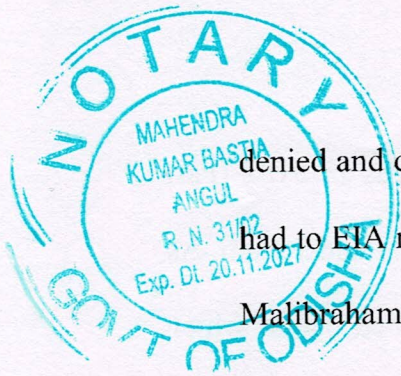


denied and disputed. I state that the relevant Indian Standards IS 5182 (Part 11) prescribes the applicable test method for the analysis to be undertaken. As per IS 5182 (Part 11), three test methods have been described out of which one of the methods is Gas Chromatography with Flame Ionization Detector (GC-FID). The M/s Vardan Envirolab has used the GC-FID equipment for testing of benzene. The term "Limit of Quantification" (LOQ) is related to the analytical equipment used for testing benzene duly accredited by NABL. In short, LOQ is the least count of the machine and it has nothing to do with the Indian Standards 5182 (Part 11). Since the permissible amount of benzene in air on annual average is $5 \mu\text{g}/\text{m}^3$, thus the apparatus used to measure is calibrated in such a manner that extremely low level of benzene ($<0.5 \mu\text{g}/\text{m}^3$) cannot be measured and in such cases the result is displayed as Below limit of Quantification. Thus, so long as the tests are carried out according to the methods and using the instruments as prescribed by the relevant Indian Standards IS 5182 (Part 11), the inability to measure extreme low levels of benzene has got nothing to do with compliance or non-compliance with relevant Indian Standards IS 5182 (Part 11). Rather this is an attempt by the appellant to mislead the Hon'ble Tribunal.

27. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.5 of the appeal is

09/10/24
Basanta Kumar Das
 Advocate, Angul
 Odisha Bar Council ENRL No-120/1983
 Mob-9437368158

Staff Officer (Envt. & Forest)
MCL Subhada Area



denied and disputed. I state that for meaningful comparison, reference may be had to EIA report of 2 X 525 MW Coal Based Thermal Power Plant at village Malibrahmani In Chandipada Block, Dist. Angul, Odisha of Jindal Steel and Power Ltd. located adjacent to Subhadra OCP in the southern side. In the above EIA report, baseline monitoring has been conducted from December 2022 to February 2023 (similar period). Ambient air quality monitoring including sampling and analysis of benzene among other parameters has been carried out at 8 locations in the 10 km study area and the benzene has not been detected as per their analysis report.

Copy of analysis report being part of EIA report of 2 X 525 MW Coal Based Thermal Power Plant of adjacent JSPL plant is attached as Annexure R2/6.

The whole EIA report is not annexed owing to the voluminous nature of the document and leave is sought to produce the same if so required by the Hon'ble Tribunal.

I further state that at that relevant time, the data from 2 nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) established by the Central Pollution Control Board (CPCB) being (1) Hakimpara, Angul and (2) Talcher: Angul which fall within close proximity of the Subhadra Open Cast Coal Mines is also provided from the CPCB's website. In all the reports from Hakimpada, the benzene concentration was found "None," whereas in Talcher station (where air pollution is much higher than the Subhadra Area) the

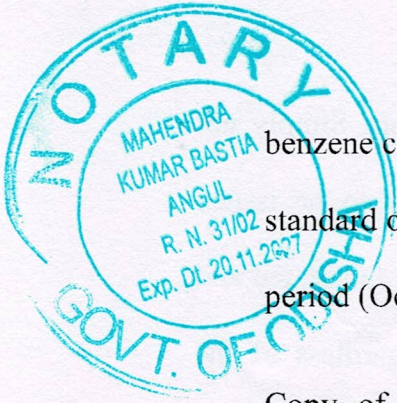
Basanta Kumar Das
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Advocate, Angul

Odisha Bar Council ENRL.No-120/1983

Mob-9437368156

Staff Officer (Envt. & Forest)
MCL Subhada Area



benzene concentration was reported to be "very much less" than the prescribed standard of 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) during the same monitoring period (October 3, 2022, to December 31, 2022).

Copy of the Reports from the two stations are annexed herewith and collectively marked as Annexure R2/7.

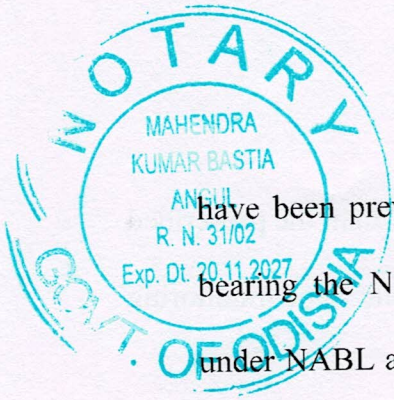
28. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.6 of the appeal is denied and disputed. I state that with respect to sub-para (a) and (b) the same is beyond the scope of the Respondent/MCL. However, the Respondent no 2 strongly supports the statement by the Respondent no 1 "that the allegation made by the complainant is without any documentary proof to support his argument".

With respect to sub-para (c) relating to credibility of the consultant who prepared the report, for greater clarity of the whole situation, it is reiterated that Chapter 12 of the EIA report, i.e. Disclosure of Consultant is to be referred to. In this chapter, details of the QCI-NABET accreditation of Vardan Environet for preparation of EIA report and NABL accreditation and MoEF&CC recognition of Vardan Envirolab have been explicitly mentioned along with the copies of the accreditation certificate and the relevant pages

Basanta Kumar Das
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 Staff Officer (Envt. & Forest)
 MCL Subhada Area

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have been previously annexed as being part of the EIA Report. Simply not bearing the NABL symbol nor expressly claiming the report to be issued under NABL accreditation does not render it invalid and being fabricated and it is wrongful to claim that the report is null and void, regardless of the laboratory's accreditation status

As regards the Sub-para (d) and (e) pertaining to the test methods employed and its adherence to standards, I state that the Environment Consultant being accredited to NABET and their laboratory arm being accredited to NABL, the analysis of benzene in ambient air was done as per IS 5182 (P-11): 2006 RA: 2017 Standard using the GC-FID Method. Reference may be had to chapter 3 of the EIA report, at table no. 3.8 where test method of benzene has been clearly mentioned as GC-FID Method and technical protocol of IS: 5182 (P-11): 2006 RA: 2017 has been followed and the same was already part of the EIA Report available in the public domain. Further, in the EAC minutes of meeting published on 24.02.2024 annexed as Annexure R1/5 of the Respondent No 1's affidavit page 313 wherein EAC has also explicitly mentioned that GC-FID method with IS: 5182 (P-11): 2006 RA: 2017 has been followed. With respect to sub-para (e) which challenges the adherence to the testing of Benzene being done as per IS: 5182 (P-11): 2006 due to the absence of specified detection limits and that the non-inclusion of the

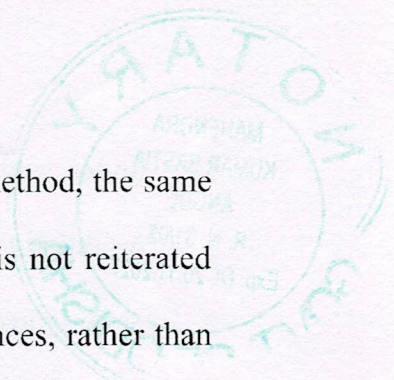
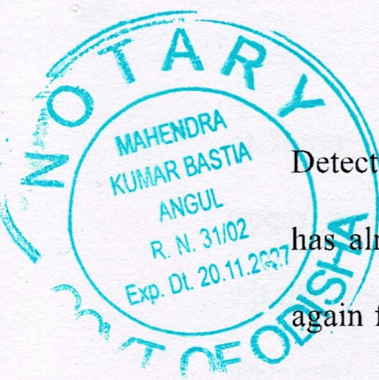
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Basanta Kumar Das
Advocate, Angul
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Staff Officer (Env't. & Forest)
MCL Subhada Area

Detection Limit as being non-compliance with the specified method, the same has already been dealt with in the previous paragraphs and is not reiterated again for the sake of brevity. Under such facts and circumstances, rather than making unwarranted and unsubstantiated allegations without adequate documents, the burden of proving that the testing has been done without compliance with relevant Indian Standards IS: 5182 (P-11): 2006 has not been followed lies upon the appellant and his failure to do so should be met with strong costs being imposed upon him for harassing the Respondents without adequate cause.

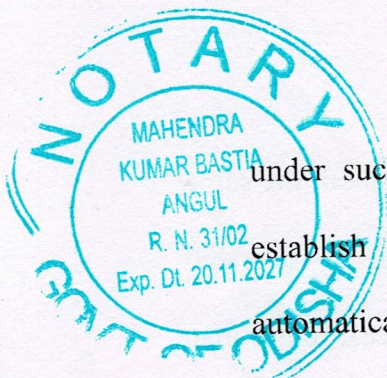
As regards the Sub-para (f) and (g) relating to absence of detection limits as being a ground for calling the test report void and non-compliance with specified methods the same has been previously dealt with and is not repeated for sake of brevity. As regards lack of other specifics as mentioned in Sub-para (g) it is stated that Vardan Envirolab is an NABL accredited laboratory and also recognised by MoEF&CC for testing of environmental parameters. Therefore, it is presumable that in the regular course of their business, the Sampling, transportation, preservation and handling protocols were followed as per the Quality Standard Procedures (QSPs) of the laboratory. NABL while granting accreditation verifies the completeness and the implementation of the QSPs. The copy of the QSPs is attached as Annexure R2/8. The appellant



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MCL Subhada Area



under such circumstance is required to discharge his burden of proof to establish that simply not stating these parameters in the test report automatically implies that the test has been done in an irregular way. On the other hand, the respondent no 2 asserts that considering other corroborative evidence viz. the report from CPCB's of the same period and also JSPL's reports of approximate same period, the report is absolutely genuine and proper.

As regards the Sub-para (h), the Respondent cannot comment upon the same. However, the Respondent has also annexed the test report from 2 different CPCB's continuous air monitoring stations to establish that the benzene levels in the air was negligible at that period and hence the report submitted with the EIA Draft is quite genuine.


29. Save and except what are matters of record, the statements/averments/allegations made in paragraph 5.7 of the appeal is denied and disputed. I state that the Respondent No 2 stands by the veracity of the data submitted in the EIA/EMP and affirms that the information provided in the EIA/EMP is true to best of their knowledge and any discrepancy as alleged by the appellant is without any substance and rational basis and is a product of his whims and figment of his imagination and should be outrightly dismissed.


Basanta Kumar Das

Advocate, Angul

Odisha Bar Council ENRL No-120/1983

Mob-9437368158


Staff Officer (Envt. & Forest)
MCL Subhada Area





30. Save and except what are matters of record, the statements/averments/allegations made in paragraph 6 of the appeal is denied and disputed. The grounds as mentioned therein emanate from the previous paragraphs of the appeal and since those paragraphs have been already dealt with and stated to be baseless and without proper materials, the grounds also do not have any basis to stand upon and hence is not separately dealt with for the sake of brevity.

31. Save and except what are matters of record, the statements/averments/allegations made in paragraph 7 and 8 of the appeal is denied and disputed. I state that with respect to the prayers made in Paragraph 8 the same should be disallowed and the appeal should be dismissed in limine not only on grounds of maintainability but also on merits for being without rational basis and sufficient materials to substantiate the allegations made therein and is simply a product of his imagination. The appeal should be dismissed with heavy costs for being malafide and being an abuse of process of law, which is preferred only with intention to harass the Respondents and put their business to a grinding halt.

32. In view of the facts and circumstances stated above, it is therefore prayed that this application deserves to be dismissed with costs for being frivolous, vexatious and without adequate grounds.

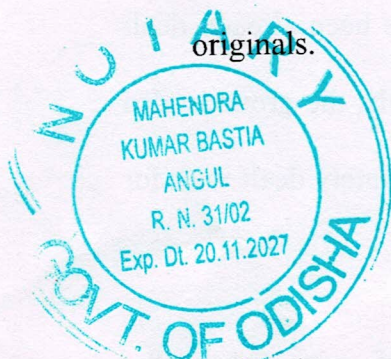
Basanta Kumar Das
 Basanta Kumar Das
 Advocate, Angul
 Odisha Bar Council ENRL No-120/1993
 Mob-9437368158

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 Staff Officer (Envt. & Forest)
 MCL Subhada Area

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 3.10.2021
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33. The statements made in Paragraphs 1 to 30 are true to my knowledge and the rest are my humble submission before this Hon'ble Tribunal.


34. The annexures attached with this affidavit are true copies of their respective originals.

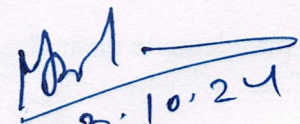


VERIFICATION

I, Prashanta Kumar Maharaj, Son of Late Pajamananda Maharaj, the Authorized Representative of the Respondent No. 2, working for gain with Mahanadi Coal Fields Limited, having its office at MCL, Subhadra Area, PO - Angul, Near Biju Maidan, District: Angul, Pin - 759122, Odisha hereby declare that all that are stated in above paragraphs are true and correct to the best of my knowledge and belief. No material fact has been concealed. I verify the same on this day of October 2024 at Angul, Odisha.


Basanta Kumar Das
 Advocate, Angul
 Odisha Bar Council ENRL No-120/1985
 Mob-9437368158


Prashanta K. Maharaj
 Staff Officer (Envt. & Forest)
 MCL Subhada Area


 3.10.24
MAHENDRA KU. BASTIA
NOTARY PUBLIC, ANGUL

Proposal No. IA/OR/CMIN/445297/2023 regarding EIA Clearance of Subhadra Open Cast Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coalfield Limited located at Village Gopal Prasad, Kumuda, Nisha, Kankarei, Rajjharan, Nisha P.S Angul, Tehsil Tachler Sadar and Chhendipada, District Angul (Odisha) - reg.

From: S K Mishra (sanjaykmishra@yahoo.co.in)

To: lk.bokolia@nic.in

Date: Monday, January 15, 2024 at 01:59 PM GMT+5:30

Shri Lalit Bokolia
Member Secretary, Expert Appraisal Committee
Coal Mine Projects
Ministry of Environment, Forest and Climate Change
Govt. of India

Sir,

The Expert Appraisal Committee under your Chairmanship, in the meeting held from 16/11/2023 to 17/11/2023, scrutinized the Online proposal No. IA/OR/CMIN/445297/2023; File No. IA-J-11015/72/2021- IA-II(M) pertaining to Subhadra Open Cast Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coalfield Limited located at Village Gopal Prasad, Kumuda, Nisha, Kankarei, Rajjharan, Nisha P.S Angul, Tehsil Tachler Sadar and Chhendipada, District Angul (Odisha).

The EIA/EMP report are found to be prepared by M/s Vardan EnviroNet, Gurugram.

The Committee has deferred the decision.

Looking into the Test Reports issued on 09.01.2023 available at [Welcome to PARIVESH](#) it is found that for the entire period of monitoring carried out between 03.10.2022 to 31.12.2022, the parameter Benzene is reported to be below detection limit, which is 0.5 microgram per cubic meter in all the stations. The villages in which the laboratory has carried out monitoring are named as: Pidhakhmana, Tangarsahi, Kosala, Korada, Kalikatta, Golabandha, Kumunda, Malibrahmani, Brahmanbil, Kalamchhuin, Chhotagolagadia.

I would like to bring it your kind information that the results reported in respect of Benzene in all the villages for the month of December 2022 needs a review. There are some other findings which show that in December 2022, the Benzene concentration in all these villages found to be varying between 2.2 to 6.4 microgram per cubic meter. The maximum was found in Golabandha.

An improper consideration of baseline data may lead to unjustified decision on environmental impact. **Therefore, my humble submission before Your Committee is to review/reassess the data submitted.**

Best regards,
Sincerely,

Sanjaya Kumar Mishra
AIBE Certified Lawyer | Honourary Editor, Enviro Annotations
Odisha Contact: Priya Nilayam, Maszid Chowk, Balangir 767001 (Odisha)
Delhi NCR Contact: 115, Sagar Enclave, Sector - 104, Near Dwarka Expressway MGF Toyota, Gurugram (Gurgaon) 122006

Mobile: 9818326647

Fwd: Subhadra Open Cast Project-RegArea

From : GENERAL MANAGER Subhadra Area, MCL <gm-subhadra.mcl@coalindia.in>
Subject : Fwd: Subhadra Open Cast Project-RegArea
To : Amit Vashishtha <amit.vashishtha@nic.in>
Cc : sharadnegi1957@gmail.com, Akshay Shrikant Bapat <dt-pp.mcl@coalindia.in>, GM ENVT MCL <gm-env.mcl@coalindia.in>, PO Subhadra Project Subhadra Area Mcl <po-subhp.mcl@coalindia.in>, SO E and F Subhadra Area Mcl <so-enf-subha.mcl@coalindia.in>, scml@adityabirla.com

Tue, Feb 20, 2024 08:43 PM

SCML Environment
5 attachments

Dear Sir,

The reply along with annexures against the Query raised by Shri Sanjay Kumar Mishra through MoEF&CC is submitted for kind consideration of proposal of Subhadra Project for grant of Environmental clearance.

General Manager
Subhadra Area

From: scml@adityabirla.com
To: "GENERAL MANAGER Subhadra Area, MCL" <gm-subhadra.mcl@coalindia.in>, "GENERAL MANAGER Subhadra Area, MCL" <gm-subhadra.mcl@coalindia.in>
Sent: Tuesday, February 20, 2024 6:54:29 PM
Subject: RE: Subhadra Open Cast Project-Reg

Dear Sir,

Please find attached the justification note along with Annexures against the Grievance submitted to MoEF & CC.

Regards
PH, SCML

From: GENERAL MANAGER Subhadra Area, MCL <gm-subhadra.mcl@coalindia.in>
Sent: 13 February 2024 18:48
To: scml <scml@adityabirla.com>
Subject: Fwd: Subhadra Open Cast Project-Reg

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Sir,

Please look into the matter in the trailing mail and provide justification for the matter raised in the grievance immediately.

General Manager
Subhadra Area

From: "Amit Vashishtha" <amit.vashishtha@nic.in>
To: "GENERAL MANAGER Subhadra Area, MCL" <gm-subhadra.mcl@coalindia.in>
Cc: sharadnegi1957@gmail.com
Sent: Tuesday, February 13, 2024 9:45:46 AM
Subject: Subhadra Open Cast Project-Reg

Sir,






Please find attached herewith the Grievance submitted by Sanjaya Kumar Mishra which is self explanatory. In this regard, it is requested to provide the justification for the same, so that same may be placed before EAC for its consideration.

With Regards

Amit Vashishtha
Scientist 'E'
MoEF&CC



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-
-  **Annexure 3.pdf**
31 KB
 -  **Annexure 4.pdf**
31 KB
 -  **Reply to Query.docx**
2 MB
 -  **Annexure 1.pdf**
6 MB
 -  **Annexure 2.pdf**
1 MB
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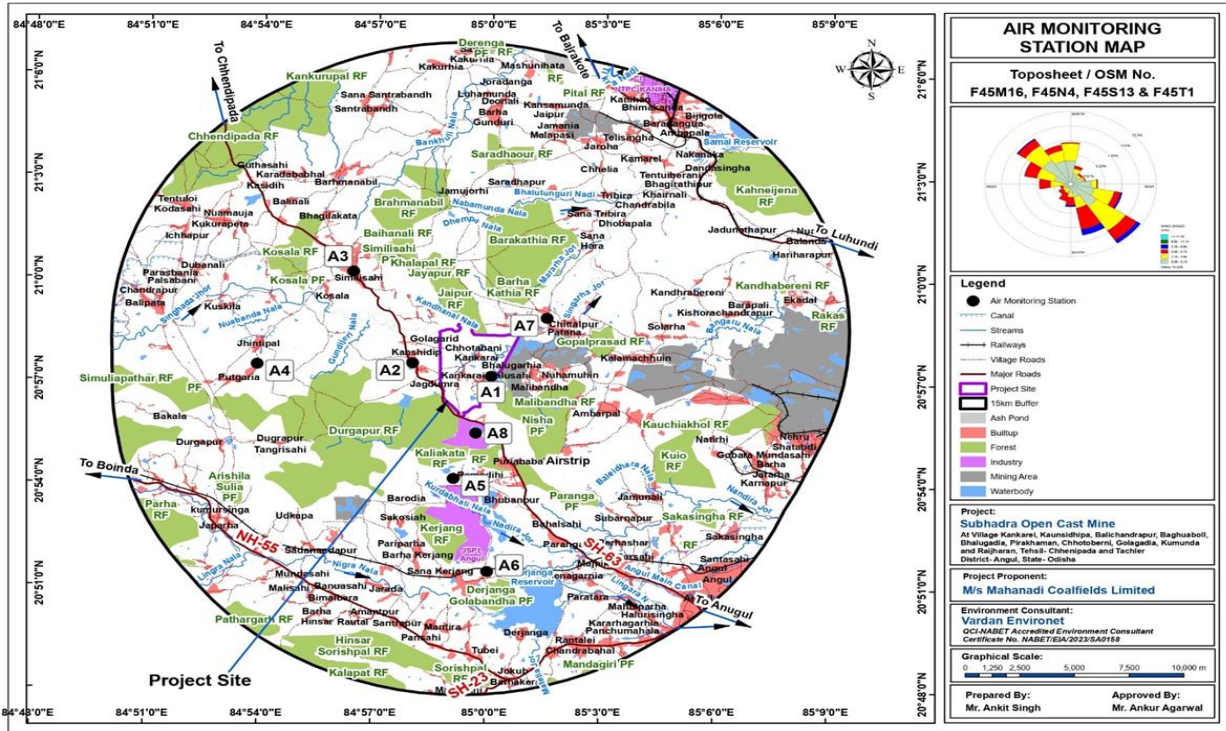
Query raised by Shri Sanjay Kumar Mishra through MoEF&CC: Looking into the Test Reports issued on 09.01.2023 available at Welcome to PARIVESH it is found that for the entire period of monitoring carried out between 03.10.2022 to 31.12.2022, the parameter Benzene is reported to be below detection limit, which is 0.5 microgram per cubic meter in all the stations. The villages in which the laboratory has carried out monitoring are named as: Pidhakhmana, Tangarsahi, Kosala, Korada, Kalikatta, Golabandha, Kumunda, Malibrahmani, Brahmanbil, Kalamchhuin, Chhotagolagadia.

Benzene in all the villages for the month of December 2022 needs a review. There are some other findings which show that in December 2022, the Benzene concentration in all these villages found to be varying between 2.2 to 6.4 microgram per cubic meter. The maximum was found in Golabandha.

Submission/ Justification: Vardan Enviro Lab a NABL Accredited Lab based in Gurgaon, Haryana was engaged for carrying out Baseline Monitoring Environmental Study during the period from October to December 2022. The environmental study conducted was in accordance with the guidelines of EIA issued by the Ministry of Environment Forests and Climate Change, Govt. of India and Central Pollution Control Board, New Delhi.

The locations of the Air Monitoring were as follows:

Stations	Name	Distance in Km	Latitude	Longitude
A1	Project Site	-	20° 57' 36.707" N	84° 59' 28.969" E
A2	Village Tangarasahi	1.27	20° 57' 33.378" N	84° 57' 59.721" E
A3	Village Kosala	1.02	20° 58' 49.664" N	84° 58' 15.542" E
A4	Village Korada	8.4	20° 57' 29.610" N	84° 53' 53.934" E
A5	Village Kaliakata	3.34	20° 54' 11.191" N	84° 59' 6.014" E
A6	Golabandha	8.45	20° 51' 27.956" N	85° 0' 1.713" E
A7	Village Kumunda	1.40	20° 58' 53.749" N	85° 1' 31.201" E
A8	Malibrabmani	1.02	20° 55' 31.211" N	84° 59' 40.727" E



Laboratory analysis of the test samples collected during the period as stated above in all the location for Benzene were found to be within the prescribed NAAQS Limit. (Lab Report is attached as **Annexure-1**)

The different techniques Adopted/Protocols for Ambient Air Quality Monitoring are as follows.

S. No	Parameters	Techniques	Technical Protocol
1	Sulphur Dioxide(SO ₂)	West & Gaeke	IS:5182(P2)
2	Nitrogen Dioxide(NO ₂)	Jacob & Hochheiser	IS:5182(P6)
3	Particulate Matter PM ₁₀	Gravimetric	IS:5182(P23)
4	Particulate Matter PM _{2.5}	Gravimetric	IS:5182 (P24)
5	Carbon-monoxide as CO	NDIR	IS:5182(P-10)
6	Ammonia	Spectrophotometric Method	IS 5182 (P-25): 2018
7	Arsenic	ICPMS/AAS Method	VEL/ENV/STP/110, Issue No. 01 dated on 01/11/2021
8	Benzene	GC-FID Method	IS: 5182 (P-11): 2006 RA: 2017
9	Benzo(a)pyrene	GC-FID Method	IS: 5182 (P-12): 2004, RA: 2019
10	Lead	ICPMS/AAS Method	IS: 5182 (P-22): 2004 RA: 2019
11	Nickel	ICPMS/AAS Method	IS: 5182 (P-26), 2020
12	Ozone	Spectrophotometric Method	IS 5182 (P-9): 1974 RA: 2019
13	Mercury as Hg	ICPMS/AAS Method	VEL/ENV/STP/129, Issue No. 01 dated on 01/11/2021

As mentioned above, the testing of Benzene was done as per IS: 5182 (P-11): 2006 RA: 2017 Standards using the GC-FID Method. (Indian Standard Methods for Measurement of Air Pollution is attached for reference as **Annexure- 2**)

The test results show that the level of Benzene in all the locations was BLQ (Below Limit of Quantification, Limit of Quantification (LOQ) is $0.5 \mu\text{g}/\text{m}^3$) and was as per NAAQS prescribed limits for Benzene i.e. $5.0\mu\text{g}/\text{m}^3$ (https://cpcb.nic.in/upload/NAAQS_2019.pdf) both within the core and buffer zone of Subhadra OCP of MCL.

Besides, the study results at 02 below mentioned locations (which are nearer to Subhadra OCP of MCL) of Central Control Room for Air Quality Management - All India, Govt of India (<https://airquality.cpcb.gov.in>) during the period from October to December 2022, for Benzene vide CAAQMS(CPCB) were found within the NAAQS Standards. (Reports Attached for Reference as **Annexure-3& 4**).

Locations of CAAQMS (CPCB) monitoring stations:

- 1) Hakimapada, Angul (Distance of 15 Km from Project Site and 5 Km from Buffer Zone)
- 2) Talcher Coalfields, Talcher (Distance of 17 Km from Project Site and 7Km from Buffer Zone)

Location Positions



This is to confirm that the baseline data generation and its testing was done as per the approved Protocols for Ambient Air Quality Monitoring.

Hence, the Benzene concentration in all these villages found to be as per the study and as per CPCB reports (reference CPCB station-Hakim pada Station nearer to Golabandha Village which is approx. 11 km) found to be within prescribed limits during the period October-December 2022.



Final EIA Report for Subhadra Open Cast Coal Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coalfields Limited located at Village Kankarei, Pirakhaman, Balichandrapur, Raijharan, Kaunsidhipa, Golagadia, Chhotabereni, Kumunda, Bhalugadia, Baghuabola villages and Jaipur RF, Tehsil Talcher & Chhendipada, Dist-Angul, Odisha State)

12. DISCLOSURE OF CONSULTANT

12.1 INTRODUCTION

Vardan Environet is a pioneer consulting organisation of India specializing in Environmental Protection, Industrial Pollution Control, Environmental & Mechanical testing, and engineering field. Vardan assists clients in comprehensive environmental and engineering services ranging from conceptual planning and preliminary investigation to detailed engineering designs. Local knowledge coupled with national and international experience of proven technical know-how and a strong commitment from our team of experts enables Vardan to assist in solving the clients environmental and engineering problems successfully with competence by first analysing then visualizing and finally utilizing technically strong and dedicated skill.

Vardan has successfully completed a wide range of multi-disciplinary assignments/reports. The company's project formulation requires preliminary and detailed project investigation. The objective of the investigation is to assess the technical viability and cost effectiveness of the proposals vis-à-vis the objective and benefit. Vardan was founded in 2012 and brought together a number of consultancy services with a track record of performance in the environmental Science and Engineering field.

Headquartered in Gurugram, Vardan has prominent presence in Delhi-NCR, Rajasthan, Maharashtra, Madhya Pradesh, West Bengal and Jharkhand. With a man-power of over more than 200 professionals, the organization comprises of senior retired government officers from various departments like Pollution Control Board, Mines & Geology, Civil Services, SAIL, GAIL, NEERI who have decades of experience in the field of environmental management. The team also Comprises of young, dynamic and progress driven Environment, Civil, Mechanical & Chemical engineers, Geologists, GIS experts, Ecologists and Auditors.

Vardan Envirolab, a sister concern provides reliable and precise testing services for a wide range of Environmental, Chemical, Food testing, Microbiology and Building Materials with in-house Equipment/Instruments of advance technology along with experienced technical staff.

12.2 SERVICES OF VARDAN ENVIRONET

- Environmental Impact Assessment (EIA), Environmental Management Plan (EMP), Environmental Compliance, Mining Plan, Social Impact Assessment,





Final EIA Report for Subhadra Open Cast Coal Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coalfields Limited located at Village Kankarei, Pirakhaman, Balichandrapur, Raijharan, Kaunsidhipa, Golagadia, Chhotabereni, Kumunda, Bhalugadia, Baghuabola villages and Jaipur RF, Tehsil Talcher & Chhendipada, Dist-Angul, Odisha State)

- Testing of water, Waste water, Ambient & work zone air, stack emissions, noise, soil, limestone, dolomite, iron ore, coal, cement, bricks, concrete, blocks, steel bars & wires, Indoor Air Quality monitoring, Sludge.
- Hydrological surveys for ground water clearance.
- Approvals/NOC/Clearances from various Government Authorities.
- Detailed Project report/Feasibility report/Plans/Designs.
- Environmental Quality Monitoring and analysis.
- Geotechnical investigations, Topographical Survey, Planning and Designs.
- EHS, Energy and water Audit, risk/hazard studies and disaster management plan (both onsite and off-site)

12.3 RECOGNITIONS

- Approved by NABET in 21 sectors for preparation of EIA/EMP reports.
- Vardan EnviroLab is recognized by Ministry of Environment, Forest & Climate Change, Govt. of India under Environmental Protection Act 1986.
- Vardan EnviroLab is accredited by NABL in the field of Testing.
- Vardan EnviroLab is certified by OHSAS 18001:2007.
- Vardan EnviroLab is certified by ISO 14001:2015.
- Vardan EnviroLab is certified by ISO 9001:2015.
- Vardan EnviroLab is approved by HSPCB & RSPCB.

12.4 LIST OF SOFTWARE MODELS FOR ENVIRONMENTAL STUDIES

- Multisource Dispersion Model based on Gaussian Model (ISCST3, AERMOD)
- Noise Propagation Model (Dhawani Pro)
- Risk and Hazard studies through Aloha model
- GIS mapping through Arc GIS, watershed & area drainage mapping, cadastral mapping, DGPS survey, 3D modelling, Urban/Rural area planning & management and Digital Elevation Model.
- Transect and line intercepts for Ecology and Biodiversity studies
- Extrapolative method & Intuitive technique (Delphi technique) in socio-economic assessment.





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12.5 KEY MANAGEMENT PERSONNEL OF VARDAN

Table 12.1: Key Management Personnel of Vardan

S. No.	Name	Designation	Experience (Years)
1.	R.S. Yadav	Managing Director	32
2.	Roopika Sharma	CEO	12
3.	Aman Sharma	Partner	14
4.	Anshul Yadav	Partner	10

12.6 EMINENT CLIENTELE OF VARDAN

Vardan has executed around 1500 projects across all over India in a short span of time covering both public and private sectors. Following are some of our reputed clients.



Indian Oil, HPCL, NTPC, NHPC, BPCL, Delhi Metro, GAIL, GPIL, SAIL, NHAI, APCPL, RITES, MPPGCL, Indian Railways, JK Lakshmi Cement Ltd., L&T, Tata, Adani, Hero, Honda, HCL, Panasonic, Jaypee group, DLF, Godrej, Haldiram's, Unitech, JBM, Trident hotels, Lanco, Aditya Birla, Mangalam cement, JW Marriot, Eros group and many others.





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12.7 CERTIFICATIONS OF VARDAN

Quality Council of India

National Accreditation Board for Education & Training

Certificate of Accreditation


Vardan Environet, Gurugram
Plot No. 82-A, Sector 5, IMT Manesar, Gurugram, Haryana

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ underground mining	1	1 (a) (i)	A
2	Offshore & Onshore Oil and gas exploration, development & production	2	1 (b)	B
3	River Valley projects	3	1 (c)	A
4	Thermal power plants	4	1 (d)	B
5	Coal washeries	6	2 (a)	A
6	Mineral beneficiation	7	2 (b)	A
7	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	A
8	Cement Plants	9	3(b)	A
9	Coke oven plants	11	4 (b)	A
10	Chemical fertilizers	16	5 (a)	A
11	Petro-chemical complexes	18	5 (c)	A
12	Synthetic organic chemicals industry	21	5 (f)	A
13	Distilleries	22	5 (g)	A
14	Sugar Industry	25	5 (j)	B
15	Oil & gas transportation pipeline, passing through national parks/ sanctuaries/coral reefs /ecologically sensitive Areas including LNG terminal	27	6 (a)	A
16	Isolated storage & handling of hazardous chemicals	28	-	B
17	Airports	29	7 (a)	A
18	Industrial estates/ parks/ complexes/ Areas, export processing zones (EPZs), Special economic zones (SEZs), Biotech parks, Leather complexes	31	7 (c)	A
19	Highways	34	7 (f)	A
20	Building and construction projects	38	8 (a)	B
21	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated April 21, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2751 dated May 01, 2023. The accreditation needs to be renewed before the expiry date by Vardan Environet, Gurugram following due process of assessment.


Sr. Director, NABET
Dated: May 01, 2023

Certificate No.
NABET/EIA/2326/RA 0284

Valid up to
May 04, 2026

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.



M/s Vardan EnviroNet

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12.8 ENVIRONMENTAL MONITORING AND ANALYSIS LABORATORY

Environmental Baseline data generation has been carried out by NABL Accredited laboratory Vardan EnviroLab, Sector-5, IMT Manesar, Gurgaon, Haryana. The laboratory has also been accorded recognition as Environment Laboratory by CPCB (MoEF&CC). NABL Accreditation Certificate of Vardan EnviroLab is given below.



F.No. LB/99/7/2021-INST LAB-HO-CPCB-HO/Pvt/

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA
Dated: 24 January 2023

Provisional Certificate

To,
Head of Laboratory,
M/s Vardan Enviro Lab,
Plot No. 82 A, Sector 5 / IMT Manesar, Gurgaon-122051,
Haryana.

Subject: Recognition of M/s Vardan Enviro Lab, Plot No. 82 A, Sector 5 / IMT Manesar, Gurgaon-122051, Haryana, as Environmental laboratory under the Environmental (Protection) Act- 1986.

Sir,

I am directed to refer the online application, dated 05/10/2022 for the recognition of your laboratory under Environmental (Protection) Act, 1986. Based on the recommendations of the concerned Division, approval of Competent Authority for recognition of Environmental laboratories and your acceptance of the revised terms and conditions at Annexure-III & IV of the guidelines for recognition of environmental laboratories, CPCB approves the renewal of recognition M/s Vardan Enviro Lab, Plot No. 82 A, Sector 5 / IMT Manesar, Gurgaon-122051, Haryana and shall be notified in the Gazette of India. Considering the current requirement of mandatory accreditation/ certifications of the laboratory, **this recognition shall be valid up to 27/08/2024.**

2. As sought in the aforementioned application, M/s Vardan Enviro Lab, Plot No. 82 A, Sector 5 / IMT Manesar, Gurgaon-122051, Haryana may undertake the following tests:

- Physical Tests**-Conductivity, Colour, pH, Fixed & Volatile Solids, Total Solids, Total Dissolved Solids, Total Suspended Solids, Turbidity, Temperature, Velocity & Discharge Measurement of Industrial Effluent Stream, Flocculation Test (Jar test), Odour, Salinity, Settleable Solids and Sludge Volume Index.
- Inorganic (General and Non-metallic):** Acidity, Alkalinity, Ammonical Nitrogen, Chloride, Chlorine Residual, Dissolved Oxygen, Fluoride, Total Hardness, Total Kjeldahl Nitrogen (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Phosphate, Sulphate, Bromide, Chlorine Demand, Iodine, Sulphite Silica, Cyanide and Sulphide.
- Inorganic (Trace Metals):** Boron, Cadmium, Calcium, Total Chromium, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium Absorption Ratio, Zinc, Arsenic, Aluminium, Beryllium, Barium, Lithium, Manganese, Selenium, Silver, Strontium, Antimony, Cobalt and Vanadium.
- Organics (General) and Trace Organics:** Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Phenolic Compounds, Pesticides (each) (Organo-Chlorine and Organo Nitrogen-Phosphorus), Total Organic Carbon, Surfactant, Poly-Nuclear Aromatic Hydrocarbon (PAH), Poly-Chlorinated Biphenyl (PCBs) each, Organic Carbon (in Solid) and Carbon/Nitrogen Ratio.
- Microbiological Test:** Total Coliform, Faecal Coliform, *E. coli*, *Faecal Streptococci* and Total Plate Count, *Coliphage* and *Enterococcus*.
- Toxicological Tests:** Bioassay Method for Evaluation of Toxicity using Fish and Measurement of toxicity factor using zebra fish (dimensionless toxicity test)
- Biological Test:** Benthic Organism Identification and Count, Planktonic Identification Count and Chlorophyll.
- Characterization of Hazardous Waste:** Preparation of Leachate (TCLP Extract/Water Extract), Corrosivity, Ignibility (Flash point), Reactivity, Toxicity and Measurement of Heavy Metals/Pesticides in the Waste/Leachate.
- Soil/Sludge/Sediment and Solid Waste:** Boron, Cation Exchange Capacity (CEC), Electrical

‘परिवेश भवन’ पूर्वी अर्जुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website : www.cpcb.nic.in

Contd.
further



M/s Vardan EnviroNet

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- Conductivity, Nitrogen (Available), Organic Carbon/Matter (Chemical Method), pH, Phosphorous (Available), Phosphate (Ortho), Phosphate (Total), Potassium, SAR in Soil Extract, Sodium, Soil moisture, TKN, Calorific Value, Ammonia, Bicarbonate, Calcium, Calcium Carbonate, Chloride, Colour, Exchangeable Sodium Percentage (ESP), Heavy Metal, Magnesium, Nitrate, Nitrite, PAH, Pesticide, Sulphate, Sulphur, Total Organic Carbon, Total Water Soluble Salt and Water Holding Capacity.
- x. **Ambient Air/ Fugitive Emissions:** Nitrogen Dioxide (NO₂), Sulphur Dioxide (SO₂), Total Suspended Particulate Matter, Respirable Suspended Particulate Matter PM₁₀, Ammonia, Carbon Monoxide, Chlorine, Fluoride, Lead, Methane, Non-Methane Hydrocarbon, Ozone, Benzene Toluene Xylene (BTX), Polycyclic Aromatic Hydrocarbon (PAH), Benzo-a-Pyrene & others, PM_{2.5} and Volatile Organic Carbon.
 - xi. **Stack Gases/ Source Emission:** Particulate Matter, Sulphur Dioxide, Velocity & Flow, Carbon Dioxide, Carbon Monoxide, Temperature, Oxygen, Oxides of Nitrogen, Acid Mist, Ammonia, Chlorine, Fluoride (Particulate), Fluoride (Gaseous), Hydrochloric acid, Total Hydro Carbon, Hydrogen Sulphide and Carbon Disulphide.
 - xii. **Noise Level:** Noise Level Measurement (20-140 dBA) and Ambient Noise and Source Specific Noise.
 - xiii. **Meteorological:** Ambient Temperature, Wind Direction, Wind Speed, Relative Humidity and Rainfall.
3. Further, the following analysts have been approved as Government Analysts.
- i. Sh. Gaurav Pratap Singh
 - ii. Dr. Shiv Prakash Singh
 - iii. Ms. Deepika Mehta
4. The laboratory shall compulsorily participate in the Analytical Quality Exercise conducted by the Central Pollution Control Board (CPCB) to ascertain the capability of the laboratory and analysis carried out and shall submit quarterly progress report to CPCB.
 5. The surprise inspection/periodic surveillance of the recognized environment laboratory will be undertaken by CPCB to assess its proper functioning systematic operation and reliability of data generated at the laboratory.
 6. It is also mandatory for the laboratory to have requisite accreditations of the ISO: 17025 and ISO:45001 and its renewal as per accreditation rules. This recognition is subject to such accreditations and renewals as applicable. The laboratory is required to apply online for further renewal of recognition through CPCB web portal after renewal of the mandatory accreditations / certifications concerned.
 7. The laboratory should compulsorily follow the accepted terms and conditions. In case of serious non-compliance of any of the terms and conditions, the laboratory may be black listed for a minimum period of two years and civil/criminal proceedings, as applicable, may be initiated for performing functions on behalf of the Government in an unauthorized manner.

Yours faithfully,

F. M. S. J.
24/11/2023

Divisional Head
Instrumentation laboratory





Final EIA Report for Subhadra Open Cast Coal Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coalfields Limited located at Village Kankarei, Pirakhaman, Balichandrapur, Raijharan, Kaunsidhipa, Golagadia, Chhotabereni, Kumunda, Bhalugadia, Baghuabola villages and Jaipur RF, Tehsil Talcher & Chhendipada, Dist-Angul, Odisha State)



**National Accreditation Board for
Testing and Calibration Laboratories**

CERTIFICATE OF ACCREDITATION

VARDAN ENVIRO LAB

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

PLOT NO. 82A, SECTOR 5, IMT MANESAR, GURGAON, HARYANA, INDIA

in the field of

TESTING

Certificate Number: TC-6299

Issue Date: 28/08/2022

Valid Until: 27/08/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : VARDAN ENVIRO LAB

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer



M/s Vardan EnviroNet

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CERTIFICATE OF REGISTRATION



This is to certify that the management system of
M/S VARDAN ENVIROLAB

has been formally assessed by
INTERNATIONAL CERTIFICATION & INSPECTION UK LTD.
and found to comply with the requirements of

ISO 9001:2015

(Quality Management Systems)

Scope of Registration:

PROVISION OF TESTING DISCIPLINE FOR ENVIRONMENTAL, CHEMICAL,
FOOD MICROBIOLOGICAL AND MECHANICAL SAMPLES.

Registered Site (s):

PLOT NO.82-A, SECTOR-5, IMT MANESAR, GURUGRAM - 122051, HARYANA, INDIA.

:: Certificate No :: ICIINDI/3807/XX

<i>Date of initial registration:</i>	07 January 2020
<i>First Surveillance Audit on or before:</i>	10 December 2020
<i>Second Surveillance Audit on or before:</i>	10 December 2021
<i>Re-certification Due:</i>	06 January 2023

**This Certificate is property of ICI UK Ltd. and remains valid
subject to satisfactory surveillance audits.**

Peter Collins

Executive Director
International Certification & Inspection UK Limited.
71-75 Shelton Street Covent Garden London, WC2H 9JQ United Kingdom



To check validity of the certificate please visit at www.ici-uk.co

This certification of registration is issued by International Certification & Inspection UK Limited accredited with Accreditation Board For Certification bodies (www.ab-cb.org). This certificate remains the property of International Certification & Inspection UK Limited and must be returned upon request.



M/s Vardan EnviroNet

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CERTIFICATE OF REGISTRATION



This is to certify that the management system of

VARDAN ENVIROLAB

has been formally assessed by
INTERNATIONAL CERTIFICATION & INSPECTION UK LTD.
and found to comply with the requirements of

ISO 14001:2015
Environmental Management Systems

Scope of Registration:

Testing of Environmental Parameters, Food Products, Pharmaceuticals, Building Materials, Disinfection Services, Auditing and Other Technical Services.

Registered Site (s):

Plot No. 82-A, Sector - 5, IMT Manesar, Gurugram - 122051, (Haryana), India.

:: Certificate No :: ICIINDI/4534/XX

<i>Date of initial registration:</i>	20 June 2020
<i>First Surveillance Audit on or before:</i>	10 May 2021
<i>Second Surveillance Audit on or before:</i>	10 May 2022
<i>Re-certification Due:</i>	19 June 2023

**This Certificate is property of ICI UK Ltd. and remains valid
subject to satisfactory surveillance audits.**

Peter Collins

Executive Director

International Certification & Inspection UK Limited.
27 Old Gloucester Street, London, WC1N 3AX, United Kingdom



To check validity of the certificate please visit at www.ici-uk.co

This certification of registration is issued by International Certification & Inspection UK Limited accredited with Accreditation Board For Certification bodies (www.ab-cb.org). This certificate remains the property of International Certification & Inspection UK Limited and must be returned upon request.



M/s Vardan EnviroNet

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CERTIFICATE OF REGISTRATION



This is to certify that the management system of
M/S VARDAN ENVIROLAB
 has been formally assessed by
INTERNATIONAL CERTIFICATION & INSPECTION UK LTD.
 and found to comply with the requirements of
ISO 45001:2018
Occupational Health and Safety

Scope of Registration:

PROVISION OF TESTING SERVICES FOR ENVIRONMENTAL SAMPLE (WATER, WASTE WATER, AMBIENT AIR, NOISE, STACK EMISSION), BUILDING MATERIALS SAMPLE (CEMENT, CONCRETS, BRICKS, PAVOUR BLOCK, STEEL), DRUGS AND PHARMACEUTICAL SAMPLE & FOOD AND AGRICULTURAL PRODUCTS.

Registered Site (s):

PLOT NO. 82 - A, SECTOR -5, IMT MANESAR - 122051, HARYANA, INDIA.

:: Certificate No :: ICIINDI/3806/XX

<i>Date of initial registration:</i>	07 January 2020
<i>First Surveillance Audit on or before:</i>	10 December 2020
<i>Second Surveillance Audit on or before:</i>	10 December 2021
<i>Re-certification Due:</i>	06 January 2023

**This Certificate is property of ICI UK Ltd. and remains valid
 subject to satisfactory surveillance audits.**

Peter Collins

Executive Director
International Certification & Inspection UK Limited.
 71-75 Shelton Street Covent Garden London, WC2H 9JQ United Kingdom



To check validity of the certificate please visit at www.ici-uk.co

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M/s Vardan EnviroNet

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Table 3.7: National Ambient Air Quality Standards vide GSR 826 (E), Dt.16.11.09

Sr. No.	Parameter	Time Weighted Average	Concentration in Ambient Air	
			Industrial Area, Residential, Rural & Other Areas	Ecologically Sensitive Area (Notified by Central Government)
1	SO ₂ (µg/m ³)	Annual*	50	20
		24 Hours**	80	80
2	NO _x (µg/m ³)	Annual*	40	30
		24 Hours**	80	80
3	PM ₁₀ (µg/m ³)	Annual*	60	60
		24 Hours**	100	100
4	PM _{2.5} (µg/m ³)	Annual*	40	40
		24 Hours**	60	60
5	CO (mg/m ³)	8 hours**	2.0	2.0
		1 hour**	4.0	4.0
6	Ozone, O ₃ (µg/m ³)	8 hours**	100	100
		1 hour**	180	180
7	Lead Pb (µg/m ³)	Annual*	0.5	0.5
		24 Hours**	1.0	1.0
8	Ammonia (µg/m ³)	Annual*	100	100
		24 Hours**	400	400
9	Benzene (µg/m ³)	Annual	05	05
10	Benzo (a) Pyrene (BaP) (ng/m ³)	Annual	01	01
11	Arsenic (ng/m ³)	Annual	06	06
12	Nickel (ng/m ³)	Annual	20	20

Table 3.8: Techniques Adopted/Protocols for Ambient Air Quality Monitoring

S. No	Parameters	Techniques	Technical Protocol
1	Sulphur Dioxide (SO ₂)	West & Gaeke	IS:5182 (P2)
2	Nitrogen Dioxide (NO ₂)	Jacob & Hochheiser	IS:5182 (P6)
3	Particulate Matter PM ₁₀	Gravimetric	IS:5182 (P23)
4	Particulate Matter PM _{2.5}	Gravimetric	IS:5182 (P24)





Final EIA Report for Subhadra Open Cast Coal Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coalfields Limited located at Village Kankarei, Pirakhaman, Balichandrapur, Rajjharan, Kaunsidhipa, Golagadia, Chhotabereni, Kumunda, Bhalugadia, Baghuabola villages and Jaipur RF, Tehsil Talcher & Chhendipada, Dist-Angul, Odisha State).

S. No	Parameters	Techniques	Technical Protocol
5	Carbon-monoxide as CO	NDIR	IS: 5182 (P-10)
6	Ammonia	Spectrophotometric Method	IS 5182 (P-25): 2018
7	Arsenic	ICPMS/AAS Method	VEL/ENV/STP/110, Issue No. 01 dated on 01/11/2021
8	Benzene	GC-FID Method	IS: 5182 (P-11): 2006 RA: 2017
9	Benzo(a)pyrene	GC-FID Method	IS: 5182 (P-12): 2004, RA: 2019
10	Lead	ICPMS/AAS Method	IS: 5182 (P-22):2004 RA: 2019
11	Nickel	ICPMS/AAS Method	IS: 5182 (P-26), 2020
12	Ozone	Spectrophotometric Method	IS 5182 (P-9):1974 RA: 2019
13	Mercury as Hg	ICPMS/AAS Method	VEL/ENV/STP/129, Issue No. 01 dated on 01/11/2021

Source: Baseline Monitoring Report, Vardan enviro Lab

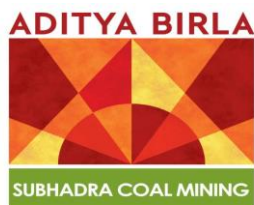
3.4.2.3 Air Quality Monitoring

Ambient air quality analysis reports are appended below in the **Table 3.9** and attached as **Annexure IX**. The graphical representations of the results are depicted in **Figure 3.4, 3.5, 3.6 & 3.7**.

3.4.2.4 Data Analysis

The Ambient Air Quality survey has been carried out within 10 km radius of mine site. Eight (8) locations were set up post-monsoon monitoring for a period of October - December 2022. Measurement of Particulate matter (PM₁₀ & PM_{2.5}), SO₂, NOX, CO, O₃, NH₃, Benzene, Ba(P), arsenic, Nickel, Lead, Mercury levels helps to understand the existing environmental scenario. The results of PM₁₀, PM_{2.5}, SO₂, NOX, O₃, NH₃, Benzene are expressed in µg/m³ whereas the results of CO are expressed in mg/m³ and results of Ba(P), Aresenic, Nickel, Lead, Mercury are expressed in ng//m³. The results of all the locations were further computed for statistical parameters like 98 Percentile and Arithmetic mean (AM). The results are shown in **Table 3.9**. The graphical representations of the results are depicted in Figure 3.4, 3.5, 3.6 & 3.7. Lab Reports are enclosed as **Annexure-IX**.





WORK ORDER

WO/CPC/SCML/22-23/06

Date: 11 August 2022

M/s Vardan Environet
Plot No.82A,
Sector-5,Gurgaon-122051,
Haryana.

Kind Attention: Mr. Anshul Yadav (E-mail: anshul@vardan.co.in; +91 9953147268)

Subject: Work Order for Consultancy Services for obtaining Environment Clearance (EC) for Subhadra Open Cast Coal Project, under Mahanadi Coalfield Limited, Angul, Odisha

References:

- a) SCML RFQ vide email dated 20th July 2022
- b) Vardan Offer vide email dated 23rd July 2022
- c) Discussion between Vardan and SCML held on 26th July 2022.
- d) Vardan conformation on payment terms vide email dated 28th July 2022.
- e) Vardan conformation on delivery schedule vide email dated 01st August 2022.
- f) Vardan conformation on LD clause vide email dated 04th August 2022.
- g) SCML confirmation on Vardan offer vide email dated 9th Aug 2022
- h) Vardan acceptance on the offer vide email dated 10th Aug 2022

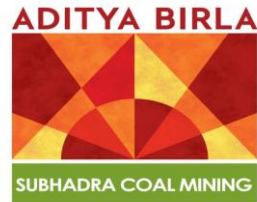
Dear Sir,

SCML is pleased to issue this Work Order No.: WO/CPC/SCML/22-23/06 (hereinafter referred to as "Work Order") to M/s Vardan Environet (hereinafter shall referred to "Vardan") towards **Consultancy Services for Environment Clearance (EC)** for Subhadra Open Cast Coal Project under MCL (hereinafter referred to SCML) in Angul district, Odisha (hereinafter referred to as "Site" as the context may require and as per defined terms & conditions, agreed Scope of work and instructions specified herein below:

1. Service Provider's Scope of Work:

The detailed scope of work (inclusive) to be carried out for obtaining Environmental Clearance as per the latest guidelines of Ministry of Environment and Forests (MoEF & CC) is furnished below. The scope of work will cover all the points mentioned in Approved Terms of Reference (ToR) by Expert Appraisal Committee, MOEF&CC, GOI:

- a) Collection of primary/secondary data, Baseline Environmental Study at site and in the buffer zone, impact prediction using approved models and preparation of draft EIA/EMP report as per approved TOR.
- b) Collection of Baseline data for One Season non-monsoonal of Air, Water, Soil, Noise & other environmental parameters etc. including one season meteorological data as per the requirement of MOEF&CC and approved TOR.
- c) Any other data required for Preparation of EIA / EMP Report such as ecosystem services, biodiversity study and cumulative impact assessment study, socio economic survey etc. of the Subhadra OCP covering core and buffer zone.
- d) Letter from PCCF that mine does not fall under corridors of any National Park and Wild Life Sanctuary and does not involve any violation of forest area & Wild Life Sanctuary with certified map showing

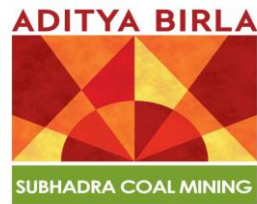


- distance of the project with respect to the nearest National Parks , wildlife Sanctuaries , Elephant/Tiger Reserve & their corridors
- e) Photographs of the baseline data collection for the air quality, water, soil, noise monitoring etc. and other studies with geotagging.
 - f) Preparation of draft EIA/EMP as per generic structure of S.O.1533, published by MoEF&CC and amendments thereof and submission to SPCB, Odisha for public hearing.
 - g) Assistance during public hearing and preparation of documents required for public hearing such as executive summary in Odia & English both.
 - h) Preparation of final EIA/EMP as per generic structure of S.O.1533, published by MoEF&CC & applicable amendments incorporating the proceedings & redressal mechanism and final submission to MoEF&CC.
 - i) Facilitate uploading of the EC application & other relevant documents in Parivesh Portal in co-ordination with SCML/MCL.
 - j) Preparation of power point slides & mock presentation for the internal review by SCML/MCL.
 - k) Presentation before "Expert Appraisal Committee"(EAC), MoEF&CC for environmental clearance.
 - l) Provide Clarifications to the points raised by EAC through EDS/ADS or any other report desired by the authority and obtain Environmental Clearance from Ministry of Environment, Forests and Climate Change.
 - m) Coordinate with Statutory / Government officials in expediting the approvals wherever and whenever required to obtain the EC

A. Baseline Study

The different environmental components to be studied including Soil, Meteorology, Air Quality, Water Quality, Noise Level, Land use, Flora & Fauna & Socio-economic etc for one full season comprising of 3 consecutive months(except monsoon). The Study area is within a radius of 10 Km from Subhadra OCP core zone.

1. **Ambient Air Quality:** Air quality should be monitored at appropriate stations around the project site including the core zone, 24 hourly samples should be collected for PM10, PM2.5, SOx, NOx, CO. Sampling protocol will be as per NAAQ standards and CPCB guidelines.
2. **Meteorology:** Meteorological data for the past decade to be collected from the nearest observatory of IMD. Meteorological data (wind velocity, wind direction, temperature, humidity & rainfall etc.) shall be generated continuously at one station throughout the monitoring period. An automated meteorological station will be set up during the study period and hourly meteorological data will be collected & record to be maintained.
3. **Water Quality:** Appropriate number of Surface water and ground water quality sampling stations have to be monitored on a monthly basis. Samples should be collected and analysed as per the IS:10500. All the parameters will be compared with relevant CPCB standards.
4. **Soil:** Soil characteristics including physical and chemical properties should be assessed through sampling and analysis. 05/06 locations shall be selected as per the MOEF&CC guidelines and samplings would be carried out once and analysed for all relevant parameters.
5. **Noise:** Noise levels should be monitored at appropriate locations in the study area on a 24 hour basis and equivalent noise levels should be submitted. The frequency of sampling is once in a season.
6. **Flora & Fauna:** The flora & fauna data should be collected and authenticated from a reputed institution. The flora & fauna in the study area should be characterised based on the literature survey and field investigation during the study period.
7. **Socio-economic Study:** Socioeconomic survey will be carried out based on the proportionate stratified and random sampling method. The primary data should be collected through questionnaire and the



secondary data from census records, statistical hand books, top sheets, health records and relevant official records available with government agencies.

8. **Hydro-geological Study:** Study of hydrogeology of the site and the study area. Study of drainage pattern and existence of natural and artificial water bodies in the study area, Study of existing ground water potential of the area including the study of depth to water table.
9. **Traffic Study:** To assess the existing traffic through the study area, traffic density need to be calculated at 5/6 locations as per IRC: 64-1990. Monitoring should be carried out on hourly basis for 24 hours continuously, once during the study period.
10. Consultant will provide all study reports separately i.e. Baseline study, Traffic study, Cumulative impact assessment study, Eco-system service & Biodiversity study.

B. Cumulative Impact Assessment Study

Consultant shall carry out a study on physical, biological, socio-economic aspects as well as mining methodology adopted for coal blocks in the study area and assess the potential impacts and risks (direct as well as indirect/ induced) due to proposed/ongoing mining activities and shall suggest appropriate mitigating measures for managing the same. This study will describe the Cumulative Impact Assessment Study based on cumulative impacts considering mitigation measures proposed/recommended additionally and shall justify opening of new coal mine vis-a-vis demand.

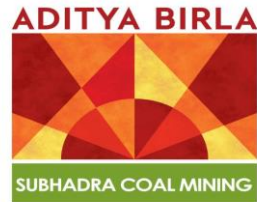
The scope includes

1. Scoping of impacts using the questionnaire checklist supported by GIS delineates some areas that are potentially vulnerable to cumulative impacts due to proposed/ ongoing projects.
2. Intensity and dispersion of particulate matter along the transportation routes were predicted through air quality modelling in all scenario.
3. Study included identification of pollution sources, mapping of the impact area, selection of the optimum transportation system and routes, cumulative air quality impact analysis using a dispersion model, and forecasting of future traffic congestion using a system dynamic model.
4. Description of details of proposed coal block/ongoing coal mine and its distance from project depicted through suitable map.
5. Suggest the Mitigation/Management plan as identified sources and impacts
6. Recommendations for mitigation measures for physical, biological, and socio-economic impacts as well as mining technology adoption.
7. Recommendation for carrying capacity of the area including operation of coal blocks adopting sustainable mining practices and number of coal blocks sustainable for area as per cumulative impacts on flora, fauna, air, water etc. after considering cumulative mitigation measures. Study shall also include justification for requirement of opening of new coal mine vis-à-vis demand.

C. Ecosystem Services & Bio-diversity Study

Consultant will submit the Ecosystem services study report and Biodiversity study report with recommendations and mitigation measures for study area comprising of ongoing and upcoming Coal blocks broadly covering following aspects.

Baseline status in terms of biological including mining management, allied activities as well as mining practices adopted for existing/proposed coal mines- Biological environment (flora & fauna with special reference to endemic/threatened species population reported from the study area along with details of existing forest cover in the study area), mine management & allied Activities (Operation, Dump management, technology adopted in operational mine, Transportation, Reclamation etc.) for existing/proposed mines.



The Scope include

1. Rapid baseline assessment for floral & faunal diversity "Enlisting of floral & faunal diversity from ground survey and secondary documents "Categorizing species as per IUCN Red list & Wildlife protection Act.
2. Ecosystem Service shall be developed for the project to highlight the ecosystem available within project area and in the periphery and the ecosystem services used by the project.
3. Mapping of ecosystem services in Project Study Area
4. The level of dependencies, impacts and management measures initiated for management of ecosystem services.
5. Identify direct dependency on the Biodiversity and Ecosystem Services (B&ES) with no alternative available
6. Identify direct dependency on B & ES with short-term alternative.
7. Identify Low direct dependency with many alternatives
8. Identify not dependent on B & ES for any project operation
9. Prepare Ecosystem Services matrixes for project.
10. Status of mining practices in existing/proposed coal blocks including reclamation method proposed.
11. Recommendations for mitigation measures for physical and biological impacts as well as mining technology adoption.

D. Environmental cost benefit analysis for the project

2. Responsibilities of SCML

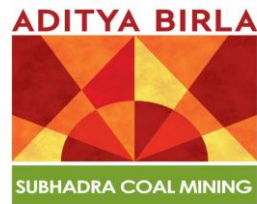
- 2.1 Provide necessary technical documents available with SCML/MCL for Preparation of Draft and Final EIA /EMP report as-and-when required during the process.
- 2.2 Provide approved Mining Plan
- 2.3 Provide ground water clearance(NOC) from Central Ground Water Authority
- 2.4 Provide Ghurudia Nala Diversion & Straightening of Singdajhor Study Report & its approval from the Dept. of Water Resources, Govt. of Odisha
- 2.5 Provide Drone Videography & Report of the Subhadra OCP.
- 2.6 Provide Stage-I Forest Clearance of the Subhadra OCP before filing final EIA report
- 2.7 Arrangements for Public Hearing.

3. Service Fee:

- 3.1 Service Fee for SoW mentioned under Clause 1 shall be Rs.30,00,000/- (INR Thirty Lacs only)
- 3.2 Service Fee is inclusive of Travel, Lodging, Boarding and All Incidental Expenses for carrying out above scope of work at Site.
- 3.3 GST shall be paid extra as applicable rates.

4. Payment Terms:

- 4.1 Payment of the Service Fee along with GST shall be paid on milestone basis as under:
 - 4.1.1 10% of the Service Fee shall be paid upon site mobilization
 - 4.1.2 20% of the Service Fee upon completion of Base line data study and submission of analysis report
 - 4.1.3 10% of the Service Fee Submission of draft EIA/EMP report
 - 4.1.4 10% of the Service Fee upon forwarding of the Public Hearing proceedings from Memb. Secy., OSPCB to MoEF&CC, New Delhi
 - 4.1.5 20% of the Service Fee upon submission of final EIA report to MOEF&CC
 - 4.1.6 20% of the Service Fee upon receipt of recommendation of Environment Clearance
 - 4.1.7 10% of the Service Fee upon grant of Environment clearance.
- 4.2 Payment shall be made within 10(Ten) working days post submission of valid invoice



- 4.3 All the payment shall be made subject to tax deducted at source (as applicable)
 4.4 Mode of payment shall be RTGS/NEFT/Net-banking.

5. Completion Period:

- 5.1 Timely completion of respective milestones / activities covered under Scope of work is essence of this work order.
 5.2 Service Provider shall be responsible to complete the scope of work on or before 10th June 2023. Detailed Activity wise time schedule is annexed as Annexure I.

6. Liquidated Damage

- 6.1 SCML reserves right to levy Liquidated Damage @0.5% (half percent) of Service fee (excluding GST) for every week of delay, or part thereof, from schedule completion period as per Clause-5 subject to a maximum of 10% (ten percent) of Service fee (excluding GST).

7. Contact Details

Service Provider Details:

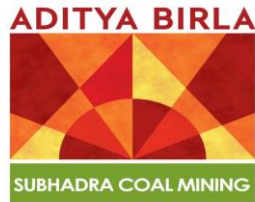
Contact Person	Mr. Anshul Yadav
Contact No.	+ 91-9953147268
Email ID	anshul@vardan.co.in
PAN:-	AAKFV1538L
GSTIN:-	06AAKFV1538L1ZT

SCML Details:

Billing Address	Subhadra Coal Mining Limited , HIG -51, Nandan Kanan Road, Jayadev Vihar, Opp. Pal Heights, Bhubaneswar, Khordha, Odisha, 751013
GSTIN No	21ABICS4555J1Z7
PAN Number	ABICS4555J
Contact Person	Mr. Bimal Baral
Project Head	Subhadra Coal Mining
Email ID	bimal.baral@adityabirla.com
Contact No.	+91 7440024704

8. Service Provider's Responsibilities:

- 8.1 All expenses of Service Provider's Team for travel, accommodation, boarding, and other necessities required for the completion of the assignment shall be borne by the Service Provider himself , unless otherwise mentioned in this order.
 8.2 All documentation charges, stationary charges, computer charges incurred for the activities related to the assignment shall be borne by the Service Provider.
 8.3 Service Provider shall deploy adequate resources to perform the activities in this Work Order satisfactorily in accordance with the various provisions/rules under the applicable laws
 8.4 Service Provider shall discharge SCML from all obligations in relation to all personnel engaged by the Service Provider in connection with the execution of the Work Order awarded to him in accordance with all the applicable laws in force from time to time. In no case, SCML shall be liable for breach of any provisions of all the applicable laws with respect to non-payment of wages or compensation of any description due or payable to employees of the Service Provider or for any of Service Provider's failures in the discharge of his obligations to its employees.



- 8.5 Service Provider shall arrange for the entire SHE (Safety, Health & Environment) for the execution of the Work Order. Besides that the Service Provider shall have to follow all the instructions and comprehensive SOP issued in respect of Safety Measures by SCML's Representative.
- 8.6 Service Provider shall take requisite precautions and used his best endeavour to prevent any riotous or unlawful behaviour by or amongst his workmen and other employed on the works and for the preservation of peace and protection of the inhabitants and Security of property in and around the plant.
- 8.7 Service Provider shall at its own cost observe, perform and comply with the provisions of all statutory enactments, rules, regulations and bye laws framed there under as are applicable, during the execution of work and shall maintain such registers, documents, records etc. as are required under various statutes, for production of the same before the Employer and or other statutory authorities prescribed in this behalf, as and when required. Non-compliance of the provisions/stipulations of these Acts/Rules shall render the Service Provider liable to payment of necessary compensation/penalty, as deemed fit by SCML. It shall be sole responsibility of the Service Provider to ensure all kinds of statutory payments to his workers and submission of returns etc., to various statutory authorities in time. In case of Service Provider's default in making statutory payment in time, SCML reserves the right to deduct necessary amount from the Service Provider's bills towards such payment.
- 8.8 Service Provider's employees / Agents are solely the employees / Agents of the Service Provider and must not be considered to be the employees / Agents of SCML.
9. All other terms shall be as per General Terms and Conditions annexed to this order.
- 10. Order Acceptance:**
Please accept the Work Order within 7 (seven) calendar days from the date of issuance this Work Order by sending a copy of this Work Order duly stamped and signed by Service Provider (i.e. scan copy by email/ hard copy).

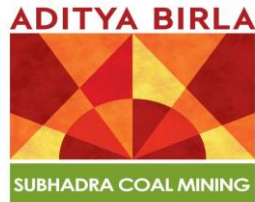
For SUBHADRA COAL MINING LIMITED

Accepted

FOR VARDAN ENVIRONET

Parvesh Garg
AUTHORISED SIGNATORY

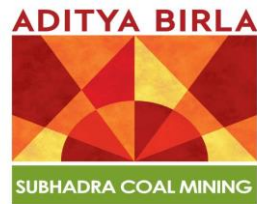
ANSHUL YADAV
(Authorized Signatory)



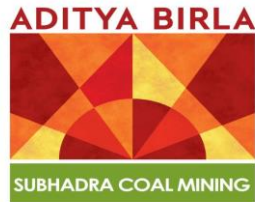
GENERAL TERMS & CONDITIONS

General Terms and Conditions shall apply to this Work Order and in the event of any conflict with any specific terms and conditions of Work Order, the later shall prevail.

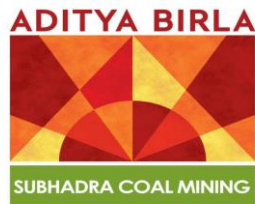
1. "In case the Suppliers are registered under #Micro, Small & Medium Enterprises Development Act#, they have to confirm the same along with copy of registration" while sending the invoice.
2. Prices shall remain firm and binding throughout the subsistence of the Work Order and shall not be subject to any variation and/ or escalation for whatsoever reasons, except mentioned otherwise in this Work Order. Statutory variation in Taxes & Duties, change in interpretation/application of any existing Taxes & Duties and/or imposition of any new tax/duty/levy in India after the Effective Date of Work Order shall be to "The Company" account.
3. **General Responsibilities of Service Provider:**
 - 3.1. Service Provider shall at its own cost and risk obtain all license approval as may be required for the execution of the activities under the Work order and submit all necessary documents to "The Company"
 - 3.2. Service Provider shall ensure, at their own cost and expenses, proper insurance policy for its workmen at all time during the Work Order period for the purpose of Workmen Compensation Act 1923 and submit a copy of the same to the company on demand.
 - 3.3. All personnel engaged by the Service Provider in connection with the execution of the Work order shall be the employee of the Service Provider and no claim shall lie against "The Company" in respect of non-payment of wages or compensation of any description due to employees or for any of the Service Provider's failures in the discharge of obligations to its employees. The Service Provider shall discharge all obligations in relation to all personnel engaged by the Service Provider in connection with the execution of the Work order awarded in accordance with all the applicable laws in force from time to time.
 - 3.4. Service Provider shall issue Employment Card / Letter, Identity Card, Salary Slip, P. F. Numbers etc. to all the personnel deployed as per this order. Service Provider shall submit a copy of P.F. & Gratuity Registration Certificate with list of employees before authorized person of "The Company"
 - 3.5. All personnel engaged by the Service Provider in connection with the execution of the Work order shall have to follow all the instructions and Standard Operating Procedures (SOP) issued in respect of Safety Measures by "The Company"
 - 3.6. Service Provider shall at his own cost observe, perform and comply with the provisions of all statutory enactments, rules, regulations and bye laws framed there under as are applicable, during the execution of work and shall maintain such registers, documents, records etc., as are required under various statutes, for production of the same before the "The Company" and/or other statutory authorities prescribed in this behalf, as and when required. Non-Compliance of the provisions/stipulations of these Acts/Rules will render the Service Provider liable to payment of necessary compensation/penalty, as deemed fit by "The Company". It will be the sole responsibility of the Service Provider to ensure all kinds of statutory payments to his manpower and submission of returns etc., to various statutory authorities in time. In case of Service Provider's default in making statutory payment in time, "The Company" reserves the right to deduct necessary amount, statutory dues, arrear of wages, damages etc. from the Service Provider's bill towards such payments.
 - 3.7. Service Provider and his authorized representatives shall carry out all such duties and in such manner as specified under this Work Order or under any oral/written instruction issued by authorized person of "The Company" from time to time.
 - 3.8. It shall be the duty of Service Provider to see that his Representative(s) are properly performing their obligation under this Work Order.
 - 3.9. Service Provider's employees / Agents are solely the employees / Agents of the Service Provider and must not be considered to be the employees / Agents of "The Company".
 - 3.10. Service Provider shall comply with all local labour and laws regarding employment of staff / employees.



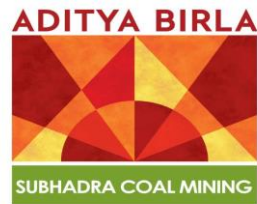
- 3.11. Service Provider shall comply with any changes to the statutory legislations including applicable labour laws regarding the minimum wages, allowances, statutory contributions or other amount payable by Service Provider to its employees.
- 3.12. Notwithstanding anything contained herein above, the Service Provider shall provide on monthly basis all the relevant documents / receipts/ challans /proofs to "The Company" on account of deposit of PF, ESI and all statutory payments that are required to be deposited by the Service Provider in connection with each and every person providing service to "The Company" through the Service Provider.
- 3.13. If it is found that any amount on account of statutory dues (PF, ESI, Gratuity, Bonus etc.) is due and payable by the Service Provider, such amount even if it is paid by "The Company", "The Company" shall be indemnified by the Service Provider and shall be adjusted from the amount due and payable by "The Company" to the Service Provider or from the Security Deposit of the Service Provider lying with "The Company".
- 3.14. Service Provider shall be responsible for payment or submission of all statutory payments as per Work Order in respect of the personnel deployed by the Service Provider at the Premises of "The Company", including but not limited to wages, overtime dues, Bonus, Provident Fund, Employees' State Insurance, Workman's compensation, Gratuity and terminal benefits and for compliance of all statutory laws, bye laws, rules and regulations relating to provision of the Services and deployment of requisite personnel on the Premises.
- 3.15. Service Provider has to produce the copy of the License of the Service Provider under Labour (Regulation & Abolition) Act, 1970 and other relevant Acts as applicable, towards deployment of his personnel at the site, at the time of execution of the Work Order. Non- submission of the same by the Service Provider shall be liable for breach of the terms of the Work Order, for which all payments shall be withheld by "The Company", till the same is regularized.
4. **Safety Measures:**
 - i. Service Provider shall provide, at their own cost and expenses, necessary safety appliance, personal protective equipment's to all workmen in order to prevent accident during carrying out the work.
 - ii. "The Company" shall not allow any body to do any act which may cause breach of statutory safety provision.
 - iii. In case, if Service Provider fail to provide safety devices and medical facility for the workmen at site, the "The Company" may make suitable arrangement and recover the cost of the same from Service Provider's bill.
 - iv. Service Provider shall ensure that all its employees duly maintain and strictly follow all COVID 19 related protocols as instructed by "The Company" and the Government.
5. Service Provider shall deploy only trained and adequately skilled work force (No child Labour) for the execution of this contract.
6. Any person (engaged by Service Provider) who is found undesirable / incompetent, shall be removed by Service Provider on his own or as per the instruction of "The Company", from the site without any financial implications of the same on the company.
7. Service Provider shall not engage any ex-employee of the company.
8. "The company" shall have the right at its sole discretion to discontinue the work fully/partly for any reason whatsoever and shall have no liabilities for any damages or compensation on account of loss/profit to the Service Provider.
9. Service Provider shall at all times be responsible for any damages or trespasses committed by its agent and employees in carrying out the work and shall further be responsible for the acts and omission of his employees, whether at work site or in the company's premises.
10. Service Provider shall do the house keeping of the work place wherever necessary at no extra cost on daily basis and handover the site in a manner as instructed by the authorized person of "The Company", at the end of the contract.



11. Service Provider shall keep the separate record of all challan duly signed by “the company's” Security Department in respect of all items brought by it inside and get the same verified by the stores and concerned HOD, jointly, wherever required. At the time of full and final settlement, Service Provider would be relied upon Non-maintenance of the record shall be risk of the Service Provider.
12. Material provided to Service Provider for carrying out the work will be under its custody. Balance material after completion of job shall have to be returned by Service Provider to “The Company” without any extra cost.
13. Service Provider shall make necessary arrangement to safeguard company's property, material, tools and tackles/equipment to be consumed during the execution of the contract.
14. Service Provider shall be fully responsible for all the damages to “the company” caused by its workmen and “The Company” shall be entitled to recover from Service Provider's account.
15. **Compliance with Laws:**
Service Provider shall at his own cost, observe, perform and comply in its execution of this Agreement with all applicable labor and any other laws applicable to Scope of Work undertaken by Service Provider, including but not limited to the following:
 - i. Contract Labour (Abolition & Regulations) Act 1971.
 - ii. Employee Compensation Act, 1923 and Rules made thereunder.
 - iii. The Payment of Wages Act, 1936.
 - iv. The Employees Provident Fund Act, 1952 & Employees Provident Fund Scheme 1952.
 - v. Employees State Insurance Act 1948
 - vi. The Payment of Bonus Act 1965.
 - vii. The Payment of Gratuity Act as and when applicable.
 - viii. The Mines Act 1952 as applicable
 - ix. The Mineral Concession Rules 1960 as applicable.
 - x. The Mines Vocation Training Rules 1966.
 - xi. Industrial Disputes Act in relation to matters of settlement of various disputes of retrenchment / lay off, Service conditions of Employees and Maintenance of perfect industrial peace etc.
 - xii. Air and Water Pollution Acts.
 - xiii. Indian Electricity Act and Rules made thereunder (if applicable).
 - xiv. Information Technology Act, 2000.
 - xv. Industrial Safety Rules.
 - xvi. Labour and any other legislation that may be applicable or may become applicable during the validity period of Work Order
16. **Confidential Information:**
 - 16.1. All Confidential Information acquired by Service Provider from the “The Company” under this Agreement shall be and remain the exclusive property of the “The Company”. The Confidential Information shall be solely used for the Approved Purpose intended by the Parties, unless a different purpose is hereafter authorized in writing by the “The Company”. The Confidential Information has commercial value and undertakes that it shall not use any Confidential Information in any other manner that is contrary to the terms of this Agreement.
 - 16.2. Service Provider shall not disseminate, divulge or in any way disclose, and shall use its best efforts not to allow disclosure of any Confidential Information of the “The Company” to any third party except to its employees and directors (“Permitted Recipients”) on a need-to-know basis for the Approved Purpose and who agree, in advance, to be bound by this Agreement. Recipient is responsible for the compliance by its Permitted Recipients of the terms and conditions of this Agreement or for any breach or threatened breach by any of its Permitted Recipients. The Confidential Information shall not otherwise be made available or disclosed or any access granted to any other person without the prior written consent of the “The Company”.



- 16.3. "The Company" reserves the right to exclude Service Provider or any third party if found to be in breach of clause 16.1 or 16.2 and to take any action in pursuit of remedy for such breach as may be deemed appropriate.
17. Intellectual Property - All materials provided by "The Company" for the purposes of this project/contract are copyright to and will remain the copyright and intellectual property of "The Company" and all rights therein are reserve.
18. Service Provider is required to advise "The Company" of the identity and role of any and all third parties necessarily having access to information provided in confidence by "The Company", prior to providing any access to such third parties.
19. **Right to Audit :** "The Company" reserves the right to get the documents/products/services (related to the contract/order) audited by "The Company" and / or third parties and at such frequency or phase of implementation or in the post - implementation phase as it may deem fit. Service Provider is required to assist in such audit and make available your resources and / or documentation for such audit. Service Provider would be informed of such audit in writing by "The Company" before the commencement of the audit.
20. **Documents:**
All activities performed pursuant to this Work Order shall be properly documented and "The Company" shall have all right to inspect any information and or document or retain copy or use the documents or information provided by the Service Provider in connection with the Work Order.
21. **Indemnification:**
- i. Service Provider shall indemnify "The Company" against all third-party claims of infringement of Patent, Trademark, or industrial design rights arising from use of the Goods or any part thereof in the country of "The Company".
 - ii. Service Provider shall ensure compliance of all statutory obligations and make payments of all the levies. "The Company" shall not be responsible for any non-compliance and penalties and consequences arising out of the Service Provider's non-compliance/non-payment.
 - iii. Service Provider shall indemnify and hold the "The Company" harmless from any loss, liability, damage, cost and expense which may arise out of or result from (i) claims by third persons against "The Company"; or the acts or (ii) omissions of the Service Provider, its agents or employees in connection with this Work order; or (iii) any defects in any material or Service supplied by the Service Provider ; or
 - iv. any breach or default in the performance of the obligations of Service Provider hereunder including any breach of warranty. Service Provider 's indemnification obligations hereunder shall apply to the extent that any claim is caused by the negligence or misconduct of the Service Provider 's personnel or agent during the subsistence of this Work order.
 - v. Service Provider shall indemnify, save and hold harmless the "The Company" and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs and expenses of whatsoever nature, including fees and expenses, in respect of death or injury of any person or loss of or damage to any property, arising in connection with the execution of the supplies under this Work order and by reason of delay or negligence or failure on Service Provider's part or by any of Service Provider's sub-vendors or its employees, officers or agents. Service Provider shall also be responsible for taking all the required insurances connected with the Scope of the Supplies.
22. **Assignment & Sub-letting:**
No part of this Work Order nor any share or interest therein shall in any manner or degree be transferred, assigned or sublet by the Service Provider directly or indirectly to any person, firm or corporation whatsoever without the consent of "The Company" in writing.
23. **GST Compliances:**

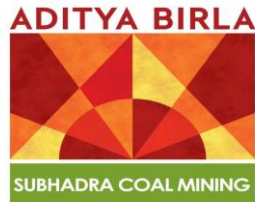


- i. Service Provider shall raise the Tax Invoice/Bill of Supply, as applicable considering the nature of supply, along with prescribed documents for movements of goods in the prescribed forms and manner as per applicable GST Laws. Service Provider shall be responsible for classification of supply to discharge appropriate GST on the supply and would confirm that the GST amount charged in tax invoice is declared in its returns and payment of taxes is also made.
- ii. Where GST is required to be discharged under reverse charge mechanism by the recipient, then same shall be mentioned on Tax Invoice by the Service Provider. In case of any advance payment, Service Provider shall raise the necessary document and ensure the compliances as required under GST laws.
- iii. Where ever applicable, "The Company" shall deduct Tax at Source under the GST Laws at the rates prescribed from time to time.
- iv. Service Provider agrees to comply with all applicable GST laws, including GST acts, rules, regulations, procedures, circulars & instructions thereunder applicable in India from time to time and to ensure that such compliance is done within the time prescribed under such laws. Service Provider should ensure accurate transaction details, as required by GST laws, are timely uploaded in GSTN.
- v. In case there is any mismatch between the details so uploaded in GSTN by Service Provider and details available with "The Company", then payments to Service Provider to the extent of GST relating to the invoices/s under mismatch will be retained from due payments till such time the accurate details are finally reflected in the GSTN in terms of GST laws and that the credit of GST so taken by "The Company" is not required to be reversed at a later date along with applicable interest.
- vi. Any loss of input tax credit to "The Company" for the fault of Service Provider shall be recovered by "The Company" by way of adjustment in the consideration payable or otherwise.
- vii. "The Company" has the right to take action to recover monetary/financial/economic loss including interest and/or penalty suffered by it due to any non-compliance of applicable GST laws e.g. incorrect declaration, charging of wrong GST rate, failure/delay in Deposit, failure/delay in upload of transaction, confiscation of goods by Govt. due to improper documents during movement etc. by the Service Provider.
- viii. Supplementary invoices/debit note/credit note for price revisions or otherwise to enable "The Company" to claim tax benefit on the same shall be issued by the Service Provider for a particular year before September of the succeeding financial year.
- ix. Any reduction in the agreed contract/purchase price resulting from introduction of any new law, towards change in applicable tax rate, including eligible credits, in respect of goods and services to be supplied under the Work Order/Contract, then the Service Providers agree to pass on the benefit to "The Company" by way of commensurate reduction to the contract/purchase price to reflect the financial impact of such "Change in law".
- x. Work Order shall be void, if at any point of time you are found be to a black listed dealer as per GSTN rating system and further no payment shall be entertained.

24. Termination and Suspension:

A) Termination

- (i) "The Company" may at any time on breach of this Work Order by the Service Provider, give the Service Provider a written notice of such breach. If the Service Provider does not take measures which are considered appropriate by the "The Company", within a period of 15 (Fifteen) days after issuance of such notice to remedy that breach, then the "The Company" may terminate this Work Order at any time thereafter stating therein the date of termination. In that case, "The Company" shall be entitled to recover payment if any made against this Work Order and exercising the option to claim damages for non-delivery of services and/or non – performance of the contractual terms .
- (ii) "The Company" reserves the right to cancel the whole or part of the ordered quantity at its discretion without assigning any reason whatsoever at any time by giving a notice of not less than 15(Fifteen) days. Service Provider shall stop the performance of the Work Order from the date of termination and



hand over all the drawings, documents and equipment including all the rights of work to the "The Company". In such an event, "The Company" shall pay the mutually agreed cost incurred by the Service Provider till the date of termination as final Payment against submission of necessary documents. No consequential damages shall be payable by the "The Company" to the Service Provider in the event of such termination.

B) Suspension

- (i) "The Company" may suspend the work in whole or in part at any time by giving Service Provider notice in writing to such effect stating the nature, the date and the anticipated duration of such suspension. On receiving the notice of suspension, the Service Provider shall stop all such work, which the "The Company" has directed to be suspended with immediate effect. The Service Provider shall continue to perform other work in terms of the Work Order, which the "The Company" has not suspended. The Service Provider shall resume the suspended work as expeditiously as possible after receipt of such withdrawal of suspension notice.
- (ii) During suspension, the Service Provider shall not be entitled for any claim whatsoever arising out of any loss or damage or idle labor caused by such suspension.

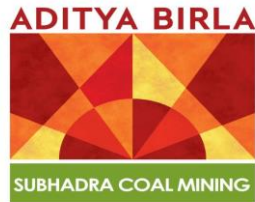
25. Representations and Warranties: Service Provider hereby represents, warrants and covenants that:

- a) It has necessary power and authority to enter into this Work Order and to perform the obligations contemplated hereunder and to abide by the duties and obligations to be complied hereunder. and the Work Order is executed by a duly authorized representative.
- b) It has the necessary and complete infrastructure to duly perform the obligations contemplated under this Work Order and abide by the duties and obligations hereunder to the reasonable satisfaction of "the Company"
- c) It has obtained and remained as valid necessary registrations including registration, permissions all authorizations and/or licenses required in law for the purpose of providing the supplies contemplated hereunder and that it complies with the requirements of all relevant legislation during the subsistence of this Work Order. A copy of the relevant documents in support thereof should be produced as and when demanded by the "the Company".
- d) It shall not perform its services in violation of any conditions and warranties prescribed by manufacturer under this Work Order.
- e) It will perform the obligations contemplated in this Work Order in a prudent and professional manner with reasonable care and competence. It shall duly render the services and perform the obligations under this Work Order.
- f) It will maintain all registers and records, as may be required by the various legislations applicable to the services to be provided pursuant to this Work Order.
- g) It has the sufficient technical skill, expertise, infrastructure, systems and qualified personnel and resources to undertake and execute the supplies under this Work Order; and
- h) It will provide the services in good faith with due care, skill and diligence, in a professional manner in accordance with accepted standard practice and with the terms of services agreed on between the parties as set out in this Work Order;

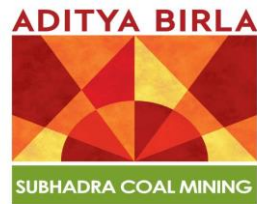
26. Risk Purchase

In case, Services are not rendered within the stipulated schedule or are not according to the specification required by the "The Company" or not found satisfactory owing to any reason, "The Company" notwithstanding Liquidated damage clause, reserve the right to invoke this clause and

- a) is entitled to procure the same from the MARKET on its own and adjust the costs and expenses of such procurement from the deposit made by the Service Provider and/or the "The Company" is entitled to recover the balance from the Service Provider.
- b) Engage any other agency, parallel to the Service Provider, to complete part of the balance work at the risk and cost of the Service Provider and recover the cost/expenditure that would be incurred extra by the "The Company" from the Service Provider; or



- c) Cancel the Work order and get the balance work done from any other agency at the risk and cost of Service Provider and recover the cost/expenditure that would be incurred extra by the "The Company" from Service Provider.
- d) All above stated in (a), (b) and (c) options are available to the "The Company" without prejudice to the "The Company's" right to take action or/and proceed against the Service Provider. in accordance with General or/and specific laws applicable.
- 27. Amendment-** No amendments or modifications of this Work order shall be valid or binding upon the parties hereto unless in writing.
- 28. Independent Service provider:**
That this Work Order is on "Principal to Principal basis" and it shall not create any employer/ employee relationship nor shall this Work Order be deemed to create any partnership, joint venture between "The Company" and "Service Provider".
Further, that all employees/personnel, executives engaged by "Service Provider" shall be in sole employment of "Service Provider" and "Service Provider" shall be solely responsible for payment of their salaries/ wages statutory payments etc.
Under no circumstances shall "The Company" shall be liable for any payment or claim or compensation of any nature to the employees and personnel of "Service Provider"
- 29. Force Majeure:**
- 29.1.** If either party is prevented from the performance of its obligations in whole or in part for reasons of Force Majeure, viz. acts of God, acts of Government, acts of Public enemy, war, insurrection, embargo, blockade, explosion, earthquake, floods, epidemics/pandemic, provided however, such events are beyond the control of affected party.
- 29.2.** Notice in writing, of happening of any such eventuality is given by the affected party to the other party within 7 days from the date of occurrence of Force Majeure. Both parties shall mutually decide the revised time frame for execution of the contract. Neither of the Parties to the Work order shall claim compensation for the loss thus incurred.
- 29.3.** If Force Majeure event continue beyond the period of 6 months the parties shall hold consultation to chalk out the further course of action, either party reserving the right to terminate the Work order.
- 30. Dispute Resolution**
- a) The Parties hereto shall endeavor to settle all disputes and differences relating to and/or arising out of the Work Order amicably.
- b) In the event, the Parties fail to resolve any dispute amicably, the same shall be referred to Arbitration provided the claim amount is more than 2 crores. The said proceeding shall be governed by the Arbitration and Conciliation Act 1996 or any amendment thereof.
- c) The place of arbitration shall be Kolkata, West Bengal, India and the language of the arbitration shall be English.
- d) The Parties hereto agree that the Service Provider shall be obliged to carry out its obligations under the Work Order even in the event of a dispute is referred to Arbitration. It is further clarified that the "The Company" shall be entitled to retain any sum or portion of basic Work Order Price, which has become due and payable, for any unfinished supplies/works or any subject matter under arbitration
- 31.** The Parties hereto agree that the Service Provider shall be obliged to carry out its obligations under the Work order even in the event of a dispute. It is further clarified that the "The Company" shall be entitled to retain any sum or portion of Basic Work Order Price, which has become due and payable, for any unfinished supplies/works or any subject matter under dispute
- 32. Governing Law and Jurisdiction:** This Work Order shall be construed in accordance with and governed by the laws of India and in the event of any litigation the Courts at Kolkata shall have exclusive jurisdiction to adjudicate any dispute arising between the parties of this Work Order.
- 33. General Lien**



Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, "The Company" shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any, deposited by the contractor and for the purpose aforesaid, "The Company" shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, "The Company" shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract pending finalization or adjudication of any such claim

34. Severability:

If any provision of this Work order is found to be unlawful and inconsistent with the applicable laws, then such provision shall be deemed to be severed from this Work order and replaced by the applicable legal provision and every other provision of this Work order shall remain in full force and effect.

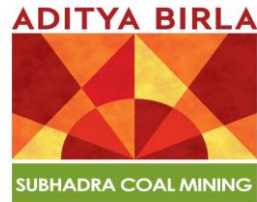
35. Entire Agreement:

This instrument contains the entire agreement between the Parties and is merged herein with all prior and collateral representations, promises, and conditions in connection with the subject matter hereof. Any representation, promise, or condition not incorporated herein shall not be binding upon either party and this Work order supersedes and is in lieu of all prior or contemporaneous agreements or arrangements between the Parties with respect to the subject matter hereo

36. Waiver and Failure to Assert Right - The Parties may at any time waive any of the provisions of this Work Order, but any such waivers shall be reduced to writing and duly executed and delivered by authorized representatives of the Parties hereto. The failure of either Party to enforce at any time any of the provisions of this Work Order shall not constitute or be construed to be a waiver of such provisions or of the right of such Party thereafter to enforce any such provisions.

37. Notice- Any contractual notice, report, certificate or other communication to be given to Parties under this Work Order shall be in writing and shall be sent by registered post or courier with acknowledgement or mailed by first-class mail to the parties at their respective addresses mentioned herein or such other address as Parties shall nominate in writing for that purpose and shall be effective upon receipt.

38. Language: All documents, instructions, operation and maintenance manuals, communications shall be in English language.



Annexure I – Detailed Activity wise Completion Schedule

SI No.	Activity	Target Completion date (On or Before)
1.	Preparation of the draft EIA EMP report by the EC Consultant and Application to Memb. Secy, OSPCB for conducting Public Hearing along with submission of Draft EIA EMP (10 Copies)	20-01-2023
2.	Baseline Data Collection along with additional study mentioned in the above scope	31-12-2022
3.	Follow-up with the Member Secretary, OSPCB & District Collector, Superintendent of Police, Sub-Collector, Tahsildar, Block Development Officer and concerned Inspector In Charge, Angul for finalisation of Public Hearing (PH) Date & Venue and facilitate Notification of PH by Member Secretary, Odisha State Pollution Control Board (OSPCB)	03-02-2023
4.	Conducting Public Hearing in schedule date & venue and onward intimation to the Memb. Secy, OSPCB, Bhubaneswar	06-03-2023
5.	Forwarding of PH Proceedings by the Regional Officer, OSPCB (Angul) to Member Secretary, OSPCB and Forwarding of PH Proceedings by the Member Secretary, OSPCB to Memb. Secy., MoEF&CC (with copy to Project Proponent)	15-03-2023
6.	Preparation of Final EIA/EMP Report incorporating the issues, demands & time bound action plan of PH for preparation of Final EIA/EMP report	20-03-2023
7.	Submission of Form-2 and Final EIA/EMP report to MoEF&CC through PARIVESH portal	25-03-2023
8.	Scrutiny of EC Application and Final EIA/EMP report, and compliance of EDS/ADS raised (if any) and Confirmation of the Acceptance of the EC Proposal by MoEF to Project Proponent through email	10-04-2023
9.	Submission of Hard copy of online generated Form-2 and Final EIA/EMP report to MoEF&CC, New Delhi	15-04-2023
10.	Preparation of Power point Presentation along with other data & information	20-04-2023
11.	Presentation before Expert Appraisal Committee (EAC), MoEF&CC	15-05-2023
12.	Compliance of EDS raised, if any and Re-Presentation to MoEF&CC, if required	31-05-2023
13.	EAC Recommendation for the Grant of Environmental Clearance (EC)	07-06-2023
14.	Grant of EC	10-06-2023



National Accreditation Board for Education and Training



Certificate of Accreditation

Vardan Environet

Plot No. 82-A, Sector 5, IMT Manesar, Gurgaon-122051, Haryana

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ underground mining	1	1 (a) (i)	A
2	Offshore & Onshore Oil and gas exploration, development & production	2	1 (b)	A
3	River Valley projects	3	1 (c)	A
4	Thermal power plants	4	1 (d)	B
5	Coal washeries	6	2 (a)	A
6	Mineral beneficiation	7	2 (b)	A
7	Metallurgical industries (ferrous & nonferrous)- both primary & secondary	8	3 (a)	A
8	Cement Plants	9	3(b)	A
9	Coke oven plants	11	4 (b)	A
10	Synthetic organic chemicals industry	21	5 (f)	A
11	Distilleries	22	5 (g)	A
12	Sugar Industry	25	5 (j)	B
13	Oil & gas transportation, passing through national parks/ sanctuaries/coral reefs /ecologically sensitive Areas including LNG terminal	27	6 (a)	A
14	Isolated storage & handling of hazardous chemicals	28	-	B
15	Airports	29	7 (a)	A
16	Bio-medical waste treatment facilities	32A	7 (d a)	B
17	Highways	34	7 (f)	A
18	Common effluent treatment plants (CETPs)	36	7 (h)	B
19	Common municipal solid waste management facility (CMSWMF)	37	7 (i)	B
20	Building and construction projects	38	8 (a)	B
21	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Mar. 16, 2022 posted on QCI-NABET website

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/22/2311 dated Apr.13, 2022. The accreditation needs to be renewed before the expiry date by Vardan Environet, Gurgaon following due process of assessment.



Sr. Director, NABET
Dated: Apr. 13, 2022

Certificate No.
NABET/EIA/2023/SA 0158

Valid up to
May. 05, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.



National Accreditation Board for Education and Training



Certificate of Accreditation

Vardan Environet LLP (formerly Vardan Environet), Gurugram

Plot No. 82-A, Sector 5, IMT Manesar, Gurugram, Haryana-122051

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ underground mining	1	1 (a) (i)	A
2	Offshore & Onshore Oil and gas exploration, development & production	2	1 (b)	B
3	River Valley projects	3	1 (c)	A
4	Thermal power plants	4	1 (d)	B
5	Coal washeries	6	2 (a)	A
6	Mineral beneficiation	7	2 (b)	A
7	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	A
8	Cement Plants	9	3 (b)	A
9	Coke oven plants	11	4 (b)	A
10	Chemical fertilizers	16	5 (a)	A
11	Petro-chemical complexes	18	5 (c)	A
12	Synthetic organic chemicals industry	21	5 (f)	A
13	Distilleries	22	5 (g)	A
14	Sugar Industry	25	5 (j)	B
15	Oil & gas transportation pipeline, passing through national parks/sanctuaries/coral reefs /ecologically sensitive Areas including LNG terminal	27	6 (a)	A
16	Isolated storage & handling of hazardous chemicals	28	-	B
17	Airports	29	7 (a)	A
18	Industrial estates/ parks/ complexes/ Areas, export processing zones (EPZs), Special economic zones (SEZs), Biotech parks, Leather complexes	31	7 (c)	A
19	Highways	34	7 (f)	A
20	Building and construction projects	38	8 (a)	B
21	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated April 21, 2023 and Supplementary Assessment minutes dated November 17, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2751 dated May 01, 2023. The accreditation needs to be renewed before the expiry date by Vardan Environet LLP (formerly Vardan Environet), Gurugram following due process of assessment.

Sr. Director, NABET
Dated: July 05, 2024

Certificate No.
NABET/EIA/2326/RA 0284_Rev.01

Valid up to
May 04, 2026



CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

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Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) & CWLW, Odisha
Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Report no. - CEMC/MMRDL/060323/A1

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINDAL STEEL & POWER LTD., ANGUL, ODISHA

Sampling by

: CEMC'S Representative

Sample Description

: Air

Sampling duration

: 01.12.2022 to 28.02.2023

Sl. No.	Location → Date of sampling↓	Core Zone (R&R Colony)					Near Sana Mahitala Village					Hariatala Village				
		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³
1	1 - 02-12-2022	69.5	38.4	15.4	19.0	-	56.3	31.3	10.1	13.1	-	56.4	32.5	6.0	12.3	-
2	4 - 05-12-2022	66.8	37.0	16.3	20.5	-	63.5	35.6	10.3	11.1	-	58.0	33.0	7.3	11.1	-
3	9 - 10-12-2022	77.6	43.1	13.6	12.7	-	60.9	32.5	8.8	10.7	-	50.1	27.9	BDL	10.7	-
4	12 - 13-12-2022	71.9	43.4	14.8	18.5	-	65.8	37.1	10.8	11.9	-	59.4	31.7	6.8	10.7	-
5	16 - 17-12-2022	77.2	44.6	14.3	15.8	-	64.7	35.9	7.5	12.6	-	57.7	32.2	6.5	11.9	-
6	19 - 20-12-2022	76.9	43.5	13.3	22.5	-	65.9	38.4	7.3	9.9	-	59.4	35.4	BDL	10.7	-
7	24 - 25-12-2022	78.5	44.6	13.8	18.5	-	68.2	38.4	10.3	10.7	-	53.7	30.4	7.3	10.7	-
8	27 - 28-12-2022	67.7	39.2	13.3	21.8	-	58.7	32.0	7.3	15.0	-	48.3	28.0	BDL	9.5	-
9	1 - 02-01-2023	65.3	35.5	13.7	20.3	-	67.7	38.6	9.5	13.5	-	56.7	32.9	BDL	9.7	-
10	4 - 05-01-2023	69.8	39.6	13.5	22.4	-	65.4	37.4	7.3	14.4	-	56.5	33.3	BDL	12.3	-
11	9 - 10-01-2023	66.0	38.0	12.0	15.2	BDL	57.9	33.0	11.3	14.8	BDL	58.4	32.5	7.1	12.3	BDL
12	12 - 13-01-2023	72.7	40.9	15.9	17.8	BDL	59.2	35.2	7.1	10.2	BDL	54.7	30.8	8.1	11.4	BDL
13	16 - 17-01-2023	77.2	43.4	14.2	18.2	-	55.9	31.7	8.1	11.0	-	51.2	28.3	BDL	9.3	-
14	19 - 20-01-2023	72.6	42.8	14.7	16.5	-	67.6	38.2	7.8	13.1	-	52.4	30.1	BDL	11.9	-
15	24 - 25-01-2023	74.7	40.8	12.7	17.7	-	59.5	35.7	8.1	12.7	-	49.1	26.7	BDL	9.7	-
16	27 - 28-01-2023	78.3	46.4	13.0	16.1	-	56.8	30.5	9.8	11.8	-	48.0	28.0	BDL	11.8	-
17	1 - 02-02-2023	66.0	36.1	14.5	21.5	-	59.7	34.3	7.1	10.6	-	57.9	34.3	6.1	9.7	-
18	4 - 05-02-2023	73.4	40.4	14.0	19.5	-	63.1	38.3	10.6	12.2	-	54.0	32.5	BDL	11.0	-
19	8 - 09-02-2023	78.2	42.9	14.0	22.0	-	63.8	37.9	11.3	13.9	-	54.0	32.3	BDL	11.0	-
20	11 - 12-02-2023	75.7	45.2	16.4	18.6	-	62.5	34.6	10.6	14.8	-	60.8	36.2	BDL	11.9	-
21	15 - 16-02-2023	71.3	41.2	12.2	13.1	-	65.9	36.4	8.7	14.8	-	47.9	26.0	7.7	9.7	-
22	18 - 19-02-2023	69.9	38.7	12.7	17.8	-	67.0	35.9	11.4	13.9	-	57.7	34.2	BDL	11.0	-
23	22 - 23-02-2023	72.4	39.2	12.2	13.5	-	62.4	34.2	7.4	14.0	-	49.2	27.5	BDL	10.1	-
24	25 - 26-02-2023	65.7	37.9	13.5	16.5	-	55.7	34.2	11.4	14.0	-	48.7	28.3	6.3	11.8	-
	Minimum	65.3	35.5	12.0	12.7	-	55.7	30.5	7.1	9.9	-	47.9	26.0	BDL	9.3	-
	Maximum	78.5	46.4	16.4	22.5	-	68.2	38.6	11.4	15.0	-	60.8	36.2	8.1	12.3	-
	Average	72.3	41.0	13.9	18.2	-	62.3	35.3	9.2	12.7	-	54.2	31.0	BDL	10.9	-
	98 percentile	78.4	45.8	16.4	22.5	-	68.0	38.5	11.4	14.9	-	60.2	35.8	7.9	12.3	-

Note: BDL of NH₃ <20 µg/m³ and SO₂ <4 µg/m³

BDL: Below Detection Limit

RDDal
Authorized Signatory

Seal of Laboratory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

ANNEXURE : VI Contd..

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Report no. - CEMC/MMRDL/060323/A2

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINDAL STEEL & POWER LTD., ANGUL, ODISHA

Sampling by

: CEMC'S Representative

Sample Description

: Air

Sampling duration

: 01.12.2022 to 28.02.2023

Sl. No.	Location →		Raijharah Village					Malibandha Village					Near JSPL Town Gate				
	Date of sampling ↓		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³
1	2	- 03-12-2022	63.8	35.0	7.3	10.3	-	70.4	40.9	10.5	10.7	-	74.8	41.8	13.3	24.1	-
2	5	- 06-12-2022	59.4	35.1	7.3	16.6	-	75.1	42.5	11.1	17.0	-	71.2	41.0	12.3	24.1	-
3	10	- 11-12-2022	60.9	33.7	10.6	11.8	-	67.0	36.9	10.6	14.2	-	80.1	47.7	14.3	20.5	-
4	13	- 14-12-2022	69.3	40.5	10.8	11.0	-	64.1	35.4	12.1	14.6	-	78.1	47.5	17.4	22.2	-
5	17	- 18-12-2022	66.4	37.9	9.6	13.4	-	70.4	39.9	10.0	17.8	-	75.0	43.3	16.9	22.9	-
6	20	- 21-12-2022	67.2	39.3	9.3	13.1	-	67.8	37.1	9.8	15.8	-	76.3	44.3	15.1	21.3	-
7	25	- 26-12-2022	65.1	36.7	11.3	12.2	-	74.1	43.8	11.1	11.5	-	80.6	47.7	16.1	17.8	-
8	28	- 29-12-2022	60.3	36.4	11.1	12.6	-	75.2	42.1	11.1	13.1	-	73.6	44.2	15.1	14.6	-
9	2	- 03-01-2023	59.7	32.5	9.3	15.2	-	68.3	39.3	10.3	18.6	-	73.2	44.2	15.7	17.3	-
10	5	- 06-01-2023	61.0	35.1	10.8	16.1	-	62.5	35.1	10.3	16.5	-	70.6	43.3	14.9	23.7	-
11	10	- 11-01-2023	68.0	37.9	8.1	14.8	BDL	71.9	39.7	9.8	11.0	BDL	77.8	47.0	18.6	20.7	BDL
12	13	- 14-01-2023	62.6	33.5	8.1	12.3	BDL	65.5	37.0	11.2	13.5	BDL	81.0	48.0	18.1	20.3	BDL
13	17	- 18-01-2023	68.2	39.2	8.3	14.8	-	63.2	34.6	9.8	12.3	-	80.7	46.2	14.5	19.9	-
14	20	- 21-01-2023	60.6	33.3	10.3	13.1	-	72.5	41.9	10.1	16.1	-	70.9	42.8	13.2	21.1	-
15	25	- 26-01-2023	65.0	35.6	10.8	16.5	-	68.1	40.3	11.5	17.3	-	76.8	43.3	14.9	19.0	-
16	28	- 29-01-2023	63.9	35.4	10.5	13.5	-	66.0	35.4	11.0	18.6	-	80.1	45.0	18.4	23.7	-
17	2	- 03-02-2023	62.8	35.6	7.4	11.0	-	71.8	41.3	11.4	15.6	-	76.7	44.3	18.3	22.0	-
18	5	- 06-02-2023	65.1	36.2	9.5	10.1	-	70.9	38.9	9.8	12.7	-	82.2	47.1	16.9	24.5	-
19	9	- 10-02-2023	66.7	40.9	9.8	14.8	-	71.5	39.2	11.6	13.5	-	78.6	44.3	14.8	15.6	-
20	12	- 13-02-2023	68.7	37.8	10.0	17.3	-	69.1	37.2	11.6	14.0	-	81.0	45.8	16.9	23.3	-
21	16	- 17-02-2023	68.7	37.5	10.6	15.6	-	65.3	36.7	11.6	12.3	-	78.1	47.1	18.5	23.7	-
22	19	- 20-02-2023	65.9	37.5	9.8	10.6	-	68.9	40.4	10.3	16.9	-	74.4	43.3	18.2	24.9	-
23	23	- 24-02-2023	58.5	34.1	10.8	12.2	-	68.0	38.0	11.4	16.5	-	79.0	45.5	16.1	22.0	-
24	26	- 27-02-2023	61.2	32.6	9.2	15.6	-	71.3	39.6	10.6	15.7	-	80.1	44.8	18.2	16.9	-
Minimum			58.5	32.5	7.3	10.1	-	62.5	34.6	9.8	10.7	-	70.6	41.0	12.3	14.6	-
Maximum			69.3	40.9	11.3	17.3	-	75.2	43.8	12.1	18.6	-	82.2	48.0	18.6	24.9	-
Average			64.1	36.2	9.6	13.5	-	69.1	38.9	10.8	14.8	-	77.1	45.0	16.1	21.1	-
98 percentile			69.0	40.7	11.2	17.0	-	75.2	43.2	11.9	18.6	-	81.6	47.9	18.5	24.7	-

Note: BDL of NH₃ <20 µg/m³ and SO₂ <4 µg/m³

BDL: Below Detection Limit


Authorized Signatory

Seal of Laboratory



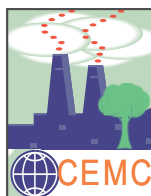
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ANNEXURE : VI Contd..

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Report no. - CEMC/MMRDL/060323/A3

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINDAL STEEL & POWER LTD., ANGUL, ODISHA

Sampling by

: CEMC'S Representative

Sample Description

: Air

Sampling duration

: 01.12.2022 to 28.02.2023

Sl. No.	Location → Date of sampling↓	Barodia Village					Nisha Village				
		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³
1	3 - 04-12-2022	63.0	37.2	13.1	13.9	-	69.2	39.6	7.8	15.0	-
2	6 - 07-12-2022	68.8	39.7	11.8	18.2	-	73.7	42.1	9.0	17.8	-
3	11 - 12-12-2022	71.1	39.2	12.3	15.4	-	66.2	38.4	8.3	17.0	-
4	14 - 15-12-2022	63.3	37.2	12.1	13.0	-	64.9	37.1	11.8	15.4	-
5	18 - 19-12-2022	69.4	38.8	11.8	15.8	-	70.4	40.1	8.8	16.2	-
6	21 - 22-12-2022	61.1	34.2	13.3	19.0	-	68.7	41.6	11.6	12.7	-
7	26 - 27-12-2022	66.3	36.3	12.8	19.0	-	77.1	44.3	8.3	16.2	-
8	29 - 30-12-2022	66.0	36.2	11.8	18.2	-	70.3	41.2	7.0	16.2	-
9	3 - 04-01-2023	67.6	37.6	13.0	18.2	-	75.2	45.7	8.8	15.6	-
10	6 - 07-01-2023	70.7	40.6	10.8	19.1	-	67.3	38.0	7.8	15.6	-
11	11 - 12-01-2023	71.9	40.2	13.2	19.0	BDL	66.0	38.9	9.3	13.1	BDL
12	14 - 15-01-2023	64.6	37.0	12.5	12.7	BDL	64.5	34.6	7.8	12.7	BDL
13	18 - 19-01-2023	70.0	39.5	12.7	20.3	-	76.4	44.2	12.0	13.1	-
14	21 - 22-01-2023	72.5	38.7	12.0	13.1	-	70.8	38.9	7.6	13.1	-
15	26 - 27-01-2023	72.5	38.4	13.2	19.9	-	72.0	41.6	7.3	18.6	-
16	29 - 30-01-2023	61.5	36.3	11.7	19.9	-	67.2	35.9	11.8	14.4	-
17	3 - 04-02-2023	69.2	40.2	13.2	19.0	-	63.8	35.9	8.7	16.1	-
18	6 - 07-02-2023	60.6	35.9	11.6	18.6	-	68.7	38.0	7.9	18.2	-
19	10 - 11-02-2023	64.1	37.4	11.1	12.7	-	71.2	40.3	7.1	14.4	-
20	13 - 14-02-2023	63.5	35.8	12.4	18.2	-	63.4	36.4	7.1	13.1	-
21	17 - 18-02-2023	71.4	42.4	11.3	11.4	-	76.5	41.4	6.9	17.3	-
22	20 - 21-02-2023	67.8	40.5	13.2	19.0	-	74.6	43.2	7.4	17.4	-
23	24 - 25-02-2023	67.5	39.1	11.1	15.2	-	73.7	43.1	11.1	19.1	-
24	27 - 28-02-2023	70.5	39.8	13.2	14.8	-	69.7	38.7	9.3	16.5	-
Minimum		60.6	34.2	10.8	11.4	-	63.4	34.6	6.9	12.7	-
Maximum		72.5	42.4	13.3	20.3	-	77.1	45.7	12.0	19.1	-
Average		67.3	38.3	12.3	16.8	-	70.1	40.0	8.8	15.6	-
98 percentile		72.5	41.6	13.3	20.1	-	76.8	45.1	11.9	18.8	-

Note: BDL of NH₃ <20 µg/m³ and SO₂ <4 µg/m³

BDL: Below Detection Limit

B.P.Dal
Authorized Signatory

Seal of Laboratory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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Report no. - CEMC/MMRD/060323/A4

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINDAL STEEL & POWER LTD., ANGUL, ODISHA

Sampling by

: CEMC'S Representative

Sample Description

: Air

Sampling duration

: 01.12.2022 to 28.02.2023

Sl. No.	Location →	Core Zone (R&R Colony)	Near Sana Mahitala Village	Hariatala Village
	Date of sampling ↓	CO (mg/m ³)	CO (mg/m ³)	CO (mg/m ³)
1	01 - 02-12-2022	0.687	0.354	0.138
2	04 - 05-12-2022	0.501	0.259	0.171
3	09 - 10-12-2022	0.506	0.294	0.283
4	12 - 13-12-2022	0.575	0.398	0.171
5	16 - 17-12-2022	0.517	0.284	0.297
6	19 - 20-12-2022	0.602	0.374	0.138
7	24 - 25-12-2022	0.538	0.289	0.138
8	27 - 28-12-2022	0.522	0.229	0.283
9	01 - 02-01-2023	0.480	0.408	0.129
10	04 - 05-01-2023	0.565	0.384	0.208
11	09 - 10-01-2023	0.666	0.234	0.283
12	12 - 13-01-2023	0.512	0.423	0.255
13	16 - 17-01-2023	0.522	0.398	0.119
14	19 - 20-01-2023	0.586	0.234	0.311
15	24 - 25-01-2023	0.522	0.403	0.115
16	27 - 28-01-2023	0.464	0.393	0.316
17	01 - 02-02-2023	0.634	0.458	0.171
18	04 - 05-02-2023	0.559	0.408	0.250
19	08 - 09-02-2023	0.575	0.274	0.283
20	11 - 12-02-2023	0.528	0.299	0.255
21	15 - 16-02-2023	0.506	0.408	0.339
22	18 - 19-02-2023	0.458	0.403	0.115
23	22 - 23-02-2023	0.639	0.239	0.288
24	25 - 26-02-2023	0.591	0.408	0.344
	Minimum	0.458	0.229	0.115
	Maximum	0.687	0.458	0.344
	Average	0.552	0.344	0.225
	98 percentile	0.677	0.442	0.342

R.P.Dal
Authorized Signatory

Seal of Laboratory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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Report no. - CEMC/MMRDL/060323/A5

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINDAL STEEL & POWER LTD., ANGUL, ODISHA

Sampling by

: CEMC'S Representative

Sample Description

: Air

Sampling duration

: 01.12.2022 to 28.02.2023

Sl. No.	Location →	Raijharah Village	Malibandha Village	Near JSPL Town Gate
	Date of sampling ↓	CO (mg/m ³)	CO (mg/m ³)	CO (mg/m ³)
1	02 - 03-12-2022	0.300	0.459	0.541
2	05 - 06-12-2022	0.417	0.441	0.536
3	10 - 11-12-2022	0.458	0.500	0.724
4	13 - 14-12-2022	0.241	0.401	0.591
5	17 - 18-12-2022	0.441	0.468	0.48
6	20 - 21-12-2022	0.388	0.432	0.663
7	25 - 26-12-2022	0.452	0.410	0.558
8	28 - 29-12-2022	0.446	0.468	0.503
9	02 - 03-01-2023	0.329	0.504	0.508
10	05 - 06-01-2023	0.429	0.450	0.519
11	10 - 11-01-2023	0.376	0.437	0.719
12	13 - 14-01-2023	0.452	0.468	0.536
13	17 - 18-01-2023	0.352	0.482	0.802
14	20 - 21-01-2023	0.435	0.405	0.525
15	25 - 26-01-2023	0.364	0.468	0.541
16	28 - 29-01-2023	0.452	0.414	0.785
17	02 - 03-02-2023	0.229	0.437	0.636
18	05 - 06-02-2023	0.358	0.428	0.558
19	09 - 10-02-2023	0.417	0.473	0.503
20	12 - 13-02-2023	0.358	0.468	0.625
21	16 - 17-02-2023	0.347	0.441	0.519
22	19 - 20-02-2023	0.370	0.446	0.458
23	23 - 24-02-2023	0.229	0.468	0.796
24	26 - 27-02-2023	0.247	0.414	0.686
Minimum		0.229	0.401	0.458
Maximum		0.458	0.504	0.802
Average		0.370	0.449	0.596
98 percentile		0.455	0.502	0.799

BPDAL
Authorized Signatory

Seal of Laboratory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

E-mail: cemclab@yahoo.in



CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

An ISO 9001-2015 & OHSAS 45001:2018 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha
Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) & CWLW, Odisha
Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Report no. - CEMC/MMRDL/060323/A6

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINDAL STEEL & POWER LTD., ANGUL, ODISHA

Sampling by

: CEMC'S Representative

Sample Description

: Air

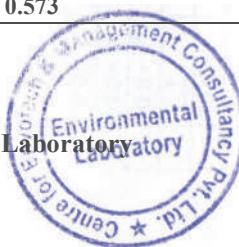
Sampling duration

: 01.12.2022 to 28.02.2023

Sl. No.	Location →	Barodia Village	Nisha Village
	Date of sampling ↓	CO (mg/m ³)	CO (mg/m ³)
1	03 - 04-12-2022	0.493	0.394
2	06 - 07-12-2022	0.463	0.387
3	11 - 12-12-2022	0.533	0.377
4	14 - 15-12-2022	0.511	0.453
5	18 - 19-12-2022	0.529	0.449
6	21 - 22-12-2022	0.560	0.348
7	26 - 27-12-2022	0.493	0.360
8	29 - 30-12-2022	0.493	0.444
9	03 - 04-01-2023	0.516	0.370
10	06 - 07-01-2023	0.538	0.432
11	11 - 12-01-2023	0.524	0.377
12	14 - 15-01-2023	0.480	0.344
13	18 - 19-01-2023	0.511	0.372
14	21 - 22-01-2023	0.573	0.458
15	26 - 27-01-2023	0.498	0.375
16	29 - 30-01-2023	0.568	0.406
17	03 - 04-02-2023	0.511	0.456
18	06 - 07-02-2023	0.546	0.382
19	10 - 11-02-2023	0.573	0.396
20	13 - 14-02-2023	0.458	0.379
21	17 - 18-02-2023	0.542	0.372
22	20 - 21-02-2023	0.555	0.372
23	24 - 25-02-2023	0.520	0.453
24	27 - 28-02-2023	0.573	0.387
Minimum		0.458	0.344
Maximum		0.573	0.458
Average		0.523	0.398
98 percentile		0.573	0.457


Authorized Signatory

Seal of Laboratory



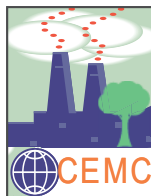
Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

E-mail: cemclab@yahoo.in



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Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
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Report no. - CEMC/MMRDL/060323/A7

Issued Date-06.03.2023

AIR QUALITY TEST REPORT

Name & Address of the Client

: M/s. JINI

LTD., ANGUL, ODISHA

Sampling by

: CEMC'S

Sample Description

: Air

Sampling duration

: 01.12.2022 to 28.02.2023

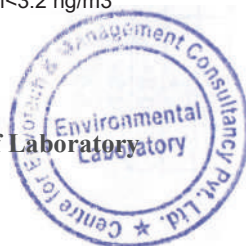
Location	Date of Sampling	Pb ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	Ni (ng/m^3)	BaP (ng/m^3)	C ₆ H ₆ ($\mu\text{g}/\text{m}^3$)
Core Zone (R&R Colony)	16-17/01/2023	BDL	BDL	BDL	N.D	N.D
	19-20/01/2023	BDL	BDL	BDL	N.D	N.D
Near Sana Mahitala Village	16-17/01/2023	BDL	BDL	BDL	N.D	N.D
	19-20/01/2023	BDL	BDL	BDL	N.D	N.D
Hariatala Village	16-17/01/2023	BDL	BDL	BDL	N.D	N.D
	19-20/01/2023	BDL	BDL	BDL	N.D	N.D
Raijharah Village	17-18/01/2023	BDL	BDL	BDL	N.D	N.D
	20-21/01/2023	BDL	BDL	BDL	N.D	N.D
Malibandha Village	17-18/01/2023	BDL	BDL	BDL	N.D	N.D
	20-21/01/2023	BDL	BDL	BDL	N.D	N.D
Near JSPL Town Gate	17-18/01/2023	BDL	BDL	BDL	N.D	N.D
	20-21/01/2023	BDL	BDL	BDL	N.D	N.D
Barodia Village	06-07/02/2023	BDL	BDL	BDL	N.D	N.D
	10-11/02/2023	BDL	BDL	BDL	N.D	N.D
Nisha Village	06-07/02/2023	BDL	BDL	BDL	N.D	N.D
	10-11/02/2023	BDL	BDL	BDL	N.D	N.D

Note: BDL of Pb<0.01 $\mu\text{g}/\text{m}^3$; As<0.1 ng/m^3 ; Ni<3.2 ng/m^3

N.D: Not detected * BDL: Below Detection Limit

B.P.Das
Authorized Signatory

Seal of Laboratory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842
E-mail: cemclab@yahoo.in



CENTRAL POLLUTION CONTROL BOARD
CONTINUOUS AMBIENT AIR QUALITY

Annexure R2/7

Date: Wednesday, Feb 14 2024

Time: 12:14:35 PM

Station: Talcher Coalfields, Talcher - OSPCB
State: Odisha
City: Talcher
Parameter: Benzene
Average Period: 24 Hours
From: 01-10-2022T00:00:00Z 00:00
To: 31-12-2022T12:17:59Z 00:00

Prescribed Standards		0-5
Exceeding Standards		NA
Remarks		
From Date	To Date	Benzene (ug/m3)
01-10-2022 00:00	02-10-2022 00:00	0.0
02-10-2022 00:00	03-10-2022 00:00	0.0
03-10-2022 00:00	04-10-2022 00:00	0.0
04-10-2022 00:00	05-10-2022 00:00	0.0
05-10-2022 00:00	06-10-2022 00:00	0.0
06-10-2022 00:00	07-10-2022 00:00	0.0
07-10-2022 00:00	08-10-2022 00:00	0.0
08-10-2022 00:00	09-10-2022 00:00	0.0
09-10-2022 00:00	10-10-2022 00:00	0.0
10-10-2022 00:00	11-10-2022 00:00	0.0
11-10-2022 00:00	12-10-2022 00:00	0.0
12-10-2022 00:00	13-10-2022 00:00	0.0
13-10-2022 00:00	14-10-2022 00:00	0.0
14-10-2022 00:00	15-10-2022 00:00	0.0
15-10-2022 00:00	16-10-2022 00:00	0.0
16-10-2022 00:00	17-10-2022 00:00	0.0
17-10-2022 00:00	18-10-2022 00:00	0.0
18-10-2022 00:00	19-10-2022 00:00	0.0
19-10-2022 00:00	20-10-2022 00:00	0.01



CENTRAL POLLUTION CONTROL BOARD

CONTINUOUS AMBIENT AIR QUALITY

790

Date: Wednesday, Feb 14 2024

Time: 12:14:35 PM

20-10-2022 00:00	21-10-2022 00:00	0.0
21-10-2022 00:00	22-10-2022 00:00	0.0
22-10-2022 00:00	23-10-2022 00:00	0.0
23-10-2022 00:00	24-10-2022 00:00	0.0
24-10-2022 00:00	25-10-2022 00:00	0.0
25-10-2022 00:00	26-10-2022 00:00	0.0
26-10-2022 00:00	27-10-2022 00:00	0.0
27-10-2022 00:00	28-10-2022 00:00	0.0
28-10-2022 00:00	29-10-2022 00:00	0.0
29-10-2022 00:00	30-10-2022 00:00	0.07
30-10-2022 00:00	31-10-2022 00:00	0.0
31-10-2022 00:00	01-11-2022 00:00	0.0
01-11-2022 00:00	02-11-2022 00:00	0.0
02-11-2022 00:00	03-11-2022 00:00	0.0
03-11-2022 00:00	04-11-2022 00:00	0.0
04-11-2022 00:00	05-11-2022 00:00	0.0
05-11-2022 00:00	06-11-2022 00:00	0.0
06-11-2022 00:00	07-11-2022 00:00	0.0
07-11-2022 00:00	08-11-2022 00:00	0.0
08-11-2022 00:00	09-11-2022 00:00	0.0
09-11-2022 00:00	10-11-2022 00:00	0.0
10-11-2022 00:00	11-11-2022 00:00	0.0
11-11-2022 00:00	12-11-2022 00:00	0.0
12-11-2022 00:00	13-11-2022 00:00	0.0
13-11-2022 00:00	14-11-2022 00:00	0.0
14-11-2022 00:00	15-11-2022 00:00	0.09
15-11-2022 00:00	16-11-2022 00:00	0.34
16-11-2022 00:00	17-11-2022 00:00	0.0
17-11-2022 00:00	18-11-2022 00:00	0.04



CENTRAL POLLUTION CONTROL BOARD

CONTINUOUS AMBIENT AIR QUALITY

791

Date: Wednesday, Feb 14 2024

Time: 12:14:35 PM

18-11-2022 00:00	19-11-2022 00:00	0.15
19-11-2022 00:00	20-11-2022 00:00	0.7
20-11-2022 00:00	21-11-2022 00:00	0.26
21-11-2022 00:00	22-11-2022 00:00	0.0
22-11-2022 00:00	23-11-2022 00:00	0.0
23-11-2022 00:00	24-11-2022 00:00	0.0
24-11-2022 00:00	25-11-2022 00:00	0.0
25-11-2022 00:00	26-11-2022 00:00	0.03
26-11-2022 00:00	27-11-2022 00:00	0.33
27-11-2022 00:00	28-11-2022 00:00	0.37
28-11-2022 00:00	29-11-2022 00:00	0.0
29-11-2022 00:00	30-11-2022 00:00	0.0
30-11-2022 00:00	01-12-2022 00:00	0.0
01-12-2022 00:00	02-12-2022 00:00	0.0
02-12-2022 00:00	03-12-2022 00:00	0.0
03-12-2022 00:00	04-12-2022 00:00	0.0
04-12-2022 00:00	05-12-2022 00:00	0.0
05-12-2022 00:00	06-12-2022 00:00	0.0
06-12-2022 00:00	07-12-2022 00:00	0.14
07-12-2022 00:00	08-12-2022 00:00	0.3
08-12-2022 00:00	09-12-2022 00:00	0.38
09-12-2022 00:00	10-12-2022 00:00	0.2
10-12-2022 00:00	11-12-2022 00:00	0.44
11-12-2022 00:00	12-12-2022 00:00	0.11
12-12-2022 00:00	13-12-2022 00:00	0.07
13-12-2022 00:00	14-12-2022 00:00	0.04
14-12-2022 00:00	15-12-2022 00:00	0.11
15-12-2022 00:00	16-12-2022 00:00	0.15
16-12-2022 00:00	17-12-2022 00:00	0.4



CENTRAL POLLUTION CONTROL BOARD
CONTINUOUS AMBIENT AIR QUALITY

Date: Wednesday, Feb 14 2024

Time: 12:14:35 PM

17-12-2022 00:00	18-12-2022 00:00	0.34
18-12-2022 00:00	19-12-2022 00:00	0.15
19-12-2022 00:00	20-12-2022 00:00	0.11
20-12-2022 00:00	21-12-2022 00:00	0.18
21-12-2022 00:00	22-12-2022 00:00	0.23
22-12-2022 00:00	23-12-2022 00:00	0.21
23-12-2022 00:00	24-12-2022 00:00	0.39
24-12-2022 00:00	25-12-2022 00:00	0.37
25-12-2022 00:00	26-12-2022 00:00	0.54
26-12-2022 00:00	27-12-2022 00:00	0.3
27-12-2022 00:00	28-12-2022 00:00	0.39
28-12-2022 00:00	29-12-2022 00:00	0.07
29-12-2022 00:00	30-12-2022 00:00	0.12
30-12-2022 00:00	31-12-2022 00:00	0.3
31-12-2022 00:00	31-12-2022 12:17	0.17



CENTRAL POLLUTION CONTROL BOARD

CONTINUOUS AMBIENT AIR QUALITY

793

Date: Wednesday, Feb 14 2024

Time: 12:19:20 PM

Station: Hakimapada, Angul - OSPCB
State: Odisha
City: Angul
Parameter: Benzene
Average Period: 24 Hours
From: 01-10-2022T00:00:00Z 00:00
To: 31-12-2022T12:22:59Z 00:00

Prescribed Standards		0-5
Exceeding Standards		NA
Remarks		
From Date	To Date	Benzene (ug/m3)
01-10-2022 00:00	02-10-2022 00:00	None
02-10-2022 00:00	03-10-2022 00:00	None
03-10-2022 00:00	04-10-2022 00:00	None
04-10-2022 00:00	05-10-2022 00:00	None
05-10-2022 00:00	06-10-2022 00:00	None
06-10-2022 00:00	07-10-2022 00:00	None
07-10-2022 00:00	08-10-2022 00:00	None
08-10-2022 00:00	09-10-2022 00:00	None
09-10-2022 00:00	10-10-2022 00:00	None
10-10-2022 00:00	11-10-2022 00:00	None
11-10-2022 00:00	12-10-2022 00:00	None
12-10-2022 00:00	13-10-2022 00:00	None
13-10-2022 00:00	14-10-2022 00:00	None
14-10-2022 00:00	15-10-2022 00:00	None
15-10-2022 00:00	16-10-2022 00:00	None
16-10-2022 00:00	17-10-2022 00:00	None
17-10-2022 00:00	18-10-2022 00:00	None
18-10-2022 00:00	19-10-2022 00:00	None
19-10-2022 00:00	20-10-2022 00:00	None



CENTRAL POLLUTION CONTROL BOARD

CONTINUOUS AMBIENT AIR QUALITY

794

Date: Wednesday, Feb 14 2024

Time: 12:19:20 PM

20-10-2022 00:00	21-10-2022 00:00	None
21-10-2022 00:00	22-10-2022 00:00	None
22-10-2022 00:00	23-10-2022 00:00	None
23-10-2022 00:00	24-10-2022 00:00	None
24-10-2022 00:00	25-10-2022 00:00	None
25-10-2022 00:00	26-10-2022 00:00	None
26-10-2022 00:00	27-10-2022 00:00	None
27-10-2022 00:00	28-10-2022 00:00	None
28-10-2022 00:00	29-10-2022 00:00	None
29-10-2022 00:00	30-10-2022 00:00	None
30-10-2022 00:00	31-10-2022 00:00	None
31-10-2022 00:00	01-11-2022 00:00	None
01-11-2022 00:00	02-11-2022 00:00	None
02-11-2022 00:00	03-11-2022 00:00	None
03-11-2022 00:00	04-11-2022 00:00	None
04-11-2022 00:00	05-11-2022 00:00	None
05-11-2022 00:00	06-11-2022 00:00	None
06-11-2022 00:00	07-11-2022 00:00	None
07-11-2022 00:00	08-11-2022 00:00	None
08-11-2022 00:00	09-11-2022 00:00	None
09-11-2022 00:00	10-11-2022 00:00	None
10-11-2022 00:00	11-11-2022 00:00	None
11-11-2022 00:00	12-11-2022 00:00	None
12-11-2022 00:00	13-11-2022 00:00	None
13-11-2022 00:00	14-11-2022 00:00	None
14-11-2022 00:00	15-11-2022 00:00	None
15-11-2022 00:00	16-11-2022 00:00	None
16-11-2022 00:00	17-11-2022 00:00	None
17-11-2022 00:00	18-11-2022 00:00	None



CENTRAL POLLUTION CONTROL BOARD
CONTINUOUS AMBIENT AIR QUALITY

Date: Wednesday, Feb 14 2024

Time: 12:19:20 PM

18-11-2022 00:00	19-11-2022 00:00	None
19-11-2022 00:00	20-11-2022 00:00	None
20-11-2022 00:00	21-11-2022 00:00	None
21-11-2022 00:00	22-11-2022 00:00	None
22-11-2022 00:00	23-11-2022 00:00	None
23-11-2022 00:00	24-11-2022 00:00	None
24-11-2022 00:00	25-11-2022 00:00	None
25-11-2022 00:00	26-11-2022 00:00	None
26-11-2022 00:00	27-11-2022 00:00	None
27-11-2022 00:00	28-11-2022 00:00	None
28-11-2022 00:00	29-11-2022 00:00	None
29-11-2022 00:00	30-11-2022 00:00	None
30-11-2022 00:00	01-12-2022 00:00	None
01-12-2022 00:00	02-12-2022 00:00	None
02-12-2022 00:00	03-12-2022 00:00	None
03-12-2022 00:00	04-12-2022 00:00	None
04-12-2022 00:00	05-12-2022 00:00	None
05-12-2022 00:00	06-12-2022 00:00	None
06-12-2022 00:00	07-12-2022 00:00	None
07-12-2022 00:00	08-12-2022 00:00	None
08-12-2022 00:00	09-12-2022 00:00	None
09-12-2022 00:00	10-12-2022 00:00	None
10-12-2022 00:00	11-12-2022 00:00	None
11-12-2022 00:00	12-12-2022 00:00	None
12-12-2022 00:00	13-12-2022 00:00	None
13-12-2022 00:00	14-12-2022 00:00	None
14-12-2022 00:00	15-12-2022 00:00	None
15-12-2022 00:00	16-12-2022 00:00	None
16-12-2022 00:00	17-12-2022 00:00	None



CENTRAL POLLUTION CONTROL BOARD
CONTINUOUS AMBIENT AIR QUALITY

Date: Wednesday, Feb 14 2024

Time: 12:19:20 PM

17-12-2022 00:00	18-12-2022 00:00	None
18-12-2022 00:00	19-12-2022 00:00	None
19-12-2022 00:00	20-12-2022 00:00	None
20-12-2022 00:00	21-12-2022 00:00	None
21-12-2022 00:00	22-12-2022 00:00	None
22-12-2022 00:00	23-12-2022 00:00	None
23-12-2022 00:00	24-12-2022 00:00	None
24-12-2022 00:00	25-12-2022 00:00	None
25-12-2022 00:00	26-12-2022 00:00	None
26-12-2022 00:00	27-12-2022 00:00	None
27-12-2022 00:00	28-12-2022 00:00	None
28-12-2022 00:00	29-12-2022 00:00	None
29-12-2022 00:00	30-12-2022 00:00	None
30-12-2022 00:00	31-12-2022 00:00	None
31-12-2022 00:00	31-12-2022 12:22	None

VARDAN ENVIROLAB LLP, MANESAR HARYANA

QUALITY PROCEDURE MANUAL (VEL/QPM/02)

Procedure No. VEL/QSP/7.4/01

Procedure for the "Transportation, Receipt, Handling, Protection, Storage, Retention and / or Disposal of Test Items"**7.4.1 Scope:**

This procedure is applicable to all test item received for analysis from internal as well as external customers and also internal movement of the test item within the laboratory for analysis.

7.4.2 Responsibility & Authority:

Technical Manager, In-Charge Customer Support

7.4.3 Reference:

ISO/ IEC 17025:2017 Clause No.7.4
APHA 23rd Edition

7.4.4 Procedure:

7.4.4.1 The samples from the sampling team or customer or through courier or post are received at the sample receipt section by the authorized person in the Sample Booking Section.

7.4.4.2 Vardan EnviroLab (VEL) LLP has arrangement to store the sample at the desirable environmental conditions. Such type of samples are stored or conditioned before the start of the sample. The integrity of the sample is protected by marking it properly and by providing proper code number to it.

7.4.4.3 Laboratory has procedure to identify the sample or test items. The system remains the same throughout the life of the product or test item in the laboratory. Samples received by the sample booking section are coded; the code number for samples remains the same as long as the sample related queries are made. The coding of the sample or test items is done as follows.

Company Name / Sample Group Code / Year Month Date Sr. No.

For Example: VEL/W/2212151001

Sample Group as per present testing activities is as mentioned below.

Product	Group/ Sub-group	Sample Group Code
Pollution & Environment	Bioassay, MSW, Soil/ Sediments, Used/Waste Oil, Wastes	EP
	Waste Water	WW
Water/ Residues in Water	Drinking Water, Packaged Drinking Water, Packaged Drinking Water, Industrial Water, Construction Water	W
	Surface Water	SW

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Atmospheric Pollution	Ambient air, Fugitive emission, Work Environment and Indoor Air Quality	A
	Ambient Noise, Source Noise	N
	Meteorological Parameters, Stack emission, Others	AP
Ores & Minerals	Limestone & Dolomite	OM
Solid Fuels	Coal	SF
Nutraceuticals & Functional Foods	Nutraceuticals & Functional Foods	FA
Food & Agricultural Products		
Residues in Food Products		
Drugs & Pharmaceuticals	Drugs & Pharmaceuticals	DR/DF
Cosmetics & Essential Oils	Cosmetics & Essential Oils	CE
AYUSH	AYUSH Products	AY
Animal Food & Feeds	Animal Food & Feeds	AF

Sample no. and report no. is different

The sample /material are identified by the group / category of the product.

7.4.4.4 Upon receipt of samples the authorized person verified, looks into any deviations or suitability of the item for test as relevant to the sample as below:

- Name of the customer/ party
- Postal address
- Telephone No.
- Contact person
- Sample description
- Condition of the Sample
- Sample seal is intact
- Tests required

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- The test method or test protocol provided / specified by the customer is checked
- Quantity of the sample
- The number of parameters to be carried out
- Testing facility is available for the received sample
- Sufficient quantity of sample received for testing
- Storage condition of sample
- Any deterioration due to transportation or handling is properly checked in the sample
- Any loss or damage observed to the sample due to the handling of sample
- Any abnormality in the shape of the sample if for physical analysis is properly checked
- Date of receipt
- Job No./Code No. assigned to the sample

If any of the above is found not satisfying the requirement, the sampling person/customer is immediately informed of the matter either telephonically, through e-mail or personally as possible to contact him. After getting clarification from the customer/sampling person, the sample is allowed for the processing of the coding.

When the customer requires the item to be tested acknowledging a deviation from specified conditions, the laboratory informs the customer that it shall include a disclaimer in the report indicating which results may be affected by the agreed deviation.

7.4.4.5 For unambiguous identification of the sample, the customer support cell gives a unique ID to sample. The sample undergoes booking process & coded as per the above system.

- Name of company (VEL) placed on 1st number, then category code of sample is placed in 2nd number, sample-booking year in two digits in 3rd Number, sample-booking month in two digits in 4th Number, sample-booking date in two digits in 5th Number and sample –booking serial number of the day for that particular group or category is placed at 6th number of the coding system in four digits.

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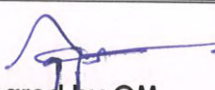
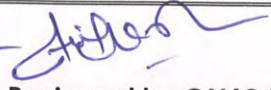

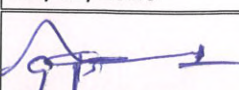
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1 st	2 nd	3 rd	4 th	5 th	6 th
Name of company	Group	Year	Month	Date	Number
VEL	W	22	12	15	1001

- The coding system once given to the particular sample is known by that number till the sample is remaining in the laboratory or for any query of the sample.
- The laboratory personnel in the laboratory know the sample by the sample code identification.
- The customer is not allowed to know the sample code number till the report is dispatched to the customer. In case of any query regarding his sample, he shall be connected to the authorized person (Customer care executive) the dealing person knows the sample by the description of the customer address and contact number. The address and contact number of the customer are kept at the sample booking counter.
- The sample inside analytical section is identified by its code number only. The confidentiality of the customer is maintained by this system.
- Neither the customer knows the sample code nor does the chemist know the customer details because of this coding system.
- Before taking the sample under coding process, the sample is properly checked for its requirements of fitness to accept.

Sample Booking Cell is also maintaining sample receipt checklist (7.4 F-01) to ensure the integrity of the samples. Sample Booking register (7.4 F-07) and Job Allotment Register (7.4 F-05) is maintained by Customer Care Executive. Technical Manager of all section allots samples to the analyst for Testing and maintains the sample receipt and allotment register (7.4 F 04). The coded and allotted samples are sent to the Analyst/microbiologist for testing. Analyst Work Sheet (AWS), 7.4 F-06 including parameters details to be tested. All care is taken during the transit to prevent the samples from any deterioration, damage or loss. The samples forwarded to the lab, are kept in the in appropriate shelves in conditions as given in test methods or requirements given by customer or standards methods of preservation as applicable to samples. Adequate precautions and care is undertaken to safeguard the

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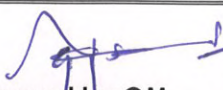
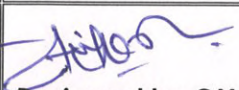
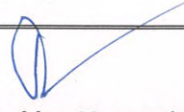

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samples from any damage and deterioration, during storage and testing in the laboratory.

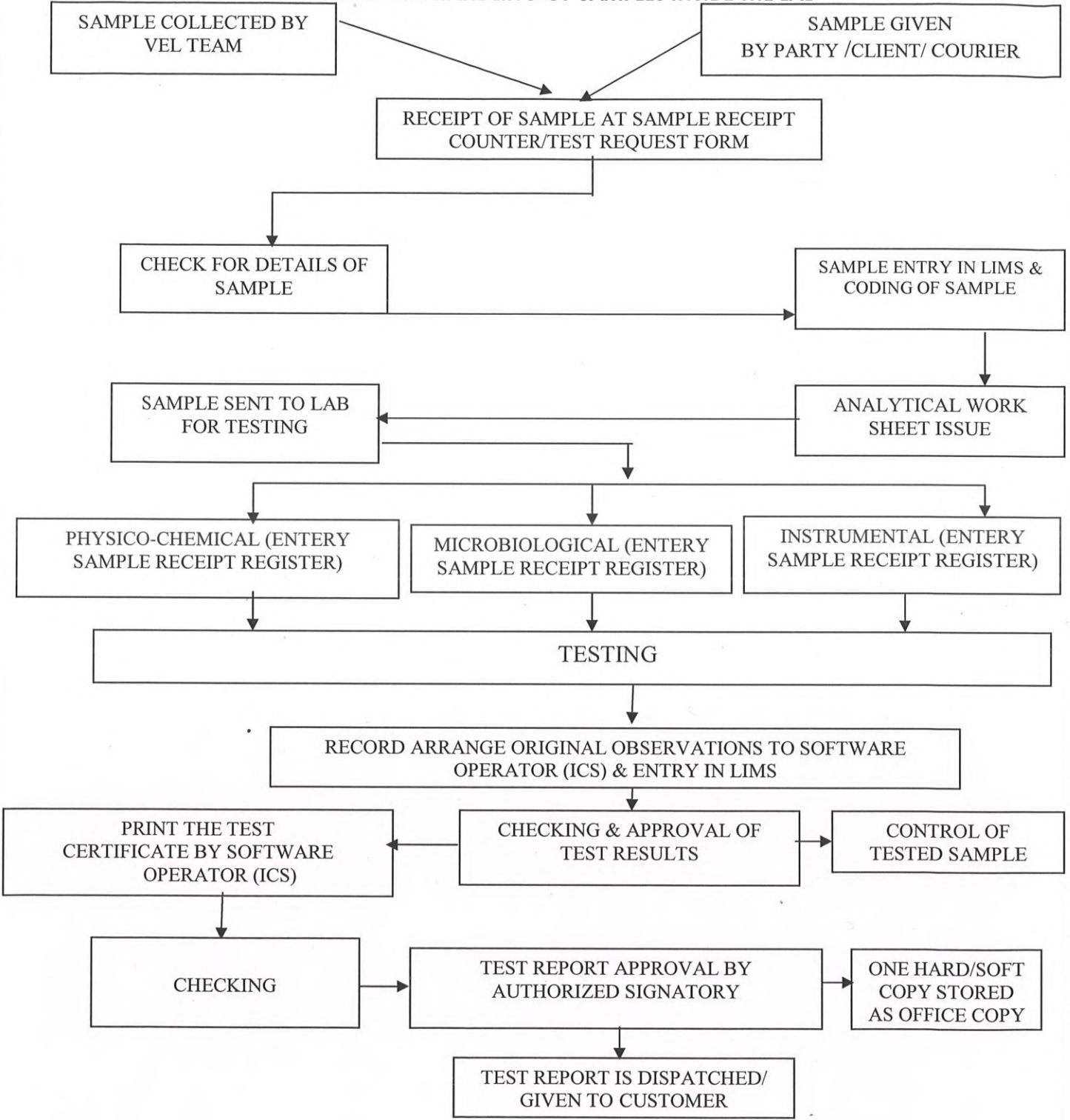
- Perishable samples are sent to the testing laboratory immediately and undertaken for testing.
- Sample requiring refrigeration is preserved in the refrigerator as and when received in the laboratory.
- Samples where microbiological testing other than chemical tests are also required to be carried out, it is desired to have it in separate containers to avoid any external contamination.
- It is advised to procure the samples for microbiological testing in separate sterilized glass bottles supplied by the organization.
- In case of Retesting of microbiological Sample, it is done only on fresh Sample by spiking the sample.
- The samples during the testing period remain in the custody of the concerned analyst. The analyst takes care of the sample during the analysis. After the samples have been tested, stored in the deep freezer till the disposal and building material samples are stored in controlled conditions with custody of Technical Manager.
- Perishable samples are destroyed immediately after issue of test report.
- Non-perishable samples are retained for a period of 30 days from the date of issue of the test report.
- The remaining sample is returned to the customer, if requested by the customer / party at the time of Reporting the sample.
- The samples are disposed-off under the supervision of the Technical Manager and maintains the records of sample disposal (7.4 F-08)

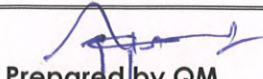
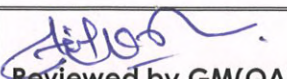
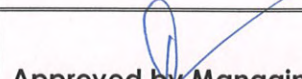
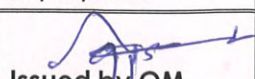
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FLOW CHART FOR HANDLING OF SAMPLES INSIDE THE LAB



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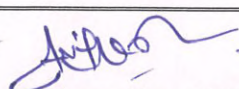

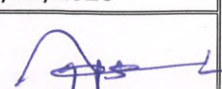
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7.4.4.6 Disposal of Testing items and related accessories

Technical Manager is responsible for Disposal of sample. The testing personnel entrusted with the samples shall retain the remnants after testing for specified period of time period defined by the customer in appropriate environmental conditions as given below-

Type of sample	Retention Time
1. Water sample	one month
2. Waste Water	one month
3. Air & stack (Filter paper, thimbles & containers)	one month
4. Soil	one month
6. Food and Agriculture	one month
5. Animal Food and Feed	one month
6. Nutraceutical and Functional Food	one month
7. Solid Fuels	one month
8. Ores and Minerals	one month
9. Cosmetic and Essential Oils	as per IP/BP
10. AYUSH Products	as per IP/BP
11. Drugs and Pharmaceuticals	as per IP/BP

- After reporting, remnants have been passed on to Technical Manager for storage till the retention time.
- At the time of testing, special care is taken to refrigerate (< 4-degree centigrade temperature) the sample after completing days' work.
- After testing preserves all the critical samples in special cup-board in deep fridge (< 4-degree centigrade temperature) so that no change of sample property takes place.
- Food samples are disposed-off at designated sites of Municipal Solid Waste or authorized vendors.
- Microbiology samples are disposed-off or given to bio medical waste sites or authorized vendors.
- **Disposal of Waste Water and Reagents:**
 - Hazardous chemical reagent like KCN, CNBr, are firstly neutralized by sodium thiosulphate and adjusted to PH 7 by acid or alkali and then disposed.
 - In case of acid, alkali and waste water they are neutralized by trating and then adjusted to PH 7
 - Complex metric salt as EDTA, Ceric ammonium sulphate etc. are oxidized or reduced as required and then adjusted to PH 7 then drained off.
- **Disposal of Microbiological waste:**
 - All used media, culture etc. are sterilized auto clave at 121°C (151b/m²) for 30 minutes.
 - After autoclaving, collect the media in a big vessel and allow cooling and mixing with water.
 - Adjust PH 7.0°C acid / alkali
 - Add any disinfectant solution to the culture tube & petridishes.
 - After autoclaves Bio hazard daily or synergy.

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- **Disposal of Samples**

- Syrups, Oral suspension and capsule are made to slurry with H₂O & adjusted to PH 7 by acid / alkali.
- Ophthalmic solution, Injections, Ophthalmic cream and IV fluid-Open the container and pour in big bucket then adjust PH 7 and then drained off.
- Cosmetics like cream, dye, powder, lotion, shampoo, lipstick all pour in a bucket then adjust PH 7 then drained off.
- Food Samples shall be collected in bags and given to the vendor who collects garbage for dumping.
- Residual Pesticides, antibiotics etc & other hazardous liquid samples are being treated in ETP installed in the premises.

Disposal Procedure for Chemical testing items and accessories

a. Disposal procedure of Water, Waste Water Sample and General Lab Effluents

Water samples and general lab effluents (titrated solutions & solution remaining after colorimetric analysis, laboratory reagents after expiry and lab washing water) are firstly neutralize with the help of lime in case of acidic solutions and use alum in case of alkaline condition, in a container, check the pH of the treated water and then directly disposed with large quantity of water in lab drain. Record of same is maintained in formats.

b. Disposal procedure of Heavy Metal solutions

Metal Solution (Standard solution of Mercury, Arsenic, Selenium, Chromium, nickel, zinc, cadmium,) are stored in open container on roof top for evaporation, after complete evaporation, the metal solid sample is given to scrap purchaser.

c. Disposal procedure of soil and Minerals

Soil and Air filter paper, Thimbles are disposed-off at authorized municipal sites.

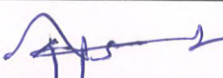
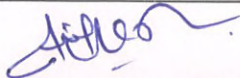


d. Disposal procedure of Broken Glassware, Empty Containers of Chemicals

They are collected in a separate container and kept in isolated place and sold to scrap purchaser

e. Disposal Procedure for Biological testing items and accessories &

Contaminated Glassware

- As safety measure, wear latex gloves and disposable face mask.
- Collect all microbiologically contaminated materials including petri-plates, tubes, lyophilized cultures ampules culture slants / stabs, flasks.
- Put all the material into Autoclavable poly bags, add some disinfectant and put the bags into vertical autoclave.
- Run the vertical autoclave according to SOP for 30 minutes

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- After completion of Autoclaving, the waste is given to an approved authorized vendor for proper disposal and record of same is maintain. The reusable glassware is washed as per procedure for washing of glassware.

f. Disposal procedure for contaminated plastic ware

- Take all the disposable material into autoclavable plastic bag and put all the disposable contaminated material into vertical portable autoclave according to SOP and send all the material to the approved authorized vendor.
- Disposal of contaminated mops and latex gloves
- The contaminated mops/tissue papers and latex gloves are used over the disinfected cultures on surfaces during any spillage are put in poly bags before putting in discard bins and sent all the Material to the approved authorized vendor for disposal.
- Disposal of Biological indicators
- The biological indicators run as positive controls or indicators showing growth after running in sterilization cycles (if any), is discarded after autoclaving along with other discard.

7.4.5 Records:

Sr. No.	Description	Form & Format No.
1.	Sample Receipt Checklist	7.4 F 01
2.	Sample Booking register	7.4 F 07
3.	Sample Allotment Register	7.4 F 05
4.	Sample Receipt Register	7.4 F 04
5.	Job Order Sheet	7.4 F 06
6.	Sample Disposal Record	7.4 F 08

***Technical Record Refer to VEL/QSF/01, 02, 03 & 04**

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